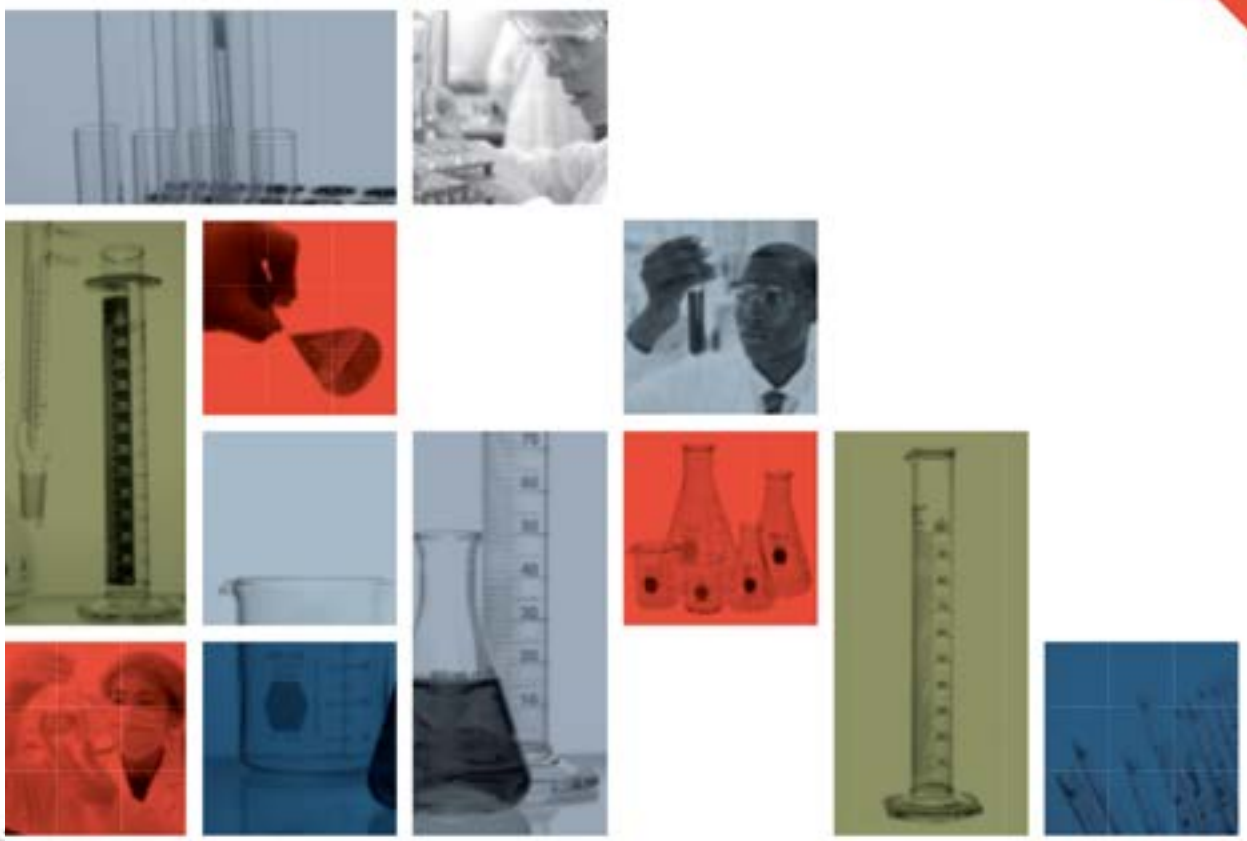
LABORATORY GLASSWARE CATALOG 2015-2017

Kimble
A WORLD OF EXPERTISE IN YOUR HANDS



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ADAPTERS

Kimble®
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Whether converting joint types, reducing or enlarging joints, or creating connections in a distillation apparatus, Kimble® offers a comprehensive selection of adapters including bushing adapters, connecting adapters, distillation adapters, filtration adapters, inlet adapters, and bottle adapters.

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Glass Bushing Adapters

Bushing adapters allow for compact assemblies of dissimilar joints

- 10/30 sizes on small (top) joints are useful as fittings for thermometers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints: Large	Standard Taper Joints: Small	Case Qty
273500-0022	19/22	14/20	1
150750-0223	24/40	10/30	1
150750-0242	24/40	14/35, 14/20	1
273500-0220	24/40	19/38	1
150750-0265	29/42	24/40	1
150750-0266	34/45	24/40	1
150750-0268	45/50	24/40	1
150750-0277	45/50	29/42	1
150750-0285	45/50	34/45	1
150750-2610	55/50	24/40	1
150750-0437	55/50	45/50	1

PTFE Bushing Adapters

Bushing adapters allow for compact assemblies of dissimilar joints

- 10/30 sizes on small (top) joints are useful as fittings for thermometers
- Made entirely from PTFE
- PTFE is self-lubricating, chemically inert and remains non-brittle at sub-zero temperatures

Part Number	Standard Taper Joints: Small	Standard Taper Joints: Large	Case Qty
150800-0223	19/38	24/40	1
150800-0265	24/40	29/42	1
150800-0268	24/40	45/50	1
150800-0277	29/42	45/50	1
150800-0285	34/45	45/50	1

Reducing Connecting Adapters

For reducing the size of Standard Taper glass joints.

- Outer joint is at the top, inner at the bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints: Top (Outer)	Standard Taper Joints: Bottom (Inner)	Case Qty
274750-0240	14/20	10/30	1
274750-0253	19/22	14/20	1
150100-0261	24/40	10/30	1
274750-0263	24/40	14/20	1
150100-0263	24/40	14/35	1
274750-0264	24/40	19/22	1
150100-0264	24/40	19/38	1
274750-0272	29/42	14/20	1
274750-0273	29/42	19/22	1
150100-0271	29/26	24/40	1
150100-0274	29/42	24/40	1
150100-0282	34/45	24/40	1
150100-0432	45/50	24/40	1
150100-0451	55/50	24/40	1

Straight Connecting Adapters

Expands length of apparatus and is also useful as an air condenser.

- 274800 and 166000 adapters have outer Standard Taper joints at one end and inner Standard Taper joints on the other end
- 166100 adapters have inner Standard Taper joints at both ends
- 166200 adapters have outer Standard Taper joints at both ends
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Length (mm)	Case Qty
274800-0030	14/20	70	1
274800-0090	14/20	130	1
166000-7524	24/40	155	1
166000-7529	29/42	160	1
166100-3024	24/40	110	1
166100-7524	24/40	155	1
166200-1224	24/40	200	1
166200-1724	24/40	250	1
166200-3024	24/40	110	1
166200-7524	24/40	155	1

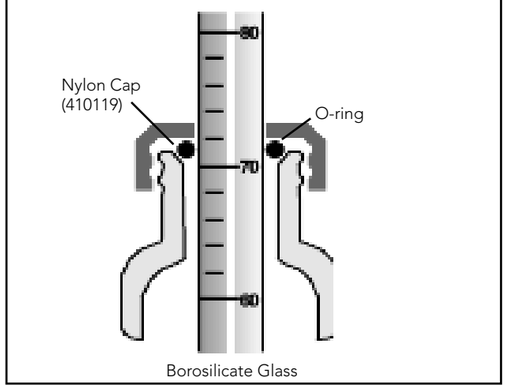
Offset Connecting Adapters

For use with multiple entry flasks or reaction vessels.

- Design helps avoid possible contact with stirrer shafts
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Offset (mm)	Case Qty
188000-2440	24/40	40	1

BEVEL-SEAL™ Cross Section



Enlarging Connecting Adapters

For enlarging the size of Standard Taper glass joints.

- Outer joint is at the top, inner at the bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type 1 and ASTM E438, Type 1, Class A requirements

Part Number	Standard Taper Joints: Top (Outer)	Standard Taper Joints: Bottom (Inner)	Case Qty
274750-0241	14/20	19/22	1
150100-0223	10/30	24/40	1
150100-0242	14/35	24/40	1
274750-0254	19/22	24/40	1
150100-0254	19/38	24/40	1
150100-0224	10/30	29/42	1
274750-0243	14/20	29/42	1
150100-0243	14/35	29/42	1
274750-0242	14/20	24/40	1
274750-0259	19/22	29/42	1
150100-0265	24/40	29/42	1
150100-0266	24/40	34/45	1
150100-0267	24/40	40/50	1
150100-0268	24/40	45/50	1
150100-0277	29/42	45/50	1
150100-0279	29/42	55/50	1
150100-0437	45/50	55/50	1
150100-2610	24/40	55/50	1
150100-2611	24/40	60/50	1

Bevel-Seal Connecting Adapters

Connects to vacuum systems, NMR tubes, photochemical cuvettes, lyophilizing tubes, flowmeters, etc.

- Simple o-ring connections form a vacuum seal on glass tubing by tightening the compression cap
- Supplied with FKM o-ring and open top polypropylene cap
- Body is PTFE

Part Number	Connects OD (mm)	O-Ring Size	Case Qty
179920-0510	5 to 10	108 / 110	1
179920-0808	8 to 8	109	1

Replacement Parts

Part Number	Description	Case Qty
179802-0022	Polypropylene Replacement Caps for Connecting Adapters, 5/8" - 18, Fits OD 8 mm, Hole dia. 8.5 mm	6
179802-0023	Polypropylene Replacement Caps for Connecting Adapters, 3/4" - 16, Fits OD 10 mm, Hole dia. 10.5 mm	6

Threaded Bevel-Seal Connecting Adapters

Used for connecting glass tubing.

- All connectors have an overall length of approximately 50 mm
- Open top cap (410119) is suitable for use to 150 °C
- Blue glass-filled nylon cap
- O-rings are FKM
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Accommodation Range (mm)	O-Ring Size	Case Qty
179730-0808	5-8 to 5-8	108 / 108	1

Threaded Bevel-Seal Connecting Adapters with Stopcock

Used for connecting tubing and controlling flow rate.

- All connectors have an overall length of approximately 80 mm
- Open top cap (410119) is suitable for use to 150 °C
- O-rings are FKM
- Replacement PTFE stopcock plug is 821001
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Accommodation Range (mm)	O-Ring Size	Case Qty
179740-0505	3-5 to 3-5	105	1
179740-0808	5-8 to 5-8	108	1

Replacement Parts

Part Number	Description	Case Qty
410119-1307	Blue Glass-Filled Nylon 13-425 Open-Top Compression Cap, Hole Diameter 7 mm	12
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, Plug Size (mm) 11/25	1
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, Plug Size (mm) 15.2/30	1
410119-1508	Blue Glass-Filled Nylon 15-415 Open-Top Compression Cap, Hole Diameter 8.5 mm	12
821001-0006	Size 6 Straight Bore Stopcock Plug, PTFE, Plug Size (mm) 16/35	1

Threaded Microscale Connecting Adapters with Standard Taper Inner Joint

Allows interfacing of outer Standard Taper jointed glassware with threaded microscale components.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	GPI Finish	Case Qty
747125-1314	14/20	13-425	1
747125-1319	19/22	13-425	1
747125-1324	24/40	13-425	1
747125-2014	14/20	20-400	1
747125-2019	19/22	20-400	1
747125-2024	24/40	20-400	1

Threaded Microscale Connecting Adapters With Standard Taper Outer Joint

Allows interfacing of inner Standard Taper jointed glassware with threaded microscale components.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	GPI Finish	Case Qty
747130-1314	14/20	13/425	1
747130-1319	19/22	13-425	1
747130-1324	24/40	13-425	1
747130-2014	14/20	20-400	1
747130-2019	19/22	20-400	1
747130-2024	24/40	20-400	1

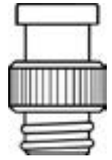
PTFE Threaded Microscale Connecting Adapters with Standard Taper Inner Joint

Allows interfacing of outer Standard Taper jointed glassware with threaded microscale components.

- Provides a shorter travel path than the equivalent glass connector
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	GPI Finish	Case Qty
747128-2014	14/20	20-400	1
747128-2019	19/22	20-400	1

PTFE Threaded Microscale Connecting Adapters with Standard Taper Outer Joint



Allows interfacing of inner Standard Taper jointed glassware with threaded microscale components.

- Provides a shorter travel path than the equivalent glass connector
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	GPI Finish	Case Qty
747133-2019	19/22	20-400	1

Threaded Compression Caps and Connectors

- For use to 150 °C
- Connectors have PTFE seals and FKM o-rings
- Blue glass-filled nylon
- 24-400 cap is black polypropylene

Part Number	Description	Case Qty
747205-1313	13-425 to 13-425 Threaded Connecting Adapter	1
747205-1315	13-425 to 15-425 Threaded Connecting Adapter	1
747205-0808	8-425 to 8-425 Threaded Connecting Adapter	1
747205-1320	13-425 to 20-400 Threaded Connecting Adapter	1
747205-0813	8-425 to 13-425 Threaded Connecting Adapter	1
747205-1520	15-425 to 20-400 Threaded Connecting Adapter	1
747205-1820	18-400 to 20-400 Threaded Connecting Adapter	1
747205-2020	20-400 to 20-400 Threaded Connecting Adapter	1
747205-2022	20-400 to 22-400 Threaded Connecting Adapter	1
747205-2024	20-400 to 24-400 Threaded Connecting Adapter	1

Threaded Compression Caps and Connector Kit

Connector kit with ten connectors, one each of the following sizes: 8-425 to 8-425, 8-425 to 13-425, 13-425 to 13-425, 13-425 to 15-425, 13-425 to 20-400, 15-425 to 20-400, 18-400 to 20-400, 20-400 to 20-400, 20-400 to 22-400, 20-400 to 24-400.

- For use to 150 °C
- Connectors have PTFE seals and FKM o-rings
- Blue glass-filled nylon
- 24-400 cap is black polypropylene

Part Number	Description	Case Qty
747205-0000	Threaded Connecting Adapter Kit	10

75° Distillation Bent Adapters

Distillation 75° bent adapters. Ideal for use as a stillhead adapter.

- With Standard Taper inner joints at each end
- Both joints are of the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
272900-0000	14/20	50 x 55	1
272900-1922	19/22	50 x 55	1
158000-2440	24/40	130 x 140	1
158000-2942	29/42	130 x 140	1

105° Bent Distillation Adapters

Bent 105° distillation adapters.

- Standard Taper inner joint at the bottom and Standard Taper outer joint at the top
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
157500-2440	24/40	140 x 110	1
157500-2942	29/42	150 x 115	1

105° Bent Distillation Adapters with Drip Tip

- Standard Taper inner drip joint at the bottom and Standard Taper outer joint at the top
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
273200-0000	14/20	70 x 55	1
273200-1922	19/22	70 x 55	1

105° Distillation Bent Adapters with Tapered Drip Tube

- Standard Taper outer joint at top
- Tapered drip tube extends into open receivers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
273100-0000	14/20	65 x 65	1
157000-2440	24/40	115 x 115	1

105° Bent Distillation Adapter with Surrounding Jacket

Distillation 105° bent adapter with surrounding jacket. Used for highly volatile condensates.

- Water jacket completely surrounds adapter
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
159500-2440	24/40	210 x 145	1

105° Bent Distillation Adapters with Vacuum Take-off and Outer Hose Connection

- Barbed hose connection
- Standard Taper inner joint with drip tip at the bottom and Standard Taper outer joint at the top
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
205600-1420	14/20	1/4	1
205600-1922	19/22	1/4	1
205600-2440	24/40	3/8	1

105° Bent Distillation Adapters with Vacuum Take-off and Inner Hose Connection

- Barbed hose connection
- Standard Taper inner joint with drip tip at the bottom and Standard Taper outer joint at the top
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
276400-0000	14/20	1/4	1
276410-0000	19/22	1/4	1
205500-2440	24/40	3/8	1
205500-2942	29/42	3/8	1

Long Stem 105 degree Distillation Bent with Vacuum Take-off

- Lower tube is extended to 200 mm and may be shortened
- Barbed hose connection fits 3/8" ID flexible tubing
- Inner Standard Taper joint at the bottom and Standard Taper outer joint at the top
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
206000-2440	24/40	3/8	1

Extended 105° Bent Distillation Adapters with Vacuum Take-off and Outer Hose Connection

- Barbed hose connection
- Standard Taper inner joint at the bottom and Standard Taper outer joint at the top
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
276405-0000	14/20	1/4	1

Claisen Distillation Adapters

- Provides dual entry into a variety of flasks
- Compatible with 179700 glass BEVEL-SEAL™ inlet adapters or 179800 PTFE BEVEL-SEAL™ inlet adapters for thermometer use at either top opening
- Useful for reflux with addition-type reactions
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
273755-0000	14/20	95 x 64	1
273750-0000	14/20	113 x 69	1
273760-0000	19/22	125 x 72	1
161500-2440	24/40	155 x 92	1
161500-2942	29/42	165 x 105	1

Claisen Distillation Adapters with Bevel Seal Thermometer Joint

Used in distillation assemblies where adjustable immersion depth of the thermometer is desired.

- Threaded top BEVEL-SEAL™ connection for plain stem thermometers
- Vacuum-tight seal is achieved with the open top compression cap and FKM o-ring
- BEVEL-SEAL™ cap 410119-1307 is suitable for use to 200 °C
- Thread size is modified GPI 13-425 and FKM o-ring is size 010
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
161100-2440	24/40	155 x 88	1

Replacement Parts

Part Number	Description	Case Qty
410119-1307	Blue Glass-Filled Nylon 13-425 Open-Top Compression Cap, Hole Diameter 7 mm	12

Claisen Distillation Adapters with Thermometer Joint

- Distilling adapter with a Standard Taper 10/30 joint on the vertical side tube for a 75 mm immersion thermometer
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
161000-2440	24/40	10/30	1

Claisen Distillation Adapter with 45° Side Joint

- Provides two top inlets and one inlet on the side at a 45° angle
- Compatible with 179700 glass BEVEL-SEAL™ inlet adapters or 179800 PTFE BEVEL-SEAL™ inlet adapters for thermometer use at either top opening
- Useful for reflux with addition-type reactions
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
161600-2440	24/40	155 x 150	1

Claisen Distillation Adapters with Side Tube and Thermometer Joint

- Distilling adapter with a Standard Taper 10/30 joint on the vertical side tube for a 75 mm immersion thermometer
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
163000-2440	24/40	10/30	1

Claisen Distillation Adapter with Side DripTip Tube and Thermometer Joint

- Distilling adapter with a Standard Taper 10/18 joint on the vertical side tube for use with a 25 mm immersion thermometer
- All other joints are 14/20 Standard Taper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
274200-0000	14/20	10/18	1

Claisen Distillation Adapters with Thermometer Joint and PTFE Stopcock

- Standard Taper 10/30 joint at the top of main tube for use with a 75 mm immersion thermometer
- Designed with a PTFE stopcock on the lower side tube
- Replacement stopcock plug is 821001-0004
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
164010-2440	24/40	10/30	1

Replacement Parts

Part Number	Description	Case Qty
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, 15.2/30	1

Connecting Distillation Adapter

Useful in the sub-boiling separation of mixtures having volatile components.

- Standard Taper inner joints are parallel
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Distance Between Joints (mm)	Case Qty
275050-1420	14/20	100	1
169500-2440	24/40	200	1

Connecting Distillation Adapters with Vacuum Hose Connection

Useful in the sub-boiling separation of mixtures having volatile components.

- Vacuum connection at side accepts ¼" ID flexible tubing
- Sealed-in drip tip directs condensate
- Standard Taper inner joints are parallel
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Distance Between Joints (mm)	Case Qty
275070-1420	14/20	100	1

Connecting Distillation Adapters with Valved Vacuum Take-Off

Designed for purification and transfer of solvents under airless conditions.

- Incorporates a HI-VAC® valve with an 826601-0004 plug
- Standard Taper inner joints are parallel
- Lower joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
216080-2440	24/40	1

75° Connecting Distillation Adapter

Connecting 75° distillation adapters. For use as a component in atmospheric or vacuum distillations.

- Lower and sidearm joints are inner Standard Taper joints; upper joint is outer Standard Taper joint
- Joints are same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
274950-0000	14/20	1
275060-0000	19/22	1
167500-2440	24/40	1
167500-2942	29/42	1

Connecting Distillation Adapter with Bevel Seal

Used in distillation assemblies where adjustable immersion depth of the thermometer is desired.

- Threaded top BEVEL-SEAL™ connection for plain stem thermometers
- Vacuum-tight seal is achieved with the open top compression cap and FKM o-ring
- BEVEL-SEAL™ cap 410119-1307 is suitable for use to 200 °C
- Thread size is modified GPI 13-425 and FKM o-ring is size 010
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I1 and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Immersion Depth (mm)	Case Qty
274960-0000	14/20	25	1
274960-1922	19/22	25	1
167100-2440	24/40	75	1

Connecting Distillation Adapter with Thermometer Joint

Used in distillation assemblies.

- Outer Standard Taper top joint accommodates a thermometer
- Inner Standard Taper joints are at a 75° angle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
274900-0000	14/20	10/18	1
274900-1922	19/22	10/18	1
167000-2440	24/40	10/30	1

Jacketed Connecting Distillation Adapter

Vacuum-jacketed, useful as a distilling head to connect a condenser with the top of a distillation column.

- The Standard Taper 10/30 top outer joint is for use with 75 mm immersion thermometers
- Inner joints are at a 75° angle to one another
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
167010-2942	29/42	10/30	1

Foam-Type Distillation Trap

Placed above a boiling flask to prevent foaming-type reactions from entering either the distilling column or the condenser.

- Useful with rotary evaporators
- 517000 features a more extensive baffle system than other traps
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints (Outer)	Standard Taper Joints (Inner)	Case Qty
275095-0000	14/20	14/20	1
275095-2414	24/40	14/20	1
197500-2440	24/40	24/40	1
517000-2440	24/40	24/40	1

Transfer Distillation Adapter

Used to transfer fluids between two flasks or as a one-piece distillation unit.

- A variety of flasks or adapters may be connected to this unit to use at reduced pressure or under an inert atmosphere
- All joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
211410-2440	24/40	155 x 270	1

Three Way Micro Distributor Adapter for Distillation

Rotating three-way distributor.

- Precise alignment allows distillate to drip directly into the receiver with no wetted surfaces or holdup
- Receiver arms are 120° apart
- All joints are 14/20 Standard Taper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
251175-0000	14/20	1

Thermometer Centering Device

Designed for 6.5 mm OD manual thermometer or 1/4" temperature sensor probe as used on standard Automated Distillation Apparatus with Kimble 26015-125 flasks.

- Fits glassware designed for rubber stopper size 2
- PTFE body with FKM o-ring seal assures proper centering of sensor probe in flask neck
- Cap material is yellow polypropylene
- Ref: ASTM Method D86

Part Number	Body OD (mm)	Case Qty
26015C-125	6.5	1

Vacuum Filtration Luer

Use this adapter with disposable syringe cartridges for easy sample concentration and to eliminate the cleaning of glass frits and funnels. Designed to reduce cross-contamination.

- Features top luer fitting and integral vacuum connection
- Includes drip tip
- Plastic valves with luer fittings are available separately
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
205100-1420	14/20	1/4	1
205100-2440	24/40	1/4	1

Accessories

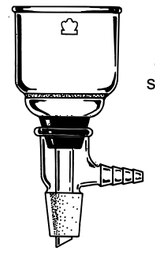
Part Number	Description	Case Qty
420163-1500	One-Way Stopcock Valve, Nylon Body, HDPE Plug, Female Luer to Male Luer	5
420163-4500	One-Way Stopcock Valve, Nylon Body, HDPE Plug, Female Luer to Male Luer Lock	50
420163-0000	One-Way Stopcock Valve, Polycarbonate Body, HDPE Plug, Female Luer to Male Luer Lock	50

Vacuum Filtration Adapters With Hose Connection

Use for reduced pressure filtration using a suitable glass vessel with a Standard Taper joint.

- Top designed for a pluro stopper
- Funnel and pluro stopper sold separately
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Pluro Stopper	Case Qty
275100-0000	14/20	#1	1
178100-2425	24/25	#3	1
178110-2440	24/40	#5 or #6	1
178110-2942	29/42	#5 or #6	1



Funnel and pluro stopper not included.

178100
178110
275100
275110

Extended Vacuum Filtration Adapters with Hose Connection

Use for reduced pressure filtration with plain stem Buchner funnels.

- Top designed for a pluro stopper
- Pluro stopper sold separately
- Designed with a flange to accommodate a pluro stopper
- Includes a lower drip tip
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Pluro Stop-per	Case Qty
178120-0014	14/20	#2	1
178120-0024	24/40	#3	1
178120-0124	24/40	#4	1

Vacuum Filtration Adapters With PTFE Stopcock

Used for reduced pressure filtration using plain stem Buchner funnels.

- PTFE stopcock permits control of vacuum source
- Pluro stopper sold separately
- Designed with a flange to accommodate a pluro stopper
- Replacement PTFE stopcock plug is 821001 series
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Pluro Stopper	Case Qty
178130-1420	14/20	#2	1
178130-2440	24/40	#2	1
178130-2942	29/42	#3	1

Pluro Stopper Set

This *autoclavable* set of neoprene rubber adapters is designed to fit Buchner and *fritted glass funnels*.

- Set of seven Pluro stoppers for filter funnels
- Can be used singly or nested with adjacent sizes
- Eliminates the need for boring of special size holes in rubber stoppers
- Reduces the risks associated with insertion and removal of glass stems through rubber stoppers

Part Number	Case Qty
852050-0070	7

Bleed Type Inlet Adapters

Liquids or gases may be directed into organic reactions using this adapter.

- Inlet adapter may also be calibrated and used as a pipet
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Length (mm)	OD (mm)	Case Qty
273410-0000	280	6.5	1

Bleed Type Inlet Adapters with Hose Connection

For the introduction of gases or liquids during reactions.

- Hose connection fits ¼" ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Fits Tubing ID (inches)	Overall Height (mm)	Case Qty
275501-0000	1/4	135	1

Bleed Type Inlet Adapters with Top Tubulature

For the introduction of gases or liquids to reactions.

- Fits 10 mL round bottom flasks with a 10/18 joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Top	Length Below Joint (mm)	Case Qty
275400-0035	10/18 Standard Taper with Top Tubulature	35	1

Bleed Type Inlet Adapters with Hose Connection and Standard Taper Joint

Used to introduce reactants below the liquid surface.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Bottom Tube Length (mm)	Case Qty
275600-0000	14/20	75	1
179000-2440	24/40	200	1

Offset Bevel Seal Inlet Adapters

A unique glass adapter offset and angled approximately 10° for use with multi-neck flasks.

- Thermometers or bleed tubes are angled into the bottom of a flask
- A vacuum-tight seal is created with the open top compression cap and FKM o-ring to allow adjustable immersion of thermometers
- Cap is suitable for use to 150 °C
- Supplied complete with one size 010 FKM o-ring and one 410119 cap
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	O-Ring Size	Case Qty
179710-2114	14/20	10	1
179710-2119	19/22	10	1
179710-2124	24/40	10	1

Offset Bevel Seal Inlet Adapters

Typical Setup

With Septum

Bevel Seal Inlet Adapters

For use with plain thermometers, pipets, syringes or other small items with an OD from 2 to 17 mm.

- A vacuum-tight seal is created with the open top compression cap and FKM o-ring to allow adjustable immersion of thermometers
- Cap is suitable for use to 150 °C
- To use it as a septum port, just replace the o-ring with a PTFE-lined septum
- Supplied with one FKM o-ring and one 410119 cap
- Ref: ASTM Method D1744
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	O-Ring Size	Case Qty
746030-0510	14/10	105	1
179700-0514	14/20	105	1
746030-0000	14/10	10	1
179700-2114	14/20	10	1
179700-0814	14/20	5-8	1
179700-0519	19/22	105	1
179700-2119	19/22	10	1
179700-0819	19/22	108	1
179700-1119	19/22	111	1
179700-0524	24/40	105	1
179700-2124	24/40	10	1
179700-0824	24/40	108	1
179700-1124	24/40	111	1
179700-1424	24/40	113	1
179700-0529	29/42	105	1
179700-2129	29/42	10	1
179700-1729	29/42	207	1

Bleed Type Inlet Adapters with Dual Hose Connection and Standard Taper Joint

Designed with two side hose connectors for venting or introducing gas/vacuum into a system.

- Hose connections fit 3/8" ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Bottom Tube Length (mm)	Case Qty
181000-2440	24/40	250	1

PTFE Bevel Seal Inlet Adapters

Adjustable fitting designed to adapt to a variety of apparatus.

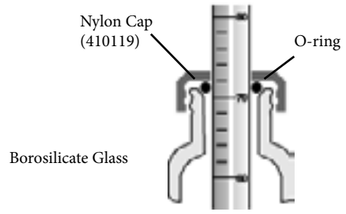
- A diameter variation of 1 to 2 mm can be accommodated since the inert o-ring is compressed by the open top cap to effect a vacuum-tight seal
- Body is PTFE
- Bottom has a Standard Taper inner joint
- Design allows use with 675300 clamps
- Supplied with FKM o-rings and with polypropylene cap suitable for use to 150 °C

Part Number	Standard Taper Joints	Upper O-Ring Size, Lower O-Ring Size	Case Qty
179800-2114	14/20	108, 13	1
179800-2119	19/22	108, 015	1
179800-2124	24/25	108, 018	1
179800-2214	14/20	109, 13	1
179800-2224	24/25	109, 018	1
179800-2324	24/25	111, 018	1

Replacement Parts

Part Number	Description	Case Qty
410119-1307	Blue Glass-Filled Nylon 13-425 Open-Top Compression Cap, Hole Diameter 7 mm	12
179802-0022	Polypropylene Replacement Caps for Connecting Adapters, 5/8" - 18, Fits OD 8 mm, Hole dia. 8.5 mm	6
179802-0023	Polypropylene Replacement Caps for Connecting Adapters, 3/4 - 16, Fits OD 10 mm, Hole dia. 10.5 mm	6

BEVEL-SEAL™ Cross Section



Syringe Needle Adapters

Provides access to flasks and other containers when pierced by a syringe needle.

- When used in conjunction with standard syringes, liquid samples may be added or withdrawn from multiple neck flasks
- Supplied with one 774200-0022 Blind Hole Rubber Stopper fitted to the top
- Allows syringe needles to be used as a capillary bleed tubes or bubblers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint (Bottom)	Top	Case Qty
275750-1420	14/20	Blind Hole Rubber Stopper	1
275750-1922	19/22	Blind Hole Rubber Stopper	1
197800-2440	24/40	Blind Hole Rubber Stopper	1

Replacement Parts

Part Number	Description	Case Qty
774200-0022	Silicone Blind Hole Stopper, 6 mm OD	12

Thermometer Inlet Adapters with Top Tubulature

- Standard Taper joint at the bottom and a tubulature at the top
- Includes a rubber adapter with a ¼" hole in the top for use with plain stem thermometers, gas inlet tubes, etc.
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Top	Bottom	Case Qty
199000-2440	Top Tubulature, for a Thermometer	Standard Taper 24/40	1
275410-1420	Top Tubulature, for a Thermometer	Standard Taper 14/20	1
275410-1922	Top Tubulature, for a Thermometer	Standard Taper 19/22	1

Replacement Parts

Part Number	Description	Case Qty
773900-0000	Rubber Adapters, 1/4" hole in the top for use with plain stem thermometers, gas inlet tubes, etc.	12

Thermometer Inlet Adapters With Top Tubulature and Hose Barb

- Standard Taper joint at the bottom and a tubulature at the top
- Includes a rubber adapter with a ¼" hole in the top for use with plain stem thermometers, gas inlet tubes, etc.
- Side hose connection fits ¼" ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
195500-2440	24/40	3/8	1

Replacement Parts

Part Number	Description	Case Qty
773900-0000	Rubber Adapters with 1/4" hole in top for use with plain stem thermometers, gas inlet tubes, etc	12

Thermometer Inlet Adapters with Hose Connection

- Hose connection on the side accepts 3/8" ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
197000-2440	24/40	3/8	1

Compact Thermometer Inlet Adapters with Hose Connection

Compact adapter with a Standard Taper 10/30 upper joint which can be used with a jointed thermometer or 179800 universal adapter for thermometers, gas inlet tubes, etc.

- Side hose connection for gas/vacuum introduction and venting
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint: Bottom	Fits Tubing ID (inches)	Case Qty
180000-2440	24/40	3/8	1

Offset Thermometer Inlet Adapters

Permits thermometer positioning at convenient points in a multiple-neck flask.

- Thermometer adapter with a Standard Taper 24/40 inner joint at bottom and a Standard Taper 10/30 outer joint at the top, offset and inclined from vertical.
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Top	Bottom	Case Qty
198000-2440	10/30 Offset Standard Taper, for a Thermometer	24/40 Standard Taper	1

Offset Thermometer Inlet Adapters with Hose Connection

Permits thermometer positioning at convenient points in a multiple-neck flask.

- Thermometer adapter with a Standard Taper 24/40 inner joint at the bottom and a Standard Taper 10/30 outer joint at top, offset and inclined from vertical
- Hose connection for venting or introducing a gas to the system
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Top	Bottom	Case Qty
198100-2440	10/30 Offset Standard Taper, for a Thermometer	24/40 Standard Taper	1

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Bevel Seal Thermometer Inlet Adapters

For use with plain thermometers, pipets, syringes or other small items with an OD from 2 to 11 mm.

- With a hose connection for vacuum or the introduction of gases
- A vacuum-tight seal is created with the open top compression cap and FKM o-ring to allow adjustable immersion of thermometers, etc
- Cap is suitable for use to 150 °C
- To use as a septum port, just replace the o-ring with a PTFE-lined septum
- Supplied with one FKM o-ring and one 410119 cap
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Accommodation Range (mm), O-Ring Size	Case Qty
746035-0510	14/10	2-5, 105	1
746035-0814	14/10	5-8, 108	1
179750-0514	14/20	2-5, 105	1
179750-2114	14/20	5.5-6.5, 10	1
179750-0814	14/20	5-8, 108	1
179750-1119	19/22	8-11, 111	1
179750-0524	24/40	2-5, 105	1
179750-2124	24/40	5.5-6.5, 10	1
179750-0824	24/40	5-8, 108	1
179750-2129	29/42	5.5-6.5, 010	1
179750-0829	29/42	5-8, 108	1
179750-1129	29/42	8-11, 111	1

PTFE Bevel Seal Hose Inlet Adapters

Designed to adapt a variety of tubes, condensers and filters in Standard Taper 14/20 and Standard Taper 24/25-24/40 glassware.

- Body is PTFE, o-rings are FKM, polypropylene compression cap is suitable for use to 150 °C, and side port is CTFE
- Provides a combination inlet and vent tube on a single neck vessel
- Converts plain stem type funnels for vacuum filtration
- Extends gas inlet or gas dispersion tube into a flask to function as an impinger
- Serves as a pressure relief vent when used with addition funnels
- BEVEL-SEAL™ top for a thermometer
- Side hose connection
- Can be used to construct gas washing bottles
- Diameter variations of 1 to 2 mm can be accommodated since the inert o-ring is compressed by the open-top polypropylene cap to create a vacuum-tight seal
- The serrated side port can be used for a vacuum connection or for the introduction of gases
- Side port o-ring size is 010
- Bottom has a Standard Taper inner joint

Part Number	Standard Taper Joints	Accommodation Range (mm), Bottom O-Ring Size	Case Qty
179850-2114	14/20	5.5-6.5, 108	1
179850-2124	24/25	5.5-6.5, 108	1
179850-2214	14/20	6.5-8.5, 109	1
179850-2224	24/25	6.5-8.5, 109	1
179850-2324	24/25	8.5-10.5, 110	1

Pour or Transfer Adapters

Used for precise pouring of liquids from reactors and joint flasks. Designed to eliminate droplet run-back.

- Suitable for dry box and remote applications
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
190000-2440	24/40	1
190000-2942	29/42	1

Hose Inlet Adapters with Extended Lower Tube

The hose connection on the side of the adapter provides a gas inlet for reactions.

- Allows access to the bottom of flasks/tubes
- User may shorten the lower tube to fit the flask or apparatus
- Outer Standard Taper joint at the top and inner Standard Taper joint at the bottom are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Bottom Tube Length (mm)	Case Qty
181500-2440	24/40	200	1

90° Hose Inlet Adapters

Hose inlet 90° adapters. Ideal for use as a vent or for the introduction of pressure/vacuum.

- Inner Standard Taper joint at the bottom and hose connection on the side
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint	Fits Tubing ID (inches)	Case Qty
183000-2440	24/40	3/8	1
276000-0000	14/20	1/4	1
276010-0000	19/22	1/4	1
183000-2942	29/42	3/8	1

Dual Hose Inlet Adapters

Adapter has two hose connections 180° apart to permit a flow of inert gas over the apparatus. Dual Hose Inlet Adapters.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint	Fits Tubing ID (inches)	Case Qty
276020-0000	14/20	1/4	1
183010-2440	24/40	3/8	1

Hose Inlet Adapters with Vacuum Take-off

Vertical adapter with vacuum take-off and drip tip.

- Outer Standard Taper joint at the top and inner Standard Taper joint at the bottom are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint	Fits Tubing ID (inches)	Case Qty
276750-0000	14/20	1/4	1
276760-0000	19/22	1/4	1
205000-2440	24/40	3/8	1
205000-2942	29/42	3/8	1

Inner Joint Hose Inlet Adapters

Ideal for use as a vent or for the introduction of pressure/vacuum.

- Inner Standard Taper joint at one end and vertical hose connection at the other
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint	Fits Tubing ID (inches)	Case Qty
276100-1922	19/22	1/4	1
182900-2440	24/40	3/8	1

Outer Joint Hose Inlet Adapters

Ideal for use as a vent or for the introduction of pressure/vacuum.

- Standard Taper joint at one end and vertical hose connection at the other
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint	Fits Tubing ID (inches)	Case Qty
276110-1420	14/20	1/4	1
182910-2440	24/40	3/8	1

Hose Inlet Adapters with Fritted Disc

- Adapter has a 170-220 micron porosity disc between the hose connection and the inner joint
- Fritted disc prevents solids from being introduced into the system
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint	Fits Tubing ID (inches)	Case Qty
276120-1420	14/20	1/4	1
276120-1922	19/22	1/4	1
182920-2440	24/40	3/8	1

Ball Hose Inlet Adapters

Standard sizes fit existing apparatus using Spherical joints and permit attachment of a flexible hose without costly modification to the apparatus.

- O-ring socket joint hose connector
- Supplied complete with a FKM o-ring
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Spherical Joint Size	Fits Tubing ID (inches)	Case Qty
523860-0189	18/9	1/2	1
523860-2815	28/15	3/4	1

Socket Hose Inlet Adapters

Standard sizes fit existing apparatus using Spherical joints and permit attachment of a flexible hose without costly modification to the apparatus.

- O-ring socket Spherical joint hose connector
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Spherical Joint Size	Fits Tubing ID (inches)	Case Qty
523870-0125	12/5	1/4	1
523870-0189	18/9	1/2	1
523870-2815	28/15	3/4	1
523870-3525	35/25	3/4	1

1/4-28 Thread Hose Inlet Adapters

- Unique design adapts GPI threaded glass to a serrated PTFE hose connection or 1/4"-28 tubing connections

Part Number	GPI Finish	Internal Thread Size, Fits Hose ID (in)	Case Qty
747185-0013	13-425	1/4"-28, 1/4	1
747185-0020	20-400	1/4"-28, 1/4	1

Right Angle Flow Control Inlet Adapter with Glass Stopcock and Inner Standard Taper Joint

For regulating the input of gases or liquids into reaction systems.

- Stopcock has a glass plug
- Inner Standard Taper joint on one end and a 90° hose connection on the opposite end
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint	Fits Tubing ID (inches)	Case Qty
275200-0000	14/20	1/4	1
275210-0000	19/22	1/4	1
185000-2440	24/40	3/8	1
185000-2942	29/42	3/8	1

Right Angle Flow Control Inlet Adapter with Glass Stopcock and Outer Standard Taper Joint

For regulating the input of gases or liquids into reaction systems.

- Stopcock has an 801001-0002 glass plug
- Outer Standard Taper joint on one end and 90° hose connection on the opposite end
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint	Fits Tubing ID (inches)	Case Qty
186000-2440	24/40	3/8	1

Right Angle Flow Control Inlet Adapters with Varibor Metering Plug

Allows delivery of preset volumes of gases or liquids to reactions using the needle valve.

- Provides on/off control with the main valve
- Inner Standard Taper joint on one end and 90° hose connection on the opposite end
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint	Fits Tubing ID (inches)	Case Qty
185031-2440	24/40	3/8	1

Right Angle Flow Control Inlet Adapters with PTFE Stopcock

For regulating the input of gases or liquids into reaction systems.

- Stopcock has an 821001-0002 PTFE plug
- Inner Standard Taper joint on one end and a 90° hose connection on the opposite end
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint	Fits Tubing ID (inches)	Case Qty
275230-0000	14/20	1/4	1
275240-0000	19/22	1/4	1
185030-2440	24/40	3/8	1
185030-2942	29/42	3/8	1

Straight Flow Control Inlet Adapters with PTFE Stopcock

For regulating the input of gases or liquids into reaction systems.

- Stopcock has an 821001-0002 PTFE plug
- Inner Standard Taper joint
- Hose connection accepts 3/8" ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint	Fits Tubing ID (inches)	Case Qty
186055-2440	24/40	3/8	1

GL45 to Solvent Bottle HPLC Reservoir Adapter

Designed to convert ULTRAWARE® GL-45 mobile phase caps to standard 4L solvent bottles.

- Autoclavable
- Manufactured from polybutylene terephthalate
- Allows direct access to HPLC instruments

Part Number	Male Thread Size	Female Thread Size	Case Qty
953907-0000	GL 45	38-430	1

GL45 to 40/35 HPLC Reservoir Adapter

Designed to convert GL 45 threads to Standard Taper 40/35 inner joints.

- Autoclavable
- Allows filter membrane support glassware with 40/35 outer joints to be used on ULTRA-WARE® HPLC reservoirs
- Highly chemically resistant PTFE remains non-brittle at sub-zero temperatures

Part Number	Standard Taper Joints	Screw Thread	Case Qty
953905-0000	40/35	GL 45	1

Score-Break Ampules

Small glass vessels fabricated from USP Type I borosilicate glass, providing maximum solution stability and easy hermetic sealing. Kimble® ampules are offered in capacities ranging from 1 mL to 20 mL and in a variety of pack sizes.

- Pre-scored constricted portion of the stem permits safe and easy opening while eliminating the need for filing
- Amber glass is recommended for light-sensitive compounds
- Stems can be pull or tip-sealed
- Excellent dimensional stability for high speed filling and sealing operations
- Customization including barcoding, pre-cleaning, and other capacities and styles is available; contact Customer Service
- Amber ampules are manufactured from 51 expansion borosilicate glass conforming to USP Type 1 requirements
- Clear ampules are manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements.

Methods of Sealing: For the tip-sealing method, while holding the ampule body, heat the tip in the flame approximately 3-4 mm from the top. Gently rotate the ampule while heating until the melted glass fuses into a smooth dome. The tip-sealing method is better suited for short stem ampules.

To use the pull-sealing method, heat the center of the ampule stem in the flame. As the glass softens, rotate the ampule while pulling the top off. This method may be used to seal all ampule configurations.

Instructions for opening ampules: To open an ampule, grasp the stem in one hand and the body in the other, placing thumbs tip-to-tip near the constriction. Using thumb tips as a hinge, bend the stem and the body to break the ampule open. A special ampule file is not required.

Part Number	Glass Type	Capacity (mL)	Case Qty
12010L-1	Clear	1	1,152
12010L-2	Clear	2	1,152
12010L-5	Clear	5	864
12010L-10	Clear	10	576
12010L-20	Clear	20	288
12010U-1	Clear	1	8,640
12010U-2	Clear	2	5,760
12010U-5	Clear	5	3,456
12010U-10	Clear	10	1,728
12010U-20	Clear	20	1,152
12050G-2	Clear	2	144
12040G-1	Amber	1	144
12040G-2	Amber	2	144
12040U-2	Amber	2	5,760
12040U-5	Amber	5	3,456
12040U-10	Amber	10	1,728
12040U-20	Amber	20	1,152

ARSINE GENERATORS

Arsine Generator

Designed for multiple arsenic determinations using a colorimetric assay as described in the 22nd Edition of Standard Methods for the Examination of Water and Wastewater, Method 3500-As B. Kimble® arsine generators conform to ASTM, USP, and EPA specifications.

- Glass beads may be added to the absorber tube to enhance the mixing of the generated gas through the silver diethyldithiocarbamate
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type 1 and ASTM E438, Type 1, Class A requirements

Overview: The lead acetate-impregnated glass wool is inserted above the Standard Taper 24/40 joint. A sample containing arsenic is placed within the flask and converted to arsine gas. Hydrogen sulfide is removed from the sample as the gas is generated by lead acetate-impregnated glass wool packed within the scrubber cavity. The absorber tube, containing the reagent silver diethyldithiocarbamate, absorbs the arsine gas and forms a red complex. This product is transferred to a cuvette, and its visible spectrum is then recorded on a colorimeter or spectrometer.

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
241100-0000	125	24/40	1

Accessories

Part Number	Description	Case Qty
675300-0024	Size 24 Polyacetyl, Standard Taper Clamp, Green, Fits joint sizes 24/40, 24/25	12
13500-4	4 mm Borosilicate Solid Glass Beads, Approx. Diameter 4 ± 0.4, Approx. Beads per Cubic Inch 250, Approx. Beads per lb 5200	1

Replacement Parts

Part Number	Description	Case Qty
241101-2440	Arsine Generator Scrubber Only, 24/40, 12/2	1
241102-0000	Arsine Generator Absorber Tube, 12/2	1
675000-0012	Size 12 Pinch Clamp, Fits O-Ring Conn. Size 5, no screw lock provided	1
617000-0224	125mL Erlenmeyer Flask with 24/40 joint, Approx. overall height 125mm	1

Improved Arsine Generator

Designed for multiple arsenic determinations using a colorimetric assay as described in the 22nd Edition of Standard Methods for the Examination of Water and Wastewater, Method 3500-As B. Kimble® arsine generators conform to ASTM, USP, and EPA specifications.

- Compact design requires less set-up time and is easier to clean due to the elimination of the ball and socket joint found in item 241100
- Glass beads may be added to the absorber tube to enhance the mixing of the generated gas through the silver diethyldithiocarbamate
- Supplied with one polyacetal clamp
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type 1 and ASTM E438, Type 1, Class A requirements

Overview: The lead acetate-impregnated glass wool is inserted above the Standard Taper 24/40 joint. A sample containing arsenic is placed within the flask and converted to arsine gas. Hydrogen sulfide is removed from the sample as the gas is generated by lead acetate-impregnated glass wool packed within the scrubber cavity. The absorber tube, containing the reagent silver diethyldithiocarbamate, absorbs the arsine gas and forms a red complex. This product is transferred to a cuvette, and its visible spectrum is then recorded on a colorimeter or spectrometer.

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
241160-0000	125	24/40	1

Replacement Parts

Part Number	Description	Case Qty
241161-0000	Arsine Generator Scrubber/Absorption Tube	1
675300-0024	Size 24 Polyacetyl, Standard Taper Clamp, Green, Fits joint sizes 24/40, 24/25	12
617000-0224	125mL Erlenmeyer Flask with 24/40 joint, Approx. overall height 125mm	1

Accessories

Part Number	Description	Case Qty
13500-4	4 mm Borosilicate Solid Glass Beads, Approx. Diameter 4 ± 0.4, Approx. Beads per Cubic Inch 250, Approx. Beads per lb 5200	1

BEADS

Solid Borosilicate Glass Column Packing Beads

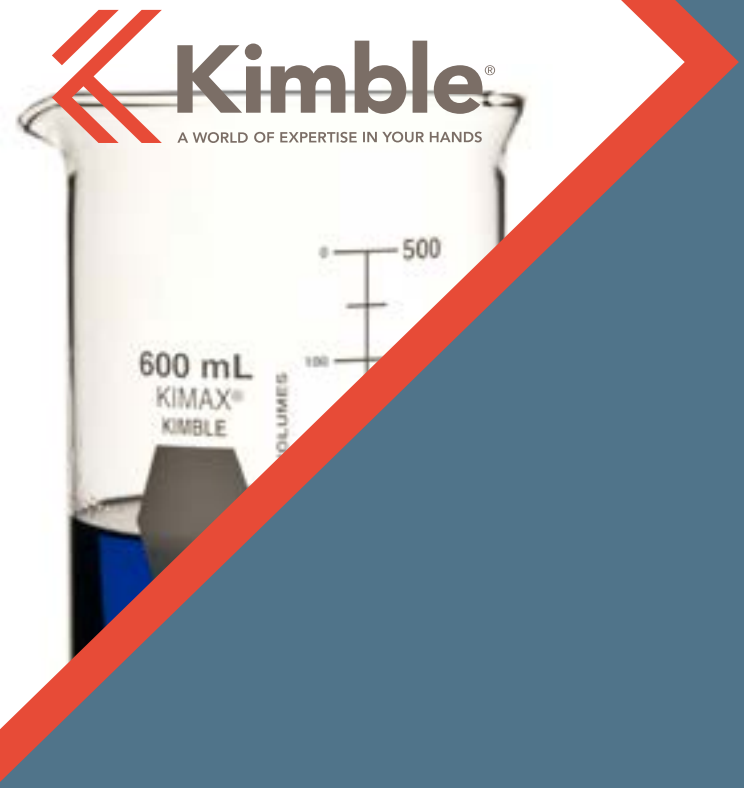
May be used as mixing beads, boiling stones, or packing for distillation columns.

- KIMAX® glass beads are highly resistant to attack by most cold or hot liquids and/or vapors
- Solid borosilicate beads are durable and will not disintegrate or affect delicate compounds
- Packed in a 1 lb. (approximately 0.45 kg) container, 360 cm^3 total volume
- One container per case
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Diameter (mm)	Beads per cubic inch (Approx)	Case Qty
13500-3	3	550	1
13500-4	4	250	1
13500-5	5	125	1
13500-6	6	75	1

Kimble®

A WORLD OF EXPERTISE IN YOUR HANDS



BEAKERS

KIMAX® beakers have been used in research laboratories for countless generations. The glass beakers offer excellent durability, while providing high resistance to chemical attack and thermal shock. From starter packs to heavy duty options, Kimble® offers a full range of beakers to suit every application.

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Low Form Griffin Beakers

KIMAX® Low Form Griffin glass beakers offer excellent mechanical strength and durability, while providing high resistance to chemical attack and thermal shock. They have been a staple in research laboratories for many generations.

- Thick, slightly flared, beaded top, with a spout designed to have excellent pouring characteristics
- Improved mechanical and thermal properties result from the uniform sidewall and bottom thickness design
- Suitable for use on a hotplate
- All sizes have a durable matte finish marking area for use with an ordinary pencil
- Easy-to-read white graduated scale for measuring and/or mixing liquids is provided on all sizes from 20 to 4000 mL
- Ref: ASTM Method D2070
- Design meets ASTM Specification E960, Type I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
14000-10	10	34 x 25	48
14000-20	20	41 x 32	48
14000-30	30	53 x 35	48
14000-50	50	53 x 42	48
14000-100	100	70 x 50	48
14000-150	150	81 x 57	48
14000-250	250	88 x 68	48
14000-400	400	106 x 77	48
14000-600	600	122 x 88	36
14000-800	800	136 x 99	24
14000-1000	1000	145 x 107	24
14000-1500	1500	165 x 120	16
14000-2000	2000	190 x 130	8
14000-4000	4000	250 x 161	6

Low Form Heavy Duty Beakers

KIMAX® Low Form Heavy Duty glass "thick wall" beakers offer superior mechanical strength and durability. Improved safety when used under extreme conditions such as mechanized washing and rough handling.

- Thick uniform walls throughout and extra wall thickness built into the evenly tooled top rim
- Uniformity of construction allows for use on hot plates
- All sizes have a durable matte finish marking area and a white graduated scale
- Design meets ASTM Specification E960, Type II requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
14005-250	250	92 x 67	48
14005-400	400	114 x 77	48
14005-600	600	122 x 87	36
14005-1000	1000	152 x 107	24
14005-2000	2000	190 x 130	8
14005-4000	4000	252 x 161	4

Colorware Low Form Griffin Beakers

Choose KIMAX® Low Form Griffin "Colorware" glass beakers for ease of identification in the lab. These beakers offer excellent mechanical strength and durability, while providing high resistance to chemical attack and thermal shock.

- Use of colored beakers reduces the risk of cross contamination
- Easily identify glassware between labs
- Available in four fabulous colors – Bright Blue, Cool Green, Sunny Yellow, and Raging Red
- All sizes feature double capacity scales with easy-to-read graduations
- Durable, color, matte finish marking area for use with an ordinary pencil or marker
- Design meets ASTM Specification E960, Type I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL); Color	Height x OD (mm)	Case Qty
14000B-50	50; Bright Blue	53 x 42	12
14000B-100	100; Bright Blue	70 x 50	12
14000B-150	150; Bright Blue	81 x 57	12
14000B-250	250; Bright Blue	88 x 68	12
14000B-400	400; Bright Blue	106 x 77	12
14000B-600	600; Bright Blue	122 x 88	6
14000B-1000	1000; Bright Blue	145 x 107	6
14000G-50	50; Cool Green	53 x 42	12
14000G-100	100; Cool Green	70 x 50	12
14000G-150	150; Cool Green	81 x 57	12
14000G-250	250; Cool Green	88 x 68	12
14000G-400	400; Cool Green	106 x 77	12
14000G-600	600; Cool Green	122 x 88	6
14000G-1000	1000; Cool Green	145 x 107	6
14000R-50	50; Raging Red	53 x 42	12
14000R-100	100; Raging Red	70 x 50	12
14000R-150	150; Raging Red	81 x 57	12
14000R-250	250; Raging Red	88 x 68	12
14000R-400	400; Raging Red	106 x 77	12
14000R-600	600; Raging Red	122 x 88	6
14000R-1000	1000; Raging Red	145 x 107	6
14000Y-50	50; Sunny Yellow	53 x 42	12
14000Y-100	100; Sunny Yellow	70 x 50	12
14000Y-150	150; Sunny Yellow	81 x 57	12
14000Y-250	250; Sunny Yellow	88 x 68	12
14000Y-400	400; Sunny Yellow	106 x 77	12
14000Y-600	600; Sunny Yellow	122 x 88	6
14000Y-1000	1000; Sunny Yellow	145 x 107	6

Low Form Beaker Starter Packs

An assortment of popularly sized "variety pack" glass beakers from our 14000 Low Form Griffin series that is ideal for start-up labs and customers who need a variety of beaker sizes but have limited lab space or glassware needs.

- Double capacity scale
- 14080-01 consists of five beakers from our 14000 Low Form Griffin series
- 14085-01 consists of four beakers from our 14005 Low Form Heavy Duty series
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Type	Case Qty
14080-01	1 each of 50, 100, 250, 600, 1000	Standard Wall	1 Set of 5
14085-01	1 each of 250, 400, 600, 1000	Heavy Duty	1 Set of 4

Tall Form Berzelius Beakers

KIMAX® Berzelius glass tall beakers offer excellent mechanical strength and durability, while providing high resistance to chemical attack and thermal shock. Ideal for use when performing titrations.

- All sizes have a durable matte finish area for marking with an ordinary pencil
- Easy-to-read white double capacity scales to indicate approximate volumes
- Design for 14020 series meets ASTM Specification E960, Type IV requirements and does not include a spout
- Design for 14030 series meets ASTM Specification E960, Type III requirements and includes a spout
- Ref: ASTM Method D94
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL); Spout	Height x OD (mm)	Case Qty
14020-100	100; No	78 x 50	12
14020-200	200; No	104 x 57	12
14020-300	300; No	118 x 64	12
14020-400	400; No	127 x 70	6
14020-600	600; No	150 x 80	6
14020-1000	1000; No	188 x 90	6
14030-100	100; Yes	78 x 50	48
14030-200	200; Yes	104 x 57	48
14030-300	300; Yes	118 x 64	48
14030-400	400; Yes	127 x 70	36
14030-600	600; Yes	150 x 80	24
14030-1000	1000; Yes	188 x 90	18

BEAKERPLUS™: Beaker/Flask Combination

BEAKERplus™ is a combination Griffin glass beaker and Erlenmeyer glass flask and is ideal for mixing and for use with funnels or filters.

- Wide fluted rim with pour spout
- Narrow recessed neck minimizes splashing during vigorous agitation
- Easy-to-read white graduated scale is provided on all sizes from 150 to 1200 mL for measuring and/or mixing liquids
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
14035-150	150	83 x 70	6
14035-250	250	107 x 70	6
14035-500	500	178 x 70	6
14035-1000	1000	222 x 95	2
14035-1200	1200	254 x 95	2

LABMUG® Beaker

LABMUG® glass beakers and pitcher are made from Berzelius glass beakers and have solid glass handles. Both are graduated to indicate approximate volume and can withstand thermal shock. Ideal in the office or at home for hot and cold drinks.

- Both the beakers and the pitcher are graduated to indicate approximate volume and can withstand thermal shock
- For lab use, the handle makes an ordinary beaker safer and easier to use
- Customization, including individual slogans and logos, is available upon request
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height (mm)	Case Qty
318000-0000	500	140	6
318100-0000	2000	210	1

Jacketed Reaction Beakers

Jacketed Reaction beakers / Temperature Controlled beakers are designed for laboratory applications requiring a variety of temperature-controlled reactions. Useful in biological and chemical reactions including titrations, enzyme digestions, and synthetic organic reactions.

- A conical lower interior surface eliminates spin-out when used with an egg-shaped PTFE magnetic stir bar
- Jacket has serrated 3/8" hose connections
- The open top provides easy access to concentrated residual samples
- Design meets ASTM Specification E960, Type I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Inner Height x ID (mm)	Case Qty
317000-0050	50	55 x 37	1
317000-0100	100	73 x 47	1
317000-0250	250	84 x 65	1
317000-0500	500	115 x 80	1
317000-1000	1000	133 x 105	1
317000-2000	2000	190 x 124	1

Save money and space by getting a variety of sizes without having to order case quantities of each size. They provide precisely what you need, when you need it, without the extras that could slow you down.

• Great Quality • Exceptional Utility • Outstanding Performance

20024-01 Graduated Cylinders 26520-1

Erlenmeyer Flasks 14080-01

Griffin Beakers 14085-01

Heavy Duty Beakers

BOTTLES

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

KIMAX® media bottles are the perfect bottle for any application. The outstanding quality ensures a wide range of use, from long term storage and transporting to the most demanding applications in the pharmaceutical and food industries. Sturdy design and improved clarity allow contents and volume to be checked quickly, while temperature resistance makes the bottles ideal for autoclaving. Essential to every laboratory, KIMAX® media bottles are proven reliable for unlimited applications.

Kimble® offers a wide variety of general purpose bottles in small case quantities or large bulk packs with a variety of closures. We also offer containers with or without caps attached for high use items or facilities with centralized stockrooms. Customization to meet your specific needs is simpler than ever, including pre-cleaning and barcoding. Trust Kimble® to be the exclusive source for all your laboratory glass needs.

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Clear Glass Boston Round Bottles

Kimble® Clear Boston Rounds are made from Type III soda-lime glass and have a narrow-mouth design. Clear bottles allow for viewing of contents. They come with a variety of caps and liner combinations and are designed to protect the quality of liquids and product storage.

- Narrow-mouth design for safe pouring
- Helps to eliminate waste and insures product integrity for long term storage
- Choose from a variety of cap / liner combinations
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Bulk Packs, Shrink Modules with Caps in Bags

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5110120C-21	30 x 20-400	Pulp / Vinyl	432
5110220C-21	60 x 20-400	Pulp / Vinyl	288
5110422C-21	125 x 22-400	Pulp / Vinyl	160
5110824C-21	250 x 24-400	Pulp / Vinyl	108
5111628C-21	500 x 28-400	Pulp / Vinyl	60
5113233C-21	1000 x 33-400	Pulp / Vinyl	12
5110120C-24	30 x 20-400	White Rubber	432
5110220C-24	60 x 20-400	White Rubber	288
5110422C-24	125 x 22-400	White Rubber	160
5110824C-24	250 x 24-400	White Rubber	108
5111628C-24	500 x 28-400	White Rubber	60
5113233C-24	1000 x 33-400	White Rubber	12
5110120C-25	30 x 20-400	Polyethylene cone	432
5110220C-25	60 x 20-400	Polyethylene cone	288
5110422C-25	125 x 22-400	Polyethylene cone	160
5110824C-25	250 x 24-400	Polyethylene cone	108
5111628C-25	500 x 28-400	Polyethylene cone	60
5113233C-25	1000 x 33-400	Polyethylene cone	12
5110422C-26	125 x 22-400	PTFE-Faced LDPE Foam	160
5110120B	30 x 20-400	No Cap	432
5110220B	60 x 20-400	No Cap	288
5110422B	125 x 22-400	No Cap	160
5110824B	250 x 24-400	No Cap	108
5111628B	500 x 28-400	No Cap	60
5113233B	1000 x 33-400	No Cap	12

Convenience Packs (Caps Attached)

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5110120V-21	30 x 20-400	Pulp / Vinyl	48
5110220V-21	60 x 20-400	Pulp / Vinyl	24
5110422V-21	125 x 22-400	Pulp / Vinyl	24
5110824V-21	250 x 24-400	Pulp / Vinyl	12
5111628V-21	500 x 28-400	Pulp / Vinyl	12
5113233V-21	1000 x 33-400	Pulp / Vinyl	12
5111628V-22	500 x 28-400	Solid PE	12
5113233V-22	1000 x 33-400	Solid PE	12
5111628V-24	500 x 28-400	White Rubber	12
5113233V-24	1000 x 33-400	White Rubber	12
5110120V-25	30 x 20-400	Polyethylene Cone	48
5110220V-25	60 x 20-400	Polyethylene Cone	24
5110422V-25	125 x 22-400	Polyethylene Cone	24
5110824V-25	250 x 24-400	Polyethylene Cone	12
5111628V-25	500 x 28-400	Polyethylene Cone	12
5113233V-25	1000 x 33-400	Polyethylene Cone	12
5110120V-26	30 x 20-400	PTFE-Faced LDPE Foam	48
5110220V-26	60 x 20-400	PTFE-Faced LDPE Foam	24
5110422V-26	125 x 22-400	PTFE-Faced LDPE Foam	24
5110824V-26	250 x 24-400	PTFE-Faced LDPE Foam	12
5111628V-26	500 x 28-400	PTFE-Faced LDPE Foam	12
5113233V-26	1000 x 33-400	PTFE-Faced LDPE Foam	12

Amber Glass Boston Round Bottles

Kimble® Amber Boston Rounds are made from Type III soda-lime glass and have a narrow-mouth design. Amber bottles protect light-sensitive contents. They come with a variety of caps and liner combinations. They are designed to protect contents from UV rays and are ideal for light-sensitive products.

- Helps to eliminate waste and insures product integrity for long term storage
- Choose from a variety of cap / liner combinations
- Narrow-mouth design for safe pouring
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Bulk Packs - Shrink Modules with Caps in Bags

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5120120C-24	30 x 20-400	White Rubber	432
5120220C-24	60 x 20-400	White Rubber	288
5120422C-24	125 x 22-400	White Rubber	160
5120824C-24	250 x 24-400	White Rubber	108
5121628C-24	500 x 28-400	White Rubber	60
5123233C-24	1000 x 33-400	White Rubber	12
5120120C-25	30 x 20-400	Polyethylene Cone	432
5120220C-25	60 x 20-400	Polyethylene Cone	288
5120422C-25	125 x 22-400	Polyethylene Cone	160
5120824C-25	250 x 24-400	Polyethylene Cone	108
5121628C-25	500 x 28-400	Polyethylene Cone	60
5123233C-25	1000 x 33-400	Polyethylene Cone	12
5120120C-26	30 x 20-400	PTFE-Faced LDPE Foam	432
5120220C-26	60 x 20-400	PTFE-Faced LDPE Foam	288
5120422C-26	125 x 22-400	PTFE-Faced LDPE Foam	160
5120824C-26	250 x 24-400	PTFE-Faced LDPE Foam	108
5121628C-26	500 x 28-400	PTFE-Faced LDPE Foam	60
5123233C-26	1000 x 33-400	PTFE-Faced LDPE Foam	12
5120120B	30 x 20-400	No Cap	432
5120220B	60 x 20-400	No Cap	288
5120422B	125 x 22-400	No Cap	160
5120824B	250 x 24-400	No Cap	108
5121628B	500 x 28-400	No Cap	60
5123233B	1000 x 33-400	No Cap	12

Convenience Packs (Caps Attached)

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5120120V-21	30 x 20-400	Pulp / Vinyl	48
5120220V-21	60 x 20-400	Pulp / Vinyl	24
5120422V-21	125 x 22-400	Pulp / Vinyl	24
5120824V-21	250 x 24-400	Pulp / Vinyl	12
5121628V-21	500 x 28-400	Pulp / Vinyl	12
5123233V-21	1000 x 33-400	Pulp / Vinyl	12
5121628V-22	500 x 28-400	Solid PE	12
5123233V-22	1000 x 33-400	Solid PE	12
5120120V-25	30 x 20-400	Polyethylene Cone	48
5120220V-25	60 x 20-400	Polyethylene Cone	24
5120422V-25	125 x 22-400	Polyethylene Cone	24
5120824V-25	250 x 24-400	Polyethylene Cone	12
5121628V-25	500 x 28-400	Polyethylene Cone	12
5123233V-25	1000 x 33-400	Polyethylene Cone	12
5120120V-26	30 x 20-400	PTFE-Faced LDPE Foam	48
5120220V-26	60 x 20-400	PTFE-Faced LDPE Foam	24
5120422V-26	125 x 22-400	PTFE-Faced LDPE Foam	24
5120824V-26	250 x 24-400	PTFE-Faced LDPE Foam	12
5121628V-26	500 x 28-400	PTFE-Faced LDPE Foam	12
5123233V-26	1000 x 33-400	PTFE-Faced LDPE Foam	12

Amber Glass Wide-Mouth Packer Bottles

Designed to protect contents from UV rays and ideal for light-sensitive products. Ideally used for the storage of solids.

- Wide-mouth design for efficient addition and removal of contents
- Choose from a variety of cap / liner combinations
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Bulk Packs - Shrink Modules with Caps in Bags

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5220128C-21	30 x 28-400	Pulp / Vinyl	432
5220233C-21	60 x 33-400	Pulp / Vinyl	216
5220438C-21	125 x 38-400	Pulp / Vinyl	180
5220845C-21	250 x 45-400	Pulp / Vinyl	84
5221653C-21	500 x 53-400	Pulp / Vinyl	60
5223253C-21	1000 x 53-400	Pulp / Vinyl	36
5220128C-22	30 x 28-400	Solid PE	432
5220233C-22	60 x 33-400	Solid PE	216
5220438C-22	125 x 38-400	Solid PE	180
5220845C-22	250 x 45-400	Solid PE	84
5221653C-22	500 x 53-400	Solid PE	60
5223253C-22	1000 x 53-400	Solid PE	36
5220845C-23	250 x 45-400	Tinfoil	84
5221653C-23	500 x 53-400	Tinfoil	60
5223253C-23	1000 x 53-400	Tinfoil	36
5220128C-26	30 x 28-400	PTFE-Faced LDPE Foam	432
5220233C-26	60 x 33-400	PTFE-Faced LDPE Foam	216
5220438C-26	125 x 38-400	PTFE-Faced LDPE Foam	180
5220845C-26	250 x 45-400	PTFE-Faced LDPE Foam	84
5221653C-26	500 x 53-400	PTFE-Faced LDPE Foam	60
5223253C-26	1000 x 53-400	PTFE-Faced LDPE Foam	36
5220128B	30 x 28-400	No Cap	432
5220233B	60 x 33-400	No Cap	216
5220438B	125 x 38-400	No Cap	180
5220845B	250 x 45-400	No Cap	84
5221653B	500 x 53-400	No Cap	60
5223253B	1000 x 53-400	No Cap	36

Convenience Packs (Caps Attached)

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5220128V-21	30 x 28-400	Pulp / Vinyl	24
5220233V-21	60 x 33-400	Pulp / Vinyl	24
5220438V-21	125 x 38-400	Pulp / Vinyl	24
5220845V-21	250 x 45-400	Pulp / Vinyl	12
5221653V-21	500 x 53-400	Pulp / Vinyl	12
5223253V-21	1000 x 53-400	Pulp / Vinyl	12
5220128V-25	30 x 28-400	Polyethylene Cone	24
5220233V-25	60 x 33-400	Polyethylene Cone	24
5220438V-25	125 x 38-400	Polyethylene Cone	24
5220128V-26	30 x 28-400	PTFE-Faced LDPE Foam	24
5220233V-26	60 x 33-400	PTFE-Faced LDPE Foam	24
5220438V-26	125 x 38-400	PTFE-Faced LDPE Foam	24
5220845V-26	250 x 45-400	PTFE-Faced LDPE Foam	12
5221653V-26	500 x 53-400	PTFE-Faced LDPE Foam	12
5223253V-26	1000 x 53-400	PTFE-Faced LDPE Foam	12

Clear Glass AC Medium Round Bottles

Ideal for storage for solids, liquids, powders and specimens.

- Wide-mouth design for efficient addition and removal of contents
- Clear glass allows for easy viewing of contents
- Choose from a variety of cap / liner combinations
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Bulk Packs - Shrink Modules with Caps in Bags

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5710133C-21	30 x 33-400	Pulp / Vinyl	432
5710238C-21	60 x 38-400	Pulp / Vinyl	288
5710448C-21	125 x 48-400	Pulp / Vinyl	144
5710858C-21	250 x 58-400	Pulp / Vinyl	96
5711670C-21	500 x 70-400	Pulp / Vinyl	48
5710133C-22	30 x 33-400	Solid PE	432
5710238C-22	60 x 38-400	Solid PE	288
5710448C-22	125 x 48-400	Solid PE	144
5710858C-22	250 x 58-400	Solid PE	96
5711670C-22	500 x 70-400	Solid PE	48
5710133C-25	30 x 33-400	Polyethylene Cone	432
5710238C-25	60 x 38-400	Polyethylene cone	288
5710133C-26	30 x 33-400	PTFE-Faced LDPE Foam	432
5710238C-26	60 x 38-400	PTFE-Faced LDPE Foam	288
5710448C-26	125 x 48-400	PTFE-Faced LDPE Foam	144
5710858C-26	250 x 58-400	PTFE-Faced LDPE Foam	96
5711670C-26	500 x 70-400	PTFE-Faced LDPE Foam	48
5710133B	30 x 33-400	No Cap	432
5710238B	60 x 38-400	No Cap	288
5710448B	125 x 48-400	No Cap	144
5710858B	250 x 58-400	No Cap	96
5711670B	500 x 70-400	No Cap	48

Convenience Packs (Caps Attached)

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5710133V-21	30 x 33-400	Pulp / Vinyl	48
5710238V-21	60 x 38-400	Pulp / Vinyl	48
5710448V-21	125 x 48-400	Pulp / Vinyl	24
5710858V-21	250 x 58-400	Pulp / Vinyl	24
5711670V-21	500 x 70-400	Pulp / Vinyl	24
5710238V-22	60 x 38-400	Solid PE	48
5710448V-22	125 x 48-400	Solid PE	24
5710238V-25	60 x 38-400	Polyethylene Cone	48

Clear Glass AC Medium Round Bottles, Graduated

Ideal for storage for solids, liquids, powders and specimens.

- Wide-mouth design for efficient addition and removal of contents
- Clear glass allows for easy viewing of contents
- Graduated in both milliliters and ounces
- Available in a variety of cap / liner combinations
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Corrugated Cartons with Divider Cells, Caps Bagged

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5810133C-21	30 x 33-400	Pulp / Vinyl	432
5810238C-21	60 x 38-400	Pulp / Vinyl	288
5810448C-21	125 x 48-400	Pulp / Vinyl	144
5810858C-21	250 x 58-400	Pulp / Vinyl	96
5811670C-21	500 x 70-400	Pulp / Vinyl	48
5810448C-22	125 x 48-400	Solid PE	144
5810858C-22	250 x 58-400	Solid PE	96
5811670C-22	500 x 70-400	Solid PE	48
5810448C-23	125 x 48-400	Tinfoil	144
5810858C-23	250 x 58-400	Tinfoil	96
5811670C-23	500 x 70-400	Tinfoil	48
5810133C-24	30 x 33-400	White Rubber	432
5810238C-24	60 x 38-400	White Rubber	288
5810133C-25	30 x 33-400	Polyethylene Cone	432
5810238C-25	60 x 38-400	Polyethylene Cone	288
5810133C-26	30 x 33-400	PTFE-Faced LDPE Foam	432
5810238C-26	60 x 38-400	PTFE-Faced LDPE Foam	288
5810448C-26	125 x 48-400	PTFE-Faced LDPE Foam	144
5810858C-26	250 x 58-400	PTFE-Faced LDPE Foam	96
5811670C-26	500 x 70-400	PTFE-Faced LDPE Foam	48
5810133B	30 x 33-400	No Cap	432
5810238B	60 x 38-400	No Cap	288
5810448B	125 x 48-400	No Cap	144
5810858B	250 x 58-400	No Cap	96
5811670B	500 x 70-400	No Cap	48

Convenience Packs (Caps Attached)

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5810133V-21	30 x 33-400	Pulp / Vinyl	48
5810238V-21	60 x 38-400	Pulp / Vinyl	48
5810448V-21	125 x 48-400	Pulp / Vinyl	24
5810858V-21	250 x 58-400	Pulp / Vinyl	24
5811670V-21	500 x 70-400	Pulp / Vinyl	24
5810133V-26	30 x 33-400	PTFE-Faced LDPE Foam	48
5810238V-26	60 x 38-400	PTFE-Faced LDPE Foam	48
5810448V-26	125 x 48-400	PTFE-Faced LDPE Foam	24
5810858V-26	250 x 58-400	PTFE-Faced LDPE Foam	24
5811670V-26	500 x 70-400	PTFE-Faced LDPE Foam	24

Clear Glass French Square Bottles

Ideal for mixing, storing and sampling liquids or solid matter. Square shape maximizes use of shelf space.

- Wide-mouth design for efficient addition and removal of contents
- Clear glass allows for easy viewing of contents
- Choose from a variety of cap / liner combinations
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Bulk Packs - Shrink Modules with Caps in Bags

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5611220C-21	15 x 20-400	Pulp / Vinyl	576
5610124C-21	30 x 24-400	Pulp / Vinyl	280
5610228C-21	60 x 28-400	Pulp / Vinyl	240
5610433C-21	125 x 33-400	Pulp / Vinyl	120
5610843C-21	250 x 43-400	Pulp / Vinyl	84
5611648C-21	500 x 48-400	Pulp / Vinyl	40
5611220C-22	15 x 20-400	Solid PE	576
5610124C-22	30 x 24-400	Solid PE	280
5610228C-22	60 x 28-400	Solid PE	240
5610433C-22	125 x 33-400	Solid PE	120
5610843C-22	250 x 43-400	Solid PE	84
5611648C-22	500 x 48-400	Solid PE	40
5611220C-24	15 x 20-400	White Rubber	576
5610124C-24	30 x 24-400	White Rubber	280
5610228C-24	60 x 28-400	White Rubber	240
5610433C-24	125 x 33-400	White Rubber	120
5610843C-24	250 x 43-400	White Rubber	84
5611648C-24	500 x 48-400	White Rubber	40
5611220C-25	15 x 20-400	Polyethylene Cone	576
5610124C-25	30 x 24-400	Polyethylene Cone	280
5610228C-25	60 x 28-400	Polyethylene Cone	240
5610433C-25	125 x 33-400	Polyethylene Cone	120
5611220B	15 x 20-400	No Cap	576
5610124B	30 x 24-400	No Cap	280
5610228B	60 x 28-400	No Cap	240
5610433B	125 x 33-400	No Cap	120
5610843B	250 x 43-400	No Cap	84
5611648B	500 x 48-400	No Cap	40

Convenience Packs (Caps Attached)

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5611220V-21	15 x 20-400	Pulp / Vinyl	48
5610124V-21	30 x 24-400	Pulp / Vinyl	48
5610228V-21	60 x 28-400	Pulp / Vinyl	48
5610433V-21	125 x 33-400	Pulp / Vinyl	24
5610843V-21	250 x 43-400	Pulp / Vinyl	24
5611648V-21	500 x 48-400	Pulp / Vinyl	24
5610843V-22	250 x 43-400	Solid PE	24
5611648V-22	500 x 48-400	Solid PE	24
5611648V-24	500 x 48-400	White Rubber	24
5611220V-25	15 x 20-400	Polyethylene Cone	48
5610124V-25	30 x 24-400	Polyethylene Cone	48
5610228V-25	60 x 28-400	Polyethylene Cone	48
5610433V-25	125 x 33-400	Polyethylene Cone	24
5611220V-26	15 x 20-400	PTFE-Faced LDPE Foam	48
5610124V-26	30 x 24-400	PTFE-Faced LDPE Foam	48
5610228V-26	60 x 28-400	PTFE-Faced LDPE Foam	48
5610433V-26	125 x 33-400	PTFE-Faced LDPE Foam	24
5610843V-26	250 x 43-400	PTFE-Faced LDPE Foam	24
5611648V-26	500 x 48-400	PTFE-Faced LDPE Foam	24

Clear Glass Square Tablet Bottles

Designed for small-scale sample collection and storage of tablets.

- Wide-mouth design for efficient addition and removal of contents
- Clear glass allows for easy viewing of contents
- Packed in corrugated cartons with divider cells
- Choose from a variety of cap / liner combinations or bottles only
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5910133C-21	30 x 33-400	Pulp / Vinyl	288
5910133C-25	30 x 33-400	Polyethylene Cone	288
5910133C-26	30 x 33-400	PTFE-Faced LDPE Foam	288
5910133B	30 x 33-400	No Cap	288

Clear Glass Standard Wide-MouthJars

Ideal for liquid, dry storage and packaging.

- Wide-mouth design for efficient addition and removal of contents
- Rounded shoulders
- Clear glass allows for easy viewing of contents
- Choose from a variety of cap / liner combinations
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Bulk Packs - Shrink Modules with Caps in Bags

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5310448C-26	125 x 48-400	PTFE-Faced LDPE Foam	24
5310858C-26	250 x 58-400	PTFE-Faced LDPE Foam	24

Convenience Packs (Caps Attached)

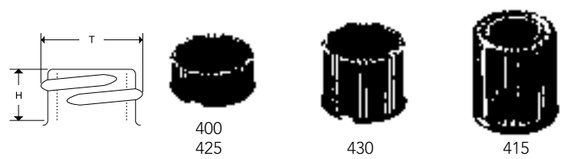
Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5310448V-21	125 x 48-400	Pulp / Vinyl	24
5310858V-21	250 x 58-400	Pulp / Vinyl	24
5310448V-26	125 x 48-400	PTFE-Faced LDPE Foam	24
5310858V-26	250 x 58-400	PTFE-Faced LDPE Foam	24

Clear Glass Testing Jars

Ideal for environmental applications and for general laboratory use.

- Wide-mouth design for efficient addition and removal of contents
- Clear glass allows for easy viewing of contents
- Choose from a variety of cap / liner combinations in Bulk Packs
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

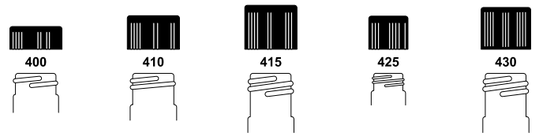
Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5910243C-21	60 x 43-400	Pulp / Vinyl	216
5910243C-26	60 x 43-400	PTFE-Faced LDPE Foam	216
5910243B	60 x 43-400	No Cap	216



GPI refers to the “Glass Packaging Institute,” which is responsible for establishing and issuing uniform standards regarding the types of finishes produced by American glass manufacturers. When a cap is designated as 15-425, it means that the diameter across the threaded area is approximately 15 millimeters. (See the “T” dimension on the diagram above.) The number 425 designates a specific style. Since the “H” dimension is not represented in the size code, the chart below will assist in differentiating styles of finishes having similar thread diameters.

GPI Thread Finish Comparision Chart				
“T” Dimension (mm)	“H” Measurement in Inches			
	400 Finish (in)	410 Finish (in)	415 Finish (in)	425 Finish (in)
8	—	—	—	.262-.280
10	—	—	—	.273-.291
13	—	—	.428-.458	.298-.316
15	—	—	.533-.563	.298-.316
18	.359-.377	.499-.529	.593-.623	—
20	.359-.377	.530-.560	.718-.748	—
22	.359-.377	—	.813-.843	—
24	.388-.406	.622-.652	.933-.963	—
28	.388-.406	.684-.714	1.058-1.088	—
33	.388-.406	—	.245-1.275	—
38	.388-.406	—	—	—
43	.388-.406	—	—	—
45	.388-.406	—	—	—
48	.388-.406	—	—	—
53	.388-.406	—	—	—
58	.388-.406	—	—	—
63	.388-.406	—	—	—
70	.388-.406	—	—	—
77	.467-.485	—	—	—
83	.467-.485	—	—	—
89	.515-.533	—	—	—

CommonThread Finishes



Liner Technical Information

Liner Description	Application	Properties
Pulp / vinyl polyvinyl film adhered to 0.035" pulpboard	General purpose	• Good chemical resistance to mild acids, alkalis, alcohols, aqueous solutions, oils and solvents • Not recommended for hydrocarbons or bleaches
Tinfoil foil laminated to paper and bonded to 0.035" pulpboard	General purpose environmental sampling	• Good barrier • Good resistance to alcohols, hydrocarbons, ketones, oils • Not recommended for acids and alkalis
Solid PE 0.040" polyethylene	General purpose	• Good resistance to acids, alcohols, alkalis, aqueous solutions, oils, solvents • Not recommended for hydrocarbon solvents
PTFE-faced LDPE foam 0.005" PTFE 0.050" LDPE foam	General purpose	• Excellent chemical resistance • Compressible foam for sealability • Poor for organic amines
White rubber 0.050" homogenous white rubber	Hermetic sealing for bio-logicals and other contents requiring sterilization	• Resistant to moisture vapor • Chemical barrier • Autoclavable
Taperseal (cone-shaped) LDPE	Commonly used for liquids, seal is made across the top and the inside diameter of the container	• Excellent sealing ability • Stress crack resistant • Excellent torque retention

Please Note: All caps / liners should be tested to ensure leak and compatibility performance with contents.

Kimble® phenolic caps are...

- Temperature tolerant
- Widely compatibile chemically
- Dimensionally stable

These caps are molded from phenolic, a thermoset plastic resin. We've selected phenolic as our material of choice for its high overal performance as a clousre. When used with Kimble® Type III glass storage containers, you get an unbeatable combination of performance and value.

Phenolic Caps for Bottles, Jars, and Jugs - with PTFE-Faced LDPE Foam Liners

- Excellent solvent resistance and for general purpose use
- Compressible foam offers excellent resealability
- Not autoclavable
- Specially formulated phenolic cap material
- PTFE-faced LDPE foam liner

Part Number	GPI Finish	Case Qty
75206G-20400	20-400	144
75206G-22400	22-400	144
75206G-24400	24-400	144
75206G-28400	28-400	144
75206G-33400	33-400	144
75206G-38400	38-400	144
75206G-43400	43-400	144
75206G-45400	45-400	144
75206G-48400	48-400	144
75206G-53400	53-400	144
75206G-58400	58-400	144
75206G-63400	63-400	144
75206G-70400	70-400	144
75206G-89400	89-400	144

Phenolic Caps for Bottles, Jars, and Jugs - with Tinfoil Liners

- Excellent for environmental sampling and general purpose use
- Good chemical resistance to mild acids, alkalis, alcohols, aqueous solutions, oils and solvents
- Not autoclavable
- Specially formulated phenolic cap material
- Liner constructed of foil laminated to paper and bonded to pulpboard

Part Number	GPI Finish	Case Qty
75203G-20400	20-400	144
75203G-22400	22-400	144
75203G-24400	24-400	144
75203G-28400	28-400	144
75203G-33400	33-400	144
75203G-38400	38-400	144
75203G-43400	43-400	144
75203G-45400	45-400	144
75203G-48400	48-400	144
75203G-53400	53-400	144
75203G-58400	58-400	144
75203G-63400	63-400	144
75203G-70400	70-400	144
75203G-89400	89-400	144

Phenolic Caps for Bottles, Jars, and Jugs - with Pulp/Vinyl Liners

- Economical general purpose cap/liner combination
- Good chemical resistance to mild acids, alkalis, alcohols, aqueous solutions, oils and solvents
- Not autoclavable
- Specially formulated phenolic cap material
- Polyvinyl-faced pulpboard liner

Part Number	GPI Finish	Case Qty
75201G-20400	20-400	144
75201G-22400	22-400	144
75201G-24400	24-400	144
75201G-28400	28-400	144
75201G-33400	33-400	144
75201G-38400	38-400	144
75201G-43400	43-400	144
75201G-45400	45-400	144
75201G-48400	48-400	144
75201G-53400	53-400	144
75201G-58400	58-400	144
75201G-63400	63-400	144
75201G-70400	70-400	144
75201G-89400	89-400	144

Phenolic Caps for Bottles, Jars, and Jugs - with Cone-Shaped LDPE Liners

Black phenolic cap has a securely mounted LDPE cone-shaped liner which offers a two part seal. The closure forms a seal around the rim and the polyseal cone forms a seal against the inner diameter of the vial opening.

- Specially formulated phenolic resin to withstand the effects of repeated autoclaving
- Designed for superior torque retention
- Stress crack resistant
- Excellent for sample storage and re-sealing
- Identified in ASTM Specification E982, Class A requirements

Part Number	GPI Finish	Case Qty
73809-13425	13-425	144
73809-15425	15-425	144
73809-18400	18-400	144
73809-20400	20-400	144
73809-22400	22-400	144
75205-20400	20-400	5,500
75205-22400	22-400	4,700
75205-24400	24-400	4,200
75205-28400	28-400	3,100
75205-33400	33-400	2,300
75205-38400	38-400	1,600
75205G-24400	24-400	144
75205G-28400	28-400	144
75205G-33400	33-400	144
75205G-38400	38-400	144

Phenolic Caps for Bottles, Jars, and Jugs - with Solid PE Liners

- Ideal for strong acid or base samples
- Not autoclavable
- Specially formulated phenolic cap material
- Solid polyethylene liner

Part Number	GPI Finish	Case Qty
75202G-20400	20-400	144
75202G-22400	22-400	144
75202G-24400	24-400	144
75202G-28400	28-400	144
75202G-33400	33-400	144
75202G-38400	38-400	144
75202G-43400	43-400	144
75202G-45400	45-400	144
75202G-48400	48-400	144
75202G-53400	53-400	144
75202G-58400	58-400	144
75202G-63400	63-400	144
75202G-70400	70-400	144
75202G-89400	89-400	144

Clear Glass Straight-Sided Jars,Tall

Storage jars designed without shoulders to maximize capacity for contents.

- Wide-mouth design for efficient addition and removal of contents
- Clear glass allows for easy viewing of contents
- All 32 ounce jars in this group are packed in corrugated cartons with divider cells
- Choose from a variety of cap / liner combinations
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Bulk Packs, Shrink Modules

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5510448C-81	125 x 48-400	Pulp / Vinyl	24
5510858C-81	250 x 58-400	Pulp / Vinyl	24
5511670C-81	500 x 70-400	Pulp / Vinyl	12
5513289C-81	1000 x 89-400	Pulp / Vinyl	12
5513289C-82	1000 x 89-400	Solid PE	12
5513289C-86	1000 x 89-400	PTFE-Faced LDPE Foam	12
5510448B	125 x 48-400	No Cap	24
5510858B	250 x 58-400	No Cap	24
5511670B	500 x 70-400	No Cap	12
5513289B	1000 x 89-400	No Cap	12

Convenience Packs (Caps Attached)

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5510448V-81	125 x 48-400	Pulp / Vinyl	24
5510858V-81	250 x 58-400	Pulp / Vinyl	24
5511670V-81	500 x 70-400	Pulp / Vinyl	12
5513289V-81	1000 x 89-400	Pulp / Vinyl	12
5510448V-86	125 x 48-400	PTFE-Faced LDPE Foam	24
5510858V-86	250 x 58-400	PTFE-Faced LDPE Foam	24
5511670V-86	500 x 70-400	PTFE-Faced LDPE Foam	12
5513289V-86	1000 x 89-400	PTFE-Faced LDPE Foam	12

Clear Glass Straight-Sided Jars

Storage jars designed without shoulders to maximize capacity for contents.

- Wide-mouth design for efficient addition and removal of contents
- Clear glass allows for easy viewing of contents
- All 32 ounce jars in this group are packed in corrugated cartons with divider cells
- Choose from a variety of cap / liner combinations
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Bulk Packs, Shrink Modules with Caps in Bags

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5410253C-21	60 x 53-400	Pulp / Vinyl	216
5410458C-21	125 x 58-400	Pulp / Vinyl	144
5410663C-21	180 x 63-400	Pulp / Vinyl	24
5410870C-21	250 x 70-400	Pulp / Vinyl	24
5411689C-21	500 x 89-400	Pulp / Vinyl	12
5413289C-21	1000 x 89-400	Pulp / Vinyl	12
5410870C-22	250 x 70-400	Solid PE	24
5411689C-22	500 x 89-400	Solid PE	12
5413289C-22	1000 x 89-400	Solid PE	12
5410253C-23	60 x 53-400	Tinfoil	216
5410458C-23	125 x 58-400	Tinfoil	144
5410663C-23	180 x 63-400	Tinfoil	24
5410870C-23	250 x 70-400	Tinfoil	24
5410253C-24	60 x 53-400	White Rubber	216
5410458C-24	125 x 58-400	White Rubber	144
5410663C-24	180 x 63-400	White Rubber	24
5410870C-24	250 x 70-400	White Rubber	24
5411689C-24	500 x 89-400	White Rubber	12
5413289C-24	1000 x 89-400	White Rubber	12
5410253C-26	60 x 53-400	PTFE-Faced LDPE Foam	216
5410458C-26	125 x 58-400	PTFE-Faced LDPE Foam	144
5410663C-26	180 x 63-400	PTFE-Faced LDPE Foam	24
5410870C-26	250 x 70-400	PTFE-Faced LDPE Foam	24
5411689C-26	500 x 89-400	PTFE-Faced LDPE Foam	12
5413289C-26	1000 x 89-400	PTFE-Faced LDPE Foam	12
5410253B	60 x 53-400	No Cap	216
5410458B	125 x 58-400	No Cap	144
5410663B	180 x 63-400	No Cap	24
5410870B	250 x 70-400	No Cap	24
5411689B	500 x 89-400	No Cap	12
5413289B	1000 x 89-400	No Cap	12

Convenience Packs (Caps Attached)

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5410253V-21	60 x 53-400	Pulp / Vinyl	24
5410458V-21	125 x 58-400	Pulp / Vinyl	24
5410663V-21	180 x 63-400	Pulp / Vinyl	12
5410870V-21	250 x 70-400	Pulp / Vinyl	12
5411689V-21	500 x 89-400	Pulp / Vinyl	12
5413289V-21	1000 x 89-400	Pulp / Vinyl	12
5410253V-22	60 x 53-400	Solid PE	24
5410458V-22	125 x 58-400	Solid PE	24
5410663V-22	180 x 63-400	Solid PE	12
5410870V-22	250 x 70-400	Solid PE	12
5411689V-22	500 x 89-400	Solid PE	12
5413289V-22	1000 x 89-400	Solid PE	12
5410253V-24	60 x 53-400	White Rubber	24
5410458V-24	125 x 58-400	White Rubber	24
5410253V-26	60 x 53-400	PTFE-Faced LDPE Foam	24
5410458V-26	125 x 58-400	PTFE-Faced LDPE Foam	24
5410663V-26	180 x 63-400	PTFE-Faced LDPE Foam	12
5410870V-26	250 x 70-400	PTFE-Faced LDPE Foam	12
5411689V-26	500 x 89-400	PTFE-Faced LDPE Foam	12
5413289V-26	1000 x 89-400	PTFE-Faced LDPE Foam	12

Amber Glass Straight-Sided Jars

Designed to protect contents from UV rays and ideal for light-sensitive products.

- Wide-mouth design for efficient addition and removal of contents
- All 32 ounce jars in this group are packed in corrugated cartons with divider cells
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Bulk Packs - Shrink Modules with Caps in Bags

Part Number	Capacity (mL)	GPI Finish	Case Qty
5420253C-26	60	53-400	216
5420458C-26	125	58-400	144
5420870C-26	250	70-400	24
5421689C-26	500	89-400	12

Convenience Packs (Caps Attached)

Part Number	Capacity (mL) x GPI Finish	Cap Material	Case Qty
5420253V-21	60 x 53-400	Pulp / Vinyl	24
5420253V-26	60 x 53-400	PTFE-Faced LDPE Foam	24
5420458V-21	125 x 58-400	Pulp / Vinyl	24
5420458V-26	125 x 58-400	PTFE-Faced LDPE Foam	24
5420870V-21	250 x 70-400	Pulp / Vinyl	12

Clear Glass Jugs

General purpose container comprised of a wide body, a narrow mouth, and a handle for safe pouring.

- Clear glass allows for easy viewing of contents
- Choose from a variety of cap / liner combinations or jugs only without caps
- Please note that all jugs in this group are packed in corrugated cartons with divider cells
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5916438V-25	2000 x 38-400	Polyethylene Cone	6
5919138V-25	3840 x 38-400	Polyethylene Cone	4
5916438V-26	2000 x 38-400	PTFE-Faced LDPE Foam	6
5919138V-26	3840 x 38-400	PTFE-Faced LDPE Foam	4
5916438B	2000 x 38-400	No Cap	6
5919138B	3840 x 38-400	No Cap	4

Amber Glass Jugs

General purpose container comprised of a wide body, a narrow mouth, and a handle for safe pouring.

- Amber glass protects light-sensitive contents
- Choose from a variety of cap / liner combinations or jugs only without caps
- Please note that all jugs in this group are packed in corrugated cartons with divider cells
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Part Number	Capacity (mL) x GPI Finish	Cap Liner Material	Case Qty
5928038V-25	2400 x 38-430	Polyethylene Cone	6
5929138V-25	3785 x 38-400	Polyethylene Cone	4
5928038V-26	2400 x 38-430	PTFE-Faced LDPE Foam	6
5929138V-26	3785 x 38-400	PTFE-Faced LDPE Foam	4
5928038B	2400 x 38-430	No Cap	6
5929138B	3785 x 38-400	No Cap	4

GL 45 Media Bottles

Ideal for general laboratory use including mixing, storing or transporting culture media, chemicals or solvents.

- Enhanced graduations and marking spot made with chemically resistant white enamel paint
- 30 mm ID opening
- Autoclavable
- Supplied without caps or with linerless GL 45 screw thread caps
- Replaceable clear (natural) drip-free polypropylene pour ring is included on each bottle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Cap Material	Case Qty
14395-100	100	Blue Polypropylene	10
14395-250	250	Blue Polypropylene	10
14395-500	500	Blue Polypropylene	10
14395-1000	1000	Blue Polypropylene	10
14395-2000	2000	Blue Polypropylene	4
14395-5000	5000	Blue Polypropylene	1
14395-10000	10000	Blue Polypropylene	1
14396-100	100	No Cap	10
14396-250	250	No Cap	10
14396-500	500	No Cap	10
14396-1000	1000	No Cap	10
14396-2000	2000	No Cap	4
14396-5000	5000	No Cap	1
14396-10000	10000	No Cap	1

Replacement Parts

Part Number	Description	Case Qty
14395C-45	Blue Polypropylene GL-45 Solid Top Screw Thread Cap, Max. Temp. 140° C	10
14395P-45	Clear Polypropylene GL-45 Bottle Pour Ring, Max. Temp. 140° C	10

KimCote® GL 45 Media Bottles

Ideal for general laboratory use including mixing, storing or transporting culture media, chemicals or solvents.

- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Enhanced graduations and marking spot made with chemically resistant white enamel paint
- 30 mm ID opening
- Blue polypropylene linerless GL 45 screw thread cap
- Replaceable clear (natural) drip-free polypropylene pour ring is included on each bottle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
KC14395-100	100	100 x 56	4
KC14395-250	250	138 x 70	4
KC14395-500	500	176 x 86	4
KC14395-1000	1000	225 x 101	4
KC14395-2000	2000	260 x 136	4
KC14395-5000	5000	330 x 181	1
KC14395-10000	10000	410 x 227	1

Replacement Parts

Part Number	Description	Case Qty
14395C-45	Blue Polypropylene GL-45 Solid Top Screw Thread Cap, Max. Temp. 140° C	10
14395P-45	Clear Polypropylene GL-45 Bottle Pour Ring, Max. Temp. 140° C	10

GL 45 Storage Bottle Caps

Caps are designed to fit GL 45 threaded ware.

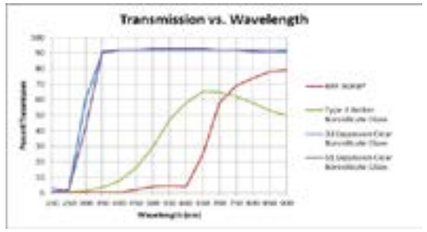
- Autoclavable
- Solid top polypropylene
- Cap colors available in blue, white or orange
- High-temperature version with red cap available

Part Number	Feature	Color	Case Qty
14395C-45	Internal molded seal ring	Blue	10
14395C-451	Internal molded seal ring	White	10
14395C-453	Internal molded seal ring	Orange	10
14395C-455	Internal molded seal ring	Gray	10
14395C-457	Internal molded seal ring	Green	10
14395C-459	Internal molded seal ring	Pink	10
14395M-45	0.2 micron PTFE membrane	Blue	10
14395H-452	High temp, PBT with PTFE-faced silicone liner	Red	10
953909-0000	Hi-temp, PBT body, PTFE-faced silicone liner	Red	1
953908-0000	Size 216 TFE/propylene o-ring, polypropylene screw collar		1

RAY-SORB® GL 45 Media Bottles

Ideal for general laboratory use including mixing, storing or transporting culture media, chemicals or solvents.

- Enhanced graduations and marking spot made with chemically resistant white enamel paint
- 30 mm ID opening
- Linerless GL 45 screw thread cap
- Autoclavable
- Replaceable clear (natural) drip-free polypropylene pour ring is included on each bottle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed



Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
14399-100	100	100 x 56	1
14399-250	250	138 x 70	1
14399-500	500	176 x 86	1
14399-1000	1000	225 x 101	1
14399-2000	2000	260 x 136	1
14399-5000	5000	330 x 181	1
14399-10000	10000	410 x 227	1

Replacement Parts

Part Number	Description	Case Qty
14395C-45	Blue Polypropylene GL-45 Solid Top Screw Thread Cap, Max. Temp. 140° C	10
14395P-45	Clear Polypropylene GL-45 Bottle Pour Ring, Max. Temp. 140° C	10

GL 45 Pour Ring

Designed for use with 14395 series bottles and 26720 series flasks.

- Pour rings are made of clear drip-free polypropylene or red ETFE
- 14395E-452 high temperature ring is recommended for use with 14395H-452 high temperature cap

Part Number	Material	Case Qty
14395P-45	Polypropylene	10
14395E-452	ETFE	10

Storage/Media Bottles Only

Ideal for general laboratory use including mixing, storing or transporting culture media, chemicals or solvents.

- Screw thread opening, cap not supplied
- Manufactured from USP Type I molded glass

Part Number	Capacity (mL)	GPI Finish	Case Qty
61100-125	125	33-430	48
61100-250	250	33-430	48
61100-500	500	33-430	24
61100-1000	1000	33-430	12
61100A-1000	1000	38-430	12

Storage/Media Bottles with Attached Closures

Ideal for general laboratory use including mixing, storing or transporting culture media, chemicals or solvents.

- Graduated markings
- All sizes are molded with a convenient 33 mm pour-out neck finish, while the 1000 mL is also available with a larger 38 mm pour-out opening
- Finger indents are molded into the side walls of 1000 mL bottles for safety
- 61110R and 61111R are assembled with phenolic white rubber-lined closures
- 61110T and 61111T are assembled with phenolic PTFE-faced white rubber-lined closures
- 61110P and 61111P are assembled with polypropylene closures welded to PTFE/silicone liners
- 61110P and 61111P closures are ideal for repeated autoclaving, and the PTFE/silicone liner eliminates possibility of glue contamination
- Large white marking spot
- Manufactured from USP Type I molded glass

Part Number	Capacity (mL) x GPI Finish	Liner Material	Case Qty
61110P-125	125 x 33-430	PTFE/Silicone Welded to Closure	48
61110P-250	250 x 33-430	PTFE/Silicone Welded to Closure	48
61110P-500	500 x 33-430	PTFE/Silicone Welded to Closure	24
61110P-1000	1000 x 38-430	PTFE/Silicone Welded to Closure	12
61111P-1000	1000 x 33-430	PTFE/Silicone Welded to Closure	12
61110R-125	125 x 33-430	White Rubber	48
61110R-250	250 x 33-430	White Rubber	48
61110R-500	500 x 33-430	White Rubber	24
61110R-1000	1000 x 38-430	White Rubber	12
61111R-1000	1000 x 33-430	White Rubber	12
61110T-125	125 x 33-430	PTFE-Faced White Rubber	48
61110T-250	250 x 33-430	PTFE-Faced White Rubber	48
61110T-500	500 x 33-430	PTFE-Faced White Rubber	24
61110T-1000	1000 x 38-430	PTFE-Faced White Rubber	12
61111T-1000	1000 x 33-430	PTFE-Faced White Rubber	12

Graduated Storage/Media Bottles Only

Ideal for general laboratory use, including mixing, storing or transporting culture media, chemicals or solvents.

- Graduated markings
- Screw thread opening, cap not supplied
- Large white marking spot
- Manufactured from USP Type I molded glass

Part Number	Capacity (mL)	GPI Finish	Case Qty
61110-125	125	33-430	48
61110-250	250	33-430	48
61110-500	500	33-430	24
61110-1000	1000	33-430	12
61110A-1000	1000	38-430	12

Caps for Storage/Media Bottles

Part Number	Description	Case Qty
73802-33430	33-430 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner	144
73802-38430	38-430 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner	144
73803-33430	33-430 Black Phenolic Cap, White Rubber Liner	144
73803-38430	38-430 Black Phenolic Cap, White Rubber Liner	144
73808-33430	33-430 Black Polypropylene Cap, PTFE faced/ Silicone Welded Liner, Microlink	48
73808-38430	38-430 Black Polypropylene Cap, PTFE faced/ Silicone Welded Liner, Microlink	48

NEW!!!

GL 45 Media Bottle Starter Pack

An assortment of popularly sized media bottles from our 14395 series, which is ideal for general laboratory use including mixing, storing or transporting culture media, chemicals or solvents.

- Enhanced graduations and marking spot made with chemically resistant white enamel paint
- 30 mm ID opening
- Autoclavable
- Supplied with blue polypropylene linerless GL 45 screw thread caps
- Replaceable clear (natural) drip-free polypropylene pour ring is included on each bottle
- The pack consists of two 100 mL, three 250 mL, three 500 mL, and two 1000 mL bottles
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Case Qty
14395-01	100, 100, 250, 250, 250, 500, 500, 500, 1000, 1000	1

KimCote® Heavy Duty Serum Bottles

The heavy duty construction of these bottles is designed to prolong life expectancy with harder than normal usage. Ideal for packaging and storage.

- Kimble KIMAX® KimCote® plastic-coated bottle with rounded shoulders.
- Neck is tooled for a uniform fit with a #8 rubber stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
KC14960-4	4000	310 x 167	1
KC14960-9	9000	412 x 203	1

Heavy Duty Serum Bottles

The heavy duty construction of these bottles is designed to prolong life expectancy with harder than normal usage. Ideal for packaging and storage.

- Rounded shoulders
- Neck is tooled for a uniform fit with a #8 rubber stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
14960-4	4000	310 x 167	1
14960-9	9000	412 x 203	1

Serum Bottles

Autoclavable Kimble® serum bottles and vials are well-suited for the handling, containment and storage of a variety of liquids including reagents, vaccines, blood plasma, culture media, chromatography samples and more. Ideal for packaging and storage where applications of injectable and parenteral solutions require utmost purity.

- Highly resistant to thermal and mechanical shock as well as chemical attack
- Manufactured from USP Type I borosilicate molded glass

Part Number	Capacity (mL)	Body OD x Height (mm)	Case Qty
61000G-5	5	23 x 47	288
61000G-10	10	25 x 52	288
61000G-20	20	33 x 59	288
61000G-30	30	37 x 66	288
61000G-50	50	43 x 75	288
61000G-60	60	40 x 90	144
61000G-100	100	52 x 94	144
61000G-125	125	54 x 106	144
61000G-200	200	65 x 114	24

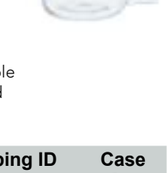
Reservoir Bottles with Bottom Hose Outlet

Designed to store and discharge liquids via a bottom hose outlet.

- Glass hose connection outlet is fused to the bottle
- All sizes accept 5/16" ID flexible tubing
- With white enamel marking spot
- Ref: ASTM Method D1744
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
14607-250	250	2	6
14607-500	500	4	1
14607-1000	1000	6	1
14607-2000	2000	6	1
14607-5000	5000	10	1
14607-10000	10000	12	1
14607-20000	20000	12	1

KimCote® Reservoir Bottle with Bottom Hose Outlet



Designed to store and discharge liquids via a bottom hose outlet.

- Kimble® KIMAX® KimCote® safety-coated reservoir bottle
- Glass hose connection outlet is fused to the bottle
- White enamel marking spot
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Fits Tubing ID (inches)	Case Qty
KC14607-250	250	5/16	6
KC14607-500	500	5/16	6
KC14607-1000	1000	3/8	4
KC14607-2000	2000	3/8	4
KC14607-5000	5000	3/8	1
KC14607-10000	10000	3/8	1
KC14607-20000	20000	3/8	1

Reservoir Bottles with Bottom Valve Outlet

Designed to store and discharge liquids via a bottom valve outlet.

- KIMAX® bottles are graduated with an approximate capacity scale
- Bottom outlet is controlled with an 8 mm valve
- Valve can be used with 1/4" flexible tubing attached to the quick-release hose barb connector and with rigid 1/4" OD PTFE tubing with the o-ring and cap supplied on the quick-release connector
- Bottle supplied with valve, cap, hose barb connector and o-ring
- Ref: ASTM Method D1744
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Diameter (mm)	Case Qty
14612F-2000	2000	136	1
14612F-5000	5000	183	1
14612F-10000	10000	230	1
14612F-20000	20000	290	1

Replacement Parts

Part Number	Description	Case Qty
736400-1413	Quick-Release Hose Barb Connector for Reservoir Bottle	1
826501-0008	Size 8 Valve Plug, PTFE	1

Custom Glass

CGS is the Custom Glass Shop at Kimble®. We can be your single source for custom laboratory glassware design and fabrication. Whether you want a slight variation of a standard product or a completely unique design, CGS can do it! In quantities as small as one piece. Our staff of veteran glassblowers will meet your requirements and exceed your expectations.

CGS Capabilities:

- Engineering and design
- Graduating
- Quartz apparatus
- Glass to metal graded seals
- Grinding and polishing (machine or hand)
- Machine shop
- Microscale glassware
- Precision bore tubing
- Glass tooling
- Large-scale systems
- Flasks to 72 liters
- Decorating

Phone: 800.682.6644 E-mail: customglass@kimble-chase.com

HPLC Reservoirs With Conical Bottoms

Designed for preparation, storage and delivery of all liquid chromatography mobile phases. As part of our ULTRA-WARE® series, these reservoirs are recommended for use under vacuum for filtration and vacuum degassing of mobile phase solvents.

- Plastic safety-coating blocks UV light up to 385nm, preventing photo-degradation of light-sensitive reagents
- Safety coating helps to retain glass fragments and allows a reasonable amount of time for the safe disposal of liquid contents
- Used with internal pressures up to 0.4 bar (6 psig) for helium sparging and blanketing of the mobile phase
- Operating Pressure: -1.0 to 0.4 bar (-14.5 psig to 6 psig)
- Conical bottom delivers all of the mobile phase without reservoir tilting
- Chemically inert glass prevents leaching of any extractables into the mobile phase solvents
- Supplied with GL-45 screw thread
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

without Graduations

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953901-0252	250	203 x 85	1
953901-0502	500	230 x 105	1
953901-1002	1000	275 x 130	1
953901-2002	2000	319 x 150	1
953901-5002	5000	373 x 205	1
953901-1003	10000	433 x 255	1
953901-2003	20000	578 x 315	1

with Graduations

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953922-0252	250	203 x 85	1
953922-0502	500	230 x 105	1
953922-1002	1000	275 x 130	1
953922-2002	2000	319 x 150	1
953922-5002	5000	373 x 205	1
953922-1003	10000	433 x 255	1
953922-2003	20000	578 x 315	1

with Side Neck and Graduations

Side neck allows addition of filtered solvent without removing delivery cap

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953910-2002	2000	319 x 150	1
953910-2003	20000	578 x 315	1
953910-5002	5000	373 x 205	1

HPLC Flat Bottom Reservoirs

Designed for preparation, storage and delivery of all liquid chromatography mobile phases. As part of our ULTRA-WARE® series, these reservoirs are recommended for use under vacuum for filtration and vacuum degassing of mobile phase solvents.

- Plastic safety-coating blocks UV light up to 385nm, preventing photo-degradation of light-sensitive reagents
- Safety coating helps to retain glass fragments and allows a reasonable amount of time for the safe disposal of liquid contents
- Used with internal pressures up to 0.4 bar (6 psig) for helium sparging and blanketing of the mobile phase
- Operating Pressure: -1.0 to 0.4 bar (-14.5 psig to 6 psig)
- Chemically inert glass prevents leaching of any extractables into the mobile phase solvents
- Supplied with GL-45 screw thread
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

with Graduations

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953932-0252	250	203 x 85	1
953932-0502	500	230 x 105	1
953932-1002	1000	275 x 130	1
953932-2002	2000	319 x 150	1
953932-5002	5000	373 x 205	1
953932-1003	10000	433 x 255	1
953932-2003	20000	578 x 315	1

without Graduations

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953902-0252	250	133 x 73	1
953902-0502	500	165 x 89	1
953902-1002	1000	205 x 111	1
953902-1002	1000	205 x 111	1
953902-2002	2000	250 x 138	1
953902-5002	5000	320 x 186	1
953902-1003	10000	400 x 234	1
953902-2003	20000	490 x 300	1

Specifications for ULTRA-WARE® HPLC Reservoirs

Materials:
- Reservoir: Type I, Class A, Borosilicate Glass
- Plastic Coating: PVC with UV blocking agent

Screw Thread: GL 45-4

Operating Pressure: -1.0 to 0.4 bar

UV Transmittance: <1% up to 385 nm

Vacuum or Pressure Bottle

This laboratory bottle has been specially designed for use under vacuum and at pressures up to 1.5 bar (at a maximum of 140 °C).

- GL 45 screw thread
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Operating Pressure (bar)	Case Qty
953900-0010	1000	1.5	1

GL 45 High Temperature Caps for HPLC Reservoirs

Caps are for use with high temperature applications and will fit any reservoirs or bottles with GL 45 screw threads.

- Autoclaving maximum temperature is 180 °C
- Chemically resistant to alcohols, ethers, hydrocarbons and dilute or strong acids
- Manufactured from polybutylene terepthalate

Part Number	Screw Thread	Max Temperature (ºC)	Case Qty
14395H-452	GL 45	180	10
953909-0000	GL 45	180	1

HPLC Reservoir Adapters to Convert GL 45 to Standard Taper 40/35

Designed to convert GL 45 threads to Standard Taper 40/35 inner joints.

- Autoclavable
- Allows filter membrane support glassware with 40/35 outer joints to be used on ULTRA-WARE® HPLC reservoirs
- Highly chemically resistant PTFE remains non-brittle at sub-zero temperatures

Part Number	Standard Taper Joints	Screw Thread	Case Qty
953905-0000	40/35	GL 45	1

GL 45 PTFE Screw Thread Caps

Designed to fit any reservoir or bottle with GL 45 screw threads.

- Provides the best possible seal
- PTFE cap body is chemically inert and remains non-brittle at sub-zero temperatures
- TFE/propylene o-ring, size 216
- Polypropylene screw collar

Part Number	Case Qty
953908-0000	1

HPLC Reservoir Adapters to Convert GL 45 to Solvent Bottle

Designed to convert ULTRAWARE® GL-45 mobile phase caps to standard 4L solvent bottles.

- Autoclavable
- Manufactured from polybutylene terephthalate
- Allows direct access to HPLC instruments

Part Number	Case Qty
953907-0000	1

Solution Bottles With Color-Coded PTFE Flathead Stopper

These KIMAX® bottles are designed for storage and dispensing of solutions.

- Bottle necks are Standard Taper ground to accept flathead color-coded PTFE stoppers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Stopper Size	Case Qty
15097-100	100	14	1
15097-250	250	19	6
15097-500	500	24	6
15097-1000	1000	29	6
15097-2000	2000	29	4

Replacement Parts

Part Number	Description	Case Qty
41941R-24	Size 24 solid blue flathead PTFE Bottle Stopper, 24mm Diameter at Large End, 30mm Length of Ground Zone, 13mm Height Above Standard Taper Grind	6
41941R-29	Size 29 solid green flathead PTFE Bottle Stop-per, 29.2mm Diameter at Large End, 35mm Length of Ground Zone, 13mm Height Above Standard Taper Grind	6
41941R-34	Size 34 solid orange flathead, PTFE Bottle Stopper, 34.5mm Diameter at Large End, 40mm Length of Ground Zone, 15mm Height Above Standard Taper Grind	6
850540-0014	Size 14 solid red flathead PTFE Bottle Stopper, 14.5mm Diameter at Large End, 20mm Length of Ground Zone, 10mm Height Above Standard Taper Grind	1
850540-0024	Size 24 solid blue flathead PTFE Bottle Stopper, 24mm Diameter at Large End, 30mm Length of Ground Zone, 13mm Height Above Standard Taper Grind	1

KimCote® Solution Bottle with Color-Coded PTFE Flathead Stopper

Designed for storage of solutions and ideal for media preparation.

- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Narrow mouth increases mechanical strength
- Bottle necks are Standard Taper ground to accept flathead color-coded PTFE stoppers
- Replacement stoppers are 41941
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Stopper Size	Case Qty
KC15097-100	100	14	12
KC15097-250	250	19	6
KC15097-500	500	24	6
KC15097-1000	1000	29	6
KC15097-2000	2000	29	1

Replacement Parts

Part Number	Description	Case Qty
41941R-24	Solid, Blue, Flathead, PTFE Bottle Stopper size 24, 24mm Diameter at Large End, 30mm Length of Ground Zone, 13mm Height Above Standard Taper Grind	6
41941R-29	Solid, Green, Flathead, PTFE Bottle Stopper size 29, 29.2mm Diameter at Large End, 35mm Length of Ground Zone, 13mm Height Above Standard Taper Grind	6
850540-0024	Solid, Blue, Flathead, PTFE Bottle Stopper size 24, 24mm Diameter at Large End, 30mm Length of Ground Zone, 13mm Height Above Standard Taper Grind	1
850540-0014	Solid, Red, Flathead, PTFE Bottle Stopper size 14, 14.5mm Diameter at Large End, 20mm Length of Ground Zone, 10mm Height Above Standard Taper Grind	1

Solution Bottles with Narrow Mouth For Rubber Stopper

Ideal for storage and dispensing of solutions.

- Neck is tooled for increased mechanical strength and for a uniform fit with rubber stoppers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
15093-1000	1000	6	6
15093-2000	2000	6	4
15093-5000	5000	10	1
15093-10000	10000	12	1
15093-20000	20000	12	1

Heavy Duty Carboy Solution Bottles

The heavy duty construction of these bottles is designed to prolong life expectancy with harder than normal usage. Ideal for storage and dispensing of solutions.

- KIMAX® carboy-style bottle with sloping shoulders
- Neck is tooled for a uniform fit with a #12 rubber stopper
- 5 gallon size is designed from Federal Specification DD-B-597
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Accessories include carboy clamp and silicone stopper assemblies:

- 3-port platinum-cured stopper assembly and sanitary PVDF clamp to provide sterile fluid transfer with no extractables, as required in bio-tech and pharmaceutical applications
- The stopper ports are designed to connect 1/8", 1/4" (4-port stopper has two 1/4" ports) and 3/8" silicone tubing
- The silicone tubing provided is cut into 2' lengths
- Non-sterile
- Autoclavable
- These assemblies are specifically designed to fit all sizes of KIMAX® 14950 solution (carboy) bottles

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
14950-25	9500	392 x 222	1
14950-35	13200	448 x 257	1
14950-500	19000	502 x 294	1
14950-120	45500	584 x 410	1

Accessories

Part Number	Description	Case Qty
14950C-12	Clamp	1
14950S-321	Stopper, 3 port	1
14950S-2321	Stopper, 4 port	1

KimCote® Heavy Duty Carboy

Designed for storage of solutions and ideal for media preparation.

- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- With sloping shoulders of the carboy style
- Neck is tooled for a uniform fit with a #12 rubber stopper
- 5 gallon size is designed from Federal Specification DD-B-597
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Accessories include carboy clamp and silicone stopper assemblies

- 3-port platinum-cured stopper assembly and sanitary PVDF clamp to provide sterile fluid transfer with no extractables, as required in bio-tech and pharmaceutical applications
- The stopper ports are designed to connect 1/8", 1/4" (4-port stopper has two 1/4" tubes) and 3/8" silicone tubing
- The silicone tubing provided is cut into 2' lengths
- Non-sterile
- Autoclavable
- These assemblies are specifically designed to fit all sizes of KIMAX® 14950 solution (carboy) bottles

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
KC14950-25	9500	392 x 222	1
KC14950-35	13200	448 x 257	1
KC14950-500	19000	502 x 294	1

Accessories

Part Number	Description	Case Qty
14950C-12	Clamp	1
14950S-321	Stopper, 3 port	1
14950S-2321	Stopper, 4 port	1

2000 mL B.O.D. Bottles

Designed with increased volume for long term sampling and incubation of aqueous samples for biochemical oxygen demand (B.O.D) analysis.

- The design of the neck has a flared mouth to form a water seal which prevents the entrance of air
- For reference see Method 5210-C: Ultimate B.O.D. Test (22nd Edition of Standard Methods for Examination of Water and Wastewater)
- Manufactured from 33 expansion, expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
332250-2000	2000	248 x 140	1

300 mL B.O.D. Bottles

Designed for sampling and incubation of aqueous samples. Determines the amount of oxygen required during the stabilization of the decomposable organic matter by aerobic biochemical action.

- The design incorporates a flared mouth used to form a water seal which prevents the drawing of air into the bottle during incubation
- The bottle's shoulder radius has been improved to provide an interior shape which sweeps entrained air out of the stopper opening
- Glass stopper design uses a conical extension to displace excess sample which further insures no air entrapment in the sample
- For reference see Method 5210-B: 5-Day B.O.D. Test (Standard Methods for Examination of Water and Wastewater)
- Manufactured from 33 expansion, expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Height x OD (mm)	Number Sequence	Case Qty
15070-00	165 x 69	Un-numbered	24
15070-01	165 x 69	01 - 24	24
15070-25	165 x 69	25 - 48	24

Replacement Parts

Part Number	Description	Case Qty
15070G-00	300 mL Un-numbered BOD Bottles without Stoppers	24

Accessories

Part Number	Description	Case Qty
15070L-99	Snap Caps for 300mL BOD Bottles	50

Display Bottle

Used to display materials, particularly at exhibits, museums and medical schools.

- Finished with uniform walls
- Heavy flared base which does not exceed the jar diameter
- Specially fitted corks are included and packed separately
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height x Diameter (mm)	Case Qty
15107-2	59	105 x 36	12
15107-4	118	115 x 51	12
15107-8	237	162 x 63	12
15107-16	473	210 x 71	12

Dilatometers

Used for determining the solid fat index (an empirical measure of the solid fat content) of shortenings, margarine oils, and other fats with a solid index of 50 or less at 10 °C.

- Results are expressed as melting dilation in mL/kg of fat
- Method is described in A.O.C.S. Method Cd. 10-57
- Stem is made from precision-bore tubing
- Includes a 329105-0000 solid (closed) stopper and one 675300-0014 polyacetal clamp
- Calibration certificate is supplied with 329325-0000
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL)	Case Qty
329300-0000	1.4	0 to 1.4	1
329325-0000	1.4	0 to 1.4	1

Replacement Parts

Part Number	Description	Case Qty
329105-0000	5 mm Solid Stopper without Lug	1
675300-0014	Size 14 Polyacetyl, Standard Taper Clamp, Yellow, Fits joint sizes 14/20, 14/35	12

Accessories

Part Number	Description	Case Qty
329150-0000	12-Position Rack	1

Clear Dropping Bottles with Standard Taper Pipet

The dropper bottle is designed for general purpose use and for determining the oil absorption of pigments (ASTM D281).

- Provided with a medium length Standard Taper pipet dropper and a rubber nipple
- The 30 and 60 mL sizes are designed from Federal Specification A-A-5134 requirements
- The 125 mL size is manufactured from USP Type 1 borosilicate molded glass, and all others are manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
15035-15	15	12/18	12
15035-30	30	12/18	12
15035-60	60	12/18	12
15035-125	125	19/22	12

Amber Dropping Bottles with Glass Dropper

Designed to protect contents from UV rays and ideal for light-sensitive products.

- Supplied with 20-400 GPI screw cap, bulb and glass dropper assembled on the bottle
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
15040G-30	30	102 x 31	12
15040G-60	60	118 x 39	12

Replacement Parts

Part Number	Description	Case Qty
15040D-3001	30 mL Glass Dropper with Rubber Nipple	6
15040D-6001	60 mL Glass Dropper with Rubber Nipple	6

Amber Dropping Bottles with Plastic Dropper

Designed to protect contents from UV rays and ideal for light-sensitive products

- Supplied with 20-400 GPI screw cap, bulb and plastic dropper assembled on the bottle
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
15040P-30	30	102 x 31	72
15040P-60	60	118 x 39	12

Square Milk Dilution Bottles

These KIMAX®-35 bottles are designed from the requirements for milk dilution bottles given in the "Standard Methods for the Examination of Dairy Products," published by the American Public Health Association.

- Ungraduated
- Bottles have a square cross-section
- 14250 has a wide appeal for general use, especially water sampling, milk dilutions and tissue culture work
- 14915 has a smooth marking spot
- Autoclavable to 121 °C without preconditioning
- Replacement cap is 14255-28
- Black phenolic screw cap, supplied unattached, has a cemented-in rubber liner and is suitable for autoclaving
- Manufactured from USP Type 1 borosilicate molded glass

Part Number	Capacity (mL)	GPI Finish	Case Qty
14915-160	160	28-400	48
14250-200	200	28-400	48

Square Graduated Milk Dilution Bottle

These KIMAX®-35 bottles are designed from the requirements for milk dilution bottles given in the "Standard Methods for the Examination of Dairy Products," published by the American Public Health Association.

- Graduated at 99 mL
- Bottles have a square cross-section and a smooth marking spot
- Autoclavable to 121°C without preconditioning
- Replacement cap is 14255-28
- Black phenolic screw cap, supplied unattached, has a cemented-in rubber liner and is suitable for autoclaving
- Manufactured from USP Type 1 borosilicate molded glass

Part Number	Capacity (mL)	GPI Finish	Case Qty
14925-160	160	28-400	48

Povitsky Bottles

Designed for the preparation of toxins and general tissue culture work.

- Rectangular cross-section with an offset neck
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Cross-Section (mm)	Case Qty
15975-5	5000	114x152	1

Pycnometer

Designed for measuring and comparing the densities or specific gravities of liquids and solids.

- 15123N series thermometers are non-mercury spirit-filled; 15123R series thermometers are mercury-filled
- Supplied with Standard Taper 10/18 thermometer with a range of 14 to 38 °C in 0.2 degree increments
- Thermometer is retested for accuracy within ± 0.2 degrees C
- Standard Taper 5/12 side tube cap has a small vent near the top
- Body is conical for maximum stability
- Capacity is within 10 percent of nominal shown on the flask
- Each flask body is numbered for ready identification
- The 50 mL size may be used to obtain the specific gravity of pigments (ASTM D153)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Procedure for Use of 15123R and 15123N Bottles

1. Thoroughly clean, dry, assemble, and weigh the empty pycnometer and record.
2. Fill with recently boiled, distilled water at a temperature a degree or two below the determination temperature.
3. Insert thermometer into the bottle, forcing water through the overflow tube.
4. Place in a constant temperature bath and when the desired temperature is reached, wipe off excess water from the overflow tube tip and cap.
5. Remove from bath, wipe dry, reweigh and record.
6. Weight difference is that of the water in the flask - the volume of the pycnometer may be calculated.
7. Repeat process with liquid of an unknown specific gravity and record the weight difference.

Calculation:
Specific Gravity - (weight of liquid of unknown S.G.)
(weight of water at same temperature)

Please note: Some of these items contain mercury. Exposed mercury can evaporate and become an invisible, odorless toxic vapor. Use caution in storing and handling this product. Products containing mercury should not be put in the trash; they must be recycled or disposed of as hazardous waste according to state and local laws.

Part Number	Capacity (mL) x Height (mm)	Feature	Case Qty
15123N-10	10 x 168	Non-Mercury filled Thermometer	1
15123N-25	25 x 175	Non-Mercury filled Thermometer	1
15123N-50	50 x 186	Non-Mercury filled Thermometer	1
15123R-10	10 x 168	Mercury Thermometer	1
15123R-25	25 x 175	Mercury Thermometer	1
15123R-50	50 x 186	Mercury Thermometer	1

Accessories

Part Number	Description	Case Qty
15123T-1025	10 or 25mL Mercury Thermometer, 14-38°C, 10/18, Stated Immersion 28 mm	1
15123N-2538	10-25 mL Non-Mercury Thermometer, 14-38°C, 10/18, Stated Immersion 28 mm	1
15123N-5038	50 mL Non-Mercury Thermometer, 14-38°C, 10/18, Stated Immersion 28 mm	1

Hubbard Specific Gravity Bottles

KIMAX® bottle is used in the determination of specific gravity for a large variety of semisolid materials and emulsions.

- Short length stopper is conical on the underside and has a hole approximately 1.6 mm in diameter to allow air to escape
- Determines specific gravity for road oils, road tars, soft tar pitches, and asphalt cements (ASTM D70); water and brine (ASTM D1429); and insulating varnishes (ASTM D115)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
15110-24	24	24/12	12

Hubbard-Carmick Specific Gravity Bottles

KIMAX® bottle is used in the determination of specific gravity for a large variety of semisolid materials and emulsions.

- Short length stopper is conical on the underside and has a hole approximately 1.6 mm in diameter to allow air to escape
- Conical shape offers greater stability
- Determines specific gravity for road oils, road tars, soft tar pitches, and asphalt cements (ASTM D70); water and brine (ASTM D1429); and insulating varnishes (ASTM D115)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
15113-25	25	24/12	12

Unsaturation Gasoline Bottle

KIMAX® bottle used in the determination of unsaturated hydrocarbons in gasoline.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

The body of the bottle (approximately 45 mL capacity) is a "reaction vessel" in which an accurately measured sample is pipetted into the bottle; excess reagent is then added. After the reaction is complete, more reagent is added to raise the "fat column" into the calibrated neck of the bottle, where results are read directly as a percentage of fat in the sample.

Part Number	Neck Capacity (%)	Height x Base OD (mm)	Case Qty
15066-10	100 (10 mL)	164 x 37	12

Le Chatelier Class A Serialized Specific Gravity Bottles

KIMAX® bottle used in the determination of the specific gravity of cement, sand and other fine materials (ASTM C188).

- Designed for a 64 gram sample
- Body holds approximately 250 mL
- Smaller neck bulb holds 17mL
- Below the neck bulb, the neck is graduated from 0 to 1.0 mL and has two extra 0.1 mL lines both above 1.0 mL and below 0.0 mL, with a tolerance of ±0.05 mL
- Above the neck bulb, the neck is graduated from 18 to 24 mL in 0.1 mL intervals, with a tolerance of ±0.05 mL.
- All markings are durable white enamel
- Supplied with serial number
- Replacement stopper is 850100
- Designed from ASTM Specification E694 and complies with C188
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joint	Case Qty
15115-24	24	13	2

Wash Bottles

KONTES/GUTH Unitized® Washbottles allow you to automatically pump a continuous, forceful jet of washing or rinsing liquid that may be instantly stopped as needed.

- Easy one-handed operation (either hand), leaving the other hand free for other needs
- Crystal clear glass flask permits quick inspection of the contents
- KONTES/GUTH Unitized® Washbottles are recommended for use at ambient temperatures
- Features borosilicate glass flask and neoprene parts for improved solvent resistance

Part Number	Case Qty
1011	1

Low Cylindrical Weighing Bottles with Stopper

These bottles are used in applications that require adding and removing substances to determine precise weight.

- Plug-style glass stopper creates a seal to secure contents and to help prevent spills and evaporation
- Solid glass stopper with a short length Standard Taper joint fits into internally ground body
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity to Neck Base (mL)	Standard Taper Joints	Case Qty
15165-5030	35	50/12	6
15165-6030	50	60/12	6
15165-7033	82	71/15	6

Stackable Cylindrical Parr Weighing Bottles

KIMAX® bottle designed for weighing small samples of coal.

- Cap-style closure fits over externally ground body
- 15182 cap-style stopper may be used as a replacement
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity to Neck Base (mL)	Standard Taper Joints	Case Qty
15157-2024	4	24/12	12

Replacement Parts

Part Number	Description	Case Qty
15182-2412	Nessler Tubes Stopper, 24/12	1

Tall Cylindrical Weighing Bottles with Inner Joint

Ideal for general micro work and also used as a container for hygroscopic materials where the bottle containing the sample is dropped into the reaction flask.

- KIMAX® bottle with a cap-style closure that fits over externally ground body
- The 40 x 80 size accommodates 1" x 3" micro TLC plates and serves as a micro developing tank
- Replacement stopper is 15180 series
- A 15182 stopper may also be used as a replacement
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity to Neck Base (mL)	Standard Taper Joints	Case Qty
15146-2540	12	29/12	18
15146-2550	16	29/12	18
15146-4050	45	45/12	12
15146-3060	30	34/12	18
15146-4080	70	45/12	12
15146-40100	92	45/12	12

Replacement Parts

Part Number	Description	Case Qty
15180-2912	33 x 24 mm Weighing Bottle Stopper Cap, 29/12	1
15180-3412	39 x 24 mm Weighing Bottle Stopper Cap, 34/12	1
15180-4512	50 x 26 mm Weighing Bottle Stopper Cap, 45/12	1

Tall Cylindrical Weighing Bottle with Stopper

Ideal for determining the weight of solid samples.

- KIMAX® bottle with a plug-style, closed bottom stopper that fits into an internally ground body
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity to Neck Base (mL)	Standard Taper Joints	Case Qty
15145-1550	7	14/10	24
15145-2540	12	24/12	24
15145-2550	16	24/12	24
15145-3060	30	29/12	18
15145-4050	45	40/12	12
15145-4080	70	40/12	12
15145-5060	85	50/12	6

BURETS

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A WORLD OF EXPERTISE IN YOUR HANDS

Don’t be limited by plastic! KIMAX® durable glass burets offer unsurpassable physical and chemical properties which means long life and repeatable, accurate results – every time. Explore our selection of high quality burets to meet your specialized application needs.

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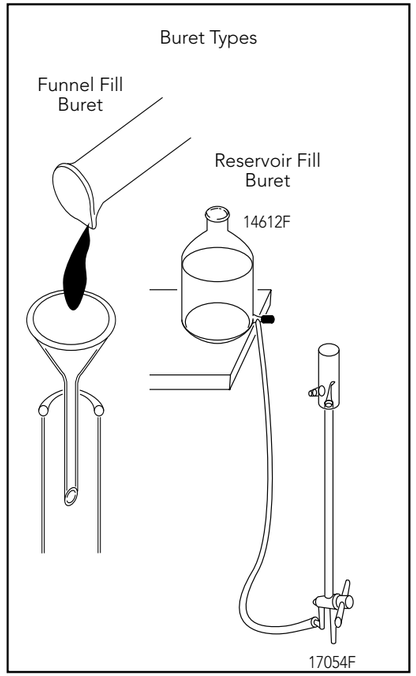


Kimble offers unmatched quality in materials and craftsmanship. Our selection of burets reflects many notable innovations. All have a high resistance to both chemical attack and mechanical shock. Only the finest accurate-gauge or precision-bore heavy-walled tubing is used to insure precise calibration and long service. Colored markings, large numerals and sharp, fine-line divisions make these burets easy to read; markings on scales are permanently fused. Most burets are supplied with KIM-KAP™ dust caps.

Careful study of the complete line will enable you to realize full economy. For example, you may buy general purpose burets without polytetrafluoroethylene (PTFE) stopcock plugs thus permitting a savings.

Stopcocks accepting glass plugs have a 1:10 standard taper and satin finished surfaces (ASTM E675). PTFE plugs have a 1:5 taper and are engineered with a mirror finish barrel to assure leakproof seating, smooth turning, and correct alignment (ASTM E911). PTFE plugs are self lubricating, non-contaminating and will not freeze in the stopcock barrel, even after repeated use with strong alkali solutions. When not in use or for prolonged storage, loosen plug to prevent cold flow distortion into the glass barrel.

Burets with side filling tubes use 1/4 inch I.D. flexible tubing. Delivery end of pinch clamp style burets accept 5/16 inch I.D. tubing except for 17081 dispensing burets which utilize 3/8 inch I.D. tubing.

When you need a buret, Kimble has exactly what you need.

Stopcocks with polytetrafluoroethylene (PTFE) plugs

- Airtight fit to prevent leakage.
- 1:5 taper to prevent binding over a wide temperature range.
- Smooth barrel finish to provide for easy turning without grease — a source of possible contamination.
- Non-freezing feature due to the chemical inertness of PTFE, particularly valuable with alkaline solutions.
- Sturdy threads fine enough to permit easy adjustment.
- Rubber washer between the PTFE washer and nut to maintain uniform tension.
- Stopcocks are designed to comply with ASTM Specification E911.

Serialized and Certified Class A Burets with Straight Bore PTFE Stopcock

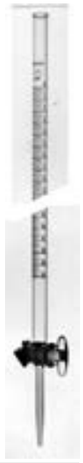
Used for general purpose titrations requiring traceable volumetric accuracy.

- Precision bore buret is permanently marked with an individual serial number and is traceable to NIST standards
- Supplied with a Certificate of Graduation Accuracy
- Delivery stem of the 10 mL size is 115 mm long to meet requirements of potentiometric titration burets (ASTM D664)
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug and a KIM-KAP™ dust cap
- Easy-to-read durable white ceramic enamel scale
- Funnel fill style buret
- Replacement 2 mm straight bore stopcock plug is 821001-0002
- Designed from ASTM Specification E287, Class A requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17027F-10	10; ±0.02	664	1
17027F-25	25; ±0.03	614	1
17027F-50	50; ±0.05	745	1
17027F-100	100; ±0.10	791	1

Class B Straight Bore Burets with Glass Stopcock

Used in general purpose volumetric analysis and titrations where Class B tolerances are appropriate.



- Funnel fill style buret
- Replacement 2 mm straight bore glass stopcock plug is 801001-0002
- Easy-to-read durable black ceramic enamel scale
- Designed from ASTM Specification E287, Class B requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17026-50	50; ±0.10	738	1

Class B Straight Bore Burets with PTFE Stopcock

Used in general purpose volumetric analysis and titrations where Class B tolerances are appropriate.

- Funnel fill style buret
- Replacement 2 mm straight bore PTFE stopcock plug is 821001-0002
- Easy-to-read durable black ceramic enamel scale
- Ref: ASTM Method D974
- Designed from ASTM Specification E287, Class B requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17026F-10	10; ±0.04	518	1
17026F-25	25; ±0.06	571	1
17026F-50	50; ±0.10	738	1
17026F-100	100; ±0.20	765	1

Replacement Parts

Part Number	Description	Case Qty
17026G-50	50 mL Buret with LUBRI-FLO® Stopcock Barrel	1
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, Plug Size (mm) 11/25	1

Class B Straight Bore RAY-SORB® Burets

RAY-SORB® burets are used in titrations containing light sensitive analytes.

- Funnel fill style buret
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug and a KIM-KAP dust cap
- Replacement 2 mm straight bore stopcock plug is 821001-0002
- Easy-to-read durable opaque white ceramic enamel scale
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17033F-50	50; ±0.10	738	1

Diagonal Bore Burets with PTFE Stopcock

Used for general purpose titrations requiring traceable volumetric accuracy.

- Diagonal bore stopcock and a funnel top
- Precision bore buret is permanently marked with an individual serial number and is traceable to NIST standards
- Supplied with a Certificate of Graduation Accuracy
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug
- Easy-to-read durable white ceramic enamel scale
- Designed from ASTM Specification E287, Class A requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17094F-50	50; ±0.05	746	1

Class A Serialized and Certified Reservoir Fill Automatic Zero Burets with PTFE Stopcock

KIMAX® buret ideal for repeat titrations requiring traceable volumetric accuracy.

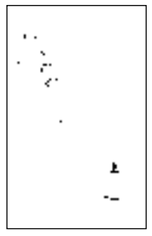
- Supplied with a Certificate of Graduation Accuracy
- Precision ground tips assure uniform outflow
- Permanently marked with an individual serial number and traceable to NIST standards
- Self-zeroing
- Filled through a self-lubricating PTFE stopcock plug
- Filling tube and overflow tube at the top of the buret accept 1/4 inch ID flexible tubing
- Easy-to-read durable black enamel scale
- Replacement 2 mm bore size three-way stopcock is 823001-0002
- Designed from ASTM E287, Class A requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17054F-10	10; ±0.02	520	1
17054F-25	25; ±0.03	580	1
17054F-50	50; ±0.05	740	1
17054F-100	100; ±0.10	770	1

Class A Serialized and Certified Automatic Zero Burets with PTFE Stopcock and Reservoir Bottle

KIMAX® precision bore automatic burets are used in applications requiring the highest degree of precision and accuracy for volumetric analysis. These are ideal for repeat titrations requiring traceable volumetric accuracy or when the titrant should not be handled.

- Packed complete with a reservoir bottle, U-shaped drying tube, vented connecting tube, rubber squeeze bulb,
  # 1 single-holed rubber stopper, PTFE stopcock plug and 1/4 inch ID rubber tubing
- Precision ground tips assure uniform outflow
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug
- Permanently marked with an individual serial number and traceable to NIST Standards
- Supplied with a Certificate of Graduation Accuracy
- Easy-to-read durable black enamel scale
- Replacement 2 mm bore size stopcock plug is 823001-0002
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements



Procedure for Using Automatic Buret 17124F: Place the one-holed rubber stopper, large end first, on the lower tubulation of the buret. Add the U-shaped drying tube, prefilled with drying medium, over the small end of the stopper. Join the drying tube to the connecting tube and then the rubber squeeze bulb with the rubber tubing. To fill the buret, turn the stopcock to connect, filling tube to the buret. Squeeze the rubber bulb several times while closing the vent hole in the connecting tube with your finger. As liquid rises and overflows from the tip above the buret, turn the stopcock to off and remove your finger from the vent hole of the connecting tube. If air is trapped in the stopcock or tip, discharge the air and repeat the filling operation to automatic zero at overflow tip.

Part Number	Buret Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17124F-10	10; ±0.02	765	1
17124F-25	25; ±0.03	858	1
17124F-50	50; ±0.05	1045	1
17124F-100	100; ±0.10	1090	1

Replacement Parts

Part Number	Description	Case Qty
17124F-10BO	Class A Serialized and Certified Automatic Buret 17124F-10 - Buret and Stopcock Only	1
17124F-25BO	Class A Serialized and Certified Automatic Buret 17124F-25 - Buret and Stopcock Only	1
17124F-50BO	Class A Serialized and Certified Automatic Buret 17124F-50 - Buret and Stopcock Only	1
17124F-100BO	Class A Serialized and Certified Automatic Buret 17124F-100 - Buret and Stopcock Only	1
17224F-1000	1000 mL Bottle Reservoir for 17124F-10 and 17124F-25 Burets	1
17224F-2000	2000 mL Bottle Reservoir for 17124F-50 and 17124F-100 Burets	1
17324F-0001	Glass Replacement Parts for 17124F Buret	1
17324F-0000	Atomizer for 17124F Buret	1

Class B Automatic Burets

Used in general purpose volumetric analysis and for repeated titrations where Class B tolerances are appropriate.

- Both the filling and overflow tubes accept 1/4 inch ID flexible tubing
- Filled through a self-lubricating, chemically-resistant PTFE stopcock plug
- Easy-to-read durable black ceramic enamel scale
- Replacement stopcock is 823001-0002
- Ref: ASTM Method D1744
- Designed from ASTM Specification E287, Class B requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17051F-10	10; ±0.04	515	1
17051F-25	25; ±0.06	577	1
17051F-50	50; ±0.10	735	1
17051F-100	100; ±0.20	765	1

Class A Serialized and Certified Reservoir Fill Burets with Three-Way Stopcock

Used for general purpose titrations requiring traceable volumetric accuracy.

- Permanently marked with an individual serial number and traceable to NIST Standards
- Supplied with a Certificate of Graduation Accuracy
- Filling tube accepts 1/4 inch ID flexible tubing
- Precision ground tips assure uniform outflow
- KIM-KAP™ dust cap is included
- Filled through a self-lubricating PTFE stopcock plug
- Easy-to-read durable white enamel scale
- Reservoir fill style buret
- Replacement 2 mm bore size three-way stopcock is 823001-0002
- Designed from ASTM E287, Class A requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E-438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17052F-25	25; ±0.03	617	1
17052F-50	50; ±0.05	748	1
17052F-100	100; ±0.10	794	1

Serialized and Certified Funnel Top Micro Buret with Straight Bore PTFE Stopcock

Used for small volume titrations requiring traceable volumetric accuracy.

- Precision bore buret is permanently marked with an individual serial number and is traceable to NIST standards
- Supplied with a Certificate of Graduation Accuracy
- Easy-to-read durable white ceramic enamel scale
- Funnel top accepts a one-hole #3 rubber stopper
- Replacement 2 mm straight bore stopcock plug is 821001-0002
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug
- Ref: ASTM Method D974
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

A short length of glass tubing aids in filling the buret through the tip by vacuum if desired. Stopper and tubing are not supplied.

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17110F-5	5; ±0.01	790	1
17110F-10	10; ±0.02	810	1

Serialized and Certified Reservoir Fill Micro Buret with Three-Way PTFE Stopcock

Used for repeated small volume titrations requiring traceable volumetric accuracy.

- Precision bore buret is permanently marked with an individual serial number and is traceable to NIST standards
- Supplied with a Certificate of Graduation Accuracy
- Easy-to-read durable white ceramic enamel scale
- Both filling and overflow tubes accept ¼" ID flexible tubing
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug
- Replacement 2 mm three-way stopcock plug is 823001-0002
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17115F-5	5; ±0.01	761	1
17115F-10	10; ±0.02	781	1

Micro Buret with Side Reservoir

Used for small volume titrations.

- Side reservoir capacity is approximately 70 mL
- Easy-to-read durable white ceramic enamel scale
- Replacement 2 mm straight bore stopcock plug is 821001-0002, and replacement stopper is a medium length 14/20 standard taper glass stopper
- Supplied with two chemically-resistant, self-lubricating PTFE stopcock plugs
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17132F-2	2; ±0.01	590	1
17132F-5	5; ±0.01	815	1
17132F-10	10; ±0.02	620	1

Dispensing Burets

Large capacity KIMAX® burets / burettes used for dispensing laboratory solvents or solutions for a variety of clinical and industrial applications.

- Supplied with a chemically-resistant, self-lubricating PTFE stopcock
- Easy-to-read durable white ceramic enamel scale
- Replacement 4 mm straight bore stopcock plug is 821001-0004
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17080F-250	250; ±2.0	544	2
17080F-500	500; ±2.5	646	2
17080F-1000	1000; ±5.0	780	2

Right-Hand Titration Buret

KIMAX® buret used in electrometric titration assemblies.

- Stopcock is set at a 55 degree angle to the center of the graduated scale
- Offset dispensing tip
- Burets have funnel tops
- Durable black ceramic enamel scale
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17062F-50	50; ± 0.10	775	1

Educational-Grade Burets

These economical and versatile burets are ideal for use in educational institutions and for many general laboratory procedures.

- 17030K supplied with a glass stopcock plug
- Easy-to-read durable black enamel scale for 17030K and 17021H-50
- 17121H supplied with a PTFE threaded stopcock assembly and a precision ground tip
- 17021H supplied with a PTFE compression fit stopcock assembly and a precision ground tip
- 17021H, 25 mL buret has a permanent brown stained scale
- KIM-KAP™ dust cap is included
- Funnel fill style buret
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

The stopcock assemblies for the 17121H and 17021H series burets should be wetted before installation.

Part Number	Capacity (mL)	Stopcock Assembly	Case Qty
17030K-50	50		12
17121H-25	25	PTFE threaded	1
17121H-50	50	PTFE threaded	1
17021H-25	25	PTFE compression fit	6
17021H-50	50	PTFE compression fit	6

Replacement Parts

Part Number	Description	Case Qty
17021J-25	25 mL Buret Barrel without Stopcock or Assembly Tip	6
17021J-50	50 mL Buret Barrel without Stopcock or Assembly Tip	6
41006F-2	2.8 mm PTFE LUBRI-FLO® Stopcock for Use with 17021H, 17800, 17810 and 29050H	1
41007F-2	2.8 mm PTFE LUBRI-FLO® Stopcock for use with 29053H and 17121H	1
17034H-99	Threaded Buret Tip for 17021H and 17121H Burets	6

Tutwiler Gas Burets

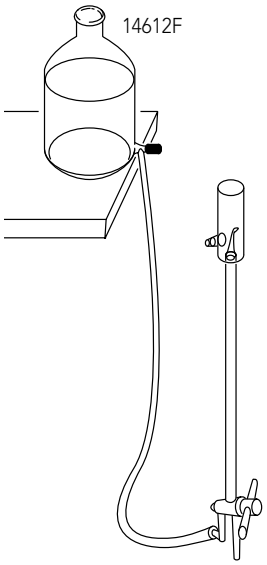
This buret is designed for use with high sulfur content gas streams.

- Large ID connections reduce clogging when sulfur precipitates out and deposits on the inside of connectors
- Supplied with a size 4 glass stopcock in the bottom, a size 2 stopcock in the top and a size 13 glass pennyhead stopper
- Designed for use with method UOP 9-85
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
30034A-100	100; ±0.15	480	1

17170F

Reservoir Fill Buret



Schellbach Burets

Schellbach burets employ a blue line on a broader white band running vertically behind the scale to create an optical effect which causes the meniscus to assume an apparent form. This assists in avoiding parallax mistakes.

17150F

- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug and a KIM-KAP™ dust cap
- Replacement 2 mm straight bore PTFE stopcock plug is 821001-0002 for 17150F series burets
- Replacement 2 mm three-way PTFE stopcock plug is 823001-0002 for 17170F series burets
- 17150F series burets are funnel fill and are supplied with a chemically-resistant, self-lubricating PTFE stopcock plug and a KIM-KAP™ dust cap
- 17170F series burets have an automatic zero with overflow tube, and are reservoir-filled, with both top and bottom hose adapters accepting ¼" ID flexible tubing
- Easy-to-read durable black ceramic enamel scale
- Designed from ASTM Specification E287 requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Instructions for use: The meniscus is read at the narrowest point of the blue line just above the true meniscus. The meniscus of automatic zero burets must be read at the narrowest point of the blue line. Conventional Shellbach burets can be read using either the true or apparent meniscus; however, the same method must be used for both initial and final settings

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17150F-25	25; ±0.06	571	1
17150F-50	50; ±0.10	738	1
17170F-25	25; ±0.06	594	1
17170F-50	50; ±0.10	754	1

CAPS, CLOSURES, SEPTA

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

Visit our selection of Kimble® caps and closures to complement any and all of your laboratory glassware products. Our caps conform to GPI (Glass Packaging Institute) standards and ISO and ASTM specifications, as well as European DIN specs. Our broad and deep caps and closures category serves our products in markets such as HPLC, GC, LC, NMR, as well as options for the medical and pharmaceutical environments. No need to look elsewhere; we have the cap or closure needed by scientists and laboratory professionals.

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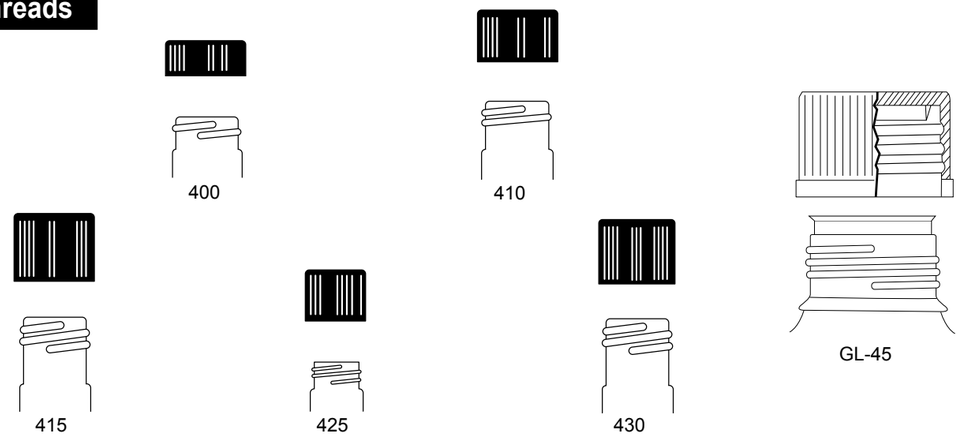
Series	Page	Type	Material	Liner	Top	Color	Autoclavable
953908	49	GL 45 screw thread	Polypropylene	PTFE	Open	blue	Yes
14395C	49	GL 45 screw thread	Polypropylene	Polypropylene	Solid	blue, orange, white, gray, green, pink	Yes
14395H	49	GL 45 screw thread	PBT	PTFE-faced silicone	Solid	red	Yes
953909	49	GL 45 screw thread	PBT	PTFE-faced silicone	Solid	red	Yes
14395M	49	GL 45 screw thread	Polypropylene	PTFE membrane	Small hole	blue	Yes
73805/73805B	49	Screw thread	Polypropylene	None	Solid	natural	Yes
73808	50	Screw thread	Polypropylene	Welded PTFE-faced silicone	Solid	black	Yes
73814BK	50	Screw thread	Polypropylene	Bonded white PTFE septa	Open	black	Yes
73814BL	50	Screw thread	Polypropylene	Bonded white PTFE septa	Open	blue	No
73814WH	50	Screw thread	Polypropylene	Bonded white PTFE septa	Open	white	Yes
N73805	50	Screw thread	Polypropylene	Bonded white PTFE septa	Open	black	Yes
73812BK	50	Screw thread	Polypropylene	Red PTFE-faced silicone septa	Open	black	Yes
73812WH	50	Screw thread	Polypropylene	Red PTFE-faced silicone septa	Open	white	Yes
73812BL	50	Screw thread	Polypropylene	Red PTFE-faced silicone septa	Open	blue	Yes
73813BK	50	Screw thread	Polypropylene	Pre-slit red PTFE-faced silicone septa	Open	black	Yes
73813WH	50	Screw thread	Polypropylene	Pre-slit red PTFE-faced silicone septa	Open	white	Yes
73813BL	50	Screw thread	Polypropylene	Pre-slit red PTFE-faced silicone septa	Open	blue	Yes
73806	50	Screw thread	Polypropylene	None	Open	black	Yes
73806A	50	Screw thread	Polypropylene	None	Open	white	Yes
410119	50	Screw thread	Glass-filled nylon	None	Open	blue	No
73802U	50	Screw thread	Urea	PTFE-faced foam-backed rubber	Closed	white	No
73804	50	Screw thread	Black phenolic	None	Open	Black	Yes
73809	51	Screw thread	Black phenolic	Cone-shaped LDPE	Closed	Black	Yes
75205	51	Screw thread	Black phenolic	Cone-shaped LDPE	Closed	Black	Yes
45066B	51	Screw thread	Black phenolic	Cemented-in white rubber	Closed	Black	Yes
73800	51	Screw thread	Black phenolic	Cemented-in white rubber	Closed	Black	Yes
75204G	51	Screw thread	Black phenolic	Cemented-in white rubber	Closed	Black	Yes
14255	51	Screw thread	Black phenolic	Cemented-in white rubber	Closed	Black	Yes
73803	51	Screw thread	Black phenolic	Cemented-in white rubber	Closed	Black	Yes
73802	51	Screw thread	Black phenolic	PTFE-faced rubber	Closed	Black	Yes
45066C	51	Screw thread	Black phenolic	PTFE-faced rubber	Closed	Black	Yes
75201G	51	Screw thread	Black phenolic	Pulp/vinyl	Closed	Black	No
75203G	52	Screw thread	Black phenolic	Tinfoil	Closed	Black	No
75202G	52	Screw thread	Black phenolic	Solid polyethylene	Closed	Black	No
75206G	52	Screw thread	Black phenolic	PTFE-faced LDPE foam	Closed	Black	No
74521	52	Scintillation vial closure	Polyethylene	Pulp-backed aluminum foil	Closed	White	No
74522	53	Scintillation vial closure	Polypropylene	None	Closed	White	No
74520	53	Scintillation vial closure	White urea	Cork-backed aluminum foil	Closed	White	No
74525	53	Scintillation vial closure	White urea	Cone-shaped polyethylene	Closed	White	No
74526	53	Scintillation vial closure	White urea	PTFE-faced white rubber	Closed	White	No
73822	53	Aluminum seal	Aluminum	None	Tear-out center	Silver	Yes
73821	53	Aluminum seal	Aluminum	None	Open	Silver	Yes
73820	54	Aluminum seal	Aluminum	None	Tear-off	Silver	Yes
73843	54	Aluminum seal	Aluminum	None	Button-top	Misc	Yes
73844	54	Aluminum seal	Aluminum	None	Button-top	Misc	Yes
73845	54	Aluminum seal	Aluminum	None	Button-top	Misc	Yes
N73823	54	Aluminum seal	Aluminum	PTFE/silicone septa	Open	Silver	Yes
N73824	54	Aluminum seal	Aluminum	PTFE/silicone septa	Open	Silver	Yes
28150R	58	Snap cap	Polyethylene	None	Closed	Yellow	No
73826	58	Autosampler snap cap	Polyethylene	PTFE/silicone septa	Closed	Clear	Yes
7366X	58	KIM-KAP™	Polypropylene	None	Closed	Assorted	Yes

Screw Threads



GL 45 PTFE Screw Thread Caps

Designed to fit any reservoir or bottle with GL 45 screw threads.

- Provides the best possible seal
- PTFE cap body is chemically inert and remains non-brittle at sub-zero temperatures
- TFE/propylene o-ring, size 216
- Polypropylene screw collar

Part Number	Screw Thread	Max Temperature (ºC)	Case Qty
953908-0000	GL 45	135	1

GL 45 Pour Rings

- 14395P-45 is constructed of clear drip-free polypropylene
- 14395E-452 is constructed of red ETFE (ethylene tetrafluoroethylene)
- 14395E-452 high temperature ring is recommended for use with 14395H-452 high temperature cap

Part Number	Material	Max Temperature (ºC)	Case Qty
14395P-45	Polypropylene	140	10
14395E-452	ETFE	180	10

GL 45 Polypropylene Color Coded Screw Thread Caps

- Solid top polypropylene GL 45 screw thread caps with internal molded seal rings

Part Number	Screw Thread	Color	Case Qty
14395C-45	GL 45	Blue	10
14395C-451	GL 45	White	10
14395C-453	GL 45	Orange	10
14395C-455	GL 45	Gray	10
14395C-457	GL 45	Green	10
14395C-459	GL 45	Pink	10

Linerless Polypropylene Screw Thread Caps

- Economical, one-piece construction in natural or white
- Unique design provides exceptional sealing properties
- Autoclavable

Part Number	GPI Finish	Color	Case Qty
2513415	13-415	Natural	12000
73805B-13415	13-415	Natural	1,000
73805B-15415	15-415	Natural	1,000
2515415	15-415	Natural	7000
73805-15415	15-415	White	1,000
73805B-18415	18-415	Natural	500
2518415	18-415	Natural	5000

GL 45 PBT High Temperature Screw Thread Caps

- For use in applications up to 180 °C
- PBT (polybutyleneteraphthalate) cap with PTFE-faced silicone liner
- Excellent chemical resistance to alcohols, ethers, hydrocarbons, and dilute or strong acids

Part Number	Screw Thread	Max Temperature (ºC)	Case Qty
953909-0000	GL 45	180	1
14395H-452	GL 45	180	10

GL 45 PTFE Membrane Screw Thread Caps

The PTFE membrane serves as a barrier, allowing the pressure to equilibrate during steam autoclaving.

- Autoclavable
- Polypropylene cap with PTFE membrane
- Designed with a sealed-in 0.2 micron PTFE membrane

Part Number	Screw Thread	Max Temperature (ºC)	Case Qty
14395M-45	GL 45	140	10

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Polypropylene Screw Thread Caps with Welded PTFE-Faced Silicone Liners

- Welded liner technology eliminates the possibility of glue contamination
- PTFE faced/general purpose white rubber liners are highly resistant to chemical effects
- Closures are ideal for repeated autoclaving

Part Number	GPI Finish	Case Qty
73808-13415	13-415	288
73808-15415	15-415	288
73808-18415	18-415	288
73808-24400	24-400	72
73808-24410	24-410	144
73808-28400	28-400	48
73808-33430	33-430	48
73808-38430	38-430	48

Polypropylene Screw Thread Caps with Bonded White PTFE Septa

- Convenient pre-assembled caps and liners reduce the risk of contamination
- Intended for single-use injection
- Ideal for storage of volatile compounds and chemicals
- Autoclavable
- N73805-24 is KIM-LOC patented and has a PTFE thickness of 0.010". It eliminates leakage due to cap cocking

Part Number	GPI Finish	Case Qty
73814WH-8425	8-425	1000
73814BL-9425	9-425	1000
73814BK-13425	13-425	1000
N73805-24	24-400	144

Polypropylene Screw Thread Caps with Red PTFE-Faced Silicone Septa

- Convenient pre-assembled caps and liners reduce the risk of contamination
- Available with standard or pre-slit septa
- Can be used for multiple injections
- Ideal for use with autosampler vials
- Autoclavable

Part Number	GPI Finish	Septa	Case Qty
73812WH-8425	8-425; White	standard	1000
73813WH-8425	8-425; White	pre-slit	1000
73812BK-8425	8-425; Black	standard	1000
73813BK-8425	8-425; Black	pre-slit	1000
73813BL-9425	9-425; Blue	pre-slit	1000
73812BL-9425	9-425; Blue	standard	1000
73812BK-9425	9-425; Black	standard	1000
73813BK-9425	9-425; Black	pre-slit	1000
73813WH-13425	13-425; White	pre-slit	1000
73812WH-13425	13-425; White	standard	1000
73812BK-13425	13-425; Black	standard	1000
73813BK-13425	13-425; Black	pre-slit	1000

Open-Top Polypropylene Screw Thread Caps Without Septa

- Economical, one-piece construction
- Autoclavable

Part Number	GPI Finish	Color	Case Qty
73806A-15425	15-425	Black	1,000
73806A-18400	18-400	Black	1,000
73806A-20400	20-400	Black	1,000
73806-24400	24-400	Black	1,000
73806A-24400	24-400	White	144

Open Top Nylon Screw Thread Caps

- Glass-filled blue nylon cap with modified GPI thread finish to accommodate use with an o-ring seal
- 410119-1307 and 410119-2015 caps are used for the MICROFLEX® microscale chemistry kits
- Temperature limit is 150 °C

Part Number	Modified GPI Thread	Hole Diameter (mm)	Case Qty
410119-1305	13-415	5.5	12
410119-1307	13-425	7	12
410119-1508	15-415	8.5	12
410119-2011	20-415	11.5	12
410119-2015	20-400	15	12
410119-2214	22-415	14.5	12
410119-2817	28-415	17.5	6
410119-3021	30-415	21	6
410119-3324	33-415	24	2
410119-3527	35-415	27	2

White Urea Screw Thread Caps with PTFE-Faced Foam-Backed Rubber Liners

- White urea
- PTFE-faced foam-backed rubber liner
- Ideal for use with scintillation vials

Part Number	GPI Finish	Case Qty
73802U-8425	8-425	432
73802U-13425	13-425	432
73802U-15425	15-425	432
73802U-18400	18-400	432
73802U-20400	20-400	432
73802U-24400	24-400	432

Open-Top Black Phenolic Screw Thread Caps without Liners

- Open top closures with excellent chemical resistance
- Specially formulated phenolic resin to withstand the effects of repeated autoclaving
- Linerless
- Identified in ASTM Specification E982, Class A requirements

Part Number	GPI Finish	Case Qty
73804-15425	15-425	144
73804-18400	18-400	144
73804-20400	20-400	144
73804-24400	24-400	144

Black Phenolic Screw Thread Caps with Cone-Shaped LDPE Liners

These caps feature LDPE cone-shaped liners that provide a two part seal. The cap seals on the container rim, and the liner seals at the inner diameter of the container opening.

- Specially formulated phenolic resin to withstand the effects of repeated autoclaving
- Resistant to stress cracking
- Designed for superior torque retention
- Excellent for sample storage and re-sealing

Part Number	GPI Finish	Case Qty
73809-13425	13-425	144
73809-15425	15-425	144
73809-18400	18-400	144
73809-20400	20-400	144
75205G-20400	20-400	144
75205-20400	20-400	5,500
73809-22400	22-400	144
75205-22400	22-400	4,700
75205G-24400	24-400	144
75205-24400	24-400	4,200
75205G-28400	28-400	144
75205-28400	28-400	3,100
75205G-33400	33-400	144
75205-33400	33-400	2,300
75205G-38400	38-400	144
75205-38400	38-400	1,600

Black Phenolic Caps with Cemented-In Rubber Liners

- Specially formulated phenolic cap material
- Autoclavable
- White rubber liners
- Excellent for general laboratory use
- Identified in ASTM Specification E982, Class A requirement

Part Number	GPI Finish	Case Qty
45066B-13	13-415	300
73800-13415	13-415	1,000
45066B-15	15-415	300
73800-15415	15-415	1,000
45066B-18	18-415	225
73800-18415	18-415	1,000
75204G-20400	20-400	144
75204G-22400	22-400	144
75204G-24400	24-400	144
45066B-24	24-410	150
75204G-28400	28-400	144
75204G-33400	33-400	144
73803-33430	33-430	144
75204G-38400	38-400	144
73803-38430	38-430	144
75204G-43400	43-400	144
75204G-45400	45-400	144
75204G-48400	48-400	144
75204G-53400	53-400	144
75204G-58400	58-400	144
75204G-63400	63-400	144
75204G-70400	70-400	144
75204G-89400	89-400	144

Black Phenolic Screw Thread Caps with PTFE-Faced Rubber Liners

- Excellent for general laboratory use
- Specially formulated phenolic resin and liner adhesive to withstand the effects of repeated autoclaving
- PTFE faced/general purpose white rubber liners are highly resistant to chemical effects
- Identified in ASTM Specification E982, Class A requirements

Part Number	GPI Finish	Case Qty
73802-8425	8-425	144
45066C-13	13-415	300
73802-13415	13-415	500
45066C-15	15-415	300
73802-15415	15-415	500
73802-15425	15-425	144
73802-18400	18-400	144
45066C-18	18-415	225
73802-20400	20-400	144
73802-22400	22-400	144
73802-24400	24-400	144
45066C-24	24-410	150
45066C-28	28-410	150
73802-33430	33-430	144
45066C-38	38-430	50
73802-38430	38-430	144

Black Phenolic Screw Thread Caps with Pulp/Vinyl Liners

- Economical general purpose cap/liner combination
- Good chemical resistance to mild acids, alkalis, alcohols, aqueous solutions, oils and solvents
- Not autoclavable
- Specially formulated phenolic cap material
- Polyvinyl-faced pulpboard liner

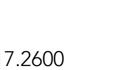
Part Number	GPI Finish	Case Qty
75201G-20400	20-400	144
75201G-22400	22-400	144
75201G-24400	24-400	144
75201G-28400	28-400	144
75201G-33400	33-400	144
75201G-38400	38-400	144
75201G-43400	43-400	144
75201G-45400	45-400	144
75201G-48400	48-400	144
75201G-53400	53-400	144
75201G-58400	58-400	144
75201G-63400	63-400	144
75201G-70400	70-400	144
75201G-89400	89-400	144

Black Phenolic Screw Thread Caps with Tinfoil Liners

- Excellent for environmental sampling and general purpose use
- Good chemical resistance to mild acids, alkalis, alcohols, aqueous solutions, oils and solvents
- Not autoclavable
- Specially formulated phenolic cap material
- Liner constructed of foil laminated to paper and bonded to pulpboard

Part Number	GPI Finish	Case Qty
75203G-20400	20-400	144
75203G-22400	22-400	144
75203G-24400	24-400	144
75203G-28400	28-400	144
75203G-33400	33-400	144
75203G-38400	38-400	144
75203G-43400	43-400	144
75203G-45400	45-400	144
75203G-48400	48-400	144
75203G-53400	53-400	144
75203G-58400	58-400	144
75203G-63400	63-400	144
75203G-70400	70-400	144
75203G-89400	89-400	144

Black Phenolic Screw Thread Caps with PTFE-Faced LDPE Foam Liners



- Excellent solvent resistance and for general purpose use
- Compressible foam offers excellent resealability
- Not autoclavable
- Specially formulated phenolic cap material
- PTFE-faced LDPE foam liner

Part Number	GPI Finish	Case Qty
75206G-20400	20-400	144
75206G-22400	22-400	144
75206G-43400	24-400	144
75206G-28400	28-400	144
75206G-33400	33-400	144
75206G-38400	38-400	144
75206G-43400	43-400	144
75206G-45400	45-400	144
75206G-48400	48-400	144
75206G-53400	53-400	144
75206G-58400	58-400	144
75206G-63400	63-400	144
75206G-70400	70-400	144
75206G-89400	89-400	144

Black Phenolic Screw Thread Caps with Solid PE Liners

- Ideal for strong acid or base samples
- Not autoclavable
- Specially formulated phenolic cap material
- Solid polyethylene liner

Part Number	GPI Finish	Case Qty
75202G-20400	20-400	144
75202G-22400	22-400	144
75202G-24400	24-400	144
75202G-28400	28-400	144
75202G-33400	33-400	144
75202G-38400	38-400	144
75202G-43400	43-400	144
75202G-45400	45-400	144
75202G-48400	48-400	144
75202G-53400	53-400	144
75202G-58400	58-400	144
75202G-63400	63-400	144
75202G-70400	70-400	144
75202G-89400	89-400	144

Magnetic Screw Thread Headspace Vial Caps

Designed to fit 18 mm screw thread headspace vials

- 73880-18 is silver with red PTFE/white silicone press fit septum
- 73885-18 is silver with red PTFE/gray press fit butyl rubber septum

Part Number	PTFE Thickness (mm)	Rubber Thickness (mm)	Case Qty
73880-18	0.08	1.8	1,000
73885-18	0.13	1.4	1,000

White Polypropylene Closures with Pulp-Backed Aluminum Foil Liners

- Closure is made from white polypropylene and has a pulp-backed aluminum foil liner
- Top is suitable for marking
- Suitable for use with various strong oxidizing agent mixtures
- Ideal for scintillation vials

Part Number	GPI Finish	Case Qty
74521-15425	15-425	1,000
74521-22400	22-400	1,000

White Polyethylene Closures without Liners

- Closure is made from white polyethylene and is linerless
- Top is suitable for marking
- Closure is not autoclavable
- Ideal for scintillation vials

Part Number	GPI Finish	Case Qty
74522-22400	22-400	1,000

White Urea Closure with Cork-Backed Aluminum Foil Liners

- Closure is made from white urea and features a cork-backed aluminum foil liner
- Top is suitable for marking
- Ideal for scintillation vials
- Closure is not autoclavable

Part Number	GPI Finish	Case Qty
74520-15425	15-425	1,000
74520-22400	22-400	1,000

White Urea Closure with Cone-shaped Polyethylene Liners

Cap is made from white urea and has a polyethylene cone-shaped liner

- Top is suitable for marking
- Closure is not autoclavable
- Ideal for scintillation vials

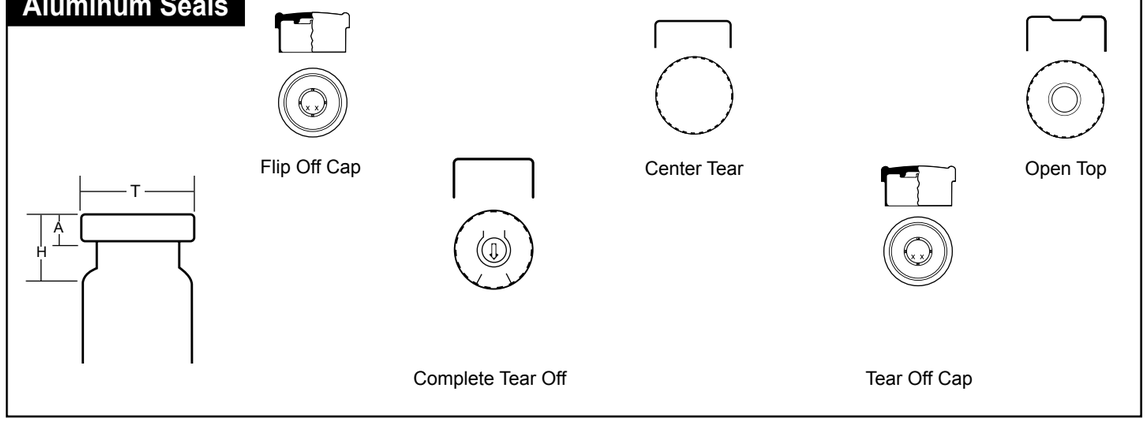
Part Number	GPI Finish	Case Qty
74525-22400	22-400	1,000

White Urea Closures with PTFE-Faced White Rubber Liners

- Closure is made from white urea and features a foam-backed F-217 PTFE liner
- Liner resists attack from virtually all chemicals at room temperature
- Perfect for long term sample storage
- Provides excellent resilience for a tight seal
- Top is suitable for marking
- Ideal for scintillation vials

Part Number	GPI Finish	Case Qty
74526-22400	22-400	500

Aluminum Seals



Open Style Unlined One Piece Aluminum Seals

- Fits GPI aluminum seal finish 13 and 20
- Allows easy access to septa (not included)

Part Number	Fits GPI Aluminum Seal Finish	Color	Case Qty
73822A-13	13	Natural	1,000
73822B-13	13	Blue	1,000
73822C-13	13	Red	1,000
73822D-13	13	Green	1,000
N73822A-20	20	Natural	1,000
73822B-20	20	Blue	1,000
73822C-20	20	Red	1,000
73822D-20	20	Green	1,000

Tear-Off Style Unlined One Piece Aluminum Seals

- Tear-off style seal can be completely removed from vial or bottle
- Allows for easy access to vial contents

Part Number	Fits GPI Aluminum Seal Finish	Color	Case Qty
73821-13	13	Natural	1,000
73821C-13	13	Red	1,000
73821D-13	13	Green	1,000
73821-20	20	Natural	1,000
73821B-20	20	Blue	1,000
73821C-20	20	Red	1,000
73821D-20	20	Green	1,000

Tear-Out Style Unlined One Piece Aluminum Seals

- Center disc tears out, leaving the outside edge of the aluminum seal firmly crimped on the container
- Allows for easy access to septa

Part Number	Fits GPI Aluminum Seal Finish	Color	Case Qty
73820-13	13	Natural	1,000
73820B-13	13	Blue	1,000
73820C-13	13	Red	1,000
73820D-13	13	Green	1,000
73820-20	20	Natural	1,000
73820B-20	20	Blue	1,000
73820C-20	20	Red	1,000
73820D-20	20	Green	1,000

Button-Top Unlined Aluminum Seals

Safe and easy-to-use flip off seals allow one-handed operation.

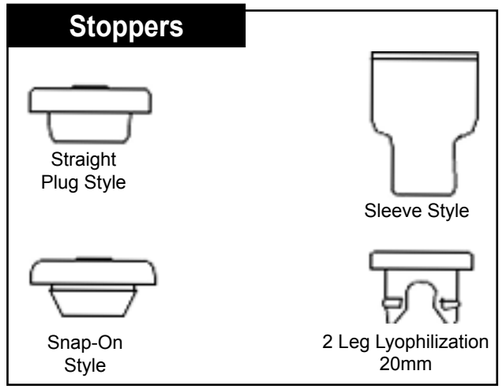
- Autoclavable
- Tamper evident
- No sharp metal edges

Part Number	Fits GPI Aluminum Seal Finish	Color	Case Qty
Flip-Off			
73843A-13	13	White	1,000
73843A-20	20	White	1,000
73843B-13	13	Blue	1,000
73843B-20	20	Blue	1,000
73843C-13	13	Red	1,000
73843C-20	20	Red	1,000
73843D-13	13	Green	1,000
73843D-20	20	Green	1,000
Flip-Up/Tear-Off			
73844A-13	13	White	1,000
73844B-13	13	Blue	1,000
73844C-13	13	Red	1,000
Flip-Off/Tear-Off			
73845A-20	20	White	1,000
73845B-20	20	Blue	1,000
73845C-20	20	Red	1,000
73845D-20	20	Green	1,000

Aluminum Seals with PTFE-Faced Silicone Septa

- Medium durometer PTFE / silicone septum
- Allows for good resealability, core resistance, multiple injections and easy penetration

Part Number	Fits GPI Aluminum Seal Finish	Septum Color	Case Qty
N73824-11	11	Natural	100
N73826-11	11	Red	1000
N73823-13	13	Red	144
N73826-13	13	Red	1000
N73824-13	13	Natural	100
N73823-20	20	Red	144
N73823T-20	20	Red	100
N73834B-20	20	Natural	1000
N73824T-20	20	Natural	100



Gray Chlorobutyl Straight-Sided Stoppers

These high quality gray chlorobutyl stoppers are used for research and pharmaceutical packaging applications.

- Universal gray chlorobutyl formulation passes Japanese, European and United States pharmacopeia testing for globally marketed pharmaceutical products
- Formulation contains no plasticizers, 2-mercapto-benzothaizole, nitrosamine precursors or natural rubber latex
- Formulation is applicable to aqueous solutions with a pH range of 2 to 10
- 73811T series has PTFE facing to improve chemical compatibility and minimize surface interactions
- Durometer 50

Part Number	Fits GPI Aluminum Seal Finish	PTFE-Faced	Case Qty
73811-13	13	No	1,000
73811T-13	13	Yes	100
73811-21	20	No	1,000
73811T-21	20	Yes	100

Gray Butyl Rubber Lyophilization Style Stoppers

- Designed for aluminum seal finish vials
- Two-leg style reduces possibility of legs sticking together
- Gray high grade butyl rubber, lyophilization style

Part Number	Fits GPI Aluminum Seal Finish	Case Qty
73828-13	13	1,000
73828A-21	20	1,000

Gray Butyl Rubber Stoppers

- Designed for aluminum seal finish vials
- Economical alternative for low temperature applications
- Gray butyl rubber

Part Number	Fits GPI Aluminum Seal Finish	Case Qty
73827-11	11	1,000
73827-13	13	1,000
73827-21	21	1,000

Silicone Stoppers with Holes

General purpose single-hole silicone rubber stoppers.

- Steam autoclavable
- Opaque yellowish-white color
- Stoppers are manufactured from pure silicone rubber

Part Number	Stopper Number	Hole Size (in)	Case Qty
953715-0501	5	0.375	1
953715-0801	8	0.375	1
953763-0801	8	0.5625	1
953763-0000	8	0.5625	5

Silicone Stoppers

These silicone stoppers are used in centrifugal separators and gas sampling tubes.

- Available in blind-hole and full-hole
- Blind hole stopper features easy syringe penetration

Part Number	Stopper OD (mm)	Style	Case Qty
774200-0022	6	Blind hole	12
774200-0023	6	Full hole	12

Pluro Stopper Set

This autoclavable set of neoprene rubber adapters is designed to fit Buchner and fritted glass funnels.

- Set of seven Pluro stoppers, sizes 1-7, for filter funnels
- Can be used singly or nested with adjacent sizes
- Eliminates the need for boring of special size holes in rubber stoppers
- Reduces the risks associated with insertion and removal of glass stems through rubber stoppers

Size	OD Top (mm)	OD Bottom (mm)	ID Top (mm)	ID Bottom (mm)	Height (mm)	Wall (mm)
1	21	11	17	7	21	2
2	27	16	22	11	21	2.5
3	37	22	31	16	25	3
4	46	29	39	22	29	3.5
5	58	38	50	30	35	4
6	69	45	60	36	40	4.5
7	86	57	75	46	45	5.5

Part Number	Case Qty
852050-0070	7

Plug-Type Rubber Sleeve Stoppers

Uses include outgassing NMR tubes, pressure venting or adding reactants via syringe.

- Hollow, plug-type stopper fits into the neck of the glassware apparatus
- Sleeve extension fits over the neck for a secure seal
- Diaphragm can be punctured with a syringe needle
- Series 774261 may be used at up to 125 °C for up to 8 hours

Part Number	Stopper Fits	Color	Case Qty
774250-0005	5-6 mm OD	Red	50
774261-0005	5-6 mm OD	White	50
774261-0006	6-7 mm OD	White	50
774250-0007	7-8 mm OD	Red	50
774261-0008	9-10 mm OD	White	50
774261-0010	Standard Taper 10/18	White	50
774250-0011	11-12 mm OD	Red	50
774250-0013	13-14 mm OD	Red	50
774250-0014	Standard Taper 14/20	Red	50
774261-0014	Standard Taper 14/20	White	50
774250-0016	16-17 mm OD	Red	50
774261-0019	Standard Taper 19/22	White	50
774261-0024	Standard Taper 24/40	White	50

Medium Length Standard Taper Glass Stopper

Stoppers are used with laboratory glassware such as flasks, mixing cylinders and separatory funnels.

- Sizes Standard Taper 10/18 through Standard Taper 19/22 are solid
- Sizes Standard Taper 24/25 and larger are hollow
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
850500-1018	10/18	1
850505-1410	14/10	1
850500-1420	14/20	1
850500-1922	19/22	1
850500-2425	24/25	1
850500-2926	29/26	1

Full Length Standard Taper Glass Stopper

Stoppers are used with laboratory glassware such as flasks and separatory funnels.

- Sizes Standard Taper 10/30 through Standard Taper 19/38 are solid
- Sizes Standard Taper 24/40 and larger are hollow
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
851000-1030	10/30	1
851000-1435	14/35	1
851000-1938	19/38	1
851000-2440	24/40	1
851000-2942	29/42	1
851000-3445	34/45	1
851000-4550	45/50	1

Standard Taper Glass Stoppers with KEM-KLAMP® Lug

These stoppers are designed for use with 675500 KEM-KLAMPS®.

- Pennyhead top has a lug attachment to engage the spring portion of the KEM-KLAMP®
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
851800-2440	24/40	1

Kimble® Flask Length Standard Taper Glass Stopper

Stoppers are used with laboratory glassware such as flasks, mixing cylinders and separatory funnels.

- All stoppers are solid except Standard Taper stopper sizes 32 and 38, which are hollow
- Made in accordance with ASTM Standard E675
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Stopper Size	Case Qty
850100-0008	8	1
850100-0009	9	1
850100-0013	13	1
41900R-13	13	6
850100-0016	16	1
850100-0019	19	1
850100-0022	22	1
850100-0027	27	1
850100-0032	32	1
850100-0038	38	1
41900R-38	38	6

Medium Length Hex Head Hollow Glass Stoppers

Stoppers are used with laboratory glassware such as flasks, mixing cylinders and separatory funnels.

- Hollow, hexagonal head medium length Standard Taper stopper that is easily gripped
- May be set on the flattened top to avoid contamination of the ground surface
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
850400-1420	14/20	1
850400-1922	19/22	1
850400-2425	24/25	1
850400-2926	29/26	1

Full Length Hex Head Hollow Glass Stoppers

Stoppers are used with laboratory glassware such as flasks and separatory funnels.

- Hollow, hexagonal head, Standard Taper stopper
- May be set on the flattened top to avoid contamination of the ground surface
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
850800-2440	24/40	1
850800-2942	29/42	1

Glass Cap-Type Standard Taper Stopper

Cap-type Standard Taper stopper fits over tubes and other apparatus having a Standard Taper inner opening.

- Cap has an outer Standard Taper joint and a hemispherical top
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
851900-1420	14/20	1

White Polyethylene Plug-Style Needle Closures

- Designed for shell vials
- Economical

Part Number	Fits Vials	Case Qty
73835-1	60831D-1544, 60835D-1544	2,000
73835-2	60831D-1231	2,000
73835-3	60831D-830, 60831D-843, 60835D-843	2,000

Flat Head Solid PTFE Stopper

Flat head PTFE stoppers are used as closures for laboratory glassware such as solution bottles and separatory funnels.

- Standard Taper medium length joint
- Solid, bottle-style stopper made of PTFE
- PTFE has excellent chemical resistance and resists freezing in ground glass joints
- Color button insert on top of the stopper serves as a means of color coding

Part Number	Standard Taper Stopper Size	Color	Case Qty
850540-0014	14	Red	1
850540-0024	24	Blue	1
41941R-24	24	Blue	6
41941R-29	29	Green	6
41941R-34	34	Orange	6

Key-Head Color-Coded Medium Length PTFE Stopper

Stoppers are used with laboratory glassware such as flasks and separatory funnels.

- PTFE has excellent chemical resistance and resists freezing in ground glass joints
- Remove the colored polyethylene handle from the PTFE stopper before cleaning or exposing to temperatures above 80 °C
- Stoppers of sizes 9 through 22 are solid, and sizes 32 through 38 are hollow
- Designed from ASTM Specification E675

Part Number	Standard Taper Stopper Size	Color	Case Qty
41901R-8	8	Gray	6
41901R-9	9	Black	6
41901R-13	13	Orange	6
41901R-16	16	Blue	6
41901R-19	19	Green	6
41901R-22	22	Yellow	6
41901R-27	27	Red	6
41901R-32	32	Grey	6
41901R-27	38	Black	6
41901R-38	38	Black	6

Linear High Density Polyethylene Stopper

Polyethylene stoppers may be used as replacement parts for items that are ground to Standard Taper stopper dimensions.

- These yellow and blue stoppers have a closed bottom
- The enlarged flange is designed to protect the neck if the glass object is tipped over

Part Number	Stopper Size	Case Qty
28160R-9	9	6
28160R-13	13	6
28160R-16	16	6
28160R-19	19	6
28160R-22	22	6
28160R-27	27	6

Polyethylene Stoppers

Low-cost polyethylene stoppers are an alternative to standard glass and PTFE stoppers.

- Leak-proof, air-tight seals
- Wide top flange for ease of use

Part Number	Standard Taper Size	Case Qty
774240-0014	14/10, 14/20, 14/35	100
774240-0019	19/22 ,19/38	100
774240-0024	24/25 ,24/40	100
774240-0029	29/26, 29/42	100

White FEP/Silicone Septa

Designed for use with headspace autosamplers for sealing sample vials used in operating temperature ranges of -60 to 200 °C.

- For aluminum seal finishes
- Clear FEP is 0.003" thick
- White silicone is 0.120" thick

Part Number	Fits Cap Size (mm)	Color	Case Qty
N73831A-20	20	White	1000

PTFE-Faced Red Rubber Septa

- Low cost
- Excellent resealability
- Highly chemical-resistant PTFE facing maintains integrity of contents
- Resists coring

Part Number	Fits Cap Size (mm)	Thickness - PTFE (inches)	Case Qty
N73812-13	13	0.005	1,000
N73816T-13	13	0.002	1,000
73816-15	15	0.002	144
73816-18	18	0.002	144
73816-20	20		1,000
N73830A-20	20		1,000
N73832-20	20	0.25	100
N73832A-20	20		1,000
N73834T-20	20		100
73816-24	24	0.002	144

Red PTFE-Faced Silicone Rubber Septa

- Highly chemically resistant PTFE-faced silicone rubber maintains integrity of contents
- Excellent compressibility and resealability
- Withstands multiple injections
- Resists coring

Part Number	Fits Cap Size (mm)	Thickness - Silicon Rubber (inches)	Case Qty
N73818B-13	13	0.07	1,000

Black Rubber Septa

- Black rubber septa

Part Number	Fits Cap Size (mm)	Color	Case Qty
N73823A-20	20	Black	1,000

PTFE-Faced Silicone Rubber Septa

- Excellent for use with open-top caps to access container contents with a syringe
- Highly chemically resistant PTFE facing maintains integrity of contents
- Silicone rubber backing allows repeated puncturing through the seal
- Resists coring
- Autoclavable
- Recommended for use in all autosamplers using screw thread vials
- 73818A-24 is white PTFE / tan silicone and is recommended for use with EPA vials

Part Number	Fits Cap Size (mm)	Thickness - Silicon Rubber (inches)	Case Qty
774161-0008	8	0.06	48
774161-0013	13	0.06	48
N73818T-13	13	0.06	1,000
774161-0015	15	0.06	48
73818-15	15	0.06	144
774161-0018	18	0.06	24
73818-18	18	0.06	144
73818X-18	18	0.09	144
774161-0020	20	0.06	24
73818-20	20	0.06	144
774161-0024	24	0.06	24
774161-0924	24	0.09	24
73818-24	24	0.06	144
73818A-24	24	0.12	144
73818X-24	24	0.09	144

KIM-KAP™ Polypropylene Closures

KIM-KAP™ polypropylene closures for culture tubes.

- Autoclavable
- Color coded

Part Number	Tube OD (mm)	Color	Case Qty
73660-13	13	Natural	1,000
73662-13	13	Red	1,000
73663-13	13	Green	1,000
73664-13	13	Yellow	1,000
73665-13	13	Blue	1,000
73660-16	16	Natural	1,000
73662-16	16	Red	1,000
73663-16	16	Green	1,000
73664-16	16	Yellow	1,000
73665-16	16	Blue	1,000
73660-18	18	Natural	1,000
73662-18	18	Red	1,000
73663-18	18	Green	1,000
73664-18	18	Yellow	1,000
73665-18	18	Blue	1,000
73660-20	20	Natural	500
73662-20	20	Red	500
73663-20	20	Green	500
73664-20	20	Yellow	500
73665-20	20	Blue	500
73660-25	25	Natural	500
73662-25	25	Red	500
73663-25	25	Green	500
73664-25	25	Yellow	500
73665-25	25	Blue	500
73660-38	38	Natural	250

AutosamplerCaps

Designed for use with GC and autosampler vials that have snap finishes.

- Clear polyethylene
- PTFE-faced silicone liner
- Economical and efficient closures

Part Number	Snap Finish (mm)	Feature	Case Qty
73826S-2	11	pre-slit	1000
73826-2	11	solid	1000

Snap Caps

Designed for use with items which have necks specially tooled to proper diameters and contours.

- Polyethylene
- Economical and efficient closures

Part Number	Cap No.	Fits Flask Size (mL)	Case Qty
73837-1	1		500
73837-2	2	10, 25	500
28150R-2	2	10, 25	6
28150R-3	3	50	6
28150R-4	4	100	6
28150R-5	5	200, 250, 500	6
28150R-6	6	1000	6

CELL CULTURE

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

For cell culture applications requiring reusable glassware, Kimble® offers the highest quality borosilicate glass petri dishes, shaker flasks and incubation flasks. Glass is the superior choice to maximize chemical compatibility and minimize the potential for leachables to contaminate precious samples.

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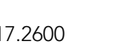
Borosilicate Petri Dishes

Shallow glass dishes used for culturing bacteria and other general laboratory uses. Designed to meet Federal Specification NNN-D-1478.

- KIMAX® dishes remain clear after repeated use in wet or dry sterilization cycles
- Reinforced beaded edges resist mechanical breakage and help in centering the bottom inside the cover
- Covers have a fused-on bright red ceramic enamel marking spot and inscription, including "Cover;" Bottoms have a white ceramic enamel inscription, including "Bottom"
- Combination of different colors and wording permits quick and easy identification of the parts when sorting, selecting and assembling pairs
- Bottom has a vertical arrow on the side to precisely locate serial dilution starting points
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Height (mm)	Diameter (mm)	Case Qty
23060-6015	15	60	72
23060-10010	10	100	72
23060-10015	15	100	72
23060-10020	20	100	72
23060-15020	20	150	24



Replacement Parts

Part Number	Description	Case Qty
23062-6015	60 x 15 mm Petri Dish Cover	12
23062-10010	100 x 10 mm Petri Dish Cover	12
23062-10015	100 x 15 mm Petri Dish Cover	12
23062-10020	100 x 20 mm Petri Dish Cover	12
23062-15020	150 x 20 mm Petri Dish Cover	12
23064-10010	100 x 10 mm Petri Dish Bottom	12
23064-10015	100 x 15 mm Petri Dish Bottom	12
23064-10020	100 x 20 mm Petri Dish Bottom	12
23064-15020	150 x 20 mm Petri Dish Bottom	12

Nephelo Culture Flasks

Culture flask with a sidearm for insertion into a nephelometer, colorimeter, or spectrometer. Bacterial or protein cell production can be monitored in situ.

- Designed to operate on a platform shaker
- Autoclavable
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Joint	Case Qty
881750-0214	125	5	1
881750-0219	125	5	1
881750-0414	250	6	1
881750-0419	250	6	1

Baffled Shake Flask

Designed for use with rotary and reciprocating shakers where baffle indents provide greater turbulence to improve oxygen transfer rates or aeration.

- Flask has a neck with a plain fire-polished finish and suitable for a metal cap, plastic cap, foam plug or cotton plug
- Autoclavable
- All flasks have durable white ceramic enamel marking spots
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD (mm)	Case Qty
25630-125	125	25	6
25630-250	250	38	6
25630-500	500	38	6
25630-1000	1000	38	6
25630-2000	2000	38	6

Accessories

Part Number	Description	Case Qty
73660-25	KIM-KAP™ Polypropylene Closure, Fits 25 mm OD, Natural	500
73662-25	KIM-KAP™ Polypropylene Closure, Fits 25 mm OD, Red	500
73663-25	KIM-KAP™ Polypropylene Closure, Fits 25 mm OD, Green	500
73664-25	KIM-KAP™ Polypropylene Closure, Fits 25 mm OD, Yellow	500
73665-25	KIM-KAP™ Polypropylene Closure, Fits 25 mm OD, Blue	500
73660-38	KIM-KAP™ Polypropylene Closure, Fits 38 mm OD, Natural	250

Long Neck Flasks

The extended neck is designed to accept a metal cap, plastic closure, foam plug, or cotton plug for cell culture applications.

- KIMAX® flask has a thick-walled tubing neck with a plain fire-polished finish sealed to an Erlenmeyer-shaped body
- Autoclavable
- All flasks have durable white ceramic enamel scales to indicate approximate volumes at various levels
- Designed from ASTM Specification E1404, Type IV, Class I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Cap Size & Neck OD	Case Qty
25615-125	125	25	24
25615-250	250	38	24
25615-500	500	38	24
25615-1000	1000	38	24
25615-2000	2000	38	12

Incubation Flasks

Used for metabolic studies of biological materials. Particularly useful in measuring $C^{14}O^2$ yields following incubation. Also suitable for in vitro incubations, insulin bio-assays, persulfate oxidations, and the "distillation" of any volatile acid or base.

- Since either an acid or alkali is introduced at the end of the reaction, it is possible to use this easy system with either a phosphate or bicarbonate buffer
- The disposable center well may be cut off when transferred to a liquid scintillation counting vial
- Sidearm flask enables syringe needle entry without disturbing established conditions
- Rubber stopper provides a double seal and has an off-center hole for the insertion of the center well
- Items sold separately in case quantities listed below
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Description	Case Qty
882300-0010	10 mL Incubation Flasks, Over-all Height x Width 50 x 31 mm, Top Neck ID 14 mm	12
882360-0010	10 mL Sidearm Incubation Flask, Overall Height x Width 50 x 31 mm, Top Neck ID 14 mm	12
882310-0000	Top Stopper for Incubation Flask	144
882311-0000	Sidearm Stopper for Incubation Flask	144
882320-0000	Center Well for Incubation Flasks, Polypropylene, Length 70 mm, Diameter 10 mm	144

GL 45 Cell Culture Flasks

These KIMAX® Erlenmeyer flasks have large opening, GL 45 thread closures to make filling easier and provide tight seals during storage.

- Flasks come with blue polypropylene caps and clear seal rings
- Marking spots and scales are durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height (mm)	Case Qty
26720-250	250	125	6
26720-500	500	165	6
26720-1000	1000	205	4
26720-2000	2000	265	2

GL 45 Safety Coated Cell Culture Flasks

These KIMAX® KimCote® plastic-coated Erlenmeyer flasks have large opening, GL 45 thread closures to make filling easier and provide tight seals during storage.

- Flasks come with blue polypropylene caps and clear pour rings
- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Marking spots and scales are durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height (mm)	Case Qty
KC26720-250	250	125	6
KC26720-500	500	165	6
KC26720-1000	1000	205	4
KC26720-2000	2000	265	2

GL 45 Polypropylene Color Coded Screw Thread Caps

- Solid top polypropylene GL 45 screw thread caps with internal molded seal rings

Part Number	Screw Thread	Color	Case Qty
14395C-45	GL 45	Blue	10
14395C-451	GL 45	White	10
14395C-453	GL 45	Orange	10
14395C-455	GL 45	Gray	10
14395C-457	GL 45	Green	10
14395C-459	GL 45	Pink	10

Kimble®

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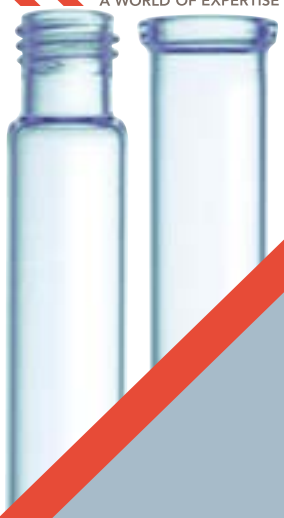

CENTRIFUGE TUBES

Kimble® offers a full selection of high quality products to meet your centrifuge needs. Select from disposable glass centrifuge tubes for routine laboratory applications, to high strength tubes for high-speed and high-temperature applications ,to oil centrifuge tubes used for petrochemical methods. Choose glass centrifuge tubes to maximize chemical compatibility and minimize the potential for leachables to contaminate precious samples.

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Snap Cap Disposable Centrifuge Tubes

Plain, disposable centrifuge tube can withstand centrifugation up to 2980 RCF.

- Conical bottom
- The 5, 10, and 15 mL sizes have a finished top for a snap-cap closure (not supplied)
- The 50 mL size has a tooled top
- Tubes are plastic shrink wrapped in modular trays to keep them clean and safe in transit
- See 73837 for snap cap closures
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
73790-5	5	13 x 110	125
73790-10	10	16 x 114	125
73790-15	15	17 x 126	125
73790-50	50	29 x 137	72

Accessories

Part Number	Description	Case Qty
73837-1	Snap Cap, Polyethylene, for 5 mL tubes	500
73837-2	Snap Cap, Polyethylene, for 10 and 15 mL tuabes	500

Screw Thread Disposable Centrifuge Tubes

With conical-shaped bottoms on the 5, 10, and 15 mL sizes and a bullet-nosed shape on the 50 mL size, these tubes withstand centrifugation up to 2980 RCF.

- Tubes are plastic shrink-wrapped in modular trays for cleanliness and safety
- Closures are not supplied
- For closures see 73800 and 73802
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL); GPI Finish	OD x Length (mm)	Case Qty
73785-5	5; 13-415	13 x 110	125
73785-10	10; 15-415	16 x 114	125
73785-15	15; 15-415	17 x 126	125
73785-50	50; 24-400	29 x 137	72

Replacement Parts

Part Number	Description	Case Qty
73800-13415	13-415 Black Phenolic Cap, Cemented White Rubber Liner	1,000
73802-13415	13-415 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner	500
73800-15415	15-415 Black Phenolic Cap, Cemented White Rubber Liner	1,000
73802-15415	15-415 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner	500
73802-24400	24-400 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner	144

Plain Reusable Centrifuge Tube without Closures

KIMAX® reusable centrifuge tube has a beaded top for added strength.

- Supplied without closures
- Designed from Federal Specification A-A-51244, Type II ungraduated requirements
- 45150 series is designed from ASTM Specification E237
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45150-2	2	11 x 66	12
45150-5	5	13 x 101	12
45160-15	15	17 x 118	12

Plain Reusable Centrifuge Tube with Screw Caps

Threaded conical centrifuge tube with a PTFE/rubber-lined black phenolic screw cap.

- Ungraduated
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL); GPI Finish	OD x Overall Length (mm)	Case Qty
410090-0015	15; 15-415	17 x 130	12
410090-0050	50; 24-410	28 x 158	12

Replacement Parts

Part Number	Description	Case Qty
45066B-15	15-415 Cap, Phenolic, White Rubber Liner, Cap height 16 mm	300
45066B-24	24-410 Cap, Phenolic, White Rubber Liner, Cap height 19 mm	150

Plain Reusable Centrifuge Tube with Snap Caps

Ungraduated, conical centrifuge tube with a beaded top.

- Supplied with size 2 snap cap; replacement cap is 28150R-2
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Overall Length (mm)	Case Qty
411800-0015	15	20 x 120	125
411800-1015	15	20 x 120	10

Plain Round Bottom Reusable Centrifuge Tubes with Flat Head Stopper

- Round bottom ungraduated centrifuge tube with a flat head Standard Taper stopper
- The flat head design permits stoppers to be placed on work surfaces without contaminating the ground zone and also facilitates the use of this vessel as a shaking tube
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Do not centrifuge with stopper in tube.

Part Number	Capacity (mL)	OD x Overall Length (mm)	Case Qty
411050-0050	50	28 x 140	1
411050-0100	100	32 x 210	1

Graduated Reusable Centrifuge Tubes

This Standard Taper KIMAX® tube is reusable.

- Graduated and calibrated to contain
- Top is beaded for strength
- Scale, legend and marking spot are printed in durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45165-10	10	17 x 108	12
45165-15	15	17 x 118	12
45165-50	50	29 x 133	12

Graduated Hopkins Vaccine Centrifuge Tube

KIMAX® tube used to standardize vaccines.

- The stem is marked from 0.01 mL to 0.05 mL in 0.01 mL intervals with a tolerance of ±0.0025 mL
- The body has graduations at 1, 5 and 10 mL with a tolerance of ±0.20 mL
- Scale and legend are durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45225-10	10	17 x 119	12

Graduated Reusable Centrifuge Tube with Spout

KIMAX® tube with a short tapered bottom

- Beaded top
- Graduated and calibrated to contain
- Top end has a pour spout
- Scale, legend and marking spot are durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45186-50	50	29 x 118	12

Graduated Reusable Centrifuge Tubes with Red Stain Scale

Standard taper KIMAX® tube.

- Calibrated to contain
- Top is beaded for strength
- Scale and legend are printed in permanent red stain
- Marking spot is blasted on both sizes
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45164-15	15	17 x 118	12

Graduated Reusable Centrifuge Tubes with Pennyhead Glass Stoppers

- KIMAX® tube with a top finished to accept a Standard Taper stopper (supplied)
- Graduated and calibrated to contain
- Scale, legend and marking spot are durable white ceramic enamel
- Replacement stopper is 850100
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Do not centrifuge with stopper in tube.

Part Number	Capacity (mL); Stopper Size	OD x Length Without Stopper (mm)	Case Qty
45153-15	15; 13	17 x 136	12
45153-50	50; 19	29 x 148	12

Replacement Parts

Part Number	Description	Case Qty
850100-0013	Size 13 Pennyhead Glass Stopper	1
850100-0019	Size 19 Pennyhead Glass Stopper	1

Graduated Reusable Centrifuge Tubes with Flat Head Stoppers

Conical-type graduated centrifuge tube with a flat head Standard Taper stopper.

- Flat head design permits stoppers to be placed on work surfaces without contaminating the ground zone and also facilitates the use of this vessel as a shaking tube
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Do not centrifuge with stopper in tube.

Part Number	Capacity (mL)	OD x Overall Length (mm)	Case Qty
410550-0025	2.5	11 x 98	1
410550-0005	5	13 x 123	1
410550-0013	13	17 x 141	1

Replacement Parts

Part Number	Description	Case Qty
410551-0005	5 mL Graduated Centrifuge Tubes	1
410551-0013	13 mL Graduated Centrifuge Tubes	1

Graduated Reusable Centrifuge Tubes with Screw Caps

- Standard Taper KIMAX® tube with a screw thread finish
- Graduated and calibrated to contain
- Cap supplied has cemented-in white rubber liner and is packaged separately
- Scale, legend and marking spot are durable white ceramic enamel
- Replacement cap for 45166 is 45066B
- Replacement cap for 45246 is 45066C
- 45246 is a large-capacity, 100mL tube with screw thread closure
- Manufactured to the specifications found in ASTM 2158
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL); GPI Finish	OD x Length (mm)	Case Qty
45166-15	15; 15-415	17 x 130	12
45166-50	50; 24-410	29 x 147	12
45246-100	100; 28-410	37 x 203	12

Replacement Parts

Part Number	Description	Case Qty
45066B-15	15-415 Cap, Phenolic, White Rubber Liner, Cap height 16 mm	300
45066B-24	24-410 Cap, Phenolic, White Rubber Liner, Cap height 19 mm	150
45066C-28	28-410 Cap, Phenolic, PTFE-faced White Rubber Liner, Cap height 19 mm	150

Heavy-Duty Plain Centrifuge Tubes

Standard Taper KIMAX® tube made with heavy-walled tubing to withstand higher centrifugation speeds.

- Top is beaded for strength
- Outside dimensions are the same as 45160; however, tubes will hold less due to heavier wall thickness
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45194-12	12	17 x 118	12

Heavy-Duty Plain Centrifuge Tubes with Flathead PTFE Stoppers

This Standard Taper KIMAX® tube is made with heavier-walled tubing to withstand higher centrifugation speeds.

- Color-coded flathead PTFE stopper
- Conical bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Do not centrifuge with stopper in tube.

Part Number	Capacity (mL)	OD x Length Without Stopper (mm)	Case Qty
45174-13	13	17 x 130	6
45174-50	50	29 x 155	6

Heavy-Duty Plain Centrifuge Tubes with Screw Caps

Standard Taper KIMAX® tube is a heavy-duty version of 45161.

- Made with heavier walled tubing to withstand higher centrifugation speeds
- Top has screw thread finish
- Cap with rubber liner is included but not attached
- Replacement cap is 45066B
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45196-40	40	29 x 140	12

Replacement Parts

Part Number	Description	Case Qty
45066B-24	24-410 Cap, Phenolic, White Rubber Liner, Cap height 19 mm	150

Heavy Duty Round Bottom Centrifuge Tubes with Screw Caps

KIMAX® tube useful in separating neutralized sediment for culturing from specimens of sputum. Will be found useful also for other clinical work and in many microbiological applications.

- KIMAX® tube with a heavy wall to withstand higher speeds in centrifuging
- Marking spot is sandblasted
- Autoclavable black phenolic caps with cemented-in rubber liners are supplied unattached
- Replacement cap is 45066B-24
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45212-35	35	29 x 100	12
45212-50	50	29 x 123	12

Replacement Parts

Part Number	Description	Case Qty
45066B-24	24-410 Cap, Phenolic, White Rubber Liner, Cap height 19 mm	150

Heavy-Duty Graduated Centrifuge Tubes with Screw Caps

Standard Taper KIMAX® tube is a heavy-duty version of 45166.

- Graduated and calibrated to contain
- Scale is durable white ceramic enamel
- Made with heavier walled tubing to withstand higher centrifugation speed
- Top has a screw thread finish
- Autoclavable cap with rubber liner is included but not attached
- Replacement cap is 45066B
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL); GPI Finish	OD x Length (mm)	Case Qty
45200-10	10; 15-415	17 x 116	12
45200-40	40; 24-410	29 x 140	12

Replacement Parts

Part Number	Description	Case Qty
45066B-15	15-415 Cap, Phenolic, White Rubber Liner, Cap height 16 mm	300
45066B-24	24-410 Cap, Phenolic, White Rubber Liner, Cap height 19 mm	150

Heavy Duty Graduated Centrifuge Tubes

This Standard Taper KIMAX® tube is a heavy-duty version of 45165.

- Made with heavier walled tubing to withstand higher centrifugation speeds
- Beaded top for strength
- Graduated and calibrated to contain
- Scale is white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45199-12	12	17 x 118	12

Heavy-Duty Graduated Centrifuge Tubes with Pennyhead Glass Stoppers

- Standard Taper KIMAX® tube is a heavy-duty version of 45153
- Calibrated to contain
- Scale, legend and marking spot are durable white ceramic enamel
- Tooled for a Standard Taper stopper, which is included
- Replacement stopper is 850100
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Do not centrifuge with stopper in tube.

Part Number	Capacity (mL)	OD x Length Without Stopper (mm)	Case Qty
45201-10	10	17 x 117	6

Replacement Parts

Part Number	Description	Case Qty
850100-0013	Size 13 Glass Stopper	1

Heavy-Duty Graduated Centrifuge Tubes with Flat Head PTFE Stoppers

- Heavy-duty KIMAX® tube with a graduated scale and a PTFE Standard Taper stopper
- Calibrated to contain
- With top finish to accept a Standard Taper stopper
- Scale and legend are printed in permanent red stain on the 13 mL size and permanent brown stain on 50 mL size
- Marking spot is sandblasted on
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Do not centrifuge with stopper in tube.

Part Number	Capacity (mL)	OD x Length Without Stopper (mm)	Case Qty
45176-13	13	17 x 130	6
45176-50	50	29 x 155	6

Plain High Strength Centrifuge Tubes

These tubes can be centrifuged up to 13,100 RCF when used with an accessory rubber adapter sleeve in a 50 mL rotor cavity.

- Tubes have been chemically strengthened to achieve a greater mechanical strength than standard borosilicate centrifuge tubes
- Without closures
- Tubes can withstand temperatures up to 300 °C
- Reusable centrifuge tubes are manufactured from ASTM E438 Type I, Class B, borosilicate glass

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45500-15	15	18 x 102	6
45500-30	30	24 x 106	6

Screw Thread High Strength Centrifuge Tubes

These tubes can be centrifuged up to 13,100 RCF when used with an accessory rubber adapter sleeve in a 50 mL rotor cavity.

- Tubes have been chemically strengthened to achieve a greater mechanical strength than standard borosilicate centrifuge tubes
- Excluding caps, tubes can withstand temperatures up to 300 °C
- Supplied with 73802 black phenolic cap with PTFE-faced rubber liner
- Reusable centrifuge tubes are manufactured from ASTM E438 Type I, Class B, borosilicate glass

Part Number	Capacity (mL); GPI Finish	OD x Length (mm)	Case Qty
45600-15	15; 20-400	18 x 102	6
45600-30	30; 24-400	24 x 106	6

Replacement Parts

Part Number	Description	Case Qty
73802-20400	20-400 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner	144
73802-24400	24-400 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner	144

Accessories

Part Number	Description	Case Qty
45550-15	15mL Centrifuge Tube Rubber Adapter Sleeve	2
45550-30	30mL Centrifuge Tube Rubber Adapter Sleeve	2

Heavy-Duty Centrifuge Bottles with Screw Caps

This centrifuge bottle has a small bottom area for better concentration of sediment, facilitating decanting of liquid.

- KIMAX® bottle has a screw thread finish
- Supplied with an unattached, white polypropylene closure with a pulp/vinyl coated liner
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
14720-200	200	60 x 145	1

API Graduated Centrifuge Tubes

Used to determine the bottom sediment and water in petroleum.

- KIMAX® tube with a long taper
- Calibrated to contain
- Scale, legend and marking spot are durable white ceramic enamel
- Referred to as the "finger" tube
- Made in accordance with the specifications of the American Petroleum Institute (MPMS Chapter 10.4)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (%)	OD x Length (mm)	Case Qty
45170-125	100 (12.5 mL)	17 x 118	12

Goetz Graduated Centrifuge Tubes

KIMAX® tube used for the determination of small quantities of solids in large volumes of liquids. Recommended for the determination of free water and sediment in diesel and other distillate fuels, as a pass-fail indication of product quality (ASTM D2709).

- Calibrated to contain.
- Durable black ceramic enamel scale
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Do not centrifuge with stopper in tube.

Stem graduations in 0.01 mL to 0.2 mL with a tolerance of ±0.01 mL
Body graduation at 25 mL with a tolerance of ±1.0 mL
Body graduations at 50 and 100 mL with a tolerance of ±2.0 mL

Part Number	Capacity (mL)	OD x Length Without Stopper (mm)	Case Qty
45220-100	100	58 x 160	6

Pear-Shaped Centrifuge Tubes with Red Scale

Graduated tube is used for the determination of water and sediment in petroleum products.

- Top is tooled for a size 5 rubber stopper
- Calibrated to contain
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Stem Volume (mL)	Case Qty
412510-0000	100	3	1

Pear-Shaped Centrifuge Tubes with White Scale

KIMAX® tube used in the determination of bottom sediment and water in petroleum products.

- Calibrated to contain
- Stem holds 1.5 mL
- Scale and legend are durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45244-100	100	58 x 158	12
45244-200	100 (200%)	58 x 158	6

8" Oil Centrifuge Tubes

KIMAX® 8-inch oil centrifuge tubes used in the determination *of water and sediment in crude mineral oils, fuel oils and other petroleum products* (D1796 and MPMS 10.4 standards); in determination of volume of precipitate formed by centrifuging definite quantities of steam cylinder stocks and black oils and other lubricating oils (ASTM D91 and D128); and in *testing for acidity of distillation residues or hydrocarbon liquids of gasoline or petroleum solvents* (ASTM D1093).

- *Calibrated to contain*
- Scale and legend are durable white ceramic enamel
- Top is tooled to accept snap cap 28150R-6
- Referenced in ASTM D4007
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45240-100	100	37 x 203	12

8" Oil and Weathering (End Point Index) Centrifuge Tubes

Oil and weather index 8-inch centrifuge tubes can be used in the determination of residues in Liquified Petroleum (LP) gases, ASTM Method D2158.

- KIMAX® tube used extensively in California
- *Calibrated to contain*
- Different graduations than 45240
- Scale and legend are durable white ceramic enamel
- Top is tooled to accept snap cap 28150R-6
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45241-100	100	37 x 203	12

6" Short Cone Oil Centrifuge Tubes

KIMAX® tube designed for field use in testing petroleum.

- *Calibrated to contain*
- Scale and legend are durable white ceramic enamel
- 45243-200 is graduated in %. 100 mL equals 200%
- Top is tooled to accept snap cap 28150R-6
- Referenced in API MPMS Chapter 10.4
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45243-100	100	45 x 165	12
45243-200	100	45 x 165	6

California Centrifuge Tube with Red Stripe

KIMAX® conical bottom centrifuge tube is used for testing of petroleum products according to ASTM D91, D893 and D1796.

- Tube has a permanent red stripe under the white enamel graduations for easy reading of results
- Scale and legend are durable white ceramic enamel
- Top is tooled to accept snap cap 28150R-6
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45239-100	100	38 x 200	12

Nomogram for Computing Relative Centrifugal Force

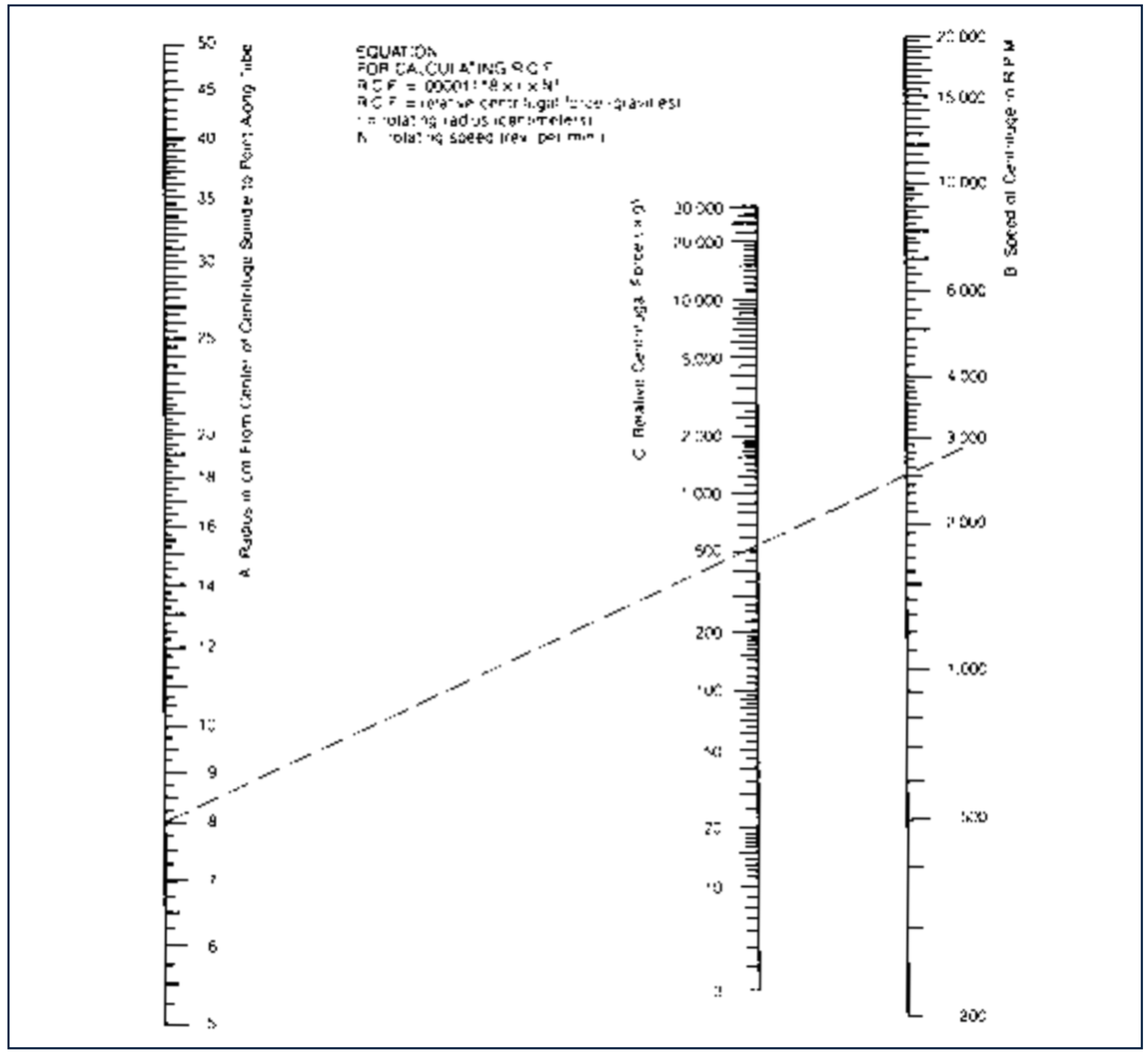
One of the questions asked most frequently in the field of centrifugation is how does one relate revolutions per minute (R.P.M.) to relative centrifugal force (R.C.F.)? The following nomograph may be used directly or the R.C.F. may be calculated from the formula.

Equation for Calculating R.C.F.

R.C.F. = .00001118 x r x N^2 (R.C.F. = relative centrifugal force (gravities); r = rotating radius; N = rotating speed)

Sample Calculation
The relative centrifugal force (R.C.F.) at a radial distance of 8 cm from the center of centrifuge spindle when operating at a speed of 2500 R.P.M., may be determined by placing a straight edge on the nomogram connecting the 8 cm point on the Radius from Center Spindle Scale (A), with the 2500 R.P.M. point on the Speed Scale (B). The point of intersection on the Relative Centrifugal Force Scale (C), or 550 g is the relative centrifugal force (550 x 32 =17600 psi).

If the desired R.C.F. is known, the speed of rotation for a given radius may be found by connecting the two points and reading the Speed Scale at intersection.



Centrifuge Tube Quick Reference Chart and Page Index									
Cat. No.	Page	Shape	Graduations	Stopper / Cap	< 15mL	≥ 15mL	Heavy Duty	Max RCF	Test Reference
14720	67	round	ungraduated	screw cap		x		3550	
45150	63	conical	ungraduated	beaded	x			2980	
45153	64	conical	white ceramic	pennyhead	x	x		2980	D2792
45160	65	conical	ungraduated	beaded		x		2980	
45164	64	conical	red stain	beaded		x		2980	
45165	64	conical	white ceramic	beaded top	x	x		2980	
45166	65	conical	white ceramic	screw cap	x	x		2980	
45170	67	conical	white ceramic	beaded	x			2980	API MPMS 10.4
45174	65	conical	ungraduated	flathead	x	x	x	2050	
45176	66	conical	red/brown stain	flathead	x	x	x	2050	
45186	64	conical	white ceramic	beaded top		x		2000	
45194	65	conical	ungraduated	beaded	x		x	2980	
45196	65	conical	ungraduated	screw cap		x	x	3550	
45199	66	conical	white ceramic	beaded	x		x	2980	
45200	66	conical	white ceramic	screw cap	x	x	x	2980	
45201	66	conical	white ceramic	pennyhead	x		x	2980	
45212	66	round	ungraduated	screw cap		x	x	3550	
45220	67	conical	black ceramic	pennyhead		x		800	ASTM D2709
45225	64	capillary	white ceramic	beaded	x			2980	
45240	68	conical	white ceramic	snap cap		x		800	ASTM D91, D128, D1093, D1347, D1796, D4007
45241	68	conical	white ceramic	snap cap		x		800	ASTM D2158
45243	68	conical	white ceramic	snap cap		x		800	API MPMS 10.4
45244	68	conical	white ceramic	—		x		800	
45246	65	conical	white ceramic	screw cap		x		2980	
45500	67	round	ungraduated	—	x	x	high strength	13100*	
45600	67	round	ungraduated	screw cap	x	x	high strength	13100*	
73785	63	conical	ungraduated	screw cap	x	x		2980	
73790	63	conical	ungraduated	snap cap	x	x		2980	
410090	63	conical	ungraduated	screw cap	x	x		2980	
410550	65	conical	red ceramic	flathead	x	x		2980	
411050	64	round	ungraduated	flathead		x		2980	
411800	63	conical	ungraduated	snap cap		x		2980	
412510	68	conical	red ceramic	#5 stopper		x		800	

* when used with rubber adapter sleeve

* Click on the page numbers to go directly to that page.

CHROMATOGRAPHY

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

Kimble® offers an extensive line of glass chromatography products. CHROMAFLEX® jacketed and standard columns are our highest quality line of columns and may be used in more demanding situations calling for higher temperatures and pressures. They are constructed from 33 expansion borosilicate glass and contain PTFE end fittings to ensure excellent chemical compatibility for a variety of applications with both aqueous and organic solvents.

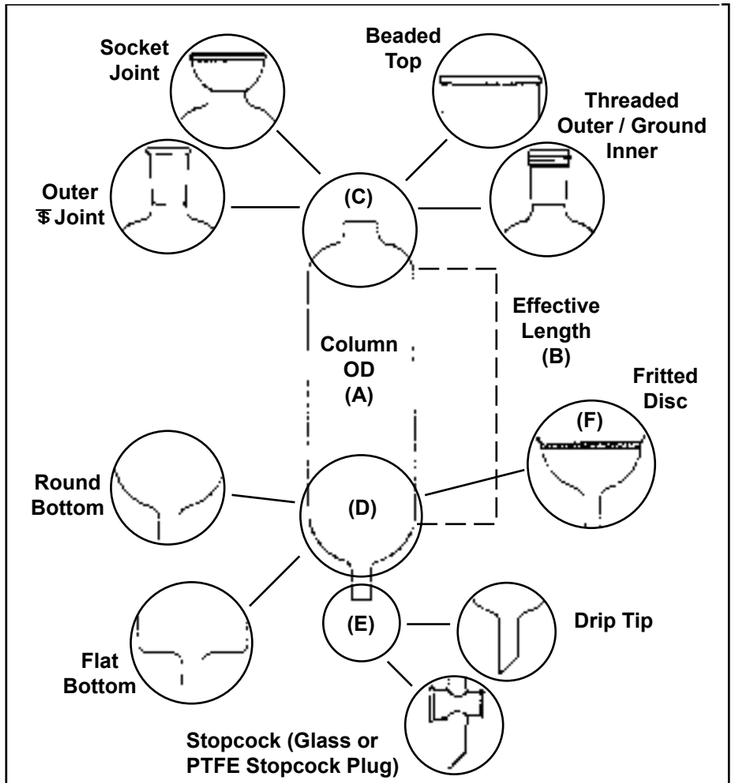
Our FLEX-COLUMN® line offers a lower cost alternative to the CHROMAFLEX® columns. FLEX-COLUMNS are economical, easy-to-use chromatography columns that are ideal for use with gel filtration, ion exchange, affinity and adsorption media. These are constructed of borosilicate glass columns with polypropylene ends and have a 20 micron porosity bed support.

General purpose chromatography columns are used for gravity applications and are available in many configurations and capacities. If the needed configuration is not among our standard catalog items, please request a quote from our Custom Glass Shop to have them constructed to your specifications (customglass@kimble-chase.com).

The ULTRA-WARE® line of HPLC reservoirs and capping systems provides safe and effective solutions to mobile phase storage and delivery needs. Select from conical bottom/flat bottom reservoirs with/without graduations, and cap systems from simple filtration devices to caps offering solvent pick-up, filtration, sparging, recirculation, and delivery to the HPLC pump.

TLC developing tanks, sprayers, plate streakers, MICROCAPS® and accessories are offered to help you select the best products for your thin layer chromatography needs.

precision glassware solutions



Custom Column Specifications

The Custom Glass Shop has the ability to custom fabricate chromatography columns to your specifications. Columns are available with any standard taper, spherical or threaded joints. Consider the following issues when designing your columns.

A – Column OD:
Special columns will be constructed using medium wall tubing unless otherwise specified.

B – Column Effective Length:
Effective length is the length of the straight sides of the column prior to rounding off the tubing for sealing the top joint or the lower stopcock. On a fritted column, the effective length is measured to the fritted disk.

C – Top Joint Style and Size:

D– Lower Column Configuration:

Please specify round or flat bottom.

E – Stopcock Type and Size:
Please specify stopcock bore. PTFE, Glass or plain drip tip.

F – Fritted Disc Required:
Special columns will be constructed using a coarse porosity (40-60 micron) fritted disc unless otherwise specified.

G – Plastic Coated Column:

H – Volume:

I – Quantity:

Custom Glass

CGS is the Custom Glass Shop at Kimble®. We can be your single source for custom laboratory glassware design and fabrication. Whether you want a slight variation of a standard product or a completely unique design, CGS can do it! In quantities as small as one piece. Our staff of veteran glassblowers will meet your requirements and exceed your expectations.

CGS Capabilities:

- Engineering and design
- Graduating
- Quartz apparatus
- Glass to metal graded seals
- Grinding and polishing (machine or hand)
- Machine shop
- Microscale glassware
- Precision bore tubing
- Glass tooling
- Large-scale systems
- Flasks to 72 liters
- Decorating

E-mail: customglass@kimble-chase.com

420870-3010 jacketed column shown with optional 420876-0020 flow adapter.

CHROMAFLEX® Columns
CHROMAFLEX® Chromatography Columns have a unique design feature: PTFE shielded o-rings. Each end fitting has a thin PTFE layer that is curled over the o-ring to form a solvent resistant, leak free seal. CHROMAFLEX® Columns can be used with all aqueous buffers without modification and with organic solvents when the optional PTFE bed supports are installed in the end fittings and flow adapters. CHROMAFLEX® Columns are available in both standard and water jacketed versions.

Standard CHROMAFLEX® Columns
Standard CHROMAFLEX® Columns are available in three IDs (1.0, 2.5 and 4.8 cm) in five standard lengths (15, 30, 60, 100 and 120 cm). Each column is supplied with two PTFE end fittings with 20 µm porosity polyethylene bed supports, 5 feet PTFE tubing (1/16" OD tubing with 1.0 cm, 1/8" OD tubing with 2.5 & 4.8 cm), 2 flangeless tubing nuts and 2 flangeless ferrules.

Jacketed CHROMAFLEX® Columns
Jacketed CHROMAFLEX® Columns are provided with an acrylic water jacket to provide thermal control of temperature sensitive chromatographic separations. The acrylic jacket also acts as a safety shield. Jacketed columns are available in all of the standard CHROMAFLEX® Column sizes and supplied with the same tubing, nuts and ferrules.

Flow Adapters
CHROMAFLEX® Flow Adapters allow easy adjustment of the column bed volume. They are ideal for concentration and pH gradients, reverse flow separations, and gravity flow separations that require a high level of resolution and reproducibility. Flow adapters are available for all three standard ID columns.

Packing Reservoirs
The CHROMAFLEX® Glass Reservoirs are ideal for packing gel slurries into columns and as buffer reservoirs for simple gravity flow chromatography. Each reservoir has been designed for easy mounting on all CHROMAFLEX® Columns. The reservoir capacities are matched by column ID to take the amount of slurry required to pack the longest standard column. The reservoir end fitting has 1/4-28 threads for simple flangeless connection to a pump.

Flangeless 1/4-28 Fittings
All tubing connections to CHROMAFLEX® Columns can be made with easy-to-use 1/4-28 flangeless fittings and either 1/16" OD, 1/8" OD or 1.8 mm OD tubing. Our complete line of fittings and adapters allow simple connection to any chromatography system.

Custom Length Columns
Certain applications may require a column length not found in our standard product offering. Please contact customer service for pricing and delivery details for custom length CHROMAFLEX® Columns.

Specifications

Column Barrels:	Type I, Class A Borosilicate Glass
End Fitting:	Polytetrafluoroethylene (PTFE)
Bed Support:	High Density Polyethylene (HDPE)
Water/Safety Jacket:	Acrylic (jacketed columns only)
Jacket Sealing Rings:	Polypropylene (jacketed columns only)
Bed Support Porosity:	20 micron nominal (for standard bed support)
Maximum Pressure*:	1.0 cm ID Columns - 100 psi (6.9 bar) 2.5 cm ID Columns 75 psi (5.2 bar) 4.8 cm ID Columns - 50 psi (3.4 bar) Temperature Range: 0 to 50 °C
Tubing Connections:	1/4-28 flangeless fittings

Recommended Ethylene Oxide, 2N NaOH or 100% Ethanol
Sterilization Method:(autoclaving is not recommended)

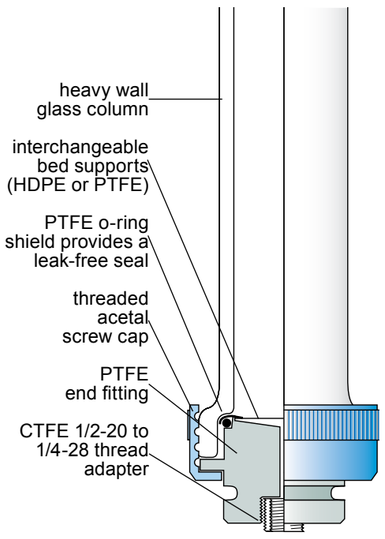
Standard CHROMAFLEX® Columns

Gel Filtration Chromatography

- Columns are supplied complete with glass barrel, 2 end fittings with 20 µm porosity HDPE bed supports, and screw caps
- Each column is also supplied with 5 feet (1.5 m) of FEP PTFE tubing (1/16" OD with 1.0 cm; 1/8" OD with 2.5 and 4.8 cm), 2 flangeless tubing nuts and 2 flangeless ferrules
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	ID (cm)	Length (cm)	Case Qty
420830-1500	1	15	1
420830-3000	1	30	1
420830-6000	1	60	1
420830-1000	1	100	1
420830-1200	1	120	1
420830-1510	2.5	15	1
420830-3010	2.5	30	1
420830-6010	2.5	60	1
420830-1010	2.5	100	1
420830-1210	2.5	120	1
420830-1520	4.8	15	1
420830-3020	4.8	30	1
420830-6020	4.8	60	1
420830-1020	4.8	100	1
420830-1220	4.8	120	1

CHROMAFLEX®
Standard Column Cross Section



Replacement Parts

Part Number	Description	Case Qty
420831-1500	Glass Barrel Only, 1.0 x 15 cm	1
420831-3000	Glass Barrel Only, 1.0 x 30 cm	1
420831-6000	Glass Barrel Only, 1.0 x 60 cm	1
420831-1000	Glass Barrel Only, 1.0 x 100 cm	1
420831-1200	Glass Barrel Only, 1.0 x 120 cm	1
420831-1510	Glass Barrel Only, 2.5 x 15 cm	1
420831-3010	Glass Barrel Only, 2.5 x 30 cm	1
420831-6010	Glass Barrel Only, 2.5 x 60 cm	1
420831-1010	Glass Barrel Only, 2.5 x 100 cm	1
420831-1210	Glass Barrel Only, 2.5 x 120 cm	1
420831-1520	Glass Barrel Only, 4.8 x 15 cm	1
420831-3020	Glass Barrel Only, 4.8 x 30 cm	1
420831-6020	Glass Barrel Only, 4.8 x 60 cm	1
420831-1020	Glass Barrel Only, 4.8 x 100 cm	1
420831-1220	Glass Barrel Only, 4.8 x 120 cm	1
420832-2100	1.0 cm PTFE Ending Fitting with Bed Support; requires attachment with CTFE adapter 420804-0001, not included	1
420832-2110	2.5 cm PTFE Ending Fitting with Bed Support; requires attachment with CTFE adapter 420804-0001, not included	1
420832-2120	4.8 cm PTFE End Fitting with Bed Support; requires attachment with CTFE adapter 420804-0001, not included	1
420811-2010	20 µm HDPE Bed Support, 1.0 cm	10
420811-2020	20 µm HDPE Bed Support, 2.5 cm	10
420811-2040	20 µm HDPE Bed Support, 4.8 cm	10
420833-0000	1.0 cm Screw Cap for Use with standard CHROMAFLEX® Columns	1
420833-0010	2.5 cm Screw Cap for Use with standard CHROMAFLEX® Columns	1
420833-0020	4.8 cm Screw Cap for Use with 10cm standard CHROMAFLEX® Columns	1
420828-0116	Polypropylene Ferrule for 1/16" OD Tubing, Fits Columns ID 1.0/2.5	1
420828-0018	Polypropylene Ferrule for 1/8" OD Tubing, Fits Columns ID 2.5/4.8	1
420804-0001	CTFE Threaded Adapter, converts 1/2-20 threads on CHROMAFLEX® column end fittings to 1/4-28 threads	2
420823-0018	1/8" OD x 0.063" ID x 10' FEP / PTFE Tubing	1
420823-0116	1/16" OD x 0.038" ID x 10' FEP / PTFE Tubing, Fits 20 Gauge Needle	1

Accessories

Part Number	Description	Case Qty
420809-2010	20 µm PTFE Bed Support, 1.0 cm	1
420809-2020	20 µm PTFE Bed Support, 2.5 cm	1
420809-2040	20 µm PTFE Bed Support, 4.8 cm	1

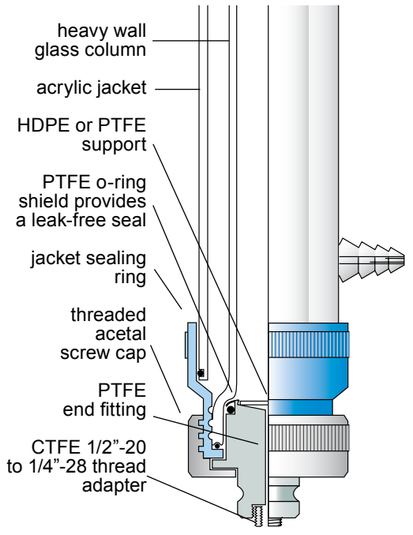
Jacketed CHROMAFLEX® Columns

Jacketed CHROMAFLEX® columns are provided with an acrylic water jacket to provide thermal control of temperature-sensitive chromatographic separations. The acrylic jacket also acts as a safety shield.

- Threaded
- Recommended sterilization is with ethylene oxide, 2N NaOH or 100% ethanol (autoclaving is not recommended)
- Columns are supplied complete with glass barrel, water jacket, two end fittings with 20 µm porosity HDPE bed supports, two screw caps, 5 feet (1.5 m) of FEP PTFE tubing (1/16" OD with 1.0 cm; 1/8" OD with 2.5 and 4.8 cm), two jacket sealing rings, two ¼"-28 flangeless tubing nuts and two flangeless ferrules
- Barrels are manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Volume (mL)	ID (cm)	Case Qty
420870-1500	12	1	1
420870-3000	24	1	1
420870-6000	47	1	1
420870-1000	79	1	1
420870-1200	95	1	1
420870-1510	74	2.5	1
420870-3010	147	2.5	1
420870-6010	295	2.5	1
420870-1010	491	2.5	1
420870-1210	589	2.5	1
420870-1520	271	4.8	1
420870-3020	543	4.8	1
420870-6020	1086	4.8	1
420870-1020	1810	4.8	1
420870-1220	2172	4.8	1

CHROMAFLEX®
Jacketed Column Cross Section



Replacement Parts

Part Number	Description	Case Qty
420831-1500	Glass Barrel Only, 1.0 x 15 cm	1
420831-3000	Glass Barrel Only, 1.0 x 30 cm	1
420831-6000	Glass Barrel Only, 1.0 x 60 cm	1
420831-1000	Glass Barrel Only, 1.0 x 100 cm	1
420831-1200	Glass Barrel Only, 1.0 x 120 cm	1
420831-1510	Glass Barrel Only, 2.5 x 15 cm	1
420831-3010	Glass Barrel Only, 2.5 x 30 cm	1
420831-6010	Glass Barrel Only, 2.5 x 60 cm	1
420831-1010	Glass Barrel Only, 2.5 x 100 cm	1
420831-1210	Glass Barrel Only, 2.5 x 120 cm	1
420831-1520	Glass Barrel Only, 4.8 x 15 cm	1
420831-3020	Glass Barrel Only, 4.8 x 30 cm	1
420831-6020	Glass Barrel Only, 4.8 x 60 cm	1
420831-1020	Glass Barrel Only, 4.8 x 100 cm	1
420831-1220	Glass Barrel Only, 4.8 x 120 cm	1
420831-1540	Glass Barrel Only, 10.0 x 15 cm	1
420831-3040	Glass Barrel Only, 10.0 x 30 cm	1
420831-6040	Glass Barrel Only, 10.0 x 60 cm	1
420831-1040	Glass Barrel Only, 10.0 x 100 cm	1
420831-1240	Glass Barrel Only, 10.0 x 120 cm	1
420832-4100	1.0 cm End Fitting with Bed Support; requires attachment with CTFE adapter 420804-0001, not included	1
420832-4110	2.5 cm End Fitting with Bed Support; requires attachment with CTFE adapter 420804-0001, not included	1
420832-4120	4.8 cm End Fitting with Bed Support; requires attachment with CTFE adapter 420804-0001, not included	1
420811-2010	20 µm HDPE Bed Support, 1.0 cm	10
420811-2020	20 µm HDPE Bed Support, 2.5 cm	10
420811-2040	20 µm HDPE Bed Support, 4.8 cm	10
420833-1000	1.0 cm Screw Cap for Use with Water-Jacketed CHROMAFLEX® Columns	1
420833-1010	2.5 cm Screw Cap for Use with Water-Jacketed CHROMAFLEX® Columns	1
420833-1020	4.8 cm Screw Cap for Use with Water-Jacketed CHROMAFLEX® Columns	1
420823-0018	1/8" OD x 0.063" ID x 10' FEP / PTFE Tubing	1
420823-0116	1/16" OD x 0.038" ID x 10' FEP / PTFE Tubing, Fits 20 Gauge Needle	1
420828-0116	Polypropylene Ferrule for 1/16" OD Tubing, Fits Columns ID 1.0/2.5	1
420828-0018	Polypropylene Ferrule for 1/8" OD Tubing, Fits Columns ID 2.5/4.8	1
420804-0001	CTFE Threaded Adapter, converts 1/2-20 threads on CHROMAFLEX® column end fittings to 1/4-28 threads	2
420838-1000	1.0 cm Jacket Sealing Ring for 420870-1500, -3000, -6000, -1000, -1200	1
420838-1010	2.5 cm Jacket Sealing Ring for 420870-1510, -3010, -6010, -1010, -1210	1
420838-1020	4.8 cm Jacket Sealing Ring for 420870-1520, -3020, -6020, -1020, -1220	1

Accessories

Part Number	Description	Case Qty
420809-2010	20 µm PTFE Bed Support, 1.0 cm	1
420809-2020	20 µm PTFE Bed Support, 2.5 cm	1
420809-2040	20 µm PTFE Bed Support, 4.8 cm	1

Tapered-End CHROMAFLEX® Columns

A modified version of our popular CHROMAFLEX® columns, these columns offer a higher performance level over traditional low pressure chromatography columns.

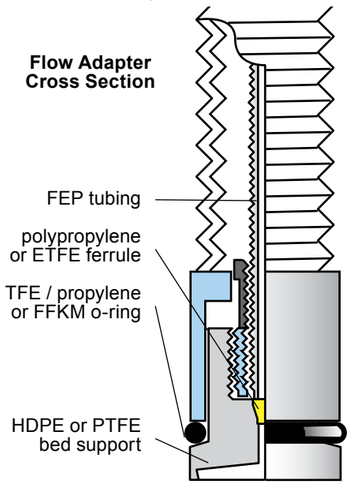
- The PTFE end fittings have a 20 µm polyethylene bed support and 1/4"-28 CTFE fittings
- See listing of optional 20 µm PTFE bed supports
- Column barrels are manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column ID (cm)	Column Length (cm)	Case Qty
420830-1540	10	15	1
420830-3040	10	30	1
420830-6040	10	60	1
420830-1040	10	100	1
420830-1240	10	120	1

Replacement Parts

Part Number	Description	Case Qty
420831-1540	Glass Barrel Only, 10.0 x 15 cm	1
420831-3040	Glass Barrel Only, 10.0 x 30 cm	1
420831-6040	Glass Barrel Only, 10.0 x 60 cm	1
420831-1040	Glass Barrel Only, 10.0 x 100 cm	1
420831-1240	Glass Barrel Only, 10.0 x 120 cm	1
420832-2100	1.0 cm PTFE End Fitting with Bed Support; requires attachment with CTFE adapter 420804-0001, not included	1
420832-2120	4.8 cm PTFE End Fitting with Bed Support; requires attachment with CTFE adapter 420804-0001, not included	1
420833-0000	1.0 cm Screw Cap for Use with standard CHROMAFLEX® Columns	1
420833-0020	4.8 cm Screw Cap for Use with standard CHROMAFLEX® Columns	1
420804-0001	CTFE Threaded Adapter, Male 1/2"-20 to Female 1/4"-28	2

CHROMAFLEX®
Flow Adapter Cross Section



CHROMAFLEX® Flow Adapters

Flow adapters improve chromatogram resolution by delivering the sample and buffer directly to the top of the gel bed. This protects the gel bed from disruption during sample loading and eliminates any dead volume above the gel bed.

- Flow adapters are recommended when using buffer gradients, during reverse flow applications and for high resolution gravity flow separations
- Each flow adapter is supplied with a 20 micron porosity HDPE bed support, TFE/propylene o-ring seal, stainless steel adjusting rod, PTFE body, and 5 feet (1.5 meters) of FEP PTFE tubing
- Blue lock ring is supplied with all sizes except those that fit 1.0 cm column ID
- Use of aggressive organic solvents requires the PTFE bed supports listed as accessories and FFKM o-rings sizes 010, 116 or 222 (not available from Kimble Chase)

Part Number	Fits Column ID (cm); Fits Column	Tubing OD (in)	Case Qty
420836-0000	1.0; Standard	0.0625	1
420836-1620	2.5; Standard	0.0625	1
420836-0020	2.5; Standard	0.125	1
420836-0040	4.8; Standard	0.125	1
420876-0000	1.0; Acrylic Jacketed	0.0625	1
420876-1620	2.5; Acrylic Jacketed	0.0625	1
420876-0020	2.5; Acrylic Jacketed	0.125	1
420876-0040	4.8; Acrylic Jacketed	0.125	1

Replacement Parts

Part Number	Description	Case Qty
420811-2011	20 µm HDPE Bed Support, 1.0 cm	10
420811-2020	20 µm HDPE Bed Support, 2.5 cm	10
420811-2040	20 µm HDPE Bed Support, 4.8 cm	10
420822-0116	ETFE Flangeless Ferrule for 1/16" OD Tubing	1
420822-0018	ETFE Flangeless Ferrule for 1/8" OD Tubing	1
420823-0018	1/8" OD x 0.063" ID x 10' FEP / PTFE Tubing	1
420823-0116	1/16" OD x 0.038" ID x 10' FEP / PTFE Tubing, Fits 20 Gauge Needle	1
420832-5100	1.0 cm End Fitting with Bed Support, 1/16", for 420836-0000, 420876-0000	1
420832-5105	2.5 cm End Fitting with Bed Support, 1/16", for 420836-1620, 420876-1620	1
420832-5110	2.5 cm End Fitting with Bed Support, 1/8", for 420836-0020, 420876-0020	1
420832-5120	4.8 cm End Fitting with Bed Support, 1/8", for 420836-0040, 420876-0040	1

Accessories

Part Number	Description	Case Qty
420809-2011	20 µm PTFE Bed Support, 1.0 cm	1
420809-2020	20 µm PTFE Bed Support, 2.5 cm	1
420809-2040	20 µm PTFE Bed Support, 4.8 cm	1

CHROMAFLEX® Packing Reservoirs

- CHROMAFLEX® packing reservoirs are ideal for packing gel slurries into columns
- Each packing reservoir is designed for easy mounting on the CHROMAFLEX® columns
- The capacities are matched to take the amount of gel slurry required to pack the longest column
- The packing reservoirs may also be used as buffer reservoirs for gravity flow chromatography
- For standard columns only
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Fits Column ID (cm)	Nominal Volume (mL)	Case Qty
420837-0000	1	150	1
420837-0020	2.5	500	1
420837-0040	4.8	2000	1

CHROMAFLEX® Columns - Column bed height and approximate volume data.

Without Adapters			With One Adapter		With Two Adapters		Maximum Pressure
ID (cm)	Length (cm)	Volume (mL)	Bed Height (cm)	Volume (mL)	Bed Height (cm)	Volume (mL)	(psi) (must use with safety jacket)
1	15	12	1-13	1-10	0-11	0-8	
1	30	24	16-28	12-22	2-26	2-20	
1	60	47	46-58	36-46	32-56	25-44	100
1	100	78	86-98	67-77	72-96	56-75	
1	120	94	106-118	83-93	92-116	72-91	
2.5	15	74	1-13	5-64	0-11	0-54	
2.5	30	147	16-28	78-137	2-26	10-128	
2.5	60	294	46-58	226-285	32-56	157-275	75
2.5	100	490	86-98	421-480	72-96	352-470	
2.5	120	589	106-118	520-579	92-116	451-569	
4.8	15	271	1-13	18-235	0-11	0-199	
4.8	30	543	16-28	289-506	2-26	36-470	
4.8	60	1085	46-58	832-1049	32-56	579-1013	50
4.8	100	1808	86-98	1555-1772	72-96	1302-1736	
4.8	120	2170	106-118	1917-2134	92-116	1664-2098	
10	15	1000					not rated (no safety jacket avail.)
10	30	2000					
10	60	5000					
10	100	7670					
10	120	9000					

CHROMAFLEX® FITTINGS

The following tubing nuts and ferrules are required to make the initial tubing connections to the end fittings of Chromaflex® Columns.

Catalog Number	Description	Material	Case Qty.
420826-0116	Tubing Nut, for 1/16" OD tubing	PEEK	1
420826-0018	Tubing Nut, for 1/8" OD tubing	PEEK	1
420827-0116	Ferrule, for 1/16" OD tubing	PEEK	1
420827-0018	Ferrule, for 1/8" OD tubing	PEEK	1
420828-0116	Ferrule, for 1/16" OD tubing	Polypropylene	1
420828-0018	Ferrule, for 1/8" OD tubing	Polypropylene	1
953918-2306	Adapter, M1/4-28 Thread to 1/16" Barb	ETFE	1
953918-2313	Adapter, M1/4-28 Thread to 1/8" Barb	ETFE	1
953918-2319	Adapter, M1/4-28 Thread to 3/16" Barb	ETFE	1
420821-0116	Flangeless Nut, 1/4-28 Thread, for 1/16" tubing	ETFE	1
420821-0018	Flangeless Nut, 1/4-28 Thread, for 1/8" and 1.8mm OD tubing	ETFE	1
420821-6116	Flangeless Nut, M6 Thread, for 1/16" tubing	Acetal	1
420821-0618	Flangeless Nut, M6 Thread, for 1/8" and 1.8mm OD tubing	Acetal	1
420822-0116	Flangeless Ferrule, for 1/16" OD tubing	ETFE	1
420822-2007	Flangeless Ferrule, for 1.8 mm OD tubing	ETFE	1
420822-0018	Flangeless Ferrule, for 1/8" OD tubing	ETFE	1
420823-0014	Tubing, 1/4" OD x 0.030" ID x 10 feet	FEP	1
420823-0116	Tubing, 1/16" OD x 0.038" ID x 10 feet	FEP	1
420823-0018	Tubing, 1/8" OD x 0.062" ID x 10 feet	FEP	1
H90669-0005	Tubing, 1/16" OD x 5 feet, with integral F-Luer fitting	Tubing - PTFE Luer - CTFE	5
H88800-0000	Union, F1/4-28 to F1/4-28	CTFE	1
420818-0000	Union, F1/4-28 to F1/4-28	ETFE	1
420818-0600	Union, F1/4-28 to F-M6	ETFE	1
420818-0606	Union, F-M6 to F-M6	ETFE	1
953924-1300	Union, M1/4-28 to M1/4-28	CTFE	1
420817-2306	Valve, 1-way, 1/4-28 Threads, with 1/16" Flangeless Fittings	Valve - ETFE Fittings - ETFE	1
420817-2313	Valve, 1-way, 1/4-28 Threads, with 1/8" Flangeless Fittings	Valve - ETFE Fittings - ETFE	1
420817-3306	Valve, 1-way, 1/4-28 Threads, with 1/16" Flangeless Fittings	Valve - PEEK Fittings -PEEK/ ETFE	1
420817-3313	Valve, 1-way, 1/4-28 Threads, with 1/8" Flangless Fittings	Valve - PEEK Fittings -PEEK/ ETFE	1

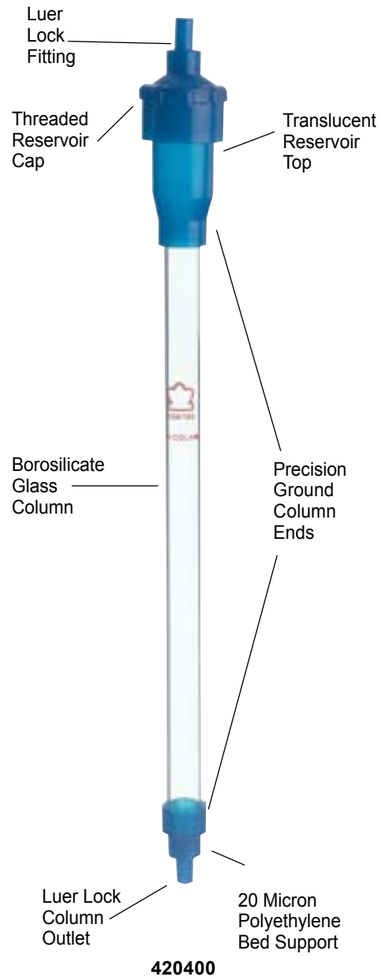
Chromatography Tubing

Even if you thoroughly degas your mobile phase by *helium sparging, vacuum filtration, sonication* or *in-line vacuum degassing,* the mobile phase will not stay degassed if PTFE tubing is used to deliver it to the pump. That's because PTFE is gas-permeable and allows ambient gases, such as oxygen, to diffuse through the tubing wall and into the mobile phase. The amount of ambient gas that enters the mobile phase depends on the tubing dimensions and mobile phase flowrate, but no matter how well you have degassed, some oxygen will re-enter the mobile phase on its way to the pump, possibly detracting from system performance. NO-OX tubing solves this problem with a unique double-wall design that eliminates *regassing.*

- Chemically inert inner FEP PTFE tube carries the mobile phases
- Non-wetted outer wall is made from a translucent, flexible polymer with extremely low gas permeability
- Cuts regassing rates to negligible levels while preserving PTFE's excellent chemical resistance, transparency and handling properties
- Bends easily to fit your system's layout and cuts easily with a razor blade or plastic tubing cutter
- Translucent wall lets you see the tubing's interior for fast, simple troubleshooting
- NO-OX fitting connects in seconds
- H90669 is supplied with an integral male luer lock for easy connection to Flex-Columns®

Simply slide the flangeless nut and ferrule over the tubing, push the NO-OX insert into the tubing end and connect finger-tight into any flat bottom 1/4-28 threaded port.

Part Number	Tube OD (in)	Tube Size (ft)	Case Qty
420823-0116	0.0625	10	1
420823-0018	0.125	10	1
420823-0014	0.25	11	1
H90669-0005	0.0625	5	5



420400

FLEX-COLUMNS® are economical, easy-to-use chromatography columns that are ideal for use with gel filtration, ion exchange, affinity and adsorption media. The columns are constructed of polypropylene reservoirs and column outlets permanently connected to a borosilicate glass barrel. The 20 µm porosity polyethylene bed supports are fixed in the column outlets. Luer lock inlets and outlets on the columns, along with a wide variety of adapters, valves and fittings provide simple and versatile tubing connections.

Standard Columns
Standard FLEX-COLUMNS® are available in 30 different sizes with standard inside diameters of 0.7, 1.0, 1.5 and 2.5 cm and lengths ranging from 4 to 120 cm. All columns are fitted with translucent polypropylene reservoir tops, and bed supports that are permanently mounted in the polypropylene column outlet. Short columns are typically used for ion exchange chromatography, sample desalting and semidisposable applications, while the long columns are ideally suited for gel filtration and adsorption chromatography.

Flow Adapters
FLEX-COLUMN® Flow Adapters allow easy adjustment of the column bed volume. They are ideal for concentration and pH gradients, reverse flow separations, and gravity flow separations that require a high level of resolution and reproducibility. Flow adapters are available for 1.0, 1.5 and 2.5 cm ID columns.

Luer Lock Fittings
The male luer lock fittings on all FLEX-COLUMNS® along with our complete line of fittings, valves and adapters allow easy connection to any low pressure chromatography system.

Custom Length Columns
Certain applications may require a column length not found in our standard product offering. Please contact Customer Service for pricing and delivery details for custom length FLEX-COLUMNS®. Call 888-546-2531.

Specifications

Materials:

Column Barrels:	Type I, Class A Borosilicate Glass
Cap, Reservoir & Column Outlet:	Polypropylene
Bed Support:	High Density Polyethylene (HDPE)
Bed Support Porosity:	20 micron nominal
Maximum Pressure:	1.0 bar (14.7 psi, 1.0 atm, 0.1 MPa)
Temperature Range:	0 to 50 °C
Tubing Connections:	Male Luer Locks
Recommended Sterilization Method:	2N NaOH or 100% Ethanol (Autoclaving is not recommended.)

Note: Polypropylene end fittings are NOT replaceable on FLEX-COLUMNS

* CAUTION
Pressurized glassware should always be used with adequate safety shielding.

FLEX-COLUMN® Economy Columns

FLEX-COLUMNS® are economical and easy-to-use. Short columns are typically used for ion exchange chromatography, sample desalting and semi-disposable applications, while the long columns are ideally suited for gel filtration and adsorption chromatography.

- Constructed of polypropylene reservoirs and column outlets permanently connected to a borosilicate glass barrel
- 20 µm porosity polyethylene bed supports are fixed in the column outlet
- Luer lock inlets and outlets on the columns, along with a wide variety of adapters, valves and fittings, provide simple and versatile tubing connections
- Available in 30 different sizes with standard inside diameters of 0.7, 1.0, 1.5 and 2.5 cm and lengths ranging from 4 to 170 cm
- Maximum pressure is 1.0 bar (14.7 psi, 1.0 atm, 0.1 MPa)
- Temperature range is 0 to 50 °C
- Sterilize with 2N NaOH or 100% ethanol; autoclaving is not recommended
- All columns are fitted with translucent polypropylene reservoir tops and with bed supports that are permanently mounted in the polypropylene column outlet
- Cap, reservoir and column outlet are made of polypropylene
- Bed support is manufactured from High Density Polyethylene (HDPE) with 20 micron nominal bed support porosity
- Tubing connections are male Luer locks
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Note: Polypropylene end fittings are NOT replaceable on FLEX-COLUMNS®.

Part Number	Max Volume (mL)	ID (cm), Length (cm)	Case Qty
420400-0704	2	0.7, 4	10
420401-0704	2	0.7, 4	1
420400-0705	2	0.7, 5	10
420401-0705	2	0.7, 5	1
420400-0710	4	0.7, 10	10
420401-0710	4	0.7, 10	1
420400-0715	6	0.7, 15	10
420401-0715	6	0.7, 15	1
420400-0720	8	0.7, 20	10
420401-0720	8	0.7, 20	1
420400-0730	12	0.7, 30	10
420401-0730	12	0.7, 30	1
420400-0750	20	0.7, 50	10
420401-0750	20	0.7, 50	1
420400-1005	4	1, 5	10
420401-1005	4	1, 5	1
420400-1010	8	1, 10	10
420401-1010	8	1, 10	1
420400-1015	12	1, 15	10
420401-1015	12	1, 15	1
420400-1020	16	1, 20	10
420401-1020	16	1, 20	1
420400-1030	24	1, 30	10
420401-1030	24	1, 30	1
420400-1050	40	1, 50	10
420401-1050	40	1, 50	1
420401-1011	79	1, 100	1
420400-1012	95	1, 120	3
420401-1012	95	1, 120	1
420400-1505	9	1.5, 5	5
420401-1505	9	1.5, 5	1
420400-1510	18	1.5, 10	5
420401-1510	18	1.5, 10	1
420400-1515	27	1.5, 15	5
420401-1515	27	1.5, 15	1
420400-1520	35	1.5, 20	5
420401-1520	35	1.5, 20	1
420400-1530	53	1.5, 30	5
420401-1530	53	1.5, 30	1
420400-1550	89	1.5, 50	5
420401-1550	89	1.5, 50	1
420400-1575	124	1.5, 75	3
420401-1575	124	1.5, 75	1
420400-1511	177	1.5, 100	3
420401-1511	177	1.5, 100	1
420400-1512	230	1.5, 120	3
420401-1512	230	1.5, 120	1
420400-1517	301	1.5, 170	2
420401-1517	301	1.5, 170	1
420400-2505	25	2.5, 5	5
420401-2505	25	2.5, 5	1
420400-2510	49	2.5, 10	5
420401-2510	49	2.5, 10	1
420400-2515	74	2.5, 15	5
420401-2515	74	2.5, 15	1
420400-2520	98	2.5, 20	5
420401-2520	98	2.5, 20	1
420400-2530	147	2.5, 30	5
420401-2530	147	2.5, 30	1
420400-2550	246	2.5, 50	3
420401-2550	246	2.5, 50	1
420400-2575	344	2.5, 75	2
420401-2575	344	2.5, 75	1
420400-2511	491	2.5, 100	2
420401-2511	491	2.5, 100	1
420401-2512	638	2.5, 100	1
420400-2512	638	2.5, 120	2

FLEX-COLUMN® Economy Flow Adapter

Flow adapters can significantly improve FLEX-COLUMN® performance by protecting the gel bed from disruption during sample loading and by eliminating any dead volume above the gel bed. They are ideal for concentration and pH gradients, reverse flow separations and gravity flow separations that require a high level of resolution and reproducibility.

- Flow adapters improve chromatogram resolution by delivering the sample and buffer directly to the top of the gel bed
- Flow adapters are also recommended when using buffer gradients or when the columns are connected to a low pressure pump system
- Flow adapters consist of 1/16" OD FEP PTFE tubing, a polyacetal body, a FKM o-ring seal and a 20 µm porosity HDPE bed support
- One replacement bed support is supplied with each flow adapter
- Flow adapters are available for 1.0, 1.5 and 2.5 cm ID columns

Part Number	Fits Column ID (cm)	Overall Length (mm)	Case Qty
420415-1000	1	N/A	1
420415-1500	1.5	N/A	1
420415-2500	2.5	N/A	1

Replacement Parts

Part Number	Description	Case Qty
420415-1001	1.0 cm, 20 micron Porosity HDPE Bed Support	10
420415-1501	1.5 cm, 20 micron Porosity HDPE Bed Support	10
420415-2501	2.5 cm, 20 micron Porosity HDPE Bed Support	10
420828-0116	Polypropylene Ferrule for 1/8" OD Tubing, Fits Columns ID 2.5/4.8	1
420823-0116	1/16" OD x 0.038" ID x 10' FEP / PTFE Tubing, Fits 20 Gauge Needle	1

FLEX-COLUMN® Packing Reservoirs

These funnels are used for initial column packing and as buffer reservoirs for simple gravity flow chromatography.

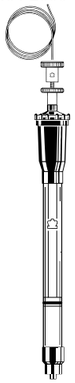
- Manufactured from polypropylene and available in two capacities: 100 mL for the 0.7, 1.0 and 1.5 cm ID columns and 700 mL for the 2.5 cm columns
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Used for Column ID (cm)	Case Qty
420405-0100	100		12
420405-0700	700	2.5	5

FLEX-COLUMN® Sample Diffusion Disc

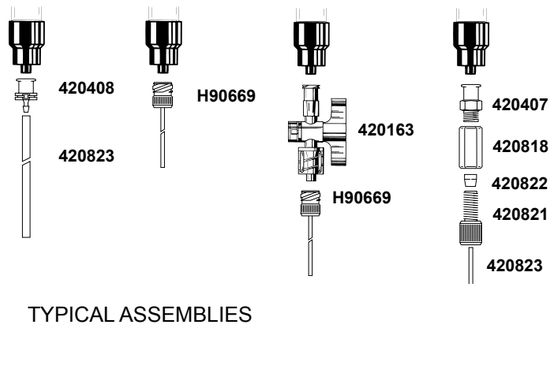
- Sample diffusion discs protect the gel bed from being disrupted during sample application whenever a flow adapter is not used
- A transparent acrylic ring is sealed to a 20 µm porosity HDPE disc which protects the top of the gel bed when the sample is manually applied
- A crossbar on the top of the acrylic ring permits easy removal of the sample diffusion disc from the column

Part Number	Fits Column ID (cm)	Case Qty
420404-1000	1	1
420404-1500	1.5	1
420404-2500	2.5	1

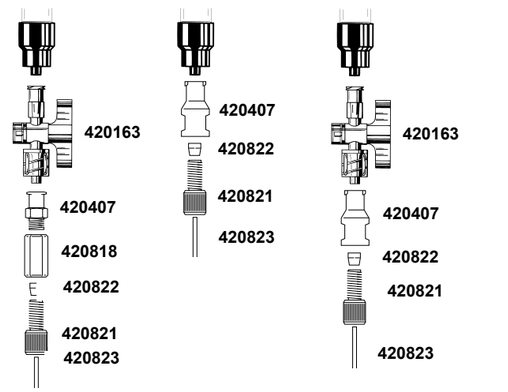


Column with Flow Adapter

Column with Diffusion Disc



TYPICAL ASSEMBLIES



FLEX-COLUMN® Fittings

FLEX-COLUMN® Fittings

Catalog Number		Description	Material	Case Qty.
420408-0000		Barb for 1/16" I.D. tubing to female luer	polypropylene	10
420412-0000		Barb for 1/16" I.D. tubing to male luer	polypropylene	10
420411-0000		Female luer to female luer	polypropylene	10
420407-0000		Female luer to 1/4-28 thread	polypropylene	10
420407-2003		Female luer to female 1/4-28 thread	ETFE	1
420407-2113		Male luer to male 1/4-28 thread	ETFE	1
H88800-0000		Union, 1/4-28 to 1/4-28	CTFE	1
420818-0000		Union, 1/4-28 to 1/4-28	ETFE	1
420818-0600		Union, 1/4-28 to M-6	ETFE	1
420818-0606		Union, M-6 metric to M-6	ETFE	1
420818-3305		Union, 1/4-28 to 5/16-24	PEEK	1
420163-0001		1-way stopcock female luer to male luer	body-nylon valve plug-polyethylene	10
420163-4503		3-way stopcock Two female luer to male luer	body-nylon valve plug-polyethylene	10
H90669-0005		5' PTFE tubing w/ integral luer lock	PTFE / CTFE	5
420823-0116		Tubing, 1/16" O.D. x 0.038" I.D. x 10'	FEP	1
420823-0018		Tubing, 1/8" O.D. x 0.062" I.D. x 10'	FEP	1
420823-0014		Tubing, 1/4" O.D. x 0.156" I.D. x 10'	FEP	1
420821-0116		1/4-28 tubing nut for 1/16" O.D. tubing	ETFE	1
420821-0018		1/4-28 tubing nut for 1/8" O.D. tubing	ETFE	1
420822-0116		Ferrule for 1/16" O.D. tubing	ETFE	1
420822-0018		Ferrule for 1/8" O.D. tubing	ETFE	1
420822-2007		Ferrule for 1.8 mm O.D. tubing	ETFE	1

DISPOSAFLEX® Glass Columns

A multi-purpose, disposable glass column. DISPOSAFLEX®.

- Supplied assembled with a polypropylene reservoir, a lower column fitting with a luer outlet and a 20 micron polyethylene bed support
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column Capacity (mL)	Column ID (mm), Column Length (mm)	Case Qty
420166-0001	6	8, 150	50
420166-1001	6	8, 150	5

Replacement Parts

Part Number	Description	Case Qty
420162-0020	20 µm Polyethylene Bed Support	100

Accessories

Part Number	Description	Case Qty
420162-0000	30-50 µm Polyethylene Bed Support	100
420163-0000	One-Way Stopcock Valve, Polycarbonate Body, HDPE Plug, Female Luer to Male Luer Lock	50
420163-0001	One-Way Stopcock Valve, Polycarbonate Body, HDPE Plug, Female Luer to Male Luer	10
420163-4500	One-Way Stopcock Valve, Nylon Body, HDPE Plug, Female Luer to Male Luer Lock	50
420163-4503	Three-Way Stopcock Valve, 2 Female Luers to Male Luer Lock, Nylon Body and HDPE Valve Plug	10
420169-0000	Column Outlet Cap	100

DISPOSAFLEX® Polypropylene Columns

The DISPOSAFLEX® column is an inexpensive, multi-purpose column designed to satisfy a wide range of analytical separations using aqueous buffers. A typical application of the Disposaflex® column is the extraction of the cyclic nucleotides cAMP and cGMP from sample preparations using AG1-X8.

- The disposable feature eliminates the possibility of cross-contamination when using labeled compounds
- The 8 mm inner diameter of the polypropylene column is uniform, assuring reproducibility
- The length of the DISPOSAFLEX® column can easily be cut shorter
- The lower column fitting with a Luer outlet is molded polypropylene with a specially designed recess to securely hold a porous polyethylene bed support or a glass wool plug
- Supplied unassembled with a column, polypropylene reservoir and lower column fitting
- Polyethylene bed supports and on-off valves are available as accessories

Part Number	Case Qty
420160-0000	100

Replacement Parts

Part Number	Description	Case Qty
420164-0000	9mL Polypropylene Reservoir for use with DISPOSAFLEX® Columns	100
420168-0000	Polypropylene Luer Fitting for use with DISPOSAFLEX® Columns	100
420168-1000	Polypropylene Luer Fitting for use with DISPOSAFLEX® Columns	50

Accessories

Part Number	Description	Case Qty
420162-0000	30-50 µm Polyethylene Bed Support	100
420162-0020	20 µm Polyethylene Bed Support	100
420163-0000	One-Way Stopcock Valve, Polycarbonate Body, HDPE Plug, Female Luer to Male Luer Lock	50
420163-0001	One-Way Stopcock Valve, Polycarbonate Body, HDPE Plug, Female Luer to Male Luer	10
420163-4500	One-Way Stopcock Valve, Nylon Body, HDPE Plug, Female Luer to Male Luer Lock	50
420163-4503	Three-Way Stopcock Valve, 2 Female Luers to Male Luer Lock, Nylon Body and HDPE Valve Plug	10
420169-0000	Column Outlet Cap	100

Adapter with 1/4-28 Thread to Hose Barb

Part Number	Description	Case Qty
953918-2306	PTFE Adapter Male 1/4"-28 to 1/16" Barb	1
953918-0018	CTFE Adapter Male 1/4"-28 Thread to 1/8" Barb	1
953918-2313	PTFE Adapter Male 1/4"-28 to 1/8" Barb	1
953923-6318	PTFE Adapter Female 1/4"-28 Thread to 1/8" Barb	1
953918-2319	ETFE Adapter Male 1/4"-28 to 3/16" Barb	1
953919-0014	Nylon Adapter Male 1/4"-28 Thread to 1/4" Hose Barb	1

Adapter with 1/2-20 to 1/4-28 Thread

Part Number	Description	Case Qty
420804-0001	CTFE Threaded Adapter, Male 1/2"-20 to Female 1/4"-28	2
420804-0601	CTFE Adapter Male 1/2"-20 to Female M-6	2

Adapter with1/4-28 Thread to Luer

Part Number	Description	Case Qty
420407-2003	ETFE FLEX-COLUMN® Fitting, Female Luer to Female 1/4"-28 Thread	1
420407-2013	ETFE Adapter Male 1/4"-28 Thread to Female Luer	1
420407-2113	ETFE FLEX-COLUMN® Fitting, Male Luer to Male 1/4"-28 Thread	1
H32836-0000	CTFE Adapter Male 1/4"-28 Thread to Male Luer	1
420407-0000	PP FLEX-COLUMN® Fitting, Female Luer to Male 1/4"-28 Thread	10

Adapter with 10-32 Thread to 1/4-28 Thread

Part Number	Description	Case Qty
953921-6216	316 Stainless Steel Female 10-32 Thread to Female 1/4"-28 Thread, These Adapters Convert the Thread Style Common on Most HPLC Systems to 1/4"-28 Thread	1

Adapter with Luer to Hose Barb

Part Number	Description	Case Qty
420408-0000	PP Barb for 1/16" ID Tubing to Female Luer	10
420412-0000	PP Barb for 1/16" ID Tubing to Male Luer	10

Flangeless Fittings - Tubing Nuts

Part Number	Description	Case Qty
420821-0116	ETFE Flangeless Nut for 1/16" OD Tubing, 1/4"-28 Thread, Use with the 420822-Series Flangeless Ferrules	1
420821-0018	ETFE Flangeless Nut for 1/8" OD Tubing, 1/4"-28 Thread, Use with the 420822-Series Flangeless Ferrules	1
420821-6218	Stainless Steel Nut for 1/8" OD Tubing, 1/4"-28 Thread, Use with the 420822-Series Flangeless Ferrules	1
420821-6116	Acetal Flangeless Nut M-6 Thread for 1/16" Tubing, Use with the 420822-Series Flangeless Ferrules	1
420821-0618	Acetal Flangeless Nut for 1/8" OD Tubing, M6 Thread, Use with the 420822-Series Flangeless Ferrules	1
420821-3519	PEEK Nut for 3/16" OD Tubing, 5/16"-24 Thread, Use with the 420822-Series Flangeless Ferrules	1

Flangeless Fittings - Ferrules

Part Number	Description	Case Qty
420822-0116	ETFE Flangeless Ferrule for 1/16" OD Tubing, for Use with 420821 Series Male Nuts	1
420822-0018	ETFE Flangeless Ferrule for 1/8" OD Tubing, for Use with 420821 Series Male Nuts	1
420822-1019	ETFE Ferrule for 3/16" OD tubing, for Use with 420821 Series Male Nuts	1
420822-2007	ETFE Flangless Ferrule for 1.8 mm OD Tubing, for Use with 420821 Series Male Nuts	1

Unions

Part Number	Description	Case Qty
H88800-0000	CTFE Union Female 1/4"-28 to Female 1/4"-28, Internally Threaded for use with Flangeless Fittings	1
420818-0000	EFTE Union Female 1/4"-28 to Female 1/4"-28, Internally Threaded for use with Flangeless Fittings	1
420818-0606	EFTE Union Female M-6 to Female M-6, Internally Threaded for use with Flangeless Fittings	1
420818-3305	PEEK Union, Female 1/4"-28 to Female 5/16-24, Internally Threaded for use with Flangeless Fittings	1
953924-1300	CTFE Union Male 1/4"-28 to Male 1/4"-28	1
420411-0000	PP Female Luer to Female Luer	10

Valves

Part Number	Description	Case Qty
420817-2306	EFTE One-Way Valve 1/4"-28 Threads with 1/16" Flangeless ETFE Fittings	1
420817-3306	PEEK One-Way Valve 1/4"-28 Threads with 1/16" Flangeless PEEK / ETFE Fittings	1
420817-2313	EFTE One-Way Valve 1/4"-28 Threads with 1/8" Flangeless ETFE Fittings	1
420817-3313	PEEK One-Way Valve 1/4"-28 Threads with 1/8" Flangeless PEEK / ETFE Fittings	1
H86725-0000	One-Way Valve, CTFE Valve Seat, PTFE Plug, 1/4"-28 Threads	1
H35030-0000	CTFE Fitting, 1/4"-28 Thread to Male Luer for H86725-0000 and H86728-0000	1
H35031-0000	CTFE Fitting, 1/4"-28 Thread to Female Luer for H86725-0000 and H86728-0000	1
H86728-0000	Three-Way Valve, CTFE Valve Seat, PTFE Plug, 1/4"-28 Threads	1
420163-0001	One-Way Stopcock Valve, Polycarbonate Body, HDPE Plug, Female Luer to Male Luer	10
420163-0000	One-Way Stopcock Valve, Polycarbonate Body, HDPE Plug, Female Luer to Male Luer Lock	50
420163-1500	One-Way Stopcock Valve, Nylon Body, HDPE Plug, Female Luer to Male Luer Lock	5
420163-4500	One-Way Stopcock Valve, Nylon Body, HDPE Plug, Female Luer to Male Luer Lock	50
420163-4503	Three-Way Stopcock Valve, 2 Female Luers to Male Luer Lock, Nylon Body and HDPE Valve Plug	10

Flangeless Fittings - Plugs

Part Number	Description	Case Qty
953913-0001	ETFE Nut Plug 1/4"-28, Used to Seal Ports with Flat Bottom 1/4"-28 Threads	1

Basic Glass Columns

- 420000-0000 is a plain column with an integral reservoir. It is tapered to a 2 mm bore capillary tip and has a top tooled for a #2 rubber stopper
- 420100 series are general purpose columns for quick separations. Their funnel-shaped tops permit easy filling and hold additional solvent
- 420300 series are basic columns used for many separations in adsorption and ion exchange chromatography
- Glass wool (not supplied) is used to support column packing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Reservoir Capacity (mL)	Column ID (mm), Column Body Length (mm)	Case Qty
420300-0021	N/A	22, 250	1
420300-0022	N/A	22, 300	1
420300-0023	N/A	22, 400	1
420000-0000	50	11.5, 160	1
420100-0022	50	7, 200	1
420100-0023	50	9, 200	1
420125-0000	25	7, 145	1
420150-0000	15	4, 150	1

Basic Glass Columns with Fritted Disc, Reservoir and PTFE Stopcock Plug

Clean-up column for environmental samples containing non-volatile components.

- 40-60 micron porosity fritted disc is sealed in
- Top reservoir has a flared funnel for easy addition of eluting solvent
- Size 2 PTFE plug, 821001-0002, controls the flow rate
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Reservoir Capacity (mL)	Column ID (mm), Column Length (mm)	Case Qty
420290-0000	250	19, 400	1

Basic Glass Columns with Reservoir and PTFE Stopcock Plug

A general purpose column with an integral reservoir for analytical separations.

- A plug of glass wool can be used to support the column packing
- A size 2 PTFE stopcock plug, 821001-0002, controls the flow rate
- Top is tooled for rubber stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Reservoir Capacity (mL)	Column ID (mm), Column Length (mm)	Case Qty
420280-0213	200	11, 250	1
420280-0222	250	15, 250	1
420280-0232	250	19, 300	1
420280-0242	300	22, 350	1
420280-0252	500	30, 400	1

Basic Glass Columns with PTFE Stopcock Plug

A general purpose column for analytical separations.

- A plug of glass wool can be used to support the column packing
- PTFE stopcock plugs, 821001-0002 and 821001-0004, control the flow rate
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Nominal Column Volume (mL)	Column ID (mm), Column Length (mm)	Case Qty
420530-0211	10	11, 150	1
420530-0212	15	11, 200	1
420530-0213	20	11, 250	1
420530-0214	25	11, 300	1
420530-0125	28	13, 250	1
420530-0130	34	13, 300	1
420530-0150	66	13, 500	1
420530-0221	30	15, 200	1
420530-0222	40	15, 250	1
420530-0225	80	15, 500	1
420530-0220	51	19, 200	1
420530-0226	56	19, 250	1
420530-0232	80	19, 300	1
420530-0233	113	19, 400	1
420530-0234	140	19, 500	1
420530-0241	110	22, 300	1
420530-0242	130	22, 350	1
420530-0244	190	22, 500	1
420530-0320	90	25, 200	1
420530-0325	100	25, 250	1
420530-0330	136	25, 300	1
420530-0350	245	25, 500	1
420530-0251	220	30, 350	1
420530-0252	250	30, 400	1
420530-0253	300	30, 500	1
420530-0255	440	30, 700	1
420530-0265	630	34, 700	1
420530-0420	227	38, 200	1
420530-0425	280	38, 250	1
420530-0430	340	38, 300	1
420530-0450	567	38, 500	1
420530-0273	650	41, 500	1
420530-0275	900	41, 700	1
420530-0414	1100	49, 600	1
420530-0415	1300	49, 700	1
420530-0520	360	50, 200	1
420530-0525	470	50, 250	1
420530-0530	589	50, 300	1
420530-0550	981	50, 500	1
420530-0560	1180	50, 600	1
420530-0620	643	64, 200	1
420530-0625	804	64, 250	1
420530-0630	965	64, 300	1
420530-0650	1608	64, 500	1
420530-0660	1929	64, 600	1
420530-0720	883	75, 200	1
420530-0725	1004	75, 250	1
420530-0730	1290	75, 300	1
420530-0750	2149	75, 500	1
420530-0760	2579	75, 600	1

Glass Columns with PTFE Stopcock Assembly

The reinforced top and tooled lower end of this KIMAX® column provide extra strength and a tight, leakproof fit with an all-PTFE stopcock.

- An o-ring has been added under the PTFE fitment to maintain a liquid-tight seal over a large temperature range (0-100 °C)
- Liquid contacts only glass and PTFE
- Stopcock is easily removed, providing easy access to column packing
- Tip and stopcock assembly are available as replacement components
- Replacement stopcock for all sizes is 41006F-2
- 17810 series has a 250 mL reservoir at the top of the column
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column ID x Length (cm)	Column Capacity (mL)	Case Qty
17800-11300	1.1 x 30	25	1
17800-11500	1.1 x 50	45	1
17800-19300	1.9 x 30	80	1
17800-19500	1.9 x 50	135	1
17800-22300	2.2 x 30	120	1
17800-22500	2.2 x 50	200	1
17810-11300	1.1 x 30		1
17810-19300	1.9 x 30		1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25	1
17802-99	Column Tip	6

Column Start-up Kit

These general purpose gravity chromatography columns feature a PTFE stopcock and standard taper joint and are manufactured from medium wall tubing. This Start-up Kit contains column sizes 0230, 0330, 0350, 0430, 0450, and 0550; reservoirs 420570-0524 and 420570-1024; and two 420575-2440 flow adapters.

- Glass wool (not supplied) may be used as a support for column packing material
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
420510-5000	1

Glass Columns with PTFE Stopcock Plug and Standard Taper Joint

These general purpose gravity chromatography columns feature a PTFE stopcock and standard taper joint and are manufactured from medium wall tubing.

- Glass wool (not supplied) may be used as a support for column packing material
- These columns may be used alone or in combination with 420570 series reservoir and 420575 series flow control adapters
- Custom sizes and plastic safety coating are available upon request
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column ID (cm)	Column Length (cm)	Case Qty
420510-0120	1.3	20	1
420510-0125	1.3	25	1
420510-0130	1.3	30	1
420510-0150	1.3	50	1
420510-0220	1.9	20	1
420510-0225	1.9	25	1
420510-0230	1.9	30	1
420510-0250	1.9	50	1
420510-0320	2.5	20	1
420510-0325	2.5	25	1
420510-0330	2.5	30	1
420510-0350	2.5	50	1
420510-0420	3.8	20	1
420510-0425	3.8	25	1
420510-0430	3.8	30	1
420510-0450	3.8	50	1
420510-0520	5	20	1
420510-0525	5	25	1
420510-0530	5	30	1
420510-0550	5	50	1
420510-0560	5	60	1
420510-0620	6.4	20	1
420510-0625	6.4	25	1
420510-0630	6.4	30	1
420510-0650	6.4	50	1
420510-0660	6.4	60	1
420510-0720	7.5	20	1
420510-0725	7.5	25	1
420510-0730	7.5	30	1
420510-0750	7.5	50	1
420510-0760	7.5	60	1

Glass Columns with Fritted Disc

Basic column used for many separations in adsorption and ion exchange chromatography.

- 40-60 micron porosity fritted disc is sealed in
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Nominal Column Volume (mL)	Column ID (mm), Column Length (mm)	Case Qty
420320-0213	20	11, 300	1
420320-0224	110	19, 400	1
420320-0233	110	22, 300	1
420320-0234	150	22, 400	1
420320-0245	250	25, 500	1
420320-0256	790	41, 600	1

Glass Columns with Removable Fritted Disc

This column with a removable 40-60 micron porosity fritted disc features minimal dead space to eliminate the possible remixing of eluted components.

- Complete set-up consists of a column barrel, a stopcock adapter with a size 2 PTFE plug (821001-0002), two ethylene propylene (EP) o-rings, a fritted disc and a pinch clamp
- 422250 series includes integral spherical reservoir for eluting solvent
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column ID x Length (cm)	Reservoir Capacity (mL)	Case Qty
422230-2512	1.2 x 25		1
422230-2520	2 x 25		1
422230-2525	2.5 x 25		1
422230-5012	1.2 x 50		1
422230-5020	2 x 50		1
422230-5025	2.5 x 50		1
422250-2512	1.2 x 25	125	1
422250-2520	2 x 25	250	1
422250-2525	2.5 x 25	500	1

Replacement Parts

Part Number	Description	Case Qty
422231-2512	Glass Column Barrel, 12 x 250 mm	1
422231-2520	Glass Column Barrel, 20 x 250 mm	1
422231-2525	Glass Column Barrel, 25 x 250 mm	1
422231-5012	Glass Column Barrel, 12 x 500 mm	1
422231-5020	Glass Column Barrel, 20 x 500 mm	1
422231-5025	Glass Column Barrel, 25 x 500 mm	1
422380-0020	Stopcock Adapter for 20 mm Column	1
422380-0025	Stopcock Adapter for 25 mm Column	1
675000-0028	Size 28 Pinch Clamp, Fits O-Ring Conn. Size 12-15, screw lock provided	1
675000-0035	Size 35 Pinch Clamp ,Fits O-Ring Conn. Size 20-25, screw lock provided	1
422251-2512	Glass Column Barrel with Reservoir, 12 x 250 mm, one o-ring included	1
422251-2520	Glass Column Barrel with Reservoir, 20 x 250 mm, one o-ring included	1
422251-2525	Glass Column Barrel with Reservoir, 25 x 250 mm, one o-ring included	1

Glass Columns with Fritted Disc and PTFE Stopcock Plug

- Gravity chromatography column manufactured from medium wall tubing with 821000 PTFE stopcock
- Similar in design to the 420530 series
- 40-60 micron porosity glass frit at the lower end to act as a support for column packing material
- Custom sizes and plastic safety coating are available upon request
- Replacement stopcock plug is 821001
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Nominal Column Volume (mL)	Column ID (mm), Column Length (mm)	Case Qty
420540-0213	20	11, 300	1
420540-0120	23	13, 200	1
420540-0125	28	13, 250	1
420540-0130	34	13, 300	1
420540-0150	66	13, 500	1
420540-0220	51	19, 200	1
420540-0225	56	19, 250	1
420540-0230	76	19, 300	1
420540-0224	110	19, 400	1
420540-0250	142	19, 500	1
420540-0233	110	22, 300	1
420540-0234	150	22, 400	1
420540-0320	90	25, 200	1
420540-0325	100	25, 250	1
420540-0243	140	25, 300	1
420540-0245	240	25, 500	1
420540-0420	227	38, 200	1
420540-0425	280	38, 250	1
420540-0430	340	38, 300	1
420540-0450	567	38, 500	1
420540-0256	775	41, 600	1
420540-2610	1875	49, 1000	1
420540-0520	360	50, 200	1
420540-0525	470	50, 250	1
420540-0530	589	50, 300	1
420540-0550	981	50, 500	1
420540-0560	1180	50, 600	1
420540-0620	643	64, 200	1
420540-0625	804	64, 250	1
420540-0630	965	64, 300	1
420540-0650	1608	64, 500	1
420540-0660	1929	64, 600	1
420540-0720	883	75, 200	1
420540-0725	1004	75, 250	1
420540-0730	1290	75, 300	1
420540-0750	2149	75, 500	1
420540-0760	2579	75, 600	1

Glass Columns with Fritted Disc and PTFE Stopcock Plug and Standard Taper Joint

Gravity column manufactured from medium wall tubing with PTFE stopcock.

- Similar in design to the 420510 series
- Glass frit (40-60 micron porosity) at the lower end to act as a support for column packing material
- May be used alone or in combination with 420570 series reservoir and 420575 series flow control adapters
- Custom sizes and plastic safety coating are available upon request
- 420650-0560 has a 50/30 Spherical joint
- 420561-0430 has a Rodaviss® 24/40 Standard Taper joint (threaded in top)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column ID (cm)	Nominal Volume (mL)	Case Qty
420561-0430	3.8 x 30	340	1
420650-0560	5 x 60	1180	1
420550-0213	1.1 x 30	30	1
420550-0120	1.3 x 20	23	1
420550-0125	1.3 x 25	28	1
420550-0130	1.3 x 30	34	1
420550-0150	1.3 x 50	66	1
420550-0220	1.9 x 20	51	1
420550-0225	1.9 x 25	56	1
420550-0230	1.9 x 30	76	1
420550-0224	1.9 x 40	125	1
420550-0234	1.9 x 45	150	1
420550-0250	1.9 x 50	142	1
420550-0233	2.2 x 30	140	1
420550-0243	2.2 x 35	175	1
420550-0245	2.2 x 55	250	1
420550-0320	2.5 x 20	90	1
420550-0325	2.5 x 25	113	1
420550-0330	2.5 x 30	136	1
420550-0350	2.5 x 50	245	1
420550-0420	3.8 x 20	227	1
420550-0430	3.8 x 30	340	1
420550-0425	3.8 x 25	280	1
420550-0450	3.8 x 50	560	1
420550-0256	4.1 x 60	790	1
420550-0520	5 x 20	360	1
420550-0525	5 x 25	470	1
420550-0530	5 x 30	580	1
420550-0550	5 x 50	980	1
420550-0560	5 x 60	1175	1
420550-2610	5 x 100	1875	1
420550-0620	6.4 x 20	643	1
420550-0625	6.4 x 25	804	1
420550-0630	6.4 x 30	960	1
420550-0650	6.4 x 50	1600	1
420550-0660	6.4 x 60	1920	1
420550-0720	7.5 x 20	883	1
420550-0725	7.5 x 25	1004	1
420550-0730	7.5 x 30	1280	1
420550-0750	7.5 x 50	2100	1
420550-0760	7.5 x 60	2550	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25	1
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, 15.2/30	1

Glass Columns with Reservoir and Standard Taper Joint

- Gravity chromatography column manufactured from medium wall tubing with PTFE stopcock and in-line reservoir for containing liquid buffer
- Standard Taper joint size 24/40
- These columns may be used alone or in combination with 420575-2440 flow control adapter
- Glass wool (not supplied) may be used as a support for the packing material
- Custom sizes and plastic safety coating are available upon request
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column ID x Length (cm)	Nominal Volume (mL)	Case Qty
420610-0120	1.3 x 20	23	1
420610-0125	1.3 x 25	28	1
420610-0130	1.3 x 30	34	1
420610-0320	2.5 x 20	90	1
420610-0325	2.5 x 25	100	1
420610-0330	2.5 x 30	136	1
420610-0350	2.5 x 50	245	1
420610-0420	3.8 x 20	227	1
420610-0425	3.8 x 25	280	1
420610-0430	3.8 x 30	340	1
420610-0450	3.8 x 50	560	1
420610-0520	5 x 30	360	1
420610-0530	5 x 30	590	1
420610-0550	5 x 50	980	1
420610-0560	5 x 60	1180	1
420610-0620	6.4 x 20	643	1
420610-0630	6.4 x 30	965	1
420610-0650	6.4 x 50	1600	1
420610-0660	6.4 x 60	1920	1
420610-0720	7.5 x 20	883	1
420610-0730	7.5 x 30	1290	1
420610-0750	7.5 x 50	2140	1
420610-0760	7.5 x 60	2580	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25	1
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, 15.2/30	1

Glass Columns with Reservoir,Standard Taper Joint and Fritted Disc

- Gravity chromatography column manufactured from medium wall tubing with PTFE stopcock and in-line reservoir for containing liquid buffer
- Standard Taper joint size 24/40
- These columns may be used alone or in combination with 420575-2440 flow control adapter
- A coarse porosity glass frit (40-60 micron pore size) is a support for column packing material
- Custom sizes and plastic safety coating are available upon request
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column ID (cm)	Column Length (cm)	Case Qty
420620-0120	1.3	20	1
420620-0125	1.3	25	1
420620-0130	1.3	30	1
420620-0320	2.5	20	1
420620-0325	2.5	25	1
420620-0330	2.5	30	1
420620-0350	2.5	50	1
420620-0420	3.8	20	1
420620-0425	3.8	25	1
420620-0430	3.8	30	1
420620-0450	3.8	50	1
420620-0520	5	20	1
420620-0530	5	30	1
420620-0550	5	50	1
420620-0560	5	60	1
420620-0620	6.4	20	1
420620-0630	6.4	30	1
420620-0650	6.4	50	1
420620-0660	6.4	60	1
420620-0720	7.5	20	1
420620-0730	7.5	30	1
420620-0750	7.5	50	1
420620-0760	7.5	60	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25	1
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, 15.2/30	1

Column Extenders

Column extenders for 422230 and 422250 columns.

- Two EP o-rings are included
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column ID (mm)	Column Length (mm)	Case Qty
422440-1525	25	150	1
422440-5025	25	500	1

Adapter with Fritted Disc Ledge

Adapter is useful in making transfers from various columns and for minimizing dead space.

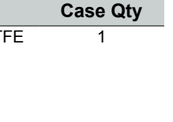
- Luer joint on delivery tip
- Supplied with an ethylene propylene (EP) o-ring and one female luer CTFE hub with a 5' length of .038" ID PTFE tubing
- Size 2 PTFE plug (821001-0002) controls flow
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column ID (mm)	Overall Length (mm)	Case Qty
422390-0020	20	75	1

Replacement Parts

Part Number	Description	Case Qty
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, 15.2/30	1
H90669-0005	1/16" OD x 5' PTFE Tubing with Integral Male CTFE Luer Lock	5

Column Top Adapter



Adapter with a hose connection for use at the top of the 422440 column extenders.

- One EP o-ring is included
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column ID (mm), Overall Length (mm)	Fits Tubing ID (inches)	Case Qty
422420-0012	12	0.25	1
422420-0025	25	0.375	1

Flow Control Adapter

- The flow control adapter features Kontes Hi-Vac® PTFE plug designed with a precision external thread for fine control
- The accurately controlled valve seat and the extended tip on the PTFE plug allow semi-needle valve control for liquids
- The FKM o-ring is shielded from direct exposure to liquids within the system by PTFE ring seals

Part Number	Stopcock (mm)	Standard Taper Joints	Case Qty
420575-2440	4	24/40	1
420575-4550	4	45/50	1

Replacement Parts

Part Number	Description	Case Qty
826411-0004	Size 4 Threaded Plug, PTFE	1

Fritted Disc Ledge Adapter with Luer Joint

Adapter is useful in making transfers from various columns and for minimizing dead space.

- 422371-0025 adapter has a ledge for a fritted disc (not included) and a Luer joint on the delivery tip
- H990669-005 is a female Luer CTFE hub with a 5' length of .038" ID PTFE tubing
- Items must be purchased separately but must be used together
- Uses an ethylene propylene (EP) o-ring (not included)

Part Number	Description	Case Qty
H90669-0005	PTFE Tubing with CTFE Luer Lock Adapter	5
422371-0025	Fritted Disc Ledge Adapter with Luer Joint, size 25	1

Packing Reservoir with Standard Taper Joint

These heavy duty reservoirs are designed for use with 420510 and 420550 series chromatography columns with and without fritted glass supports or in combination with 420575 series flow control adapters.

- Reservoirs are available in a variety of sizes and joint configurations
- Custom sizes and plastic safety coating are available upon request
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
420570-0124	100	24/40	1
420570-0224	250	24/40	1
420570-0524	500	24/40	1
420570-1024	1000	24/40	1
420570-2024	2000	24/40	1
420570-3045	3000	45/50	1

Borosilicate Glass Solvent Addition Funnel

This funnel was designed to permit addition of solvents to flash chromatography columns without disturbing the silica-gel / packing layer.

- Lower end of funnel is closed and stem has a series of small holes for solvent drainage
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem Length x Stem OD (mm)	Top Diameter (mm)	Case Qty
629500-0004	100 x 22	75	1

Polypropylene Solvent Addition Funnel, Set of Five

Set of five unbreakable, polypropylene solvent addition funnels for use with chromatography columns of various sizes.

- The unique closed-end design facilitates gentle addition of solvent to the column
- Perforated funnel stem permits solvent to pour down the column wall without disturbing the top layer of silica gel
- Approximate dimensions are provided below

Part Number	Case Qty
629050-0000	1

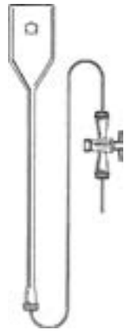
Pesticide Analysis Column

For pesticide/herbicide residue analysis.

- Top is tooled for a #3 rubber stopper
- Lower 24/40 inner joint allows a variety of flasks for eluant collection
- Vacuum connection for 3/8" ID tubing is provided on the lower end
- 40-60 micron porosity fritted disc is sealed in
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Reservoir Capacity (mL)	Column ID (mm), Column Length (mm)	Case Qty
420600-0000	200	22, 330	1

Cadmium Reduction Column



- This column features all borosilicate glass construction with an 85 mL reservoir
- The glass wool plug and PTFE tubing at the bottom of the column are held securely in place by a BEVEL-SEAL™ connection, facilitating easy cleaning and assembly
- PTFE BEVEL-SEAL™ stopcock connector is included as a metering valve to control flow rate
- Stopcock has a 821001-0002 plug (glass wool not included)
- Ref: Method 4500-NO_3-E of the Standards Methods for the Examination of Water and Wastewater
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Reservoir Capacity (mL)	Overall Height (mm)	Case Qty
419000-8505	85	350	1

Replacement Parts

Part Number	Description	Case Qty
419001-8505	Cadmium Reduction Column Only	1
179740-0505	Threaded, Connecting PTFE Stopcock Size 2, Accomodation Range 3-5 to 3-5, 13-425/13-425, 3/16" to 3/16", O-Ring Size 105	1
420823-0018	1/8" OD x 0.063" ID x 10' FEP / PTFE Tubing	1

Chromatography Sample Tubes

- Design allows access to the sample via a microliter syringe needle through the hole in the PTFE-lined screw cap
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduations x Subdivisions (mL)	Case Qty
422570-0000	2	0-0.3 x 0.01	1

Replacement Parts

Part Number	Description	Case Qty
410116-1325	PTFE-Lined 13-425 Phenolic Cap	1
774161-0013	PTFE-Faced Silicone Rubber Septa	48

Neutral Oil and Loss Columns

Apparatus for the determination of total neutral oil of natural fats and oils consisting of triglycerides and unsaponifiable matter.

- Unique design of the flask allows the transfer of the weighed sample directly onto the column
- Supplied complete, as shown
- Stopcocks have PTFE plugs, and the column has a 40-60 micron porosity fritted disc
- Joints are Standard Taper 19/22 except for the extension tube, which is Standard Taper 7/25
- Ref: OACS Official Method Ca9f-57, JAOCS Vol. 46, No. 5, Pages 252-255
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Free fatty acids and miscellaneous non-fat substances are removed by passing the sample through a column of activated alumina. Losses are then calculated.

Part Number	Solvent Reservoir Capacity (mL)	Column ID (mm), Column Length (mm)	Case Qty
427100-0000	175	19, 270	1

Replacement Parts

Part Number	Description	Case Qty
427101-0000	175mL Solvent Reservoir for Neutral Oil and Loss Column	1
427102-0000	20mL Flask for Neutral Oil and Loss Column with 19/22 Standard Taper Joints	1
427103-0000	Size 19/22 Weighing Base for 20 mL Flask for Neutral Oil and Loss Column	1
427105-0000	19 x 270 mm Column for Neutral Oil and Loss Column	1
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25	1
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, 15.2/30	1

ULTRA-WARE® Filtration Systems

Modular system that maximizes mobile phase preparation time at the lowest possible cost.

- Separate caps for performing filtration and sparging/delivery
- Filtration/vacuum degassing can be performed at one central location with prepared mobile phase delivered directly to HPLC stations
- Filtration cap is specially designed to filter HPLC mobile phase directly into the reservoir using 47 mm membrane filters
- Vacuum degassing is accomplished by closing the HI-VAC® valve on the solvent pickup adapter
- Three hole cap is used to helium sparge and deliver the mobile phase to the pump system
- Helium-tight seals maximize sparging efficiency
- 1/4-28 fittings and adapters are supplied to allow simple, easy connection to any HPLC pump system
- Supplied with filtration cap (with 40-60 micron porosity glass support frit), standard solvent pickup adapter, three hole cap, conical bottom reservoir, standard fittings kit and FEP PTFE tubing
- Patent No. 5,397,467
- Recommended for most solvents used for HPLC mobile phase
- Caps and solvent pickup adapter o-rings and solvent inlet filters must be changed when using tetrahydrofuran (THF) or other aggressive solutions
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Reservoir Capacity (mL)	Height x Diameter (mm)	Case Qty
953971-1003	10000	570 x 255	1

ULTRA-WARE® HPLC Filtration Cap Systems

- Specially designed to filter HPLC mobile phase directly into the reservoir using 47 mm membrane filters
- Optional conversion base allows the use of 90 mm membrane filters for large volume, preparative scale filtration or filtering mobile phase with high particulate loads
- Borosilicate glass and PTFE construction gives excellent chemical resistance to all HPLC mobile phases
- Cap body is constructed from glass-filled PTFE and is supplied with a TFE/propylene o-ring
- In-line filtration with solvent pickup adapter that eliminates traditional pour-and-wait filtration
- 1/4" PFA (perfluoroalkoxy resin) hose barb for easy connection to a vacuum source
- Vacuum degassing is accomplished by closing the HI-VAC® valve on the solvent pickup adapter
- Supplied with a filtration cap (with 40-60 micron porosity glass support frit), standard solvent pickup adapter and conical bottom reservoir
- Patent No. 5,397,467
- Recommended for most solvents used for HPLC mobile phase
- O-rings in the solvent pickup adapter must be changed when using tetrahydrofuran (THF) or other aggressive organic solutions
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements_

Part Number	Reservoir Capacity (mL)	Height x Diameter (mm)	Case Qty
953976-1003	10000	570 x 255	1

ULTRA-WARE® Three Valve Cap Systems

This THF-resistant three valve cap system is recommended when using tetrahydrofuran (THF), chlorinated hydrocarbons, ethers or ketones.

- Provides on-off control for all three ports of the reservoir cap
- Helium-tight valves maintain the mobile phase in a sealed environment between runs
- Port on each valve and connecting threads on the bottom of the cap use ¼"-28 fittings
- Cap body is manufactured from PTFE, while color-coded valves are made of CTFE with TFE/propylene o-rings (standard version) or stainless steel with FFKM o-rings (THF-resistant version)
- ¼"-28 flangeless fittings and adapters are supplied to allow simple, easy connection to any HPLC pump system
- Filtration of the mobile phase directly into the reservoir requires the separate purchase of the filtration cap and appropriate solvent pickup adapter
- Supplied with a three valve cap, conical bottom reservoir, fittings kit and FEP PTFE tubing
- Patent No. 5,397,467
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Reservoir Capacity (mL)	Height x Diameter (mm)	Case Qty
953931-1002	1000	305 x 130	1
953931-5002	5000	465 x 205	1

ULTRA-WARE® Three Hole Cap Systems

Recommended for most solvents used for HPLC mobile phase. The most economical way to helium sparge and deliver HPLC mobile phase.

- Borosilicate glass and PTFE construction give excellent chemical resistance to all HPLC mobile phases
- Connecting threads on top and bottom of the cap use ¼"-28 fittings
- Cap body is manufactured from PTFE and is supplied with a TFE/propylene o-ring. An FFKM o-ring is available when using aggressive organic solutions
- ¼"-28 flangeless fittings and adapters are supplied to allow simple, easy connection to any HPLC pump system
- Filtration of the mobile phase directly into the reservoir requires the additional purchase of the filtration cap and appropriate solvent pickup adapter
- Supplied with three hole cap, conical bottom reservoir, standard fittings kit and FEP PTFE tubing
- Patent No. 5,397,467
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Cap o-ring and inlet filters must be changed when using tetrahydrofuran (THF) or other aggressive organic solutions.

Part Number	Reservoir Capacity (mL)	Height x Diameter (mm)	Case Qty
953980-0502	500	255 x 105	1

ULTRA-WARE® Economy Three-Hole Cap Systems

- The cap body is manufactured from PTFE and is supplied with a TFE/propylene o-ring and a polypropylene screw collar
- The connecting threads on the top of the cap use standard ¼"-28 flangeless fittings
- Two of the ports have 1/8" through-holes; the third port has a 1/16" through-hole
- Assembly instructions included.
- ULTRA-WARE® flat bottom reservoirs have a plastic safety coating which blocks virtually all UV light up to 385 nm, preventing photodegradation of light-sensitive mobile phases
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Reservoir Capacity (mL)	Case Qty
953930-1002	1000	1
953930-2002	2000	1
953930-5002	5000	1
953930-1003	10000	1

Replacement Parts

Part Number	Description	Case Qty
953913-5000	Economy Three-Hole Cap - includes PTFE body, GL45 open top screw collar, and a size 216 TFE/propylene o-ring	1
953913-5001	PTFE Body for Economy Three-Hole Cap	1
953916-3002	2 µm All PEEK Inlet/Sparge Filter, OD 1.1", Length 0.8", Fits Tubing OD 1/8"	1
420821-0018	ETFE Flangeless Nut for 1/8" OD Tubing, 1/4"-28 Thread, Use with the 420822-Series Flangeless Ferrules	1
420822-0018	ETFE Flangeless Ferrule for 1/8" OD Tubing, for Use with 420821 Series Male Nuts	1
953913-0001	ETFE Nut Plug 1/4"-28, Used to Seal Ports with Flat Bottom 1/4"-28 Threads	1
420823-0018	1/8" OD x 0.063" ID x 10' FEP / PTFE Tubing	1
953902-0252	250 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 133 mm, Overall Diameter 73 mm	1
953902-0502	500 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 165 mm, Overall Diameter 89 mm	1
953902-1002	1000 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 205 mm, Overall Diamter 111 mm	1
953902-2002	2000 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 250 mm, Overall Diameter 138 mm	1
953902-5002	5000 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 320 mm, Overall Diameter 186 mm	1
953902-1003	10000 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 400 mm, Overall Diameter 234 mm	1
953902-2003	20000 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 490 mm, Overall Diameter 300 mm	1

Fittings Kit for Economy Three-Hole Cap Systems

- Kit consists of 20' of 1/8" OD FEP PTFE tubing, 20 CTFE ferrules and 20 (1/4"-28) ETFE nuts

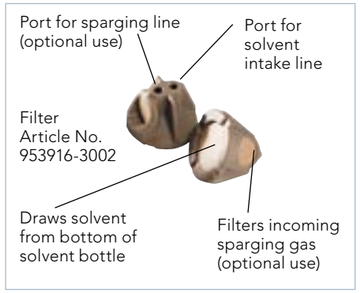
Part Number	Case Qty
953882-0000	1

Safety System 3 Closures

Safety System 3 is a unique Solvent Bottle Adapter that is made from PBT and converts ULTRAWARE® GL-45 mobile phase caps to standard 4L solvent bottles for direct connection to your HPLC pump. It is also available without the solvent bottle-to-GL-45 thread adapter.

- Eliminates the safety hazards of aluminum foil-wrapped solvent containers
- ULTRA-WARE® Economy Three Hole Cap is manufactured from PTFE with a TFE/propylene o-ring and a polypropylene screw collar
- Three connecting threads on top of the cap use standard ¼"-28 flangeless fittings
- Two ports have 1/8" through-holes for connection to the inlet / sparge filter
- The third port has a 1/16" through-hole used as a vent port during sparging

I
ncluded with your Safety System 3 is the unique Bottom-of-the-Bottle™ Inlet/ Sparge Filter.



- The filter combines the functions of an inlet filter with a sparger in a single, convenient device
- Sparging bubbles are prevented from entering the mobile phase stream while allowing the pump to draw all but a few milliliters of solvent from the reservoir or bottle
- All PEEK construction makes it ideal for virtually all mobile phases
- Supplied with 2 µm porosity frits and connections for 1/8" OD tubing.

Each Safety System 3 consists of the following:

- 953913-5000 1 ea. Economy 3-Hole Cap, GL-45
- 953907-0000 1 ea. Solvent Bottle Adapter, GL-45 (included with 953930-0000 only)
- 953916-3002 1 ea. Combination Inlet / Sparge Filter, 2 µm, PEEK™
- 420821-0018 2 ea. Flangeless Nut, ETFE, ¼"-28 x 1/8"
- 420822-0018 2 ea. Flangeless Ferrule, ETFE, 1/8" (Optional)
- 953913-0001 1 ea. Vent Port Plug, ETFE, ¼"-28
- 420823-0018 1 ea. Tubing, FEP PTFE, 1/8" OD x 1/16" ID x 10'

Part Number	Case Qty
953930-0000	1
953930-0001	1

Replacement Parts

Part Number	Description	Case Qty
953913-5000	Economy Three-Hole Cap - includes PTFE body, GL45 open top screw collar, and a size 216 TFE/propylene o-ring	1
953907-0000	Solvent Bottle Adapter, GL 45 to 4L Solvent Bottle, Made from PBT, Autoclavable	1
953916-3002	2 µm All PEEK Inlet/Sparge Filter, OD 1.1", Length 0.8", Fits Tubing OD 1/8"	1
420821-0018	ETFE Flangeless Nut for 1/8" OD Tubing, 1/4"-28 Thread, Use with the 420822-Series Flangeless Ferrules	1
420822-0018	ETFE Flangeless Ferrule for 1/8" OD Tub-ing, for Use with 420821 Series Male Nuts	1
953913-0001	ETFE Nut Plug 1/4"-28, Used to Seal Ports with Flat Bottom 1/4"-28 Threads	1
420823-0018	1/8" OD x 0.063" ID x 10' FEP / PTFE Tubing	1

ULTRA-WARE® Plastic-Coated HPLC Reservoirs

ULTRA-WARE® reservoirs have been specially designed for the preparation, storage and delivery of all liquid chromatography mobile phases.

- Manufactured from the most chemically inert glass available to prevent the leaching of any extractables into the mobile phase solvents, then externally coated with a safety plastic with an added ultraviolet (UV) blocking agent
- In case of an accident, the plastic safety coating helps retain glass fragments and allows a reasonable amount of time for the safe disposal of the liquid contents
- Plastic coating also blocks virtually all UV light up to 385 nm, preventing photo-degradation of light-sensitive reagents
- Recommended for use under vacuum for filtration and vacuum degassing of mobile phase solvents
- Can also be used at internal pressures of up to 6 psig for helium sparging and blanketing of the mobile phase
- Conical bottom reservoirs deliver virtually all of the mobile phase without dangerous reservoir tilting
- All ULTRA-WARE® reservoirs are supplied with GL 45-4 screw thread
- Plastic coating is PVC with a UV blocking agent
- Patent No. Des. 292,824
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Flat Bottom without Graduations

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953902-0252	250	133 x 73	1
953902-0502	500	165 x 89	1
953902-1002	1000	205 x 111	1
953902-2002	2000	250 x 138	1
953902-5002	5000	320 x 186	1
953902-1003	10000	400 x 234	1
953902-2003	20000	490 x 300	1

Flat Bottom with Graduations

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953932-0252	250	203 x 85	1
953932-0502	500	230 x 105	1
953932-1002	1000	275 x 130	1
953932-2002	2000	319 x 150	1
953932-5002	5000	373 x 205	1
953932-1003	10000	433 x 255	1
953932-2003	20000	578 x 315	1

ULTRA-WARE® Plastic-Coated HPLC Reservoirs

ULTRA-WARE® reservoirs have been specially designed for the preparation, storage and delivery of all liquid chromatography mobile phases.

- Manufactured from the most chemically inert glass available to prevent the leaching of any extractables into the mobile phase solvents, then externally coated with a safety plastic with an added ultraviolet (UV) blocking agent
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- Conical bottom reservoirs deliver virtually all of the mobile phase without dangerous reservoir tilting
- All ULTRA-WARE® reservoirs are supplied with GL 45-4 screw thread
- Plastic coating is PVC with a UV blocking agent
- Patent No. Des. 292,824
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements



Conical Bottom with Graduations

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953922-0252	250	203 x 85	1
953922-0502	500	230 x 105	1
953922-1002	1000	275 x 130	1
953922-2002	2000	319 x 150	1
953922-5002	5000	373 x 205	1
953922-1003	10000	433 x 255	1
953922-2003	20000	578 x 315	1

Conical Bottom without Graduations

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953901-0252	250	203 x 85	1
953901-0502	500	230 x 105	1
953901-1002	1000	275 x 130	1
953901-2002	2000	319 x 150	1
953901-5002	5000	373 x 205	1
953901-1003	10000	433 x 255	1
953901-2003	20000	578 x 315	1

Conical Bottom with Side Necks and Graduations

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953910-2002	2000	319 x 150	1
953910-5002	5000	373 x 205	1
953910-1003	10000	433 x 255	1
953910-2003	20000	578 x 315	1

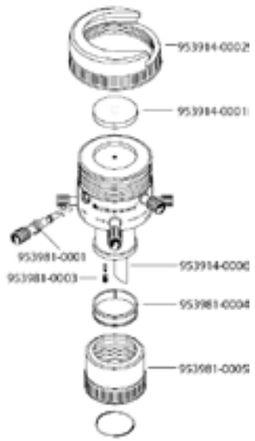
ULTRA-WARE® Five Valve Recirculation/ Filtration Caps

Standard - 953983-0047

- Patent No. 5,397,467
- Specially designed to permit the recirculation of mobile phase back into the reservoir while maintaining the helium sparged environment.
- This cap also performs stepwise filtration, sparging/degassing, storage and delivery to the HPLC pump
- An integral check valve prevents mobile phase from backing up into the gas lines
- A pressure release valve protects the reservoir from being accidentally over-pressurized
- The 1/4”-28 fitting connections allow easy connection to any HPLC pump system
- Cap body is manufactured from glass-filled PTFE
- Cap will fit any reservoir or bottle with a GL 45 thread

THF-Resistant - 953983-6347

- Patent No. 5,397,467
- Tetrahydrofuran (THF), widely used as a mobile phase for GPC, attacks the CTFE valve stems and TFE/propylene o-rings used in the standard Five Valve Cap
- This special THF-resistant version has 316 stainless steel wherever the standard system has CTFE, and FFKM o-rings in place of the TFE/propylene o-rings
- This cap is also recommended for aggressive organic solutions such as chlorinated hydrocarbons, ethers and ketones
- Cap body is manufactured from glass-filled PTFE
- Cap will fit any reservoir or bottle with a GL 45 thread



Part Number	Filter Diameter (mm)	THF Resistance	Case Qty
953983-0047	47	No	1
953983-6347	47	Yes	1

Replacement Parts

Part Number	Description	Case Qty
953914-0002	47 mm Upper Screw Clamp	1
953914-0001	47 mm 40-60 micron Porosity Glass Support Frit	1
953981-0001	Short CTFE Valve Stem	1
953914-0006	PTFE Drip Tip	1
953981-0003	Check Valve with Retainer	1
953981-0004	Lower Cap Retainer Ring	1
953981-6301	Short Stainless Steel Valve Stem for Sparge and Pump Ports	1
953981-6302	Long Stainless Steel Valve Stem for Filter, Vent and Recirculate Ports	1

Accessories

Part Number	Description	Case Qty
953984-0090	90 mm Base Adapter	1
953906-6347	47 mm THF-Resistant Pickup Adapter	1
953906-6390	90 mm THF-Resistant Pickup Adapter	1
953906-0047	47 mm Standard Pickup Adapter	1
953906-0090	90 mm Standard Pickup Adapter	1

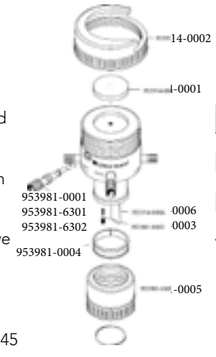
ULTRA-WARE® Four Valve Filtration/ Delivery Caps

Standard - 953981-0047

- Patent No. 5,397,467.
- This cap combines the mobile phase filtration, sparging/degassing, storage and delivery functions
- All tubing connections are made in the back of the cap, reducing the typical clutter of tubing at the reservoirs
- An integral check valve in the sparge port prevents the mobile phase from backing up into the gas lines
- A pressure release valve prevents the reservoir from being accidentally over-pressurized
- The 1/4”-28 fitting connections allow easy connection to any HPLC pump system
- Cap body is manufactured from glass-filled PTFE
- Cap will fit any reservoir or bottle with a GL 45 thread

THF-Resistant - 953981-6347

- Patent No. 5,397,467
- Tetrahydrofuran (THF), widely used as a mobile phase for GPC, attacks the CTFE valve stems and TFE/propylene o-rings used in the standard four valve cap
- This special THF-resistant version has 316 stainless steel wherever the standard system has CTFE and FFKM o-rings in place of the TFE/propylene o-rings
- This cap is also recommended for aggressive organic solutions such as chlorinated hydrocarbons, ethers and ketones
- Cap body is manufactured from glass-filled PTFE
- Cap will fit any reservoir or bottle with a GL 45 thread



Part Number	Filter Diameter (mm)	THF Resistance	Case Qty
953981-0047	47	No	1
953981-6347	47	Yes	1

Replacement Parts

Part Number	Description	Case Qty
953914-0002	47 mm Upper Screw Clamp	1
953914-0001	47 mm 40-60 micron Porosity Glass Support Frit	1
953981-0001	Short CTFE Valve Stem	1
953981-6301	Short Stainless Steel Valve Stem for Sparge and Pump Ports	1
953981-6302	Long Stainless Steel Valve Stem for Filter, Vent and Recirculate Ports	1
953914-0006	PTFE Drip Tip	1
953981-0003	Check Valve with Retainer	1
953981-0004	Lower Cap Retainer Ring	1
953981-0005	GL 45 Lower Screw Cap	1

Accessories

Part Number	Description	Case Qty
953984-0090	90 mm Base Adapter	1
953906-0090	90 mm Standard Pickup Adapter	1
953906-6390	90 mm THF-Resistant Pickup Adapter	1
953906-0047	47 mm Pickup Adapter	1
953906-6347	47 mm THF-Resistant Pickup Adapter	1

ULTRA-WARE® Three Valve Delivery Caps

- Three on-off valves have ¼”-28 threads top and bottom
- Valve body is PTFE
- Valve stem material is CTFE
- O-ring material for valve stem and lower seal is TFE/ propylene

Part Number	Screw Thread	Case Qty
953903-0000	GL 45	1

Replacement Parts

Part Number	Description	Case Qty
953903-0002	Blue Valve Handle	1
953903-0003	Red Valve Handle	1
953903-0004	Yellow Valve Handle	1
953903-0042	Short CTFE Valve Stem	1
953903-0005	GL 45 Screw Cap	1

ULTRA-WARE® Three Hole Delivery Caps

- Caps have ¼”-28 threads top and bottom with 1/8” ID holes to accept 1/8” OD PTFE tubing
- Body is PTFE
- Supplied complete with three ¼”-28 CTFE plugs and a TFE/propylene o-ring

Part Number	Screw Thread	Case Qty
953913-0000	GL 45	1

Replacement Parts

Part Number	Description	Case Qty
953913-0001	ETFE Nut Plug 1/4”-28, Used to Seal Ports with Flat Bottom 1/4”-28 Threads	1
953903-0005	GL 45 Screw Cap	1

ULTRA-WARE® Vacuum / Pressure Bottles

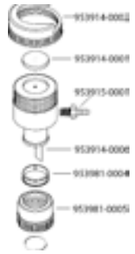
This laboratory bottle has been specially designed for use under vacuum and at pressures up to 1.5 bar (at a maximum of 140 °C).

- This vacuum- and pressure-resistant bottle is manufactured from borosilicate glass with a GL 45 screw thread
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Operating Pressure (bar)	Case Qty
953900-0010	1000	1.5	1

Filtration Caps

- ULTRA-WARE®
- Body is constructed of glass-filled PTFE with a vacuum adapter for 1/4" ID tubing
- Upper screw clamp holds a solvent pickup adapter or funnel
- 40-60 micron porosity fritted glass filter support is removable
- Supplied with a PTFE/propylene o-ring



Part Number	Filter Diameter (mm)	Screw Thread	Case Qty
953915-0047	47	GL 45	1

Replacement Parts

Part Number	Description	Case Qty
953914-0002	47 mm Upper Screw Clamp	1
953914-0001	47 mm 40-60 micron Porosity Glass Support Frit	1
953915-0001	1/4" PFA Hose Barb	1
953914-0006	PTFE Drip Tip	1
953981-0004	Lower Cap Retainer Ring	1
953981-0005	GL 45 Lower Screw Cap	1

Accessories

Part Number	Description	Case Qty
953984-0090	ULTRA-WARE® Conversion Base for Caps	1
953906-0090	90 mm Standard Pickup Adapter	1
953906-0047	47 mm Standard Pickup Adapter	1

ULTRA-WARE® Conversion Base

Converts the five valve, four valve and filtration caps to use 90 mm filter membranes, providing up to four times faster filtration.

- The conversion base is manufactured from glass-filled PTFE and is supplied with a coarse porosity (40-60 micron porosity) glass support frit and an upper screw clamp
- Requires a 90 mm 953906 series solvent pickup adapter

Part Number	Case Qty
953984-0090	1

Replacement Parts

Part Number	Description	Case Qty
953914-0092	90 mm Upper Screw Clamp	1
953914-0091	90 mm 40-60 micron Porosity Glass Support Frit	1

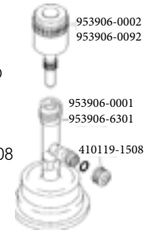
Accessories

Part Number	Description	Case Qty
953906-0090	90 mm Standard Pickup Adapter	1
953906-6390	90 mm THF-Resistant Pickup Adapter	1

ULTRA-WARE® Solvent Pickup Adapters

Designed to be used with the five valve, four valve and filtration caps to provide safe, in-line filtration that replaces the traditional pour-and-wait funnel filtration method.

- The unique Bevel-Seal™ makes a vacuum-tight o-ring connection to the PTFE tubing
- The HI-VAC® valve is easier to open under vacuum than the standard stopcock
- Closing the valve provides vacuum degassing after filtration
- Each unit is supplied with 3 feet (91 cm) of 1/4" OD FEP PTFE tubing
- 953906-6347 and 953906-6390 have FFKM o-rings and are THF-resistant
- Valve o-ring size is 010 and sidearm o-ring size is 108
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements



Part Number	Diameter (mm)	THF Resistance	Case Qty
953906-0047	47	No	1
953906-6347	47	Yes	1
953906-0090	90	No	1
953906-6390	90	Yes	1

Replacement Parts

Part Number	Description	Case Qty
953906-0002	47 mm Pickup Adapter Body	1
953906-0092	90 mm Pickup Adapter Body	1
953906-0001	Standard Valve Plug Assembly	1
410119-1508	Blue Glass-Filled Nylon 15-415 Open-Top Compression Cap, Hole Diameter 8.5 mm	12

ULTRA-WARE® Solvent Inlet/Sparge Filters

Part Number	Description	Case Qty
953916-3002	2 µm All PEEK Inlet/Sparge Filter, OD 1.1", Length 0.8", Fits Tubing OD 1/8"; Ideal for Virtually All Mobile Phases	1

ULTRA-WARE® Glassl Inlet Filters with CTFE Union

Part Number	Description	Case Qty
953916-2700	5 µm ULTRA-WARE® Glass Solvent Inlet Filter with CFTE Union, 1/4"-28 Nut and Ferrule for Connection to 1/8" OD Tubing, OD 1/2", Length 2"	1

Replacement Parts

Part Number	Description	Case Qty
H88800-0000	CTFE Union Female 1/4"-28 to Female 1/4"-28, Internally Threaded for use with Flangeless Fittings	1

ULTRA-WARE® Stainless Steel Inlet Filters

Part Number	Description	Case Qty
953916-6210	10 µm ULTRA-WARE® Stainless Steel Solvent Inlet Filter, OD 1/2", Length 1", Stem OD 1/16", Fits Tubing OD 1/8". Recommended for use with THF-Resistant Systems.	1
953916-6220	10 µm ULTRA-WARE® Stainless Steel Solvent Inlet Filter, OD 1/2", Length 1", Stem OD 1/8", Fits Tubing OD 3/16". Recommended for use with THF-Resistant Systems.	1

ULTRA-WARE® Stainless Steel Inlet Filters with CTFE Nut

Part Number	Description	Case Qty
953916-0000	2 µm ULTRA-WARE® Stainless Steel Solvent Inlet Filter with CTFE Nut for Connection to 1/8" OD PTFE Tubing, OD 1/2", Length 1". Recommended for use with 250 mL to 5 L size reservoir systems.	1

Replacement Parts

Part Number	Description	Case Qty
953916-0001	Stainless Steel Filter Only	1
953916-0002	1/4"-28 CTFE Nut	1

ULTRA-WARE® Stainless Steel Inlet Filters with ETFE Nut

Part Number	Description	Case Qty
953917-0000	10 µm ULTRA-WARE® Stainless Steel Solvent Inlet with ETFE Nut and Ferrule for Connection to 1/8" OD Tubing, OD 7/8", Length 1-1/2", CTFE adapter for connection to 1/4" OD tubing included. Recommended for use with 10 and 20 L size reservoir systems.	1

Replacement Parts

Part Number	Description	Case Qty
953917-0001	Stainless Steel Filter Only	1

ULTRA-WARE® Bottom-of-the-Bottle Inlet Filters

Part Number	Description	Case Qty
953916-1002	2 µm ULTRA-WARE® Inlet Filter Bottom-of-the-Bottle™, Stainless steel with 1/4-28 PEEK nut and ferrule for connection to 1/8" tubing, OD 1/2", Length 1-3/4"	1
953916-2002	2 µm ULTRA-WARE® Inlet Filter Bottom-of-the-Bottle™, Stainless steel with stem connection for 1/16" Tubing, OD 1/2", Length 1"	1

GL 45 Screw Thread Cap for High Temperature

Caps are for use with high temperature applications and will fit any reservoirs or bottles with GL 45 screw threads.

- Autoclaving maximum temperature is 180 °C
- Chemically resistant to alcohols, ethers, hydrocarbons and dilute or strong acids
- Manufactured from polybutylene terepthalate

Part Number	Screw Thread	Max Temperature (ºC)	Case Qty
953909-0000	GL 45	180	1
14395H-452	GL 45	180	10

GL 45 Screw Thread PTFE Cap

Designed to fit any reservoir or bottle with GL 45 screw threads.

- Provides the best possible seal
- PTFE cap body is chemically inert and remains non-brittle at sub-zero temperatures
- TFE/propylene o-ring, size 216
- Polypropylene screw collar

Part Number	Screw Thread	Case Qty
953908-0000	GL 46	1

GL 45 to Standard Taper 40/35 PTFE Adapter

Designed to convert GL 45 threads to Standard Taper 40/35 inner joints.

- Autoclavable
- Allows filter membrane support glassware with 40/35 outer joints to be used on ULTRA-WARE® HPLC reservoir
- Highly chemically resistant PTFE remains non-brittle at sub-zero temperatures

Part Number	Standard Taper Joints	Screw Thread	Case Qty
953905-0000	40/35	GL 45	1

GL 45 to Solvent Bottle Adapter

Designed to convert ULTRAWARE® GL-45 mobile phase caps to standard 4L solvent bottles.

- Autoclavable
- Manufactured from polybutylene terephthalate
- Allows direct access to HPLC instruments

Part Number	Case Qty
953907-0000	1

ULTRA-WARE® Debubbler

- Unit consists of a glass chamber with inlet and outlet ports and a PTFE-lined phenolic cap
- Installed before the pump or mixer, the debubbler captures bubbles that are released by unscrewing the cap
- Unions are not included
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Modified GPI Thread	Port Threads	Case Qty
953890-0000	13-425	14"-28	1

Standard Fittings Kit

This kit contains all of the tube fittings, adapters and solvent inlet filters required to plumb any ULTRA-WARE® cap to virtually all HPLC pumps.

- Not recommended for use with THF or chlorinated hydrocarbons

Part Number	Case Qty
953882-1000	1

Replacement Parts

Part Number	Description	Case Qty
420407-2003	ETFE FLEX-COLUMN® Fitting, Female Luer to Female 1/4"-28 Thread	1
420407-2113	ETFE FLEX-COLUMN® Fitting, Male Luer to Male 1/4"-28 Thread	1
420818-3305	PEEK Union, Female 1/4"-28 to Female 5/16-24, Internally Threaded for use with Flangeless Fittings	1
420821-0018	ETFE Flangeless Nut for 1/8" OD Tubing, 1/4"-28 Thread, Use with the 420822-Series Flangeless Ferrules	1
420821-0618	Acetal Flangeless Nut for 1/8" OD Tubing, M6 Thread, Use with the 420822-Series Flangeless Ferrules	1
420821-3519	PEEK Nut for 3/16" OD Tubing, 5/16"-24 Thread, Use with the 420822-Series Flangeless Ferrules	1
420822-0018	ETFE Flangeless Ferrule for 1/8" OD Tubing, for Use with 420821 Series Male Nuts	1
420822-1019	ETFE Ferrule for 3/16" OD tubing, for Use with 420821 Series Male Nuts	1
420822-2007	ETFE Flangless Ferrule for 1.8 mm OD Tubing, for Use with 420821 Series Male Nuts	1
953916-0000	2 µm ULTRA-WARE®® Stainless Steel Solvent Inlet Filter, OD 1/2", Length 1"	1
953916-1002	2 µm ULTRA-WARE®® Inlet Filter Bottom-of-the-Bottle™ for 1/8" Tubing, OD 1/2", Length 1-3/4"	1
953919-0014	Nylon Adapter 1/4"-28 Thread to 1/4" Hose Barb	1

THF-Resistant Fittings Kits

This kit contains all of the tube fittings, adapters and solvent inlet filters required to plumb any ULTRA-WARE® cap to virtually all HPLC pumps.

- Specifically designed to be used with THF or other very aggressive organic solutions

Part Number	Case Qty
953882-2000	1

Replacement Parts

Part Number	Description	Case Qty
420407-2003	ETFE FLEX-COLUMN® Fitting, Female Luer to Female 1/4"-28 Thread	1
420407-2113	ETFE FLEX-COLUMN® Fitting, Male Luer to Male 1/4"-28 Thread	1
420818-3305	PEEK Union, Female 1/4"-28 to Female 5/16-24, Internally Threaded for use with Flangeless Fittings	1
420821-0018	ETFE Flangeless Nut for 1/8" OD Tubing, 1/4"-28 Thread, Use with the 420822-Series Flangeless Ferrules	1
420821-0618	Acetal Flangeless Nut for 1/8" OD Tubing, M6 Thread, Use with the 420822-Series Flangeless Ferrules	1
420821-3519	PEEK Nut for 3/16" OD Tubing, 5/16"-24 Thread, Use with the 420822-Series Flangeless Ferrules	1
420821-6218	Stainless Steel Nut for 1/8" OD Tubing, 1/4"-28 Thread, Use with the 420822-Series Flangeless Ferrules	1
420822-0018	ETFE Flangeless Ferrule for 1/8" OD Tubing, for Use with 420821 Series Male Nuts	1
420822-1019	ETFE Ferrule for 3/16" OD tubing, for Use with 420821 Series Male Nuts	1
420822-2007	ETFE Flangless Ferrule for 1.8 mm OD Tubing, for Use with 420821 Series Male Nuts	1
953916-2002	2 µm ULTRA-WARE®® Inlet Filter Bottom-of-the-Bottle™ for 1/16" Tubing, OD 1/2", Length 1"	1
953916-6210	10 µm ULTRA-WARE®® Stainless Steel Solvent Inlet Filter, OD 1/2", Length 1", Stem OD 1/16", Fits Tubing OD 1/8"	1
953919-0014	Nylon Adapter 1/4"-28 Thread to 1/4" Hose Barb	1

Porosities of Fritted Ware

Porosity Grade	Pore Size (Microns)	Principal Uses
Extra Coarse	170-220	Gas dispersion, washing, absorption
Coarse	40-60	gas dispersion, washing, absorption, membrane support
Medium	10-15	Filtration, extraction
Fine	4.5-5	Filtration, extraction

25 mm ULTRA-WARE® Microfiltration Assembly with Fritted Glass Support

The 25 mm vacuum microfiltration assembly is designed to handle small volumes of liquids for analysis of particulate or microbiological contamination. It has a fritted glass support and is used for general filtration.

- Supplied with a 40-60 micron porosity fritted glass support base, a 15 mL graduated funnel, an anodized aluminum clamp and a No. 5 silicone stopper
- Funnels are graduated from 5 to 15 mL in 1 mL increments
- Prefilter size is 16 mm diameter
- Approximate filter area is 2.5 cm²
- Connection to our 125 mL filtration flask (available as an accessory) is made with a No. 5 silicone stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL)	Case Qty
953705-0000	15	1

Replacement Parts

Part Number	Description	Case Qty
953703-0000	25 mm Anodized Aluminum Clamp	1
953702-0001	25 mm Fritted Glass Support Base	1

Accessories

Part Number	Description	Case Qty
953710-0000	125 mL Flask, #5 Stopper Joint, 3/8" Hose Connection	1
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, 3/8" Hose Connection	1

25 mm ULTRA-WARE® Microfiltration Assembly with Stainless Steel Support

The 25 mm vacuum microfiltration assembly is designed to handle small volumes of liquids for analysis of particulate or microbiological contamination. It has a stainless steel support and is used for filtering viscous or proteinaceous solutions or to produce ultra-clean filtrate.

- Supplied with a 316 stainless steel support screen, a PTFE support screen gasket, a glass support base, a 15 mL graduated funnel, an anodized aluminum clamp and a #5 silicone stopper
- Funnels are graduated from 5 to 15 mL in 1 mL increments
- Prefilter size is 16 mm diameter
- Approximate filter area is 2.5 cm²
- Connection to our 125 mL filtration flask (available as an accessory) is made with a No. 5 silicone stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

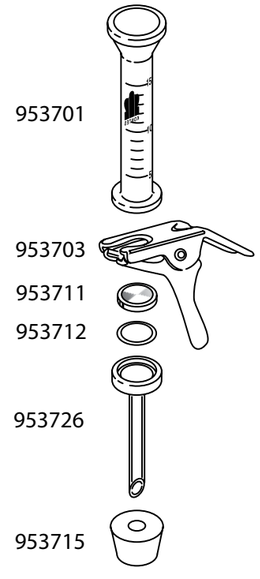
Part Number	Funnel Capacity (mL)	Case Qty
953730-0000	15	1

Replacement Parts

Part Number	Description	Case Qty
953703-0000	25 mm Anodized Aluminum Clamp	1
953711-0000	25 mm Stainless Steel Support Screen, 80 x 80 mesh, 304 stainless steel, 0.0095" opening size, 19.4% open area, 0.007" wire diameter	1
953712-0000	PTFE Support Screen Gasket	25
953726-0001	25 mm Glass Support Base	1

Accessories

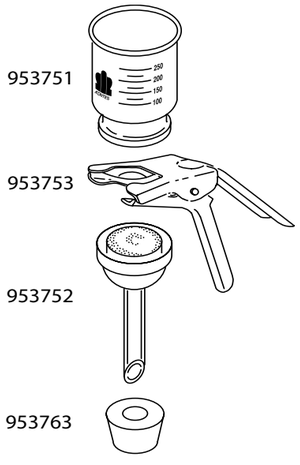
Part Number	Description	Case Qty
953710-0000	Flask, 125 mL, #5 Rubber Stopper Joint, 3/8" Hose Connection	1
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, 3/8" Hose Connection	1



47 mm ULTRA-WARE® Microfiltration Assembly with Fritted Glass Support

This 47 mm vacuum microfiltration assembly is used for general filtration and is designed to handle up to 500 mL of sample liquids for the analysis of particulate or microbiological contamination.

- Supplied with a 40-60 micron porosity fritted glass support base, a 300 mL graduated funnel, an anodized aluminum clamp and a #8 silicone stopper
- Funnels are graduated from 100 to 250 mL in 25 mL increments
- Prefilter size is 35 mm
- Approximate filter area is 9.6 cm²
- Connection to our 1 liter filtration flask (available as an accessory) is made with a #8 silicone stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements



Part Number	Funnel Capacity (mL)	Overall Height (mm), Clamp Width (mm)	Case Qty
953755-0000	300	229 x 76	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953752-0001	47 mm Fritted Glass Support Base	1

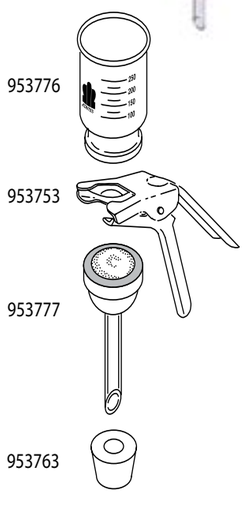
Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8”	1
953760-1002	1000 mL KimCote™ Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8”	1

47 mm ULTRA-WARE® Microfiltration Assembly with PTFE-Faced Fritted Glass Support

This 47 mm vacuum microfiltration assembly is used for autoclaving with the filter in place and is designed to handle up to 500 mL of sample liquids for the analysis of particulate or microbiological contamination.

- Supplied with a 40-60 micron porosity PTFE-faced fritted glass support base, a 300 mL PTFE-faced graduated funnel, an anodized aluminum clamp and a #8 silicone stopper
- PTFE coating prevents membrane from adhering to ground glass surface
- Funnels are graduated from 100 to 250 mL in 25 mL increments
- Prefilter size is 35 mm
- Approximate filter area is 9.6 cm²
- Connection to our 1 liter filtration flask (available as an accessory) is made with a #8 silicone stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements



Part Number	Funnel Capacity (mL)	Case Qty
953780-0000	300	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953777-0001	47 mm PTFE-Faced Fritted Glass Support Base	1

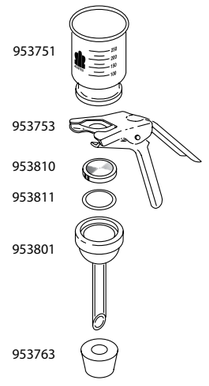
Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8”	1
953760-1002	1000 mL KimCote™ Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8”	1

47 mm ULTRA-WARE® Microfiltration Assembly with Stainless Steel Support

This 47 mm vacuum microfiltration assembly is designed to handle up to 500 mL of sample liquids for the analysis of particulate or microbiological contamination. It has a stainless steel support and is used for filtering viscous or proteinaceous solutions or to produce ultra-clean filtrate.

- Supplied with a 304 stainless steel support screen, a PTFE support screen gasket, a glass support base, a 300 mL graduated funnel, an anodized aluminum clamp and a #8 silicone stopper
- Funnels are graduated from 100 to 250 mL in 25 mL increments
- Prefilter size is 35 mm
- Approximate filter area is 9.6 cm²
- 80 x 80 304 stainless steel mesh, 0.0055” opening size, 19.4% open area, 0.007” wire diameter
- Connection to our 1 liter filtration flask (available as an accessory) is made with a #8 silicone stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements



Part Number	Funnel Capacity (mL)	Overall Height (mm), Clamp Width (mm)	Case Qty
953805-0000	300	229 x 76	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953810-0000	Stainless Steel Support Screen for 47 mm Filtration Assembly, 80 x 80 mesh, 304 stainless steel, 0.0095” opening size, 19.4% open area, 0.007” wire diameter	1
953811-0000	47 mm PTFE Gasket, 25/package (5 included with Glassware Set)	25
953801-0001	47 mm Glass Support Base	1

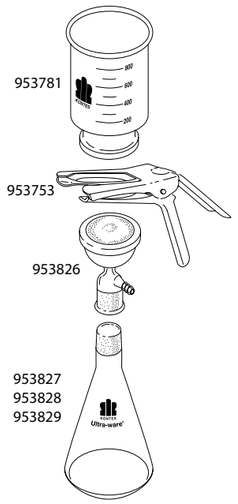
Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, 3/8” Hose Connection	1
953760-1002	1000 mL KimCote™ Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8”	1

47 mm ULTRA-WARE® Microfiltration Assembly with Fritted Glass Support and Ground Joint

The 47 mm filtration apparatus with fritted glass support is recommended for routine filtration analysis of corrosive liquids and the removal of particulates from HPLC solvents.

- The ground joint connection eliminates the phthalate contamination that can occur when using silicone or neoprene stoppers
- The support base has a 40-60 micron porosity glass frit and an integral vacuum connection that is located above the drip tip to prevent contamination of the vacuum line with filtrate droplets
- Each apparatus is supplied with a funnel, an anodized aluminum clamp, a 47 mm fritted glass support base and a filtration flask
- Joints are 40/35
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements



Part Number	Flask Capacity (mL)	Funnel Capacity (mL)	Case Qty
953825-0000	1000	300	1
953835-0000	2000	500	1
953845-0000	4000	1000	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953826-0000	47 mm, 40/35 Fritted Glass Support Base	1
953827-0000	1000 mL Flask, 40/35 inner joint	1
953828-0000	2000 mL Flask, 40/35 inner joint	1
953829-0000	4000 mL Flask, 40/35 inner joint	1

Accessories

Part Number	Description	Case Qty
676001-4035	PTFE Sleeves for Greaseless Connections, Fit Standard Taper Joint 40/35	6
953830-0000	40/35 Glass Cap	1

47 mm Microfiltration Assembly with Stainless Steel Support and Ground Joint

The 47 mm filtration apparatus with stainless steel support is recommended when filtering viscous or proteinaceous solutions to give the maximum flow rate.

- This apparatus is also used to produce ultra-clean filtrate since the stainless steel screen will not shed particles into the filtrate
- The ground joint connection eliminates the possible phthalate contamination that can occur when using silicone or neoprene stoppers
- Each apparatus is supplied with a funnel, an anodized aluminum clamp, a stainless steel support screen, a PTFE gasket, a 47 mm glass support base and a filtration flask
- 80 x 80 304 stainless steel mesh, 0.0055" opening size, 19.4% open area, 0.007" wire diameter
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements
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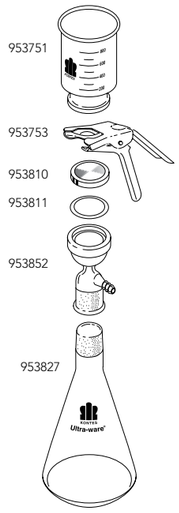


Part Number	Flask Capacity (mL)	Funnel Capacity (mL)	Case Qty
953855-1047	1000	300	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953810-0000	Stainless Steel Support Screen for 47 mm Filtration Assembly, 80 x 80 mesh, 304 stainless steel, 0.0095" opening size, 19.4% open area, 0.007" wire diameter	1
953811-0000	47 mm PTFE Gasket, 25/package (5 included with Glassware Set)	25
953852-0001	47 mm, 40/35 Glass Base	1
953827-0000	1000 mL Flask, 40/35 inner joint	1

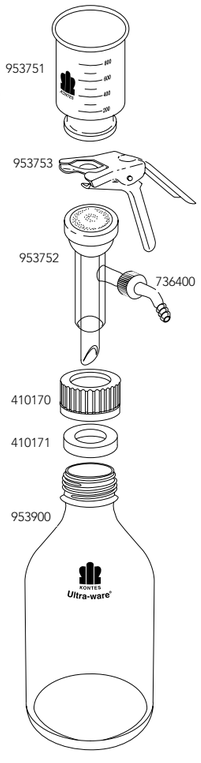
Accessories

Part Number	Description	Case Qty
676001-4035	PTFE Sleeves for Greaseless Connections, Fit Standard Taper Joint 40/35	6
953828-0000	2000 mL Flask, 40/35 inner joint	1
953829-0000	4000 mL Flask, 40/35 inner joint	1
953830-0000	40/35 Glass Cap	1

47 mm ULTRA-WARE® Microfiltration Assembly with Fritted Glass Support and GL 45 Style Bottle

This filtration assembly is designed to collect filtrate directly into a media-style bottle.

- Supplied with funnel, clamp, fritted glass support base, tubing adapter, PBT cap, sealing ring and vacuum/pressure bottle
- Support base connects directly to bottle with unique cap and sealing ring
- Sealed-in 40-60 micron porosity fritted glass disc
- Vacuum and pressure rated from -1 to 1.5 bar
- Filtrate is collected directly into a media-type bottle when using a standard membrane filtration assembly
- All components are steam autoclavable
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements



Part Number	Case Qty
953750-5347	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953752-5047	47 mm Fritted Glass Support Base for Microfiltration Assembly	1
736400-1413	Tubing Adapter for Filtration Assembly, 1/4" x 13-425	1
410171-4226	42 mm PTFE/Silicone Sealing Ring	1

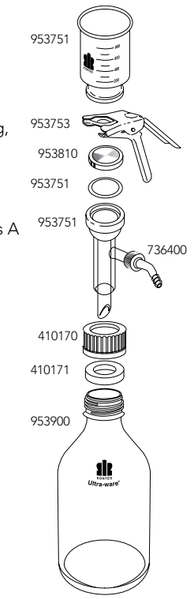
Accessories

Part Number	Description	Case Qty
923910-0110	Pressure/Vacuum Diaphragm Pump, 115 VAC, 60 Hz, 4.2 Amps, Max free air capacity 1.1 CFM, Ultimate vacuum 25.5" Hg, Noise level <70 DB, 14.4 lb/6.5 kg; 3/8" hose barbs on inlet and outlet	1

47 mm ULTRA-WARE® Microfiltration Assembly with Stainless Steel Support and GL 45 Style Bottle

This adapter assembly is designed to allow connection of a 47 mm or 90 mm filtration support base with a straight drip tip to a bottle or reservoir with a GL 45 thread. It has a stainless steel support and is recommended for filtering viscous or proteinaceous solutions or to produce ultra-clean filtrate.

- Supplied with funnel, clamp, 304 stainless steel support screen, PTFE gasket, glass support base, tubing adapter with o-ring, PBT cap, sealing ring and vacuum/pressure bottle
- Filtrate is collected directly into a media-type bottle when using a standard membrane filtration assembly
- All components are steam autoclavable
- 80 x 80 304 stainless steel mesh, 0.0055" opening size, 19.4% open area, 0.007" wire diameter
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements



Part Number	Case Qty
953800-5347	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953810-0000	Stainless Steel Support Screen for 47 mm Filtration Assembly, 80 x 80 mesh, 304 stainless steel, 0.0095" opening size, 19.4% open area, 0.007" wire diameter	1
953811-4701	47 mm PTFE Support Screen Gasket	1
953801-5047	47 mm Glass Support Base	1
736400-1413	Tubing Adapter for Filtration Assembly, 1/4" x 13-425, Polypropylene with size 108 FKM O-ring	1
410171-4226	42 mm PTFE/Silicone Sealing Ring	1

Accessories

Part Number	Description	Case Qty
923910-0110	Pressure/Vacuum Diaphragm Pump, 115 VAC, 60 Hz, 4.2 Amps, Max free air capacity 1.1 CFM, Ultimate vacuum 25.5" Hg, Noise level <70 DB, 14.4 lb/6.5 kg; 3/8" hose barbs on inlet and outlet	1

Adapter Assembly with GL 45 Thread

This adapter assembly is designed to allow connection of a 47 mm or 90 mm filtration support base with a straight drip tip to a bottle or reservoir with a GL 45 thread.

- Filtrate is collected directly into a media-type bottle when using a standard membrane filtration assembly
- All components are steam-autoclavable
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Screw Thread	Case Qty
179950-4532	GL 45	1

Replacement Parts

Part Number	Description	Case Qty
179951-3213	Filtration Adapter Assembly Body Only, 33 expansion borosilicate glass	1
410171-2916	29 mm PTFE/Silicone Sealing Ring	1
410171-4226	42 mm PTFE/Silicone Sealing Ring	1
410170-3220	PBT GL-32 Cap with 20 mm Opening	1
736400-1413	Hose Barb Connector for Filtration Assembly, 1/4" x 13-425	1

Accessories

Part Number	Description	Case Qty
953907-0000	Solvent Bottle Adapter, GL 45 to 4L Solvent Bottle, Made from PBT, Autoclavable	1

47 mm ULTRA-WARE® Microfiltration Assembly with Solvent Pick-Up Adapter and Ground Joint

This all glass microfiltration system eliminates pouring HPLC solvents into funnels.

- The solvent pickup adapter draws solvent directly from a reagent bottle through a 47 mm filter and into a filter flask
- After filtration is complete, the HI-VAC valve on the solvent pickup adapter can be turned off for vacuum degassing
- Existing ULTRA-WARE® and Millipore filtration assemblies are easily converted to in-line filtration/ degassing by replacing existing funnels with solvent pickup adapters. They clamp to support bases in the same way that funnels do
- This system comes with a solvent pickup adapter, a coarse porosity fritted glass filter base, an inner joint flask and an aluminum clamp
- Filter base has an integral hose connection above the filtrate drip tip to prevent contamination of the vacuum line with filtrate droplets
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Flask Capacity (mL)	Standard Taper Joints	Case Qty
953820-1047	1000	40/35	1
953820-4047	4000	40/35	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953826-0000	47 mm, 40/35 Fritted Glass Support Base	1
953827-0000	1000 mL Flask, 40/35 inner joint	1
953829-0000	4000 mL Flask, 40/35 inner joint	1
953906-0047	47 mm Standard Pickup Adapter with 1/4" OD PTFE tubing	1

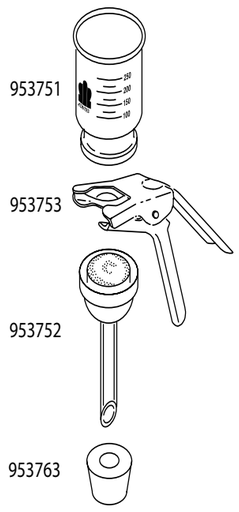
Accessories

Part Number	Description	Case Qty
953830-0000	40/35 Glass Cap	1

90 mm ULTRA-WARE® Microfiltration Assembly with Fritted Glass Support

The 90 mm vacuum microfiltration assemblies are designed for large sample volumes or samples with high particulate loads that would tend to clog a 47 mm diameter filter. The assembly with fritted glass support is used for general filtration.

- Filtration rates are up to four times faster than 47 mm filters
- The funnel is graduated from 300 to 1000 mL in 50 mL increments
- Maximum funnel capacity is 1100 mL
- Prefilter size is 70 mm diameter; approximate filter area is 38.5 cm²
- Connection to our 1 liter filtration flask (available as an accessory) is made with a #8 silicone stopper
- Unit is supplied with a 40-60 micron porosity fritted glass support base, a 1 liter graduated funnel, an anodized aluminum clamp and a #8 silicone stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements



Part Number	Funnel Capacity (mL)	Overall Height (mm), Clamp Width (mm)	Case Qty
953755-0090	1000	160 x 350	1

Replacement Parts

Part Number	Description	Case Qty
953753-0090	90 mm Anodized Aluminum Clamp	1
953752-0090	90 mm Fritted Glass Support Base	1

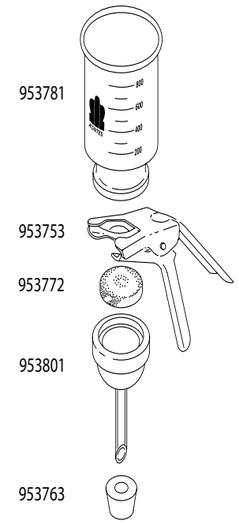
Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1
953760-1002	1000 mL KimCote™ Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1

90 mm ULTRA-WARE® Microfiltration Assembly with Replaceable Fritted Glass Support

The 90 mm vacuum microfiltration assemblies are designed for large sample volumes or samples with high particulate loads that would tend to clog a 47 mm diameter filter. The assembly with replaceable fritted glass support is used for general filtration.

- Filtration rates are up to four times faster than 47 mm filters
- The funnel is graduated from 300 to 1000 mL in 50 mL increments
- Maximum funnel capacity is 1100 mL
- Prefilter size is 70 mm diameter and the approximate filter area is 38.5 cm²
- Connection to our 1 liter filtration flask (available as an accessory) is made with a #8 silicone stopper
- Unit is supplied with a 40-60 micron porosity fritted glass disc, a 90 mm glass support base, a 1000 mL graduated funnel, an anodized aluminum clamp and #8 silicone stopper
- The fritted glass support disc can be replaced if it becomes clogged or exchanged if sample-to-sample cross-contamination is a concern
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements



Part Number	Funnel Capacity (mL)	Overall Height (mm), Clamp Width (mm)	Case Qty
953770-0090	1000	350 x 160	1

Replacement Parts

Part Number	Description	Case Qty
953753-0090	90 mm Anodized Aluminum Clamp	1
953772-0090	90 mm 40-60 micron porosity Fritted Glass Support Disc	1
953801-0090	90 mm Glass Support Base	1

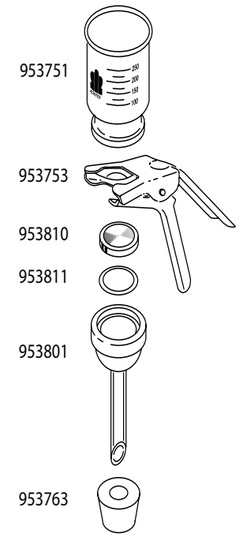
Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1
953760-1002	1000 mL KimCote™ Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1

90 mm ULTRA-WARE® Microfiltration Assembly with Stainless Steel Support

The 90 mm vacuum microfiltration assemblies are designed for large sample volumes or samples with high particulate loads that would tend to clog a 47 mm diameter filter. This assembly with stainless steel support is used for filtering viscous or proteinaceous solutions or to produce ultra-clean filtrate.

- Filtration rates are up to four times faster than 47 mm filters
- The funnel is graduated from 300 to 1000 mL in 50 mL increments
- Prefilter size is 70 mm diameter, and the approximate filter area is 38.5 cm²
- Connection to our 1 liter filtration flask (available as an accessory) is made with a #8 silicone stopper
- Maximum funnel capacity is 1100 mL
- This unit is supplied with a 304 stainless steel support screen, a glass support base, a 300 mL graduated funnel, an anodized aluminum clamp and a # 8 silicone stopper
- 80 x 80 304 stainless steel mesh, 0.0055" opening size, 19.4% open area, 0.007" wire diameter
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements



Part Number	Funnel Capacity (mL)	Overall Height (mm), Clamp Width (mm)	Case Qty
953805-0090	1000	350 x 160	1

Replacement Parts

Part Number	Description	Case Qty
953753-0090	90 mm Anodized Aluminum Clamp	1
953810-0090	Stainless Steel Support Screen for 90 mm Filtration Assembly, 80 x 80 mesh, 304 stainless steel, 0.0095" opening size, 19.4% open area, 0.007" wire diameter	1
953801-0090	90 mm Glass Support Base	1

Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1
953760-1002	1000 mL KimCote™ Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1

90 mm ULTRA-WARE® Microfiltration Assembly with Fritted Glass Support and Ground Joint

The 90 mm filtration assembly with fritted glass support is designed for large volume filtration analysis of corrosive liquids or samples with high particulate loads that would tend to clog a 47 mm diameter filter. This unit is also recommended for filtering large volumes of HPLC solvents.

- The ground glass connection eliminates the possibility of phthalate contamination that can occur when using silicone or neoprene stoppers
- Each apparatus is supplied with 1000 mL funnel; 90 mm, 40-60 micron porosity, fritted glass support base; anodized aluminum clamp; and filtration flask
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL)	Flask Capacity (mL)	Case Qty
953825-0090	1000	1000	1
953835-0090	1000	2000	1
953845-0090	1000	4000	1

Replacement Parts

Part Number	Description	Case Qty
953753-0090	90 mm Anodized Aluminum Clamp	1
953826-0090	Fritted Glass Support Base 90 mm, 40/35 outer joint	1
953827-0000	1000 mL Flask, 40/35 inner joint	1
953828-0000	2000 mL Flask, 40/35 inner joint	1
953829-0000	4000 mL Flask, 40/35 inner joint	1

Accessories

Part Number	Description	Case Qty
676001-4035	PTFE Sleeves for Greaseless Connections, Fits Standard Taper Joint 40/35	6
953830-0000	40/35 Glass Cap	1

90 mm ULTRA-WARE® Microfiltration Assembly with Replaceable Frit and Ground Joint

The 90 mm filtration apparatus with replaceable fritted glass support is recommended for large volume filtration analysis of corrosive liquids or samples with high particulate loads.

- The glass support disc can be replaced if it becomes clogged or if sample-to-sample contamination is a concern
- Like the apparatus with fritted glass support, the ground joint connection eliminates the possibility of phthalate contamination that can occur when using silicone or neoprene stoppers
- Each apparatus is supplied with 1000 mL funnel, 90 mm glass support base, 40-60 micron porosity fritted glass disc, anodized aluminum clamp and filtration flask
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Flask Capacity (mL)	Funnel Capacity (mL)	Case Qty
953840-2090	2000	1000	1
953840-4090	4000	1000	1

Replacement Parts

Part Number	Description	Case Qty
953752-0090	90 mm Fritted Glass Support Base	1
953753-0090	90 mm Anodized Aluminum Clamp	1
953772-0090	90 mm 40-60 micron porosity Fritted Glass Support Disc	1
953828-0000	2000 mL Flask, 40/35 inner joint	1
953829-0000	4000 mL Flask, 40/35 inner joint	1
953841-0090	90 mm, 40/35 Glass Base	1

Accessories

Part Number	Description	Case Qty
676001-4035	PTFE Sleeves for Greaseless Connections, Fits Standard Taper Joint 40/35	6
953830-0000	40/35 Glass Cap	1

90 mm ULTRA-WARE® Microfiltration Assembly with SS Support and Ground Joint

The 90 mm filtration apparatus with stainless steel support is recommended when filtering large volumes of viscous or proteinaceous solutions to give the maximum flow rate.

- This unit is also used to produce ultra clean filtrate since the screen will not shed particles into the filtrate
- Each apparatus is supplied with stainless steel support screen, glass support base, 1000 mL funnel, anodized aluminum clamp and filtration flask
- 80 x 80 304 stainless steel mesh, 0.0055" opening size, 19.4% open area, 0.007" wire diameter
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL)	Flask Capacity (mL)	Case Qty
953855-1090	1000	1000	1

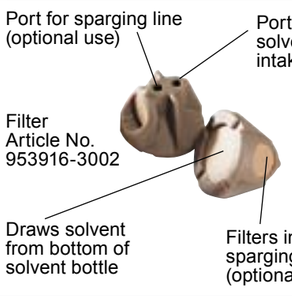
Replacement Parts

Part Number	Description	Case Qty
953753-0090	90 mm Anodized Aluminum Clamp	1
953810-0090	Stainless Steel Support Screen for 90 mm Filtration Assembly, 80 x 80 mesh, 304 stainless steel, 0.0095" opening size, 19.4% open area, 0.007" wire diameter	1
953827-0000	1000 mL Flask, 40/35 inner joint	1
953841-0090	90 mm, 40/35 Glass Base	1

Accessories

Part Number	Description	Case Qty
953830-0000	40/35 Glass Cap	1
676001-4035	PTFE Sleeves for Greaseless Connections, Fits Standard Taper Joint 40/35	6

Safety System 3



•Safety System 3 is a unique Solvent Bottle Adapter that is made from PBT and converts ULTRAWARE® GL-45 mobile phase caps to standard 4L solvent bottles for direct connection to your HPLC pump. It is also available without the solvent bottle-to-GL-45 thread adapter.

- Eliminates the safety hazards of aluminum foil-wrapped solvent containers
- ULTRA-WARE® Economy Three Hole Cap is manufactured from PTFE with a TFE/propylene o-ring and a polypropylene screw collar
- Three connecting threads on top of the cap use standard ¼"-28 flangeless fittings
- Two ports have 1/8" through-holes for connection to the inlet / sparge filter
- The third port has a 1/16" through-hole used as a vent port during sparging

Included with your Safety System 3 is the unique Bottom-of-the-Bottle™ Inlet/ Sparge Filter.

- The filter combines the functions of an inlet filter with a sparger in a single, convenient device
- Sparging bubbles are prevented from entering the mobile phase stream while allowing the pump to draw all but a few milliliters of solvent from the reservoir or bottle
- All PEEK construction makes it ideal for virtually all mobile phases
- Supplied with 2 µm porosity frits and connections for 1/8" OD tubing.

Part Number	Description
953930-0000	Safety System 3 with GL-45 Bottle Adapter
953930-0001	Safety System 3 without GL-45 Bottle Adapter

Safety System 3 Replacement Parts:

- 953913-5000 1 ea. Economy 3-Hole Cap, GL-45
- 953907-0000 1 ea. Solvent Bottle Adapter, GL-45 (included with 953930-0000 only)
- 953916-3002 1 ea. Combination Inlet / Sparge Filter, 2 µm, PEEK™
- 420821-0018 2 ea. Flangeless Nut, ETFE, ¼"-28 x 1/8"
- 420822-0018 2 ea. Flangeless Ferrule, ETFE, 1/8" (Optional)
- 953913-0001 1 ea. Vent Port Plug, ETFE, ¼"-28
- 420823-0018 1 ea. Tubing, FEP PTFE, 1/8" OD x 1/16" ID x 10'

2mL and 4mL Autosampler Vials without Closures

- Choice of clear or amber borosilicate glass
- Available with or without marking spots
- Made in the USA

Made of the highest quality materials, Kimble vials meet or exceed industry specifications and tolerances. These products are available in a variety of standard sizes and finishes. Vials are made from clear, Type 1 borosilicate, 33 expansion glass or amber, Type 1, borosilicate, 51 expansion glass for light sensitive applications. Vials are packed 100 per tray. Vials with large opening and/or marking spots are also available. Closures are not included.

Clear Vials

Part Number	Capacity (mL)	Finish	Case Qty
331232C	2	Crimp	2000
331232CW	2	Crimp with marking spot, graduated	2000
331232CL	2	Crimp Large Opening	2000
331232CLW	2	Crimp Large Opening with Marking Spot	2000
331232S	2	Screw Thread, 8-425	2000
331232SN	2	Screw Thread, 9-425	2000
331232SW	2	Screw Thread, 9-425 w/marking spot, graduated	2000
331232SNW	2	Snap Cap Opening with Marking Spot, Graduated	2000
331545S	4	Screw Thread, 13-425	2000
331545SW	4	Screw Thread, 13-425, with Marking Spot	2000

Amber Vials

511232CA	2	Crimp	2000
511232CAW	2	Crimp w/marking spot	2000
511232CLA	2	Crimp Large Opening	2000
511232CLAW	2	Crimp Large Opening with Marking Spot	2000
511232SA	2	Screw Thread, 8-425	2000
511232DPA	2	Screw Thread, 9-425	2000
511232SAW	2	Screw Thread, 9-425 w/marking spot, graduated	2000
511232SNAW	2	Snap Cap Opening, with Marking Spot, Graduated	2000
511545SA	4	Screw Thread, 13-425	2000
511545SAW	4	Screw Thread, 13-425, with Marking Spot	2000

Polypropylene Rack for 12 mm OD Vials

Disposable polypropylene vial rack is lettered and numbered for indexing individual vials. Corners interlock for convenient stacking.

Part Number	Hole Diameter x Depth (mm)	Case Qty
749210-0012	12 x 15	10

Aluminum Seals with PTFE-Faced Silicone Septa

- Medium durometer PTFE / silicone septum
- Allows for good resealability, core resistance, multiple injections and easy penetration

Part Number	Fits GPI Aluminum Seal Finish	Septum Color	Case Qty
N73826-11	11	Red	1000
N73824-11	11	Natural	100

Polypropylene Screw Thread Caps with Red PTFE-Faced Silicone Septa

- Convenient pre-assembled caps and liners reduce the risk of contamination
- Available with standard or pre-slit septa
- Can be used for multiple injections
- Ideal for use with autosampler vials
- Autoclavable

Part Number	GPI Finish	Septa	Case Qty
73812WH-8425	8-425; White	standard	1000
73813WH-8425	8-425; White	pre-slit	1000
73812BK-8425	8-425; Black	standard	1000
73813BK-8425	8-425; Black	pre-slit	1000
73813BL-9425	9-425; Blue	pre-slit	1000
73812BL-9425	9-425; Blue	standard	1000
73812BK-9425	9-425; Black	standard	1000
73813BK-9425	9-425; Black	pre-slit	1000
73813WH-13425	13-425; White	pre-slit	1000
73812WH-13425	13-425; White	standard	1000
73812BK-13425	13-425; Black	standard	1000
73813BK-13425	13-425; Black	pre-slit	1000

Polypropylene Screw Thread Caps with Bonded White PTFE Septa

- Convenient pre-assembled caps and liners reduce the risk of contamination
- Intended for single-use injection
- Ideal for storage of volatile compounds and chemicals
- Autoclavable

Part Number	GPI Finish	Case Qty
73814WH-8425	8-425	1000
73814BL-9425	9-425	1000
73814BK-13425	13-425	1000

Tank with Standard Lid

The clear sides of this tank allow unobstructed visual inspection of TLC plates up to 20 cm x 20 cm in size.

- The standard TLC developing tank will accommodate 20 cm x 20 cm TLC plates and smaller
- The standard 20 cm x 20 cm TLC plate tank is difficult to use with smaller plates, so the "Shorty" tank was developed
- The Shorty will accommodate 5 cm x 10 cm, 10 cm x 10 cm, or 10 cm x 20 cm TLC plates turned long side down
- Both have a centering baffle to support plates during development and are supplied with lids
- Manufactured from 90 expansion soda lime glass conforming to USP Type III requirements

Part Number		Case Qty
416180-0000		1
416180-1020	(Shorty)	1

Tank with Nonslip Lid

Nonslip lids have a knob for easy lifting and PTFE retainers inside to prevent the lid from accidentally sliding off the tank.

- Lids in all three styles are available with holes drilled for #0 stoppers to allow addition of reagents without disturbing the equilibrium of the saturated environment
- Manufactured from sturdy molded glass bricks that will withstand regular use for many years
- Clear sides allow unobstructed visual inspection of TLC plates up to 20 x 20 cm in size
- Top of tank is ground flat to match the lid, and the edges are beveled to remove any sharp edges
- Bottom is ground to provide a flat, level surface
- Raised ridge along inside bottom allows simultaneous development of two 20 x 20 cm or four 5 x 20 cm plates
- Inside dimensions of the tank are approximately 27 cm W x 7 cm D x 25 cm H (10 5/8 x 2 7/8 x 9 3/4 inches)
- Weight is approximately 5.4 kg (12 pounds)
- Manufactured from 90 expansion soda lime glass conforming to USP Type III requirements

Part Number	Case Qty
416185-0000	1

Tank with Latch Lid

Latch lids are designed to hold the lid firmly to the developing tank, greatly improving the stability of the saturated environment for developing TLC plates.

Part Number	for Plate Size	Case Qty
416190-0000	20 x 20 cm	1

Tank with Latch Lid and Aluminum Rack

The multiplate aluminum rack allows the simultaneous development of up to six 20 x 20 cm TLC plates. The rack is hard anodized to prevent corrosion.

Part Number	for Plate Size	Case Qty
416190-4900	20 x 20 cm	1

Rectangular TLC Tank Replacement Parts

Part Number	Description	Case Qty
416181-0000	TLC Tank Standard Lid, Use with plate size 10 x 20 or 20 x 20mm	1
416186-0000	TLC Tank Non-Slip Lid	1
416182-0000	TLC Developing Tank	1
416191-0000	TLC Tank Latch Lid	1
416192-0000	TLC Developing Tank for use with Latch Lid	1
416175-0000	TLC Aluminum Rack, Holds Six 20 x 20 cm Plates	1

Cylindrical TLC Developing Tanks

Cylindrical glass tanks for the development of 1 x 3 in. to 10 x 20 cm plates.

- These tanks provide maximum vapor phase saturation with a minimum amount of solvent
- Polyethylene or glass cap included
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	for Plate Size	Lid	Case Qty
416170-0510	5 x 10 cm	Glass	1
416170-0520	5 x 20 cm	Glass	1
416170-1020	10 x 20 cm	Glass	1
416170-1118	1 x 3 in	Polyethylene	1
416170-1119	1 x 3 in	Polyethylene	12
416170-1120	5 x 10 cm	Polyethylene	1
416170-1121	5 x 10 cm	Polyethylene	12
416170-1122	5 x 20 cm	Polyethylene	1
416170-1123	5 x 20 cm	Polyethylene	12

Replacement Parts

Part Number	Description	Case Qty
416170-1124	Polyethylene Cap for 1 x 3 inch Tanks	12
416170-1125	Polyethylene Cap for 5 x 10 and 5 x 20 cm Tanks	12
416171-0500	Glass Cap for 5 cm Tanks	1

TLC Reagent Sprayers

- The connection between the sprayer head and the flask is made with a special screw thread ground joint, connecting cap and loosening ring
- If the joint ever "freezes" from reagent crystallization or residue formation, simply unscrew the connecting cap back onto the unique loosening ring and the joint will easily come apart
- These sprayers will operate on as little as 1 psi (0.07 kg/cm²) air pressure, with optimal results at 3-5 psi (0.21-0.35 kg/cm²)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

The connecting cap, loosening ring and o-ring should be removed before autoclaving.

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
422530-0010	10	19/22	1
422530-0025	25	19/22	1
422530-0050	50	19/22	1
422530-0125	125	24/40	1
422530-0250	250	24/40	1
422530-0500	500	24/40	1

Replacement Parts

Part Number	Description	Case Qty
422531-0010	TLC Sprayer Head for 10 and 25 mL Flasks	1
422531-0050	TLC Sprayer Head for 50 mL Flasks	1
422531-0125	TLC Sprayer Head for 125 mLFlasks	1
422531-0250	TLC Sprayer Head for 250 mL Flasks	1
422531-0500	TLC Sprayer Head for 500 mL Flasks	1
422532-0010	10 mL TLC Sprayer Flask	1
422532-0025	25 mL TLC Sprayer Flask	1
422532-0050	50 mL TLC Sprayer Flask	1
422532-0125	125 mL TLC Sprayer Flask	1
422532-0250	250 mL TLC Sprayer Flask	1
422532-0500	500 mL TLC Sprayer Flask	1
422533-0019	Size 19 Connecting Cap for screw thread ground joint for flask sizes 10, 25 and 50 mL, melamine, max. temperature 85 °C	5
422534-0019	Size 19 Loosening Ring for screw thread ground joint for flask sizes 10, 25 and 50 mL, polyamide, max. temperature 190 °C	5

TLC Reagent Sprayers with Standard Taper Joint

- These units operate between 3 and 5 psi (0.21-0.35 kg/cm²)
- Their all-glass construction makes them completely steam autoclavable
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
422550-0000	5	14/20	1
422540-0000	25	24/40	1
422500-0125	125	24/40	1
422500-0250	250	24/40	1

422550

422540

422500

Replacement Parts

Part Number	Description	Case Qty
617000-0224	125 mL Erlenmeyer Flask with 24/40 joint, Approx. overall height 125 mm	1
617000-0424	250 mL Erlenmeyer Flask with 24/40 joint, Approx. overall height 155 mm	1
422551-0000	TLC Reagent Sprayer Only for 10 mL Tube	1
422501-0250	TLC Reagent Sprayer Only for 250 mL Flask	1

TLC Spotting Capillaries, MICROCAPS®

Microcaps® are precision-bore glass capillary tubes, cut to predetermined lengths so that each capillary tube will hold a known volume of fluid when filled.

- Microcaps® are so inexpensive that it is not impractical to dispose of each tube after use
- Filling is simple
- Capillary action, not externally applied suction, draws the fluid into the tube
- To dispense the fluid, simply squeeze the bulb
- No unusual skills or training required. Immediate, professional results
- Ideal for spotting preadsorbent TLC plates
- Supplied in packages containing one bulb assembly and one dispenser vial with 100 micropipets
- Volumetric tolerance is ±1%
- 764520-0000, the Microcaps® "5 Pack," is ideal for use in spotting TLC plates
- Each 5 Pack has 5 dispenser vials containing 100 micropipets each of 0.5, 1, 2, 5 and 10 microliter sizes
- A bulb assembly and spotting holder are also included with the 5 Pack
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (µL)	Length (mm)	Case Qty
764500-0000	0.5	32	100
764500-0001	1	32	100
764500-0002	2	32	100
764500-0004	4	32	100
764500-0005	5	32	100
764500-0010	10	41	100
764520-0000	0.5, 1, 2, 5, 10		1
764500-0020	20	64	100
764500-0025	25	65	100
764500-0050	50	100	100
764500-0075			100
764500-0100	100	116	100

TLC Plate Streakers

A simple device for uniformly streaking TLC plates.

416430

- Unit consists of a stainless steel base with an adjustable holder for a glass reservoir
- Supplied complete with glass capillaries, stainless steel capillaries and instructions
- Reference: Journal of Chemical Education, Vol. 47, No. 5, May 1970, page 404, "A Simple Streaker for Preparative Layer Chromatography," L.J. Altman, James R.Trudell
- Glassware manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

To operate, the streaker is placed over the edge of the counter top and the plate to be streaked is positioned parallel to it. The bent capillary tip is then adjusted so that it lightly touches the plate. The reservoir is filled with the solution to be chromatographed, and by moving the unit back and forth along the counter edge, a uniform streak is accomplished.

Part Number	Height (mm)	Length (mm)	Case Qty
416430-0000	160	250	1

Replacement Parts

Part Number	Description	Case Qty
416431-0000	TLC Plate Streaker Base Assembly	1
416432-0000	TLC Plate Streaker Reservoir	1
416433-0000	Glass Capillary Set (2 Small, 2 Large)	1
416434-0000	Stainless Steel Capillary Set (1 small, 1 large)	1

TLC Labeling Template

A transparent labeling template designed to fit over TLC plates without disturbing the absorbent layer.

- The apparatus features spotting guide ruler, compound and solvent travel distance markers, and circles for estimation of spot sizes
- Origin and 10 cm bold reference lines are provided to enable fast calculation of Rf-values

Part Number	Length (mm)	Width (mm)	Case Qty
416450-0000	220	200	1

Chain Clamp

Holds equipment in place at any angle to lattices and rods.

- Accommodates up to 28 cm (11") diameter or irregularly shaped objects
- Quick slip-on chain connection has large, easy-to-turn adjusting knob
- Length of chain is three feet

Part Number	Max Grip Size (cm)	Extension Arm Length (cm)	Case Qty
675675-0028	28	13.7	1

Three-Prong Clamp

Three-prong extension clamps hold objects ranging from 0.80 to 89 mm securely and safely.

- Two separate adjustment screws ensure even, precise pressure on glass to minimize the chance of breakage
- Clamp is easily adjusted to vary holding angle and distance from the stand
- Jaws are coated with non-slip vinyl

Part Number	Max Grip Size (mm)	Overall Length (cm)	Case Qty
675700-0025	25	17	1
675700-0057	57	22	1
675700-0089	89	27	1

Three-Prong Open-Yoke Clamp

Three-prong extension clamp features an open yoke design for minimum contaminant buildup and easy cleaning.

- Open yoke allows the full depth of the clamp to be used unobstructed by the yoke, springs or adjusting screws
- Two separate adjustment screws ensure precise pressure on glass
- Supplied with nonslip vinyl coating on jaws and fiberglass finger covers

Part Number	Max Grip Size (mm)	Overall Length (cm)	Case Qty
675710-0025	25	17	1
675710-0057	57	22	1
675710-0089	89	27	1

Adjustable Loop Clamp

Stainless clamp with flexible 5 mm wide band loops around object, ideal for supporting lightweight apparatus.

- Tightened with knurled nut at end of the tubular arm

Part Number	Max Band Opening Diameter (mm)	Extension Arm Length (cm)	Case Qty
675650-0005	140	12.7	1
675600-0008	90	20.3	1
675600-0012	110	30.5	1

Two-Prong Clamp

Flat, vinyl covered clamp jaws hold beakers and flasks firmly at any angle, with variable distance from support.

- One jaw is fixed, other opens against a stainless-steel compression spring
- Opening is gradual to maximum angle, without binding
- Noncorrosive, easy-to-clean clamps are nickel-plated zinc with a seamless nickel-plated brass extension tube, brass compressing screw, and pivot pin

Part Number	Max Grip Size (mm)	Overall Length (cm)	Case Qty
675725-0038	38	20	1
675725-0064	64	23	1

3/8" Lattice Connector

Aluminum clamp used to secure rods or clamps such as 675700-0025.

- Rods are secured using spade-head thumb screws
- Extension clamps at right angles with 3/8" support rods

Part Number	Max Rod Grip Size (mm)	Max Rod Grip Size (in)	Case Qty
280500-0000	9.5	0.375	1

1/2" Lattice Connector

Designed to lock two 13 mm (1/2") framework rods at a 90° angle.

- Allen screws are used to secure the rods

Part Number	Rod Diameter (mm)	Rod Diameter (in)	Case Qty
675660-0000	13	0.5	1

3/4" Rod Clamp

These clamps are used to secure rods up to 19 mm (3/4") at right angles.

- Spade-head thumb screws are used to clamp the rods

Part Number	Max Rod Grip Size (mm)	Max Rod Grip Size (in)	Case Qty
675750-0000	19	0.75	1

Hook Connector for ½" Rods

Designed to lock two 13 mm (1/2") framework rods at a 90° angle.

- Spade-head thumb screw allows installation without disassembling frame

Part Number	Max Rod Grip Size (mm)	Max Rod Grip Size (in)	Case Qty
675775-0000	13	41641	1

Reaction Flask Clamp

Aluminum construction to connect tops to flasks.

- Wing nuts or thumb screws are spaced to assure uniform compression for sealing the system

Part Number	Description	Case Qty
296200-0000	Reaction Flask Clamp, fits ground flange ID 2"	1
613750-0000	Reaction Flask Clamp, fits ground flange ID 4"	1

Standard Taper Kem-Klamp

Yoke-type clamp designed to maintain tension on assembled Standard Taper apparatus.

- This clamp permits quick assembly without using fragile glass hooks
- The spring extends over hose connectors or adapters as shown
- Fabricated from stainless steel, this clamp is corrosion- resistant and unaffected by high temperatures

Part Number	Fits Standard Taper Joint	Case Qty
675500-1420	14/35, 14/20	1
675500-1922	19/38, 19/22	1
675500-2440	24/40, 24/25	1
675500-2942	29/42, 29/26	1
675500-3445	34/45, 34/28	1

Stainless Steel Standard Taper Joint Clamp

A Standard Taper clamp made of corrosion-free stainless spring wire.

Part Number	Fits Standard Taper Joint	Case Qty
675400-1420	14/35, 14/20	12
675400-2440	24/40, 24/25	12

Polyacetal Standard Taper Joint Clamp

Used to secure Standard Taper joints, this positive closure clamp is made of tough, color-coded plastic.

- Clamp will not scratch glass and can be autoclaved to 200 °C
- Good chemical resistance at a lower cost than metal clips

Part Number	Fits Standard Taper Joint	Case Qty
675300-0010	10/30, 10/18	12
675300-0014	14/35, 14/20	12
675300-0019	19/38, 19/22	12
675300-0024	24/40, 24/25	12
675300-0029	29/42, 29/26	12
675300-0034	34/45, 34/28	12
675300-0040	40/50, 40/35	12
675300-0045	45/50	12

Nickel-Plated Standard Taper Joint Clamp

These metal clamps are designed to secure Standard Taper joints. The nickel-plating provides increased resistance to heat and cracking.

- They can withstand temperatures as high as 200 °C, and they have excellent chemical resistance
- When using a concentrator tube heating mantle, these clamps may be used to secure the concentrator tube to the concentrator flask

Part Number	Fits Standard Taper Joint	Case Qty
675320-0014	14/35, 14/20	6
675320-0019	19/38, 19/22	6
675320-0024	24/40, 24/25	6

Polyacetal Spherical Joint Clamp

An easy to use Spherical Joint positive closure clamp made of tough, color coded plastic for use with ball and socket joints.

- Clamp will not scratch glass and can be autoclaved to 200 °C
- This clamp has good chemical resistance at a lower cost than metal clips

Part Number	Fits Spherical Joint Size (mm)	Color	Case Qty
675310-0013	12/5, 12/312/2	Violet	12
675310-0019	18/9, 18/7	Light Blue	12
675310-0029	28/15, 28/12	Dark Red	12
675310-0035	35/25, 35/20	Light Orange	12

Spherical Joint Pinch Clamp

Used to assemble component parts of Spherical joints and o-ring connector arms.

- Sizes 12-A, 18-A and larger have a screw-locking device

The first figure in a Spherical joint designates the diameter of the ball and the second number indicates the bore diameter. For instance, a 35/25 Spherical joint has approximately a 35 mm ball diameter and a 25 mm bore diameter.

Part Number	Fits O-Ring Connector Size	Size	Case Qty
675000-0012	5	12	1
675000-1221	5	12A	1
675000-0018	7-9	18	1
675000-1821	7-9	18A	1
675000-0028	12-15	28	1
675000-0035	20-25	35	1
675000-0050	30	50	1
675000-0065	40	65	1
675000-0075	50	75	1
675000-0102	75	102	1

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

CONCENTRATORS

For evaporative concentration of trace amounts of sample dissolved in an organic solvent select a Kuderna-Danish apparatus from Kimble®. We offer a variety of concentrator tubes, evaporative flasks, distilling columns, and a solvent recovery system.

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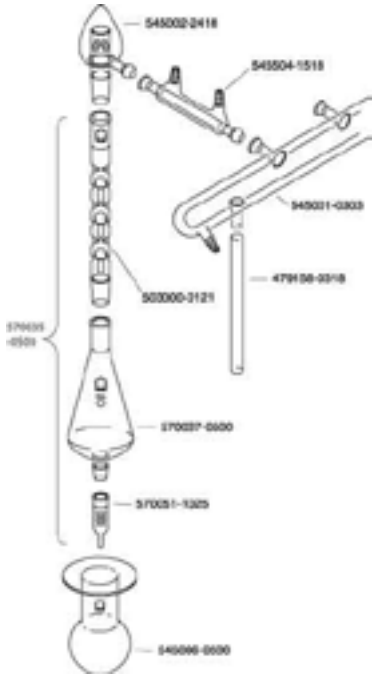
Linear Solvent Recovery System for KD Evaporative Concentrators

This three-position linear solvent recovery system is intended for use with Kuderna Danish evaporative concentrators.

- Heating mantle, controller, splash guard, clamps and supports provided with the complete system
- Power: 15 amps – 120 volts
- Refrigerating circulator recommended for system water coolant: <4°C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Proper ventilation under a hood is strongly recommended.

Part Number	Case Qty
545000-0120	1



Replacement Parts

Part Number	Description	Case Qty
570035-0500	Kuderna Danish Concentrator, Polyacetyl Clamp, 500 mL Flask, 10 mLTube, Overall height 600 mm, Tube grad. x subdiv. 0-1 x 0.1, 2-10 x 1	1
545002-2418	Column Top	1
545504-1518	Condenser, 150 mm for Solvent Recovery System	1
545001-0303	3-Place Manifold	1
479158-0318	6.5" PTFE Tubing	2
503000-0121	Snyder Distillation Column, 3 Chamber, 24/40, Column x chamber length 225 x 50 mm, Overall height 305 mm	1
570037-0500	500mL Flask, 24/40 Top, 19/22 Bottom for Kuderna Danish Concentrator	1
570051-1025	10mL Concentrator Tube for Kuderna-Danish Concentrator w/Clamp, 19/22, Height 105 mm, Grad. x subdiv. 0-1 x 0.1, 2-10 x 1mL	1
545006-0500	500 mL Water bath Flask	1
675000-1821	Size 18A Pinch Clamp with Screw Lock, Fits O-ring Connector Size 7-9	1
675300-0019	Size 19 Polyacetyl, Standard Taper Clamp, Blue, Fits joint sizes 19/22, 19/38	12

Kuderna-Danish Apparatus

The Kuderna-Danish apparatus was developed in the laboratories of Julius Hyman and Company for the concentration of trace amounts of sample dissolved in organic solvents. The column is designed to speed evaporation with reduced hold-up. It is very useful in sample preparation before analysis with solvents such as petroleum ether or hexane.

- Ungraduated concentrator tube
- Includes a polyacetal clamp
- For solvent recovery, a 547300 or 547400 Solvent Recovery Apparatus may be added to this unit
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Preparation involves filling the flask to between 40 to 60 percent of capacity. To prevent sample loss initially, column should be pre-wet with about 1 mL of the solvent used in the concentration. If solvent is allowed to escape, entire assembly should be set up in a hood. Charged assembly should be placed over a vigorously boiling water bath. Water level should be maintained just below the lower joint and apparatus mounted so that the lower rounded surface of the flask is bathed in steam. Final sample remains in the lower tube for further analysis.

Part Number	Flask Capacity (mL)	Tube Capacity (mL)	Case Qty
570010-0250	250	10	1
570010-0500	500	15	1

Replacement Parts

Part Number	Description	Case Qty
570011-0250	250 mL Evaporator Flask for Kuderna-Danish Concentrator w/Clamp, 24/40 Top, 19/22 Bottom	1
570037-0500	500 mL Evaporator Flask for Kuderna Danish Concentrator w/Clamp, 24/40 Top, 19/22 Bottom	1
570012-0500	Lower Concentrator Tube for Kuderna Danish Concentrator, 15mL, 19/22, Overall height 120 mm	1
503000-0121	3 Chamber Snyder Distillation Column, 24/40, Column x chamber length 225 x 50 mm, Overall height 305 mm	1
675300-0019	Size 19 Polyacetyl, Standard Taper Clamp, Blue, Fits joint sizes 19/22, 19/38	12

Kuderna-Danish Apparatus with a Graduated Concentrator Tube

The Kuderna-Danish apparatus was developed in the laboratories of Julius Hyman and Company for the concentration of trace amounts of sample dissolved in organic solvents. The column is designed to speed evaporation with reduced hold-up. It is very useful in sample preparation before analysis with solvents such as petroleum ether or hexane.

- Graduated concentrator tube
- 570025 series has hooks and springs
- 570035 series has a polyacetal clamp
- For solvent recovery, a 547300 or 547400 Solvent Recovery Apparatus may be added to this unit
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Preparation involves filling the flask to between 40 to 60 percent of capacity. To prevent sample loss initially, column should be pre-wet with about 1 mL of the solvent used in the concentration. If solvent is allowed to escape, entire assembly should be set up in a hood. Charged assembly should be placed over a vigorously boiling water bath. Water level should be maintained just below the lower joint and apparatus mounted so that the lower rounded surface of the flask is bathed in steam. Final sample remains in the lower tube for further analysis.

Part Number	Flask x Tube Capacity (mL)	Feature	Case Qty
570025-0250	250 x 10	Hooks and springs	1
570025-0500	500 x 10	Hooks and springs	1
570035-0250	250 x 10	Clamp	1
570035-0500	500 x 10	Clamp	1

Replacement Parts

Part Number	Description	Case Qty
503000-0121	3-Chamber Snyder Distillation Column, 24/40, Column x chamber length 225 x 50 mm, Overall height 305 mm	1
570001-0250	250 mL Evaporator Flask for Kuderna-Danish Concentrator w/Hooks, 24/40 Top, 19/22 Bottom	1
570001-0500	500 mL Evaporator Flask for Kuderna-Danish Concentrator w/Hooks, 24/40 Top, 19/22 Bottom	1
570050-1025	10 mL Concentrator Tube w/ Hooks for Kuderna-Danish Concentrator, 19/22, Height 105 mm, Subdiv. 0-1 in 0.1, 2-10 in 1 mL	1
675300-0019	Size 19 Polyacetyl, Standard Taper Clamp, Blue, Fits joint sizes 19/22, 19/38	12
570011-0250	250 mL Flask for Kuderna-Danish Concentrator w/Clamp, 24/40 Top, 19/22 Bottom	1
570037-0500	500 mL Flask for Kuderna Danish Concentrator w/Clamp, 24/40 Top, 19/22 Bottom	1
570051-1025	10 mL Concentrator Tube for Kuderna-Danish Concentrator w/Clamp, 19/22, Height 105 mm, Subdiv. 0-1 in 0.1, 2-10 in 1 mL	1

Snyder Distillation Column

Snyder distillation column with floating ball valves for improved vapor-liquid contact.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Column Length without Joint (mm), Number of Chambers	Case Qty
503000-0121	24/40	225, 3	1
503000-0122	24/40	375, 6	1

Micro Snyder Distillation Column

Snyder distilling column with floating ball valves for improved vapor-liquid contact.

- 569001 series has hooks; 569011 series does not
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column Length without Joint (mm); Number of Chambers	Feature	Case Qty
569011-0219	115; 2	No hooks	1
569011-0319	145; 3	No hooks	1
569001-0219	115; 2	Hooks	1
569001-0319	145; 3	Hooks	1

Improved Snyder Distillation Column

The improved design of these Snyder columns speeds evaporation and reduces hold-up within the column.

- Ideal for use with pesticides such as Lindane and Parathion in petroleum ether or ethyl ether
- Solvents with higher boiling points also may be used to good advantage
- Each section is approximately 50 mm long
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Column Length without Joint (mm), Number of Chambers	Case Qty
503100-0002	24/40	120, 2	1
503100-0003	24/40	170, 3	1

Micro Distilling Column

Micro-type distilling column designed to prevent flooding while retaining residue material.

- 569251 has hooks; 569261 does not
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column Length without Joint (mm), Number of Chambers	Feature	Case Qty
569251-0319	100, 3	Hooks	1
569261-0319	100, 3	No hooks	1

Solvent Recovery Condenser

A versatile solvent condenser designed to recover solvents escaping during evaporative concentrations. Allows users to work outside of a hood.

- Ref: Analytical Chemistry, Vol. 47, No. 11, p. 1879, September, 1975
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
547400-0000	24/40	0.375	1

Concentrator Tube

These concentrator tubes are for use with Kuderna-Danish and other concentrators.

- May be detached from the complete assembly and stoppered for analysis or storage
- Secure to assembly with 675500 Kem-Klamps™ for tubes with hooks or 675300 polyacetal Standard Taper clamps
- 570050 series has hooks; 570051 series does not
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL) x Standard Taper Joints	Feature	Case Qty
570050-0425	4 x 19/22	Hooks	1
570050-1025	10 x 19/22	Hooks	1
570050-1026	10 x 24/25	Hooks	1
570050-1525	15 x 19/22	Hooks	1
570050-1526	15 x 24/25	Hooks	1
570050-2525	25 x 19/22	Hooks	1
570050-2526	25 x 24/25	Hooks	1
570051-0425	4 x 19/22	No hooks	1
570051-1025	10 x 19/22	No hooks	1
570051-1026	10 x 24/25	No hooks	1
570051-1525	15 x 19/22	No hooks	1
570051-1526	15 x 24/25	No hooks	1
570051-2525	25 x 19/22	No hooks	1
570051-2526	25 x 24/25	No hooks	1

SLOW-DRY® Concentrator Tube

The Slow-Dry® concentrator tube reduces the risk of concentrating a sample to dryness.

- Unique tip features an insulated air space around the constricted end of the tube, shielding the sample and providing a protective temperature buffer
- Secure to assembly with 675300 polyacetal clamps, not supplied
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
570071-1025	10	19/22	1
570071-1525	15	19/22	1
570071-2525	25	19/22	1

Tapered Style Concentrator Tube

This tapered concentrator tube is for use with Kuderna-Danish and other concentrators.

- May be detached from the complete assembly and stoppered for analysis or storage
- Secure to assembly with springs or 675300 polyacetal clamps, not supplied
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
570061-0519	10	19/22	1

Accessories

Part Number	Description	Case Qty
675300-0019	Size 19 Polyacetyl, Standard Taper Clamp, Blue, Fits joint sizes 19/22, 19/38	12
675300-0024	Size 24 Polyacetyl, Standard Taper Clamp, Green, Fits joint sizes 24/40, 24/45	12

Kimble®

A WORLD OF EXPERTISE IN YOUR HANDS

CONDENSERS

Manufactured from 33 expansion borosilicate glass to meet rigorous heating and cooling needs for a variety of applications, Kimble® condensers are designed to provide a long service life and optimal performance

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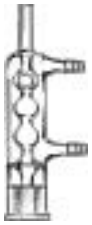
Allihn Micro Condenser



Used in refluxing operations such as Soxhlet extractions.

- Component of Soxhlet extraction apparatus 292010
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
283250-0000	19/22	0.25	1

Allihn Condensers with Full Length Joints

Used in many refluxing operations.

- Standard Taper drip joint at bottom and a Standard Taper outer joint at top
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Jacket Length (mm)	Case Qty
431000-2420	24/40	200	1
431000-2425	24/40	250	1
431000-2430	24/40	300	1
431000-2440	24/40	400	1
431000-2920	29/42	200	1
431000-2930	29/42	300	1

Allihn Condensers with Full Length Water-Cooled Joints

For use in many refluxing operations, including Soxhlet extractions.

- Straight outlet tube at top
- Water-cooled Standard Taper inner drip joint at bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Jacket Length (mm)	Case Qty
431500-2430	24/40	325	1
456000-0021	34/45	190	1
456000-0022	45/50	260	1
456000-0023	55/50	300	1
456000-0024	71/60	350	1
456000-0025	103/60	400	1

Cold Finger Adjustable Height Condenser

Used to generate a localized cold surface on the exterior of the finger. Commonly used for sublimation, and can also be used in reflux or distillation operations.

- Offset drip tip
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Length Below Joint (mm)	Case Qty
282010-0000	14/20	150	1

Accessories

Part Number	Description	Case Qty
179700-0814	BEVEL-SEAL Adapters, Joint Size 14/20, Accommodation Range 5-8 mm	1
179750-0814	BEVEL-SEAL, Universal, Inlet Thermometer, Joint Size 14/10, Accommodation Range 5-8 mm, O-Ring Size 108, 15-415, Fits Tubing ID 1/4”	1

Cold Finger Condensers

Used to generate a localized cold surface on the exterior of the finger. Commonly used for sublimation, and can also be used in reflux or distillation operations.

- 282000-0000 and 518501-0000 have an extended offset lower tip for drop control
- 479103-0000 does not have extended lower tip
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Length Below Joint (mm)	Case Qty
282000-0000	14/20	100	1
518501-0000	29/42	195	1
479103-0000	45/50	140	1

Dewar Condensers with Standard Taper Sidearm

Dewar condenser with large top opening for easy introduction of dry ice, dry ice/alcohol mixtures or liquid nitrogen.

- These coolants provide rapid condensation of volatile components
- Sidearm at the top is a full length Standard Taper joint
- Lower joint will work with 675500 Kem-Klamps™ or 675300 polyacetal Standard Taper clamps
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Capacity (mL)	Case Qty
283400-0000	14/20	200	1
457750-2425	24/40	650	1

Dewar Condensers with Hose Connection Sidearm

Dewar condenser used for rapid cooling of volatile solvents.

- Large top opening for easy introduction of coolant mixtures such as solid carbon dioxide/alcohol, dry ice/alcohol, dry ice, or liquid nitrogen
- Sidearm is a hose connection for attachment to flexible tubing
- Lower joint will work with 675300 polyacetal Standard Taper clamps
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
457500-2420	24/40	0.375	1
457500-2425	24/40	0.5	1

Friedrich Condenser with Standard Taper Sidearm

Friedrich condenser specially designed to provide a long vapor path, good heat transfer and anti-flooding characteristics.

- Molded inner spiral provides surface area for the condensation of the product
- Inclined Standard Taper outer joint on the side
- Water inlet and outlet located above ring-sealed inner condensing tube
- Standard Taper inner drip joint at the bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Jacket Length (mm)	Case Qty
437000-2440	24/40	225	1
437000-2942	29/42	225	1

Friedrich Condenser with Hose Connection Sidearm

Friedrich condenser used primarily in reflux mode and Soxhlet extractions.

- Water inlet and outlet located above ring-sealed inner condensing tube
- Standard Taper inner drip joint and side outlet for drying tube, etc
- Molded inner spiral provides surface area for the condensation of the product
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Cold Finger Length (mm)	Case Qty
456250-0021	34/45	190	1
456250-0022	45/50	190	1
456250-0023	55/50	190	1

Friedrich Condenser with Take-Off Tube

Friedrich condenser suitable for vertical distillation assembly.

- Molded inner spiral provides surface area for the condensation of the product
- Designed with 150 mm OD delivery tube for product recovery
- Full length Standard Taper 24/40 joints
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Cold Finger Length (mm)	Case Qty
456300-2440	24/40	200	1

Graham Condensers

Vapor travels through a coil extending through the length of the condenser and is surrounded by a cooling jacket.

- Standard Taper outer joint at top
- Standard Taper inner drip joint at the bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Jacket Length (mm)	Case Qty
439000-2420	24/40	200	1
439000-2425	24/40	250	1
439000-2430	24/40	300	1
439000-2440	24/40	400	1

High Efficiency Condensers

Vapors travel downward and condense in this highly efficient and compact concentrator.

- Full length Standard Taper 24/40 joints
- Condensate drains through side tube with Standard Taper inner joint to a suitable receiver
- Vacuum connection provided for reduced pressure operation, if desired
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm)	Case Qty
444500-2420	24/40	315	1
444500-2425	24/40	365	1

Large Capacity Condensers

This large capacity, highly efficient condenser is ideal for pre-pilot and pilot plant operations.

- Full length Standard Taper 29/42 joints
- Standard Taper outer joint at the top
- Standard Taper inner drip joint at the bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm)	Case Qty
458000-2950	29/42	660	1

Liebig Medium Length Condenser with 14/20 Joints

Design eliminates the use of bulbs where holdup is likely to occur.

- Lower inner drip joint is designed to extend into 287800-0000 distillation receiver
- Design conforms to NSN 6640-01-346-9222
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm)	Case Qty
282210-0000	14/20	178	1

Liebig Condenser with Standard Taper Joints

- Standard Taper outer joint at the top
- Standard Taper inner drip joint at the bottom
- Hose connections accept 3/8" ID flexible tubing
- Ref: ASTM Method D322
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Jacket Length (mm)	Case Qty
447000-2410	24/40	100	1
447000-2420	24/40	200	1
447000-2425	24/40	250	1
447000-2430	24/40	300	1
447000-2440	24/40	400	1
447000-2920	29/42	200	1

KIMAX® Liebig Condenser with Full Length 24/40 Joints

KIMAX® one-piece sealed unit with a Standard Taper outer joint at the bottom and a Standard Taper inner joint at the top.

- Inlet end is sloped to avoid trapping condensate
- Drip tip is provided at the lower end
- Hose connections accept 5/16 inch ID flexible tubing
- Suitable for use with ASTM D849
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Jacket Length (mm)	Case Qty
18140-400	24/40	400	1

Liebig Condenser with Full Length Water-Cooled 24/40 Joints

Water-cooled Standard Taper inner drip and Standard Taper outer joints provide the maximum condensing surface.

- Full length Standard Taper 24/40 joints
- Hose connections accept 3/8" ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Jacket Length (mm)	Case Qty
448000-2410	24/40	220	1
448000-2420	24/40	320	1
448000-2430	24/40	420	1

Coil-Type Reflux Condenser with Two Upper Hose Barbs

Tightly wound coil provides enough surface area to condense high vapor pressure solvents like hexane.

- With an internal, coil-type cold finger
- Standard Taper outer joint at the top, Standard Taper inner drip joint at the bottom
- 283000 does not have a drip joint
- Two hose connectors at the top for water inlet and outlet
- Ref: ASTM Method D94, D95
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm)	Case Qty
283000-0000	14/20	200	1
283010-0000	19/22	225	1
457000-0125	24/40	290	1
457000-0175	24/40	340	1
457000-0225	24/40	390	1

Coil Type Reflux Condenser with Removable Hose Connections

Detachable polypropylene hose connections provide a safe and easy way to connect and disconnect tubing.

- With an internal, coil-type cold finger
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints x Jacket Length (mm)	Top Joint	Case Qty
283055-0000	14/20 x 100	Offset Standard Taper	1
283100-0000	14/20 x 100	Standard Taper	1
457100-0175	24/40 x 150	Standard Taper	1
457100-0225	24/40 x 250	Standard Taper	1

Coil-Type Reflux Condenser with Two Upper Hose Barbs and Angled Outer Joint

Coil-type condenser for greater cooling capacity.

- Hook above lower Standard Taper joint for use with a 675500 KEM-KLAMP™
- 675000 series polyacetal Standard Taper clamps may also be used
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm)	Case Qty
283050-0000	14/20	240	1
457050-0000	24/40	370	1

Coil-Type Reflux Condenser with Upper and Lower Hose Barbs

Reflux condenser has efficient non-flooding design.

- Reflux condenser with a water-cooled inner coil sealed to top and bottom hose connectors
- Full length 24/40 joints
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm)	Case Qty
456900-2024	24/40	375	1
456900-3024	24/40	475	1

Jacketed Coil Type Reflux Condenser

Condenser with water-cooled outer jacket to increase condensation capability.

- Full length 24/40 joint
- Reflux condenser with an internal coil-type cold finger
- Vapors spiraling upward are condensed on the inner wall of the jacket and on the outer surface of the coil
- 457270 has a Standard Taper outer joint at the top, a Standard Taper inner drip joint at the bottom and two hose connectors at the top for water inlet and outlet
- 457250 has a straight outlet at the top, a Standard Taper inner drip joint at the bottom and two hose connectors at the top for water inlet and outlet
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm)	Case Qty
457250-0225	24/40	420	1
457270-2425	24/40	420	1

Solvent Recovery Condensers

A versatile solvent condenser designed to recover solvents escaping during evaporative concentrations. It allows users to work safely outside of a hood.

- Upper, lower, and lower offset connectors for 3/8" ID tubing
- Ref: Analytical Chemistry Vol.47, No.11, Pg.1879, September 1975
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Bottom	Hose Connections	Case Qty
547400-0000	Standard Taper 24/40	Upper, Lower, Lower Offset	1

Solvent Saver® for Beakers and Funnels

This device offers a unique broad-surface, water-cooled condenser used on top of beakers and funnels for concentrating and refluxing liquids.

- Convex surface with center drip effectively channels condensed material back into the boiling liquid
- An extension rod allows easy clamping and positioning by hand
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Diameter (mm)	Case Qty
459000-0022	2000	150	1

West Condenser with Medium Length Joints

Useful for refluxing and distillation assemblies.

- The narrow annular space of the West design provides high cooling efficiency due to the increased flow rate of the cooling medium
- Medium length Standard Taper joints
- Condensate is not restricted with this design
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Jacket Length (mm)	Case Qty
282550-0000	14/20	110	1
282460-0200	19/22	200	1

KIMAX® West Condenser with Medium Length Joints

KIMAX® one-piece sealed unit with a Standard Taper outer joint at the inlet and a Standard Taper inner joint drip tip at the outlet. Inlet end is sloped to avoid trapping condensate.

- The narrow annular space of the West design provides high cooling efficiency due to the increased flow rate of the cooling medium.
- Medium length Standard Taper joints
- Inner tube is light-walled with a small diameter jacket to keep minimal space between jacket and tube
- Hose connections accept 5/16 inch ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Jacket Length (mm)	Case Qty
18185-1420	14/20	200	1

Jacketed West Condenser

Useful for refluxing and distillation assemblies. Condensate is not restricted with this design.

- The narrow annular space of the West design provides high cooling efficiency due to the increased flow rate of the cooling medium
- Indentations near base of jacket for support packing
- 14/20 Standard Taper joints
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Jacket Length (mm)	Case Qty
282555-0000	14/20	80	1

West Condenser with Full Length 24/40 Joints

The narrow annular space of the West design provides high cooling efficiency due to the increased flow rate of the cooling medium.

- Full length 24/40 joints
- Standard Taper outer joint at the top and Standard Taper inner drip joint at the bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Jacket Length (mm)	Case Qty
452000-2410	24/40	100	1
452000-2420	24/40	200	1
452000-2430	24/40	300	1

West Condenser with Full Length Water-Cooled 24/40 Joints

Condenser with water-cooled inner and outer joints to provide maximum condensing surface.

- Upper Standard Taper joint is jacketed
- Full length 24/40 joints
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm)	Case Qty
452750-2430	24/40	445	1

FLOW-WATCHMAN™ Flowmeter

Keep an eye on cooling water with the Kimble® Flow-Watchman™ - a device for the visual indication of liquid flow.

- Molded of clear polycarbonate with an inert nylon indicator ball
- Flow indication is visible from a distance
- Usable with water down to a flow range of approximately 100 mL/minute, which is adequate for even the smallest cold finger condensers
- The upper flow limit is in excess of 1 liter/minute
- Unit operates in any position
- Lightweight all-plastic construction
- Requires no auxiliary support

Part Number	Fits Tubing ID (inches)	Max Pressure (psi)	Case Qty
626250-0000	0.25	10	1

Imhoff Sediment Cones

Designed for determining small amounts of settleable solids in water and waste effluent as described in the 22nd Edition of Standard Methods for the Examination of Water and Wastewater, Method 2540 F. It may also be used for measurement of sand content in well water.

- KIMAX® cone is molded with sturdy uniform walls
- Specially designed with a reinforced tip and beaded rim
- Durable white ceramic scale with easy-to-read graduations
- Calibrated To Contain
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Top Diameter (mm)	Case Qty
19000-1	1000	108	1

CRUCIBLES

Gooch Low Form KIMFLOW® Fritted Disc Crucibles

Designed for collecting, drying and weighing precipitates and samples to be analyzed using gravimetric analysis.

- Available in fine (4-5.5 microns), medium (10-15 microns), or coarse (40-60 microns) porosities
- Fritted disc is sealed into the crucible
- KIMAX® crucible suitable for precipitates to be dried to a constant weight at 110 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Technical Tip: At higher temperatures, heating in an electric furnace is advised, and exposure to sudden temperature changes should be avoided. For safe handling, crucibles should not be removed until the temperature has been reduced to below 250 °C.

Part Number	Porosity	Capacity (mL)	Case Qty
28260-152	10-15 microns	15	1
28260-301	40-60 microns	30	12
28260-302	10-15 microns	30	12
28260-303	4.5-5 microns	30	12

Gooch High Form KIMFLOW® Fritted Disc Crucibles

Designed for collecting, drying and weighing precipitates and samples to be analyzed using gravimetric analysis.

- Fritted disc is sealed into the crucible
- KIMAX® crucible suitable for precipitates to be dried to a constant weight at 110 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Porosity	Capacity (mL)	Case Qty
28250-302	10-15 microns	30	1

Quartz Crucible

Designed for muffle furnace ashing procedures. Also very useful for determining trace metals in environmental samples.

- Useful where chemical purity is a factor in subsequent analysis
- Ideal for high temperature applications up to 1050 °C

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
319010-0050	50	50 x 49	1

Replacement Parts

Part Number	Description	Case Qty
319011-0050	Quartz Beaker Only, 50mL, 49mm OD, 50mm Height	1
319012-0050	Quartz Cover, 58mm OD	1

CYLINDERS

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

Kimble® understands that precision analysis requires consistently high accuracy. That's why our volumetrics are the highest quality from the very start. Every cylinder is individually calibrated, providing the reliability and consistency expected from these premium products. We provide a complete portfolio of cylinders, including measuring and mixing, as well as educational grade. Rely on the accuracy and superior quality of our volumetrics to protect valuable research.

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Class A Cylinders with Reverse Graduations

KIMAX® Class A cylinder is marked with a reverse metric scale.

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- SAFE-GARD® bumpers are supplied with sizes 25 through 2000 mL
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Height (mm)	Case Qty
20028W-10	10; ±0.09	165	6
20028W-25	25; ±0.17	195	6
20028W-50	50; ±0.25	190	6
20028W-100	100; ±0.40	255	6
20028W-250	250; ±0.80	330	4
20028W-500	500; ±1.30	375	4
20028W-1000	1000; ±2.50	460	1
20028W-2000	2000; ±6.00	520	1

KimCote® Class A Cylinders with Reverse Graduations

KimCote® Class A cylinder is marked with a reverse metric scale.

- KimCote® safety coating reduces the hazards of shattered glass
- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- Cylinder is marked with a white, reverse, single metric scale
- Hexagonal base is flat ground for stability
- SAFE-GARD® bumper is supplied
- Designed from ASTM Specification E1272, Style I, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Height (mm)	Case Qty
KC20028W-100	100; ±0.40	255	1
KC20028W-250	250; ±0.80	330	1
KC20028W-500	500; ±1.30	375	1
KC20028W-1000	1000; ±2.50	460	1
KC20028W-2000	2000; ±6.00	520	1

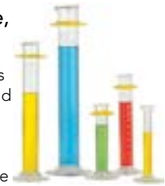
Class A Serialized and Certified To Deliver Cylinders

KIMAX® Class A cylinder is permanently marked with an individual serial number and supplied with a Certificate of Graduation Accuracy.

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- Provided with a hexagonal base flat ground for stability
- SAFE-GARD® bumpers are supplied with sizes 25 through 1000 mL
- The 10 mL size has an enlarged funnel-shaped top for ease of filling
- Designed from ASTM Specification E1272, Style I, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Height (mm)	Case Qty
20026-10	10; ±0.09	165	6
20026-25	25; ±0.17	195	6
20026-50	50; ±0.25	190	6
20026-100	100; ±0.40	255	6
20026-250	250; ±0.80	330	4
20026-500	500; ±1.30	375	4
20026-1000	1000; ±2.50	460	2

Class B Cylinders with Single Metric Scale, Starter Pack



An assortment of popularly sized graduated cylinders from our 20024 series that is ideal for start-up labs and customers who need a variety of cylinders but have limited lab space or glassware needs.

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- Class B
- Single metric scale, with bumper
- The pack consists of 5 cylinders (one each) in sizes of 10, 25, 50, 100 and 250 mL
- Designed from ASTM Specification E1272, Style I, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Case Qty
20024-01	10, 25, 50, 100, 250	1

Cylinder Re-Calibration Service

Laboratory volumetric glassware is subjected to harsh chemical, mechanical, and thermal conditions during routine use. Ensure the calibration accuracy of your graduated cylinders by having them recalibrated on a periodic basis.

Not only do we manufacture and calibrate Kimble glassware, but we also offer a re-calibration service for all brands of graduated cylinders.

Phone: 585-865-1290 x 301
Toll-free: 800-945-2777 x 301
fax: 585-865-1303
E-mail: info@kimble-chase.com

Class B Cylinders with Single Metric Scale

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- The 100 mL size may be used for some ASTM distillation tests
- SAFE-GARD® bumpers are supplied with sizes 25 through 2000 mL
- The 10 mL size has an enlarged funnel-shaped top for ease of filling
- The 10 and 25 mL sizes are comparatively short to provide increased stability
- Scale is durable white ceramic enamel
- Designed from ASTM Specification E1272, Style I, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Height (mm)	Case Qty
20024-10	10; ±0.1	135	24
20024-25	25; ±0.3	140	24
20024-50	50; ±0.4	190	24
20024-100	100; ±0.6	255	24
20024-250	250; ±1.4	330	12
20024-500	500; ±2.6	375	8
20024-1000	1000; ±5.0	460	4
20024-2000	2000; ±10.0	520	4

Class B Cylinders with Single Metric Scale and Red Stripe

A clear, reverse image in the scale is highlighted against a ruby red stripe.

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- SAFE-GARD® bumpers are supplied with sizes 25 through 2000 mL
- The 10 mL size has an enlarged funnel-shaped top for ease of filling
- Designed from ASTM Specification E1272, Style I, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Height (mm)	Case Qty
20024D-10	10; ±0.1	165	24
20024D-25	25; ±0.3	195	24
20024D-50	50; ±0.4	190	24
20024D-100	100; ±0.6	255	24
20024D-250	250; ±1.4	330	12
20024D-500	500; ±2.6	375	8
20024D-1000	1000; ±5.0	460	4
20024D-2000	2000; ±10.0	520	4

Class B Cylinders with Single Blue Metric Scale

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- Scale is durable blue ceramic enamel
- SAFE-GARD® bumpers are supplied with sizes 25 through 2000 mL
- The 10 mL size has an enlarged funnel-shaped top for ease of filling
- The 10 and 25 mL sizes are comparatively short to provide increased stability
- Designed from ASTM Specification E1272, Style I, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Height (mm)	Case Qty
20025-10	10; ±0.1	135	24
20025-25	25; ±0.3	140	24
20025-50	50; ±0.4	190	24
20025-100	100; ±0.6	255	24
20025-250	250; ±1.4	330	12
20025-500	500; ±2.6	375	8
20025-1000	1000; ±5.0	460	4
20025-2000	2000; ±10.0	520	4

Class B Cylinders with Double Metric Scale

The double metric scale has two sets of numerals, one reading from the bottom to the top of the cylinder (ascending) and the other reading from the top to the bottom (descending).

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- SAFE-GARD® bumpers are supplied with sizes 25 through 2000 mL
- The 10 mL size has an enlarged funnel-shaped top for ease of filling
- The 10 and 25 mL sizes are comparatively short to provide increased stability
- Scale is durable white ceramic enamel
- Designed from ASTM Specification E1272, Style I, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Height (mm)	Case Qty
20030-10	10; ±0.1	135	24
20030-25	25; ±0.3	140	24
20030-50	50; ±0.4	190	24
20030-100	100; ±0.6	255	24
20030-250	250; ±1.4	330	12
20030-500	500; ±2.6	375	8
20030-1000	1000; ±5.0	460	4
20030-2000	2000; ±10.0	520	4

Class B Cylinders with Single Metric Scale, Low Form

A reduction in overall height compared to a typical cylinder provides greater stability and decreased breakage.

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- Bodies have a larger diameter than comparable sizes of 20024
- Two pourouts are provided
- Scale is durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Height (mm)	Case Qty
20032-50	50; ±1	140	12
20032-100	100; ±2	156	12

Educational Grade Cylinders with White Metric Scale

This KIMAX® educational grade cylinder is ideal for use in educational institutions and for many general laboratory procedures.

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- Incorporates many of the features of other KIMAX® cylinders
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height (mm)	Case Qty
20025K-10	10	135	36
20025K-25	25	140	36
20025K-50	50	190	36
20025K-100	100	255	36
20025K-250	250	330	18
20025K-500	500	375	12
20025K-1000	1000	460	8
20025K-2000	2000	520	6

Educational Grade Cylinders with Plastic Base

This KIMAX® educational grade cylinder is ideal for use in educational institutions and for many general laboratory procedures.

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- Made of sturdy borosilicate glass, with a reinforced top bead, a pour spout and a hexagonal plastic base.
- SAFE-GARD® bumpers are supplied with sizes 25 through 100 mL
- The 10 mL size has an enlarged funnel-shaped top for ease of filling
- The 10 and 25 mL sizes are comparatively short to provide increased stability
- Scale is durable blue ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height (mm)	Case Qty
20025H-10	10	132	24
20025H-25	25	138	24
20025H-50	50	185	24
20025H-100	100	248	24

Replacement Parts

Part Number	Description	Case Qty
20025J-10	10 mL To Deliver Graduated Cylinder Only with Blue Metric Scale, Educational Grade	24
20025J-25	25 mL To Deliver Graduated Cylinder Only with Blue Metric Scale, Educational Grade	6
20025J-50	50 mL To Deliver Graduated Cylinder Only with Blue Metric Scale, Educational Grade	6
20025J-100	100 mL To Deliver Graduated Cylinder Only with Blue Metric Scale, Educational Grade	24
20025B-25	25 mL Cylinder Base	6
20025B-50	50 mL Cylinder Base	6
20025B-100	100 mL Cylinder Base	6

Class A Measuring Cylinders

- Letters "TC" on cylinder indicate to contain
- Pour spout
- SAFE-GARD® bumper is supplied
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Height (mm)	Case Qty
20027-10	10; ±0.80	165	6
20027-25	25; ±0.14	200	6
20027-50	50; ±0.2	191	6
20027-100	100; ±0.35	255	6
20027-250	250; ±0.65	330	4
20027-500	500; ±1.10	375	4
20027-1000	1000; ±2.00	460	1
20027-2000	2000; ±6.00	520	1

Class A Serialized and Certified Mixing Cylinders

Each of these KIMAX® cylinders is permanently marked with an individual serial number and supplied with a Certificate of Graduation Accuracy.

- "TC" appears on each cylinder and indicates the cylinder is calibrated to contain
- A Standard Taper glass stopper is supplied
- Scale is durable white ceramic enamel
- Heights given below do not include the stopper
- Replacement stopper is 850100
- Designed from ASTM Specification E1272, Style II, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper Size	Case Qty
20036-10	10; ±0.08	9	6
20036-25	25; ±0.14	13	6
20036-50	50; ±0.20	16	6
20036-100	100; ±0.35	22	6
20036-250	250; ±0.65	27	1
20036-500	500; ±1.10	32	1
20036-1000	1000; ±2.00	32	1

Class B Cylinders with Pour Spout

The primary function of this TC cylinder is to receive liquids where volumetric calculations are based solely on the volume contained within the cylinder.

- Among other applications, TC cylinders are frequently used as receivers for the condensate from distillation procedures and sedimentation values of precipitates
- "TC" appears on each cylinder and indicates the cylinder is calibrated to contain
- 10 mL size has an enlarged funnel top for ease of filling
- Provided with a hexagonal base flat ground for stability and a SAFE-GARD® bumper on sizes 25 mL and larger
- Ref: ASTM Method D86, D892
- Designed from ASTM E1272, Style I, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Height (mm)	Case Qty
20022-10	10; ±0.1	135	12
20022-25	25; ±0.3	140	1
20022-50	50; ±0.4	190	12
20022-100	100; ±0.6	255	12
20022-250	250; ±1.4	330	6
20022-500	500; ±2.6	375	4
20022-1000	1000; ±5.0	460	4
20022-2000	2000; ±10.0	520	2

Class B Cylinders for Emulsion Test

KIMAX® cylinder used in the determination of emulsifying and demulsifying tendencies of lubricating oils (ASTM D1401).

- "TC" appears on each cylinder and indicates the cylinder is calibrated to contain
- Round base to fit baths in which this cylinder is generally used
- Pour spout
- Scale is durable white ceramic enamel
- Ref: ASTM Method D1401
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Height (mm)	Case Qty
20011-100	100; ±1.0	230	1

Class B Cylinders with Single Metric Scale and Glass Stopper

The 250 mL size may be used to determine unsaponified matter in soaps and soap products (ASTM D460), and anhydrous salt free soda soap and fatty matter in soaps containing synthetic detergents (ASTM D820). The 500 mL size may be used in settlement tests of emulsified asphalts (ASTM D244).

- KIMAX® cylinder with durable white ceramic enamel scale
- Letters "TC" on cylinder indicate to contain
- The 10 and 25 mL sizes are comparatively short to provide increased stability
- Standard Taper glass stopper is supplied
- Heights given below do not include the stopper
- Replacement stopper is 850100
- Ref: ASTM Method D244, D1094
- Designed from ASTM Specification E1272, Style II, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper Size	Case Qty
20039-10	10; ±0.1	13	24
20039-25	25; ±0.3	13	24
20039-50	50; ±0.4	16	24
20039-100	100; ±0.6	22	24
20039-250	250; ±1.4	27	8
20039-500	500; ±2.6	32	6
20039-1000	1000; ±5.0	32	4
20039-2000	2000; ±10.0	38	2

Class B Cylinders with Single Metric Blue Scale and Glass Stopper

- KIMAX® cylinder with a durable blue ceramic enamel scale
- "TC" appears on each cylinder and indicates the cylinder is calibrated to contain
- A Standard Taper glass stopper is supplied
- Heights given below do not include the stopper
- Replacement stopper is 850100
- Designed from ASTM Specification E1272, Style II, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper Size	Case Qty
20040-10	10; ±0.1	13	24
20040-25	25; ±0.3	13	24
20040-50	50; ±0.4	16	24
20040-100	100; ±0.6	22	24
20040-250	250; ±1.4	27	8
20040-500	500; ±2.6	32	6
20040-1000	1000; ±5.0	32	4
20040-2000	2000; ±10.0	38	2

Class B Cylinders with Single Metric Scale and PE Stopper

This KIMAX® cylinder has a closed bottom polyethylene stopper made to fit into the Standard Taper neck.

- Stopper made from linear, high density polyethylene
- "TC" appears on each cylinder and indicates the cylinder is calibrated to contain
- The enlarged top of the stopper protects the neck if the cylinder is knocked over
- Scale is durable white ceramic enamel
- Heights given below do not include the stopper
- Replacement stopper is 28160R
- Designed from ASTM Specification E1272, Style II, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Stopper Size and Standard Taper Neck Size	Case Qty
20039P-50	50; ±0.4	16	24
20039P-100	100; ±0.6	22	24
20039P-1000	1000; ±5.0	32	4

Class B Cylinders with Single Metric Scale and Screw Cap

Laboratory-grade cylinder with a PTFE-lined screw cap for mixing and storage.

- "TC" appears on each cylinder and indicates the cylinder is calibrated to contain
- Provided with a hexagonal base for stability
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	GPI Finish	Case Qty
482600-0250	250; ±1.4	24-410	1

Plastic Bumper

When placed around a cylinder near the top, this sturdy split ring protects against breakage if the cylinder is upset.

- Made of yellow low density polyethylene
- Position of ring can be adjusted to avoid contact with the top of a receiver when liquid is poured from the cylinder

Should a ring become loose after prolonged use, soak it briefly in hot water (90 °C) to return it to its original shape

Part Number	Bumper Size	Fits OD (mm)	Case Qty
20100-4	4	28.5-31.0 mm (100 mL)	6

Soil Testing Cylinders

KIMAX® cylinder used in measuring particle size distribution in soil suspensions by means of a hydrometer (ASTM D422 and AASHTO T88). While the 1205 mL size is not specified in this method, it is useful in certain special cases. The 1000 mL may also be used in pipet methods of mechanical analysis of soils.

- Both sizes have a round base, approximately 107 mm in diameter, to fit into the metal baths generally used for this work
- Calibrated to contain
- Scale is durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Height (mm)	Case Qty
20023-1000	1000; ±5.0	457	4
20023-1205	1205; ±5.0	457	4

Hydrometer Cylinders with Pour Spout

- KIMAX® plain, ungraduated cylinder with a hexagonal base flat ground for stability
- Approximate wall thickness is 1.5 mm
- Ref: ASTM Method D287, D1298
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

For use, size hydrometer overall length to cylinder height where hydrometer OD is smaller than cylinder ID

Part Number	Capacity (mL)	Height x Diameter (mm)	Case Qty
20058-38200	175	200 x 38	1
20058-38375	340	375 x 38	1
20058-50375	600	375 x 50	1
20058-63460	1200	460 x 63	1

Conical Pharmaceutical Cylinders

- KIMAX® graduated cylinder with scales in both metric and U.S. customary units
- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- Sizes 8 fluid drams (25 mL approx.) and larger are designed from ASTM Specification E1094, Type 2 requirements (also NBS Handbook 44)
- *Sizes 4 fluid drams (15 mL), and smaller do not meet ASTM E1094 nor NBS Handbook 44 requirements and therefore may not be used for prescription work in states which adopt these specifications*
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Capacity (minims, drams, or oz)	Case Qty
60345-60	5	60 min	1
60345-120	10	120 min	1
60345-40	15	4 dr	12
60345-80	25	8 dr	1
60345-2	50	2 oz	12
60345-4	100	4 oz	8
60345-8	250	8 oz	1
60345-16	500	16 oz	6
60345-32	1000	32 oz	1

Automatic Zero Acidity Test for Dairyware

KIMAX® acidity test used to determine the acidity of raw milk, cheese, whey and other dairy products.

- Supplied buret has a PTFE stopcock plug and is graduated with a durable white ceramic enamel scale from 0 to 1%, giving readings directly in percentage of acidity
- The stirring rod, a glass tube closed at both ends, contains a paper slip with two bands of different shades of pink to assist in determining when the right amount of neutralizer has been added
- Indicator is 1% phenolphthalein in 70% denatured ethanol
- Neutralizer is 0.1N sodium hydroxide
- Complete kit consists of one each of the buret, filling tube assembly (glass tubes and rubber stoppers), 100 mL beaker (14000-100), rubber bulb, reservoir bottle, stirring rod (609-99), clamp and 9 mL pipet (570-9)
- Replacement PTFE stopcock plug is 41500F-2
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
620F-1	10	0.1	1

Replacement Parts

Part Number	Description	Case Qty
A-620F-1	Acid Test Buret	1
609-99	Stir Rod, Dairyware, Acidity Test, 10mL	1

Square Ungraduated Milk Dilution Bottles

These Type 1 borosilicate glass bottles are designed from the requirements for milk dilution bottles given in the "Standard Methods for the Examination of Dairy Products," published by the American Public Health Association.

- Ungraduated
- Bottles have a square cross-section
- 14250 has a wide appeal for general use, especially water sampling, milk dilutions and tissue culture work
- 14915 has a smooth marking spot
- Autoclavable to 121 °C without preconditioning
- Replacement cap is 14255-28
- Black phenolic screw cap, supplied unattached, has a cemented-in rubber liner and is suitable for autoclaving
- Manufactured from USP Type 1 borosilicate molded glass

Part Number	Capacity (mL)	GPI Finish	Case Qty
14915-160	160	28-400	48
14250-200	200	28-400	48

Square Graduated Milk Dilution Bottles

These Type 1 borosilicate glass bottles are designed from the requirements for milk dilution bottles given in the "Standard Methods for the Examination of Dairy Products," published by the American Public Health Association.

- Graduated at 99 mL
- Bottles have a square cross-section and a smooth marking spot
- Autoclavable to 121°C without preconditioning
- Replacement cap is 14255-28
- Black phenolic screw cap, supplied unattached, has a cemented-in rubber liner and is suitable for autoclaving
- Manufactured from USP Type 1 borosilicate molded glass

Part Number	Capacity (mL)	GPI Finish	Case Qty
14925-160	160	28-400	48

Babcock Bottle for Ice Cream to 20 Percent

KIMAX® Babcock bottle used for testing butterfat content to 20%.

- Designed for use in APHA test procedures
- KIMAX® bottle without auxiliary filling opening as provided on Paley Bottle 508-20
- Bottle is filled through graduated neck
- Scale is permanent brown stain
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Sample Size (grams)	Case Qty
516-20	165	9	12

Babcock Bottle for Cream and Cheese to 50 Percent

KIMAX® Babcock bottle used for testing butterfat content to 50%.

- Etched vertical line used to anchor calipers is centered in a contrasting darkened band
- Scale is permanent brown stain
- Marked "Sealed 3" for use in states requiring this special marking
- Designed for use in APHA 15.8 or AOAC 920.111 test procedures
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Sample Size (grams)	Case Qty
2085S-50	165	9	12

Babcock Bottle for Skim Milk

KIMAX® bottle used for Babcock test of butterfat to 0.5%.

- Designed with an auxiliary filling tube on the side
- Scale is permanent brown stain
- Pipets 580S or 3001 may be used with these bottles
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Sample Size (grams)	Case Qty
530-50100	165	18	12

Babcock Bottle for Milk to 8 Percent

KIMAX® Babcock bottle used for testing butterfat content to 8%.

- Etched vertical line used to anchor calipers is centered in a contrasting darkened band, which makes visualization easier
- Marked with "Sealed 3" for use in states requiring this marking
- Used with a 3005S pipet
- Designed for use in APHA 15.8 or AOAC 989.04 test procedures
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Sample Size (grams)	Case Qty
1003S-8	165	18	12

Babcock Bottle for Ice Cream to 10 Percent

KIMAX® Babcock bottle used for testing butterfat content to 10%.

- Scale is permanent brown stain
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Sample Size (grams)	Case Qty
1025-10	165	18	12

Tall Babcock Bottle for Cream to 50 Percent

KIMAX® Babcock bottle used for testing butterfat content to 50%.

- Long and narrow neck
- Scale is permanent brown stain
- Without "Sealed 3" marking
- Designed for use in AOAC 920.111 test procedures and to meet more restrictive California specifications
- Bottle may also be used in test for unsulfonated residue of petroleum plant spray oils (ASTM D483)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Sample Size (grams)	Case Qty
2075C-50	229	9	12

Babcock Bottle for Cream to 50 Percent

KIMAX® Babcock bottle used for testing butterfat content to 50%.

- Scale is permanent brown stain
- Marked "Sealed 3" for use in states requiring this special marking
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Sample Size (grams)	Case Qty
2015S-50	165	18	12

Babcock Bottle Centrifugation

The glassware contained in this section of the catalog is designed around a single test procedure - The Babcock Test. The variations on this test make the large variety of bottles and pipets necessary. The body of the test bottles is a reaction vessel, while the graduated neck is a measuring device. The graduations read in direct percentage of butter fat of the sample accurately introduced by a pipet in the case of liquids or measured weight of solid dairy product. The volume of the body does not enter into the calculations. The resultant fat column in the neck of the bottle may be read in either of two ways. 1) read the menisci of both top and bottom of the column and subtract the lower from the upper to give percent butter fat, or 2) using a pair of dividers, measure the fat column, then realign to "0" position using the blasting ring as an aid, and read percent butter fat directly off the scale. All Babcock tests involve centrifugation. The maximum recommended speed varies with the diameter of the centrifuge arm (diameter is measured between inside bottoms of opposing cups through axis of rotation with cups horizontally extended).

Diameter	Maximum Recommended RPM
14	934
16	873
18	825
20	784
22	749
24	718

Body O.D. is 36-37 mm for all Babcock bottles

Paley Bottle for Cheese and Sour Cream to 20%

Developed to facilitate the introduction of solid or viscous materials directly into the bottle.

- Calibrated for a 9 gram sample
- Designed for use in APHA 15.8 test procedures
- Scale is permanent brown stain
- Three rubber stoppers are supplied with each bottle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Sample Size (grams)	Case Qty
508-20	165	9	3

Paley Bottle for Cheese to 50%

Developed to facilitate the introduction of solid or viscous materials directly into the bottle.

- Etched vertical line used to anchor calipers is centered in a contrasting darkened band, which makes visualization easier
- Scale is permanent brown stain
- Three rubber stoppers are supplied with each bottle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Sample Size (grams)	Case Qty
509-50	165	9	3

Mojonnier® Fat Extraction Flasks

Primarily used to determine fat content in dairy products, but may also be used for other food products.

- Settling chamber at the lower portion has a capacity of approximately 25 mL
- Extraction chamber has a diameter of 35 mm
- Top opening has a pouring lip and is tooled for a #0 rubber stopper
- Ref: Method of Analysis-Seventeenth Edition
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Case Qty
617600-0025	25	1

Threaded Mojonnier® Fat Extraction Flasks

Fat extraction flask with a threaded opening.

- The threaded Mojonnier® flask is a modified design of our standard Mojonnier® flask with stopper joint
- This version has a 24-410 GPI thread and is supplied with a black, phenolic cap with PTFE-faced white rubber liner (45066C-24410)
- Ref: Standard Methods for the Examination of Dairy Products, 17th Edition
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Finish	Case Qty
617600-24410	25	24-410	1

9mL Sealed To Contain Skim Milk Pipets

Sealed-to-contain 9mL skim milk pipets are designed to comply with the Pennsylvania modified *Babcock method*, as referenced in APHA 15.8, for testing *skim milk, lowfat milk, buttermilk or whey.*

- *Calibrated to contain*
- Scale is permanent brown stain
- Specially designed rubber washer is supplied with each pipet and is used to support the pipet in the neck of the test bottle
- Marked "Sealed 3" for use in states requiring this marking
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type 1I, Class A requirements

Part Number	Capacity (mL)	Calibration	Case Qty
580S-9	9	To Contain	1

9 mL Wide Tip Cream Pipets

KIMAX® 9mL wide tip cream pipets calibrated to deliver 9 mL of milk.

- Scale is permanent brown stain
- Specially designed rubber washer is supplied with each pipet and is used to support the pipet in the neck of the test bottle
- Designed from ASTM Specification E1043, Type III (9 mL) and Type III A (18 mL) requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Calibration	Case Qty
570-9	9	To Deliver	12

11mL To Deliver Gerber Milk Test Pipets

KIMAX® pipet calibrated to deliver 11 mL of milk.

- Special rubber washer is supplied with each pipet and is used to support the pipet in the neck of the test bottle
- Scale is permanent brown stain
- Complies with requirements of APHA/Standard Methods *for Analysis of Dairy Products, American Public Health Association* (APHA)
- Designed from ASTM Specification E1043, Type VI requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Calibration	Case Qty
3010-11	11	To Deliver	12

17.6 mL Sealed To Contain Milk Test Pipets

KIMAX® *Babcock pipets* calibrated to contain 17.6 mL of water (equivalent to an 18 gram milk sample); for use in AOAC/ APHA test procedures where blow-out after drainage is specified.

- Grooves on the outer surface of the washer allow the air displaced by the incoming milk to escape freely
- Specially designed rubber washer is supplied with each pipet and is used to support the pipet in the neck of the test bottle
- Scale is permanent brown stain
- Marked "Sealed 3" for use in states requiring this special marking
- Designed from ASTM Specification E1043, Type II A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Length (mm)	Case Qty
3005S-176	17.6	330	12

17.6 mL To Deliver Milk Test Pipets

KIMAX® *Babcock pipets* calibrated to-deliver 17.6 mL of water (equivalent to an 18 gram milk sample).

- Calibrated for no blow-out
- Specially designed rubber washer is supplied with each pipet and is used to support the pipet in the neck of the test bottle
- Grooves on the outer surface of the washer allow air displaced by incoming milk to escape freely
- Scale is permanent brown stain
- Designed from ASTM Specification E1043, Type II B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E-438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Length (mm)	Case Qty
3001-176	17.6	330	12

Graduated Dairyware Centrifuge Tube

Used in the determination of the solubility index of dry milk solids or whey products as specified by the American Dairy Products Institute. Also used in pulp determination of citrus products.

- Graduated and calibrated to contain
- All markings are durable black ceramic enamel
- Top is beaded for strength
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
45167-50	12

Borosilicate Desiccator with Top Knob

KIMAX® desiccators are designed and made for durability and efficiency in daily laboratory use. Ideal for removing moisture from solids and storing hygroscopic materials. Can also be used for cooling oven-dried samples while maintaining sample dryness.

- Shape of the body allows easy removal of desiccant materials
- Designed for non-vacuum applications
- All glass apparatus manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	For Plate Size (mm)	Case Qty
21050-160	2.2	140	1
21050-200	3.8	190	1
21050-250	7.5	230	1

Replacement Parts

Part Number	Description	Case Qty
21070-200	Desiccator Cover with Large Knob, OD 254 mm, Height 112 mm, ID at Flange 200 mm	1
21070-250	Desiccator Cover with Large Knob, OD 302 mm, Height 117 mm, ID at Flange 250 mm	1

Borosilicate Desiccator with Stopcock

KIMAX® desiccators are designed and made for durability and efficiency in daily laboratory use. Ideal for removing moisture from solids, storing *hygroscopic materials*, and applications requiring vacuum desiccation. Can be used for cooling oven-dried samples while maintaining sample dryness.

- The shape of the body allows easy removal of desiccant materials
- Simplified stopcock design minimizes chipping or marring of critically ground finishes during cleaning and assembly
- Valve is secured to the desiccator lid by a neoprene grommet located in the knob of the cover
- Stem is tooled with a hose connection for 5/16" ID flexible tubing
- When properly greased, it should hold a vacuum of 29 inches of mercury for twenty-four hours
- All glass apparatus manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	For Plate Size (mm)	Case Qty
21200-160	2.2	140	1
21200-200	3.8	190	1
21200-250	7.5	230	1

Replacement Parts

Part Number	Description	Case Qty
21175-2	Glass Stopcock Valve and Plug with Neoprene Bushing	1
21175-10	10 black neoprene bushings	10

DISHES

Borosilicate Petri Dishes

Shallow glass dishes used for culturing bacteria and other general laboratory uses. Designed to meet Federal Specification NNN-D-1478.

- KIMAX® dishes remain clear after repeated use in wet or dry sterilization cycles
- Reinforced beaded edges resist mechanical breakage and help in centering the bottom inside the cover
- Covers have a fused-on bright red ceramic enamel marking spot and inscription. Bottoms have a white ceramic enamel inscription
- Combination of different colors and wording permits quick and easy identification of parts when sorting, selecting and assembling pairs
- Bottom has a vertical arrow on the side to precisely locate serial dilution starting points
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Height (mm)	Diameter (mm)	Case Qty
23060-6015	15	60	72
23060-10010	10	100	72
23060-10015	15	100	72
23060-10020	20	100	72
23060-15020	20	150	24

Replacement Parts

Part Number	Description	Case Qty
23062-6015	60 x 15 mm Petri Dish Cover	12
23062-10010	100 x 10 mm Petri Dish Cover	12
23062-10015	100 x 15 mm Petri Dish Cover	12
23062-10020	100 x 20 mm Petri Dish Cover	12
23062-15020	150 x 20 mm Petri Dish Cover	12
23064-6015	60 x 15 mm Petri Dish Bottom	12
23064-10010	100 x 10 mm Petri Dish Bottom	12
23064-10015	100 x 15 mm Petri Dish Bottom	12
23064-10020	100 x 20 mm Petri Dish Bottom	12
23064-15020	150 x 20 mm Petri Dish Bottom	12

Crystallizing Dishes

Ideal for storage and crystallization.

- KIMAX® dish rim is reinforced and fire-polished to reduce chipping
- Will withstand repeated sterilization, wet or dry
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overflow Capacity (mL)	Height (mm) x Diameter (mm)	Case Qty
23000-5035	50	35 x 50	24
23000-6035	80	35 x 60	24
23000-7050	160	50 x 70	24
23000-8040	170	40 x 80	24
23000-9050	270	50 x 90	18
23000-10050	340	50 x 100	18
23000-12565	700	65 x 125	12
23000-15075	1200	75 x 150	8
23000-17090	1800	90 x 170	8
23000-19100	2600	100 x 190	6

Fixed Volume Tilting Dispensers

Used for dispensing a fixed volume of liquid into vessels with small openings.

- 675300 polyacetal Standard Taper clamp (one included) secures flask and head
- All-glass apparatus manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Reservoir Capacity (mL)	Head Capacity (mL)	Case Qty
759300-0005	250	5	1
759300-0010	500	10	1
759300-0015	500	15	1
759300-0020	1000	20	1
759300-0025	1000	25	1
759300-0030	1000	30	1
759300-0040	2000	40	1
759300-0050	2000	50	1
759300-0060	2000	60	1
759300-0100	2000	100	1

Replacement Parts: Fixed Volume Tilting Dispenser Clamp

Part Number	Description	Case Qty
675300-0024	Size 24 Polyacetyl, Standard Taper Clamp, Green, Fits joint sizes 24/40, 24/25	12
675300-0029	Size 29 Polyacetyl, Standard Taper Clamp, Red, fits joint sizes 29/42, 29/26	12

Replacement Parts: Fixed Volume Tilting Dispenser Head

Part Number	Description	Case Qty
759301-0005	5mL Tilting Dispensing Head, 24/40	1
759301-0010	10mL Tilting Dispensing Head, 24/40	1
759301-0015	15mL Tilting Dispensing Head, 24/40	1
759301-0020	20mL Tilting Dispensing Head, 29/42	1
759301-0025	25mL Tilting Dispensing Head, 29/42	1
759301-0030	30mL Tilting Dispensing Head, 29/42	1
759301-0040	40mL Tilting Dispensing Head, 29/42	1
759301-0050	50mL Tilting Dispensing Head, 29/42	1
759301-0060	60mL Tilting Dispensing Head, 29/42	1
759301-0100	100mL Tilting Dispensing Head, 29/42	1

Replacement Parts: Fixed Volume Tilting Dispenser Flask

Part Number	Description	Case Qty
617000-0424	250mL Erlenmeyer Flask with 24/40 joint, Approx. overall height 155 mm	1
617000-0624	500mL Erlenmeyer Flask with 24/40 joint, Approx. overall height 200 mm	1
617000-0729	1000mL Erlenmeyer Flask with 29/42 joint, Approx. overall height 230 mm	1
617000-0829	2000mL Erlenmeyer Flask with 29/42 joint, Approx. overall height 294 mm	1

DISSOLUTION VESSELS

Dissolution Vessels

Designed for Dissolution Testing Procedure for drug bioavailability as published in Journal of the Association of
Official Analytical Chemists and USP 27, Section 711.

- Designed and produced with a precision tolerance flat flange and hemispherical bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD (mm)	Case Qty
33730-1000	1000	108	2

DISTILLATION

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

Manufactured from the highest quality borosilicate glass and featuring ground glass standard taper joints, the many products used for building distillation systems are available in a variety of categories including adapters, columns, column packing, heads, receivers, flasks, apparatus, and distillation systems.

Saving time and space, and using less sample material, the MIDI-VAP™ 4000 is a versatile ten position distillation system that can be used for the analysis of ammonia, cyanide, or phenols following EPA methods 350.1, 335.4, or 420.4 respectively.

Select from our many distillation products to design and construct the distillation system to meet your requirements. If specialty components or systems are needed, please submit a request to customglass@kimble-chase.com to receive a quote to have it constructed for you by the hands of our glassware experts.

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Midi-Vap™ 4000

Save Time! MIDI-VAP 4000 Systems feature a pre-programmed digital controller with automated shut-off when reaction time is completed.

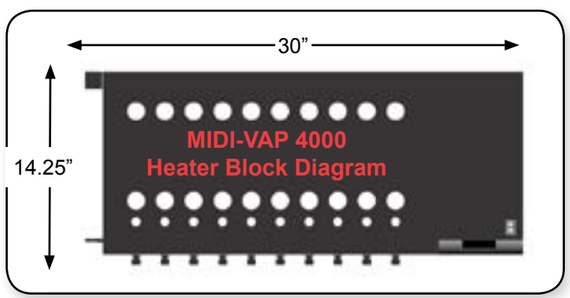
Save Money! MIDI-VAP 4000 Systems use 50 mL of sample. Less start-up material means cost savings to you and less reagent waste for disposal.

Save Space! 10-position manifold heater block requires less than two square feet of lab bench space.

Heater Block

Features

- New PTFE gasket prevents spills from entering the interior
- Heavy-duty insulated block facilitates rapid heating
- Isolated wiring eliminates damage from spills
- Easy to adjust needle valves provide accurate control
- Brass hose barbs are impervious to chemical attack
- Consistent, even heating



Exclusive Watlow EZ-ZONE Digital Controller

Features

- Pre-programmed heating cycles for dual temperature ranges
  - cyanide setting is 126 °C
  - ammonia and phenols is 165 °C
- Easy three-step setup saves time
- Automatic shutoff at test completion
- Amber light indicates heating in progress
- Easy to read LED display
- Optional temperature programming

System Specifications

- Corrosion resistant PTFE-coated case
- 30” x 14.25” footprint
- 115V / 1000W / 20A
- 115V UL / CSA certified
- 220V CE certified
- Overtemp protection switch
- Automatic shutoff

Approximate Dimensions / Weight

Without Glassware: 30” L x 14.25” W x 7.5” H / ~38 lbs.

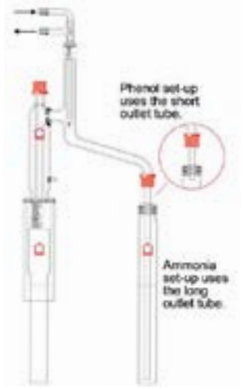
Assembled with Glassware: 30” L x 14.25” W x 20” H / ~45 lbs.

Tubing

Precut with vacuum quick-disconnect fittings provided.

MIDI-VAP™ 4000 Ammonia and Phenol Complete System

The Midi-Vap 4000™ distillation system is designed to support the semi-automatic colorimetry methods for drinking, ground, surface and saline waters as well as domestic and industrial wastes. With the glassware provided in this system, it can be used for the analysis of ammonia or phenols. The unit footprint is approximately 16” x 30”, and the height when assembled with the glassware is 24”. The system features a ten-position heater block for consistent, even heating and a Watlow EZ-Zone digital controller with an easy-to-read LED display and automated shut-off. With a 50 mL sample volume, less start-up material translates to reduced analysis time and less reagent waste for disposal. *Reference: EPA/600/R-93/100: Methods for the Determination of Inorganic Substances in Environmental Sample.*



- Includes 10 sets of glassware used for the analysis of either ammonia or phenols, pre-cut tubing and 10-position manifold heater
- Glassware manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
479490-4000	1

Replacement Parts

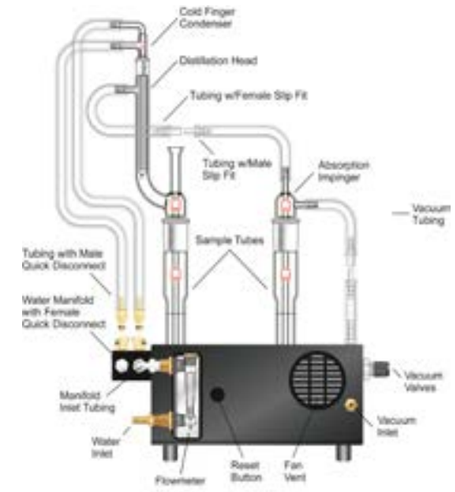
Part Number	Description	Case Qty
479459-0000	Midivap 4000 Ammonia/Phenol Glassware, 1 Set	1
479459-0005	Midivap 4000 Ammonia/Phenol Glassware, 5 Sets	1
720440-4000	MIDI-VAP™ 4000 Heater Only W/Tubing Kit, 115V	1
282000-0000	Cold Finger Condenser, 14/20 Joint, 1/4” Hose Connection, Approx. Overall Height 165 mm, Approx. Length Below Joint 100 mm, Standard Taper, Lower Drip Tip	1
479456-4501	Distilling Head for Ammonia/Phenol MI-DI-VAP™ 4000	1
479470-0050	Reaction Tube w/Draft Shield, 50mL, 29/42 for MIDI-VAP™ 4000	1
479458-0000	Short Stem Outlet Tube for Phenol MI-DI-VAP™ 4000	1
479458-0001	Long Stem Outlet Tube for Ammonia MI-DI-VAP™ 4000	1
479471-0050	Receiver Tube, GL25 Thread w/Cap, 50ml for MIDI-VAP™ 4000	1
410479-0014	Red High Temperature Open-Top GL-14 Screw Thread Cap, 180°C, PTFE/Silicone Liner	10
410480-0014	PTFE/Silicone Sealing Ring for GL-14 Caps	10
410481-0014	PTFE-faced Septa for GL-14 Caps	10
410479-0025	Red High Temperature Open-Top GL-25 Screw Thread Cap	10
479400-0018	Quick Disconnect, Inner for MIDI-VAP™	5
479400-0014	Quick Disconnect, Outer for MIDI-VAP™	5
479418-0043	Ammonia/Phenol Tubing Kit for MIDI-VAP™ 4000	1

MIDI-VAP™ 4000 Cyanide Complete System

The Midi-Vap 4000™ distillation system is designed to support the semi-automatic colorimetry methods for drinking, ground, surface and saline waters as well as domestic and industrial wastes. With the glassware provided in this system, it can be used for the analysis of cyanide. The unit footprint is approximately 16” x 30”, and the height when assembled with the glassware is 24”. The system features a ten-position heater block for consistent, even heating and a Watlow EZ-Zone digital controller with an easy-to-read LED display and automated shut-off. With a 50 mL sample volume, less start-up material translates to reduced analysis time and less reagent waste for disposal. *Reference: EPA/600/R-93/100: Methods for the Determination of Inorganic Substances in Environmental Sample.*

- Includes 10 sets of glassware used for the analysis of cyanide, pre-cut tubing and 10-position manifold heater
- Glassware manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
479400-4000	1



Replacement Parts

Part Number	Description	Case Qty
479460-0000	Midivap 4000 Cyanide Glassware 1 Set	1
479460-0005	Midivap 4000 Cyanide Glassware 5 Sets	1
720440-4000	MIDI-VAP™ 4000 Heater Only W/Tubing Kit, 115V	1
282000-0000	Cold Finger Condenser, 14/20 Joint, 1/4” Hose Connection, Approx. Overall Height 165 mm, Approx. Length Below Joint 100 mm, Standard Taper, Lower Drip Tip	1
479461-0000	Distilling Head for Cyanide MIDI-VAP™ 4000, Lower joint 29/42, Upper joint 14/20	1
479455-0050	Reaction/Absorption Tube, 50ml, 29/42	1
479462-0023	Absorption Impinger for Cyanide MI-DI-VAP™ 4000, 40-60 micron Porosity, 29/42	1
410479-0025	Red High Temperature Open-Top GL-25 Screw Thread Cap	10
479400-0018	Quick Disconnect, Inner for MIDI-VAP™	5
479400-0014	Quick Disconnect, Outer for MIDI-VAP™	5
479400-0022	Quick Disconnect, Vacuum Tubing for MIDI-VAP™	5
479418-0046	Cyanide Tubing Kit for MIDI-VAP™ 4000	1

Ammonia Nitrogen Distillation Apparatus

Apparatus for determining the proteinaceous nitrogen content in water.

- Also very useful for preparing small quantities of glass-distilled water
- Can be used for phenol, selenium and fluoride determinations
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

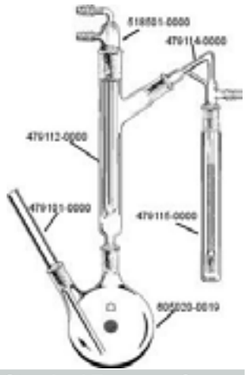
Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
552500-1000	1000	24/40	1

Replacement Parts

Part Number	Description	Case Qty
605030-1524	Round Bottom Distilling Flask, 1000mL, Sidearm, 24/40 Joint	1
439000-2430	Graham Condenser, 300 mm Jacket Length, 24/40 Joints, Fits tubing ID 3/8", Approx. overall height 442 mm, Approx. condensing area 260 cm²	1
850800-2440	24/40 Hollow Glass Hex Head Stopper	1

19/38 Cyanide Distillation Apparatus

Apparatus for quantitative analysis of various industrial waste waters, saline and reagent grade water.



- Cyanide as hydrocyanic acid (HCN) is released from cyanide complexes by means of a reflux-distillation and absorbed in a scrubber containing a sodium hydroxide solution
- The cyanide ion in the absorbing solution is then determined colorimetrically or by volumetric titration
- Design features compact Standard Taper 19/38 joints
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
479110-0000	1000	19/38	1

Replacement Parts

Part Number	Description	Case Qty
479101-0000	Inlet Tube for Cyanide Apparatus, 19/38 Joint	1
479112-0000	Reflux Body for Cyanide Apparatus, 19/38 Lower and Side, 29/42 Upper	1
518501-0000	Cold Finger Joint, 29/42 Joint, 3/8" Hose Connection, Overall height 305 mm, Length below joint 195 mm, Standard Taper, Lower Drip Tip	1
479114-0000	Dispersion Tube for Cyanide Apparatus, 10-15 micron porosity, 19/38 Lower and Side Joints	1
479115-0000	Receiver Tube for Cyanide Apparatus, 19/38	1
605020-0019	Round Bottom Distilling Flask, 1000mL, 2 Neck, 19/38 Joint Sizes, Angled, Diameter 130 mm	1

19/38 Cyanide Distillation Apparatus with Separate Scrubber and Absorber

Cyanide distillation 19/38 apparatus with separate scrubber and absorber. Apparatus for removing interfering substances in quantitative analysis of industrial waste waters, saline and reagent grade water.

- Samples react with acid to convert cyanide to HCN
- The first bubbler acts as a scrubber to remove sulfides
- Cyanide is absorbed in the second bubbler
- Design features compact Standard Taper 19/38 joints
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
479120-0000	1000	19/38	1

Replacement Parts

Part Number	Description	Case Qty
479101-0000	Inlet Tube for Cyanide Apparatus, 19/38 Joint	1
479112-0000	Reflux Body for Cyanide Apparatus, 19/38 Lower and Side, 29/42 Upper	1
518501-0000	Cold Finger Joint, 29/42 Joint, 3/8" Hose Connection, Overall height 305 mm, Approx. length below joint 195 mm, Standard Taper, Lower Drip Tip	1
605020-0019	Round Bottom Distilling Flask, 1000mL, 2 Neck, 19/38 Joint Sizes, Angled, Diameter 130 mm	1
523870-0189	Hose Adapter, Socket, Spherical Joint size 18/9, Fits Tubing ID 1/2"	1
479121-0000	Scrubber Tube for Cyanide Apparatus, 19/38 Side, 29/42 Lower	1
675310-0019	Size 19 Polyacetyl, Spherical Joint Clamp, Lt Blue, fits joint sizes 18/7, 18/9	12

24/40 Center Neck Cyanide Distillation Apparatus

Center neck cyanide distillation apparatus 24/40. This apparatus has been successfully used in the analysis of industrial waste waters, saline and reagent grade water.

- Cyanide as hydrocyanic acid (HCN) is released from cyanide complexes by means of reflux-distillation and absorbed in a scrubber containing a sodium hydroxide solution
- The cyanide ion in the absorbing solution is then determined colorimetrically or by volumetric titration
- Heating mantle (pictured) is not included
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Feature	Case Qty
479100-0000	1000	45/50 Upper Standard Taper	1

Replacement Parts

Part Number	Description	Case Qty
479101-0000	Inlet Tube for Cyanide Apparatus, 19/38 Joint	1
479102-0000	Reflux Condenser Tube, 24/40 Lower, 45/50 Upper, 19/38 Side	1
479103-0000	Cold Finger Condenser, 45/50 Joint, 3/8" Hose Connection, Overall height 300mm, Length below joint 140mm, no extended lower tip	1
479104-0000	Dispersion Tube, 10-15 micron Porosity, 19/38 Side, 29/42 Lower	1
479105-0000	Receiver Tube for Cyanide Apparatus, 29/42 Joint	1
605020-1419	Round Bottom Distilling Flask, 1000mL, 2 Neck, 24/40 and 19/38 Joint Sizes, Angled, Diameter 130 mm	1

Accessories

Part Number	Description	Case Qty
675300-0019	Size 19 Polyacetyl Standard Taper Clamp, Blue, Fits joint sizes 19/22, 19/38	12
675300-0024	Size 24 Polyacetyl Standard Taper Clamp, Green, Fits joint sizes 24/40. 24/25	12
675300-0029	Size 29 Polyacetyl Standard Taper Clamp, Red, Fits joint sizes 29/42, 29/26	12

General Distillation Apparatus

KIMAX® apparatus used in general purpose distillation and phenol distillation.

- Flask has a flat bottom and a distillation head with a 19/38 joint
- Supplied with a Standard Taper stopper
- Condenser is Graham-style, having a 200 mm jacket with a 19/38 joint at the top only
- For method, reference APHA Examination of Water and Wastewater: Method 4500-NH3 nitrogen (ammonia) in purified drinking water, natural water, and highly purified wastewaters (concentration < 20 µg/L)
- Method calls for use with tall form 50 mL Nessler Tubes (45315A & B-50)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
21500-500	500	19/38	1
21500-1000	1000	19/38	1

Replacement Parts

Part Number	Description	Case Qty
21500G-500	500mL Distillation Apparatus Flask Only, 19/38 Joint, Standard Taper Stopper 22	1
21500G-1000	1000mL Distillation Apparatus Flask Only, 19/38 Joint, Standard Taper Stopper 27	1

Short Path Compact Distillation Apparatus

- This design utilizes a thermometer bulb as column packing
- Compact head and condenser provide better separation by reducing wetted surfaces
- Cow-type receiver has tubes that are aligned for best product recovery
- Pear-shaped flask has a Standard Taper 10/18 side arm for a bleed tube
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
284800-0000	14/20	10/18	1

Replacement Parts

Part Number	Description	Case Qty
275400-0035	Inlet, Bleed-Type, 10/18 Joint Size, 8mm OD Upper Tube, 0.5mm Tip ID, Length Below Joint 35mm, fits 10mL round bottom flasks	1
287100-0000	Short Path Distillation Head, 14/20 Joint, Thermometer joint 10/18, Fits Tubing ID 1/4", Overall height x width 105 x 95mm	1
288200-0000	Distillation Receiver for 288200-0000, Graduations from 0-3mL, Subdivisions 0.2mL, 3mL per Tube, 14/20 Joint	1
294750-0010	10mL Two Neck Heavy Wall Pear-Shaped Distilling Flask, Center joint 14/20, Side joint 10/18	1

Dean Stark Distillation Apparatus

- Designed for solvents that are classified as either heavier than water or lighter than water
- Unit is compact in the Standard Taper 24/40
- Lower three-way stopcock provides a sample port, and the apparatus can be drained without disassembly
- Trap area is positioned well above the boiling flask
- Stopcock plug is 822501-0002
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
535800-0000	1000	24/40	1

Replacement Parts

Part Number	Description	Case Qty
457000-0175	Coil Type, Reflux Condensor, 24/40 Joints, Fits tubing ID 3/8", Cold Finger coil length 175mm, Condensing area 170 cm², Overall height 340 mm	1
535801-0000	Moisture Test Receiver, 20mL, 24/40 Joint, Grad. x Subdiv. 0-3 x 0.2mL and 3-20 x 0.5mL, Overall height x width 355 x 130 mm, Y Stopcock with PTFE Stopcock Plug	1
601000-0724	1000 mL Round Bottom Flask, 24/40 Joint, Diameter 130 mm	1
822501-0002	Size 2 Three Way 120° Stopcock Plug, PTFE, 15.2/30 Plug Size (mm)	1

Monier-Williams Sulfites Distillation Apparatus

For the determination of free sulfite and a reproducible portion of the bound sulfites in food, such as the carbonyl addition products.

- To ensure a complete seal during the analysis, each joint should be clamped
- Five clamps are supplied with the complete apparatus
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

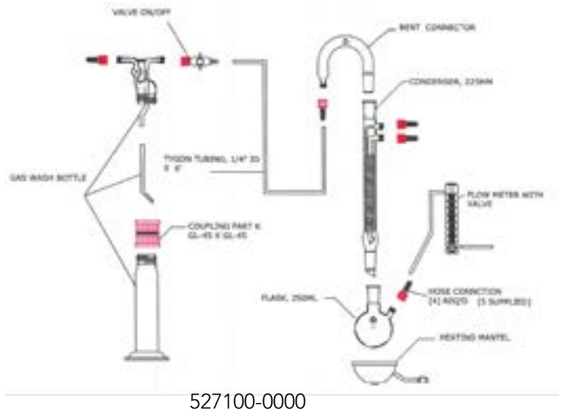
Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
513800-0000	1000	24/40	1

Replacement Parts

Part Number	Description	Case Qty
183000-2440	24/40 Inlet Hose, Fits Tubing ID 3/8", Over-all Height 80mm	1
633030-0250	Addition Funnel, 250mL, 24/40 Joint, Size 2 PTFE Stopcock, Stopper joint size 24/25, Approx. height 326 mm	1
606000-1424	Round Bottom Distilling Flask, 1000mL, 3 Neck, 24/40 Joint Sizes, Vertical, Diameter 130 mm	1
513801-0000	Flask Inlet Adapter, Monier-Williams, 24/40 Joint	1
431000-2430	Allihn Condenser, Jacket Length 300 mm, 24/40 Joints, Fits tubing ID 3/8", Overall height 470 mm	1
513802-0000	Bubbler Tube, Monier-Williams, 24/40	1
675300-0024	Size 24 Polyacetyl, Standard Taper Clamp, Green, Fits joint sizes 24/40, 24/25	12

Accessories

Part Number	Description	Case Qty
20024-100	100 mL To Deliver Class B Graduated Cylinder with Bumper Guard, Bumper Size 4, Height 255mm, Graduated Interval 5 to 100mL, Subdivision 1mL, Tolerance ±0.6 mL	24



527100-0000

Alginates Assay Apparatus

NEW!!!

Alginates assay apparatus for the determination of alginates referenced in the U.S. Pharmacopeia 36 test procedure, chapter 311.

- Includes a heating mantle, 250 mL two neck round bottom flask, flow meter with valve, 225 mm reflux condenser, bent connector, 6' flexible tubing, plastic valve, (5) plastic hose connectors, and a gas washing bottle with a GL-45 to GL-45 connector
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
527100-0000	1

75° Distillation Bent

Distillation bent 75 degree adapters. Ideal for use as a stillhead adapter.

- With Standard Taper inner joints at each end
- Both joints are of the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
272900-0000	14/20	50 x 55	1
272900-1922	19/22	50 x 55	1
158000-2440	24/40	130 x 140	1
158000-2942	29/42	130 x 140	1

105° Distillation Bent

Distillation 105 degree bent adapters.

- Standard Taper inner joint at the bottom and Standard Taper outer joint at the top
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
157500-2440	24/40	140 x 110	1
157500-2942	29/42	150 x 115	1

105° Distillation Bent with Drip Tip

Bent 105 degree distillation adapters.

- Standard Taper inner drip joint at the bottom and Standard Taper outer joint at the top
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
273200-0000	14/20	70 x 55	1
273200-1922	19/22	70 x 55	1

105° Distillation Bent with Tapered Drip Tube

Distillation 105 degree bent adapters with tapered drip tube.

- Standard Taper outer joint at top
- Tapered drip tube extends into open receivers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
273100-0000	14/20	65 x 65	1
157000-2440	24/40	115 x 115	1

105° Distillation Bent with Surrounding Jacket

Distillation 105 degree bent with surrounding jacket. Used for highly volatile condensates.

- Water jacket completely surrounds adapter
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
159500-2440	24/40	210 x 145	1

105° Distillation Bent with Vacuum Take-Off and Outer Hose Connection

Bent with vacuum take-off distillation adapters 105 degree.

- Barbed hose connection
- Standard Taper inner joint with drip tip at the bottom and Standard Taper outer joint at the top
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
205600-1420	14/20	0.25	1
205600-1922	19/22	0.25	1
205600-2440	24/40	0.375	1

105° Distillation Bent with Vacuum Take-Off and Inner Hose Connection

Bent 105 degree with vacuum take-off inner distillation adapter.

- Barbed hose connection
- Standard Taper inner joint with drip tip at the bottom and Standard Taper outer joint at the top
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
276400-0000	14/20	0.25	1
276410-0000	19/22	0.25	1
205500-2440	24/40	0.375	1
205500-2942	29/42	0.375	1

Long Stem 105° Distillation Bent with Vacuum Take-Off

Long Stem 105 degree Bent with Vacuum take-off Distillation Adapters

- With a hose connector and a drip tip
- Lower tube is extended to 200 mm and may be shortened
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
206000-2440	24/40	0.375	1

Extended 105° Distillation Bent with Vacuum Take-Off and Outer Hose Connection

- Barbed hose connection
- Standard Taper inner joint at the bottom and Standard Taper outer joint at the top
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
276405-0000	14/20	0.25	1

Claisen Distillation Adapter

- Provides dual entry into a variety of flasks
- Compatible with 179700 glass BEVEL-SEAL™ inlet adapters or 179800 PTFE BEVEL-SEAL™ inlet adapters for thermometer use at either top opening
- Useful for reflux with addition-type reactions
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
273755-0000	14/20	95 x 64	1
273750-0000	14/20	113 x 69	1
273760-0000	19/22	125 x 72	1
161500-2440	24/40	155 x 92	1
161500-2942	29/42	165 x 105	1

Claisen Distillation Adapter with 45° Side Inlet

- Provides two top inlets and one inlet on the side at a 45 degree angle
- Compatible with 179700 glass BEVEL-SEAL™ inlet adapters or 179800 PTFE BEVEL-SEAL™ inlet adapters for thermometer use at either top opening
- Useful for reflux with addition-type reactions
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
161600-2440	24/40	155 x 150	1

Claisen Distillation Adapter with Thermometer Joint

- Distilling adapter with a Standard Taper 10/30 joint on the vertical side tube for a 75 mm immersion thermometer
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
161000-2440	24/40	10/30	1

Claisen Distillation Adapter with BEVEL-SEAL™ Thermometer Joint

Used in distillation assemblies where adjustable immersion depth of the thermometer is desired.

- Threaded top BEVEL-SEAL™ connection for plain stem thermometers
- Vacuum-tight seal is achieved with the open top compression cap and FKM o-ring
- BEVEL-SEAL™ cap 410119-1307 is suitable for use to 200 °C
- Thread size is modified GPI 13-425 and FKM o-ring is size 010
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
161100-2440	24/40	155 x 88	1

Replacement Parts

Part Number	Description	Case Qty
410119-1307	Blue Glass-Filled Nylon 13-425 Open-Top Compression Cap, Hole Diameter 7 mm	12

Claisen Distillation Adapter with Thermometer Joint and PTFE Stopcock

- Standard Taper 10/30 joint at the top of main tube for use with a 75 mm immersion thermometer
- Designed with a PTFE stopcock on the lower side tube
- Replacement stopcock plug is 821001-0004
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
164010-2440	24/40	10/30	1

Replacement Parts

Part Number	Description	Case Qty
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, 15.2/30 Plug Size (mm)	1

Claisen Distillation Adapter with Side DripTip Tube and Thermometer Joint

- Distilling adapter with a Standard Taper 10/18 joint on the vertical side tube for use with a 25 mm immersion thermometer
- All other Standard Taper joints are 14/20
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
274200-0000	14/20	10/18	1

Claisen Distillation Adapter with Side Tube and Thermometer Joint

- Distilling adapter with a Standard Taper 10/30 joint on the vertical side tube for a 75 mm immersion thermometer
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
163000-2440	24/40	10/30	1

75° Connecting Distillation Adapter

75-degree connecting distillation adapters. For use as a component in atmospheric or vacuum distillations.

- Lower and sidearm joints are inner Standard Taper joints; upper joint is outer Standard Taper joint
- Joints are same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
274950-0000	14/20	105 x 55	1
275060-0000	19/22	105 x 75	1
167500-2440	24/40	155 x 105	1
167500-2942	29/42	165 x 115	1

75° Connecting Distillation Adapter with Thermometer Joint

Used in distillation assemblies.

- Outer Standard Taper top joint accommodates a thermometer
- Inner Standard Taper joints are at a 75° angle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
274900-0000	14/20	10/18	1
274900-1922	19/22	10/18	1
167000-2440	24/40	10/30	1

75° Connecting Distillation Adapter with BEVEL-SEAL™

Used in distillation assemblies where adjustable immersion depth of the thermometer is desired.

- Threaded top BEVEL-SEAL™ connection for plain stem thermometers
- Vacuum-tight seal is achieved with the open top compression cap and FKM o-ring
- BEVEL-SEAL™ cap 410119-1307 is suitable for use to 200 °C
- Thread size is modified GPI 13-425 and FKM o-ring is size 010
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
274960-0000	14/20	75 x 50	1
274960-1922	19/22	75 x 50	1
167100-2440	24/40	155 x 100	1

75° Jacketed Connecting Distillation Adapter

Vacuum-jacketed, useful as a distilling head to connect a condenser with the top of a distillation column.

- The Standard Taper 10/30 top outer joint is for use with 75 mm immersion thermometers
- Inner joints are at a 75° angle to one another
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
167010-2942	29/42	10/30	1

Connecting Distillation Adapter

Useful in the sub-boiling separation of mixtures having volatile components.

- Standard Taper inner joints are parallel
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Distance Between Joints (mm)	Case Qty
275050-1420	14/20	100	1
169500-2440	24/40	200	1

Connecting Distillation Adapter with Valved Vacuum Take-Off

Designed for purification and transfer of solvents under airless conditions.

- Incorporates a HI-VAC® valve with an 826601-0004 plug
- Standard Taper inner joints are parallel
- Lower joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
216080-2440	24/40	1

Connecting Distillation Adapter with Vacuum Hose Connection

Useful in the sub-boiling separation of mixtures having volatile components.

- Vacuum connection at side accepts ¼" ID flexible tubing
- Sealed-in drip tip directs condensate
- Standard Taper inner joints are parallel
- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Distance Between Joints (mm)	Case Qty
275070-1420	14/20	100	1

Foam-Type Distillation Traps

Placed above a boiling flask to prevent foaming-type reactions from entering either the distilling column or the condenser.

- Particularly useful with rotary evaporators
- 517000 series has baffles which allow vapor to continue through the column and condenser
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints: Outer; Inner	Bulb Diameter (mm)	Case Qty
275095-0000	14/20; 14/20	42	1
275095-2414	24/40; 14/20	50	1
197500-2440	24/40; 24/40	50	1
517000-2440	24/40; 24/40	65	1

Thermometer Centering Device

Designed for 6.5 mm OD manual thermometer or 1/4" temperature sensor probe as used on standard Automated Distillation Apparatus with Kimble 26015-125 flasks.

- Fits glassware designed for rubber stopper size 2
- PTFE body with FKM o-ring seal assures proper centering of sensor probe in flask neck
- Cap material is yellow polypropylene
- Ref: ASTM Method D86

Part Number	Body OD (mm)	Case Qty
26015C-125	6.5	1

Three-Way Micro-Distillation Distributor

Rotating three-way distributor for use with 251150 distillation adapter.

- Precise alignment allows distillate to drip directly into the receiver with no wetted surfaces or holdup
- Receiver arms are 120° apart
- All joints are 14/20 Standard Taper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
251175-0000	14/20	1

Transfer Distillation Adapters

Used to transfer fluids between two flasks or as a one-piece distillation unit

- A variety of flasks or adapters may be connected to this unit to use at reduced pressure or under an inert atmosphere
- All joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
211410-2440	24/40	155 x 270	1

Distillation Column Packing Beads

May be used as mixing beads, boiling stones or packing for distillation columns.

- KIMAX® glass beads are highly resistant to attack by most cold or hot liquids and/or vapors
- Solid borosilicate beads are durable and will not disintegrate or affect delicate compounds
- Packed in 1 lb. (approximately 0.45 kg) containers, 360 cm^3 total volume
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Diameter (mm)	Beads per cubic inch (Approx)	Case Qty
13500-3	3	550	1
13500-4	4	250	1
13500-5	5	125	1
13500-6	6	75	1

Plain Distillation Column

Plain fractionating column with indents to support packing.

- A variety of packing materials may be used for better separations
- 286100-0000 has a drip tip at the bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints; Overall Length (mm)	Type	Case Qty
286000-0021	14/20; 170	Plain Column	1
286000-0022	14/20; 190	Plain Column	1
286100-0000	14/20; 170	Plain Column with a Drip Tip	1

Jacketed Distillation Column

- KIMAX® one-piece sealed unit with a Standard Taper outer joint at the upper end and a Standard Taper inner joint with drip tip at the lower end
- Inner tube has a single ring of indentations near the exit end to support packing material
- Supplied with a jacket so the column may also be used as a condenser
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Jacket Length (mm)	Case Qty
286820-0110	14/20	110	1
286810-0200	19/22	200	1
286810-0300	19/22	300	1
21805-300	24/40	300	1

Micro Distilling Column

Micro-type distilling column designed to prevent flooding while retaining residue material.

- 569251 has hooks; 569261 does not
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Number of Chambers	Feature	Case Qty
569251-0319	3	Hooks	1
569261-0319	3	No hooks	1

Micro Snyder Distillation Column

Snyder distilling column contains floating ball valves for improved vapor-liquid contact.

- 569001 series has hooks; 569011 series does not
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column Length without Joint (mm)	Feature	Case Qty
569001-0219	115	Hooks	1
569001-0319	145	Hooks	1
569011-0219	115	No hooks	1
569011-0319	145	No hooks	1

Snyder Distillation Column

Snyder distillation column with floating ball valves for improved vapor-liquid contact.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Column Length without Joint (mm)	Case Qty
503000-0121	24/40	225	1
503000-0122	24/40	375	1

Improved Snyder Distillation Column

- Improved design speeds evaporation and reduces hold-up within the column
- Recoveries are excellent, e.g., with pesticides such as Lindane and Parathion in petroleum ether or ethyl ether
- Higher boiling solvents also may be used to good advantage
- Each chamber is approximately 50 mm long
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Column Length without Joint (mm)	Case Qty
503100-0002	24/40	120	1
503100-0003	24/40	170	1

Vigreux Distillation Column

Vigreux distilling column with indentations over the entire length for improved vapor-liquid contact.

- KIMAX® column has a Standard Taper outer joint at the top and a Standard Taper inner joint at the bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Column Length (mm)	Case Qty
286700-0000	14/20	130	1
286710-0300	19/22	300	1
503500-0221	24/40	150	1
503500-0222	24/40	300	1
503500-0223	24/40	600	1

Vigreux Distillation Column with Drip Tip

- KIMAX® column has a Standard Taper outer joint at the top and a Standard Taper inner joint at the bottom
- Drip tip is provided at the lower end
- Inner tube has twelve sets of rings of indentations spaced approximately 14 mm apart
- Sets are alternately horizontal and slanted downward
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Jacket Length (mm)	Case Qty
21802-200	19/22	200	1

Distillation Head with a Condenser and Medium Length Standard Taper Joints

Distillation head with a condenser sealed to the vertical tube

- Standard Taper 14/20 outer joint on the vertical tube can be converted to a thermometer joint using the 273500, size 21 bushing adapter
- The height of this joint is fixed in relation to the side arm, permitting use of 25 mm immersion thermometers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Condenser Joint	Case Qty
286900-0000	14/20	14/35	1

Distillation Head with a Condenser and Full Length Standard Taper Joints

Distillation head with condenser and full length standard taper joints.

- Simple take-off unit with a condenser sealed to the adapter at a 75° angle
- With bottom and side Standard Taper inner drip joints
- Standard Taper 10/30 outer joint on top accepts a 75 mm immersion thermometer
- Hose connections are designed to fit 3/8" ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Thermometer Standard Taper Joint	Case Qty
514000-2440	24/40	10/30	1

Short Path Distillation Head

- When a Standard Taper thermometer is inserted in the top of this apparatus, the bulb and stem serve as column packing
- Close-coupled condenser and vacuum connection offer an extremely short condensate travel path
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
287100-0000	14/20	0.25	1
287110-0000	19/22	0.25	1
513750-0000	24/40	0.375	1
513750-2942	29/42	0.375	1

Short Path Vacuum Jacketed Distillation Head

- Vacuum-jacketed design for more efficiency
- When a Standard Taper thermometer is inserted in the top of this apparatus, the bulb and stem serve as column packing
- The close-coupled condenser and vacuum connection offer an extremely short condensate travel path
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
287150-0000	14/20	0.25	1
513770-0000	24/40	0.375	1

Short Path Improved Distillation Head

- Excellent for use when distilling solvents with medium to high boiling points
- Designed with a combination cold coil and Leibig condenser
- Water flows into the middle hose connection through the coil and exits the outer jacket through the top hose connection
- Top outer joint is Standard Taper 10/30 for use with a 51 mm immersion thermometer
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint: Lower	Fits Tubing ID (inches)	Case Qty
513810-2440	24/40	0.375	1

Short Path Improved Vigreux Distillation Head

- Excellent for use when distilling solvents with medium to high boiling points
- Designed with a combination cold coil and Leibig condenser
- Vigreux indentations improve efficiency
- Water flows into the middle hose connection and through the coil and exits the outer jacket through the top hose connection
- Top outer joint is Standard Taper 10/30 for use with a 51 mm immersion thermometer
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint: Lower	Fits Tubing ID (inches)	Case Qty
513850-2440	24/40	0.375	1

Vacuum Jacketed Vigreux Distillation Head with Condenser

- Distillation head with a condenser sealed to a jacketed Vigreux distilling column
- Standard Taper thermometer joint on the top of the vertical column
- Vacuum adapter section of this apparatus takes a 287902 distribution adapter and four receiving flasks
- Joints may be held with springs or Standard Taper polyacetal clamp
- Stabilizing bar runs perpendicularly between vertical column and vacuum adapter
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
287320-0000	14/20	0.25	1

Accessories

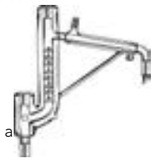
Part Number	Description	Case Qty
287902-0000	Distribution Adapter for 287900	1
675300-0014	Size 14 Polyacetyl, Standard Taper Clamp, Yellow, Fits joint sizes 14/20, 14/35	12

Short Path Vigreux Distillation Head

- Design uses Vigreux indentations for increased surface area within the vapor path. This promotes better refluxing prior to condensation, yielding a better separation
- With a Standard Taper thermometer in place, the bulb and stem serve as column packing
- Closely coupled condenser and vacuum connections provide a short condensate travel path
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
287120-0000	14/20	0.25	1

Vacuum Jacketed Vigreux Distillation Head with Condenser and Two Thermometer Joints



- Jacketed Vigreux distillation head with two Standard Taper joints for 25 mm immersion thermometers
- Integral West condenser is braced for strength
- Drip joint on the condenser may be connected to a variety of receivers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
287450-0000	14/20	0.25	1

Accessories

Part Number	Description	Case Qty
288251-0000	Receiver, Graduated Tube, 14/20 Joint Size, 12mL, Grad. x Subdiv. 0-2 x 0.1mL and 2-12 x 0.2mL, Overall Length 142mm	1
675300-0014	Size 14 Polyacetyl, Standard Taper Clamp, Yellow, Fits joint sizes 14/20, 14/35	12

Variable Reflux Distillation Head with Glass Plugs

- Rotation of cold finger condenser allows collection of distillate or return to flask
- Stopcocks allow removal of the product or a receiver change without interrupting the distillation
- Lower receiver joint has a drip tip
- The distance between column/condenser top and bottom stopcocks is 135 mm
- Standard Taper 10/30 outer side joint accepts a 75 mm immersion thermometer
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints: Column, Others	Fits Tubing ID (inches)	Case Qty
518500-2440	24/40, 29/42	0.375	1

Accessories

Part Number	Description	Case Qty
518501-0000	Cold Finger Joint, 29/42 Joint, 3/8" Hose Connection, Approx. overall height 305 mm, Approx. length below joint 195 mm, Standard Taper, Lower Drip Tip	1

Variable Reflux Distillation Head with PTFE Plugs (Large)

- Rotation of cold finger condenser allows collection of distillate or return to flask
- Standard Taper outer joint at top requires a 75 mm immersion thermometer
- Stopcocks have PTFE plugs
- The top and bottom are 821001-0002 and the middle is 822001-0002
- Distillate can be removed or receivers changed using PTFE stopcocks
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
287630-0000	14/20	0.25	1

Accessories

Part Number	Description	Case Qty
282000-0000	Cold Finger Condenser, 14/20 Joint, 1/4" Hose Connection, Approx. Overall Height 165 mm, Approx. Length Below Joint 100 mm, Standard Taper, Lower Drip Tip	1

Variable Reflux Distillation Head with PTFE Plugs (Small)

- Rotation of cold finger condenser allows collection of distillate or return to flask
- Stopcocks allow removal of the product or a receiver change without interrupting the distillation
- Lower receiver joint has a drip tip
- Standard Taper 10/30 outer side joint accepts a 75 mm immersion thermometer
- Stopcock plugs are PTFE
- Top and bottom plugs are 821001-0004 and the side is 824001-0004
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Column Standard Taper Joints	Condenser Standard Taper Joints	Case Qty
518530-2440	24/40	29/42	1

Accessories

Part Number	Description	Case Qty
518501-0000	Cold Finger Joint, 29/42 Joint, 3/8" Hose Connection, Approx. overall height 305 mm, Approx. length below joint 195 mm, Standard Taper, Lower Drip Tip	1
518532-2440	Distilling Head for Variable Reflux, 24/40 Joint	1

Modified Solvent Distillation Head

Designed to maintain distilled solvents in an inert atmosphere.

- The top of the main vapor tube is open, with an additional vapor tube to decrease the risk of pressure buildup
- The upper sampling port has a 4 mm stopcock with a Standard Taper 14/20 outer joint for the head
- A double-oblique stopcock with a Standard Taper 14/20 inner joint allows removal of distilled solvent or return to flask
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Lower and Upper	Case Qty
518550-1450	500	24/40	1

14/20 Distillation Receiver Cow Type with Three Receivers

Distillation receivers 14/20 cow type with three receivers.

- Cow-type design having three receivers spaced 45° apart
- Condensers with drip joints will protrude into the spherical section, keeping wetted surfaces and product hold-up to a minimum
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
287800-0000	14/20	0.25	1

Replacement Parts

Part Number	Description	Case Qty
287801-0000	Distribution Adaptor for 287800-0000	1

Accessories

Part Number	Description	Case Qty
675300-0014	Size 14 Polyacetyl, Standard Taper Clamp, Yellow, Fits joint sizes 14/20, 14/35	12

24/25 Distillation Receiver Cow Type with Three Receivers

Distillation receivers cow-type with 3 receivers.

- Cow-type design having three receivers spaced 45° apart
- Condensers with drip joints will protrude into the spherical section, keeping wetted surfaces and product hold-up to a minimum
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Standard Taper Joint to Condenser	Case Qty
535750-0000	24/40	24/25	1

Replacement Parts

Part Number	Description	Case Qty
535751-0000	Distribution Adapter for 535800-0000, 24/40 Joints	1

Accessories

Part Number	Description	Case Qty
675300-0024	Size 24 Polyacetyl, Standard Taper Clamp, Green, Fits joint sizes 24/40, 24/25	12

14/20 Four Place Angled Rotating Distillation Receiver

Four place rotating distillation receivers 14/20. Rotating distillation receiver allows four flasks to be progressively filled.

- Vacuum adapter is bent at a 105° angle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
287900-0000	15	14/20	1

Replacement Parts

Part Number	Description	Case Qty
287901-0000	Vacuum Adapter	1
287902-0000	Distribution Adapter	1

Accessories

Part Number	Description	Case Qty
675300-0014	Size 14 Polyacetyl, Standard Taper Clamp, Yellow, Fits joint sizes 14/20, 14/35	12

19/22 Four Place Angled Rotating Distillation Receiver

Four place angled rotating distillation receivers. Rotating distillation receiver allows four flasks to be progressively filled.

- Vacuum adapter is bent at a 105° angle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
287910-0000	25	19/22	1

Accessories

Part Number	Description	Case Qty
675300-0019	Size 19 Polyacetyl, Standard Taper Clamp, Blue, Fits joint sizes 19/22, 19/38	12

24/40 Four Place Angled Rotating Distillation Receiver

Four place angled rotating distillation receivers 24/40. Rotating distillation receiver allows four flasks to be progressively filled.

- Vacuum adapter is bent at a 105° angle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
544000-2440	50	24/40	1

Replacement Parts

Part Number	Description	Case Qty
536002-0000	Distribution Adapter for Rotating Receiver, 24/40 Joints	1
544001-2440	Vacuum Adapter for Rotating Receiver 544000, 24/40 Joint	1

Accessories

Part Number	Description	Case Qty
675300-0024	Size 24 Polyacetyl, Standard Taper Clamp, Green, Fits joint sizes 24/40, 24/25	12

Four Place Rotating Distillation Receiver

- Rotating distillation receiver allows four fractions to be collected
- Vacuum adapter has a vertical orientation
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
288100-0000	15	14/20	1

Replacement Parts

Part Number	Description	Case Qty
288101-0000	Vacuum Adaptor for 288100-0000	1
287902-0000	Distribution Adapter for 287900	1

Accessories

Part Number	Description	Case Qty
675300-0014	Size 14 Polyacetyl, Standard Taper Clamp, Yellow, Fits joint sizes 14/20, 14/35	12

Short Path Distillation Receivers

- 135° angle between center line of condenser and receivers enables distillate to fall directly into receivers
- This receiver can be used with the 284800 short path distillation apparatus
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Reservoir Capacity (mL)	Standard Taper Joints	Case Qty
288050-0000	12	14/20	1

Replacement Parts

Part Number	Description	Case Qty
288250-0000	Distillation Receiver Graduated Tube with Hooks; Capacity (mL) 12; Overall Length (mm) 142; Standard Taper Joints 14/20; Grad Intervals (mL) 0.1-2 in 0.1, 2-12 in 0.2	1
288051-0000	Distribution Adaptor for 288050-0000	1

Accessories

Part Number	Description	Case Qty
675300-0014	Size 14 Polyacetyl, Standard Taper Clamp, Yellow, Fits joint sizes 14/20, 14/35	12

Cow Type Distillation Receiver with Single Standard Taper Joint

This receiver is a component of the 284800 distillation apparatus.

- Cow-type having single Standard Taper joint at the top
- Four graduated 3 mL lower receiver tubes are accessible via a syringe or pipet for product recovery
- Receiver tubes are graduated
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
288200-0000	3 per tube	14/20	1

Distillation Receiver Graduated Tube

Distillation receiver graduated tube

- Useful as a centrifuge or extraction tube as well as a receiver
- Uses Standard Taper polyacetal clamps, not included
- 288250 series has hooks for springs; 288251 series does not
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL); Standard Taper Joints	Feature	Case Qty
288250-0000	12; 14/20	Hooks	1
288251-0000	12; 14/20	No Hooks	1
288251-0040	40; 14/20	No Hooks	1

Bidwell-Sterling Moisture Test Distillation Receiver

Bidwell-Sterling designed for the determination of moisture in foods and organics.

- 751351 has a drip tip
- Made to ASTM specifications E123
- Also conforms to many methods of the American Oil Chemists Society
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Graduation Intervals (mL)	Standard Taper Joints	Case Qty
751350-0005	5; 0.1	24/40	1
751351-0005	5; 0.05	24/40	1

Modified Dean Stark Distillation Receiver

- KIMAX® distilling receiver with full length Standard Taper 24/40 joints and a siphon return arm
- Sidearm bridge equalizes pressure
- Designed from ASTM Specification E123, Style A
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
22012-10	10	24/40	1

Dean Stark Distillation Receiver

Ideally suited for the determination of water content in organic solvents.

- Dean Stark design for solvents that are classified as either heavier than water or lighter than water
- Unit is compact in both the Standard Taper 24/40 and Standard Taper 14/20 sizes
- Lower three-way stopcock provides a sample port, and the apparatus can be drained without disassembly
- Trap area is positioned well above the boiling flask
- Thermometer joint is Standard Taper 10/30. Stopcock plug is 822501-0002
- Ref: Design suggested by Dr. A. J. East, Celanese Corp
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
535801-0000	20	24/40	1

Round Bottom Short Neck Flask

- KIMAX® round bottom boiling flask with a short neck and a medium length Standard Taper joint
- Ref: ASTM Method D322
- Designed from ASTM Specification E1403, Type II, Class III requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
25276-100	100	14/20	12
25276-250	250	14/20	12
25277-100	100	19/22	12
25277-250	250	19/22	12
25277-500	500	19/22	12
25285-50	50	24/40	12
25285-100	100	24/40	12
25285-200	200	24/40	12
25285-250	250	24/40	12
25285-300	300	24/40	12
25285-500	500	24/40	12
25285-1000	1000	24/40	12
25285-2000	2000	24/40	6
25285-3000	3000	24/40	6

Round Bottom Flask with Tooled Top

- KIMAX® round-bottomed boiling flask
- Reinforced tooled top
- Designed from ASTM Specification E1403, Type II, Class I, requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
25200-250	250	5	12
25200-500	500	6	6

Single Standard Taper Neck Round Bottom Flasks

- Single neck flask with a Standard Taper outer joint
- Heavy wall
- Ref: ASTM Method D95
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
294000-0005	5	14/20	1
294010-0005	5	19/22	1
294000-0010	10	14/20	1
294010-0010	10	19/22	1
294000-0015	15	14/20	1
294010-0015	15	19/22	1
294000-0025	25	14/20	1
294010-0025	25	19/22	1
294000-0035	35	14/20	1
294000-0050	50	14/20	1
294010-0050	50	19/22	1
601000-0124	50	24/40	1
601000-0129	50	29/42	1
294000-0100	100	14/20	1
294010-0100	100	19/22	1
601000-0224	100	24/40	1
601000-0229	100	29/42	1
601000-2224	125	24/40	1
601000-2229	125	29/42	1
601000-0324	200	24/40	1
294000-0250	250	14/20	1
294010-0250	250	19/22	1
601000-0424	250	24/40	1
601000-0429	250	29/42	1
601000-0524	300	24/40	1
601000-0526D	300	29/26	1
601000-0529	300	29/42	1
294000-0500	500	14/20	1
294010-0500	500	19/22	1
601000-0624	500	24/40	1
601000-0629	500	29/42	1
601000-0645	500	45/50	1
601000-0724	1000	24/40	1
601000-0729	1000	29/42	1
601000-0734	1000	34/45	1
601000-0745	1000	45/50	1
601000-0755	1000	55/50	1
601000-0824	2000	24/40	1
601000-0829	2000	29/42	1
601000-0845	2000	45/50	1
601000-0924	3000	24/40	1
601000-0929	3000	29/42	1
601000-0945	3000	45/50	1
601000-1024	5000	24/40	1
601000-1045	5000	45/50	1
601000-1145	12000	45/50	1
601000-1255	22000	55/50	1

Long Single Neck Round Bottom Flasks

- Single long neck flask with a Standard Taper outer joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
296250-0010	10	14/20	1
296250-0050	50	14/20	1
601010-0129	50	29/42	1
296250-0100	100	14/20	1
601010-0224	100	24/40	1
601010-2524	150	24/40	1
601010-0324	200	24/40	1
601010-0429	250	29/42	1
601010-0524	300	24/40	1
601010-0624	500	24/40	1
601010-0629	500	29/42	1
601010-0724	1000	24/40	1
601010-0729	1000	29/42	1
601010-0924	3000	24/40	1

Single Standard Taper Neck with Side Tubulation

- Heavy wall round-bottom flask with Standard Taper center neck with side Standard Taper tubulation
- Side tubulation has one 773900 rubber adapter with a 1/4" hole for access with thermometers or gas inlet tubes
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
294410-0000	250	19/22	1

Single Spherical Joint Neck Round Bottom Flasks

- Single neck flask with a Spherical Joint socket
- Useful as rotary evaporator condensate collection flask or as a replacement for European designation KS 20/35
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
601050-0128	50	28/15	1
601050-0136	50	35/25	1
601050-0236	100	35/25	1
601050-0428	250	28/15	1
601050-0628	500	28/15	1
601050-0635	500	35/20	1
601050-0636	500	35/25	1
601050-0735	1000	35/20	1
601050-0736	1000	35/25	1
601050-0835	2000	35/20	1
601050-0836	2000	35/25	1
601050-0935	3000	35/20	1
601050-0936	3000	35/25	1
601050-1036	5000	35/25	1

Angled Two Neck Round Bottom Flask

Distilling round bottom flask with angled side neck

- Two-neck heavy wall flask with Standard Taper outer joints
- Side neck is angled
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
294990-0010	10	14/20, 14/20	1
294990-0015	15	14/20, 14/20	1
294990-0025	25	14/20, 14/20	1
295000-0025	25	19/22, 14/20	1
295010-0025	25	19/22, 19/22	1
294990-0050	50	14/20, 14/20	1
295010-0050	50	19/22, 19/22	1
294990-0100	100	14/20, 14/20	1
295010-0100	100	19/22, 19/22	1
605020-0210	100	24/40, 41942	1
605020-0224	100	24/40, 24/40	1
294990-0250	250	14/20, 14/20	1
295010-0250	250	19/22, 19/22	1
605020-0610	250	24/40, 41942	1
605020-0624	250	24/40, 24/40	1
605020-4824	250	29/42, 24/40	1
294990-0500	500	14/20, 14/20	1
605020-1010	500	24/40, 41942	1
605020-1110	500	29/42, 41942	1
605020-1024	500	24/40, 24/40	1
605020-0019	1000	19/38, 19/38	1
605020-1410	1000	24/40, 41942	1
605020-1419	1000	24/40, 19/38	1
605020-1424	1000	24/40, 24/40	1
605020-1524	1000	29/42, 24/40	1
605020-1824	2000	24/40, 24/40	1
605020-2224	3000	24/40, 24/40	1
605020-2624	5000	24/40, 24/40	1
605020-2924	5000	45/50, 24/40	1

Two Vertical Neck Round Bottom Flasks

Distilling round bottom flask with two vertical necks

- Two-neck heavy wall flask with Standard Taper outer joints on both vertical necks
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
605000-0224	100	24/40, 24/40	1
605000-0624	250	24/40, 24/40	1
605000-1024	500	24/40, 24/40	1
605000-1224	500	34/45, 24/40	1
605000-1424	1000	24/40, 24/40	1
605000-1624	1000	34/45, 24/40	1
605000-1824	2000	24/40, 24/40	1
605000-2024	2000	34/45, 24/40	1

Indented Three Vertical Neck Round Bottom Flasks

- This flask is also referred to as a Morton flask
- Heavy wall
- Three-neck round bottom flask with Standard Taper outer joints, all vertical
- Indentations enhance agitation when stirring
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

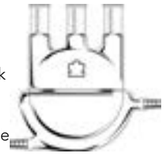
Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
609400-0224	500	24/40, 24/40	1
609400-0624	1000	24/40, 24/40	1
609400-1324	2000	45/50, 24/40	1
609400-2124	5000	45/50, 24/40	1

Three Vertical Neck Round Bottom Flask

- Three-neck heavy wall round-bottom flask with Standard Taper outer joints
- Side necks are vertical
- Ref: ASTM Method D1744
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
606000-0224	100	24/40, 24/40	1
606000-0624	250	24/40, 24/40	1
606000-4824	250	29/42, 24/40	1
606000-4829	250	29/42, 29/42	1
606000-1024	500	24/40, 24/40	1
606000-1124	500	29/42, 24/40	1
606000-1129	500	29/42, 29/42	1
606000-1224	500	34/45, 24/40	1
606000-1424	1000	24/40, 24/40	1
606000-1524	1000	29/42, 24/40	1
606000-1529	1000	29/42, 29/42	1
606000-1624	1000	34/45, 24/40	1
606000-1729	1000	45/50, 29/42	1
606000-1824	2000	24/40, 24/40	1
606000-1924	2000	29/42, 24/40	1
606000-1929	2000	29/42, 29/42	1
606000-2124	2000	45/50, 24/40	1
606000-2224	3000	24/40, 24/40	1
606000-2324	3000	29/42, 24/40	1
606000-2329	3000	29/42, 29/42	1
606000-2524	3000	45/50, 24/40	1
606000-2624	5000	24/40, 24/40	1
606000-2824	5000	34/45, 24/40	1
606000-2924	5000	45/50, 24/40	1

Jacketed Three Vertical Neck Round Bottom Flasks



- Jacketed three-neck round-bottom reaction flask with Standard Taper outer joints, all vertical
- Heavy wall
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
609500-0524	500	24/40, 24/40	1

Full Length Three Vertical Neck Round Bottom Flasks

- KIMAX® flask with a center neck that extends above the side necks
- Full length Standard Taper 24/40 joints
- Designed from ASTM Specification E1378, Type III requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
26246-500	500	24/40	1

Angled Three Neck Round Bottom Flask

- Three-neck heavy wall round-bottom flask with Standard Taper outer joints
- Side necks are angled
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
295550-0015	15	14/20, 14/20	1
295500-0015	15	19/22, 14/20	1
295550-0025	25	14/20, 14/20	1
295510-0025	25	19/22, 19/22	1
295550-0050	50	14/20, 14/20	1
295500-0050	50	19/22, 14/20	1
295510-0050	50	19/22, 19/22	1
295550-0100	100	14/20, 14/20	1
295500-0100	100	19/22, 14/20	1
295510-0100	100	19/22, 19/22	1
606020-0219	100	24/40, 19/38	1
606020-0224	100	24/40, 24/40	1
295550-0250	250	14/20, 14/20	1
295500-0250	250	19/22, 14/20	1
295510-0250	250	19/22, 19/22	1
606020-0624	250	24/40, 24/40	1
606020-4829	250	29/42, 29/42	1
295550-0500	500	14/20, 14/20	1
295510-0500	500	19/22, 19/22	1
606020-1024	500	24/40, 24/40	1
606020-1124	500	29/42, 24/40	1
606020-1129	500	29/42, 29/42	1
606020-1224	500	34/45, 24/40	1
606020-1324	500	45/50, 24/40	1
606020-1424	1000	24/40, 24/40	1
606020-1529	1000	29/42, 29/42	1
606020-1624	1000	34/45, 24/40	1
606020-1824	2000	24/40, 24/40	1
606020-1924	2000	29/42, 24/40	1
606020-1929	2000	29/42, 29/42	1
606020-2124	2000	45/50, 24/40	1
606020-2224	3000	24/40, 24/40	1
606020-2624	5000	24/40, 24/40	1
606020-2724	5000	29/42, 24/40	1
606020-2924	5000	45/50, 24/40	1

Four Vertical Neck Round Bottom Flasks

- Four-neck heavy wall round bottom flask with Standard Taper outer joints, all vertical
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
607000-4724	250	24/40, 24/40	1
607000-0224	500	24/40, 24/40	1
607000-0324	500	29/42, 24/40	1
607000-0329	500	29/42, 29/42	1
607000-0424	500	34/45, 24/40	1
607000-0524	500	45/50, 24/40	1
607000-0624	1000	24/40, 24/40	1
607000-0724	1000	29/42, 24/40	1
607000-0729	1000	29/42, 29/42	1
607000-0824	1000	34/45, 24/40	1
607000-0924	1000	45/50, 24/40	1
607000-1124	2000	29/42, 24/40	1
607000-1129	2000	29/42, 29/42	1
607000-1224	2000	34/45, 24/40	1
607000-1324	2000	45/50, 24/40	1
607000-1529	3000	29/42, 29/42	1
607000-1624	3000	34/45, 24/40	1
607000-1724	3000	45/50, 24/40	1
607000-1729	3000	45/50, 29/42	1
607000-1924	5000	29/42, 24/40	1
607000-2024	5000	34/45, 24/40	1
607000-2124	5000	45/50, 24/40	1

Four Vertical Neck Round Bottom Flasks with Thermometer Joint

- Four-neck heavy wall round-bottom flask with Standard Taper outer joints, all vertical
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
606200-0124	250	29/42, 24/40	1
606200-0224	500	24/40, 24/40	1
606200-0324	500	29/42, 24/40	1
606200-0424	500	34/45, 24/40	1
606200-0624	1000	24/40, 24/40	1
606200-0724	1000	29/42, 24/40	1
606200-0824	1000	34/45, 24/40	1
606200-1024	2000	24/40, 24/40	1

Four Angled Side Neck Round Bottom Flasks

- Four-neck heavy wall flask with Standard Taper outer joints
- Side necks are angled
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
295790-0025	25	14/20, 14/20	1
295790-0050	50	14/20, 14/20	1
295790-0100	100	14/20, 14/20	1
295790-0250	250	14/20, 14/20	1
606300-0124	250	24/40, 24/40	1
606300-0224	500	24/40, 24/40	1

Five Vertical Neck Round Bottom Flasks

- Five-neck heavy wall round-bottom flask with vertical Standard Taper outer joints
- Side necks are 90° apart
- Where possible, vertical necks will be supplied
- On small flasks having large necks, positioning may have to be made at an angle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
607500-0224	500	24/40, 24/40	1
607500-0624	1000	24/40, 24/40	1
607500-1024	2000	24/40, 24/40	1

Jointed Distilling Flasks

- Standard Taper 24/40
- 1000 mL capacity
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
605030-1524	1000	24/40	1

Flat Bottom Short Neck Boiling Flask

- KIMAX® boiling flask with a short Standard Taper 24/40 joint neck
- Designed from ASTM Specification E1403, Type I, Class IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Case Qty
25055-125	125	12
25055-250	250	12
25055-300	300	12
25055-500	500	12
25055-1000	1000	12

Flat Bottom Florence Flask

- KIMAX® flasks have a low coefficient of expansion to resist thermal shock
- They are constructed with sturdy walls to minimize mechanical breakage and reinforced tooled tops for strength and a secure stopper fit
- Designed from ASTM Specification E1403, Type I, Class I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
25000-500	500	6	6
25000-1000	1000	8	6
25000-6000	6000	11	1

Heavy Wall Flat Bottom Boiling Flask

- Single neck flat bottom heavy wall flask with a Standard Taper outer joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
601500-0124	50	24/40	1
601500-2124	100	24/40	1
601500-0224	125	24/40	1
601500-0324	250	24/40	1
601500-0545	250	45/50	1
601500-0424	300	24/40	1
601500-0429	300	29/42	1
601500-0524	500	24/40	1
601500-0529	500	29/42	1
601500-0624	1000	24/40	1
601500-0629	1000	29/42	1
601500-0645	1000	45/50	1
601500-0824	2000	24/40	1
601500-0829	2000	29/42	1
601500-0845	2000	45/50	1
601500-0929	3000	29/42	1
601500-1024	6000	24/40	1
601500-1045	6000	45/50	1

RAY-SORB® Boiling Flask with a Short neck and Full Length 24/40 Standard Taper joint

- KIMAX® boiling flask is RAY-SORB® processed to provide protection to solutions sensitive to light of the shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Short neck
- Flat bottom
- Full length 24/40 joint
- Designed from ASTM Specification E1403, Type I, Class IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity (mL)	Case Qty
25057-250	250	1

Pear Shaped BEVEL-SEAL™ Distilling Flasks with Side Arm

Flask designed for vacuum distillations.

- Threaded sidearm has an open-top nylon cap
- BEVEL-SEAL™
- Heavy wall
- Cap can be coupled with an o-ring to accommodate a thermometer or a gas inlet tube
- A penetrable liner may be used to sample a reaction mixture using a syringe
- Supplied complete with one size 010 FKM o-ring and one PTFE-faced silicone liner
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
251450-0015	15	14/20	1

Pear Shaped Boiling Flasks

- Single-neck flask with a Standard Taper outer joint at top
- Heavy wall
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
294250-0005	5	14/20	1
294260-0005	5	19/22	1
294250-0010	10	14/20	1
294260-0010	10	19/22	1
294250-0015	15	14/20	1
294260-0015	15	19/22	1
294250-0025	25	14/20	1
294260-0025	25	19/22	1
294250-0035	35	14/20	1
294260-0035	35	19/22	1
294250-0050	50	14/20	1
294260-0050	50	19/22	1
608700-0124	50	24/40	1
294250-0075	75	14/20	1
294260-0075	75	19/22	1
294250-0100	100	14/20	1
294260-0100	100	19/22	1
608700-0224	100	24/40	1
608700-0229	100	29/42	1
608700-0424	200	24/40	1
294250-0250	250	14/20	1
608700-2524	250	24/40	1
608700-0524	300	24/40	1
608700-0624	500	24/40	1

Pear Shaped Heavy Wall Distilling Flasks with Side Tubulation

- Pear-shaped flask with a Standard Taper outer joint and 7 mm ID side tabulation
- Heavy wall
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
294500-0010	10	14/20	1

Pear Shaped Two Neck Heavy Wall Distilling Flasks

- Two-neck flask with outer joints
- Heavy wall
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
294750-0010	10	14/20, 10/18	1
294760-0050	50	14/20, 14/20	1

Pear Shaped Three Neck Heavy Wall Distilling Flasks

- Three-neck flask with outer joints
- Heavy wall
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
295740-0050	50	14/20, 14/20	1

Tooled Neck Kjeldahl Flasks

- KIMAX® flasks have a reinforced bead at the top
- The 500 and 800 mL sizes have tooled necks to provide an accurate stopper fit and to reduce the possibility of breakage in use
- The 500 and 800 mL size necks are tooled to take rubber stoppers especially made for Kjeldahl flasks
- The 10 and 30 mL are designed from ASTM Specification E147 and larger sizes are designed from ASTM Specification E1377, Type I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
27400-30	30	0	18
27400-100	100	1	24
27400-500	500	6	24
27400-800	800	7	18

Accessories

Part Number	Description	Case Qty
16040-55	Kjeldahl Cylindrical Connecting Bulb, Approx. Diameter 55 mm, Approx. Length 120 mm, 11-12mm Lower Tube OD	1

Engler Distilling Flasks

KIMAX® distilling flask. Distillation.

- Sidearm tube is sealed at an angle of 75° from the neck and is 137 ± 3 mm from the bottom of the flask
- Designed from ASTM Specification E133 and intended for use in ASTM D86, D233, D801, and D802
- Ref: ASTM Method D86
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
26015-125	125	2	24

Engler Distilling Flasks with Three Reference Lines

For use with *Haage automatic distillation apparatus* or others that call for three thermometer depth insertions.

- KIMAX® distilling flask, same as 26015-125, except with three reference lines
- Ref: ASTM D86
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
26016-125	125	2	24

Barrett Distilling Flasks

- Barrett flasks made to ASTM E133 specifications
- These flasks feature smooth, consistent, heavy walls for uniform heating and minimal breakage
- Supplied with one cork for the sidearm
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
610910-0125	125	2	12
610900-0200	200	3	24

FLOW-WATCHMAN™ Flowmeter

Keep an eye on cooling water with the Flow-Watchman™ - a device for the visual indication of liquid flow.

- Molded of clear polycarbonate with an inert nylon indicator ball
- Flow indication is visible from a distance
- Usable with water down to a flow range of approximately 100 mL/minute, which is adequate for even the smallest cold finger condensers
- The upper flow limit is in excess of 1 liter/minute
- Unit operates in any position
- Lightweight all-plastic construction
- Requires no auxiliary support

Part Number	Fits Tubing ID (inches)	Max Pressure (psi)	Case Qty
626250-0000	41643	10	1

DRYING

Straight Drying Tubes

Useful as a molecular sieve for running anhydrous reactions.

- Straight tube with a bulb desiccant chamber
- The stem is designed for use with a BEVEL-SEAL™ adapter or a rubber stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height x Width (mm)	Stem OD (mm)	Case Qty
562490-0000	145 x 30	8	1

Straight Drying Tube with 14/20 Joints

Vertical-type drying tube for use with a suitable desiccant such as calcium chloride, or a molecular sieve.

- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Standard Taper Joints	Case Qty
291000-0000	130	14/20	1

Bent Drying Tubes

75° angle-type for use in fume hoods where a vertical-type tube will not fit.

- Beaded rim resists breakage
- Supplied with rubber stopper and glass inlet tube
- One end has a rubber stopper joint and the other has a Standard Taper joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height x Width (mm)	Standard Taper Joints, Rubber Stopper Number	Case Qty
291100-0000	65 x 105	14/20, #00	1
291100-0019	65 x 105	19/22, #00	1

U-Shaped Drying Tubes

- "U" shaped drying tube is supplied with a bent inlet tube
- Inner joint at the bottom with a bulb desiccant chamber
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height x Width (mm)	Standard Taper Joints	Case Qty
291200-0000	90 x 55	14/20	1
562500-2440	185 x 80	24/40	1

EXTRACTION

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

Kimble® manufactures high quality extraction apparatus from 33 expansion borosilicate glass used in solid phase extraction manifolds, liquid/liquid extraction, solid/liquid extraction and Soxhlet extraction apparatus.

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Continuous Liquid/Liquid Extraction Apparatus for Heavier than Water Samples

This extractor body is designed for EPA priority pollutant samples where the extracting solvent is heavier than water.

- This technique is sometimes preferred to the separatory funnel
- Designed for samples of one liter plus approximately 200 mL of extracting solvent
- Several units may be set up using minimal bench space
- Extractor body has a Standard Taper 45/50 top joint and a 24/40 side joint
- Condenser has a Standard Taper 45/50 joint
- Flask has a Standard Taper 24/40 joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Jacket Length (mm)	Case Qty
584190-0000	1000	260	1

Replacement Parts

Part Number	Description	Case Qty
456000-0022	Allihn Condenser, 260 mm jacket, 45/50 joint, Fits tubing ID 3/8", Overall height 365 mm	1
584191-0000	Extractor Body, 45/50 Top joint, 24/40 Side, OD 100 mm	1
601000-0724	1000 mL Round Bottom Flask, 24/40 Joint, OD 130 mm	1

Continuous Liquid/Liquid Extraction with Built-in SLOW-DRY® Concentrator

This extractor is designed for EPA priority pollutant samples where the extracting solvent is heavier than water.

- Both extraction and concentration are performed with the same apparatus
- A unique feature of this unit is the removable Snyder column sidearm and return tube designed for easy cleaning
- Taller overall height allows longer solvent residence time, increasing efficiency
- Return tube has a 821001-0004 PTFE plug with a 4 mm bore
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Close the PTFE stopcock to stop flow when extraction is complete and concentration commences.

Part Number	Overall Height (mm)	Overall Width (mm)	Case Qty
584400-0000	981	298	1

Replacement Parts

Part Number	Description	Case Qty
456000-0022	Allihn Condenser, 260 mm jacket, 45/50 Joint, Fits tubing ID 3/8", Overall height 365 mm	1
570037-0500	500mL Flask, 24/40 Top, 19/22 Bottom	1
570071-1525	15mL SLOW-DRY® Concentrator Tube for Kuderna-Danish w/Clamp, 19/22, Height 130 mm, Subdiv. 0-1 in 0.1, 2-15 in 1 mL	1
584401-0000	Continuous Liquid/SLOW-DRY® Extraction Apparatus, Complete Body (Body, Sidearm, Return Arm, 3 Clamps)	1
584403-0000	Continuous Liquid/SLOW-DRY® Extraction Apparatus, Return Arm, 18/9 Ball Joint	1
584404-0000	Continuous Liquid/SLOW-DRY® Extraction Apparatus, Snyder Sidearm, 35/25 Top, 18/9 Side, 24/40 Bottom	1

Accessories

Part Number	Description	Case Qty
456250-0022	Freidrich Condenser, 190 mm, 45/50 bottom standard taper joint, Fits tubing ID 3/8", Overall height 340 mm	1

Combination Solid/Liquid and Liquid/Liquid Extraction Apparatus

This extractor is designed to maximize efficiency through continuous solvent displacement.

- As a solid/liquid extractor, a thimble is used and the sample is immersed in extracting solvent at all times for optimal efficiency
- As a liquid/liquid extractor, with heavier-than extracting solvents, the thimble is removed and the three-way stopcocks are configured for bottom take-off
- With lighter-than solvents, a solvent guide is added and the three-way stopcocks are configured for sidearm take-off
- Supplied complete with extractor body, primary condenser and extraction thimble
- Flask, solvent guide and secondary condenser are optional
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
586300-0000	14/20, 45/50	1

Accessories

Part Number	Description	Case Qty
282550-0000	West Medium Length Condenser, 14/20, Jacket length 110mm, Condensing area 45cm², Fits tubing ID 1/4", Overall height 190mm	1
294000-0250	250 mL Heavy Wall Round Bottom Boiling Flask, 14/20, OD 83 mm	1
586300-0004	Solvent Guide for Extraction Apparatus	1

Micro Soxhlet Extraction Apparatus

This Soxhlet-type extraction apparatus is for use with 292100-0000 extraction thimble, which has a coarse porosity.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Fits Standard Taper Joint	Case Qty
292010-0000	25	14/20	1

Replacement Parts

Part Number	Description	Case Qty
283250-0000	Allihn Micro Reflux Condenser, 19/22, Fits tubing ID 1/4", Overall height 162 mm	1
292011-0000	Soxhlet Micro Extractor Body	1
294000-0025	25 mL Heavy Wall Round Bottom Boiling Receiving Flask, 14/20, OD 42 mm	1

Accessories

Part Number	Description	Case Qty
292100-0000	40-60 micron porosity Extraction Thimble, Body OD 11 mm, Disc Diameter 9 mm, Height above Frit 40 mm, Overall Height 55 mm, Capacity 2.5 mL	1

Custom Glass

CGS is the Custom Glass Shop at Kimble®. We can be your single source for custom laboratory glassware design and fabrication. Whether you want a slight variation of a standard product or a completely unique design, CGS can do it! In quantities as small as one piece. Our staff of veteran glassblowers will meet your requirements and exceed your expectations.

CGS Capabilities:

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- Microscale glassware
- Precision bore tubing
- Glass tooling
- Large-scale systems
- Flasks to 72 liters
- Decorating

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Soxhlet Extraction Apparatus

The Soxhlet extractor was designed for separating an analyte with limited solubility in a particular solvent from an insoluble compound.

- Approximate capacities are measured to the base of the flask neck
- Standard Taper joint size between Soxhlet tube and condenser is 34/45
- Standard Taper joint between the Soxhlet tube and flask is 24/40
- Thimble size is determined by the ID of the extraction tube
- Hose connections on condenser accept 5/16" ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Flask Capacity (mL)	Extraction Tube ID (mm)	Case Qty
24005-30	125	30	1
24005-40	250	40	1
24005-50	500	50	1

Replacement Parts for 24005-30

Part Number	Description	Case Qty
24027-30	30 mm Soxhlet Extraction Condenser Only, 34/45	1
24071-30	30 mm Soxhlet Extraction Tube Only, 24/40	1
25055-125	125 mL Flat Bottom Boiling Flask, 24/40	12

Replacement Parts for 24005-40

Part Number	Description	Case Qty
24027-40	40 mm Soxhlet Extraction Condenser Only, 45/50	1
24071-40	40 mm Soxhlet Extraction Tube Only, 45/50, 24/40	1
25055-250	250 mL Flat Bottom Boiling Flask, 24/40, Height 133 mm, OD 83 mm	12

Replacement Parts for 24005-50

Part Number	Description	Case Qty
24027-50	50 mm Soxhlet Extraction Condenser Only, 55/50	1
24071-50	50 mm Soxhlet Extraction Tube Only, 55/50, 24/40	1
25055-500	500 mL Flat Bottom Boiling Flask, 24/40	12

Soxhlet Extraction Apparatus with Enlarged Vapor Tube

Soxhlet-type extraction apparatus with a bulb-type Allihn condenser, used for the continuous extraction of solids with a suitable solvent.

- Improved design with a protected siphon tube, an enlarged vapor tube and sloping seals to prevent the trapping of liquid
- Standard Taper joints connect the condenser to the extractor and the extractor to the flask
- Uses paper, alundum or 586500 fritted glass extraction thimbles, not supplied
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Fits Standard Taper Joint; Standard Taper Joint to Condenser	Case Qty
585050-0022	500	24/40; 45/50	1
585050-0023	500	24/40; 55/50	1

Replacement Parts for 585050-0022

Part Number	Description	Case Qty
456000-0022	Allihn Condenser, 260 mm jacket, 45/50 Joint, Fits tubing ID 3/8", Overall height 365 mm	1
586000-0022	Soxhlet Extractor Body, Size 22, Use with thimble size 0022/0222, Body ID x length 41 x 157 mm, 45/50 top joint, 24/40 bottom joint, Overall height 300 mm	1
601000-0624	500mL Round Bottom Flask, 24/40 Joint, OD 102 mm	1

Replacement Parts for 585050-0023

Part Number	Description	Case Qty
456000-0023	Allihn Condenser, 300 mm jacket, 55/50 Joint, Fits tubing ID 3/8", Overall height 405 mm	1
586000-0023	Soxhlet Extractor Body, Size 23, Use with thimble size 0023/0223, Body ID x length 49 x 180 mm, 55/50 top joint, 24/40 bottom joint, Overall height 340 mm	1
601000-0624	500 mL Round Bottom Flask, 24/40 Joint, OD 102 mm	1

Soxhlet Extraction Body

Extractor body only, used as component part of 585050 Soxhlet extraction assemblies.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Standard Taper Joints: Top, Bottom	Case Qty
586000-0021	270	34/45, 24/40	1
586000-0022	300	45/50, 24/40	1
586000-0023	340	55/50, 24/40	1
586000-0024	415	71/60, 29/42	1
586000-0025	475	103/60, 29/42	1

Soxhlet Extraction Body with a PTFE Stopcock

Extractor with PTFE stopcock outlet for periodic solvent removal.

- Stopcock has an 821001 PTFE plug
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Standard Taper Joints: Top, Bottom	Case Qty
586280-0022	300	45/50, 24/40	1

All-Glass Extraction Thimble

These thimbles are for use in extractor bodies 586000 and 586100, except thimble 292100, which is for use in 292010 extraction apparatus.

- All-glass construction allows visual examination during the extraction and subsequent weighing
- Unit has either a coarse (40-60 micron porosity) or an extra-coarse (170-220 micron porosity) glass fritted disc sealed in
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Body OD (mm), Disc Porosity (microns)	Case Qty
292100-0000	2.5	11, 40-60	1
586500-0021	25	25, 170-220	1
586500-0022	55	35, 170-220	1
586500-0023	150	45, 170-220	1
586500-0024	275	57, 170-220	1
586500-0211	25	25, 40-60	1
586500-0222	55	35, 40-60	1
586500-0233	150	45, 40-60	1
586500-0244	275	57, 40-60	1
586500-0255	850	90, 40-60	1
586500-0266	2800	125, 40-60	1

Soxhlet/Dean Stark Apparatus

This apparatus combines two analytical techniques, Soxhlet extraction and Dean-Stark azeotropic distillation, into a single process for the removal of water, chlorinated dibenzo-p-dioxins (CCDs) and chlorinated dibenzofurans (CDFs) from wet particulate samples.

- Determination of water and CDDs/ CDFs on the same sample aliquot is achieved without the need for desiccation prior to Soxhlet extraction
- Loss of analytes and sample contamination are avoided
- Uses a 586500-0000 fritted glass extraction thimble, not supplied
- PTFE stopcock plug is 821001-0002
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
585150-0023	1

Replacement Parts

Part Number	Description	Case Qty
456000-0023	Allihn Condenser, 300 mm jacket, 55/50 Joint, Fits tubing ID 3/8", Overall height 405 mm	1
585151-0035	Dean-Stark Receiver Only, 35ml, 55/50 Top and Side	1
586000-0023	Soxhlet Extractor Body, Size 23, Use with Thimble Size 0023/0223, Body ID x length 49 x 180 mm, 55/50 top joint, 24/40 bottom joint, Overall height 340 mm	1
601000-0624	500mL Round Bottom Flask, 24/40 Joint, OD 102 mm	1

Accessories

Part Number	Description	Case Qty
586500-0233	40-60 micron porosity thimble, Size 233, 150 mL, Body OD 45 mm, Disc dia. 40 mm, Height above frit 115 mm, Overall height 130 mm, Capacity 150 mL	1

Pickel Extraction Flask

- KIMAX® flask with three indentations spaced 120 degrees apart
- Diameter at top is closely controlled to insure a fit with metal condensers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Height (mm)	Body OD (mm)	Case Qty
26850-99	133	45	6

Sublation Extraction Apparatus

Designed for the isolation of surfactants from dilute aqueous solutions.

- The operation is described in Standard Methods for the Examination of Water and Wastewater, 22nd edition (Method 5540B)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
586800-0000	1

Replacement Parts

Part Number	Description	Case Qty
183000-2440	24/40 Bottom Joint, Fits Tubing ID 3/8", Overall Height 80 mm	1
657002-0125	125mL Gas Washing Bottle	1

Accessories

Part Number	Description	Case Qty
675310-0019	Size 19 Polyacetyl, Spherical Joint Clamp, Lt Blue, fits joint sizes 18/7, 18/9	12

SPE Disk Glassware and Manifolds

Our line of SPE glassware and manifolds has been specially designed for use with solid phase extraction disks to give you the highest possible recoveries of extracted analytes from drinking water, surface water and waste water samples.

- All SPE manifolds are supplied with three-way valves that allow the venting to atmosphere of each station without affecting the vacuum in the rest of the system
- SPE manifolds are manufactured from corrosion-resistant stainless steel
- Valves have stainless steel bodies with PTFE plugs
- SPE funnels have a sharp edge on the bottom inside diameter that, combined with the stronger spring in our aluminum clamps, minimizes any horizontal capillary action of the sample and solvent into the disk
- Extracted samples can be collected directly into K-D concentrator tubes, EPA water analysis vials, sample vials and test tubes up to 30 mm OD x 100 mm high
- PTFE-coated stainless steel support screen reduces the possibility of sample-to-sample cross-contamination compared to the traditional glass frit
- PTFE coating also protects the support screen from corrosion caused by acid-preserved samples
- SPE support bases with 40-35 outer Standard Taper joints have a specially designed internal surface that reduces dead volume and minimizes holdback of the extracted analyte
- Glassware is manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	SS Cup ID x Height (mm)	Includes	Case Qty
971000-1047	33 x 100	One 47 mm set of glassware and one 1-place manifold	1
971000-3047	33 x 100	Three 47 mm sets of glassware and one 3-place manifold	1
971000-6047	33 x 100	Six 47 mm sets of glassware and one 6-place manifold	1

Replacement Parts

Part Number	Description	Case Qty
971100-0047	47 mm SPE Glassware Set (Funnel, Support Base, Support Screen, PTFE Gaskets & Clamp)	1
971101-0347	47 mm, 300 mL SPE Funnel	1
971102-0047	47 mm SPE Support Base	1
971103-0047	47 mm SPE Support Screen, PTFE-coated SS	1
953753-0000	47 mm Anodized Aluminum Clamp	1
953811-0000	47 mm PTFE Gasket, 25/package (5 included with Glassware Set)	25
971200-0002	SPE Manifold PTFE Valve Plug and Stainless Steel Valve Body	1
971200-1000	1-Place SPE Manifold, Stainless Steel	1
971200-3000	3-Place SPE Manifold, Stainless Steel	1
971200-6000	6-Place SPE Manifold, Stainless Steel	1

Accessories

Part Number	Description	Case Qty
676001-4035	PTFE Sleeves for Greaseless Connections, 40/35 Joint	6
923910-0110	Pressure/Vacuum Diaphragm Pump, 115 VAC, 60 Hz, 4.2 Amps, Max free air capacity 1.1 CFM, Ultimate vacuum 25.5" Hg, Noise level <70 DB, 14.4 lb/6.5 kg; 3/8" hose barbs on inlet and outlet	1
953830-0000	40/35 Glass Cap	1
971103-4247	47 mm PCTFE SPE Support Screen	1
971101-1047	47 mm, 1000 mL SPE Funnel	1
971100-0090	90 mm SPE Glassware Set (Funnel, Support Base, Support Screen, & Clamp)	1
971103-4290	90 mm PCTFE SPE Support Screen	1
953753-0090	90 mm Anodized Aluminum Clamp	1
971101-1090	90 mm, 1000 mL SPE Funnel	1
971102-0090	90 mm SPE Support Base	1
971103-0090	90 mm SPE Support Screen, PTFE-coated SS	1

FILTRATION

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

Kimble® microfiltration assemblies are available in 25 mm, 47 mm and 90 mm diameters. Select from assemblies used with filter flasks, all-glass assemblies, and bottle-style devices.

All glass Buchner and Hirsch funnels are available in a variety of disc diameters, glass frit porosities, and funnel capacities.

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Vacuum Filtration Adapters with Hose Connection

Use for reduced pressure filtration using a suitable glass vessel with a Standard Taper joint.

- Top designed for a pluro stopper
- Funnel and pluro stopper sold separately
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Pluro Stopper	Case Qty
275100-0000	14/20	#1	1
178100-2425	24/25	#3	1
178110-2440	24/40	#5 or #6	1
178110-2942	29/42	#5 or #6	1

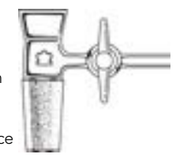
Extended Body Vacuum Filtration Adapters with Hose Connection

Use for reduced pressure filtration with plain stem Buchner funnels.

- Top designed for a pluro stopper
- Pluro stopper sold separately
- Designed with a flange to accommodate a pluro stopper
- Includes a lower drip tip
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Pluro Stopper	Case Qty
178120-0014	14/20	#2	1
178120-0024	24/40	#3	1
178120-0124	24/40	#4	1

Vacuum Filtration Adapters with PTFE Stopcock



Used for reduced pressure filtration using plain stem Buchner funnels.

- PTFE stopcock permits control of vacuum source
- Pluro stopper sold separately
- Designed with a flange to accommodate a pluro stopper
- Replacement PTFE stopcock plug is 821001 series
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Pluro Stopper	Case Qty
178130-1420	14/20	#2	1
178130-2440	24/40	#2	1
178130-2942	29/42	#3	1

Vacuum Filtration Luer

Use this adapter with disposable syringe cartridges for easy sample concentration and to eliminate the cleaning of glass frits and funnels. Designed to reduce cross-contamination.

- Features top luer fitting and integral vacuum connection
- Includes drip tip
- Plastic valves with luer fittings are available separately
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
205100-1420	14/20	0.25	1
205100-2440	24/40	0.25	1

Accessories

Part Number	Description	Case Qty
420163-0000	One-Way Stopcock Valve, Polycarbonate Body, HDPE Plug, Female Luer to Male Luer Lock	50
420163-1500	One-Way Stopcock Valve, Nylon Body, HDPE Plug, Female Luer to Male Luer	5
420163-4500	One-Way Stopcock Valve, Nylon Body, HDPE Plug, Female Luer to Male Luer Lock	50

Pluro Stopper Set

This autoclavable set of neoprene rubber adapters is designed to fit Buchner and fritted glass funnels.

- Set of seven Pluro stoppers, sizes 1-7, for filter funnels
- Can be used singly or nested with adjacent sizes
- Eliminates the need for boring of special size holes in rubber stoppers
- Reduces the risks associated with insertion and removal of glass stems through rubber stoppers

Size	OD Top (mm)	OD Bottom (mm)	ID Top (mm)	ID Bottom (mm)	Height (mm)	Wall (mm)
1	21	11	17	7	21	2
2	27	16	22	11	21	2.5
3	37	22	31	16	25	3
4	46	29	39	22	29	3.5
5	58	38	50	30	35	4
6	69	45	60	36	40	4.5
7	86	57	75	46	45	5.5

Part Number	Case Qty
852050-0070	7

Filtration Bells

KIMAX® filter bell useful for filtrations where it is desirable to collect filtrate in a crucible, beaker or flask for further work.

- May be used with either common chemical funnels or fritted ware
- Larger size will accommodate a 250 mL Erlenmeyer flask
- Bottom of the flange is ground, so that a seal may be made with a piece of ground flat glass
- Flat glass is not supplied
- Tooled hose connection is designed to accept 5/16 inch ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Rubber Stopper Size	OD (mm), ID (mm)	Case Qty
32450-7511	4	75, 70	1

Filtration Domes

Filter domes are recommended for EPA-type sample digestions prior to Atomic Absorption Spectroscopy.

- Constructed of non-metallic materials
- Filters quickly and simply, 3 times faster than the gravity method
- Filtrate is collected directly in a beaker, eliminating transfers
- Filter domes are constructed of borosilicate glass and polypropylene, virtually eliminating chances of trace metal contamination
- Designed for direct filtration and for use where transfers should be avoided
- Several units may be connected in a series and vacuum applied from a single source
- Upper portion of dome is tooled to accept a # 8 stopper and the popular 47 and 90 mm funnel support filtration assemblies
- Valve and hose connections are made of CTFE; O-rings are FKM
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Fits Tubing ID (inches)	Case Qty
953870-1000	1000	3/8	1
953870-2000	2000	3/8	1

Replacement Parts

Part Number	Description	Case Qty
953871-1000	1000 mL Glass Filter Dome Only	1
953871-2000	2000 mL Glass Filter Dome Only	1
953872-0000	Filter Base with CTFE Fittings	1

Accessories

Part Number	Description	Case Qty
953805-0000	ULTRA-WARE® Microfiltration Assembly with Stainless Steel Support, 47 mm, 300 mL Funnel, Overall Height 229 mm, Overall Diameter 76 mm	1
953805-0090	ULTRA-WARE® Microfiltration Assembly with Stainless Steel Support, 90 mm, 1000 mL Funnel, Overall Height 160 mm, Overall Diameter 350 mm	1

Buchner Funnel with 24/40 Joints

This Buchner filter is useful where a support is required for either a paper or polymeric filter.

- Standard taper 24/40 joints
- Not for applications where pressure would exceed 15 psi
- Drip tip
- Coarse (40-60 micron) porosity
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL); Porosity (microns)	Standard Taper Joints	Case Qty
954001-0000	150; 40-60	24/40	1

Buchner Funnel with Hose Connection

This Buchner funnel is useful with paper or polymeric filters.

- Funnel with sealed-in fritted disc, drip tip and integral #2 side hose connection
- Not recommended for use above 15 psi
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL); Porosity (microns)	Standard Taper Joints	Case Qty
293050-0123	15; 40-60	14/20	1
293050-0126	15; 4-5.5	14/20	1
293050-0144	15; 10-15	14/20	1
293050-0326	30; 4-5.5	14/20	1
293050-0344	30; 10-15	14/20	1
293050-0323	30; 40-60	14/20	1
293050-0623	60; 40-60	14/20	1
293050-0626	60; 4-5.5	14/20	1
293050-0644	60; 10-15	14/20	1
954100-0126	15; 4-5.5	24/40	1
954100-0144	15; 10-15	24/40	1
954100-0123	15; 40-60	24/40	1
954100-0326	30; 4-5.5	24/40	1
954100-0344	30; 10-15	24/40	1
954100-0323	30; 40-60	24/40	1
954100-0626	60; 4-5.5	24/40	1
954100-0644	60; 10-15	24/40	1
954100-0623	60; 40-60	24/40	1
954100-1526	150; 4-5.5	24/40	1
954100-1544	150; 10-15	24/40	1
954100-1523	150; 40-60	24/40	1
954100-3523	350; 40-60	24/40	1
954100-3526	350; 4-5.5	24/40	1
954100-3544	350; 10-15	24/40	1
954100-6023	600; 40-60	24/40	1
954100-6026	600; 4-5.5	24/40	1
954100-6044	600; 10-15	24/40	1
954120-1523	150; 40-60	29/42	1
954120-1544	150; 10-15	29/42	1
954120-3544	350; 10-15	29/42	1
954120-6044	600; 10-15	29/42	1

Buchner Funnel with KIMFLOW® Fritted Disc

This Buchner KIMAX® funnel is used wherever filter paper and membranes cannot withstand the chemical attack of the filtrate.

- Funnels are constructed with heavy-walled stems, and top rims are beaded for extra strength
- With a marking spot
- With KIMFLOW® fritted disc
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Disc Porosity (microns)	Case Qty
28400-21	2	40-60	9
28400-22	2	10-15	9
28400-23	2	4-5.5	1
28400-151	15	40-60	6
28400-152	15	10-15	6
28400-153	15	4-5.5	1
28400-301	30	40-60	6
28400-302	30	10-15	6
28400-303	30	4-5.5	1
28400-601	60	40-60	6
28400-602	60	10-15	6
28400-603	60	4-5.5	1
28400-1501	150	40-60	4
28400-1502	150	10-15	4
28400-1503	150	4-5.5	1
28400-3501	350	40-60	3
28400-3502	350	10-15	3
28400-3503	350	4-5.5	1
28400-6001	600	40-60	3
28400-6002	600	10-15	3
28400-6003	600	4-5.5	1
28400-20001	2000	40-60	1
28400-20002	2000	10-15	1
28400-30001	3000	40-60	1
28400-30002	3000	10-15	1

Fritted Hirsch Funnel

The conical funnel shape of the Hirsch filter directs filtrate through a reduced area frit to concentrate crystal residue for rewashing.

- Available in three porosities: Fine (4-5.5 microns), Medium (10-15 microns) and Coarse (40-60 microns)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Porosity (microns)	OD at Funnel Top x Stem Length (mm)	Case Qty
955250-3523	40-60	40 x 145	1
955250-5026	4-5.5	50 x 70	1
955250-7526	4-5.5	75 x 75	1
955250-5044	10-15	50 x 70	1
955250-7544	10-15	75 x 75	1
955250-5023	40-60	50 x 70	1
955250-7523	40-60	75 x 75	1

ULTRA-WARE® Filtering Flask with Rubber Stopper Joint

This flask is manufactured from heavy wall borosilicate glass to ensure the mechanical strength needed for vacuum filtration.

- Side arm accepts 3/8" ID tubing for connection to vacuum sources
- Rubber stopper joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

A second flask should be connected between the filtering flask and the vacuum source to prevent accidental entry of the filtrate into the vacuum line or pump.

Part Number	Capacity (mL)	Rubber Stopper Joint	Case Qty
953710-0000	125	#5	1
953760-0000	1000	#8	1
953760-2000	2000	#8	1
953760-4000	4000	#8	1

ULTRA-WARE® Filtering Flask with KimCote®

- These Erlenmeyer-style flasks are manufactured from heavy-wall borosilicate glass to ensure the mechanical strength needed for vacuum filtration
- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- The plastic safety coating is steam-autoclavable
- The 125 mL flask has a No. 5 stopper joint
- The 1, 2 and 4 liter flasks have a No. 8 stopper joint
- All flasks have a side arm for connection to 1/4" (6 mm) ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

A second flask should be connected between the filtering flask and the vacuum source to prevent accidental entry of the filtrate into the vacuum line or pump.

Part Number	Capacity (mL)	Rubber Stopper Joint	Case Qty
953760-0122	125	#5	1
953760-1002	1000	#8	1
953760-2002	2000	#8	1
953760-4002	4000	#8	1

Graduated Filtering Flask with Side Tubulation

KIMAX® flask with side tubulation.

- Capacity scale
- Flasks are designed for vacuum to 29" of mercury
- Made with a heavier wall than a standard Erlenmeyer flask
- All sizes have side hose connection designed to accept 5/16 inch ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL), Subdivision (mL)	Case Qty
27060-25	25	5 to 25, 5	18
27060-50	50	20 to 50, 10	18
27060-125	125	50 to 125, 25	18
27060-250	250	50 to 250, 25	18
27060-500	500	150 to 500, 50	18
27060-1000	1000	300 to 1000, 50	12
27060-2000	2000	600 to 2000, 100	1
27060-4000	4000	1000 to 4000, 250	1

Graduated Filtering Flask with Quick-Release Hose Barb Connector

KIMAX® heavy wall filter flasks have a quick-release connector designed as a safety feature.

- Hose barb accommodates 1/4 inch ID tubing
- Tubing can remain permanently attached since the opposite end is designed to be easily assembled via a positive threaded seal
- Proper positioning of the connector provides greater flask stability, as tubing angled downward has less tendency to tilt the flask
- Flasks are designed for vacuum to 29" of mercury
- Made with a heavier wall than a standard Erlenmeyer flask
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
27070-250	250	6	2
27070-500	500	7	8
27070-1000	1000	8	1
27070-2000	2000	9	1
27070-4000	4000	12	1

Replacement Parts

Part Number	Description	Case Qty
736400-1413	Quick-Release Hose Barb Connector	1

Graduated Filtering Flasks with Detachable Plastic Sidearm

- Detachable autoclavable plastic sidearm designed to accept 5/16 inch ID flexible tubing (U.S. Patent 3,268,300)
- Sidearm has two ears to provide a finger grip for easy insertion into a neoprene bushing by turning the plastic piece
- Opening in the sidearm is larger at the flask end to hold a cotton plug securely
- Made with a heavier wall than a standard Erlenmeyer flask
- All flasks have durable white ceramic enamel scales to indicate approximate volumes at various levels
- Designed from ASTM Specification E1406, Type III, Class II requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
27065-250	250	6	18
27065-500	500	7	18
27065-1000	1000	8	12
27065-2000	2000	9	1
27065-4000	4000	12	1

Replacement Parts

Part Number	Description	Case Qty
DP27067-99	Plastic Sidearm and Bushing	1
21175-10	10 black neoprene bushings	10

Filtering Flask with Standard Taper Joint

The heavy wall construction of this filtering flask assures good mechanical strength under vacuum application.

- Standard taper outer joint
- Serrated hose connector
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Outer	Case Qty
617500-0003	250	24/40	1
617500-0005	500	24/40	1

25 mm ULTRA-WARE® Microfiltration Assembly with Fritted Glass Support

The 25 mm vacuum microfiltration assembly is designed to handle small volumes of liquids for analysis of particulate or microbiological contamination. It has a fritted glass support and is used for general filtration.

- Supplied with a 40-60 micron porosity fritted glass support base, a 15 mL graduated funnel, an anodized aluminum clamp and a No. 5 silicone stopper
- Funnels are graduated from 5 to 15 mL in 1 mL increments
- Prefilter size is 16 mm diameter
- Approximate filter area is 2.5 cm²
- Connection to our 125 mL filtration flask (available as an accessory) is made with a No. 5 silicone stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL)	Case Qty
953705-0000	15	1

Accessories

Part Number	Description	Case Qty
953710-0000	125 mL Flask, #5 Stopper Joint, 3/8" Hose Connection	1
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, 3/8" Hose Connection	1
953701-0125	150 mL Glass Funnel, 25 mm	1
953701-0325	300 mL Glass Funnel, 25 mm	1
953701-0125	#8 Silicone Stopper with 3/8" hole, for Use with 1000 mL Flitration Flask	1

Replacement Parts

Part Number	Description	Case Qty
953703-0000	25 mm Anodized Aluminum Clamp	1
953702-0001	25 mm Fritted Glass Support Base	1
953701-0000	15 mL Glass Funnel, 25 mm	1
953715-0501	#5 Silicone Stopper with 3/8" hole, for Use	1

25 mm ULTRA-WARE® Microfiltration Assembly with Stainless Steel Support

The 25 mm vacuum microfiltration assembly is designed to handle small volumes of liquids for analysis of particulate or microbiological contamination. It has a stainless steel support and is used for filtering viscous or proteinaceous solutions or to produce ultra-clean filtrate.

- Supplied with a 316 stainless steel support screen, a PTFE support screen gasket, a glass support base, a 15 mL graduated funnel, an anodized aluminum clamp and a #5 silicone stopper
- Funnels are graduated from 5 to 15 mL in 1 mL increments
- Prefilter size is 16 mm diameter
- Approximate filter area is 2.5 cm²
- Connection to our 125 mL filtration flask (available as an accessory) is made with a No. 5 silicone stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL)	Case Qty
953730-0000	15	1

Replacement Parts

Part Number	Description	Case Qty
953703-0000	25 mm Anodized Aluminum Clamp	1
953711-0000	25 mm Stainless Steel Support Screen, 80 x 80 mesh, 304 stainless steel, 0.0095" opening size, 19.4% open area, 0.007" wire diameter	1
953712-0000	PTFE Support Screen Gasket	25
953726-0001	25 mm Glass Support Base	1
953701-0000	15 mL Glass Funnel, 25 mm	1
953715-0501	#5 Silicone Stopper with 3/8" hole for Use with 125 mL Filtration Flask	1

Accessories

Part Number	Description	Case Qty
953710-0000	125 mL Filter Flask, #5 Rubber Stopper Joint, 3/8" Hose Connection	1
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, 3/8" Hose Connection	1
953701-0125	150 mL Glass Funnel, 25 mm	1
953701-0325	300 mL Glass Funnel, 25 mm	1
953701-0125	#8 Silicone Stopper with 3/8" Hole for Use with 1000 mL Filtration Flask	1

47 mm ULTRA-WARE® Microfiltration Assembly with Fritted Glass Support and GL 45 Style Bottle

This filtration assembly is designed to collect filtrate directly into a media-style bottle.

- Supplied with funnel, clamp, fritted glass support base, tubing adapter, PBT cap, sealing ring and vacuum/pressure bottle
- Support base connects directly to bottle with unique cap and sealing ring
- Sealed-in 40-60 micron porosity fritted glass disc
- Vacuum and pressure rated from -1 to 1.5 bar
- Filtrate is collected directly into a media-type bottle when using a standard membrane filtration assembly
- All components are steam autoclavable
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
953750-5347	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953752-5047	47 mm Fritted Glass Support Base for Microfiltration Assembly	1
736400-1413	Tubing Adapter for Filtration Assembly, 1/4" x 13-425	1
410171-4226	42 mm PTFE/Silicone Sealing Ring	1
953751-0000	300 mL Glass Funnel, 47 mm	1
410170-4534	PBT GL-45 Cap with 34 mm Opening	1
953900-0010	1000 mL Vacuum/Pressure Bottle, 1.5 bar Operating Pressure	1

Accessories

Part Number	Description	Case Qty
923910-0110	Pressure/Vacuum Diaphragm Pump, 115 VAC, 60 Hz, 4.2 Amps, Max free air capacity 1.1 CFM, Ultimate vacuum 25.5" Hg, Noise level <70 DB, 14.4 lb/6.5 kg; 3/8" hose barbs on inlet and outlet	1
953771-0000	500 mL Glass Funnel, 47 mm	1
953781-0000	1000 mL Glass Funnel, 47 mm	1

47 mm ULTRA-WARE® Microfiltration Assembly with Stainless Steel Support and GL 45 Style Bottle

This adapter assembly is designed to allow connection of a 47 mm or 90 mm filtration support base with a straight drip tip to a bottle or reservoir with a GL 45 thread. It has a stainless steel support and is recommended for filtering viscous or proteinaceous solutions or to produce ultra-clean filtrate.

- Supplied with funnel, clamp, 304 stainless steel support screen, PTFE gasket, glass support base, tubing adapter with o-ring, PBT cap, sealing ring and vacuum/pressure bottle
- Filtrate is collected directly into a media-type bottle when using a standard membrane filtration assembly
- All components are steam autoclavable
- 80 x 80 304 stainless steel mesh, 0.0055" opening size, 19.4% open area, 0.007" wire diameter
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
953800-5347	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953810-0000	Stainless Steel Support Screen for 47 mm Filtration Assembly, 80 x 80 mesh, 304 stainless steel, 0.0095" opening size, 19.4% open area, 0.007" wire diameter	1
953811-4701	47 mm PTFE Support Screen Gasket	1
953801-5047	47 mm Glass Support Base	1
736400-1413	Tubing Adapter for Filtration Assembly, 1/4" x 13-425, Polypropylene with size 108 FKM O-ring	1
410171-4226	42 mm PTFE/Silicone Sealing Ring	1
953751-0000	300 mL Glass Funnel, 47 mm	1
410170-4534	PBT GL-45 Cap with 34 mm Opening	1
953900-0010	1000 mL Vacuum/Pressure Bottle, 1.5 bar Opening Pressure	1

Accessories

Part Number	Description	Case Qty
923910-0110	Pressure/Vacuum Diaphragm Pump, 115 VAC, 60 Hz, 4.2 Amps, Max free air capacity 1.1 CFM, Ultimate vacuum 25.5" Hg, Noise level <70 DB, 14.4 lb/6.5 kg; 3/8" hose barbs on inlet and outlet	1
953771-0000	500 mL Glass Funnel, 47 mm	1
953781-0000	1000 mL Glass Graduated Funnel, 47 mm	1

47 mm ULTRA-WARE® Microfiltration Assembly with Fritted Glass Support

This 47 mm vacuum microfiltration assembly is used for general filtration and is designed to handle up to 500 mL of sample liquids for the analysis of particulate or microbiological contamination.

- Supplied with a 40-60 micron porosity fritted glass support base, a 300 mL graduated funnel, an anodized aluminum clamp and a #8 silicone stopper
- Funnels are graduated from 100 to 250 mL in 25 mL increments
- Prefilter size is 35 mm
- Approximate filter area is 9.6 cm²
- Connection to our 1 liter filtration flask (available as an accessory) is made with a #8 silicone stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL)	Overall Height (mm), Clamp Width (mm)	Case Qty
953755-0000	300	229 x 76	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953752-0001	47 mm Fritted Glass Support Base	1
953751-0000	300 mL Glass Funnel 47 mm	1
953763-0801	#8 Silicone Stopper with 9/16" Hole for 1000 mL Filtration Flask	1

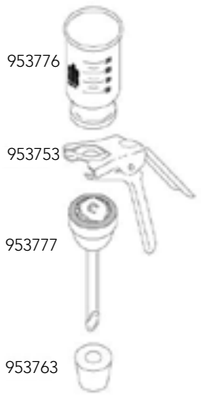
Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1
953760-1002	1000 mL KimCote™ Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1
953761-0000	100 mL Glass Funnel, 47 mm	1
953771-0000	500 mL Glass Funnel, 47 mm	1
953781-0000	1000 mL Glass Funnel, 47 mm	1

47 mm ULTRA-WARE® Microfiltration Assembly with PTFE-Faced Fritted Glass Support

This 47 mm vacuum microfiltration assembly is used for autoclaving with the filter in place and is designed to handle up to 500 mL of sample liquids for the analysis of particulate or microbiological contamination.

- Supplied with a 40-60 micron porosity PTFE-faced fritted glass support base, a 300 mL PTFE-faced graduated funnel, an anodized aluminum clamp and a #8 silicone stopper
- PTFE coating prevents membrane from adhering to ground glass surface
- Funnels are graduated from 100 to 250 mL in 25 mL increments
- Prefilter size is 35 mm
- Approximate filter area is 9.6 cm²
- Connection to our 1 liter filtration flask (available as an accessory) is made with a #8 silicone stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements



Part Number	Funnel Capacity (mL)	Case Qty
953780-0000	300	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953777-0001	47 mm PTFE-Faced Fritted Glass Support Base	1
953776-0000	300 mL PTFE-Faced Glass Funnel, 47 mm	1
953763-0801	#8 Silicone Stopper with 9?16" Hole for 1000 mL Flitration Flask	1

Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1
953760-1002	1000 mL KimCote™ Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1

47 mm ULTRA-WARE® Microfiltration Assembly with Stainless Steel Support

This 47 mm vacuum microfiltration assembly is designed to handle up to 500 mL of sample liquids for the analysis of particulate or microbiological contamination. It has a stainless steel support and is used for filtering viscous or proteinaceous solutions or to produce ultra-clean filtrate.

- Supplied with a 304 stainless steel support screen, a PTFE support screen gasket, a glass support base, a 300 mL graduated funnel, an anodized aluminum clamp and a #8 silicone stopper
- Funnels are graduated from 100 to 250 mL in 25 mL increments
- Prefilter size is 35 mm
- Approximate filter area is 9.6 cm²
- 80 x 80 304 stainless steel mesh, 0.0055" opening size, 19.4% open area, 0.007" wire diameter
- Connection to our 1 liter filtration flask (available as an accessory) is made with a #8 silicone stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL)	Overall Height (mm), Clamp Width (mm)	Case Qty
953805-0000	300	229 x 76	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953810-0000	Stainless Steel Support Screen for 47 mm Filtration Assembly, 80 x 80 mesh, 304 stainless steel, 0.0095" opening size, 19.4% open area, 0.007" wire diameter	1
953811-0000	47 mm PTFE Gasket, 25/package (5 included with Glassware Set)	25
953801-0001	47 mm Glass Support Base	1
953751-0000	300 mL Glass Funnel, 47 mm	1
953763-0801	#8 Silicon Stopper with 9/16" Hole for 1000 mL Filtration Flask	1

Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, 3/8" Hose Connection	1
953760-1002	1000 mL KimCote™ Filter Flask, #8 Stop-per Joint, Fits Tubing ID 3/8"	1
953761-0000	100 mL Glass Funnel, 47 mm	1
953771-0000	500 mL Glass Funnel, 47 mm	1
953781-0000	1000 mL Glass Funnel, 47 mm	1

47 mm ULTRA-WARE® Microfiltration Assembly with Fritted Glass Support and Ground Joi

The 47 mm filtration apparatus with fritted glass support is recommended for routine filtration analysis of corrosive liquids and the removal of particulates from HPLC solvents.

- The ground joint connection eliminates the phthalate contamination that can occur when using silicone or neoprene stoppers
- The support base has a 40-60 micron porosity glass frit and an integral vacuum connection that is located above the drip tip to prevent contamination of the vacuum line with filtrate droplets
- Each apparatus is supplied with a funnel, an anodized aluminum clamp, a 47 mm fritted glass support base and a filtration flask
- Joints are 40/35
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Flask Capacity (mL)	Funnel Capacity (mL)	Case Qty
953825-0000	1000	300	1
953835-0000	2000	500	1
953845-0000	4000	1000	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953826-0000	47 mm, 40/35 Fritted Glass Support Base	1
953827-0000	1000 mL Flask, 40/35 inner joint	1
953828-0000	2000 mL Flask, 40/35 inner joint	1
953829-0000	4000 mL Flask, 40/35 inner joint	1
953751-0000	300 mL Glass Graduated Funnel, 47 mm	1
953771-0000	500 mL Glass Graduated Funnel, 47 mm	1
953781-0000	1000 mL Glass Graduated Funnel, 47 mm	1

Accessories

Part Number	Description	Case Qty
676001-4035	PTFE Sleeves for Greaseless Connections, Fit Standard Taper Joint 40/35	6
953830-0000	40/35 Glass Cap	1
953761-0000	100 mL Glass Funnel, 47 mm	1

47 mm ULTRA-WARE® Microfiltration Assembly with Solvent Pick-Up Adapter and Ground Joint

This all glass microfiltration system eliminates pouring HPLC solvents into funnels.

- The solvent pickup adapter draws solvent directly from a reagent bottle through a 47 mm filter and into a filter flask
- After filtration is complete, the HI-VAC valve on the solvent pickup adapter can be turned off for vacuum degassing
- Existing ULTRA-WARE® and Millipore filtration assemblies are easily converted to in-line filtration/degassing by replacing existing funnels with solvent pickup adapters. They clamp to support bases in the same way that funnels do
- This system comes with a solvent pickup adapter, a coarse porosity fritted glass filter base, an inner joint flask and an aluminum clamp
- Filter base has an integral hose connection above the filtrate drip tip to prevent contamination of the vacuum line with filtrate droplets
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Flask Capacity (mL)	Standard Taper Joints	Case Qty
953820-1047	1000	40/35	1
953820-4047	4000	40/35	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953826-0000	47 mm, 40/35 Fritted Glass Support Base	1
953827-0000	1000 mL Flask, 40/35 inner joint	1
953829-0000	4000 mL Flask, 40/35 inner joint	1
953906-0047	47 mm Standard Pickup Adapter with 1/4" OD PTFE tubing	1

Accessories

Part Number	Description	Case Qty
953830-0000	40/35 Glass Cap	1

47 mm Microfiltration Assembly with Stainless Steel Support and Ground Joint

The 47 mm filtration apparatus with stainless steel support is recommended when filtering viscous or proteinaceous solutions to give the maximum flow rate.

- This apparatus is also used to produce ultra-clean filtrate since the stainless steel screen will not shed particles into the filtrate
- The ground joint connection eliminates the possible phthalate contamination that can occur when using silicone or neoprene stoppers
- Each apparatus is supplied with a funnel, an anodized aluminum clamp, a stainless steel support screen, a PTFE gasket, a 47 mm glass support base and a filtration flask
- 80 x 80 304 stainless steel mesh, 0.0055" opening size, 19.4% open area, 0.007" wire diameter
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Flask Capacity (mL)	Funnel Capacity (mL)	Case Qty
953855-1047	1000	300	1

Replacement Parts

Part Number	Description	Case Qty
953753-0000	47 mm Anodized Aluminum Clamp	1
953810-0000	Stainless Steel Support Screen for 47 mm Filtration Assembly, 80 x 80 mesh, 304 stainless steel, 0.0095" opening size, 19.4% open area, 0.007" wire diameter	1
953811-0000	47 mm PTFE Gasket, 25/package (5 included with Glassware Set)	25
953852-0001	47 mm, 40/35 Glass Base	1
953827-0000	1000 mL Flask, 40/35 inner joint	1
953751-0000	300 mL Glass Funnel, 47 mm	1

Accessories

Part Number	Description	Case Qty
676001-4035	PTFE Sleeves for Greaseless Connections, Fit Standard Taper Joint 40/35	6
953828-0000	2000 mL Flask, 40/35 inner joint	1
953829-0000	4000 mL Flask, 40/35 inner joint	1
953830-0000	40/35 Glass Cap	1
953761-0000	100 mL Glass Funnel, 47 mm	1
953771-0000	500 mL Glass Funnel, 47 mm	1
953781-0000	1000 mL Glass Funnel, 47 mm	1

Adapter Assembly with GL 45 Thread

This adapter assembly is designed to allow connection of a 47 mm or 90 mm filtration support base with a straight drip tip to a bottle or reservoir with a GL 45 thread.

- Filtrate is collected directly into a media-type bottle when using a standard membrane filtration assembly
- All components are steam-autoclavable
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Screw Thread	Case Qty
179950-4532	GL 45	1

Replacement Parts

Part Number	Description	Case Qty
179951-3213	Filtration Adapter Assembly Body Only, 33 expansion borosilicate glass	1
410171-2916	29 mm PTFE/Silicone Sealing Ring	1
410171-4226	42 mm PTFE/Silicone Sealing Ring	1
410170-3220	PBT GL-32 Cap with 20 mm Opening	1
736400-1413	Hose Barb Connector for Filtration Assembly, 1/4" x 13-425	1
410170-4534	PBT GL-34 Cap with 34 mm Opening	1

Accessories

Part Number	Description	Case Qty
953907-0000	Solvent Bottle Adapter, GL 45 to 4L Solvent Bottle, Made from PBT, Autoclavable	1

90 mm ULTRA-WARE® Microfiltration Assembly with Fritted Glass Support

The 90 mm vacuum microfiltration assemblies are designed for large sample volumes or samples with high particulate loads that would tend to clog a 47 mm diameter filter. The assembly with fritted glass support is used for general filtration.

- Filtration rates are up to four times faster than 47 mm filters
- The funnel is graduated from 300 to 1000 mL in 50 mL increments
- Maximum funnel capacity is 1100 mL
- Prefilter size is 70 mm diameter; approximate filter area is 38.5 cm²
- Connection to our 1 liter filtration flask (available as an accessory) is made with a #8 silicone stopper
- Unit is supplied with a 40-60 micron porosity fritted glass support base, a 1 liter graduated funnel, an anodized aluminum clamp and a #8 silicone stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL)	Overall Height (mm), Clamp Width (mm)	Case Qty
953755-0090	1000	160 x 350	1

Replacement Parts

Part Number	Description	Case Qty
953753-0090	90 mm Anodized Aluminum Clamp	1
953752-0090	90 mm Fritted Glass Support Base	1
953781-0090	1000 mL Glass Funnel, 90 mm	1
953763-0801	#8 Silicone Stopper with 9?16" Hole for 1000 mL Filtration Flask	1

Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1
953760-1002	1000 mL KimCote™ Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1

90 mm ULTRA-WARE® Microfiltration Assembly with Replaceable Fritted Glass Support

The 90 mm vacuum microfiltration assemblies are designed for large sample volumes or samples with high particulate loads that would tend to clog a 47 mm diameter filter. The assembly with replaceable fritted glass support is used for general filtration.

- Filtration rates are up to four times faster than 47 mm filters
- The funnel is graduated from 300 to 1000 mL in 50 mL increments
- Maximum funnel capacity is 1100 mL
- Prefilter size is 70 mm diameter and the approximate filter area is 38.5 cm²
- Connection to our 1 liter filtration flask (available as an accessory) is made with a #8 silicone stopper
- Unit is supplied with a 40-60 micron porosity fritted glass disc, a 90 mm glass support base, a 1000 mL graduated funnel, an anodized aluminum clamp and #8 silicone stopper
- The fritted glass support disc can be replaced if it becomes clogged or exchanged if sample-to-sample cross-contamination is a concern
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL)	Overall Height (mm), Clamp Width (mm)	Case Qty
953770-0090	1000	350 x 160	1

Replacement Parts

Part Number	Description	Case Qty
953753-0090	90 mm Anodized Aluminum Clamp	1
953772-0090	90 mm 40-60 micron porosity Fritted Glass Support Disc	1
953801-0090	90 mm Glass Support Base	1
953781-0090	1000 mL Glass Funnel, 90 mm	1
953763-0801	#8 Silicone Stopper with 9?16" Hole for 1000 mL Filtration Flask	1

Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1
953760-1002	1000 mL KimCote™ Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1

90 mm ULTRA-WARE® Microfiltration Assembly with Stainless Steel Support

The 90 mm vacuum microfiltration assemblies are designed for large sample volumes or samples with high particulate loads that would tend to clog a 47 mm diameter filter. This assembly with stainless steel support is used for filtering viscous or proteinaceous solutions or to produce ultra-clean filtrate.

- Filtration rates are up to four times faster than 47 mm filters
- The funnel is graduated from 300 to 1000 mL in 50 mL increments
- Prefilter size is 70 mm diameter, and the approximate filter area is 38.5 cm²
- Connection to our 1 liter filtration flask (available as an accessory) is made with a #8 silicone stopper
- Maximum funnel capacity is 1100 mL
- This unit is supplied with a 304 stainless steel support screen, a glass support base, a 300 mL graduated funnel, an anodized aluminum clamp and a # 8 silicone stopper
- 80 x 80 304 stainless steel mesh, 0.0055" opening size, 19.4% open area, 0.007" wire diameter
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL)	Overall Height (mm), Clamp Width (mm)	Case Qty
953805-0090	1000	350 x 160	1

Replacement Parts

Part Number	Description	Case Qty
953753-0090	90 mm Anodized Aluminum Clamp	1
953810-0090	Stainless Steel Support Screen for 90 mm Filtration Assembly, 80 x 80 mesh, 304 stainless steel, 0.0095" opening size, 19.4% open area, 0.007" wire diameter	1
953801-0090	90 mm Glass Support Base	1
953781-0090	1000 mL Glass Funnel, 90 mm	1
953763-0801	#8 Silicone Stopper with 916" Hole for 1000 mL Filtration Flask	1

Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1
953760-1002	1000 mL KimCote™ Filter Flask, #8 Stopper Joint, Fits Tubing ID 3/8"	1

90 mm ULTRA-WARE® Microfiltration Assembly with Fritted Glass Support and Ground Joint

The 90 mm filtration assembly with fritted glass support is designed for large volume filtration analysis of corrosive liquids or samples with high particulate loads that would tend to clog a 47 mm diameter filter. This unit is also recommended for filtering large volumes of HPLC solvents.

- The ground glass connection eliminates the possibility of phthalate contamination that can occur when using silicone or neoprene stoppers
- Each apparatus is supplied with 1000 mL funnel; 90 mm, 40-60 micron porosity, fritted glass support base; anodized aluminum clamp; and filtration flask
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL)	Flask Capacity (mL)	Case Qty
953825-0090	1000	1000	1
953835-0090	1000	2000	1
953845-0090	1000	4000	1

Replacement Parts

Part Number	Description	Case Qty
953753-0090	90 mm Anodized Aluminum Clamp	1
953826-0090	Fritted Glass Support Base 90 mm, 40/35 outer joint	1
953827-0000	1000 mL Flask, 40/35 inner joint	1
953828-0000	2000 mL Flask, 40/35 inner joint	1
953829-0000	4000 mL Flask, 40/35 inner joint	1
953781-0090	1000 mL Glass Funnel, 90 mm	1

Accessories

Part Number	Description	Case Qty
676001-4035	PTFE Sleeves for Greaseless Connections, Fits Standard Taper Joint 40/35	6
953830-0000	40/35 Glass Cap	1

90 mm ULTRA-WARE® Microfiltration Assembly with Replaceable Frit and Ground Joint

The 90 mm filtration apparatus with replaceable fritted glass support is recommended for large volume filtration analysis of corrosive liquids or samples with high particulate loads.

- The glass support disc can be replaced if it becomes clogged or if sample-to-sample contamination is a concern
- Like the apparatus with fritted glass support, the ground joint connection eliminates the possibility of phthalate contamination that can occur when using silicone or neoprene stoppers
- Each apparatus is supplied with 1000 mL funnel, 90 mm glass support base, 40-60 micron porosity fritted glass disc, anodized aluminum clamp and filtration flask
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Flask Capacity (mL)	Funnel Capacity (mL)	Case Qty
953840-2090	2000	1000	1
953840-4090	4000	1000	1

Replacement Parts

Part Number	Description	Case Qty
953752-0090	90 mm Fritted Glass Support Base	1
953753-0090	90 mm Anodized Aluminum Clamp	1
953772-0090	90 mm 40-60 micron porosity Fritted Glass Support Disc	1
953828-0000	2000 mL Flask, 40/35 inner joint	1
953829-0000	4000 mL Flask, 40/35 inner joint	1
953841-0090	90 mm, 40/35 Glass Base	1
953781-0090	1000 mL Glass Funnel, 90 mm	1

Accessories

Part Number	Description	Case Qty
676001-4035	PTFE Sleeves for Greaseless Connections, Fits Standard Taper Joint 40/35	6
953830-0000	40/35 Glass Cap	1

90 mm ULTRA-WARE® Microfiltration Assembly with SS Support and Ground Joint

The 90 mm filtration apparatus with stainless steel support is recommended when filtering large volumes of viscous or proteinaceous solutions to give the maximum flow rate.

- This unit is also used to produce ultra clean filtrate since the screen will not shed particles into the filtrate
- Each apparatus is supplied with stainless steel support screen, glass support base, 1000 mL funnel, anodized aluminum clamp and filtration flask
- 80 x 80 304 stainless steel mesh, 0.0055" opening size, 19.4% open area, 0.007" wire diameter
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL)	Flask Capacity (mL)	Case Qty
953855-1090	1000	1000	1

Replacement Parts

Part Number	Description	Case Qty
953753-0090	90 mm Anodized Aluminum Clamp	1
953810-0090	Stainless Steel Support Screen for 90 mm Filtration Assembly, 80 x 80 mesh, 304 stainless steel, 0.0095" opening size, 19.4% open area, 0.007" wire diameter	1
953827-0000	1000 mL Flask, 40/35 inner joint	1
953841-0090	90 mm, 40/35 Glass Base	1
953781-0090	1000 mL Glass Funnel, 90 mm	1

Accessories

Part Number	Description	Case Qty
953830-0000	40/35 Glass Cap	1
676001-4035	PTFE Sleeves for Greaseless Connections, Fits Standard Taper Joint 40/35	6

Recommended Procedures for Maximum Filter Life of Fritted Ware

New Filters - Wash new filters using suction with hot hydrochloric acid solution, followed by a water rinse.

Pressure Limits - The maximum safe differential pressure on a disc is 15 pounds per square inch.

Thermal Shock - Fritted ware has less resistance to thermal shock than non-porous glassware, hence excessive rapid temperature changes and direct exposure to a flame should be avoided. Heating in a furnace to 500 °C may be done safely, provided the heating and cooling are gradual. Dry ware may be put into a furnace that is set at 150 °C, but attainment of a constant weight is usually done at 105°-110 °C.

Cleaning of Used Filters
In many cases, precipitates can be removed by rinsing with water from the underside, with the pressure not exceeding 15 pounds per square inch. The suggestions that follow will be helpful in dealing with material that cannot be removed by the reverse water-wash.

The use of strong alkalies, strong hydrofluoric acid and phosphoric acid should be avoided. Also, mechanical scratching of the surfaces will weaken the discs.

Precipitate	Removal Agent
Albumen	Hot ammonia or hydrochloric acid.
Aluminous and siliceous residues	2% hydrofluoric acid followed by concentrated sulfuric acid. Rinse immediately with water until no trace of acid can be detected.
Copper or iron oxides	Hot hydrochloric acid plus potassium chlorate.
Glucose	Hot mixed sulfuric acid and nitric acid.
Fatty materials	Carbon tetrachloride
Mercuric sulfide	Hot agua regia (concentrated nitric acid and hydrochloric acid)
Mercury	Hot nitric acid
Organic Matter	Hot concentrated cleaning solution, or hot concentrated sulfuric acid with a few drops of sodium nitrite. (Bichromate cleaning solutions tend to permanently strain fritted ware which is undesirable for biochemical or pharmaceutical work.)
Silver chloride	Ammonium or sodium hyposulfite.

FLASKS

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

Flasks are fundamental tools for wet chemistry labs, and Kimble® takes pride in offering an abundance of choices in this glassware category. From volumetric flasks, Erlenmeyer flasks, and cell culture flasks to distilling flasks and round bottom flasks, we have many options to help you select the best product for your needs. In addition to clear glass, we also offer RAY-SORB® options for light sensitive samples and KimCote® flasks for an added measure of safety.

Class A Heavy Duty Wide Mouth Volumetric Flasks with Glass Stopper

- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy, uniform walls
- Quick identification with large, permanent, easy-to-read markings
- Flat interior bottoms for stirring with standard stir bars
- Graduated to Class A volumetric tolerances
- Standard Taper glass stoppers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
92812G-5	5; ±0.08	13	6
92812G-10	10; ±0.08	13	6
92812G-20	20; ±0.08	13	6
92812G-25	25; ±0.08	13	6
92812G-50	50; ±0.08	13	6
92812G-100	100; ±0.10	16	6
92812G-200	200; ±0.20	19	6
92812G-250	250; ±0.20	19	6
92812G-500	500; ±0.20	19	6
92812G-1000	1000; ±0.30	22	1
92812G-2000	2000; ±0.50	27	1
92812G-4000	4000; ±1.0	38	1
92812G-6000	6000; ±1.0	38	1

Replacement Parts

Part Number	Description	Case Qty
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1

Class A Heavy Duty Wide Mouth Volumetric Flasks with Polyethylene Stopper

- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety provided by heavy, uniform walls
- Quick identification with large, permanent, easy-to-read markings
- Flat interior bottoms for stirring with standard stir bars
- Graduated to Class A volumetric tolerances
- Standard Taper polyethylene stoppers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
92812P-5	5; ±0.08	13	6
92812P-10	10; ±0.08	13	6
92812P-20	20; ±0.08	13	6
92812P-25	25; ±0.08	13	6
92812P-50	50; ±0.08	13	6
92812P-100	100; ±0.10	16	6
92812P-200	200; ±0.20	19	6
92812P-250	250; ±0.20	19	6
92812P-500	500; ±0.20	19	6
92812P-1000	1000; ±0.30	22	1
92812P-2000	2000; ±0.50	27	1

Replacement Parts

Part Number	Description	Case Qty
28160R-13	Size 13 Linear High-Density Polyethylene Stopper	6
28160R-16	Size 16 Linear High-Density Polyethylene Stopper	6
28160R-19	Size 19 Linear High-Density Polyethylene Stopper	6
28160R-22	Size 22 Linear High-Density Polyethylene Stopper	6
28160R-27	Size 27 Linear High-Density Polyethylene Stopper	6

Heating Uncoated Glassware

1. Use wire gauze when heating over open flame.

2. Use either low or medium heat settings when using a hot plate. High hot plate settings will cuase excessive localized heating of the glassware and will eventually cause breakage and possible injury.

3. Do not heat glassware designated as heavy duty unless recommended by the manufacturer. Even though these items have added mechanical strength, they are more susceptible to breakage from thermal stock when heated.

4. Do not allow the contents of the container to boil dry, as this may induce permanent stresses that will eventually cause breakage. Discard containters that have been boiled dry.

DO NOT evacuate or pressurize glassware unless recommended in the current Kimble Chase Laboratory catalog.

NOTE: KimCote® plastic-coated glassware should not be placed on a hot plate or exposed to direct heat or flames. It can be steam autoclaved at 121 °C (250 °F) for 30 minutes.

Class A Heavy Duty Wide Mouth Volumetric Flasks with PTFE Stopper

- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety provided by heavy, uniform walls
- Quick identification with large, permanent, easy-to-read markings
- Flat interior bottoms for stirring with standard stir bars
- Graduated to Class A volumetric tolerances
- Standard Taper color-coded PTFE stoppers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
92812F-5	5; ±0.08	13	6
92812F-10	10; ±0.08	13	6
92812F-20	20; ±0.08	13	6
92812F-25	25; ±0.08	13	6
92812F-50	50; ±0.08	13	6
92812F-100	100; ±0.10	16	6
92812F-200	200; ±0.20	19	6
92812F-250	250; ±0.20	19	6
92812F-500	500; ±0.20	19	6
92812F-1000	1000; ±0.30	22	1
92812F-2000	2000; ±0.50	27	1

Replacement Parts

Part Number	Description	Case Qty
41901R-13	Size 13 Orange PTFE Key-Head Stopper, Diameter at Large End 13.4 mm, Length of Ground Zone 14.0 mm	6
41901R-16	Size 16 Blue PTFE Key-Head Stopper, Diameter at Large End 16.5 mm, Length of Ground Zone 15.0 mm	6
41901R-19	Size 19 Green PTFE Key-Head Stopper, Diameter at Large End 19.7 mm, Length of Ground Zone 17.0 mm	6
41901R-22	Size 22 Yellow PTFE Key-Head Stopper, Diameter at Large End 22.05 mm, Length of Ground Zone 20.5mm	6
41901R-27	Size 27 Red PTFE Key-Head Stopper, Diameter at Large End 27.15 mm, Length of Ground Zone 21.5mm	6

Class A Heavy Duty Wide Mouth Volumetric Flasks without Stopper

- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy, uniform walls
- Quick identification with large, permanent, easy-to-read markings
- Flat interior bottoms for stirring with standard stir bars
- Graduated to Class A volumetric tolerances
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
92812N-5	5; ±0.08	13	6
92812N-10	10; ±0.08	13	6
92812N-20	20; ±0.08	13	6
92812N-25	25; ±0.08	13	6
92812N-50	50; ±0.08	13	6
92812N-100	100; ±0.10	16	6
92812N-200	200; ±0.20	19	6
92812N-250	250; ±0.20	19	6
92812N-500	500; ±0.20	19	6
92812N-1000	1000; ±0.30	22	1
92812N-2000	2000; ±0.50	27	1

Recommended Glassware Cleaning Procedures

- Washing machines may be used. Support racks on the washer must be well maintained. The support pins should be coated with a non-abrasive material to prevent metal to glass contact and scratching.
- For manual washing, use only plastic core brushes that have soft non- abrasive bristles. Soft, clean sponges or other wiping materials may be used. DO NOT USE THESE BRUSHES OR WIPING MATERIALS WITH ABRASIVE CLEANERS. Keep them clean. Scotch Brite and similar scouring pads will scratch glass and should not be used.
- Inspect glassware before each use and discard if scratched, chipped, cracked or damaged in any way.
- Many commercial glass cleaners are available. Follow the manufacturer's directions for the use of these products, since some are corrosive and can damage the glass.
- Organic solvents are acceptable cleaning agents when conditions warrant their use.

WARNING:

- Do not place metal or other hard objects, such as spatulas, glass stirring rods, or brushes with metal parts, inside the glassware. This will scratch the glass and cause eventual breakage and injury.
- Do not use strong alkaline products and hydrofluoric acid as cleaning agents; they are glass dissolvers and can damage the glassware and eventually cause breakage which can result in injury.
- Do not use any abrasive cleansers, including soft cleansers (i.e. Ajax, Comet, Old Dutch, Soft Scrub, etc.), as these will scratch the glass and cause eventual breakage and injury.
- Do not place hands inside glassware while wearing any jewelry, particularly diamond rings, as these will score the inside of the glassware and eventually cause breakage and injury.

Class A Serialized and Certified Heavy Duty Wide Mouth Volumetric Flasks with Glass Stopper

- KIMAX® flask is permanently marked with an individual serial number and is supplied with a Certificate of Graduation Accuracy
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy, uniform walls
- Quick identification with large, permanent, easy-to-read, markings
- Graduated to Class A volumetric tolerances
- Graduation ring is blasted on the neck
- Calibrated "to contain"
- Flat interior bottoms for stirring with standard stir bars
- Supplied with a marking spot and standard taper glass stopper
- Designed from ASTM Specification E288, Class A serialized requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
92820G-5	5; ±0.08	13	6
92820G-10	10; ±0.08	13	6
92820G-20	20; ±0.08	13	6
92820G-25	25; ±0.08	13	6
92820G-50	50; ±0.08	13	6
92820G-100	100; ±0.10	16	6
92820G-200	200; ±0.20	19	6
92820G-250	250; ±0.20	19	6
92820G-500	500; ±0.20	19	6
92820G-1000	1000; ±0.30	22	1
92820G-2000	2000; ±0.50	27	1

Replacement Parts

Part Number	Description	Case Qty
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1

KimCote® Class A Heavy Duty Wide Mouth Volumetric Flasks

- Standard Taper glass stoppers
- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Wide mouth volumetric flasks feature neck dimensions that will easily accommodate pipets
- Calibrated to contain
- Superior strength, durability and heavy uniform walls ensure safety in the lab
- Flat interior bottoms are ideal for stirring with standard stir bars
- KimCote® volumetric flasks are graduated to Class A volumetric tolerances and are designed from ASTM Specification E288
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
KC92812G-100	100; ±0.10	16	6
KC92812G-250	250; ±0.20	19	6
KC92812G-500	500; ±0.20	19	6
KC92812G-1000	1000; ±0.30	22	1
KC92812G-2000	2000; ±0.50	27	1
KC92812G-4000	4000	0	1

Replacement Parts

Part Number	Description	Case Qty
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1

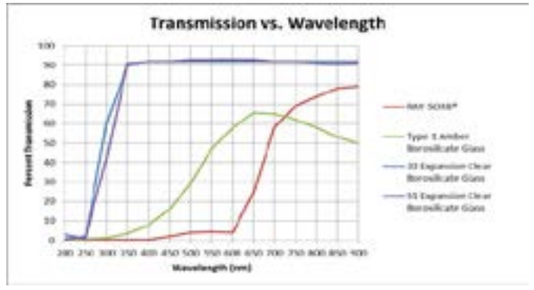
Standard Dimensions for Interchangeable Taper-Ground Flask Stoppers

Standard Flask Stopper Number (Standard Taper Designation)	Approx. Diameter at Small End (mm)	Length of Ground Zone (mm)	Computed Diameter at Large End of Ground Zone (Gauging Point) (mm)
8	7.25	10.0 ± 1.0	8.25
9	8	14.0 ± 1.0	9.4
13	12	14.0 ± 1.0	13.4
16	15	15.0 ± 1.0	16.5
19	18	17.0 ± 1.0	19.7
22	20	20.5 ± 1.5	22.05
27	25	21.5 ± 1.5	27.15
32	30	21.5 ± 1.5	32.15
38	35	30.0 ± 2.0	38.0

Class A RAY-SORB® Heavy Duty Wide Mouth Volumetric Flask with Pennyhead Glass Stopper

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety provided by heavy, uniform walls
- Quick identification with large, permanent, easy-to-read, markings
- Flat interior bottoms for stirring with standard stir bars
- Graduated to Class A volumetric tolerances for wide-mouth flasks
- Glass Standard Taper stoppers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
92822G-5	5; ±0.08	13	6
92822G-10	10; ±0.08	13	6
92822G-20	20; ±0.08	13	6
92822G-25	25; ±0.08	13	6
92822G-50	50; ±0.08	13	6
92822G-100	100; ±0.10	16	6
92822G-200	200; ±0.20	19	6
92822G-250	250; ±0.20	19	6
92822G-500	500; ±0.20	19	6
92822G-1000	1000; ±0.30	22	1
92822G-2000	2000; ±0.50	27	1



Class A RAY-SORB® Heavy Duty Wide Mouth Volumetric Flask with Polyethylene Stopper

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy, uniform walls
- Quick identification with large, permanent, easy-to-read, markings
- Flat interior bottoms for stirring with standard stir bars
- Calibrated to contain and graduated to Class A volumetric tolerances for wide-mouth flasks
- Polyethylene Standard Taper stoppers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
92822P-5	5; ±0.08	13	6
92822P-10	10; ±0.08	13	6
92822P-20	20; ±0.08	13	6
92822P-25	25; ±0.08	13	6
92822P-50	50; ±0.08	13	6
92822P-100	100; ±0.10	16	6
92822P-200	200; ±0.20	19	6
92822P-250	250; ±0.20	19	6
92822P-500	500; ±0.20	19	6
92822P-1000	1000; ±0.30	22	1
92822P-2000	2000; ±0.50	27	1

Replacement Parts

Part Number	Description	Case Qty
28160R-13	Size 13 Linear High-Density Polyethylene Stopper	6
28160R-16	Size 16 Linear High-Density Polyethylene Stopper	6
28160R-19	Size 19 Linear High-Density Polyethylene Stopper	6
28160R-22	Size 22 Linear High-Density Polyethylene Stopper	6
28160R-27	Size 27 Linear High-Density Polyethylene Stopper	6

Class A RAY-SORB® Heavy Duty Wide Mouth Volumetric Flask with PTFE Stopper

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy, uniform walls
- Quick identification with large, permanent, easy-to-read, markings
- Flat interior bottoms for stirring with standard stir bars
- Graduated to Class A volumetric tolerances for wide-mouth flasks
- PTFE Standard Taper stopper provides excellent chemical resistance
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
92822F-5	5; ±0.08	13	6
92822F-10	10; ±0.08	13	6
92822F-20	20; ±0.08	13	6
92822F-25	25; ±0.08	13	6
92822F-50	50; ±0.08	13	6
92822F-100	100; ±0.10	16	6
92822F-200	200; ±0.20	19	6
92822F-250	250; ±0.20	19	6
92822F-500	500; ±0.20	19	6
92822F-1000	1000; ±0.30	22	1
92822F-2000	2000; ±0.50	27	1

Replacement Parts

Part Number	Description	Case Qty
41901R-13	Size 13 Orange PTFE Key-Head Stopper, Diameter at Large End 13.4 mm, Length of Ground Zone 14.0 mm	6
41901R-16	Size 16 Blue PTFE Key-Head Stopper, Diameter at Large End 16.5 mm, Length of Ground Zone 15.0 mm	6
41901R-19	Size 19 Green PTFE Key-Head Stopper, Diameter at Large End 19.7 mm, Length of Ground Zone 17.0 mm	6
41901R-22	Size 22 Yellow PTFE Key-Head Stopper, Diameter at Large End 22.05 mm, Length of Ground Zone 20.5 mm	6
41901R-27	Size 27 Red PTFE Key-Head Stopper, Diameter at Large End 27.15 mm, Length of Ground Zone 21.5 mm	6

Class A RAY-SORB® Volumetric Flask with Color-Coded PTFE Stopper

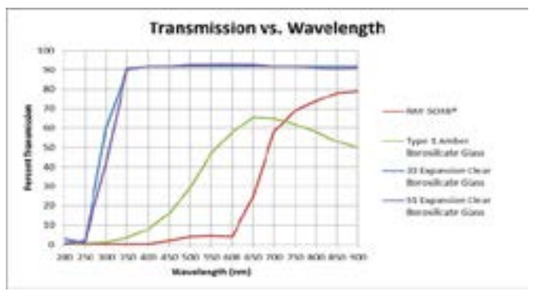
These flasks are RAY-SORB® processed to protect your light-sensitive contents from short-length lightwaves.

- Calibrated to contain
- With a marking spot
- Supplied with a PTFE Standard Taper stopper having a color-coded handle
- Replacement stopper is 41901R
- Designed from ASTM Specification E288, Class A unserialized requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
28016-10	10; ±0.02	9	12
28016-25	25; ±0.03	9	12
28016-50	50; ±0.05	9	12
28016-100	100; ±0.08	13	12
28016-200	200; ±0.10	16	12
28016-250	250; ±0.12	16	12
28016-500	500; ±0.20	19	12
28016-1000	1000; ±0.30	22	6

Replacement Parts

Part Number	Description	Case Qty
41901R-9	Size 9 Black PTFE Key-Head Stopper, Diameter at Large End 9.4, Length of Ground Zone 14.0	6
41901R-13	Size 13 Orange PTFE Key-Head Stopper, Diameter at Large End 13.4 mm, Length of Ground Zone 14.0 mm	6
41901R-16	Size 16 Blue PTFE Key-Head Stopper, Diameter at Large End 16.5 mm, Length of Ground Zone 15.0 mm	6
41901R-19	Size 19 Green PTFE Key-Head Stopper, Diameter at Large End 19.7 mm, Length of Ground Zone 17.0 mm	6
41901R-22	Size 22 Yellow PTFE Key-Head Stopper, Diameter at Large End 22.05 mm, Length of Ground Zone 20.5 mm	6



Class A RAY-SORB® Heavy Duty Wide Mouth Volumetric Flask without Stopper

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy, uniform walls
- Quick identification with large, permanent, easy-to-read, markings
- Flat interior bottoms for stirring with standard stir bars
- Graduated to Class A volumetric tolerances for wide-mouth flasks
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
92822N-5	5; ±0.08	13	6
92822N-10	10; ±0.08	13	6
92822N-20	20; ±0.08	13	6
92822N-25	25; ±0.08	13	6
92822N-50	50; ±0.08	13	6
92822N-100	100; ±0.10	16	6
92822N-200	200; ±0.10	19	6
92822N-250	250; ±0.10	19	6
92822N-500	500; ±0.20	19	6
92822N-1000	1000; ±0.30	22	1
92822N-2000	2000; ±0.50	27	1

Class A Micro Volumetric Flasks

- Class A threaded flask with open-top phenolic cap and PTFE-lined silicone septum for syringe access
- Closed-top phenolic cap with PTFE-faced white rubber liner also included
- Calibrated to contain
- V-shaped bottom provides convenient sample retrieval
- Sandblasted base for writing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	GPI Finish	Case Qty
297050-0001	1; ±0.010	13-425	1
297050-0002	2; ±0.015	13-425	1
297050-0003	3; ±0.015	13-425	1
297050-0005	5; ±0.020	13-425	1
297050-0010	10; ±0.020	13-425	1

Serialized and Certified Class A Micro Volumetric Flasks with Glass Stopper

Volumetric flasks are ideal for measuring accurate volumes of liquids.

- Letters "TC" on the flask indicate to contain
- KIMAX® flask is permanently marked with an individual serial number and a marking spot
- Supplied with a Certificate of Graduation Accuracy
- Graduation ring blasted on the neck
- Standard Taper ground glass stopper is supplied with the flask
- Cylindrical bodies allow for better mixing, draining and withdrawal of samples by pipet
- Wide base (circular for sizes 1, 2, and 5 mL and hexagonal for sizes 10 and 25 mL) imparts much greater stability than is possible with a conventionally shaped flask
- Sizes 1-5 mL are designed from recommendations published by the Committee on Microchemical Apparatus of the Analytical Division, American Chemical Society, "Analytical Chemistry," 28, page 1993 (Dec. 1956).
- All sizes are designed from ASTM Specification E237, Class A serialized requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
28017A-1	1; ±0.010	8	6
28017A-2	2; ±0.015	8	6
28017A-5	5; ±0.020	8	6
28017A-10	10; ±0.020	9	6
28017A-25	25; ±0.030	9	6

Replacement Parts

Part Number	Description	Case Qty
850100-0008	Size 8 Solid Pennyhead Stopper, Medium Length	1
850100-0009	Size 9 Solid Pennyhead Stopper, Medium Length	1

Class A Wide Mouth Flasks with Glass Stoppers

- KIMAX® volumetric flask with larger mouth to more easily accommodate pipet access
- Neck size is # 13
- Each flask is calibrated to Class A tolerances
- Supplied with a glass stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
28014W-50	50; ±0.05	13	6

Replacement Parts

Part Number	Description	Case Qty
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1

Class A Volumetric Flasks with Pennyhead Glass Stopper

- KIMAX® flask with a single graduation ring blasted on the neck, calibrated to contain
- A Standard Taper ground glass stopper is supplied
- Marking spots on all sizes
- Replacement stopper is 850100
- Sizes 5 mL and larger are designed from ASTM Specification E288, Class A requirements
- 1 and 2 mL sizes are test tube-shaped and are calibrated to E237 tolerances
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
28014-1	1; ±0.010	8	12
28014-2	2; ±0.015	8	12
28014-5	5; ±0.02	9	12
28014-10	10; ±0.02	9	12
28014-25	25; ±0.03	9	12
28014-50	50; ±0.05	9	12
28014-100	100; ±0.08	13	12
28014-200	200; ±0.10	16	12
28014-250	250; ±0.12	16	12
28014-500	500; ±0.20	19	12
28014-1000	1000; ±0.30	22	6
28014-2000	2000; ±0.50	27	4

Replacement Parts

Part Number	Description	Case Qty
850100-0008	Size 8 Solid Pennyhead Stopper, Medium Length	1
850100-0009	Size 9 Solid Pennyhead Stopper, Medium Length	1
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1
850100-0038	Size 38 Hollow Pennyhead Stopper, Medium Length	1

Serialized and Certified Class A Volumetric Flasks with Pennyhead Glass Stoppers

Volumetric flasks are ideal for measuring accurate volumes of liquids.

- KIMAX® flask is permanently marked with an individual serial number and supplied with a Certificate of Graduation Accuracy.
- Graduation ring is blasted on the neck
- Letters "TC" on the flask indicate to contain
- Supplied with a marking spot and a Standard Taper ground glass stopper
- These flasks have been carefully selected to meet the requirements for accuracy, appearance, glass quality, calibration line, and inscriptions of former NBS Circular 602
- Designed from ASTM Specification E288, Class A serialized requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
28017-10	10; ±0.02	9	12
28017-25	25; ±0.03	9	12
28017-50	50; ±0.05	9	12
28017-100	100; ±0.08	13	12
28017-200	200; ±0.10	16	12
28017-250	250; ±0.12	16	12
28017-500	500; ±0.20	19	12
28017-1000	1000; ±0.30	22	6
28017-2000	2000; ±0.50	27	4

Replacement Parts

Part Number	Description	Case Qty
850100-0009	Size 9 Solid Pennyhead Stopper, Medium Length	1
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1

KimCote® Class A Volumetric Flasks with Pennyhead Glass Stopper

- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- A single graduation ring is blasted on the neck
- Calibrated to contain
- A Standard Taper ground glass stopper is supplied
- Marking spots on all sizes
- Designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
KC28014-100	100; ±0.08	13	12
KC28014-250	250; ±0.12	16	12
KC28014-500	500; ±0.20	19	12
KC28014-1000	1000; ±0.30	22	4
KC28014-2000	2000; ±0.50	27	2

Replacement Parts

Part Number	Description	Case Qty
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1

Choose KimCote® Plastic-Coated Glassware for an Added Measure of Safety!

KimCote® protective glassware coating goes beyond traditional coatings. Should a break occur, KimCote® will reduce the hazards of shattered glass and leakage of toxic or corrosive chemicals. It's ultra-clear, extremely durable, autoclavable and resistant to many common laboratory chemicals. KimCote's unique texture also provides a non-slip handling surface, wet or dry.

An MSDS and a certificate of compliance are available by contacting Kimble Chase customer service.

KimCote® is a trademark of Kimble Chase.

KimCote® KC Series

Class A Volumetric Flasks with Polyethylene Stopper

- KIMAX® flask with a graduation ring blasted on the neck
- Calibrated to contain
- With a marking spot on sizes 10 mL and larger
- Supplied with a 28160R polyethylene stopper to fit in the Standard Taper ground neck
- Enlarged top of the stopper will protect the neck if the flask is tipped over
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
28014P-5	5; ±0.02	9	12
28014P-10	10; ±0.02	9	12
28014P-25	25; ±0.03	9	12
28014P-50	50; ±0.05	9	12
28014P-100	100; ±0.08	13	12
28014P-200	200; ±0.10	16	12
28014P-250	250; ±0.12	16	12
28014P-500	500; ±0.20	19	12
28014P-1000	1000; ±0.30	22	6
28014P-2000	2000; ±0.50	27	4

Replacement Parts

Part Number	Description	Case Qty
28160R-9	Size 9 Linear High-Density Polyethylene Stopper	6
28160R-13	Size 13 Linear High-Density Polyethylene Stopper	6
28160R-16	Size 16 Linear High-Density Polyethylene Stopper	6
28160R-19	Size 19 Linear High-Density Polyethylene Stopper	6
28160R-22	Size 22 Linear High-Density Polyethylene Stopper	6
28160R-27	Size 27 Linear High-Density Polyethylene Stopper	6

Class A Volumetric Flasks with Snap Cap

- KIMAX® flask calibrated to contain
- Supplied with a polyethylene snap cap
- Replacement cap is 28150R
- Designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I Class A requirements

Part Number	Capacity; Tolerance (mL)	Plastic Cap Number	Case Qty
28008-10	10; ±0.02	2	12
28008-25	25; ±0.03	2	12
28008-50	50; ±0.05	3	12
28008-100	100; ±0.08	4	12
28008-200	200; ±0.10	5	12
28008-250	250; ±0.12	5	12
28008-500	500; ±0.20	5	12
28008-1000	1000; ±0.30	6	6
28008-2000	2000; ±0.50	8	4

Replacement Parts

Part Number	Description	Case Qty
28150R-2	Size 2 Yellow Polyethylene Snap-Cap, Fits flask size 10, 25mL	6
28150R-3	Size 3 Yellow Polyethylene Snap-Cap, Fits flask size 50mL	6
28150R-4	Size 4 Yellow Polyethylene Snap-Cap, Fits flask size 100mL	6
28150R-5	Size 5 Yellow Polyethylene Snap-Cap, Fits flask size 200, 250, 500mL	6
28150R-6	Size 6 Yellow Polyethylene Snap-Cap, Fits flask size 1000mL	6

Recommended Glassware Cleaning Procedures

- Washing machines may be used. Support racks on the washer must be well maintained. The support pins should be coated with a non-abrasive material to prevent metal to glass contact and scratching.
- For manual washing, use only plastic core brushes that have soft non- abrasive bristles. Soft, clean sponges or other wiping materials may be used. DO NOT USE THESE BRUSHES OR WIPING MATERIALS WITH ABRASIVE CLEANERS. Keep them clean. Scotch Brite and similar scouring pads will scratch glass and should not be used.
- Inspect glassware before each use and discard if scratched, chipped, cracked or damaged in any way.
- Many commercial glass cleaners are available. Follow the manufacturer's directions for the use of these products, since some are corrosive and can damage the glass.
- Organic solvents are acceptable cleaning agents when conditions warrant their use.

Serialized and Certified Class A Volumetric Flasks with Snap Caps

These KIMAX® Class A flasks are permanently marked with individual serial numbers. The 500 mL size is suitable for determination of specific gravity of fine aggregate (ASTM C128).

- Supplied with a Certificate of Graduation Accuracy
- Graduation ring is blasted on the neck
- Letters "TC" on the flask indicate to contain
- Supplied with a polyethylene snap cap and a marking spot
- Flasks have been carefully selected to meet the requirements for accuracy, appearance, glass quality, calibration line, and inscriptions of former NBS Circular 602
- Designed from ASTM Specification E288, Class A serialized requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Plastic Cap Number	Case Qty
28012-50	50; ±0.05	3	12
28012-100	100; ±0.08	4	12
28012-250	250; ±0.12	5	12
28012-500	500; ±0.20	5	12
28012-1000	1000; ±0.30	6	6

Replacement Parts

Part Number	Description	Case Qty
28150R-2	Size 2 Yellow Polyethylene Snap-Cap, Fits flask size 10, 25mL	6
28150R-3	Size 3 Yellow Polyethylene Snap-Cap, Fits flask size 50mL	6
28150R-4	Size 4 Yellow Polyethylene Snap-Cap, Fits flask size 100mL	6
28150R-5	Size 5 Yellow Polyethylene Snap-Cap, Fits flask size 200, 250, 500mL	6
28150R-6	Size 6 Yellow Polyethylene Snap-Cap, Fits flask size 1000mL	6

Class A Volumetric Flasks with Color-Coded PTFE Stopper

- KIMAX® flask with a graduation ring blasted on the neck
- Calibrated to contain
- With a marking spot on 10 mL and larger sizes
- The 2 mL size is test tube-shaped. All other sizes are of a conventional flask shape
- Supplied with a PTFE Standard Taper stopper which has a color-coded handle
- Replacement stopper is 41901R
- The 5 mL and larger sizes are designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
28014F-2	2; ±0.015	8	12
28014F-5	5; ±0.02	9	12
28014F-10	10; ±0.02	9	12
28014F-25	25; ±0.03	9	12
28014F-50	50; ±0.05	9	12
28014F-100	100; ±0.08	13	12
28014F-200	200; ±0.10	16	12
28014F-250	250; ±0.12	16	12
28014F-500	500; ±0.20	19	12
28014F-1000	1000; ±0.30	22	6
28014F-2000	2000; ±0.50	27	4

Replacement Parts

Part Number	Description	Case Qty
41901R-8	Size 8 Gray PTFE Key-Head Stopper, Diameter at Large End 8.25 mm, Length of Ground Zone 10.0 mm	6
41901R-9	Size 9 Black PTFE Key-Head Stopper, Diameter at Large End 9.4, Length of Ground Zone 14.0	6
41901R-13	Size 13 Orange PTFE Key-Head Stopper, Diameter at Large End 13.4 mm, Length of Ground Zone 14.0 mm	6
41901R-16	Size 16 Blue PTFE Key-Head Stopper, Diameter at Large End 16.5 mm, Length of Ground Zone 15.0 mm	6
41901R-19	Size 19 Green PTFE Key-Head Stopper, Diameter at Large End 19.7 mm, Length of Ground Zone 17.0 mm	6
41901R-22	Size 22 Yellow PTFE Key-Head Stopper, Diameter at Large End 22.05 mm, Length of Ground Zone 20.5 mm	6
41901R-27	Size 27 Red PTFE Key-Head Stopper, Diameter at Large End 27.15 mm, Length of Ground Zone 21.5 mm	6

Class A Volumetric Flasks with Screw Cap

- Class A threaded flask supplied with a PTFE/ rubber-lined phenolic cap
- Calibrated to contain
- Single graduation ring blasted on the neck
- Designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	GPI Finish	Case Qty
621600-0005	5; ±0.02	13-425	1
621600-0010	10; ±0.02	13-425	1
621600-0025	25; ±0.03	13-425	1
621600-0050	50; ±0.05	13-425	1
621600-0100	100; ±0.08	13-425	1
621600-0250	250; ±0.12	20-400	1
621600-0500	500; ±0.20	20-400	1
621600-1000	1000; ±0.30	20-400	1
621600-2000	2000; ±0.50	28-410	1

Replacement Parts

Part Number	Description	Case Qty
73802-13425	13-425 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner	144
73802-20400	20-400 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner	144

Glassware Safety

1. Don't get cut - it hurts you and your productivity.
2. Don't drop glassware - avoid the bruises that lead to breakage.
3. Don't use chipped or broken glassware - it's dangerous and brerakes more readily.
4. Don't mouth pipet - you could inhale a toxic substance, burn your mouth, or cut your lip.
5. Don't leave pipets sticking out of beakers or flasks - it's an invitation for an accident.
6. Insert tubing carefully. Use a protective towel for your hand and lubricate the tubing.
7. Dispose of broken glassware in a special receptacle.
8. Carry large containers carefully, using a bottle carrier.
9. Clean and rinse glassware very well with deionized water, then let it dran dry on a clean, lint-free towel.

To back up the rules, you need a formal laboratory safety program. It begins with a written safety policy, a safety committe, and regular safety inspections. That way, you can investigat accidents thoroughly, keep a record and analysis of them, and promote safety awareness all the time. It could lead you to the best safety record ever.

Class A Colorware Flasks

Available with markings in four colors, the KIMAX® Colorware flasks are brighter in appearance than traditional glassware with white markings. These flasks are also commonly used to help reduce cross-contamination and for easy identification of glassware between labs.

- KIMAX® flask with a single graduation ring blasted on the neck, calibrated to contain
- A Standard Taper ground glass stopper is supplied, along with a durable, color, matte finish marking area for use with an ordinary pencil
- Replacement stopper is 850100
- Designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper; Color	Case Qty
28014R-25	25; ±0.03	9; Raging Red	6
28014R-50	50; ±0.05	9; Raging Red	6
28014R-100	100; ±0.08	13; Raging Red	6
28014R-250	250; ±0.12	16; Raging Red	6
28014R-500	500; ±0.20	19; Raging Red	6
28014R-1000	1000; ±0.30	22; Raging Red	1
28014Y-25	25; ±0.03	9; Sunny Yellow	6
28014Y-50	50; ±0.05	9; Sunny Yellow	6
28014Y-100	100; ±0.08	13; Sunny Yellow	6
28014Y-250	250; ±0.12	16; Sunny Yellow	6
28014Y-500	500; ±0.20	19; Sunny Yellow	6
28014Y-1000	1000; ±0.30	22; Sunny Yellow	1
28014E-25	25; ±0.03	9; Cool Green	6
28014E-50	50; ±0.05	9; Cool Green	6
28014E-100	100; ±0.08	13; Cool Green	6
28014E-250	250; ±0.12	16; Cool Green	6
28014E-500	500; ±0.20	19; Cool Green	6
28014E-1000	1000; ±0.30	22; Cool Green	1
28014B-25	25; ±0.03	9; Bright Blue	6
28014B-50	50; ±0.05	9; Bright Blue	6
28014B-100	100; ±0.08	13; Bright Blue	6
28014B-250	250; ±0.12	16; Bright Blue	6
28014B-500	500; ±0.20	19; Bright Blue	6
28014B-1000	1000; ±0.30	22; Bright Blue	1

Replacement Parts

Part Number	Description	Case Qty
850100-0009	Size 9 Solid Pennyhead Stopper, Medium Length	1
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1

Class A To Contain and To Deliver Flasks

- KIMAX® flask with a graduation ring blasted on the neck
- Calibrated both “to contain” and “to deliver” (top line)
- With a marking spot
- Standard Taper ground glass stopper is supplied with the flask
- Replacement stopper is 850100
- Designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Stopper	Case Qty
28026-100	100	13	6

Replacement Parts

Part Number	Description	Case Qty
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1

Class A Mixing Bulb Style Flasks with Standard Taper Stoppers

The mixing bulb in the neck, between the stopper and capacity ring, contains approximately one tenth of the capacity of the body and is designed to aid in dissolving or mixing the contents of the flask.

- KIMAX® flask with a graduation ring blasted on the neck
- Calibrated to contain
- With a marking spot
- Standard Taper ground glass stopper is supplied
- Replacement stopper is 850100
- Designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
28019-50	50; ±0.05	9	6
28019-100	100; ±0.08	13	4
28019-250	250; ±0.12	16	4
28019-500	500; ±0.20	19	4
28019-1000	1000; ±0.30	22	4

Class A Mixing Bulb Style Wide Mouth Heavy Wall Flasks with Standard Taper Stoppers

Wide mouths allow easy access into these mixing bulb volumetric flasks for applications such as dissolving tablets and other solids.

- Heavy wall design provides added durability
- Mixing bulb in neck accommodates approximately one tenth of the flask’s total volume and is designed to aid in dissolving or mixing the contents of the flask
- Calibrated to contain, with graduation ring blasted on the neck
- 850100 Standard Taper ground glass pennyhead stopper included
- Designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
623020-0100	100; ±0.08	16	1
623020-0200	200; ±0.12	16	1
623020-0250	250; ±0.12	16	1
623020-0300	300; ±0.12	16	1
623020-0400	400; ±0.15	16	1
623020-0500	500; ±0.15	16	1
623020-1000	1000; ±0.30	22	1

Replacement Parts

Part Number	Description	Case Qty
850100-0009	Size 9 Solid Pennyhead Stopper, Medium Length	1
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1

Class A Mixing Bulb Style Wide Mouth Flasks with Standard Taper Stoppers

Wide mouths allow easy access into these mixing bulb volumetric flasks for applications such as dissolving tablets and other solids.

- Mixing bulb in neck accommodates approximately one tenth of the flask’s total volume and is designed to aid in dissolving or mixing the contents of the flask
- Calibrated to contain, with graduation ring blasted on the neck
- 850100 Standard Taper ground glass pennyhead stopper included
- Designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
623010-0005	5; ±0.02	9	1
623010-0010	10; ±0.02	9	1
623010-0020	20; ±0.03	9	1
623010-0025	25; ±0.03	13	1
623010-0030	30; ±0.03	13	1
623010-0040	40; ±0.05	13	1
623010-0050	50; ±0.05	13	1
623010-0100	100; ±0.08	16	1
623010-0150	150; ±0.08	16	1
623010-0200	200; ±0.12	16	1
623010-0250	250; ±0.12	16	1
623010-0300	300; ±0.12	16	1
623010-0400	400; ±0.05	16	1
623010-0500	500; ±0.15	16	1
623010-1000	1000; ±0.30	22	1
623010-2000	2000; ±0.50	27	1

Class A Cassia Volumetric Flasks

KIMAX® flask used in assay of oils of cinnamon, chenopodium, cloves, spearmint and other essential oils, according to methods of the United States Pharmacopoeia and the Essential Oil Association of the USA.

- Calibrated to contain
- With a marking spot and a durable white ceramic enamel scale
- Neck is graduated from 100 to 110 mL in 0.1 mL subdivisions, with a ring at each 1 mL
- Replacement stopper is 850100
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
28066-110	110; ±0.08	13	6

Class A Volumetric Flasks with Pennyhead Glass Stoppers and Vertical Stripe

- KIMAX® flask with a graduation ring blasted through a vertical stripe on the neck
- Contrast between the blasted line and the deep red background provides legibility without coloring of the graduation line
- Calibrated to contain
- Standard Taper ground glass stopper is supplied with the flask
- Replacement stopper is 850100
- Designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
28013-25	25; ±0.03	9	12
28013-50	50; ±0.05	9	12
28013-100	100; ±0.08	13	12
28013-200	200; ±0.10	16	12
28013-250	250; ±0.12	16	12
28013-500	500; ±0.20	19	12
28013-1000	1000; ±0.30	22	6
28013-2000	2000; ±0.50	27	4

Replacement Parts

Part Number	Description	Case Qty
850100-0009	Size 9 Solid Pennyhead Stopper, Medium Length	1
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1

Class A Square Volumetric Flasks

KIMAX® flasks especially designed to take up less area and pack more closely on shelves and in refrigerators or other storage cabinets. For example, a shelf 12 inches x 33.5 inches will hold only 12 conventional 1000 mL round flasks, but will hold 30 square flasks.

- Square cross-section with a width less than the widest diameter of a typical round flask
- All sizes cover 25-35% less area than conventional flasks
- Due to the added glass weight and the square section, flasks also have greater stability
- Graduation ring is blasted on the neck
- Calibrated to contain
- 28046 series is also calibrated to deliver
- With a marking spot
- Standard Taper ground glass stopper is supplied with the flask
- Replacement stopper is 850100
- Designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance Contain Line (mL)	Standard Taper Stopper	Case Qty
28040-50	50; ±0.05	9	1
28040-100	100; ±0.08	13	1
28040-200	200; ±0.10	16	1
28040-250	250; ±0.12	16	1
28040-500	500; ±0.20	19	1
28040-1000	1000; ±0.30	22	1
28040-2000	2000; ±0.50	27	1
28046-500	500; ±0.20	19	1
28046-900	900; ±0.35	22	1

Replacement Parts

Part Number	Description	Case Qty
850100-0009	Size 9 Solid Pennyhead Stopper, Medium Length	1
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1

Class A Kohlrausch Volumetric Flasks

- KIMAX® flask with an enlarged mouth, providing easy introduction of samples of solid materials such as sugar beets
- Graduation ring is blasted on the neck
- Calibrated to contain
- With a marking spot
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Rubber Stopper Size	Case Qty
28100-100	100; ±0.10	6.5	12
28100-200	200; ±0.10	7.5	12
28100-500	500; ±0.20	9	6

Class B Volumetric Flasks with Standard Taper Pennyhead Glass Stoppers

- KIMAX® flask with a graduation ring blasted on the neck
- Calibrated to contain
- With a marking spot
- Standard Taper ground glass stopper is supplied with the flask
- Replacement glass stopper is 850100
- 1 & 2 mL flasks are test tube shaped
- Sizes 10 mL and larger are designed from ASTM Specification E288, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
28015-10	10; ±0.04	9	12
28015-25	25; ±0.06	9	12
28015-50	50; ±0.10	9	12
28015-100	100; ±0.16	13	12
28015-200	200; ±0.20	16	12
28015-250	250; ±0.24	16	12
28015-500	500; ±0.40	19	12
28015-1000	1000; ±0.60	22	6
28015-2000	2000; ±1.00	27	4

Replacement Parts

Part Number	Description	Case Qty
850100-0009	Size 9 Solid Pennyhead Stopper, Medium Length	1
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1

Class B Volumetric Flasks with Polyethylene Snap Caps

- KIMAX® flask with a graduation ring blasted on the neck
- Calibrated to contain
- With a marking spot
- Opening of neck is tooled for a polyethylene snap cap, which is included
- Enlarged top of the cap will protect the neck if the flask is tipped over
- Replacement cap is 28150R
- Designed from ASTM Specification E288, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Plastic Cap Number	Case Qty
28010-10	10; ±0.04	2	12
28010-25	25; ±0.06	2	12
28010-50	50; ±0.10	3	12
28010-100	100; ±0.16	4	12
28010-200	200; ±0.20	5	12
28010-250	250; ±0.24	5	12
28010-500	500; ±0.40	5	12
28010-1000	1000; ±0.60	6	6
28010-2000	2000; ±1.00	8	4

Replacement Parts

Part Number	Description	Case Qty
28150R-2	Size 2 Yellow Polyethylene Snap-Cap, Fits flask size 10, 25mL	6
28150R-3	Size 3 Yellow Polyethylene Snap-Cap, Fits flask size 50mL	6
28150R-4	Size 4 Yellow Polyethylene Snap-Cap, Fits flask size 100mL	6
28150R-5	Size 5 Yellow Polyethylene Snap-Cap, Fits flask size 200, 250, 500mL	6
28150R-6	Size 6 Yellow Polyethylene Snap-Cap, Fits flask size 1000mL	6

Standard Taper Ground Joints

The Standard Taper designation for a joint indicates that it complies with the requirements of ASTM E675 for stopcocks, stoppers, and reagent bottle necks and E676 for interchangeable joints. All mating parts are finished to a 1:10 taper.

For volumetric and Erlenmeyer flasks, graduated cylinders, etc., a single number indicates the size of a joint at the top of the neck; however, there are differences in dimensions between the bottle and flask stoppers (see the groundware technical section in this catalog).

Class B Volumetric Flasks with HDPE Stoppers

- KIMAX® flask with a graduation ring blasted on the neck
- Calibrated to contain
- With a marking spot
- Supplied with a yellow and blue closed-bottom linear high-density polyethylene stopper to fit in the Standard Taper ground neck
- Enlarged top of the stopper will protect the neck if the flask is tipped over
- Replacement stopper is 28160R
- Designed from ASTM Specification E288, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
28015P-100	100; ±0.16	13	12

Replacement Parts

Part Number	Description	Case Qty
28160R-13	Size 13 Linear High-Density Polyethylene Stopper	6

Narrow Mouth Erlenmeyer Flasks

KIMAX® flasks for economy and versatility. These flasks are the choice for general laboratory usage.

- Tops are reinforced and tooled with a rounded finish, containing more glass to give them maximum mechanical strength
- Body is thick-walled, with a long tapered outside contour to minimize chipping when struck or rubbed together
- All flasks have durable white ceramic enamel scales to indicate approximate volumes at various levels, useful in measuring and mixing solutions where a high degree of accuracy is not necessary
- Designed from ASTM Specification E1404, Type I, Class I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
26500-25	25	0	48
26500-50	50	1	48
26500-125	125	5	48
26500-250	250	6	48
26500-300	300	6	48
26500-500	500	7	36
26500-1000	1000	9	24
26500-2000	2000	10	8
26500-4000	4000	10	1
26500-6000	6000	10	1

Colorware Narrow Mouth Erlenmeyer Flasks

Available with markings in four colors, the KIMAX® Colorware flasks are brighter in appearance than traditional glassware with white markings. These flasks are also commonly used to help reduce cross-contamination and for easy identification between labs.

- All flasks have durable, colored, ceramic enamel scales to indicate approximate volumes at various levels
- Tops are reinforced and tooled with a rounded finish, containing more glass to give them maximum mechanical strength
- Body is thick-walled, with a long tapered outside contour to minimize chipping when struck or rubbed together
- Designed from ASTM Specification E1404, Type I, Class I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Color, Rubber Stopper Size	Case Qty
26500B-50	50	Blue, 1	12
26500B-125	125	Blue, 5	12
26500B-250	250	Blue, 6	12
26500B-500	500	Blue, 7	6
26500B-1000	1000	Blue, 9	6
26500G-50	50	Green, 1	12
26500G-125	125	Green, 5	12
26500G-250	250	Green, 6	12
26500G-500	500	Green, 7	6
26500G-1000	1000	Green, 9	6
26500Y-50	50	Yellow, 1	12
26500Y-125	125	Yellow, 5	12
26500Y-250	250	Yellow, 6	12
26500Y-500	500	Yellow, 7	6
26500Y-1000	1000	Yellow, 9	6
26500R-50	50	Red, 1	12
26500R-125	125	Red, 5	12
26500R-250	250	Red, 6	12
26500R-500	500	Red, 7	6
26500R-1000	1000	Red, 9	6

Erlenmeyer Starter Pack

An assortment of popularly sized Erlenmeyer flasks from our 26500 series that is ideal for start-up labs and customers who need a variety of Erlenmeyers but have limited lab space and glassware needs.

- The pack consists of 5 flasks (one each) in sizes of 50, 125, 250, 500 and 1000 mL
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Capacity (mL)	Graduation Range (mL)	Graduated Intervals (mL)	Rubber Stopper Size	Height (mm)	Widest OD (mm)
50	20 to 50	10	1	78	50
125	50 to 125	25	5	108	66
250	50 to 225	25	6	130	81
500	100 to 500	50	7	174	102
1000	250 to 1000	50	9	213	128

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
26520-1	50, 125, 250, 500, 1000	1, 5, 6, 7, 9	1

Jointed, Narrow Mouth Erlenmeyer Flasks

- Single neck flask with a Standard Taper outer joint.
- Tops are reinforced and tooled with a rounded finish, containing more glass to give them maximum mechanical strength
- Body is thick-walled, with a long tapered outside contour to minimize chipping when struck or rubbed together
- White ceramic enamel marking spot
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
296500-0005	5	14/20	1
296500-0010	10	14/20	1
296500-0015	15	14/20	1
296500-0025	25	14/20	1
296500-0050	50	14/20	1
296500-0100	100	14/20	1
296500-0125	125	14/20	1
296510-0025	25	19/22	1
296510-0050	50	19/22	1
296510-0100	100	19/22	1
296510-0125	125	19/22	1
296510-0250	250	19/22	1
617000-0124	50	24/40	1
617000-0224	125	24/40	1
617000-0424	250	24/40	1
617000-0624	500	24/40	1
617000-0724	1000	24/40	1
617000-0824	2000	24/40	1
617000-1024	4000	24/40	1
617000-1124	6000	24/40	1
617000-0229	125	29/42	1
617000-0429	250	29/42	1
617000-0629	500	29/42	1
617000-0729	1000	29/42	1
617000-0829	2000	29/42	1
617000-0834	2000	34/45	1
617000-0645	500	45/50	1
617000-0745	1000	45/50	1
617000-0845	2000	45/50	1
617000-1045	4000	45/50	1
617000-1145	6000	45/50	1

Jointed, Narrow Mouth Erlenmeyer Flasks with Capacity Scale

- With durable white ceramic enamel capacity scale
- KIMAX® flask with a full length Standard Taper ground glass neck finish
- Tops are reinforced and tooled with a rounded finish, containing more glass to give them maximum mechanical strength
- Body is thick-walled, with a long tapered outside contour to minimize chipping when struck or rubbed together
- Ref: ASTM Method D94
- Designed from ASTM Specification E1404, Type II, Class I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joint	Case Qty
26510-50	50	19/38	12
26510-125	125	24/40	12
26510-250	250	24/40	12
26510-500	500	24/40	12
26510-1000	1000	24/40	12
26510-2000	2000	24/40	1

Wide Mouth Erlenmeyer Flasks

- Heavy-duty tooled-top finish with capacity scale
- KIMAX® flask with a wide mouth.
- Ref: ASTM Method D473
- Designed from ASTM Specification E1404, Type I, Class II requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
26650-125	125	6	48
26650-250	250	8	48
26650-500	500	10	36
26650-1000	1000	11	24
26650-2000	2000	13	8

Heavy Wall Erlenmeyer Flasks

- KIMAX® flask designed to afford maximum strength
- Necks are tooled for a uniform stopper fit with a thick flat flange
- Without side tubulation
- Durable white ceramic enamel scale to indicate approximate volume
- 500 mL size is designed from ASTM Specification E1406, Type I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
27050-500	500	7	1
27050-1000	1000	8	1
27050-2000	2000	9	1
27050-4000	4000	12	1

RAY-SORB® Erlenmeyer Flasks

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Without a capacity scale
- Standard Taper PTFE stopper is supplied with the flask
- Replacement stopper is 41901R
- Designed from ASTM Specification E1404, Type II, Class II requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity (mL)	Standard Taper Stopper	Case Qty
26610-50	50	19	1
26610-125	125	22	1
26610-250	250	27	1
26610-500	500	32	1

MICROFLEX® Screw Cap Graduated Erlenmeyer Flasks

Graduated flask useful for sample collection, derivatization reactions, extractions, sample storage, micro mixing, etc.

- Supplied with open top phenolic cap and PTFE-lined silicone septum
- See 410116 for replacement cap and 774161 for septum
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Finish	Case Qty
749400-0025	25	20-400	12

Replacement Parts

Part Number	Description	Case Qty
774161-0020	Septa, PTFE-Faced with Silicone rubber backing, fits threaded cap size 20 mm, 0.005" PTFE thickness, 0.060" Silicon Rubber thickness	24
73804-20400	20-400 Black Phenolic Unlined, Open Top Cap, 12 mm Hole ID	144

Pennyhead Glass Stopper Erlenmeyer Flasks

- KIMAX® flask with a Standard Taper ground glass stopper neck finish
- With capacity scale
- Stopper is included
- Heights shown in table are without the stopper
- Replacement stopper is 850100 (glass), 41901R (PTFE) or 28160R (poly)
- Designed from ASTM Specification E1404, Type II, Class II requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Stopper	Case Qty
26600-25	25	16	12
26600-50	50	19	12
26600-125	125	22	12
26600-250	250	27	12
26600-500	500	32	8
26600-1000	1000	32	6

Replacement Parts

Part Number	Description	Case Qty
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1
850100-0032	Size 32 Solid Pennyhead Stopper, Medium Length	1

Alternate Stoppers

Part Number	Description	Case Qty
28160R-16	Size 16 Linear High-Density Polyethylene Stopper	6
28160R-19	Size 19 Linear High-Density Polyethylene Stopper	6
28160R-22	Size 22 Linear High-Density Polyethylene Stopper	6
28160R-27	Size 27 Linear High-Density Polyethylene Stopper	6
41901R-16	Size 16 Blue PTFE Key-Head Stopper, Diameter at Large End 16.5 mm, Length of Ground Zone 15.0 mm	6
41901R-19	Size 19 Green PTFE Key-Head Stopper, Diameter at Large End 19.7 mm, Length of Ground Zone 17.0 mm	6
41901R-22	Size 22 Yellow PTFE Key-Head Stopper, Diameter at Large End 22.05 mm, Length of Ground Zone 20.5mm	6
41901R-27	Size 27 Red PTFE Key-Head Stopper, Diameter at Large End 27.15 mm, Length of Ground Zone 21.5mm	6
41901R-32	Size 32 Grey PTFE Key-Head Stopper, Diameter at Large End 32.15 mm, Length of Ground Zone 21.5 mm	6

MICROFLEX® Threaded Erlenmeyer Flasks

- Erlenmeyer flask without graduations
- See 410116 for accessory cap and 774161 for septum
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Finish	Case Qty
747530-0520	5	20-401	1
747530-1020	10	20-402	1
747530-1520	15	20-403	1
747530-2520	25	20-404	1

Replacement Parts

Part Number	Description	Case Qty
73804-20400	20-400 Black Phenolic Unlined, Open Top Cap, 12 mm Hole ID	144
774161-0020	Septa, PTFE-Faced with Silicone rubber backing, fits threaded cap size 20 mm, 0.005" PTFE thickness, 0.060" Silicon Rubber thickness	24

Filtering Flask with Standard Taper Joint

The heavy wall construction of this filtering flask assures good mechanical strength under vacuum application.

- Standard taper outer joint
- Serrated hose connector
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Outer	Case Qty
617500-0003	250	24/40	1
617500-0005	500	24/40	1

ULTRA-WARE® Filtering Flask with Rubber Stopper Joint

This flask is manufactured from heavy wall borosilicate glass to ensure the mechanical strength needed for vacuum filtration.

- Side arm accepts 3/8" ID tubing for connection to vacuum sources
- Rubber stopper joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

A second flask should be connected between the filtering flask and the vacuum source to prevent accidental entry of the filtrate into the vacuum line or pump.

Part Number	Capacity (mL)	Rubber Stopper Joint	Case Qty
953710-0000	125	#5	1
953760-0000	1000	#8	1
953760-2000	2000	#8	1
953760-4000	4000	#8	1

Graduated Filtering Flask with Side Tubulation

KIMAX® flask with side tubulation.

- Capacity scale
- Flasks are designed for vacuum to 29" of mercury
- Made with a heavier wall than a standard Erlenmeyer flask
- All sizes have side hose connection designed to accept 5/16 inch ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL), Subdivision (mL)	Case Qty
27060-25	25	5-25, 5	18
27060-50	50	20-50, 10	18
27060-125	125	50-125, 25	18
27060-250	250	50-250, 25	18
27060-500	500	150-500, 50	18
27060-1000	1000	300-1000, 50	12
27060-2000	2000	600-2000, 100	1
27060-4000	4000	1000-4000, 250	1

Graduated Filtering Flask with Detachable Plastic Sidearm

- Detachable autoclavable plastic sidearm designed to accept 5/16 inch ID flexible tubing (U.S. Patent 3,268,300)
- Sidearm has two ears to provide a finger grip for easy insertion into a neoprene bushing by turning the plastic piece
- Opening in the sidearm is larger at the flask end to hold a cotton plug securely
- Made with a heavier wall than a standard Erlenmeyer flask
- All flasks have durable white ceramic enamel scales to indicate approximate volumes at various levels
- Designed from ASTM Specification E1406, Type III, Class II requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
27065-250	250	6	18
27065-500	500	7	18
27065-1000	1000	8	12
27065-2000	2000	9	1
27065-4000	4000	12	1

Replacement Parts

Part Number	Description	Case Qty
DP27067-99	Plastic Sidearm and Bushing	1
21175-10	10 black neoprene bushings	10

• ULTRA-WARE® Filtering Flask with KimCote®

- These Erlenmeyer-style flasks are manufactured from heavy-wall borosilicate glass to ensure the mechanical strength needed for vacuum filtration
- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- The plastic safety coating is steam-autoclavable
- The 125 mL flask has a No. 5 stopper joint
- The 1, 2 and 4 liter flasks have a No. 8 stopper joint
- All flasks have a side arm for connection to 3/8" (6 mm) ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

A second flask should be connected between the filtering flask and the vacuum source to prevent accidental entry of the filtrate into the vacuum line or pump.

Part Number	Capacity (mL)	Rubber Stopper Joint	Case Qty
953760-0122	125	#5	1
953760-1002	1000	#8	1
953760-2002	2000	#8	1
953760-4002	4000	#8	1

Graduated Filtering Flask with Quick-Release Hose Barb Connector

KIMAX® heavy wall filter flasks have a quick-release connector designed as a safety feature.

- Hose barb accommodates 1/4 inch ID tubing
- Tubing can remain permanently attached since the opposite end is designed to be easily assembled via a positive threaded seal
- Proper positioning of the connector provides greater flask stability, as tubing angled downward has less tendency to tilt the flask
- Flasks are designed for vacuum to 29" of mercury
- Made with a heavier wall than a standard Erlenmeyer flask
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
27070-250	250	6	2
27070-500	500	7	8
27070-1000	1000	8	1
27070-2000	2000	9	1
27070-4000	4000	12	1

Replacement Parts

Part Number	Description	Case Qty
736400-1413	Quick-Release Hose Barb Connector, 1/4" x 13-425	1

Incubation Flasks

Used for metabolic studies of biological materials. Particularly useful in measuring $C^{14}O^{2}$ yields following incubation. Also suitable for in vitro incubations, insulin bio-assays, persulfate oxidations, and the "distillation" of any volatile acid or base.

- Since either an acid or alkali is introduced at the end of the reaction, it is possible to use this easy system with either a phosphate or bicarbonate buffer
- The disposable center well may be cut off when transferred to a liquid scintillation counting vial
- Sidearm flask enables syringe needle entry without disturbing established conditions
- Rubber stopper provides a double seal and has an off-center hole for the insertion of the center well
- Items sold separately in case quantities listed below
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Description	Case Qty
882300-0010	10 mL Incubation Flask, Overall Height x Width 50 x 31 mm, Top Neck ID 14 mm	12
882360-0010	10 mL Sidearm Incubation Flask, Overall Height x Width 50 x 31 mm, Top Neck ID 14 mm	12
882310-0000	Top Stopper for Incubation Flask	144
882311-0000	Sidearm Stopper for Incubation Flask	144
882320-0000	Center Well for Incubation Flasks, Poly-propylene, Length 70 mm, Diameter 10 mm	144

Long Neck Flasks

The extended neck is designed to accept a metal cap, plastic closure, foam plug, or cotton plug for cell culture applications.

- KIMAX® flask has a thick-walled tubing neck with a plain fire-polished finish sealed to an Erlenmeyer-shaped body
- Autoclavable
- All flasks have durable white ceramic enamel scales to indicate approximate volumes at various levels
- Designed from ASTM Specification E1404, Type IV, Class I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Cap Size & Neck OD (mm)	Case Qty
25615-125	125	25	24
25615-250	250	38	24
25615-500	500	38	24
25615-1000	1000	38	24
25615-2000	2000	38	12

Baffled Shake Flasks

Designed for use with rotary and reciprocating shakers where baffle indents provide greater turbulence to improve oxygen transfer rates or aeration.

- Flask has a neck with a plain fire-polished finish and suitable for a metal cap, plastic cap, foam plug or cotton plug
- Autoclavable
- All flasks have durable white ceramic enamel marking spots
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Neck OD (mm)	Case Qty
25630-125	125	25	6
25630-250	250	38	6
25630-500	500	38	6
25630-1000	1000	38	6
25630-2000	2000	38	6

Accessories

Part Number	Description	Case Qty
73660-25	25 mm KIM-KAP Closure, PP, Natural	500
73660-38	38 mm KIM-KAP Closure, PP, Natural	250

Nephelo Culture Flasks

Culture flask with a sidearm for insertion into a nephelometer, colorimeter, or spectrometer. Bacterial or protein cell production can be monitored in situ.

- Designed to operate on a platform shaker
- Autoclavable
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Sidearm OD x Length (mm)	Case Qty
881750-0214	125	14 x 130	1
881750-0219	125	19 x 130	1
881750-0414	250	14 x 130	1
881750-0419	250	19 x 130	1

GL 45 Cell Culture Flask

These KIMAX® Erlenmeyer flasks have large opening, GL 45 thread closures to make filling easier and provide tight seals during storage.

- Flasks come with blue polypropylene caps and clear seal rings
- Marking spots and scales are durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Finish	Case Qty
26720-250	250	GL 45	6
26720-500	500	GL 45	6
26720-1000	1000	GL 45	4
26720-2000	2000	GL 45	2

KimCote® GL 45 Cell Culture Flasks

These KIMAX® KimCote® plastic-coated Erlenmeyer flasks have large opening, GL 45 thread closures to make filling easier and provide tight seals during storage.

- Flasks come with blue polypropylene caps and clear pour rings
- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Marking spots and scales are durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Finish	Case Qty
KC26720-250	250	GL 45	6
KC26720-500	500	GL 45	6
KC26720-1000	1000	GL 45	4
KC26720-2000	2000	GL 45	2

Screw Cap Erlenmeyer Flasks

Used to mix and store culture media, as well as with other culturing techniques.

- KIMAX® flask with a screw-thread finish.
- Included are long caps with cemented-in white rubber liners, not attached.
- Replacement cap is 45066B
- Designed from ASTM Specification E1404, Type III requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Finish	Case Qty
26505-50	50	24-410	24
26505-125	125	24-410	24
26505-250	250	28-410	24
26505-500	500	38-430	24
26505-1000	1000	38-430	12
26505-2000	2000	38-430	8

Antibiotic Moisture Content Flasks

For determining moisture loss on drying in tablets, troches, or capsules.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Sample is weighed, transferred to the flask and placed in a vacuum oven. Drying is done in the oven at a temperature of 60 °C and a pressure of 5 mm or less of mercury for three hours. The percent of loss is then calculated.

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
881700-0000	2.2	10/10	1

Iodine Flasks

KIMAX® 250 mL is flask used in the analysis of *dry shellac* and *shellac varnishes* with *Wijs iodine monochloride* solution and may be used to determine the total iodine value of oils, fatty acids and bodied oils with Rosenmund-Kuhnhenn reagent (ASTM D1541, withdrawn 2006). The 500 mL is used in the testing of drying oils for use in paints and varnishes, either with Wijs solution or with *Hanus iodine-bromine* solution (ASTM D555, withdrawn 2007).

- Heights shown below are without stopper
- Designed from ASTM Specification E1404, Type II, Class III requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Stopper	Case Qty
27200-125	125	22	12
27200-250	250	22	8
27200-500	500	22	6

Replacement Parts

Part Number	Description	Case Qty
41906R-22	Yellow Handle PTFE Stopper for use with Iodine Flask, Standard Taper Stopper Size 22, 43 mm Height	6

Round Bottom Short Neck Flask

- KIMAX® boiling flask with a round bottom
- 25276 series has a medium length Standard Taper 14/20 joint
- 25277 series has a medium length Standard Taper 19/22 joint
- 25285 series has a full length Standard Taper 24/40 joint
- Ref: ASTM Method D322
- Designed from ASTM Specification E1403, Type II, Class III requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
25276-100	100	14/20	12
25276-250	250	14/20	12
25277-100	100	19/22	12
25277-250	250	19/22	12
25277-500	500	19/22	12
25285-50	50	24/40	12
25285-100	100	24/40	12
25285-200	200	24/40	12
25285-250	250	24/40	12
25285-300	300	24/40	12
25285-500	500	24/40	12
25285-1000	1000	24/40	12
25285-2000	2000	24/40	6
25285-3000	3000	24/40	6

Round Bottom Flask with Tooled Top

- KIMAX® round-bottomed boiling flask
- Reinforced tooled top
- Designed from ASTM Specification E1403, Type II, Class I, requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
25200-250	250	5	12
25200-500	500	6	6

Single Standard Taper Neck Flask with Side Tubulation

- Heavy wall round-bottom flask with Standard Taper center neck with side Standard Taper tubulation
- Side tubulation has one 773900 rubber adapter with a 1/4" hole for access with thermometers or gas inlet tubes
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
294410-0000	250	19/22	1

Single Spherical Joint Neck Heavy Wall Round Bottom Flasks

Useful as rotary evaporator condensate collection flask or as a replacement for European designation KS 20/35.

- Single neck flask with a Spherical Joint socket
- Heavy wall
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Spherical Joint Size	Case Qty
601050-0128	50	28/15	1
601050-0136	50	35/25	1
601050-0236	100	35/25	1
601050-0428	250	28/15	1
601050-0628	500	28/15	1
601050-0635	500	35/20	1
601050-0636	500	35/25	1
601050-0735	1000	35/20	1
601050-0736	1000	35/25	1
601050-0835	2000	35/20	1
601050-0836	2000	35/25	1
601050-0935	3000	35/20	1
601050-0936	3000	35/25	1
601050-1036	5000	35/25	1

Single Standard Taper Neck Heavy Wall Round Bottom Flasks

- Single neck flask with a Standard Taper outer joint
- Heavy wall
- Ref: ASTM Method D95
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
294000-0005	5	14/20	1
294010-0005	5	19/22	1
294000-0010	10	14/20	1
294010-0010	10	19/22	1
294000-0015	15	14/20	1
294010-0015	15	19/22	1
294000-0025	25	14/20	1
294010-0025	25	19/22	1
294000-0035	35	14/20	1
294000-0050	50	14/20	1
294010-0050	50	19/22	1
601000-0124	50	24/40	1
601000-0129	50	29/42	1
294000-0100	100	14/20	1
294010-0100	100	19/22	1
601000-0224	100	24/40	1
601000-0229	100	29/42	1
601000-2224	125	24/40	1
601000-2229	125	29/42	1
601000-0324	200	24/40	1
294000-0250	250	14/20	1
294010-0250	250	19/22	1
601000-0424	250	24/40	1
601000-0429	250	29/42	1
601000-0524	300	24/40	1
601000-0526D	300	29/26	1
601000-0529	300	29/42	1
294000-0500	500	14/20	1
294010-0500	500	19/22	1
601000-0624	500	24/40	1
601000-0629	500	29/42	1
601000-0645	500	45/50	1
601000-0724	1000	24/40	1
601000-0729	1000	29/42	1
601000-0734	1000	34/45	1
601000-0745	1000	45/50	1
601000-0755	1000	55/50	1
601000-0824	2000	24/40	1
601000-0829	2000	29/42	1
601000-0845	2000	45/50	1
601000-0924	3000	24/40	1
601000-0929	3000	29/42	1
601000-0945	3000	45/50	1
601000-1024	5000	24/40	1
601000-1045	5000	45/50	1
601000-1145	12000	45/50	1
601000-1255	22000	55/50	1

KimCote® Heavy Wall Round Bottom Flasks

Kimble KIMAX® KimCote® plastic-coated single neck flask useful as a rotary evaporator condensate collection flask or as a replacement for European designation KS 20/35.

- Spherical socket joint
- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Spherical Joint Size	Case Qty
KC25330-100	100	35/20	1
KC25330-250	250	35/25	1
KC25330-500	500	35/25	1
KC25330-1000	1000	35/25	1
KC25330-2000	2000	35/25	1

Long Single Neck Heavy Wall Round Bottom Flasks

- Single long neck flask with a Standard Taper outer joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
296250-0010	10	14/20	1
296250-0050	50	14/20	1
601010-0129	50	29/42	1
296250-0100	100	14/20	1
601010-0224	100	24/40	1
601010-2524	150	24/40	1
601010-0324	200	24/40	1
601010-0429	250	29/42	1
601010-0524	300	24/40	1
601010-0624	500	24/40	1
601010-0629	500	29/42	1
601010-0724	1000	24/40	1
601010-0729	1000	29/42	1
601010-0924	3000	24/40	1

Two Vertical Neck Round Bottom Flasks

Distilling round bottom flask with two vertical necks

- Two-neck heavy wall flask with Standard Taper outer joints on both vertical necks
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
605000-0224	100	24/40, 24/40	1
605000-0624	250	24/40, 24/40	1
605000-1024	500	24/40, 24/40	1
605000-1224	500	34/45, 24/40	1
605000-1424	1000	24/40, 24/40	1
605000-1624	1000	34/45, 24/40	1
605000-1824	2000	24/40, 24/40	1
605000-2024	2000	34/45, 24/40	1

Angled Two Neck Round Bottom Flask

Distilling round bottom flask with angled side neck
- Two-neck flask with Standard Taper outer joints
- Side neck is angled
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

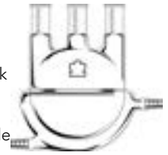
Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
294990-0010	10	14/20, 14/20	1
294990-0015	15	14/20, 14/20	1
294990-0025	25	14/20, 14/20	1
295000-0025	25	19/22, 14/20	1
295010-0025	25	19/22, 19/22	1
294990-0050	50	14/20, 14/20	1
295010-0050	50	19/22, 19/22	1
294990-0100	100	14/20, 14/20	1
295010-0100	100	19/22, 19/22	1
605020-0210	100	24/40, 10/30	1
605020-0224	100	24/40, 24/40	1
294990-0250	250	14/20, 14/20	1
295010-0250	250	19/22, 19/22	1
605020-0610	250	24/40, 10/30	1
605020-0624	250	24/40, 24/40	1
605020-4824	250	29/42, 24/40	1
294990-0500	500	14/20, 14/20	1
605020-1010	500	24/40, 10/30	1
605020-1110	500	29/42, 10/30	1
605020-1024	500	24/40, 24/40	1
605020-0019	1000	19/38, 19/38	1
605020-1410	1000	24/40, 10/30	1
605020-1419	1000	24/40, 19/38	1
605020-1424	1000	24/40, 24/40	1
605020-1524	1000	29/42, 24/40	1
605020-1824	2000	24/40, 24/40	1
605020-2224	3000	24/40, 24/40	1
605020-2624	5000	24/40, 24/40	1
605020-2924	5000	45/50, 24/40	1

Full Length Three Vertical Neck Round Bottom Flasks

- KIMAX® flask with a center neck that extends above the side necks
- Full length Standard Taper 24/40 joints
- Designed from ASTM Specification E1378, Type III requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
26246-500	500	24/40	1

Jacketed Three Vertical Neck Round Bottom Flasks



- Jacketed three-neck round-bottom reaction flask with Standard Taper outer joints, all vertical
- Heavy wall
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
609500-0524	500	24/40, 24/40	1

Indented Three Vertical Neck Round Bottom Flasks

- This flask is also referred to as a Morton flask
- Heavy wall
- Three-neck round bottom flask with Standard Taper outer joints, all vertical
- Indentations enhance agitation when stirring
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
609400-0224	500	24/40, 24/40	1
609400-0624	1000	24/40, 24/40	1
609400-1324	2000	45/50, 24/40	1
609400-2124	5000	45/50, 24/40	1

Three Vertical Neck Round Bottom Flask

- Three-neck heavy wall round-bottom flask with Standard Taper outer joints
- Side necks are vertical
- Ref: ASTM Method D1744
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
606000-0224	100	24/40, 24/40	1
606000-0624	250	24/40, 24/40	1
606000-4824	250	29/42, 24/40	1
606000-4829	250	29/42, 29/42	1
606000-1024	500	24/40, 24/40	1
606000-1124	500	29/42, 24/40	1
606000-1129	500	29/42, 29/42	1
606000-1224	500	34/45, 24/40	1
606000-1424	1000	24/40, 24/40	1
606000-1524	1000	29/42, 24/40	1
606000-1529	1000	29/42, 29/42	1
606000-1624	1000	34/45, 24/40	1
606000-1729	1000	45/50, 29/42	1
606000-1824	2000	24/40, 24/40	1
606000-1924	2000	29/42, 24/40	1
606000-1929	2000	29/42, 29/42	1
606000-2124	2000	45/50, 24/40	1
606000-2224	3000	24/40, 24/40	1
606000-2324	3000	29/42, 24/40	1
606000-2329	3000	29/42, 29/42	1
606000-2524	3000	45/50, 24/40	1
606000-2624	5000	24/40, 24/40	1
606000-2824	5000	34/45, 24/40	1
606000-2924	5000	45/50, 24/40	1

Angled Three Neck Round Bottom Flask

- Three-neck heavy wall round-bottom flask with Standard Taper outer joints
- Side necks are angled
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
295550-0015	15	14/20, 14/20	1
295500-0015	15	19/22, 14/20	1
295550-0025	25	14/20, 14/20	1
295510-0025	25	19/22, 19/22	1
295550-0050	50	14/20, 14/20	1
295500-0050	50	19/22, 14/20	1
295510-0050	50	19/22, 19/22	1
295550-0100	100	14/20, 14/20	1
295500-0100	100	19/22, 14/20	1
295510-0100	100	19/22, 19/22	1
606020-0219	100	24/40, 19/38	1
606020-0224	100	24/40, 24/40	1
295550-0250	250	14/20, 14/20	1
295500-0250	250	19/22, 14/20	1
295510-0250	250	19/22, 19/22	1
606020-0624	250	24/40, 24/40	1
606020-4829	250	29/42, 29/42	1
295550-0500	500	14/20, 14/20	1
295510-0500	500	19/22, 19/22	1
606020-1024	500	24/40, 24/40	1
606020-1124	500	29/42, 24/40	1
606020-1129	500	29/42, 29/42	1
606020-1224	500	34/45, 24/40	1
606020-1324	500	45/50, 24/40	1
606020-1424	1000	24/40, 24/40	1
606020-1529	1000	29/42, 29/42	1
606020-1624	1000	34/45, 24/40	1
606020-1824	2000	24/40, 24/40	1
606020-1924	2000	29/42, 24/40	1
606020-1929	2000	29/42, 29/42	1
606020-2124	2000	45/50, 24/40	1
606020-2224	3000	24/40, 24/40	1
606020-2624	5000	24/40, 24/40	1
606020-2724	5000	29/42, 24/40	1
606020-2924	5000	45/50, 24/40	1

Four Vertical Neck Round Bottom Flasks with Thermometer Joint

- Four-neck heavy wall round-bottom flask with Standard Taper outer joints, all vertical
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
606200-0124	250	29/42, 24/40	1
606200-0224	500	24/40, 24/40	1
606200-0324	500	29/42, 24/40	1
606200-0424	500	34/45, 24/40	1
606200-0624	1000	24/40, 24/40	1
606200-0724	1000	29/42, 24/40	1
606200-0824	1000	34/45, 24/40	1
606200-1024	2000	24/40, 24/40	1

Angled Four Side Neck Round Bottom Flasks

- Four-neck heavy wall flask with Standard Taper outer joints
- Side necks are angled
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
295790-0025	25	14/20, 14/20	1
295790-0050	50	14/20, 14/20	1
295790-0100	100	14/20, 14/20	1
295790-0250	250	14/20, 14/20	1
606300-0124	250	24/40, 24/40	1
606300-0224	500	24/40, 24/40	1

Four Vertical Neck Round Bottom Flasks

- Four-neck round bottom flask with Standard Taper outer joints, all vertical
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
607000-4724	250	24/40, 24/40	1
607000-0224	500	24/40, 24/40	1
607000-0324	500	29/42, 24/40	1
607000-0329	500	29/42, 29/42	1
607000-0424	500	34/45, 24/40	1
607000-0524	500	45/50, 24/40	1
607000-0624	1000	24/40, 24/40	1
607000-0724	1000	29/42, 24/40	1
607000-0729	1000	29/42, 29/42	1
607000-0824	1000	34/45, 24/40	1
607000-0924	1000	45/50, 24/40	1
607000-1124	2000	29/42, 24/40	1
607000-1129	2000	29/42, 29/42	1
607000-1224	2000	34/45, 24/40	1
607000-1324	2000	45/50, 24/40	1
607000-1529	3000	29/42, 29/42	1
607000-1624	3000	34/45, 24/40	1
607000-1724	3000	45/50, 24/40	1
607000-1729	3000	45/50, 29/42	1
607000-1924	5000	29/42, 24/40	1
607000-2024	5000	34/45, 24/40	1
607000-2124	5000	45/50, 24/40	1

Five Vertical Neck Round Bottom Flasks

- Five-neck round bottom flask with vertical Standard Taper outer joints
- Side necks are 90° apart
- Where possible, vertical necks will be supplied
- On small flasks having large necks, positioning may have to be made at an angle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
607500-0224	500	24/40, 24/40	1
607500-0624	1000	24/40, 24/40	1
607500-1024	2000	24/40, 24/40	1

Flat Bottom Florence Flask

- KIMAX® flasks have a low coefficient of expansion to resist thermal shock
- They are constructed with sturdy walls to minimize mechanical breakage and reinforced tooled tops for strength and a secure stopper fit
- Designed from ASTM Specification E1403, Type I, Class I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
25000-500	500	6	6
25000-1000	1000	8	6
25000-6000	6000	11	1

Flat Bottom Short Neck Boiling Flask

- KIMAX® boiling flask with a short Standard Taper joint neck.
- Designed from ASTM Specification E1403, Type I, Class IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Case Qty
25055-125	125	12
25055-250	250	12
25055-300	300	12
25055-500	500	12
25055-1000	1000	12

Heavy Wall Flat Bottom Boiling Flask

- Single neck flat bottom flask with a Standard Taper outer joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
601500-0124	50	24/40	1
601500-2124	100	24/40	1
601500-0224	125	24/40	1
601500-0324	250	24/40	1
601500-0545	250	45/50	1
601500-0424	300	24/40	1
601500-0429	300	29/42	1
601500-0524	500	24/40	1
601500-0529	500	29/42	1
601500-0624	1000	24/40	1
601500-0629	1000	29/42	1
601500-0645	1000	45/50	1
601500-0824	2000	24/40	1
601500-0829	2000	29/42	1
601500-0845	2000	45/50	1
601500-0929	3000	29/42	1
601500-1024	6000	24/40	1
601500-1045	6000	45/50	1

RAY-SORB® Boiling Flask with a Short neck and Full Length 24/40 Standard Taper joint

- KIMAX® boiling flask is RAY-SORB® processed to provide protection to solutions sensitive to light of the shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Short neck
- Flat bottom
- Full length 24/40 joint
- Designed from ASTM Specification E1403, Type I, Class IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity (mL)	Case Qty
25057-250	250	1

Recovery Flasks with Square Joint Bead

Single neck flask with a Standard Taper outer joint designed for easy recovery of reaction products. Even wall thickness and minimum runout make these flasks ideal for use with rotary evaporators.

- Square bead joints provide superior clamping to Standard Joint beads
- Total contents are accessible with a spatula or policeman
- Lower portion fits standard heating mantles
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
608675-4124	50	24/40	1
608675-6129	50	29/42	1
608675-4224	100	24/40	1
608675-6229	100	29/42	1
608675-4324	200	24/40	1
608675-6329	200	29/42	1
608675-4624	500	24/40	1
608675-6629	500	29/42	1
608675-4724	1000	24/40	1
608675-6729	1000	29/42	1
608675-4824	2000	24/40	1
608675-6829	2000	29/42	1

Heavy Wall Recovery Flask with Inner Joint

- Single neck flask with a Standard Taper inner joint for use where grease contamination is undesirable
- Total contents are accessible with a spatula or policeman
- Lower portion fits standard heating mantles
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
294320-0025	25	14/20	1
294320-0050	50	14/20	1
608680-4324	200	24/40	1

KimCote® Recovery Flasks

Kimble KIMAX® KimCote® plastic-coated single neck flask with a Standard Taper outer joint designed for easy recovery of reaction products.

- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Even wall thickness and minimum runout make these flasks ideal for use with rotary evaporators
- Heavy wall
- Square joint bead
- Total contents are accessible with a spatula or policeman
- Lower portion fits standard heating mantles
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
KC25165-50	50	24/40	1
KC25165-100	100	24/40	1
KC25165-200	200	24/40	1
KC25165-500	500	24/40	1
KC25165-1000	1000	24/40	1

Heavy Wall Recovery Flask with Standard Joint Bead

Single neck flask with an outer joint designed for easy recovery of reaction products.

- Total contents are accessible with a spatula or policeman
- Lower portion fits standard heating mantles
- Even wall thickness and minimum runout make this flask ideal for use with Rotary Evaporators
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
294300-0010	10	14/20	1
294300-0025	25	14/20	1
294305-0025	25	19/22	1
294300-0050	50	14/20	1
294305-0050	50	19/22	1
608675-0124	50	24/25	1
294300-0100	100	14/20	1
608675-0224	100	24/25	1
294300-0200	200	14/20	1
608675-0324	200	24/25	1
608675-0624	500	24/25	1

Pear Shaped Boiling Flasks

- Single-neck flask with a Standard Taper outer joint at top
- Heavy wall
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
294250-0005	5	14/20	1
294260-0005	5	19/22	1
294250-0010	10	14/20	1
294260-0010	10	19/22	1
294250-0015	15	14/20	1
294260-0015	15	19/22	1
294250-0025	25	14/20	1
294260-0025	25	19/22	1
294250-0035	35	14/20	1
294260-0035	35	19/22	1
294250-0050	50	14/20	1
294260-0050	50	19/22	1
608700-0124	50	24/40	1
294250-0075	75	14/20	1
294260-0075	75	19/22	1
294250-0100	100	14/20	1
294260-0100	100	19/22	1
608700-0224	100	24/40	1
608700-0229	100	29/42	1
608700-0424	200	24/40	1
294250-0250	250	14/20	1
608700-2524	250	24/40	1
608700-0524	300	24/40	1
608700-0624	500	24/40	1

Pear Shaped Heavy Wall Distilling Flasks with Side Tubulation

- Pear-shaped flask with a Standard Taper outer joint and 7 mm ID side tabulation
- Heavy wall
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
294500-0010	10	14/20	1

Pear Shaped BEVEL-SEAL™ Distilling Flasks with Side Arm

Flask designed for vacuum distillations.

- Threaded sidearm has an open-top nylon cap
- BEVEL-SEAL™
- Heavy wall
- Cap can be coupled with an o-ring to accommodate a thermometer or a gas inlet tube
- A penetrable liner may be used to sample a reaction mixture using a syringe
- Supplied complete with one size 010 FKM o-ring and one PTFE-faced silicone liner
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
251450-0015	15	14/20	1

Pear Shaped Two Neck Heavy Wall Distilling Flasks

- Two-neck flask with outer joints
- Heavy wall
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
294750-0010	10	14/20, 10/30	1
294760-0050	50	14/20, 14/20	1

Pear Shaped Three Neck Heavy Wall Distilling Flasks

- Three-neck flask with outer joints
- Heavy wall
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
295740-0050	50	14/20, 14/20	1

Distilling Flasks with Standard Taper Joint Sidearm

- Standard Taper 24/40
- 1000 mL capacity
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
605030-1524	1000	24/40	1

Barrett Distilling Flasks

- Barrett distilling flasks made to ASTM E133 specifications
- These flasks feature smooth, consistent, heavy walls for uniform heating and minimal breakage
- Supplied with one cork for the sidearm
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
610910-0125	125	2	12
610900-0200	200	3	24

Engler Distilling Flasks

KIMAX® distilling flask.

- Sidearm tube is sealed at an angle of 75° from the neck and is 137 ± 3 mm from the bottom of the flask
- Designed from ASTM Specification E133 and intended for use in ASTM D86, D233, D801, and D802
- Ref: ASTM Method D86
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
26015-125	125	2	24

Engler Distilling Flasks with Three Reference Lines

For use with Haage automatic distillation apparatus or others that call for three thermometer depth insertions.

- KIMAX® distilling flask, same as 26015-125, except with three reference lines
- Ref: ASTM D86
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
26016-125	125	2	24

Thermometer Centering Device

Designed for 6.5 mm OD manual thermometer or 1/4" temperature sensor probe as used on standard Automated Distillation Apparatus with Kimble 26015-125 flasks.

- Fits glassware designed for rubber stopper size 2
- PTFE body with FKM o-ring seal assures proper centering of sensor probe in flask neck
- Cap material is yellow polypropylene
- Ref: ASTM Method D86

Part Number	Body OD (mm)	Case Qty
26015C-125	6.5	1

Jacketed Dewar Flasks

Specially constructed Dewar flask is fully jacketed with aluminum for excellent insulation of contents.

- Viewing ports allow visual inspection of the contents through the strip-silvered glass
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	ID (mm)	Depth (mm)	Case Qty
611795-2430	95	300	1

Tooled Neck Kjeldahl Flasks

- KIMAX® Kjeldahl flasks have a reinforced bead at the top and a long neck to trap splashes
- The 500 and 800 mL sizes have tooled necks to take rubber stoppers especially made for Kjeldahl flasks, providing an accurate stopper fit and reducing the possibility of breakage in use
- The 10 and 30 mL are designed from ASTM Specification E147, and larger sizes are designed from ASTM Specification E1377, Type I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Accessory KIMAX® cylindrical connecting bulb was designed following the suggestions of end users. Lower tube of connecting bulb is 11-12 mm OD to fit special Kjeldahl stoppers. Both the upper and lower tips inside the bulb are arranged so that counterflow of liquid and vapor is not impeded when the bulb is inclined to the rear.

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
27400-30	30	0	18
27400-100	100	1	24
27400-500	500	6	24
27400-800	800	7	18

Replacement Parts

Part Number	Description	Case Qty
16040-55	Kjeldahl Cylindrical Connecting Bulb, Bulb Diameter 55 mm, Bulb Length 120 mm, Lower Tube OD 11-12 mm	1

Threaded Mojonnier Fat Extraction Flasks

Fat extraction flask with a threaded opening.

- The threaded Mojonnier® flask is a modified design of our standard Mojonnier® flask with stopper joint
- This version has a 24-410 GPI thread and is supplied with a black, phenolic cap with PTFE-faced white rubber liner (45066C-24410)
- Ref: Standard Methods for the Examination of Dairy Products, 17th Edition
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Finish	Case Qty
617600-24410	25	24-410	1

Mojonnier Fat Extraction Flasks

Primarily used to determine fat content in dairy products, but may also be used for other food products.

- Settling chamber at the lower portion has a capacity of approximately 25 mL
- Extraction chamber has a diameter of 35 mm
- Top opening has a pouring lip and is tooled for a #0 rubber stopper
- Ref: Method of Analysis-Seventeenth Edition
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Case Qty
617600-0025	25	1

Unjacketed 1 L Reaction Flask

- Reaction apparatus with a bottom outlet for easy product removal
- Connection is made with an FKM o-ring for superior grease-free vacuum operation
- Top has 4 Standard Taper necks
- Approximate wall thickness is 5 mm
- Flask supplied with an 826501-0008 PTFE valve plug
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
614000-1000	1000	24/40	1

Replacement Parts

Part Number	Description	Case Qty
614001-0021	Reaction Flask Top, Size 21, 24/40, 4 Neck	1
614002-1000	1000mL Reaction Flask	1
613750-0000	4" Reaction Flask Clamp with Cast Aluminum Body	1

Accessories

Part Number	Description	Case Qty
826431-0008	Size 8 PTFE Low Interference Plug	1

Unjacketed 2 L Reaction Flask

- Reaction apparatus with a bottom outlet for easy product removal
- Connection is made with an FKM o-ring for superior grease-free vacuum operation
- Top has 4 Standard Taper necks
- Approximate wall thickness is 5 mm
- Flask supplied with an 826501-0008 PTFE valve
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
614000-2000	2000	24/40	1

Replacement Parts

Part Number	Description	Case Qty
614001-0021	Reaction Flask Top, Size 21, 24/40, 4 Neck	1
614002-2000	2000mL Reaction Flask	1
613750-0000	4” Reaction Flask Clamp with Cast Aluminum Body	1
826501-0008	Size 8 Valve Plug, PTFE	1

Accessories

Part Number	Description	Case Qty
826431-0008	Size 8 PTFE Low Interference Plug	1

Unjacketed 5 L Reaction Flask

These reactors feature a 12 mm bottom outlet with a low-interference PTFE plug for easy product removal. The unique removable PTFE baffle cage simulates the effects of in-plant equipment.

- Flush bottom outlets eliminate dead space
- Connections are made with a 6” beaded pipe T-bolt stainless / PTFE coupling for superior grease-free vacuum operation
- Top has one center and 5 side Standard Taper necks
- Approximate wall thickness is 5 mm
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Side	Case Qty
614100-5005	5000	45/50, 24/40	1

Replacement Parts

Part Number	Description	Case Qty
614101-4524	Reaction Flask Top for 5000mL	1

Accessories

Part Number	Description	Case Qty
614103-5000	Removable Baffle Cage, PTFE	1

Jacketed 1 L Reaction Flask

- Reaction apparatus with a bottom outlet for easy product removal
- Connection is made with an FKM o-ring for superior grease-free vacuum operation
- Approximate wall thickness is 5 mm
- External jacket for either heating or cooling liquid
- Flask supplied with an 826501-0008 PTFE valve plug
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
614010-1000	1000	24/40	1

Replacement Parts

Part Number	Description	Case Qty
614001-0021	Reaction Flask Top, Size 21, 24/40, 4 Neck	1
614012-1000	1000mL Jacketed Reaction Flask	1
613750-0000	4” Reaction Flask Clamp with Cast Aluminum Body	1

Accessories

Part Number	Description	Case Qty
826431-0008	Size 8 PTFE Low Interference Plug	1

Jacketed 2 L Reaction Flask

- Reaction apparatus with a bottom outlet for easy product removal
- Connection is made with an FKM o-ring for superior grease-free vacuum operation
- Approximate wall thickness is 5 mm
- External jacket for either heating or cooling liquid
- Flask supplied with an 826501-0008 PTFE valve plug
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
614010-2000	2000	24/40	1

Replacement Parts

Part Number	Description	Case Qty
614001-0021	Reaction Flask Top, Size 21, 24/40, 4 Neck	1
614012-2000	2000mL Jacketed Reaction Flask	1
613750-0000	4” Reaction Flask Clamp with Cast Aluminum Body	1

Accessories

Part Number	Description	Case Qty
826431-0008	Size 8 PTFE Low Interference Plug	1

Jacketed 5 L Reaction Flask

These reactors feature a 12 mm bottom outlet with a low-interference PTFE plug for easy product removal. The unique removable PTFE baffle cage simulates the effects of in-plant equipment.

- Flush bottom outlets eliminate dead space
- External jacket for either heating or cooling liquid
- Jacket connectors are designed to accommodate 11-14 mm OD of 1/2” tubing
- Connections are made with a 6” beaded pipe T-bolt stainless / PTFE coupling for superior grease-free vacuum operation
- Approximate wall thickness is 5 mm
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center, Outer	Case Qty
614110-5005	5000	45/50, 24/40	1

Replacement Parts

Part Number	Description	Case Qty
614101-4524	Reaction Flask Top for 5000mL	1
614112-5005	5000mL Jacketed Reaction Flask	1

Accessories

Part Number	Description	Case Qty
614103-5000	Removable Baffle Cage, PTFE	1

Reaction Flask Clamps

Part Number	Description	Case Qty
296200-0000	Reaction Flask Clamp, Alumninum, fits ground flange ID 2”	1
613750-0000	Reaction Flask Clamp, Alumninum, fits ground flange ID 4”	1

Reaction Flask Gaskets

Part Number	Description	Case Qty
613755-0002	Gasket, PTFE, fits ground flange ID 2”	1
613755-0004	Gasket PTFE, fits ground flange ID 4”	1

Multi-Neck Reaction Flask Top

- Three-neck or four-neck flask top with a flat ground flange for use with cylindrical and spherical flasks having the same ID
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints: Center	Standard Taper Joints: Side	Case Qty
296170-0000	19/22	14/20	1
612500-0021	24/40	24/40	1
612500-0022	29/42	24/40	1
296190-0000	19/22	14/20	1
613000-0021	24/40	24/40	1
613000-4524	45/50	24/40	1

Cylindrical Reaction Flask

- Flask with a flat ground flange and a 3/16” wall construction
- 4-inch flasks accept PTFE blade 789030-0022 and clamp 613750-0000
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Flange ID (in)	Case Qty
296100-0050	50	2	1
296100-0100	100	2	1
612000-0500	500	4	1
612000-1000	1000	4	1
612000-1500	1500	4	1
612000-2000	2000	4	1
612000-3000	3000	4	1

Jacketed Cylindrical Reaction Flask

- Jacketed flask with a flat ground flange and a 3/16” wall construction
- 4” cylindrical reaction flasks accept PTFE blade 789030-0022 and clamp 613750-0000
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Flange ID (in)	Case Qty
296110-0000	100	2	1
612100-0500	500	4	1
612100-1000	1000	4	1
612100-2000	2000	4	1
612100-3000	3000	4	1

Spherical Reaction Flask

- Flask with a flat ground flange
- Clamp 296200-0000 is available as an accessory for the 2-inch flasks
- Clamp 613750-0000 is available as an accessory for the 4-inch flasks
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Flange ID (in)	Case Qty
296150-0250	250	2	1
296150-0300	300	2	1
296150-0500	500	2	1
612250-5000	5000	4	1
612250-1200	12000	4	1

Freeze Drying Hose Adapters

This adapter is intended for connection to vacuum hose and a 562830 vacuum adapter.

- 1/2" (12.7 mm) ID size will fit 3/4" (19.1 mm) ID hose
- 5/16" (7.9 mm) ID will accept 1/2" (12.7 mm) ID hose
- Supplied with a size 018 FKM o-ring

Part Number	Fits Hose ID (in)	Tube ID (in)	Case Qty
562850-0012	0.5	0.75	1
562850-0516	0.3125	0.5	1

Freeze Drying Adapters

Adapts 562800 freeze dry flasks to rotary evaporators for concentration or removal of solvent from single or multiple samples.

- Polyethylene unit with a 24/40 outer joint and a vacuum release
- A vacuum-tight seal is assured through the use of double FKM o-rings
- A special PTFE screen is provided to prevent loss of material

Part Number	Standard Taper Joints	Case Qty
562810-2440	24/40	1

Freeze Drying Flasks

This flask may be used with rotary evaporators or removable vacuum hose by selecting the appropriate adapter.

- Thick wall borosilicate glass flask has an extra wide opening for easy access to the sample
- Base is formed so that the unit is free standing, requiring no special support
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height (mm) x OD (mm)	Case Qty
562800-0250	250	105 x 75	1
562800-0500	500	175 x 75	1
562800-1000	1000	200 x 100	1
562800-2000	2000	280 x 120	1

Freeze Drying Vacuum Adapters

Polyethylene vacuum adapter for 562800 freeze dry flasks allows connection to a vacuum system with either 1/2" (12.7 mm) or 3/4" (19.1 mm) ID hose.

- This unit employs the same double FKM o-ring seal and special PTFE screen found in 562810, but does not include the 562850 hose adapters

Part Number	Case Qty
562830-0000	1

FRITTED WARE

Gooch Low Form KIMFLOW® Fritted Disc Crucibles

Designed for collecting, drying and weighing precipitates and samples to be analyzed using gravimetric analysis.

- Available in fine (4-5.5 microns), medium (10-15 microns), or coarse (40-60 microns) porosities
- Fritted disc is sealed into the crucible
- KIMAX® crucible suitable for precipitates to be dried to a constant weight at 110 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Technical Tip: At higher temperatures, heating in an electric furnace is advised, and exposure to sudden temperature changes should be avoided. For safe handling, crucibles should not be removed until the temperature has been reduced to below 250 °C.

Part Number	Porosity (microns)	Capacity (mL)	Case Qty
28260-152	10-15	15	1
28260-301	40-60	30	12
28260-302	10-15	30	12
28260-303	4.5-5	30	12

Fritted Gas Dispersion Tubes

Gas dispersion tube with a hollow fritted cylinder at the end of the tube.

- Available with coarse (40-60 micron) or extra coarse (170-220 micron) porosity cylinder
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Cylinder Height (mm)	Porosity (microns)	Case Qty
956500-0025	24	170-220	1
956500-0023	24	40-60	1

Gooch High Form KIMFLOW® Fritted Disc Crucibles

Designed for collecting, drying and weighing precipitates and samples to be analyzed using gravimetric analysis.

- Fritted disc is sealed into the crucible
- KIMAX® crucible suitable for precipitates to be dried to a constant weight at 110 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Porosity (microns)	Capacity (mL)	Case Qty
28250-302	10-15	30	1

Fritted Discs

Individual fritted discs for the fabrication of special apparatus or as a separate filtering device.

- Three porosities are available: extra coarse (170-220 microns), coarse (40-60 microns), and medium (10-15 microns)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Diameter (mm)	Porosity (microns)	Case Qty
952000-1044	10	10-15	1
952000-1025	10	170-220	1
952000-2025	20	170-220	1
952000-4023	40	40-60	1
952000-6044	60	10-15	1
952000-6023	60	40-60	1
952000-6025	60	170-220	1
952000-8044	80	10-15	1
952000-0944	90	10-15	1
952000-0923	90	40-60	1
952000-0925	90	170-220	1

FUNNELS

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

When you need a funnel for separation, addition, filtration, or for transfer, you can rely on the high quality and broad selection from Kimble® to match the right product to your application.

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Short Stem Addition Funnels

This KIMAX® funnel is constructed with heavy uniform walls, molded rims and fire-polished stems to give a long service life.

- Funnels have a high resistance to chemical attack and mechanical and thermal shock
- A piece of filter paper, when folded to form the filtering cone, forms a precise 60° angle. If the funnel is also 60°, as are the vast majority, then the only effective filtering area is down near the tip
- The exclusive KIMAX® 58° funnel promotes faster, more effective filtering because the cone is suspended by its uppermost edge, leaving most of the conical area for filtration
- Designed from ASTM Specification E1095, Type I, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Cone Volume (mL)	Length of Stem (mm)	Case Qty
28950-25	3	40	24
28950-35	8	50	24
28950-45	19	50	24
28950-55	36	63	48
28950-65	60	63	48
28950-75	90	75	48
28950-90	150	97	24
28950-100	225	97	24

60° 6” Wide Top Long Stem Funnels

These KIMAX® funnels are constructed with heavy uniform walls and strong, fire-polished rims and stems to provide a long service life.

- Funnels have a high resistance to chemical attack and to mechanical and thermal shock
- Designed from ASTM Specification E1095, Type I, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Cone Volume (mL)	OD at Funnel Top x Stem Length (mm)	Case Qty
28980-150	600	150 x 150	1
28980-200	1500	200 x 150	1
28980-250	2900	250 x 150	1

12” Long Stem Thistle Top Funnels

- KIMAX® tube with a sturdy, extra long stem
- Shape of the funnel is cylindrical (similar to the “thistle top” style)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Length of Stem (mm)	Stem OD (mm)	Case Qty
46188-65300	300	6.5	1
46188-65400	400	6.5	1

58° 6” Long Stem Funnels

The exclusive KIMAX® 58° funnel promotes faster, more effective filtering because the cone is suspended by its uppermost edge, leaving most of the conical area for *filtration*.

- KIMAX® funnel constructed with heavy uniform walls and strong, molded rims and fire-polished stems to provide a long service life
- Funnels have a high resistance to chemical attack and mechanical and thermal shock
- The 58° funnel angle is a Kimble exclusive, formed to an exact angle for rapid filtration
- A piece of filter paper, when folded to form the filtering cone, forms a precise 60° angle. If the funnel is also 60°, as are the vast majority, then the only effective filtering area is down near the tip
- Designed from ASTM Specification E1095, Type I, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Cone Volume (mL)	ID at Funnel Top x Length of Stem (mm)	Case Qty
28900-55	36	55 x 150	48
28900-65	60	65 x 150	48
28900-75	90	75 x 150	48
28900-100	225	100 x 150	24

Polypropylene Economy FLEX-COLUMN® Packing Reservoir Funnels

The funnels are used for initial column packing and as a small buffer reservoir.

- Available in two capacities: 100 mL for the 0.7, 1.0 cm and 1.5 cm ID columns and 700 mL for the 2.5 cm columns
- Manufactured from polypropylene

Part Number	Capacity (mL)	Column ID (cm)	Case Qty
420405-0100	100	Used for 0.7, 1.0, 1.5	12
420405-0700	700	Used for 2.5	5

Set of Five Polypropylene Solvent Addition Funnels

Set of five unbreakable, polypropylene solvent addition funnels for use with chromatography columns of various sizes.

- The unique closed-end design facilitates gentle addition of solvent to the column
- Perforated funnel stem permits solvent to pour down the column wall without disturbing the top layer of silica gel
- Approximate dimensions are provided below

Funnel Size (mL)	Top OD (mm)	Stem OD (mm)	Stem Length (mm)	Approx. Overall Height (mm)
60	68	9	20	65
120	888	9	22	95
240	108	12	38	115
960	168	16	50	175
960	168	24	70	185

Part Number	Funnel Size (mL)	Case Qty
629050-0000	60, 120, 240, 960, 960	1

Glass Solvent Addition Funnels

Design permits addition of solvents to flash chromatography columns without disturbing the silica-gel / packing layer.

- Lower end of the funnel is closed, and the stem has a series of small holes for solvent drainage
- Funnel top is 75mm in diameter
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Length of Stem (mm)	Stem OD (mm)	Case Qty
629500-0004	100	22	1

1-1/2” Stem Powder Addition Funnels

- KIMAX® funnel with a short, wide stem
- Constructed with a heavy uniform wall and a strong, fire-polished rim and stem to provide a long service life
- Funnel has a high resistance to chemical attack and mechanical and thermal shock
- Designed from ASTM Specification E1095, Type IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	ID at Funnel Top x Length of Stem (mm)	Stem OD x ID (mm)	Case Qty
29020-60	60 x 35	13 x 10	24
29020-80	80 x 35	15 x 12	24
29020-100	100 x 35	18 x 15	24
29020-125	125 x 35	19 x 15	12
29020-150	150 x 35	19 x 15	12

Flattened Powder Addition Funnels with Standard Taper Joint

Designed with one side flattened to allow funnel to be used in multi-neck flasks where space is limited.

- Flat side dimension is the distance between the center of the standard taper inner joint and the flattened side of the funnel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	ID at Funnel Top (mm)	Standard Taper Joints	Case Qty
629200-0024	100	24/40	1
629200-0018	75	24/40	1
629200-0032	150	24/40	1

Powder Addition Funnels with Standard Taper Joint

Useful for the addition of reactants to a variety of flasks.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	ID at Funnel Top (mm)	Standard Taper Joints	Case Qty
298000-0000	53	14/20	1
629000-0022	75	24/40	1
629000-0023	100	29/42	1

Powder Addition Funnels with Vacuum Hose Connection and Standard Taper Joint

These funnels are ideal for adding solids or liquids to reaction set-ups under vacuum conditions.

- Applying a vacuum cuts filling time in half
- The funnels fit tubing ID ¼” and have a 60° side angle and a standard taper inner joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	ID at Funnel Top (mm)	Standard Taper Joints	Case Qty
629700-0018	100	24/40	1

Outer Baffled Short Stem Powder Addition Funnels

- The exclusive KIMAX® 58° funnel promotes faster, more effective filtering because the cone is suspended by its uppermost edge
- A piece of filter paper, when folded to form the filtering cone, makes a precise 60° angle. If the funnel is also 60°, as are the vast majority, then the only effective filtering area is down near the tip
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Cone Volume (mL)	Fits Paper of Diameter (mm)	Case Qty
629600-0090	150	150	1
629600-0100	225	185	1

Offset Cone Powder Addition Funnels with Standard Taper Joint

Funnel is designed with one side perpendicular to the joint for use with multi-neck flasks.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	ID at Funnel Top (mm)	Case Qty
298030-0000	70	53	1
629030-0022	160	75	1

Offset Neck Powder Addition Funnels with Standard Taper Joint

Funnel has a lower stem made with an offset to permit use with multi-neck flasks.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	ID at Funnel Top (mm)	Standard Taper Joints	Case Qty
629040-0023	75	24/40	1
629040-0025	100	24/40	1

Graduated Addition Funnels with PTFE Stopcocks

- PTFE stopcock plug
- Graduated with double white ceramic enamel scale; right side ascends and left side descends
- Calibrated to contain
- Pennyhead glass stopper supplied
- Designed from ASTM Specification E1096, Type 1C requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Stopper Size	Case Qty
29040F-125	125	22	1
29040F-250	250	22	1
29040F-500	500	27	1
29040F-1000	1000	27	1
633531-0125	125	24/25	1
633531-0250	250	24/25	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1

Graduated Addition Funnels with Metering PTFE Stopcock Plug

- Incorporates the use of PTFE "Varibor" metering plug 821111
- Turning the adjusting knob allows control of flow rate from dropwise to full flow
- Facilitates reproducible addition rates
- Standard Taper joint at the top; Standard Taper joint with drip tip at the bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joint (Top, Bottom)	Case Qty
633511-0060	60	24/25, 24/40	1
633511-0125	125	24/25, 24/40	1
633511-0250	250	24/25, 24/40	1

Replacement Parts

Part Number	Description	Case Qty
821111-0002	Size 2 Varibore Metering Valve Stopcock Plug, PTFE, 11/25	1

Ungraduated Addition Funnels with PTFE Stopcock and Hex Head Hollow Glass Stopper

- Cylindrical funnel has a PTFE stopcock and a glass hex head stopper
- 633031 is supplied without a stopper
- Standard Taper bottom joint is 24/40 with a drip tip
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height (mm)	Case Qty
633031-0250	250	310	1
633030-0250	250	326	1
29034F-500	500	305	1
633031-0500	500	345	1
633030-0500	500	361	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25, for 633030 and 633031 series	1
821001-0004	Size 4 Strait Bore Stopcock Plug, PTFE, 15.2/30, for 29034F	1
850400-2425	24/25 Hollow Glass Hex Head Stopper, for 633030 series	1

Graduated Funnels with Upper and Lower Stopcocks

- Cylindrical funnel has a pressure equalizing line, PTFE stopcocks, a Standard Taper joint at the top and a lower drip tip
- Graduations to the lower stopcock are numbered both up and down
- Stopcocks have 821001-0002 plugs
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Graduation Intervals (mL)	Overall Height (mm)	Case Qty
299311-0050	50; 1	215	1
634580-0060	60; 1	300	1
634580-0125	125; 1	350	1
634580-0250	250; 5	350	1

Replacement Parts

Part Number	Description	Case Qty
305751-0221	Size 2 Straight Bore Glass Stopcock Plug, Plug size 10/25	1
850800-2440	24/40 Hollow Glass Hex Head Stopper	1

Ungraduated Addition Funnels with Pressure Equalizing Line

- Cylindrical funnel has a pressure equalizing line
- 634000 has a glass stopcock
- 634030 and 634040 have a PTFE stopcock
- Standard Taper upper joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL); Height (mm)	Stopcock Plug	Case Qty
634000-0060	60; 295	801001-0002	1
634000-0125	125; 345	801001-0002	1
634000-0250	250; 345	801001-0002	1
634000-0500	500; 385	801001-0002	1
634000-1000	1000; 455	801001-0004	1
634030-0060	60; 295	821001-0002	1
634030-0125	125; 345	821001-0002	1
634030-0250	250; 345	821001-0002	1
634030-1000	1000; 450	821001-0004	1
634040-0060	60; 300	821001-0002	1

Replacement Parts

Part Number	Description	Case Qty
801001-0002	Size 2 Straight Bore Stopcock Glass Plug, solid, plug size 12/30,	1
801001-0004	Size 4 Straight Bore Stopcock Glass Plug, solid, plug size 17/40	1
801001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, plug size 11/25	1
801001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, plug size 15.2/30	1

Accessories

Part Number	Description	Case Qty
850800-2440	24/40 Hollow Glass Hex Head Stopper, for 634000 and 634030 series	1
850400-2942	29/42 Hollow Glass Hex Head Stopper, for 634040-0060	1

Graduated Addition Funnels with Pressure Equalizing Line and PTFE Stopcock Plug

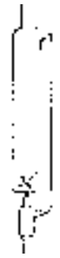
- Cylindrical funnels have a pressure equalizing line, a PTFE stopcock, and a lower drip tip
- Graduations to the stopcock are numbered both up and down
- The 299280 and 299281 series are supplied with an 850400 glass hex-head stopper; the others are supplied without a stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Graduation Intervals (mL)	Height (mm)	Case Qty
299280-0010	10; 0.2	205	1
299281-0010	10; 0.2	190	1
299280-0025	25; 0.5	230	1
299281-0025	25; 0.5	215	1
299280-0050	50; 1	230	1
299281-0050	50; 1	215	1
299290-0060	60; 1	265	1
299290-0125	125; 1	316	1
299290-0250	250; 5	313	1
634530-0060	60; 1	295	1
634530-0125	125; 1	345	1
634530-0250	250; 5	345	1
634530-0500	500; 5	382	1
634530-1000	1000; 10	450	1
634530-2000	2000; 20	550	1
634540-0125	125; 1	350	1
634540-0250	250; 5	350	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25, for 250 mL and smaller capacities	1
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, 15.2/30, for 500 and 1000 mL capacities	1
821001-0006	Size 6 Straight Bore Stopcock Plug, PTFE, 16/35, for 2000 mL capacity	1
85400-1420	14/20 Hollow Glass Hex Head Stopper, Medium Length, for 50 mL and smaller capacities	
850400-1922	19/22 Hollow Glass Hex Head Stopper, Medium Length, for 299290 series	1
850800-2440	24/40 Hollow Glass Hex Head Stopper, for 634530 series	1
850800-2942	29/42 Hollow Glass Hex Head Stopper, for 634540 series	1

Graduated Addition Funnels with Pressure Equalizing Line and Glass Stopcock Plug



- Cylindrical funnels have a pressure equalizing line, a glass stopcock, and a lower drip tip
- Graduations to the stopcock are numbered both up and down
- The 299251 and 299250 series are supplied with an 850400 glass hex-head stopper; the others are supplied without a stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Graduation Intervals (mL)	Height (mm)	Case Qty
299251-0010	10; 0.2	190	1
299251-0025	25; 0.5	215	1
634500-0025	25; 1	250	1
299250-0050	50; 1	230	1
634500-0050	50; 1	275	1
634500-0125	125; 1	345	1
634500-0250	250; 5		1
634500-0500	500; 5		1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25	1

Addition Funnels with Threaded Valves

This cylindrical funnel has a threaded, grease-free extended tip PTFE valve for semi-needle action and a pressure equalizing arm.

- Graduated
- Top and bottom Standard Taper joints are the same size
- Funnels with 14/20 and 19/22 joints are supplied complete with a stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Graduation Intervals (mL)	Standard Taper Joints	Case Qty
634100-0050	50; 1	14/20	1
634120-0060	60; 1	24/40	1
634100-0125	125; 1	24/40	1
634100-0250	250; 5	24/40	1
634110-0250	250; 5	29/26	1
634100-0500	500; 5	24/40	1

Replacement Parts

Part Number	Description	Case Qty
850400-1420	14/20 Hollow Glass Hex Head Stopper, Medium Length, for 634100-0050	1
850400-2926	29/26 Hollow Glass Hex Head Stopper, Medium Length, for 634110-0250	1
826411-0002	Size 2 Threaded Plug, PTFE, for 125 mL and smaller	1
826411-0004	Size 4 Threaded Plug, PTFE, for 250 mL and larger	1

Constant Addition Funnels

Precision-type for setting flow rates from 1 to 160 drops per minute of water at 25 °C.

- Shut-off seal is made by lowering the PTFE shoulder into a specially formed glass seat
- Design is based on the Mariotte principle and assures the drop rate regardless of the liquid level
- Internal delivery scale is graduated to allow accurate resetting on successive runs
- Constructed of glass, PTFE, and CTFE
- 634630 series is steam jacketed; hose connections on jacket allow the introduction of steam to heat funnel contents
- Probe FKM o-ring is size 110
- Suitable for use under moderate vacuum
- Standard Taper 19/22 refill valve/stopper has a special bore to permit initial equilibration of the apparatus when it is used under vacuum
- Graduated and numbered both up and down
- Supplied with operating instructions
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height (mm)	Case Qty
299350-0030	30	258	1
634620-0060	60	308	1
634620-0125	125	308	1
634630-0125	125	300	1
634620-0250	250	340	1
634630-0500	500	390	1

Replacement Parts

Part Number	Description	Case Qty
299351-0060	Funnel Probe Only, 60mL	1
634623-0000	19/22 Stopper for 299350 Series Constant Addition Funnel	1
634621-0500	Addition Funnel Probe, for 500mL	1

Hirsch Funnels

The conical funnel shape of the Hirsch filter directs filtrate through a reduced area frit to concentrate crystal residue for rewashing.

- Available in three porosities: Fine (4-5.5 microns), Medium (10-15 microns) and Coarse (40-60 microns)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height x Disc Diameter (mm)	Porosity (microns)	Case Qty
955250-5026	115 x 20	4-5.5	1
955250-5044	115 x 20	10-15	1
955250-5023	115 x 20	40-60	1
955250-7526	145 x 30	4-5.5	1
955250-7544	145 x 30	10-15	1
955250-7523	145 x 30	40-60	1
955250-3523	180 x 10	40-60	1

Buchner Funnels

This Buchner funnel is useful with paper or polymeric filters.

- Funnel with sealed-in fritted disc, drip tip and integral #2 side hose connection
- 293050 series has 14/20 Standard Taper joints
- 954100 series has 24/40 Standard Taper joints
- 954120 series has 29/42 Standard Taper joints
- Not recommended for use above 15 psi
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL) x Disc Diameter (mm)	Porosity (microns)	Case Qty
293050-0123	15 x 20	40-60	1
293050-0126	15 x 20	4-5.5	1
293050-0144	15 x 20	10-15	1
293050-0326	30 x 30	4-5.5	1
293050-0344	30 x 30	10-15	1
293050-0323	30 x 30	40-60	1
293050-0623	60 x 40	40-60	1
293050-0626	60 x 40	4-5.5	1
293050-0644	60 x 40	10-15	1
954100-0126	15 x 20	4-5.5	1
954100-0144	15 x 20	10-15	1
954100-0123	15 x 20	40-60	1
954100-0326	30 x 30	4-5.5	1
954100-0344	30 x 30	10-15	1
954100-0323	30 x 30	40-60	1
954100-0626	60 x 40	4-5.5	1
954100-0644	60 x 40	10-15	1
954100-0623	60 x 40	40-60	1
954100-1526	150 x 60	4-5.5	1
954100-1544	150 x 60	10-15	1
954100-1523	150 x 60	40-60	1
954100-3523	350 x 80	40-60	1
954100-3526	350 x 80	4-5.5	1
954100-3544	350 x 80	10-15	1
954100-6023	600 x 90	40-60	1
954100-6026	600 x 90	4-5.5	1
954100-6044	600 x 90	10-15	1
954120-1523	150 x 60	40-60	1
954120-1544	150 x 60	10-15	1
954120-3544	350 x 80	10-15	1
954120-6044	600 x 90	10-15	1

Buchner Funnel with 24/40 Joints

This Buchner filter is useful where a support is required for either a paper or polymeric filter.

- Standard taper 24/40 joints
- Not for applications where pressure would exceed 15 psi
- Drip tip
- Coarse (40-60 micron) porosity
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Funnel Capacity (mL)	Disc Diameter (mm)	Case Qty
954001-0000	150	60	1

Buchner Funnels with KIMFLOW® Fritted Disc

This Buchner KIMAX® funnel is used wherever filter paper and membranes cannot withstand the chemical attack of the filtrate.

- Funnels are constructed with heavy-walled stems, and top rims are beaded for extra strength
- With a marking spot
- With KIMFLOW® fritted disc
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL) x Disc Diameter (mm)	Porosity (microns)	Case Qty
28400-21	2 x 10	40-60	9
28400-22	2 x 10	10-15	9
28400-23	2 x 10	4-5.5	1
28400-151	15 x 20	40-60	6
28400-152	15 x 20	10-15	6
28400-153	15 x 20	4-5.5	1
28400-301	30 x 30	40-60	6
28400-302	30 x 30	10-15	6
28400-303	30 x 30	4-5.5	1
28400-601	60 x 40	40-60	6
28400-602	60 x 40	10-15	6
28400-603	60 x 40	4-5.5	1
28400-1501	150 x 60	40-60	4
28400-1502	150 x 60	10-15	4
28400-1503	150 x 60	4-5.5	1
28400-3501	350 x 80	40-60	3
28400-3502	350 x 80	10-15	3
28400-3503	350 x 80	4-5.5	1
28400-6001	600 x 90	40-60	3
28400-6002	600 x 90	10-15	3
28400-6003	600 x 90	4-5.5	1
28400-20001	2000 x 125	40-60	1
28400-20002	2000 x 125	10-15	1
28400-30001	3000 x 150	40-60	1
28400-30002	3000 x 150	10-15	1

Globe KIMAX® Separatory Funnels with Glass Stopcock

- KIMAX® funnel is supplied with a Standard Taper ground glass stopper and a glass stopcock
- Gradually tapering shoulders and a wide neck facilitate cleaning
- Sharp separations are provided for by a narrow bore in the body just above the stopcock
- Replacement stopper is 850100
- Replacement stopcock plug is 801001-0002
- Designed from ASTM Specification E1096, Type II requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Stem Length (mm)	Case Qty
29043-250	250	175	1

Replacement Parts

Part Number	Description	Case Qty
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
801001-0002	Size 2 Straight Bore Stopcock Glass Plug, solid, plug size 12/30	1

Globe KIMAX® Separatory Funnels with PTFE Stopcock

- KIMAX® funnel is supplied with a Standard Taper ground glass stopper and a PTFE stopcock
- Gradually tapering shoulders and a wide neck facilitate cleaning
- Sharp separations are provided for by a narrow bore in the body just above the stopcock
- Replacement stopper is 850100
- Replacement stopcock plug is 41500F
- Designed from ASTM Specification E1096, Type 2 requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Stem Length (mm)	Case Qty
29043F-125	125	175	1
29043F-250	250	175	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1

Micro Separatory Funnels

- Standard Taper 14/20 joints
- Squibb-type funnel with a PTFE stopcock plug with a 2 mm bore
- Plug is 821001-0002
- Hex-head stopper is included with 298280
- Series 298281 is supplied without stoppers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height (mm)	Case Qty
298281-0010	10	125	1
298280-0010	10	141	1
298281-0025	25	155	1
298280-0025	25	171	1
298280-0050	50	176	1
298281-0125	125	190	1
298280-0125	125	206	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25	1
850400-1420	14/20 Hollow Glass Hex Head Stopper, Medium Length	1

Short Stem Separatory Funnels

Designed for rapid extractions of environmental samples.

- Funnel top has a short drip tip and a Standard Taper 34/28 opening for more convenient filling
- PTFE stopcock plug is 821001-0006 and has a 6 mm bore for rapid transfer
- Stopper is PTFE
- Thick walls help resist breakage in the cleaning and drying cycle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height (mm)	Case Qty
636040-0500	500	320	1
636040-1000	1000	370	1
636040-2000	2000	420	1

Replacement Parts

Part Number	Description	Case Qty
636041-1000	Separatory Glass Funnel Only, 1000mL	1
821001-0006	Size 6 Straight Bore Stopcock Plug, PTFE, 16/35	1

Kimble® Squibb Separatory Funnels with PTFE Stopcock and Standard Taper Joint

- Pear-shaped
- Standard Taper 24/40 bottom joints and 24/25 top joints
- Squibb-type with 821001 PTFE stopcock plug
- Replacement stoppers are 850400-2425
- 636281 series is supplied without stoppers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height (mm)	Case Qty
636281-0500	500	305	1
636280-0500	500	328	1
636280-1000	1000	388	1
636281-2000	2000	414	1
636280-2000	2000	437	1

Replacement Parts

Part Number	Description	Case Qty
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, 15.2/30, for 500 and 1000 mL	1
821001-0006	Size 6 Straight Bore Stopcock Plug, PTFE, 15.2/30, for 2000 mL	1
850400-2425	24/25 Hollow Glass Hex Head Stopper, Medium Length	1
29048G-2000	2000mL Funnel, Max. OD 150mm	1

Kimble® Non-Vortexing Separatory Funnels

These separatory funnels prevent the vortexing of liquids during phase separation.

- The funnels are designed with an internal baffle plate to divert the liquids being separated from vortexing and then remixing
- The funnels are supplied with PTFE stopcocks and Standard Taper 29/42 center joints
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Top Joint	Case Qty
636200-0500	500	29/42	1
636200-1000	1000	29/42	1
636200-4000	4000	29/42	1

Kimble® Squibb Separatory Funnels with Glass Stopcock

- Squibb-type with Standard Taper joint and stopcock
- Plain stem, but may be used with a 179800 adapter. Note stem diameter for a proper fit when using this adapter
- Replacement stoppers are 850100 series
- 636010 series is supplied without a stopper
- Plug is 801001
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height (mm)	Case Qty
636000-0030	30	203	1
636000-0060	60	220	1
636010-0060	60	185	1
636000-0125	125	262	1
636010-0125	125	227	1
636000-0250	250	303	1
636010-0250	250	268	1
636000-0500	500	343	1
636010-0500	500	308	1
636000-1000	1000	395	1
636010-1000	1000	360	1
636000-2000	2000	437	1
636010-2000	2000	402	1

Replacement Parts

Part Number	Description	Case Qty
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length, for 636000-0030	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length, for 636000-0060	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length, for 636000-0125	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length, for 636000-0500 and 636000-1000	1
850100-0038	Size 38 Hollow Pennyhead Stopper, Medium Length, for 636000-2000	1

Kimble® Squibb Separatory Funnel with PTFE Stopcock

- Squibb-type with Standard Taper joint and stopcock
- Plain stem, but may be used with 179800 adapter. (Note stem diameter for a proper fit when using this adapter.)
- 636031 series is supplied without a stopper
- 636030 series is supplied with a glass stopper
- With an 821001 1:5 taper PTFE stopcock plug
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height (mm)	Case Qty
636030-0060	60	223	1
636031-0060	60	188	1
636030-0125	125	261	1
636031-0125	125	226	1
636030-0250	250	300	1
636031-0250	250	265	1
636030-0500	500	330	1
636031-0500	500	295	1
636030-1000	1000	390	1
636031-1000	1000	355	1
636030-2000	2000	438	1
636031-2000	2000	403	1
636030-4000	4000	542	1
636031-4000	4000	510	1

Replacement Parts

Part Number	Description	Case Qty
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length, for 636030-0060	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length, for 636030-0125 and 636030-0250	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length, for 636030-0500 and 636030-1000	1
850100-0038	Size 38 Hollow Pennyhead Stopper, Medium Length, for 636030-2000 and 636030-4000	1
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25, for 636030 series 125 mL or smaller	1
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, 15.2/30, for 636030 series 250 mL through 1000 mL	1
821001-0006	Size 6 Straight Bore Stopcock Plug, PTFE, 16/35, for 363030-2000	1

Squibb Separatory Funnel with Heavy Duty Drip Joint

- Pear-shaped
- Standard Taper 19/22 joints
- Squibb-type funnel with a heavy-duty drip joint at the bottom
- 821001 PTFE stopcock plug
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height (mm)	Case Qty
298290-0060	60	184	1
298290-0125	125	210	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25	1

Squibb Separatory Funnel with Glass Stopcock

- Pear-shaped
- KIMAX® funnel is supplied with a Standard Taper ground glass stopcock and stopper
- Lower stems have an ID large enough that a column of liquid will "break" with the stopcock closed, thereby giving a more complete separation and eliminating the necessity of emptying the funnel
- Replacement ground glass stopper is 850100
- Designed from ASTM Specification E1096, Type IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Stopcock Bore Size (mm)	Case Qty
29048-60	60	2	6
29048-125	125	2	6
29048-250	250	4	4
29048-500	500	4	4
29048-1000	1000	4	2

Replacement Parts

Part Number	Description	Case Qty
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length, for 60 mL	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length, for 125 and 250 mL	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length, for 500 and 1000 mL	1

Squibb Separatory Funnel with PTFE Stopcock

- KIMAX® funnel is supplied with a Standard Taper ground glass stopper and a PTFE stopcock
- Lower stems have an ID large enough that a column of liquid will "break" with the stopcock closed, thereby giving a more complete separation and eliminating the necessity of emptying the funnel
- Designed from ASTM Specification E1096, Type IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Stopcock Bore Size (mm)	Case Qty
29048F-30	30	2	4
29048F-60	60	2	4
29048F-125	125	2	4
29048F-250	250	4	4
29048F-500	500	4	4
29048F-1000	1000	4	2
29048F-2000	2000	6	2

Replacement Parts

Part Number	Description	Case Qty
29048G-250	250mL Funnel , Max. OD 75mm, standard taper stopper size 22	1
29048G-2000	2000mL Funnel, Max. OD 150mm	1
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25, for 30, 60, and 125 mL	1
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, 15.2/30, for 250, 500, and 1000 mL	1
821001-0006	Size 6 Straight Bore Stopcock Plug, PTFE, 16/35, for 2000 mL capacity	1
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length, for 30 mL	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length, for 60 mL	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length, for 125 and 250 mL	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length, for 500 and 1000 mL	1
850100-0038	Size 38 Hollow Pennyhead Stopper, Medium Length, for 2000 mL	1

Autoclavable Squibb Separatory Funnel with PTFE Stopcock

- KIMAX® funnel is supplied with a Standard Taper ground glass stopper and an autoclavable PTFE stopcock plug
- Lower stems have an ID large enough so that a column of liquid will "break" with the stopcock closed, thereby giving a more complete separation and eliminating the necessity of emptying the funnel
- Pear-shaped
- Replacement ground glass stopper is 805100
- Designed from ASTM Specification E1096, Type IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Stopcock Bore Size (mm)	Case Qty
29048T-60	60	2	4
29048T-125	125	2	4
29048T-250	250	4	4
29048T-500	500	4	4
29048T-2000	2000	6	2

Replacement Parts

Part Number	Description	Case Qty
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length, for 60 mL	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length, for 125 and 250 mL	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length, for 500 mL	1
850100-0038	Size 38 Hollow Pennyhead Stopper, Medium Length, for 2000 mL	1

Care and Use of Stopcocks with PTFE Plugs

Kimble® PTFE stopcock plugs are made of the most chemically inert material in laboratory use today. Only a few chemicals have any effect on PTFE and these only at elevated temperatures and pressures. The material is extremely tough, durable and heat resistant, with practically zero moisture-absorption. It remains non-brittle even at sub-zero temperatures.

- To clean new plugs, carefully disassemble, lift the plug free of the glass barrel, and rinse all parts of the plug and barrel in acetone.
- After drying, reassemble and the stopcock is ready for use. (Do not use abrasive materials to clean either plug or barrel at any time.)
- The PTFE washer must always be placed adjacent to the end of the glass barrel, to ensure minimal friction when turning. When properly tightened, the plug will be slightly more resistant to turning than a lubricated glass plug.
- When not in use, store in a dust-free area with the plug loosened within the glass barrel. Although tough and unbreakable, PTFE is softer than glass and has a tendency to conform to the glass surface, including eventual expansion into the hollow parts of the barrel.

Squibb Separatory Funnel with PTFE Stopcock and Plastic Stopper

- KIMAX® funnel is supplied with a PTFE stopcock plug and with a closed-bottom, linear high-density polyethylene stopper to fit in the Standard Taper ground neck
- Lower stems have an ID large enough that a column of liquid will "break" with the stopcock closed, thereby giving a more complete separation and eliminating the necessity of emptying the funnel
- Replacement PTFE stopcock plug is 41500F
- Replacement stopper is 28160R
- Designed from ASTM Specification E1096, Type IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Stopcock Bore Size (mm); Stopper Size	Case Qty
29049F-125	125	2; 22	4
29049F-250	250	4; 22	4
29049F-500	500	4; 27	4
29049F-1000	1000	4; 27	2
29049F-2000	2000	6; 38	2

Replacement Parts

Part Number	Description	Case Qty
821001-0002	2 mm PTFE Plug-Style Stopcock, 11/25 Plug Size (mm), Nut Washer Size 1, O-ring size 109	1
821001-0004	4 mm PTFE Plug-Style Stopcock, 15.2/30 Plug Size (mm), Nut Washer Size 2, O-ring size 5-613	1
821001-0006	6 mm PTFE Plug-Style Stopcock, 16/35 Plug Size (mm), Nut Washer Size 2, O-ring size 111	1
28160R-22	Linear High-Density Polyethylene Stopper, Size 22	6
28160R-27	Linear High-Density Polyethylene Stopper, Size 27	6
29048G-250	250mL Funnel , Max. OD 75mm	1
29048G-2000	2000mL Funnel, Max. OD 150mm	1

KIMAX® Squibb Separatory Funnels with PTFE Stopcock and Standard Taper Joint

- KIMAX® funnel supplied with a Standard Taper ground glass stopper and a PTFE stopcock
- Lower stems have an ID large enough that a column of liquid will "break" with the stopcock closed, thereby giving a more complete separation and eliminating the necessity of emptying the funnel
- Full length Standard Taper 24/40 joint protects the delivery stem
- Supplied with a drip tip designed to provide drop counting
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joint: Lower	Case Qty
29055F-125	125	24/40	1
29055F-500	500	24/40	1

Replacement Parts

Part Number	Description	Case Qty
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length, for 125 mL	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length, for 500 mL	1

KIMAX® RAY-SORB® Separatory Funnels

- RAY-SORB® processed to protect your light-sensitive contents from short wavelength light.
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Lower stems have an ID large enough that a column of liquid will "break" with the stopcock closed, thereby giving a more complete separation and eliminating the necessity of emptying the funnel
- Squibb KIMAX® funnel is supplied with a Standard Taper PTFE stopper and a color-coded PTFE stopcock plug
- Pear-shaped
- Replacement stopcock plug is 41500F
- Replacement stopper is 41901R
- Designed from ASTM Specification E1096, Type IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity (mL)	Stem Length (mm)	Case Qty
29052F-125	125	60	1
29052F-250	250	60	1
29052F-500	500	60	1

Replacement Parts

Part Number	Description	Case Qty
41901R-22	Yellow PTFE Key-Head Stopper, Size 22, Diameter at Large End 22.05 mm, Length of Ground Zone 20.5 mm	6

KimCote® KIMAX® Squibb Separatory Funnels

Kimble KIMAX® KimCote® plastic-coated pear-shaped funnel.

- Supplied with a Standard Taper ground glass stopper and a totally autoclavable PTFE stopcock plug
- Lower stems have an ID large enough so that a column of liquid will "break" with the stopcock closed, thereby giving a more complete separation and eliminating the necessity of emptying the funnel
- Replacement stopper is 850100
- Designed from ASTM Specification E1096, Type IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

KimCote® protective glassware coating goes beyond traditional coatings. Should a break occur, KimCote® will reduce the hazards of shattered glass and leakage of toxic or corrosive chemicals. It's ultra-clear, extremely durable, autoclavable and resistant to many common laboratory chemicals. KimCote's unique texture also provides a non-slip handling surface, wet or dry.

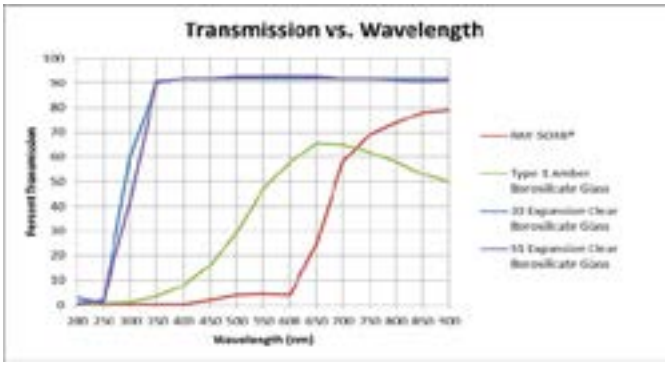
An MSDS and a certificate of compliance are available by contacting Kimble Chase customer service.

KimCote® is a trademark of Kimble Chase.

Part Number	Capacity (mL)	Stopcock Bore Size (mm)	Case Qty
KC29048T-125	125	2	4
KC29048T-250	250	4	4
KC29048T-500	500	4	4
KC29048T-1000	1000	4	1
KC29048T-2000	2000	6	1

Replacement Parts

Part Number	Description	Case Qty
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length, for 125 and 250 mL	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length, for 500 and 1000 mL	1
850100-0038	Size 38 Hollow Pennyhead Stopper, Medium Length, for 2000 mL	1



Pressure Release Valve

Designed for applications that require evacuated apparatus to be filled with an inert gas to one atmosphere.

- Uses include the introduction of an inert gas into a vacuum desiccator or nitrogen into Airless-ware™ apparatus
- A pressure release valve should be placed between the nitrogen source and nitrogen manifold on all Airless-ware™ manifold installations
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Operation: Three mL of paraffin or silicone oil is added to the bubbler. One arm is connected to the low-pressure gas source, the other to the manifold or Airless-ware® equipment. The check valve prevents oil or air from surging into the apparatus.

Part Number	Overall Height (mm)	Fits Tubing ID (inches)	Case Qty
216100-0000	130	0.375	1

Inlet Hose Spherical Joint Connector Ball

- O-ring socket joint hose connector
- Standard Spherical Joint sizes fit existing apparatus using spherical joints and permit attachment of flexible hose without costly modification of the apparatus
- Supplied complete with an FKM o-ring
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Spherical Joint Size	Fits Tubing ID (inches)	Case Qty
523860-0189	18/9	0.5	1
523860-2815	28/15	0.75	1

Inlet Hose Spherical Joint Connector Socket

- O-ring socket joint hose connector
- Standard Spherical Joint sizes fit existing apparatus using spherical joints and permit attachment of flexible hose without costly modification of the apparatus
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Spherical Joint Size	Fits Tubing ID (inches)	Case Qty
523870-0125	12/5	0.25	1
523870-0189	18/9	0.5	1
523870-2815	28/15	0.75	1
523870-3525	35/25	0.75	1

Short Form Gas Washing Bottle with Medium Length Joint

KIMAX® bottle for washing or drying gases.

- Shorter and wider than the 15060 bottles
- Both inlet and outlet tubes accept 1/4 inch ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Gas enters the bottle through the center tube and exits into the bottom of the bottle. On rising through the washing or drying medium, it is thereby washed or dried and passes out of the bottle through the side tube of the bottle stopper.

Part Number	Capacity (mL)	Overall Height (mm)	Case Qty
15065-250	250	256	1

Tall Form Gas Washing Bottle with Medium Length Joint

KIMAX® bottle for washing or drying gases.

- Both inlet and outlet tubes accept 1/4 inch ID flexible tubing
- The 125 mL size is sometimes referred to as a "Dreschel" type
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Gas enters the bottle through the center tube and exits into the bottom of the bottle. On rising through the washing or drying medium, it is washed or dried and passes out of the bottle through the side tube of the bottle stopper.

Part Number	Capacity (mL)	Overall Height (mm)	Case Qty
15060-125	125	308	1
15060-250	250	328	1
15060-500	500	400	1

Tall Form Gas Washing Bottle with Medium Length Joint and Kimflow® Cylinder

KIMAX® bottle used to wash or dry (scrub) gases of undesirable constituents.

- Both the inlet and outlet tubes accept 1/4 inch ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Gas enters the bottle through the center tube and exits at the bottom of the bottle through a fritted cylinder approximately 12 mm in diameter. The gas is dispersed into small bubbles, promoting complete absorption of undesirable constituents that are to be removed from the gas flow, as the gas rises to the top and exits through the side tube.

Part Number	Capacity (mL)	Porosity (microns)	Case Qty
28220-5001	500	40-60	1

2000 mL Atmospheric Environmental Bottles

Atmospheric environmental 2000 mL bottles. The design of our Atmospheric Environmental Bottle is recommended by the Atmospheric Environment Service (AES). Available in either a single or double valve configuration.

Several unique design features include:

- KimCote® plastic safety coating
- Borosilicate glass high vacuum plug valve stems instead of PTFE stems, eliminating the chance of outgassing
- FKM valve stem o-rings that are easily changed
- Inlet stems ground to 1/2" OD
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Feature	Case Qty
653200-2000	2000	Single Valve	1
653210-2000	2000	Double Valve	1

Tall Form Gas Washing Bottle with Full Length Joint with Hooks and Fritted Cylinder

Unit contains a fritted disc for more uniform gas distribution throughout the absorbing material.

- Available in two porosities: extra coarse (170-220 micron) and coarse (40-60 micron)
- Supplied complete with hooks and two 2" springs
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Porosity (microns)	Case Qty
657250-1223	125	40-60	1
657250-1225	125	170-220	1
657250-2523	250	40-60	1
657250-2525	250	170-220	1
657250-5023	500	40-60	1
657250-5025	500	170-220	1

Replacement Parts

Part Number	Description	Case Qty
657251-1223	Dispersion Tube, 40-60 micron Porosity, 125 and 250mL for 657250	1
657251-1225	Dispersion Tube, 170-220 micron Porosity, 125 and 250mL for 657250	1
657251-5023	Dispersion Tube, 40-60 micron Porosity, 500mL for 657250	1
657251-5025	Dispersion Tube, 170-220 micron Porosity, 500mL for 657250	1
657002-0125	125mL Gas Washing Bottle Only, for 657250	1
657002-0250	250mL Gas Washing Bottle Only, for 657250	1
657002-0500	500mL Gas Washing Bottle Only, for 657250	1
657252-0000	2" PTFE Shrink Tube	3

Tall Form Gas Washing Bottle with Full Length Joint with Hooks and Fritted Disc

Unit contains a fritted disc for more uniform gas distribution throughout the absorbing material.

- Available in two porosities: extra coarse (170-220 micron) and coarse (40-60 micron)
- Supplied complete with hooks and two 2" springs
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Porosity (microns)	Case Qty
657750-1223	125	40-60	1
657750-2523	250	40-60	1
657750-2525	250	170-220	1
657750-5023	500	40-60	1
657750-5025	500	170-220	1

Replacement Parts

Part Number	Description	Case Qty
657751-1223	Dispersion Tube, 40-60 micron Porosity, 125mL for 657750	1
657751-2523	Dispersion Tube, 40-60 micron Porosity, 250mL for 657750	1
657751-2525	Dispersion Tube, 170-220 micron Porosity, 250mL for 657750	1
657751-5023	Dispersion Tube, 40-60 micron Porosity, 500mL for 657750	1
657751-5025	Dispersion Tube, 170-220 micron Porosity, 500mL for 657750	1
657752-0125	Gas Washing Bottle Only 125mL for 657750	1
657752-0250	Gas Washing Bottle Only 250mL for 657750	1
657752-0500	Gas Washing Bottle Only 500mL for 657750	1
657252-0000	2" PTFE Shrink Tube	3

Graduated Midget Impingers

This impinger was designed for the sampling of small air volumes with a low jet velocity.

- Similar design to the Greenburg-Smith impinger, except for its smaller size
- Requires only a 12" head of water
- 24/40 Standard Taper joint
- Orifice at the bottom of the impinger is 1 mm, passing 0.09-0.11 CFM of air at 12" H2O vacuum
- Pieces are interchangeable, maintaining nozzle centering and clearance to the bottom inside surface
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height (mm)	Case Qty
737550-0000	30	180	1

Replacement Parts

Part Number	Description	Case Qty
737552-0000	Receiver Bottle for Midget Impinger, 30mL, 24/40	1
737551-0000	Dispersion Tube for Midget Impinger, 24/40	1

Fritted Gas Dispersion Tubes

Gas dispersion tube with a hollow fritted cylinder at the end of the tube.

- Available with coarse (40-60 micron) or extra coarse (170-220 micron) porosity cylinder
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height, Column Height (mm)	Porosity (microns)	Case Qty
956500-0023	250, 24	40-60	1
956500-0025	250, 24	170-220	1

Gas Sampling Tubes with Glass Plugs and Plain Ends

KIMAX® gas collecting tube with tubulations on each end of the tube.

- Tubulations accept 3/8 inch ID tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD, Length (mm)	Capacity (mL)	Case Qty
30040-500	65, 360	500	1

Gas Sampling Tubes with PTFE Stopcock Plugs

KIMAX® gas collecting tube with tubulations on each end of the tube that accept 3/8 inch ID flexible tubing.

- Replacement PTFE stopcock plug is 41500F
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD, Length (mm)	Capacity (mL)	Case Qty
30040F-250	50, 330	250	1

Replacement Parts

Part Number	Description	Case Qty
821001-0004	4 mm bore PTFE Stopcock Plug, Plug Size (mm) 15.2/30	1

Gas Sampling Tubes with PTFE Valves

Designed for the collection and storage of environmental samples.

- High vacuum valves are provided for evacuation and filling
- Open top cap with a PTFE/silicone septum allows analytical samples to be withdrawn
- Both ends are ground to accept 3/8" ferrules and hand-compressible fittings for a gas-tight seal
- Each size has a marking area for easy identification
- Valve plug is 826601-0004
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height x Width (mm)	Capacity (mL), GPI Finish	Case Qty
653150-0125	90 x 345	125, 13-425	1
653150-0250	95 x 290	250, 13-425	1
653150-0500	100 x 350	500, 13-425	1

Replacement Parts

Part Number	Description	Case Qty
410116-1325	PTFE-Lined 13-425 Phenolic Cap	1
653151-0125	125mL Gas Sampling Tube, Glass, for 653150	1
653151-0500	500mL Gas Sampling Tube, Glass, for 653150	1
774161-0013	Septum, PTFE Faced Silicone, 13mm Thread Cap Size, PTFE Thickness 0.005", Silicon Rubber Thickness 0.060"	48
826601-0004	Size 4 Valve Plug	1

Kimble®
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HYDROMETERS

NEW!!!

Kimble® hydrometers are manufactured from glass in accordance with ASTM standards for use in market segments including petrochemical, environmental, pharmaceutical, and the food & beverage industry. The devices are floated in a liquid sample, and a graduated scale is read to measure the relative density or specific gravity of the solution in units appropriate to the application. In order to produce a more environmentally friendly instrument, the ballast is made from steel pellets plus a binder, and is free of heavier, toxic metals. Finally, the certificate of traceability included with each Kimble® hydrometer indicates that they are manufactured using devices calibrated using NIST traceable standards.

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Types of Kimble® Hydrometers

Specific Gravity – The most widely used form of hydrometer, this style is available in tall form, short form, and broad range.

- A serial number is printed on the scale, a certificate of traceability is included, and the hydrometer is calibrated to ASTM specifications to ensure accuracy.
- The certificate of traceability indicates that the hydrometers are manufactured using devices calibrated using NIST traceable standards.
- The ballast is made from steel pellets and a binder, and it is free of heavier metals.

Precision Specific Gravity Hydrometers

Part Number	Scale Range; Subdivisions	Length (mm)	Case Qty
52110-0708	SG 0.700-0.810; 0.001 SG	310	1
52110-0809	SG 0.800-0.910; 0.001 SG	300	1
52110-0910	SG 0.900-1.010; 0.001 SG	310	1
52110-1012	SG 1.000-1.220; 0.001 SG	300	1
52110-1214	SG 1.200-1.420; 0.001 SG	300	1
52110-1416	SG 1.400-1.620; 0.001 SG	300	1
52110-1618	SG 1.600-1.820; 0.001 SG	300	1
52110-1820	SG 1.800-2.000; 0.001 SG	300	1
52110-2000	Set of eight		1

Tall Form High Precision Specific Gravity Hydrometers

Part Number	Scale Range; Subdivisions	Length (mm)	Case Qty
52111-0708	SG 0.760-0.830; 0.0005 SG	330	1
52111-0809	SG 0.820-0.890; 0.0005 SG	330	1
52111-0810	SG 0.880-0.950; 0.0005 SG	330	1
52111-0910	SG 0.940-1.010; 0.0005 SG	330	1
52111-1011	SG 1.000-1.070; 0.0005 SG	330	1
52111-1111	SG 1.060-1.130; 0.0005 SG	330	1
52111-1112	SG 1.120-1.190; 0.0005 SG	330	1
52111-1212	SG 1.180-1.250; 0.0005 SG	330	1
52111-1213	SG 1.240-1.310; 0.0005 SG	330	1
52111-1314	SG 1.300-1.370; 0.0005 SG	330	1
52111-1414	SG 1.360-1.430; 0.0005 SG	330	1
52111-1415	SG 1.420-1.490; 0.0005 SG	330	1

Short Form High Precision Specific Gravity Hydrometers

Part Number	Scale Range; Subdivisions	Length (mm)	Case Qty
52112-0809	SG 0.820-0.890; 0.0001 SG	165	1
5212-0909	SG 0.880-0.950; 0.0001 SG	165	1
5212-0910	SG 0.940-1.010; 0.0001 SG	165	1
52112-1011	SG 1.000-1.070; 0.0001 SG	165	1
52112-1111	SG 1.060-1.130; 0.0001 SG	165	1
52112-1112	SG 1.120-1.190; 0.0001 SG	165	1
52112-1113	SG 1.180-1.250; 0.0001 SG	165	1
5212-1213	SG 1.240-1.310	165	1

Broad Range Specific Gravity Hydrometer for Liquids Lighter than Water

Part Number	Scale Range; Subdivisions	Length (mm)	Case Qty
52113-0610	SG 0.650-1.000; 0.0001 SG	300	1

About Specific Gravity

Specific gravity is a dimensionless number and is a measure of relative density.

RD = substance / reference

RD is relative density, substance is the substance being measured, and reference is the reference substance. Typically the reference substance is water, and the calibration temperature for Kimble hydrometers is 60 °F, as specified in the ASTM standards.

Conditions Affecting Hydrometer Accuracy

Important considerations when assessing the accuracy of the hydrometer readings are:

- Cleanliness of the instruments
- Temperature of the sample
- Uniformity of the sample
- Proper immersion of the hydrometer in the sample

Before a Kimble® hydrometer is used it should be closely inspected for cracks or damage. It should be thoroughly cleaned with a laboratory detergent according to the manufacturer's recommendations, rinsed with water, and dried with a lint-free wipe. The hydrometer cylinder should also be washed and rinsed prior to use.

The temperature of the sample should be near that of the surrounding atmosphere to prevent changes during reading of the scale. To standardize the relative density to 60 / 60 °F, a temperature correction factor may be applied using a temperature correction factor table such as the one found in ASTM D1250 for glass hydrometers.

Baume – The Baume scale originally was used in industrial chemistry and pharmacology, but today it is used in brewing, winemaking, sugar beet processing, ophthalmics, and the starch industry. Although specific gravity is a dimensionless number, the Baume scale is graduated in degrees Baume. According to Perry's Chemical Engineers' Handbook (8th Edition), °Be' = 145 – 145/sp gr (heavier than water), and °Be' = 140/sp gr - 130 (lighter than water).

- A serial number is printed on the scale, a certificate of traceability is included, and the hydrometer is calibrated to ASTM specifications to ensure accuracy.
- The certificate of traceability indicates that the hydrometers are manufactured using devices calibrated using NIST traceable standards.
- The ballast is made from steel pellets and a binder, and it is free of heavier metals.

Narrow Range Baume Hydrometers

Part Number	Scale Range; Subdivisions	Length (mm)	Case Qty
52120-0012	0° - 12° Baume; 0.10° Baume	300	1
52120-0921	9° - 21° Baume; 0.10° Baume	300	1
52120-1931	9° - 21° Baume; 0.10° Baume	300	1
52120-3951	39° - 51° Baume; 0.10° Baume	300	1

Broad Range Baume Hydrometers

Part Number	Scale Range; Subdivisions	Length (mm)	Case Qty
52121-0030	0° - 35° Baume; 0.5° Baume	300	1
52121-0050	0° - 50° Baume; 0.5° Baume	300	1
52121-0070	0° - 70° Baume; 1.0° Baume	305	1

Dual Scale Baume/SG Hydrometers

Part Number	Scale Range; Subdivisions	Length (mm)	Case Qty
52122-0026	0° - 26° Baume, SG 1.000-1.220; 0.2° Baume, 0.002 SG	300	1
52122-2443	24° - 43° Baume, SG 1.200-1.420; 0.2° Baume, 0.002 SG	300	1
52122-4255	42° - 55° Baume, SG 1.400-1.620; 0.2° Baume, 0.002 SG	300	1
52122-5465	54° - 65° Baume, SG 1.600-1.820; 0.2° Baume, 0.002 SG	300	1
52122-0072	0° - 72° Baume, SG 1.000-2.000; 1.0° Baume, 0.01 SG	305	1

API ASTM – The American Petroleum Institute scale is used to measure the specific gravity of a liquid relative to water. A sample with an API gravity value greater than 10 is lighter than water, and an API gravity value less than 10 is heavier than water. Although specific gravity does not have units, the API scale is graduated in degrees, and was designed such that most values would fall between ten and seventy API gravity degrees. According to Perry's Chemical Engineers' Handbook (8th Edition), °API = 141.5/sp gr -131.5.

- A serial number is printed on the scale, a certificate of traceability is included, and the hydrometer is calibrated to ASTM specifications to ensure accuracy.
- The certificate of traceability indicates that the hydrometers are manufactured using devices calibrated using NIST traceable standards.
- The ballast is made from steel pellets and a binder, and it is free of heavier metals.

Plain form API ASTM Hydrometers

Part Number	Scale Range; Subdivisions	Length (mm)	Case Qty
52130-1931	API 19°-31°, ASTM 3H; 0.10° API	330	1
52130-2941	API 29°-41°, ASTM 4H; 0.10° API	330	1
52130-3951	API 39°-51°, ASTM 5H; 0.10° API	330	1
52130-4961	API 49°-61°, ASTM 6H; 0.10° API	330	1
52130-5971	API 59°-71°, ASTM 7H; 0.10° API	330	1
52130-6981	API 69°-81°, ASTM 8H; 0.10° API	335	1
52130-7991	API 79°-91°, ASTM 9H; 0.10° API	330	1
52130-8910	API 89°-101°, ASTM 10H; 0.10° API	330	1
52130-0111	API -1°- +11°, ASTM 1H; 0.10° API	330	1
52130-0921	API 9°-21°, ASTM 2H; 0.10° API	330	1

Ethanol – The ethanol hydrometer has dual graduations in 0-100 % and 0-200 proof scales.

- A serial number is printed on the scale, a certificate of traceability is included, and the hydrometer is calibrated to ASTM specifications to ensure accuracy.
- The certificate of traceability indicates that the hydrometers are manufactured using devices calibrated using NIST traceable standards.
- The ballast is made from steel pellets and a binder, and it is free of heavier metals.

Ethanol Hydrometers

Part Number	Subdivisions	Length (mm)	Case Qty
52150-0200	1%, 2 Proof	300	1

Salt and Brine – The sodium chloride hydrometer is graduated from 0-26.4% sodium chloride, and is used to measure the percentage of a saturated salt solution. The salimeter is graduated from 0-100% saturated sodium chloride. It is used in the measurement of meat packing and pickling brines.

- A serial number is printed on the scale, a certificate of traceability is included, and the hydrometer is calibrated to ASTM specifications to ensure accuracy.
- The certificate of traceability indicates that the hydrometers are manufactured using devices calibrated using NIST traceable standards.
- The ballast is made from steel pellets and a binder, and it is free of heavier metals.

Salt and Brine Hydrometers

Part Number	Scale Range; Subdivisions	Length (mm)	Case Qty
52140-0100	0-100% Saturated Sodium Chloride; 1% of Saturation	300	1
52140-0264	0-26.4% Sodium Chloride; 0.5 by weight	300	1

Certificate of Conformance

The Certificate of Conformance indicates the ASTM specifications from which the hydrometers were designed, and states that the reference standards used to calibrate the devices are traceable to NIST.

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Catalog Number_____

Serial Number_____

Certificate of Conformance

This hydrometer was manufactured to the highest quality standard in accordance with ASTM E100, Standard Specification for ASTM Hydrometers, and tested following the methodology of ASTM E126, Inspection and Verification of Hydrometers.

The reference standards used to calibrate this hydrometer are tracable to NIST, and the calibration was strictly controlled to the guidelines set forth by ASTM and ISO.

_____ Certified By Plant Manager

_____ Certification Date

ISO LABORATORY GLASSWARE

Kimble®
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Kimble®, a leading manufacturer of the most comprehensive range of laboratory and scientific glassware, is your competent partner for high quality glass equipment. Specializing in a broad range of reusable, disposable and specialty glassware for the following markets: pharmaceutical, environmental, petrochemical, life science, education and chromatography. These products include beakers, flasks, cylinders, vials, media bottles, culture tubes, funnels and pipettes to support our customers' needs in sample generation, collection, storage, preparation, analysis, disposition and lab safety.

This brochure shows only a small selection from the product portfolio. More products are available on our website, **www.kimblechase.com**.

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Laboratory Bottles GL45

- KIMAX® Borosilicate glass 3.3.
- ISO 4796-1.
- With graduation, PP screw cap, pouring ring.
- Resistant to heat, temperature changes and chemicals.

Catalog No.	Capacity ml	Outside Ø mm	Height mm	Case Qty
14395-100	100	56	105	1
14395-250	250	70	143	1
14395-500	500	86	182	1
14395-1000	1000	101	230	1
14395-2000	2000	130	268	1

Beakers, High Form

- KIMAX® Borosilicate glass 3.3.
- DIN 12331/ISO 3819.
- With graduation and spout.
- Resistant to heat, temperature changes and chemicals.

Catalog No.	Capacity ml	Outside Ø mm	Height mm	Case Qty
64030-25	25*	30	55	1
64030-50	50	38	70	1
64030-100	100	48	80	1
64030-150	150	54	95	1
64030-250	250	60	120	1
64030-400	400	70	130	1
64030-600	600	80	150	1
64030-800	800	90	175	1
64030-1000	1000	95	180	1

*without graduation

Beakers, Low Form

- KIMAX® Borosilicate glass 3.3.
- DIN 12331/ISO 3819.
- With graduation and spout.
- Resistant to heat, temperature changes and chemicals.

Catalog No.	Capacity ml	Outside Ø mm	Height mm	Case Qty
64000-5	5*	22	30	1
64000-10	10*	26	35	1
64000-25	25*	34	50	1
64000-50	50	42	60	1
64000-100	100	50	70	1
64000-150	150	60	80	1
64000-250	250	70	95	1
64000-400	400	80	110	1
64000-600	600	90	125	1
64000-800	800	100	135	1
64000-1000	1000	105	145	1
64000-2000	2000	130	185	1
64000-3000	3000	150	210	1
64000-5000	5000	170	270	1

*without graduation

Erlenmeyer Flasks, Narrow Neck

- KIMAX® Borosilicate glass 3.3.
- DIN ISO 1773.
- With graduation.
- Resistant to heat, temperature changes and chemicals.

Catalog No.	Capacity ml	Neck Ø mm	Flask Ø mm	Height mm	Case Qty
66500-50	50	22	51	85	1
66500-100	100	22	64	105	1
66500-250	250	34	85	140	1
66500-500	500	34	105	175	1
66500-1000	1000	42	131	220	1
66500-2000	2000	50	166	280	1
66500-3000	3000	50	187	310	1
66500-5000	5000	50	220	365	1

Erlenmeyer Flasks, Wide Neck

- KIMAX® Borosilicate glass 3.3.
- DIN ISO 1773.
- With graduation.
- Resistant to heat, temperature changes and chemicals.

Catalog No.	Capacity ml	Neck Ø mm	Flask Ø mm	Height mm	Case Qty
66650-100	100	34	85	140	1
66650-250	250	50	105	175	1
66650-500	500	50	131	220	1
66650-1000	1000	50	166	280	1
66650-2000	2000	69	187	310	1
66650-3000	3000	69	220	365	1

Pasteur Pipettes, Sterile

- Soda lime glass, sterile
- Cotton plugged pipettes upon request

Catalog No.	Length mm	Case Qty
63A55	150	250
63A55P	150*	250
63B93	230	250
63B93P	230*	250

*with cotton plug

Pasteur Pipettes

- Soda lime glass. ISO 7712
- Cotton plugged pipettes upon request

Catalog No.	Length mm	Case Qty
M4150NO250	150	1000
M4230NO250	230	1000

Test Tubes, Borosilicate Glass 3.3 Round bottom

Catalog No.	Dimensions mm	Description	Case Qty
A607510001011	75 x 10 x 0,8 – 1,0	without rim	100
A607512001011	75 x 12 x 0,8 – 1,0	without rim	100
A610010000911	100 x 10 x 0,8 – 0,9	without rim	100
A610012001011	100 x 12 x 1,1 – 1,2	without rim	100
A610016001211	100 x 16 x 1,1 – 1,2	without rim	100
A613014000911	130 x 14 x 0,8 – 0,9	without rim	100
A613016001211	130 x 16 x 1,1 – 1,2	without rim	100
A615020001211	150 x 20 x 1,1 – 1,2	without rim	100
A615025001211	150 x 25 x 1,1 – 1,2	without rim	50
A616016001211	160 x 16 x 1,1 – 1,2	without rim	100
A618018001211	180 x 18 x 1,1 – 1,2	without rim	100
A618020001211	180 x 20 x 1,1 – 1,2	without rim	100
A620025001211	200 x 25 x 1,1 – 1,2	without rim	50
A620030001211	200 x 30 x 1,1 – 1,2	without rim	50
A607510001021	75 x 10 x 0,9 – 1,0		100
A607512001021	75 x 12 x 0,9 – 1,0		100
A610010001021	100 x 10 x 0,9 – 1,0		100
A610012001021	100 x 12 x 0,9 – 1,0		100
A613014001021	130 x 14 x 0,9 – 1,0		100
A613016001221	130 x 16 x 1,1 – 1,2		100
A615020001221	150 x 20 x 1,1 – 1,2		100
A615025001221	150 x 25 x 1,1 – 1,2		50
A616016001221	160 x 16 x 1,1 – 1,2		100
A618018001221	180 x 18 x 1,1 – 1,2		100
A618020001221	180 x 20 x 1,1 – 1,2		100
A620025001221	200 x 25 x 1,1 – 1,2		50
A620030001221	200 x 30 x 1,1 – 1,2		50

Test Tubes, Soda-Lime-Glass Round bottom

Catalog No.	Dimensions mm	Description	Case Qty
A402507000711	25 x 7 x 0.6 – 0.7 mm	without rim	1000
A403506500711	35 x 6.5 x 0.6 – 0.7 mm	without rim	1000
A403508000711	35 x 8 x 0.6 – 0.7 mm	without rim	1000
A404008000711	40 x 8 x 0.6 – 0.7 mm	without rim	200
A404009500711	40 x 9.5 x 0.6 – 0.7 mm	without rim	500
A404010500911	40 x 10.5 x 0.8 – 0.9 mm	without rim	500
A405006500711	50 x 6.5 x 0.6 – 0.7 mm	without rim	1000
A405009500811	50 x 9.5 x 0.7 – 0.8 mm	without rim	200
A405511000811	55 x 11 x 0.7 – 0.8 mm	without rim	500
A407011000811	70 x 11 x 0.7 – 0.8 mm	without rim	800
A407510000611	75 x 10 x 0.5 – 0.6 mm	without rim	1000
A407511500811	75 x 11.50 x 0.7 – 0.8 mm	without rim	1000
A407512000611	75 x 12 x 0.5 – 0.6 mm	without rim	1000
A410012000611	100 x 12 x 0.5 – 0.6 mm	without rim	1000
A410013000611	100 x 13 x 0.5 – 0.6 mm	without rim	1000
A410016000711	100 x 16 x 0.6 – 0.7 mm	without rim	1000
A412012000711	120 x 12 x 0.6 – 0.7 mm	without rim	500
A412516000711	125 x 16 x 0.6 – 0.7 mm	without rim	1000
A415018000911	150 x 18 x 0.8 – 0.9 mm	without rim	500
A416016000711	160 x 16 x 0.6 – 0.7 mm	without rim	1000
A418018000811	180 x 18 x 0.7 – 0.8 mm	without rim	100
A412016000621	120 x 16 x 0.5 – 0.6 mm		100
A416016000621	160 x 16 x 0.5 – 0.6 mm		100
A418018000721	180 x 18 x 0.6 – 0.7 mm		100
A418020000821	180 x 20 x 0.7 – 0.8 mm		100

Test Tubes, Borosilicate Glass 5.1 Round bottom

Catalog No.	Dimensions mm	Description	Case Qty
A507510000611	75 x 10 x 0.5 – 0.6 mm	without rim	1000
A507512000611	75 x 12 x 0.5 – 0.6 mm	without rim	1000
A510013000611	100 x 13 x 0.5 – 0.6 mm	without rim	1000
A510016000711	100 x 16 x 0.6 – 0.7 mm	without rim	1000
A512516000711	125 x 16 x 0.6 – 0.7 mm	without rim	1000
A515016000711	150 x 16 x 0.6 – 0.7 mm	without rim	1000
A515018000911	150 x 18 x 0.8 – 0.9 mm	without rim	500
A515020000911	150 x 20 x 0.8 – 0.9 mm	without rim	100
A507008000521	70 x 8 x 0.4 – 0.5 mm		100
A507510000521	75 x 10 x 0.4 – 0.5 mm		100
A507512000521	75 x 12 x 0.4 – 0.5 mm		100
A510010000521	100 x 10 x 0.4 – 0.5 mm		100
A510012000521	100 x 12 x 0.4 – 0.5 mm		100
A510016000621	100 x 16 x 0.5 – 0.6 mm		100
A513014000521	130 x 14 x 0.4 – 0.5 mm		100
A513016000621	130 x 16 x 0.5 – 0.6 mm		100
A515020000621	150 x 20 x 0.5 – 0.6 mm		100
A515025000721	150 x 25 x 0.6 – 0.7 mm		50
A518018000621	180 x 18 x 0.5 – 0.6 mm		100
A518020000621	180 x 20 x 0.5 – 0.6 mm		100
A520025000721	200 x 25 x 0.6 – 0.7 mm		50
A520030000821	200 x 30 x 0.7 – 0.8 mm		50

KIM-KAP™ Polypropylene Closures

For culture tubes, natural colour. Autoclavable. Also available in the colours red, green, yellow and blue.

Catalog No.	Ø outside mm	Case Qty
73660-13	13	1000
73660-16	16	1000
73660-18	18	1000
73660-20	20	1000
73660-25	25	500
73660-38	38	250

Culture Tubes

Borosilicate glass. Disposable. Plain rim.

Catalog No.	Ø outside mm	Length mm	Case Qty
73500-650	6	50	1000
73500-1075	10	75	1000
73500-1275	12	75	1000
73500-13100	13	100	1000
73500-16100	16	100	1000
73500-16125	16	125	1000
73500-16150	16	150	1000
73500-18150	18	150	500
73500-20150	20	150	500
73500-25150	25	150	500

High Speed Centrifuge Tubes

Borosilicate glass, chemically strengthened. These tubes can be centrifuged up to 13100 RCF when used with an accessory rubber adapter sleeve in a 50 ml rotor cavity. Autoclavable and withstand temperatures up to 300 °C.

Cat. No.	Description	Cap. ml	Outer Ø mm	Len. mm	Case Qty
45500-15	Plain rim	15	18	102	6
45500-30	Plain rim	30	24	106	6
45600-15	With screw cap and liner	15	18	102	6
45600-30	With screw cap and liner	30	24	106	6
45550-15	Rubber adapter sleeve for 15 ml				6
45550-30	Rubber adapter sleeve for 30 ml				6

NMR Tubes

Disposable grade 5 mm NMR-tubes. Borosilicate glass without sandblasted marking spot, with PE caps.

Catalog No.	MHz approx.	Length cm	Case Qty
897193-0000	100	17,8	25
897193-0050	100	17,8	50
897193-7100	100	17,8	100
897193-0008	100	20,3	25
897193-8050	100	20,3	50
897193-8100	100	20,3	100

NMR Tubes

Tube, 5 mm, highest quality, ASTM type 1, class A, borosilicate glass. Each and every precision 5 mm NMR tube is 100 % gauged to meet the most exacting standards and is ideal for sealing directly to vacuum manifolds, joints and valves. Supplied with a cap and featuring a sand-blasted marking spot.

Wall thickness 0.375 mm / Outside-Ø 4.97 mm / Inside-Ø 4.20 mm

Catalog No.	MHz approx.	Length cm	Case Qty
897250-3000	900	17.8	5
897250-3008	900	20.3	5
897245-3000	800	17.8	5
897245-3008	800	20.3	5
897241-0000	600 – 700	17.8	5
897241-0008	600 – 700	20.3	5
897241-0009	600 – 700	22.9	5
897240-0000	500	20.3	5
897240-0008	500	17.8	5
897240-0009	500	22.9	5
897235-0000	400	17.8	5
897235-0008	400	20.3	5
897235-0009	400	22.9	5
897230-0000	300	17.8	5
897230-0008	300	20.3	5
897225-0000	200	17.8	5
897225-0008	200	20.3	5
897225-0009	200	22.9	5
897220-0000	150	17.8	5
897220-0008	150	20.3	5
897205-0000	100	17.8	5
897205-0008	100	20.3	5
897205-0009	100	22.9	5
897200-0000	100	17.8	5
897200-0008	100	20.3	5
897200-0009	100	22.9	5

Homogenisers, Potter-Elvehjem with Glass Pestle

- All-glass construction
- Designed for a motor drive using a stirrer adapter
- Clearance between pestles and tubes is 0.1 to 0.15 mm
- Replacement components are available and completely interchangeable

Catalog No.	Size	Capacity ml	Pestle overall x outer Ø mm	Mortar overall x outer Ø mm	Case Qty
885500-0019	19	1	145 x 5	95 x 13	1
885500-0021	21	5	205 x 6	140 x 16	1
885500-0022	22	8	215 x 8	150 x 18	1
885500-0023	23	17	265 x 10	175 x 25	1
885500-0024	24	45	315 x 10	220 x 32	1

Homogenisers, Potter-Elvehjem with PTFE Pestle

- With a PTFE pestle and an unground tube.
- Size 21 to 24 have radial serrations on the lower portion of the pestle to deliver the homogenate into the cylindrical portion of the tube.
- Clearance between pestles and tubes is 0.1 to 0.15 mm.
- Replacement components are available and completely interchangeable.

Catalog No.	Size	Capacity ml	Pestle overall x outer Ø mm	Mortar overall x outer Ø mm	Case Qty
886000-0018	18	0.5	130 x 3	80 x 12	1
886000-0019	19	1	154 x 5	95 x 12	1
886000-0020	20	3	154 x 5	115 x 12	1
886000-0021	21	5	215 x 6	140 x 15	1
886000-0022	22	8	212 x 6	150 x 19	1
886000-0023	23	17	266 x 6	175 x 25	1
886000-0024	24	45	269 x 6	220 x 32	1

Homogenisers, DOUNCE

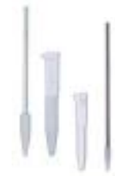
All-glass. Designed primarily for cellular work where the nucleus remains intact after homogenisation. Two pestles are supplied with each complete unit.

- Large clearance pestle: used for the initial sample reduction.
- Small clearance pestle: used to form the final homogenate.
- One vessel.

Replacement components are available and completely interchangeable.

Catalog No.	Capacity ml	Length mm	Case Qty
885300-0000	0,5	37	1
885300-0001	1	88	1
885300-0002	2	60	1
885300-0007	7	125	1
885300-0015	15	157	1
885300-0040	40	215	1
885300-0100	100	232	1

Homogenisers, DUALL®



Combines both conical and cylindrical surfaces to effectively reduce tissue and produce a uniform homogenate. Homogenising efficiency is greatly improved when this tube is used.

- Construction is strong enough to allow the pestle to be motor driven.
- Clearance between pestle and tube is 0.1 to 0.15 mm.
- Replacement components are available and completely interchangeable.

Homogenisers, DUALL® with glass pestle ideal for connective tissue such as muscle, heart and lung.

Homogenisers, DUALL® with PTFE pestle ideal for soft tissue as brain or liver.

Catalog No.	Cap. ml	Pestle overall x outer Ø mm	Mortar overall x outer Ø mm	Description	Case Qty
885450-0020	1	155 x 4.5	80 x 13	with glass pestle	1
885450-0021	3	210 x 6	120 x 16	with glass pestle	1
885450-0022	5	228 x 6	150 x 18	with glass pestle	1
885450-0023	15	268 x 6	175 x 25	with glass pestle	1
885450-0024	30	305 x 10	215 x 32	with glass pestle	1
885450-0025	50	330 x 10	225 x 38	with glass pestle	1
885480-0020	1	155 x 4.5	80 x 13	with PTFE pestle	1
885480-0021	3	210 x 6	120 x 16	with PTFE pestle	1
885480-0022	5	228 x 6	150 x 18	with PTFE pestle	1
885480-0023	15	268 x 6	175 x 25	with PTFE pestle	1
885480-0024	30	305 x 10	215 x 32	with PTFE pestle	1
885480-0025	50	330 x 10	225 x 38	with PTFE pestle	1

Disposable Pellet Pestles

- Autoclavable, made of PP
- Suitable for cordless motor
- Pestle length: 70 mm

Catalog No.	Type	Vol. ml	Description	Case Qty
749520-0500	With matching microcentrifugetubes	0,5		100
749520-0000	With matching microcentrifugetubes	1,5		100
749521-0500	Without matching microcentrifugetubes	0,5		100
749521-1500	Without matching microcentrifugetubes	1,5		100
749520-0590	With matching microcentrifugetubes	0,5	RNase-, DNase, pyrogene-free, individually wrapped	100
749520-0090	With matching microcentrifugetubes	1,5	RNase-, DNase, pyrogene-free, individually wrapped	100
749521-0590	Without matching microcentrifugetubes	0,5	RNase-, DNase, pyrogene-free, individually wrapped	100
749521-1590	Without matching microcentrifugetubes	1,5	RNase-, DNase, pyrogene-free, individually wrapped	100

Reusable Pellet Pestles

- For 500 µl and 1.5 ml micro centrifuge tubes
- Autoclavable, CTFE/stainless steel
- Suitable for cordless motor

Catalog No.	Description	Pistill length mm	Case Qty
749516-0500	0,5 ml Pistill	60	1
749515-0000	1,5 ml Pistill	140	1

Cordless Motor for Pellet Pestles

- Complete with two AA batteries
- Replacement motor adapter also available

Catalog No.	Description	Case Qty
749540-0000	Cordless motor	1
749541-0000	Replacement motor adapter	1

Clear Glass Straight-Sided Jars

Storage jars designed without shoulders to maximize capacity for contents.

- Wide-mouth design for efficient addition and removal of contents
- Clear glass allows for easy viewing of contents
- All 32 ounce jars in this group are packed in corrugated cartons with divider cells
- Choose from a variety of cap / liner combinations (caps attached)
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Convenience Packs (Caps Attached)

Part Number	Capacity (mL); Height (mm)	Cap Liner Material	Case Qty
5410253V-21	60; 48	Pulp / Vinyl	24
5410458V-21	125; 68	Pulp / Vinyl	24
5410663V-21	180; 79	Pulp / Vinyl	12
5410870V-21	250; 88	Pulp / Vinyl	12
5411689V-21	500; 95	Pulp / Vinyl	12
5413289V-21	1000; 170	Pulp / Vinyl	12
5410253V-22	60; 48	Solid PE	24
5410458V-22	125; 68	Solid PE	24
5410663V-22	180; 79	Solid PE	12
5410870V-22	250; 88	Solid PE	12
5411689V-22	500; 95	Solid PE	12
5413289V-22	1000; 170	Solid PE	12
5410253V-24	60; 48	White Rubber	24
5410458V-24	125; 68	White Rubber	24
5410253V-26	60; 48	PTFE-Faced LDPE Foam	24
5410458V-26	125; 68	PTFE-Faced LDPE Foam	24
5410663V-26	180; 79	PTFE-Faced LDPE Foam	12
5410870V-26	250; 88	PTFE-Faced LDPE Foam	12
5411689V-26	500; 95	PTFE-Faced LDPE Foam	12
5413289V-26	1000; 170	PTFE-Faced LDPE Foam	12

Shrink Modules with Caps in Bags

Part Number	Capacity (mL); Height (mm)	Cap Liner Material	Case Qty
5410253C-21	60; 48	Pulp / Vinyl	216
5410458C-21	125; 68	Pulp / Vinyl	144
5410663C-21	180; 79	Pulp / Vinyl	24
5410870C-21	250; 88	Pulp / Vinyl	24
5411689C-21	500; 95	Pulp / Vinyl	12
5413289C-21	1000; 170	Pulp / Vinyl	12
5410870C-22	250; 88	Solid PE	24
5411689C-22	500; 95	Solid PE	12
5413289C-22	1000; 170	Solid PE	12
5410253C-23	60; 48	Tinfoil	216
5410458C-23	125; 68	Tinfoil	144
5410663C-23	180; 79	Tinfoil	24
5410870C-23	250; 88	Tinfoil	24
5410253C-24	60; 48	White Rubber	216
5410458C-24	125; 68	White Rubber	144
5410663C-24	180; 79	White Rubber	24
5410870C-24	250; 88	White Rubber	24
5411689C-24	500; 95	White Rubber	12
5413289C-24	1000; 170	White Rubber	12
5410253C-26	60; 48	PTFE-Faced LDPE Foam	216
5410458C-26	125; 68	PTFE-Faced LDPE Foam	144
5410663C-26	180; 79	PTFE-Faced LDPE Foam	24
5410870C-26	250; 88	PTFE-Faced LDPE Foam	24
5411689C-26	500; 95	PTFE-Faced LDPE Foam	12
5413289C-26	1000; 170	PTFE-Faced LDPE Foam	12
5410253B	60; 48	No Cap	216
5410458B	125; 68	No Cap	144
5410663B	180; 79	No Cap	24
5410870B	250; 88	No Cap	24
5411689B	500; 95	No Cap	12
5413289B	1000; 170	No Cap	12

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Clear Glass Straight-Sided Jars, Tall

Designed for storage without shoulders to maximize capacity for large quantities.

- Wide-mouth tall form design for efficient addition and removal of contents
- Clear glass allows for easy viewing of contents
- All 32 ounce jars in this group are packed in corrugated cartons with divider cells
- Choose from a variety of cap / liner combinations
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Convenience Packs (Caps Attached)

Part Number	Capacity (mL); Height (mm)	Cap Liner Material	Case Qty
5513289V-86	1000; 170	PTFE-Faced LDPE Foam	12
5511670V-86	500; 145	PTFE-Faced LDPE Foam	12
5510858V-86	250; 127	PTFE-Faced LDPE Foam	24
5510448V-86	125; 102	PTFE-Faced LDPE Foam	24
5513289V-81	1000; 170	Pulp / Vinyl	12
5511670V-81	500; 145	Pulp / Vinyl	12
5510858V-81	250; 127	Pulp / Vinyl	24
5510448V-81	125; 102	Pulp / Vinyl	24

Bulk Packs, Shrink Modules

Part Number	Capacity (mL); Height (mm)	Cap Liner Material	Case Qty
5510448C-81	125; 102	Pulp / Vinyl	24
5510858C-81	250; 127	Pulp / Vinyl	24
5511670C-81	500; 145	Pulp / Vinyl	12
5513289C-81	1000; 170	Pulp / Vinyl	12
5513289C-82	1000; 170	Solid PE	12
5513289C-86	1000; 170	PTFE-Faced LDPE Foam	12
5510448B	125; 102	No Cap	24
5510858B	250; 127	No Cap	24
5511670B	500; 145	No Cap	12
5513289B	1000; 170	No Cap	12

Clear Glass Square Tablet Bottles

Designed for small-scale sample collection and storage of tablets.

- Wide-mouth design for efficient addition and removal of contents
- Clear glass allows for easy viewing of contents
- Packed in corrugated cartons with divider cells
- Choose from a variety of cap / liner combinations or bottles only
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Part Number	Capacity (mL); Height (mm)	Cap Liner Material	Case Qty
5910133C-21	30; 59	Pulp / Vinyl	288
5910133C-25	30; 59	Cone-shaped Polyethylene	288
5910133C-26	30; 59	PTFE-Faced LDPE Foam	288
5910133B	30; 59	No Cap	288

Amber Glass Straight-Sided Jars

Designed to protect contents from UV rays and ideal for light sensitive products.

- Wide-mouth design for efficient addition and removal of contents
- All 32 ounce jars in this group are packed in corrugated cartons with divider cells
- Choose from a variety of cap / liner combinations
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Convenience Packs (Caps Attached)

Part Number	Capacity (mL); Height (mm)	Cap Liner Material	Case Qty
5420253V-21	60; 48	Pulp / Vinyl	24
5420458V-21	125; 68	Pulp / Vinyl	24
5420870V-21	250; 88	Pulp / Vinyl	12
5420253V-26	60; 48	PTFE-Faced LDPE Foam	24
5420458V-26	125; 68	PTFE-Faced LDPE Foam	24

Bulk Packs - Shrink Modules with Caps in Bags

Part Number	Capacity (mL); Height (mm)	Cap Liner Material	Case Qty
5420253C-26	60; 48	PTFE-Faced LDPE Foam	216
5420458C-26	125; 68	PTFE-Faced LDPE Foam	144
5420870C-26	250; 88	PTFE-Faced LDPE Foam	24

Cold Test Jar

KIMAX® jar used to determine the temperature (cloud point) at which haziness is first observed at the bottom of the jar when petroleum oils are cooled and examined under specified conditions (ASTM D2500), and also the temperature at which chilled undisturbed oils will pour (ASTM D97).

- Jar has a flat bottom and a reinforced bead at the open end
- With a marking spot and a graduation ring located 54 mm from the inside bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD (mm)	Height (mm)	Case Qty
32501-99	35	125	36

Clear Glass Standard Wide-Mouth Jars

Ideal for liquid, dry storage and packaging.

- Wide-mouth design for efficient addition and removal of contents
- Rounded shoulders
- Clear glass allows for easy viewing of contents
- Choose from a variety of cap / liner combinations
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Convenience Packs (Caps Attached)

Part Number	Capacity (mL); Height (mm)	Cap Liner Material	Case Qty
5310448V-21	125; 84	Pulp / Vinyl	24
5310858V-21	250; 110	Pulp / Vinyl	24
5310448V-26	125; 84	PTFE-Faced LDPE Foam	24
5310858V-26	250; 110	PTFE-Faced LDPE Foam	24

Bulk Packs - Shrink Modules with Caps in Bags

Part Number	Capacity (mL); Height (mm)	Cap Liner Material	Case Qty
5310448C-26	125; 84	PTFE-Face LDPE Foam	24
5310858C-26	250; 110	PTFE-Faced LDPE Foam	24

Clear Glass Testing Jars

Ideal for environmental applications and for general laboratory use.

- Wide-mouth design for efficient addition and removal of contents
- Clear glass allows for easy viewing of contents
- Choose from a variety of cap / liner combinations in Bulk Packs
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Part Number	Capacity (mL); Height (mm)	Cap Liner Material	Case Qty
5910243C-21	60; 83	Pulp / Vinyl	216
5910243C-26	60; 83	PTFE-Faced LDPE Foam	216
5910243B	60; 83	No Cap	216

JUGS

Clear Glass Jugs

General purpose container comprised of a wide body, a narrow mouth, and a handle for safe pouring.

- Clear glass allows for easy viewing of contents
- Choose from a variety of cap / liner combinations or jugs only without caps
- Please note that all jugs in this group are packed in corrugated cartons with divider cells
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Part Number	Capacity (mL)	Cap Liner Material	Case Qty
5916438B	2000	No Cap	6
5919138B	3840	No Cap	4
5916438V-25	2000	Cone-shaped Polyethylene	6
5919138V-25	3840	Cone-shaped Polyethylene	4
5916438V-26	2000	PTFE-Faced LDPE Foam	6
5919138V-26	3840	PTFE-Faced LDPE Foam	4

Amber Glass Jugs

General purpose container comprised of a wide body, a narrow mouth, and a handle for safe pouring.

- Amber glass protects light-sensitive contents
- Choose from a variety of cap / liner combinations or jugs only without caps
- Please note that all jugs in this group are packed in corrugated cartons with divider cells
- Manufactured from soda-lime glass conforming to USP Type III and ASTM E438, Type II requirements

Part Number	Capacity (mL)	Cap Liner Material	Case Qty
5928038B	2400	No Cap	6
5929138B	3785	No Cap	4
5928038V-25	2400	Cone-shaped Polyethylene	6
5929138V-25	3785	Cone-shaped Polyethylene	4
5928038V-26	2400	PTFE-Faced LDPE Foam	6
5929138V-26	3785	PTFE-Faced LDPE Foam	4

◀ Go To TOC

KITS & LABSETS

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

Used primarily in educational settings, kits and labsets are available in microscale, macroscale and full scale versions. From Kem-Kits® with standard taper joints to Williamson microscale kits and threaded kits, Kimble® provides many high quality kit options along with the supporting accessories and replacement parts.

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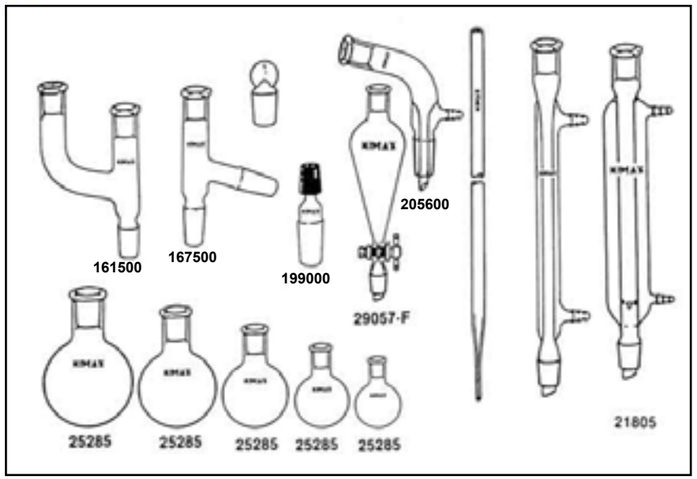
Full Scale Organic Chemistry Kits

This organic chemistry KIMAX® LABSET™ includes a selection of basic glassware for extraction, reflux, reflux with addition, fractionation and distillation (steam, atmospheric and vacuum), as well as other organic preparations.

- Full length Standard Taper 24/40 joints.
- Case is heavyweight corrugated and inserts are soft foam.
- Glassware is manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
33820-99	1



Replacement Parts

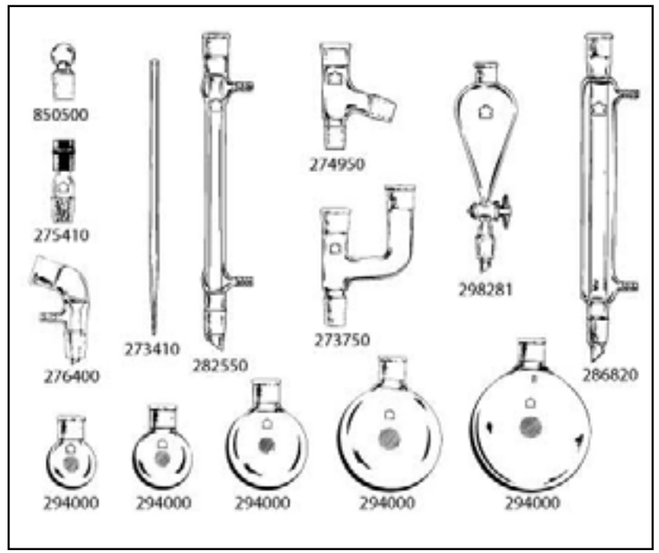
Part Number	Description	Case Qty
21805-300	Jacketed Column, full length 24/40 joints, 45 mL, fits tubing ID 5/16”, 300 mm jacket length	1
25285-50	Short Neck Round Bottom Boiling Flask, full length 24/40 joint, 50 mL, 100 mm height, 48 mm OD, shelf pack quantity is 2	12
25285-100	Short Neck Round Bottom Boiling Flask, full length 24/40 joint, 100 mL, 115 mm height, 63 mm OD, shelf pack quantity is 2	12
25285-200	Short Neck Round Bottom Boiling Flask, full length 24/40 joint, 200 mL, 130 mm height, 75 mm OD, shelf pack quantity is 2	12
25285-300	Short Neck Round Bottom Boiling Flask, full length 24/40 joint, 300 mL, 145 mm height, 88 mm OD, shelf pack quantity is 2	12
25285-500	Short Neck Round Bottom Boiling Flask, full length 24/40 joint, 500 mL, 160 mm height, 102 mm OD, shelf pack quantity is 2	12
29057F-125	125 mL Separatory Funnel, Standard Taper 24/40 joint, PTFE stopcock, 2 mm stopcock bore size	1
452000-2430	West Condenser with Full Length 24/40 Joints	1
851000-2440	Full Length Standard Taper Pennyhead Glass Stopper	1
199000-2440	Thermometer Inlet Adapter with Top Tubulature	1
273410-0000	Bleed Type Inlet Adapter	1
161500-2440	Claisen Distillation Adapter	1
167500-2440	75° Connecting Distillation Adapter	1
205600-2440	105° Distillation Bent Adapter with Vacuum Take-Off and Outer Hose Connection	1

Macroscale KEM-KIT® Standard Taper 14/20 Kit

KEM-KITS® contain a selection of basic small scale glassware for extraction, reflux, reflux with addition, fractionation, and distillation (steam, atmospheric and vacuum), as well as for other organic preparations.

- The components are supplied in a double-wall heavy-duty polyethylene storage case with a handle and hinged lid
- A comprehensive instruction manual by Dr. William B. Martin of Lake Forest College, Illinois, is provided with each kit
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
269320-0000	1



Replacement Parts

Part Number	Description	Case Qty
273410-0000	Bleed-Type Inlet, OD 6.4 mm, tip ID 0.5 mm, overall length 280 mm	1
273750-0000	Claisen Distillation Adapter, 14/20 Standard Taper joints, overall height 113 mm, overall width 69 mm, use with 179700 or 179800 adapters	1
274950-0000	75º Connecting Distillation Adapter, 14/20 Standard Taper joints, overall height 105 mm, overall width 55 mm	1
275410-1420	Thermometer Inlet with Top Tubulature, 14/20 Standard Taper joints, overall height 50 mm	1
276400-0000	105º Bent Distillation Adapter with Vacuum Take-Off, 14/20 Standard Taper joints, Fits tubing ID 1/4”, overall height 100 mm	1
282550-0000	West Medium Length Condenser, 14/20 Standard Taper joints, jacket length 110 mm, approx. condensing area 45cm², fits tubing ID 1/4”, approx. overall height 190 mm	1
286820-0110	Distilling / Condensing Column, 14/20 Standard Taper joints, column height 110 mm, fits tubing ID 1/4”	1
294000-0025	25 mL Heavy Wall Round Bottom Boiling Receiving Flask, 14/20 Standard Taper joints, OD 42 mm	1
294000-0050	50 mL Heavy Wall Round Bottom Boiling Flask, 14/20 Standard Taper joints, OD 48 mm	1
294000-0100	100 mL Heavy Wall Round Bottom Boiling Flask, 14/20 Standard Taper joints, OD 64 mm	1
294000-0250	250 mL Heavy Wall Round Bottom Boiling Flask, 14/20 Standard Taper joints, OD 83 mm	1
294000-0500	500 mL Heavy Wall Round Bottom Boiling Flask, 14/20 Standard Taper joints, OD 102 mm	1
298281-0125	125 mL Micro Separatory Funnel, PTFE plug, 14/20 joints, without stopper, overall height190 mm	1
850500-1420	Solid Pennyhead Stopper, medium length 14/20 Standard Taper joints	1
269501-0000	Replacement Case and Foam Insert Set for KEM-KIT®	1

Macroscale KEM-KIT® Standard Taper 19/22 Kit

KEM-KITS® contain a selection of basic small scale glassware for extraction, reflux, reflux with addition, fractionation, and distillation (steam, atmospheric and vacuum), as well as for other organic preparations.

- Supplied in a double-wall heavy-duty polyethylene storage case with a handle and hinged lid
- A comprehensive instruction manual by Dr. William B. Martin of Lake Forest College, Illinois, is provided with each kit
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
269800-0000	1

Replacement Parts

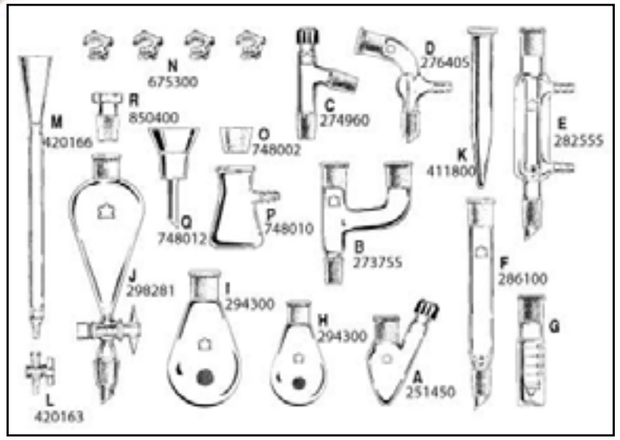
Part Number	Description	Case Qty
273410-0000	Bleed-Type Inlet Adapter, 6.4 mm OD, 0.5 mm tip ID, 280 mm overall length	1
273760-0000	Claisen Distillation Adapter, 19/22 Standard Taper Joints, use with 179700 or 179800 adapters, 125 mm Overall height, 72 mm Overall width	1
275060-0000	Connecting Distillation Adapter, 19/22 Standard Taper joints, 105 mm Overall height, 75 mm Overall width	1
275410-1922	Thermometer Inlet with Top Tubulature, 19/22 Standard Taper joints, 57 mm Overall height	1
276410-0000	105º Bent Distillation Adapter with Vacuum Take-Off, 19/22 Standard Taper joints, Fits tubing ID 1/4”, 104 mm Overall height	1
282460-0200	West Medium Length Condenser, 19/22 Standard Taper joints, Jacket length 200 mm, Approx. condensing area 66cm², Fits tubing ID 1/4”, Approx. overall height 285 mm	1
286810-0200	Distilling / Condensing Column, 19/22 Standard Taper joints, 200 mm Column height, Fits tubing ID 1/4”	1
294010-0025	25 mL Heavy Wall Round Bottom Boiling Receiving Flask, 19/22 Standard Taper joints, OD 42 mm	1
294010-0050	50 mL Heavy Wall Round Bottom Boiling Flask, 19/22 Standard Taper joints, OD 48 mm	1
294010-0100	100 mL Heavy Wall Round Bottom Boiling Flask, 19/22 Standard Taper joints, OD 64 mm	1
294010-0500	250 mL Heavy Wall Round Bottom Boiling Flask, 19/22 Standard Taper joints, OD 83 mm	1
294010-1000	500 mL Heavy Wall Round Bottom Boiling Flask, 19/22 Standard Taper joints, OD 102 mm	1
298290-0125	125 mL Pear-Shaped Squibb Separatory Funnel, PTFE Plug, 19/22 joints, Overall height 210 mm, Stopcock bore size 2 mm	1
850500-1922	Solid Pennyhead Stopper, Medium Length 19/22 Standard Taper joint	1
269501-0002	Foam Insert for 14/20 and 19/22 KEM-KIT®	1

Williamson Macroscale KEM-KIT® Standard Taper 14/20

Designed to address the experiments detailed in the Williamson text, *Macroscale and Microscale Organic Experiments*, published by D.C. Heath and Company, Lexington, Massachusetts.

- Smaller quantities afford a greater degree of safety, improve air quality in the lab and substantially reduce disposal costs
- Separatory funnel for extractions and for liquid addition in reaction assemblies
- Classical atmospheric, steam, fractional and vacuum distillations are possible with kit components
- Apparatus set-up time is minimal, providing the student with more lab time
- Glassware manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

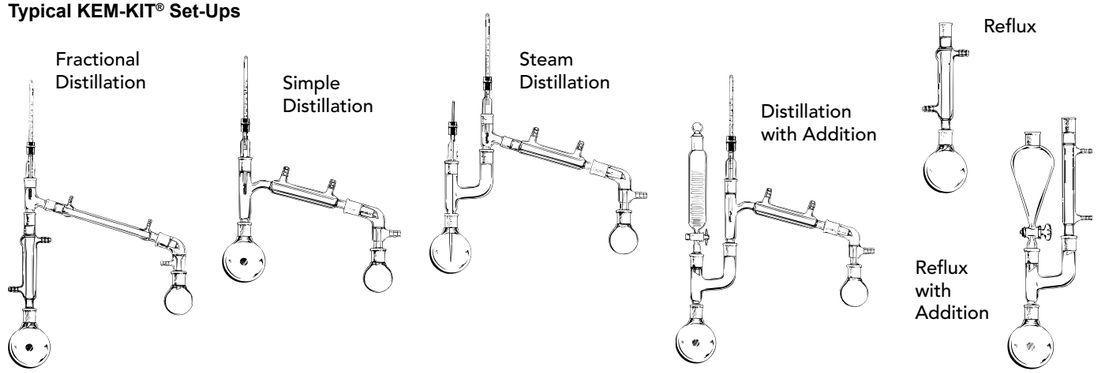
Part Number	Case Qty
269330-0000	1



Replacement Parts

Part Number	Description	Case Qty
251450-0015	15 mL Pear-Shaped BEVEL-SEAL™ Flask with Side Arm, 14/20 Standard Taper joints, 13-425 GPI Thread, 80 mm Overall height	1
273755-0000	Claisen Distillation Adapter, 14/20 Standard Taper joints, use with 179700 or 179800 adapters, 95 mm Overall height, 64 mm Overall width	1
274960-0000	75° Connecting Distillation Adapter, Thermometer, BEVEL-SEAL™, 14/20 Standard Taper joints, 13-425 GPI Thread, 75 mm Overall height, 50 mm Overall width, 25 mm Thermometer immersion	1
276405-0000	Extended 105° Distillation Bent Adapter with Vacuum Take-Off, 14/20 Standard Taper Joints, Fits tubing ID 1/4”, 100 mm Overall height	1
282555-0000	Jacketed West Condenser, Medium Length 14/20 Standard Taper Joints, Approx. condensing area 38 cm², Fits tubing ID 3/8”, 80 mm jacket length, 160 mm Overall Height	1
286100-0000	Distilling Column, 120 mm Column height, 170 mm Overall height, 14/20 Standard Taper joints	1
294300-0050	50 mL Heavy Wall Recovery Flask with Standard Joint Bead, 14/20 Standard Taper joints, 48 mm OD	1
294300-0100	100mL Heavy Wall Recovery Flask with Standard Joint Bead, 14/20 Standard Taper Joints, 60 mm OD	1
298281-0125	125 mL Micro Separatory Funnel without stopper, PTFE Plug, 14/20 joints, 190 mm Overall height	1
411800-0015	Plain Beaded Top Centrifuge Tube with Snap Cap, 15 mL, 2980 Max RCF, 120 mm Overall height, 20 mm Overall OD	1
420163-1500	One-Way Stopcock Valve, Nylon Body, HDPE Plug, Female Luer to Male Luer, 14/20 Standard Taper joints	5
420166-1001	DISPOSAFLEX Column Set, Assembled, 8 mm ID, 150 mm Column length, 9 mL Reservoir capacity, 6 mL Column capacity, Overall length 215 mm	5
420164-1000	Polypropylene Reservoir for use with DISPOSAFLEX® Columns, 14/20 Standard Taper joints	50
420168-1000	Polypropylene Luer Fitting for use with DISPOSAFLEX® columns	50
420162-0020	20 µm Polyethylene Bed support	100
675300-0014	Size 14 Polyacetyl Standard Taper clamp, yellow, Fits joint sizes 14/20 and 14/35	12
748002-0000	Filter Adapter, Pluro Stopper, 14/20 Standard Taper joints	10
748010-1025	25mL Filter Flask, 14/20 Standard Taper Joints	1
748012-1000	Hirsch Funnel, 14/20 Standard Taper Joints	5
748017-0020	Polyethylene Disc, 20 Microns	100
850400-1420	14/20 Standard Taper joints, Hollow Glass Hex Head Stopper, Medium Length	1

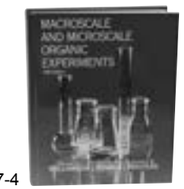
Typical KEM-KIT® Set-Ups

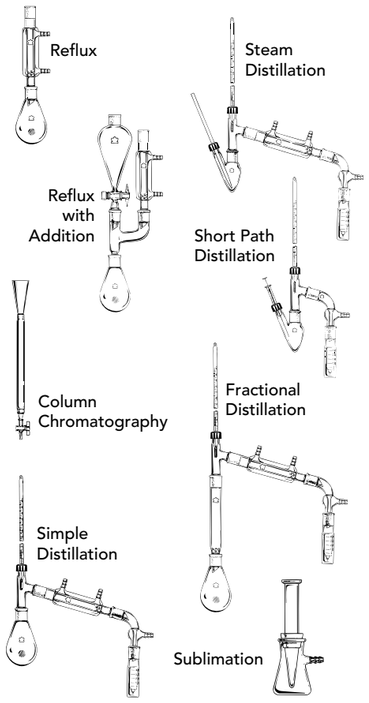


Macroscale and Microscale Organic Experiments

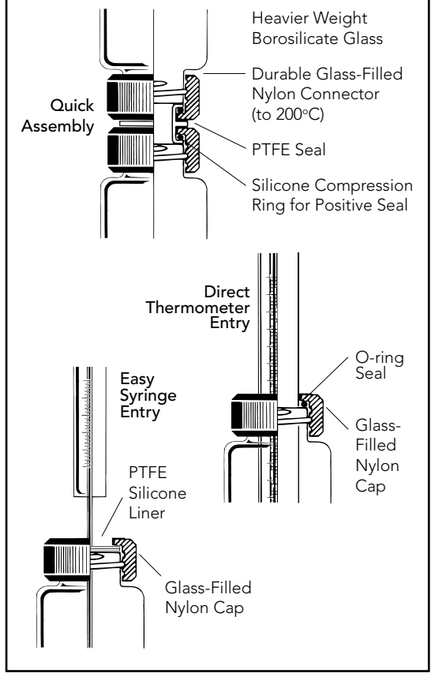
by
Kenneth L. Williamson

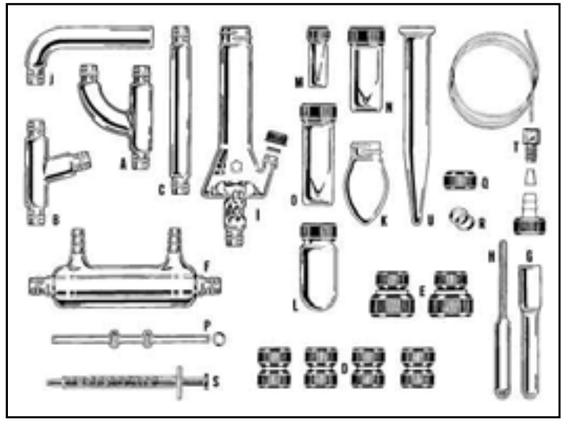
Houghton Mifflin Co.
ISBN-10: 0-618-59067-6
ISBN-13: 978-0-618-59067-4





MICROFLEX® Threaded Connection
No Grease, clamps or hooks and springs.





Microscale MICROFLEX® Threaded Super Academic Organic Chemistry Kit

The Super Academic kit contains components necessary to perform the experiments described in the following texts: Organic Laboratory Techniques: A Microscale Approach, Pavia, Lampman, Kriz, Engel, Saunders College Publishing and Microscale Organic Laboratory, Mayo, Pike, Butcher, John Wiley and Sons.

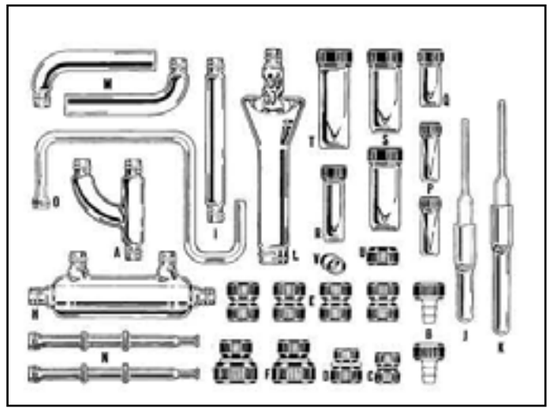
- Kits are packed in a rugged polyethylene storage case (2 1/2" H x 13 1/2" W x 10" D) with a die-cut foam insert
- 747020-0005 is in an EKONO-CASE™, a low-cost corrugated cardboard alternative to plastic
- Kits fit easily into lab bench drawers
- The 747000 series MICROFLEX® kits feature threaded chaste connections which can be assembled "right-side up" or "up-side down," providing great versatility
- High temperature-resistant blue nylon connectors
- Ideal for use to 200 °C
- Glassware is manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Size 107 FKM O-ring is included but is not available as a replacement part

Part Number	Case Qty
747020-0000	1
747020-0005	1

Replacement Parts

Part Number	Item	Description	Case Qty
747100-0000	A	Claisen Adapter, 13-425 GPI Finish	1
747120-0000	B	Connecting Adapter, 13-425 GPI Finish	1
747300-0100	C	Air Condenser, 13-425 GPI Finish, 100 mm Stem Size	1
747205-1313	D	13-425 to 13-425 Threaded Connecting Adapter	1
747205-1320	E	13-425 to 20-400 Threaded Connecting Adapter	1
747255-0000	F	Water Jacketed Condenser, 13-425 GPI Finish	1
747332-0002	G	Craig Tube, 2mL	1
747331-0001	H	Glass Plug for 1 and 2mL Craig Tube	1
747355-0000	I	Hickman Distillation Head	1
747370-0000	J	Drying Tube, 13-425 GPI Finish	1
747540-0520	K	5 mL Threaded Pear-Shaped Flask, 20-400 GPI Finish, 25 mm OD, 50 mm Overall height	1
747500-0010	L	Cylindrical Flask, 10 mL	1
60710-110	M	0.1 mL Ungraduated ACCUFORM® Micro-Vial, with Open Top Closure and PTFE-Faced Silicone Septum, Autosampler, 33 Expansion Borosilicate Glass, Screw Thread, Assembled, 8-425 GPI Finish, 32 mm Length, 12 mm OD	12
60700-3	N	3 mL Graduated ACCUFORM® Micro-Vial, with Open Top Closure and PTFE-Faced Silicone Septum, 33 Expansion Borosilicate Glass, Screw Thread, Assembled, 20-400 GPI Finish, 51 mm Length, 21 mm OD	12
60700-5	O	5 mL Graduated ACCUFORM® Micro-Vial, with Open Top Closure and PTFE-Faced Silicone Septum, 33 Expansion Borosilicate Glass, Screw Thread, Assembled, 20-400 GPI Finish, 62 mm Length, 21 mm OD	12
746130-0000	P	GC Collection Tube with O-Ring	1
410119-1307	Q	Blue Glass-Filled Nylon Open-Top Compression Cap, 13-425 GPI Threaded, Approx. hole diameter 7 mm	12
748019-0001	S	Micro Syringe, Polyethylene, 1 cc, 0.01 cc Graduations	12
746140-1013	T	Gas Delivery Tube	1
411800-1015	U	Plain Beaded Top 15 mL Centrifuge Tube with Snap Cap, 2980 Max RCF, 120 mm Overall height, 20 mm Overall OD	10
746001-0002		Foam Insert Set	1
746001-0001		Storage Case, 2 1/2" x 13 1/2" x 10"	1



Microscale MICROFLEX® Threaded Standard Organic Chemistry Kit

The Standard Academic kit contains all the components necessary to perform the experiments described in the following texts: Organic Laboratory Techniques: A Microscale Approach, Pavia, Lampman, Kriz, Engel, Saunders College Publishing and Microscale Organic Laboratory, Mayo, Pike, Butcher, John Wiley and Sons.

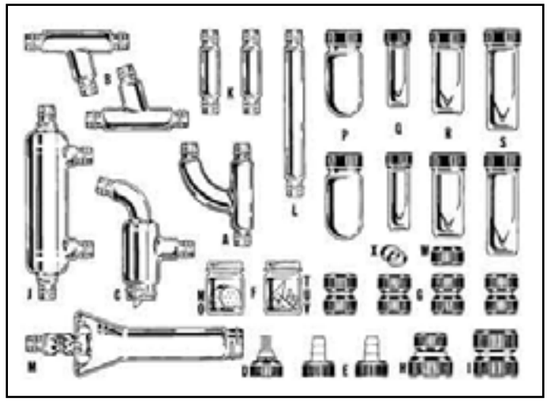
- 747010-0000 is packed in a rugged polyethylene storage case (2 1/2" H x 13 1/2" W x 10" D) with a die-cut foam insert
- 747010-0005 is in an EKONO-CASE™, a low-cost corrugated cardboard alternative to plastic
- Kits fit easily into lab bench drawers
- The 747000 series MICROFLEX® kits feature threaded chaste connections which can be assembled "rightside up" or "upside down," providing great versatility
- High-temperature-resistant blue nylon connectors
- Ideal for use to 200 °C
- Glassware is manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Size 107 FKM o-ring is included but not available as a replacement part

Part Number	Case Qty
747010-0000	1
747010-0005	1

Replacement Parts

Part Number	Item	Description	Case Qty
747100-0000	A	Claisen Adapter, 13-425 GPI Finish	1
747185-0013	B	PTFE Hose Connector, 13-425 to 1/4"-28	1
747205-0808	C	8-425 to 8-425 Threaded Connecting Adapter	1
747205-0813	D	8-425 to 13-425 Threaded Connecting Adapter	1
747205-1313	E	13-425 to 13-425 Threaded Connecting Adapter	1
747205-1320	F	13-425 to 20-400 Threaded Connecting Adapter	1
747250-0000	H	Water Jacketed Condenser, 13-425 GPI Finish	1
747300-0100	I	Air Condenser, 13-425 GPI Finish, 100 mm Stem Size	1
747330-0002	J	Craig Recrystallization Tube, 1 mL	1
747330-0003	K	Craig Recrystallization Tube, 2 mL	1
747350-0000	L	Hickman Distillation Head	1
747370-0000	M	Drying Tube, 13-425 GPI Finish	1
747600-0000	N	GC Collection Tube, 8-425 GPI Finish	1
747620-0000	O	Capillary Gas Delivery Tube, 8-425 GPI Finish	1
60710-110	P	0.1 mL Graduated ACCUFORM® Autosampler Micro-Vial, with Open Top Closure and PTFE-Faced Silicone Septum, 33 Expansion Borosilicate Glass, Screw Thread, Assembled, 8-425 GPI Finish, 32 mm Length, 12 mm OD	12
60710-310	Q	0.3 mL Graduated ACCUFORM® Autosampler Micro-Vial, with Open Top Closure and PTFE-Faced Silicone Septum, 33 Expansion Borosilicate Glass, Screw Thread, Assembled, 13-425 GPI Finish, 36 mm Length, 14 mm OD	12
60700-1	R	1 mL Graduated ACCUFORM® Micro-Vial, with Open Top Closure and PTFE-Faced Silicone Septum, 33 Expansion Borosilicate Glass, Screw Thread, Assembled, 13-425 GPI Finish, 49 mm Length, 14 mm OD	12
60700-3	S	3 mL Graduated ACCUFORM® Micro-Vial, with Open Top Closure and PTFE-Faced Silicone Septum, 33 Expansion Borosilicate Glass, Screw Thread, Assembled, 51 mm Length, 21 mm OD	12
60700-5	T	5 mL Graduated ACCUFORM® Micro-Vial, with Open Top Closure and PTFE-Faced Silicone Septum, 33 Expansion Borosilicate Glass, Screw Thread, Assembled,, 20-400 GPI Finish, 62 mm Length, 21 mm OD	12
410119-1307	U	Blue Glass-Filled Nylon, 13-425 GPI Threaded, Open-Top Compression Cap, Approx. Hole Diameter 7 mm	12
747011-0002		Foam Insert Set	1
746001-0001		Storage Case, 2 1/2" x 13 1/2" x 10"	1



Microscale MICROFLEX® Threaded Research Organic Chemistry Kit

The MICROFLEX® Threaded Research Organic Chemistry kit contains components necessary to perform experiments described in the following texts: Organic Laboratory Techniques: A Microscale Approach, Pavia, Lampman, Kriz, Engel, Saunders College Publishing and Microscale Organic Laboratory, Mayo, Pike, Butcher, John Wiley and Sons.

- 747000-0000 is packed in a rugged polyethylene storage case (2 1/2" H x 13 1/2" W x 10" D) with a die-cut foam insert
- Kits fit easily into lab bench drawers
- 747000-0005 is in an EKONO-CASE™, a low-cost corrugated cardboard alternative to plastic
- The 747000 series MICROFLEX® kits feature threaded chaste connections which can be assembled "rightside up" or "upside down," providing great versatility
- High-temperature-resistant blue nylon connectors
- Ideal for use to 200 °C
- Glassware is manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Size 107 FKM O-ring and 2 x 7 mm micro spinbar are included but are not available as replacement parts

Part Number	Case Qty
747000-0000	1
747000-0005	1

Accessories

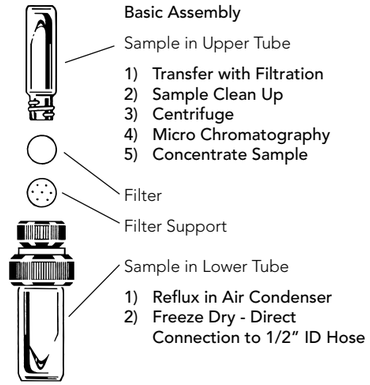
Part Number	Description	Case Qty
747400-2320	PTFE Filter, 30-60 microns, 20 mm Stem size	6
747405-0020	PTFE Filter Support, 20 mm Stem size	6

Replacement Parts

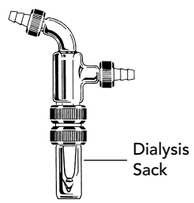
Part Number	Item	Description	Case Qty
747100-0000	A	Claisen Adapter, 13-425 GPI finish	1
747120-0000	B	Connecting Adapter, 13-425 GPI finish	1
747140-0000	C	Vacuum Adapter 13-425, 20-400 GPI Finish	1
747160-0000	D	Connector, 13-425 to 1/4"-28 GPI Finish	1
747185-0013	E	PTFE Hose Connector, 13-425 to 1/4"-28	1
747190-0010	F	Micro Beaker, 10 mL	6
747205-1313	G	13-425 to 13-425 Threaded Connecting Adapter	1
747205-1320	H	13-425 to 20-400 Threaded Connecting Adapter	1
747205-2020	I	20-400 to 20-400 Threaded Connecting Adapter	1
747250-0000	J	Water Jacketed Condenser, 13-425 GPI Finish	1
747300-0050	K	Drying Tube/Chromatography Column, 100 mm, 13-425 GPI finish, 50 mm Stem size	1
747300-0100	L	Air Condenser, 13-425 GPI Finish, 100 mm Stem Size	1
747350-0000	M	Hickman Distillation Head	1
747400-2313	N	PTFE Filter, 30-60 microns, 13 mm Stem Size	6
747405-0013	O	PTFE Filter Support, 13 mm Stem Size	6
747500-0010	P	Cylindrical Flask, 10 mL	1
60700-1	Q	1 mL Graduated ACCUFORM® Micro-Vial, with Open Top Closure and PTFE-Faced Silicone Septum, 33 Expansion Borosilicate Glass, Screw Thread, Assembled, 13-425 GPI Finish, 49 mm Length, 14 mm OD	12
60700-3	R	3 mL Graduated ACCUFORM® Micro-Vial, with Open Top Closure and PTFE-Faced Silicone Septum, 33 Expansion Borosilicate Glass, Screw Thread, Assembled, 20-400 GPI Finish, 51 mm Length, 21 mm OD	12
60700-5	S	5 mL Graduated ACCUFORM® Micro-Vial, with Open Top Closure and PTFE-Faced Silicone Septum, 33 Expansion Borosilicate Glass, Screw Thread, Assembled, 20-400 GPI Finish, 62 mm Length, 21 mm OD	12
749060-0000	T	V-Shaped PTFE Magnetic Stir Vane, Fits ACCUFORM Vial Sizes 0.3 and 1 mL	6
749060-0003	U	V-Shaped PTFE Magnetic Stir Vane, Fits ACCUFORM Vial Sizes 2, 3, and 5 mL	6
410119-1307	W	Blue Glass-Filled Nylon Open-Top Compression Cap, 13-425 GPI Threaded, Approx. hole diameter mm	12
747001-0002		Foam Insert Set	1
746001-0001		Storage Case, 2 1/2" x 13 1/2" x 10"	1

Typical Mayo / Microscale Set-ups – Quick . . . Easy-to-Assemble.

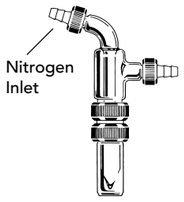
Micro Vials
The shape that makes handling milligram quantities easy.



- Derivatization - wide area of application
- Centrifugation - strong, high "G" forces 30,000xG
- Sample Concentration - microliter
- Catalytic Hydrogenation
- Radiosynthesis
- Phase Extraction
- Prepare - React - Extract - Concentrate - Retrieve - and Store



Negative Pressure Dialysis



Sample Concentration with Inlet Atmosphere

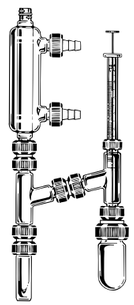
Chromatography Column with Reservoir

Gaseous Product Generator

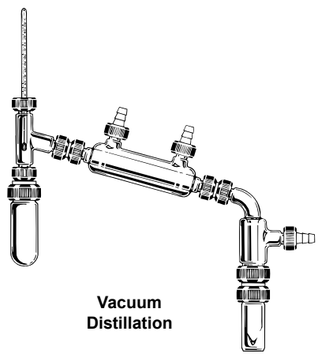
Typical Research/Microscale Applications – Quick . . . Easy-to-Assemble.

Molecular Distillation

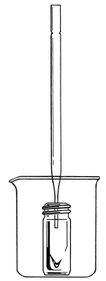
Reflux with Addition



Reaction / Distillation with Liquid Addition

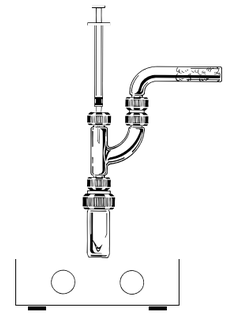


Vacuum Distillation



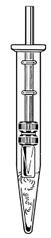
Chromatography Pasteur Pipet

Reflux with Drying Tube



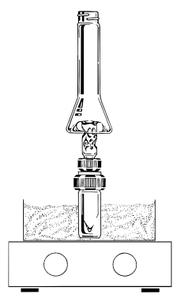
Reaction with Addition Claisen Adapter Syringe Drying Tube (moisture protection)

Vacuum Filtration with Hirsch Funnel

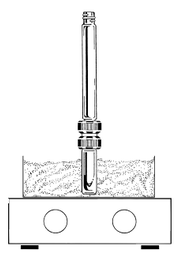


Gas Chromatography GC Collection Tube 0.1 mL Micro Vial

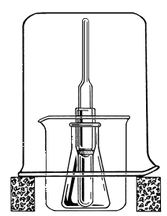
Crystallization Using Centrifugation



Distillation Hickman Distillation Head



Reaction Reflux with Air Condenser



Crystallization Craig Tube - Slow Crystallization

Threaded Claisen Adapter

This adapter converts single-neck flasks or vials to three-neck vessels for chemical reactions such as Grignard reactions.

- Allows easy, vacuum-tight connections of syringes for liquid addition, thermometers or gas inlet tubes.
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	GPI Finish	Overall Height (mm)	Case Qty
747110-0000	13-425	50	1

Threaded Connecting Tube

Connecting tube with a 1-1.5 mm ID capillary.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
747630-0000	1

Hose Connectors

Unique design adapts GPI threaded glass to a serrated PTFE hose connection or 1/4”-28 tubing connections.

- Internal 1/4”-28 thread
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	GPI Finish	Fits Hose ID (in)	Case Qty
747185-0013	13-425	0.25	1
747185-0020	20-400	0.25	1

PTFE Threaded Connecting Adapters with Inner Standard Taper Joint

This PTFE connecting adapter provides a shorter travel path than the 747125 glass equivalent.

- Connects Standard Taper inner joint to GPI thread

Part Number	Standard Taper Joints	GPI Finish	Case Qty
747128-2014	14/20	20-400	1
747128-2019	19/22	20-400	1

Glass Threaded Connecting Adapters with Inner Standard Taper Joint

This connecting adapter allows interfacing of Standard Taper outer ground jointed glassware with GPI thread of inner ground joint on threaded microscale components.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	GPI Finish	Case Qty
747125-1314	14/20	13-425	1
747125-1319	19/22	13-425	1
747125-1324	24/40	13-425	1
747125-2014	14/20	20-400	1
747125-2019	19/22	20-400	1
747125-2024	24/40	20-400	1

Glass Threaded Connecting Adapters with Outer Standard Taper Joint

This connecting adapter allows interfacing of Standard Taper ground jointed glassware with threaded microscale components.

- Connects Standard Taper outer ground joint to GPI thread of inner ground joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	GPI Finish	Case Qty
747130-1314	14/20	13-425	1
747130-1319	19/22	13-425	1
747130-1324	24/40	13-425	1
747130-2014	14/20	20-400	1
747130-2019	19/22	20-400	1
747130-2024	24/40	20-400	1

Compression Caps and Connectors

These caps and connectors are used as accessories for microscale Standard Taper 14/10 threaded kits.

- Open-top compression cap and connectors are glass-filled nylon for use to 200 °C
- *Please note that 747205-2024 is black polypropylene
- Connectors have PTFE seals

Part Number	Modified GPI Thread	Case Qty
410119-1307	13-425	12
410119-2015	20-400	12
747205-1313	13-425 to 13-425	1
747205-1320	13-425 to 20-400	1
747205-2024	20-400 to 24-400	1

Separatory Funnels

This funnel was designed with a unique vertical style valve for microscale separations.

- Funnel is glass with a PTFE-lined, open-top screw cap
- Valve utilizes a size 008 FFKM o-ring and has a 1/4”-28 threaded drip tip
- Lower drip tip can be detached and the entire unit centrifuged within a standard 50 mL shield
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height (mm)	Case Qty
747580-0015	15	155	1

Replacement Parts

Part Number	Description	Case Qty
747581-0015	Separatory Funnel Only, 15mL, 20-400 Upper, 13-425 Lower	1
747582-0013	Valve Only 13-425	1
747583-0000	Drip Tip for Separatory Funnel, 1/4”-28	1

Powder Funnels

Powder funnels are useful for the addition of reactants to a variety of flasks.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Modified GPI Thread	Case Qty
747575-0020	20-400	1

Fritted Hirsch Filter Funnels

Conical funnel shape directs filtrate through a reduced area frit to concentrate crystal residue for rewashing.

- Available in three porosities: Fine (4-5.5 micron), Medium (10-15 micron) and Coarse (40-60 micron)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height x Disc Diameter (mm)	Porosity (microns)	Case Qty
955250-3523	180 x 10	40-60	1
955250-5026	115 x 20	4-5.5	1
955250-7526	145 x 30	4-5.5	1
955250-5044	115 x 20	10-15	1
955250-7544	145 x 30	10-15	1
955250-5023	115 x 20	40-60	1
955250-7523	145 x 30	40-60	1

Weighing/Transfer Funnels

These funnels are designed for use with micro volumetric flasks.

- Ideal for the easy transfer of liquids or powders
- Flat bottom allows weighing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Heigh x Width (mm)	GPI Thread Size	Case Qty
747585-0013	13 x 45	13-425	1
747585-0020	22 x 50	20-400	1

MICROFLEX® Threaded Erlenmeyer Flasks

These threaded Erlenmeyer flasks are useful for sample collection, derivatization reactions, extractions, sample storage, micro mixing, etc.

- Ungraduated and is supplied as the flask only
- See 410116 for replacement/accessory cap and 774161 for septum
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Thread Size	Case Qty
747530-0520	5	20-400	1
747530-1020	10	20-400	1
747530-1520	15	20-400	1
747530-2520	25	20-400	1

MICROFLEX® Threaded Erlenmeyer Flasks with Graduations and Screw Cap

These threaded Erlenmeyer flasks are useful for sample collection, derivatization reactions, extractions, sample storage, micro mixing, etc.

- Supplied complete with an open top phenolic cap and a PTFE-lined silicone septum
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Thread Size	Case Qty
749400-0025	25	20-400	12

Replacement Parts

Part Number	Description	Case Qty
73804-20400	Black Phenolic Unlined Open Top Cap, GPI thread 20-400, Hole ID 12 mm	144
774161-0020	PTFE-Faced Septa with silicone rubber backing, Fits thread cap size 20 mm, PTFE thickness 0.005”, Silicon rubber thickness 0.060”	24

Class A Threaded Micro Volumetric Flasks

This Class A threaded flask can be used as an accessory for microscale MICROFLEX™ threaded kits.

- Open-top phenolic cap
- PTFE-lined silicone septum for syringe access
- Calibrated to contain
- V-shaped bottom provides convenient sample retrieval
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Thread Size	Case Qty
297050-0001	1	13-425	1
297050-0002	2	13-425	1
297050-0003	3	13-425	1
297050-0005	5	13-425	1
297050-0010	10	13-425	1

Short Neck Threaded Boiling Flasks

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Thread Size	Case Qty
747510-0520	5	20-400	1
747510-1020	10	20-400	1
747510-1520	15	20-400	1
747510-2520	25	20-400	1

Threaded Kjeldahl-Shaped Flasks

This flask has a conventional round bottom shape with a tapered upper portion for easy recovery of reaction products.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Thread Size	Case Qty
747550-1020	10	20-400	1
747550-2520	25	20-400	1

Threaded Pear-Shaped Flasks

These flasks have short necks for easy retrieval of residues or reaction products.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Thread Size	Case Qty
747540-0520	5	20-400	1
747540-1020	10	20-400	1
747540-1520	15	20-400	1
747540-2520	25	20-400	1

Long Neck Threaded Boiling Flasks

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Thread Size	Case Qty
747520-1020	10	20-400	1
747520-2520	25	20-400	1

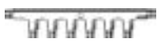
Threaded Hickman Distillation Heads

This threaded Hickman distillation head is ideally suited for micro distillations, especially for separations of samples with high boiling points.

- Flask is an integral component
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Thread Size	Case Qty
747360-0000	5	13-425	1

Threaded 6-Place Vacuum Manifold



- Unused ports are easily closed off with caps
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	GPI Thread Size	Overall Height (mm) x Overall Length (mm)	Case Qty
747650-0006	13-425	40 x 200	1

Accessories

Part Number	Description	Case Qty
747185-0013	PTFE Hose Connector, 13-425 to 1/4"-28	1
747205-1313	Threaded Connecting Adapter, 13-425 to 13-425	1
747205-1320	Threaded Connecting Adapter, 13-425 to 20-400	1

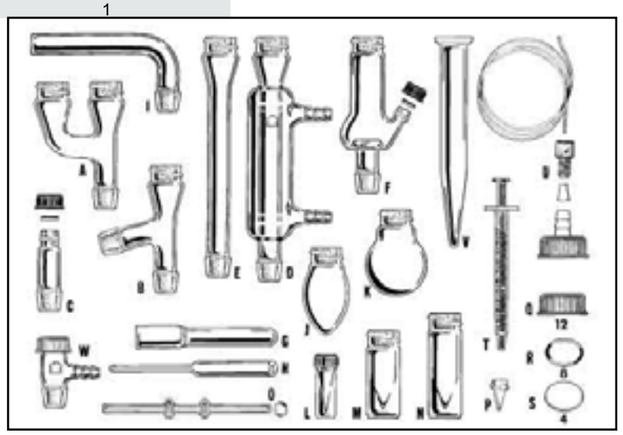
MicroscaleThreaded Standard 14/10 Kit

The Standard Kit contains all the components necessary to perform the experiments described in the following texts: Organic Laboratory Techniques: A Microscale Approach, Pavia, Lampman, Kriz, Engel, Saunders College Publishing and Microscale Organic Laboratory, Mayo, Pike, Butcher, John Wiley and Sons.

- 746000-0000 is packed in a rugged polyethylene storage case (2 1/2" H x 13 1/2" W x 10" D) with a die cut foam insert
- 746000-0005 is in an EKONO-CASE™, a low-cost corrugated cardboard alternative to plastic
- They fit easily into lab bench drawers
- Standard Taper 14/10 connections
- High temperature-resistant blue nylon connectors
- Ideal for use to 200 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Size 112 EP o-ring is included but not available as a replacement part

Part Number	Case Qty
746000-0000	1
746000-0005	1



Replacement Parts

Part Number	Item	Description	Case Qty
746010-0000	A	Claisen Adapter	1
746020-0000	B	Connecting Adapter	1
746030-0000	C	Inlet, Medium and Full Length Joints, BEVEL-SEAL, Accomodation Range 5.5-6.5 mm, 1/4" Nominal Size, 13-425 GPI Thread, O-Ring Size 010, 14/10 Standard Taper Joints	1
746050-0000	D	Jacketed Condenser	1
746060-0000	E	Air Condenser	1
746080-0000	F	Hickman Distillation Head	1
747332-0002	G	Craig Tube, 2mL	1
747331-0001	H	Glass Plug for 1 and 2mL Craig Tube	1
746090-0000	I	Drying Tube	1
746110-0005	J	Pear Shaped Flask, 5 mL, Thin-Wall	1
746120-0010	K	Boiling Round Bottom Flask, 14/10 Standard Taper Joints, 10 mL, 31 mm OD	1
60710-110	L	0.1 mL Micro-Vial, Autosampler, 33 Expansion Borosilicate Glass, Screw Thread, Ungraduated, with Open Top Closure and PTFE-Faced Silicone Septum, Assembled, ACCUFORM, 8-425 GPI Finish, 32 mm Length, 12 mm OD	12
746100-0003	M	Micro Vial, 3 mL	1
746100-0005	N	Micro Vial, 5 mL	1
746130-0000	O	GC Collection Tube with O-Ring	1
749060-0003	P	V-Shaped PTFE Magnetic Stir Vane, Fits ACCUFORM Vial Sizes 2, 3, and 5 mL	6
410119-2015	Q	Blue Glass-Filled Nylon, 20-400 GPI Threaded, Open-Top Compression Cap, Approx. Hole Diameter 15 mm	12
774161-0020	S	Septa, PTFE-Faced with Silicone rubber backing, Fits Thread Cap Size 20 mm, 0.005" PTFE Thickness, 0.060" Silicon Rubber Thickness	24
748019-0001	T	Micro Syringe, Polyethylene, 1 cc, 0.01 cc Graduations	12
746140-1020	U	Gas Delivery Tube	1
411800-1015	V	Centrifuge, Plain, Beaded Top, with Snap Cap, 15mL, 2980 Max RCF, 120 mm Overall Height, 20 mm Overall OD	10
746035-0814	W	Inlet adapter, Thermometer, Universal, BEVEL-SEAL, Accomodation Range 5-8 mm, Fits Tubing ID 1/4", 15-415 GPI Thread, O-Ring Size 108, 14/10 Standard Taper Joints	1
746001-0002		Foam Insert Set	1
746001-0001		Storage Case, 2 1/2" x 13 1/2" x 10"	1

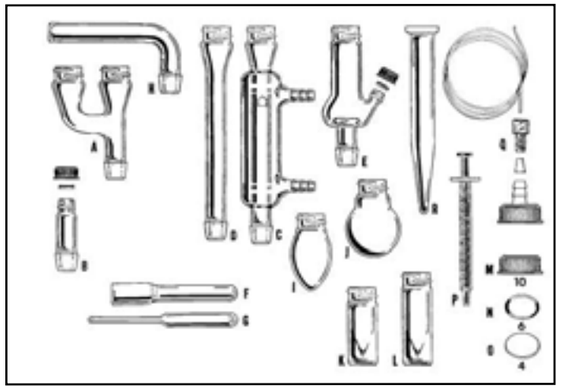
Threaded Intermediate 14/10 Kit

The Intermediate Kit contains some of the components necessary to perform the experiments described in the following texts: Organic Laboratory Techniques: A Microscale Approach, Pavia, Lampman, Kriz, Engel, Saunders College Publishing and Microscale Organic Laboratory, Mayo, Pike, Butcher, John Wiley and Sons.

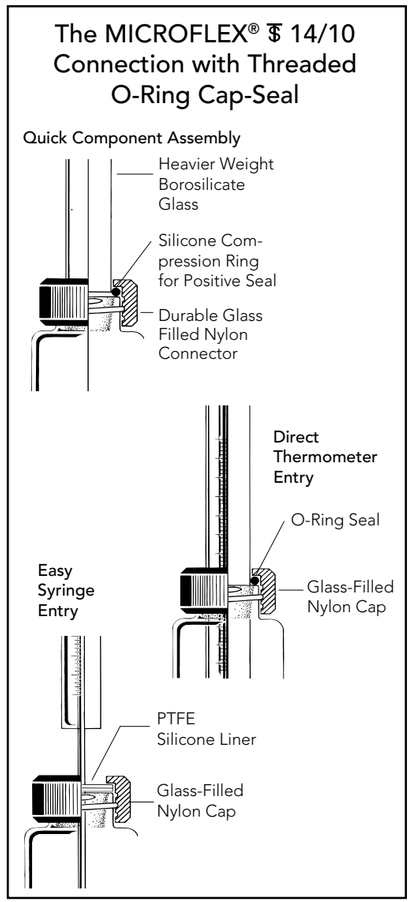
- 746200-0000 is packed in a rugged polyethylene storage case (2 1/2" H x 13 1/2" W x 10" D) with a die cut foam insert
- 746200-0005 is in an EKONO-CASE™, a low-cost corrugated cardboard alternative to plastic
- They fit easily into lab bench drawers
- Standard Taper 14/10 connections
- High temperature-resistant blue nylon connectors
- Ideal for use to 200 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Size 112 EP o-ring is included but not available as a replacement part

Part Number	Case Qty
746200-0000	1
746200-0005	1



The MICROFLEX® ₹ 14/10 Connection with Threaded O-Ring Cap-Seal



Replacement Parts

Part Number	Item	Description	Case Qty
746010-0000	A	Claisen Adapter	1
746030-0000	B	Inlet Adapter, Medium and Full Length Joints, BEV-EL-SEAL, Accomodation Range 5.5-6.5 mm, 1/4" Nominal Size, 13-425 GPI Thread, O-Ring Size 010, 14/10 Standard Taper Joints	1
746050-0000	C	Jacketed Condenser	1
746060-0000	D	Air Condenser	1
746080-0000	E	Hickman Distillation Head	1
747332-0002	F	Craig Tube, 2mL	1
747331-0001	G	Glass Plug for 1 and 2mL Craig Tube	1
746090-0000	H	Drying Tube	1
746110-0005	I	Pear Shaped Flask, 5 mL, Thin-Wall	1
746120-0010	J	Boiling Round Bottom Flask, 14/10 Standard Taper Joints, 10 mL, 31 mm OD	1
746100-0003	K	Micro Vial, 3 mL	1
746100-0005	L	Micro Vial, 5 mL	1
410119-2015	M	Blue Glass-Filled Nylon, 20-400 GPI Threaded, Open-Top Compression Cap, Approx. Hole Diameter 15 mm	12
774161-0020	O	Septa, PTFE-Faced with Silicone rubber backing, Fits Thread Cap Size 20 mm, 0.005" PTFE Thickness, 0.060" Silicon Rubber Thickness	24
748019-0001	P	Micro Syringe, Polyethylene, 1 cc, 0.01 cc Graduations	12
746140-1020	Q	Gas Delivery Tube	1
411800-1015	R	Centrifuge Tube, Plain, Beaded Top, with Snap Cap, 15mL, 2980 Max RCF, 120 mm Overall Height, 20 mm Overall OD	10
746001-0002		Foam Insert Set	1
746001-0001		Storage Case, 2 1/2" x 13 1/2" x 10"	1

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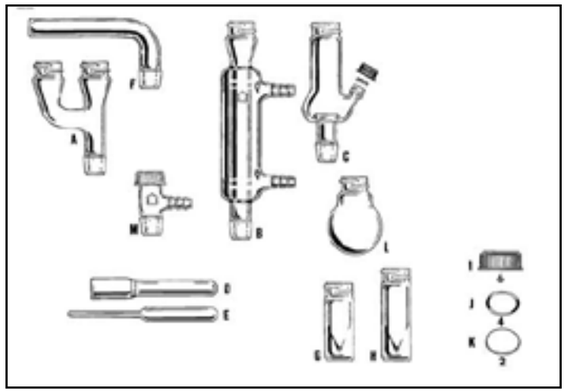
Microscale Threaded Basic 14/10 Kit

The Threaded Basic Kit contains some of the components necessary to perform experiments described in the following texts: Organic Laboratory Techniques: A Microscale Approach, Pavia, Lampman, Kriz, Engel, Saunders College Publishing and Microscale Organic Laboratory, Mayo, Pike, Butcher, John Wiley and Sons.

- 746220-0000 is packed in a rugged polyethylene storage case (2 1/2" H x 13 1/2" W x 10" D) with a die cut foam insert
- 746220-0005 is in an EKONO-CASE™, a low-cost corrugated cardboard alternative to plastic
- The kits fit easily into lab bench drawers
- Standard Taper 14/10 connections
- High temperature-resistant blue nylon connectors
- Ideal for use to 200 °C
- Glassware manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Size 112 EP o-ring is included but not available as a replacement part

Part Number	Case Qty
746220-0000	1
746220-0005	1



Replacement Parts

Part Number	Item	Description	Case Qty
746010-0000	A	Claisen Adapter	1
746050-0000	B	Jacketed Condenser	1
746080-0000	C	Hickman Distillation Head	1
747332-0002	D	Craig Tube, 2mL	1
747331-0631	E	PTFE Plug for 1 and 2mL Craig Tube	1
746090-0000	F	Drying Tube	1
746100-0003	G	Micro Vial, 3 mL	1
746100-0005	H	Micro Vial, 5 mL	1
410119-2015	I	Blue Glass-Filled Nylon, 20-400 GPI Threaded, Open-Top Compression Cap, Approx. Hole Diameter 15 mm	12
774161-0020	K	Septa, PTFE-Faced with Silicone rubber backing, Fits Thread Cap Size 20 mm, 0.005" PTFE Thickness, 0.060" Silicon Rubber Thickness	24
746120-0010	L	Boiling Round Bottom Flask, 14/10 Standard Taper Joints, 10 mL, 31 mm OD	1
746035-0814	M	Inlet, Thermometer, Universal, BEVEL-SEAL, Accomodation Range 5-8 mm, Fits Tubing ID 1/4", 15-415 GPI Thread, O-Ring Size 108, 14/10 Standard Taper Joints	1
746001-0002		Foam Insert Set	1
746001-0001		Storage Case, 2 1/2" x 13 1/2" x 10"	1

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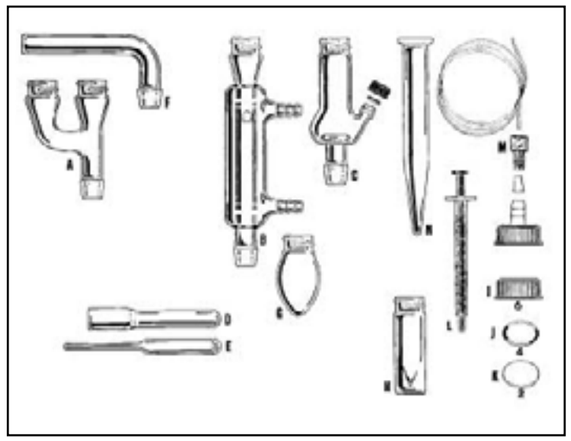
Microscale Threaded Starter 14/10 Kit

The Starter Kit contains some of the components necessary to perform experiments described in the following texts: Organic Laboratory Techniques: A Microscale Approach, Pavia, Lampman, Kriz, Engel, Saunders College Publishing and Microscale Organic Laboratory, Mayo, Pike, Butcher, John Wiley and Sons.

- 746210-0000 is packed in a rugged polyethylene storage case (2 1/2" H x 13 1/2" W x 10" D) with a die cut foam insert
- 746210-0005 is in an EKONO-CASE™, a low-cost corrugated cardboard alternative to plastic
- They fit easily into lab bench drawers
- Standard Taper 14/10 connections
- High temperature-resistant blue nylon connectors
- Ideal for use to 200 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Size 112 EP o-ring is included but not available as a replacement part

Part Number	Case Qty
746210-0000	1
746210-0005	1



Replacement Parts

Part Number	Item	Description	Case Qty
746010-0000	A	Claisen Adapter	1
746050-0000	B	Jacketed Condenser	1
746080-0000	C	Hickman Distillation Head	1
747332-0002	D	Craig Tube, 2mL	1
747331-0001	E	Glass Plug for 1 and 2mL Craig Tube	1
746090-0000	F	Drying Tube	1
746110-0005	G	Pear Shaped Flask, 5 mL, Thin-Wall	1
746100-0005	H	Micro Vial, 5 mL	1
410119-2015	I	Blue Glass-Filled Nylon, 20-400 GPI Threaded, Open-Top Compression Cap, Approx. Hole Diameter 15 mm	12
774161-0020	K	Septa, PTFE-Faced with Silicone rubber backing, Fits Thread Cap Size 20 mm, 0.005" PTFE Thickness, 0.060" Silicon Rubber Thickness	24
748019-0001	L	Micro Syringe, Polyethylene, 1 cc, 0.01 cc Graduations	12
746140-1020	M	Gas Delivery Tube	1
411800-1015	N	Centrifuge Tube, Plain, Beaded Top, with Snap Cap, 15mL, 2980 Max RCF, 120 mm Overall Height, 20 mm Overall OD	10
746001-0002		Foam Insert Set for Threaded Standard 14/10 Kit	1
746001-0001		Storage Case, 2 1/2" x 13 1/2" x 10"	1

Connecting Adapters

This adapter is used for connecting various components in an airless or distillation application. Use with 746020 connecting adapter for micro "H" configuration or as a cross for decanting applications.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
746320-0000	1

Vacuum Inlet Adapter

This adapter is for use with plain-stemmed apparatus with 5 to 8 mm OD.

- Compression cap and FKM o-ring provide a vacuum-tight seal and allow for adjustment.
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
746035-0814	14/10	0.25	1

Cold Finger Condenser

- Micro-adjustable
- Drip tip on the bottom directs drops into the collar of Hickman distillation heads
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
746065-0000	14/10	0.25	1

Replacement Parts

Part Number	Description	Case Qty
282010-0000	Adjustable Height Cold Finger Condenser, 14/20 Standard Taper Joints, Fits Tubing ID 1/4", 7 mm Hole Diameter, 150 mm Length Below Joint, 183 mm Overall Height	1
746035-0814	Inlet, Thermometer, Universal, BEV-EL-SEAL, Accomodation Range 5-8 mm, Fits Tubing ID 1/4", 15-415 GPI Thread, O-Ring Size 108, 14/10 Standard Taper Joints	1

Vigreux Distilling Column

- Threaded top
- Indentations over the entire length improve vapor-liquid contact
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	GPI Finish	Case Qty
746150-0000	14/10	20-400	1

Hickman Distillation Head

The Hickman distillation head is designed for short path atmospheric or vacuum distillations with quantities ranging from a fraction of a milliliter to three milliliters.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	GPI Finish	Case Qty
746070-0000	14/10	20-400	1

Bent Drying Tubes

This drying tube is used with an unsealed system to protect moisture-sensitive reactions from the atmosphere.

- Modified drying tube with an expansion bulb for $CaCl_2$, as shown in the textbook, Microscale Organic Chemistry, Szafran, Pike, Singh, John Wiley & Sons, Inc.
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Length x Width (mm)	OD of Bulb (mm)	Case Qty
746095-0000	45 x 85	30	1

Schlenk Tubes

These Schlenk tubes are designed to minimize the loss of volatile solvents while manipulating under normal conditions.

- Working capacity is 5 mL to less than 1 mL solvent or 100 mg to less than 1 mg substrate
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height x Width (mm)	Standard Taper Joints	Case Qty
746340-0005	142 x 48	14/10 with 1/4" Hose Connection	1
746345-0005	142 x 65	14/10 with Size 2 PTFE Valve	1

Sublimator

Sublimation assembly with vertically adjustable condenser tube for use with microscale vessels.

- Consists of funnel condenser (746125-0001) and inlet adapter with cap and o-ring (746035-0814)
- Condenser has vertically adjustable tube
- Adapter has 5 to 8 mm ID range
- Compression cap and FKM o-ring provide a vacuum-tight seal and allow for adjustment
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
746125-0001	14/10		1
746035-0814	14/10	0.25	1

Class A Threaded Micro Volumetric Flasks

- Open-top phenolic cap
- PTFE-lined silicone septum for syringe access
- Calibrated to contain
- V-shaped bottom provides convenient sample retrieval
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Finish	Case Qty
297050-0001	1	13-425	1
297050-0002	2	13-425	1
297050-0003	3	13-425	1
297050-0005	5	13-425	1
297050-0010	10	13-425	1

Closure for 14/10 Connections

The septum is used with the open-top cap to access the container with a syringe.

- PTFE facing maintains the integrity of the contents while the silicone rubber backing allows repeated puncturing through the seal
- Septum is 0.065" thick (0.005 PTFE/0.060 silicone)

Part Number	Description	Case Qty
410119-2015	Blue Glass-Filled Nylon 20-400 Open-Top Compression Cap, Approx. Hole Diameter 15 mm	12
774161-0020	Septa, PTFE-Faced with Silicone rubber backing	24

Solid Glass Pennyhead Stoppers

- Pennyhead stopper sizes 10/18 through 19/22 are solid borosilicate glass
- Sizes 24/25 and larger are hollow borosilicate glass
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
850500-1018	10/18	1
850505-1410	14/10	1
850500-1420	14/20	1
850500-1922	19/22	1
850500-2425	24/25	1
850500-2926	29/26	1

Threaded Round Bottom Boiling Flasks

This round-bottom boiling flask with a threaded outer joint is for use with 14/10 microscale apparatus.

- Supplied with a blue, glass-filled nylon cap (410119); a PTFE/silicone septum (774161); and an ethylene propylene o-ring (758292)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
746120-0005	5	14/10	1
746120-0010	10	14/10	1
746120-0025	25	14/10	1

Conical Bottom Vials

- Conical bottom with thin wall permits superb heat transfer
- The vial has a threaded outer joint
- Supplied with a blue, glass-filled nylon cap (410119-2015); a PTFE/silicone septum (774161-0020); and an ethylene propylene o-ring
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall OD x Height (mm)	Capacity (mL)	Case Qty
746105-0003	17 x 45	3	1
746105-0010	17 x 87	10	1

Craig Recrystallization Tubes

The Craig tube is designed to maximize the yield of crystal during microscale recrystallization.

- Sold in sets
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

The Craig stopper is placed in the tube neck and the whole apparatus is inverted into a test or centrifuge tube. Centrifuging forms a mat of crystals between the stopper and the walls of the Craig tube and draws away excess solvent.

Part Number	Capacity (mL)	Case Qty
747330-0002	1	1
747330-0003	2	1

Replacement Parts

Part Number	Description	Case Qty
747332-0001	Craig Tube, 1mL	1
747332-0002	Craig Tube, 2mL	1
747331-0001	Glass Plug for 1 and 2mL Craig Tube	1

Accessories

Part Number	Description	Case Qty
747331-0631	PTFE Plug for 1 and 2mL Craig Tube	1

Blunt End Syringe Needles

- Non-sterile stainless steel needle with an inert plastic hub
- Blunt end for safety

Part Number	Gauge	OD (mm)	Case Qty
868280-1801	18	1.25	12
868280-2001	20	0.9	12
868280-2201	22	0.7	12

PTFE Stir Bar

This stirrer bar permits stirring in closed containers without contamination.

- PTFE-covered round magnetic stirring bar
- Excellent chemical resistance
- Supplied in glass vial with polyethylene stopper

Part Number	Overall Length (mm)	Bars per Vial	Case Qty
791145-0021	12	2	12

MICROCAPS® Capillary Tubes

Drummond Microcaps® are ideal for spotting preadsorbent TLC plates.

- Ingeniously simple in concept and in use
- Precision-bore glass capillary tubes
- Cut to predetermined lengths, so that each capillary tube will hold a known volume of fluid when filled
- So inexpensive that it is almost always practical to dispose of the tube after use
- No unusual training or skills are required
- Immediate, professional results
- Supplied with one bulb assembly and one dispenser vial with 100 micropipets
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Filling is simple. Capillary action, not externally applied suction, draws the fluid into the tube. To dispense the fluid, simply squeeze the bulb.

Part Number	Capacity (µL)	Length (mm)	Case Qty
764500-0000	0.5	32	100
764500-0001	1	32	100
764500-0002	2	32	100
764500-0005	5	32	100
764500-0010	10	41	100
764500-0020	20	64	100
764500-0025	25	65	100
764500-0050	50	100	100
764500-0100	100	116	100

Non-Sterile Pasteur Pipets

These Pasteur-type pipets are intended for one-time use in the transfer of small volumes.

- 63A54P and 63B93P are cotton-plugged
- 63C50 is a blood bank dropper which dispenses 25 ±3 drops per 1 ml. of serum or red cells at 23 °C when held at a 45° angle
- 63DP1005 is a monstr-pette which has a tip ID of 1.5 mm
- Soda lime pipets are manufactured from 90 expansion soda lime glass conforming to USP Type III requirements
- Borosilicate pipets are manufactured from 51 expansion, low extractable borosilicate glass conforming to USP Type 1 and ASTM E438, Type 1, Class B requirements

Part Number	OD (mm) x Body Length (in)	Feature	Case Qty
883350-0575	7 x 3.5	Borosilicate	250
883350-0009	7 x 4	Borosilicate	250
63A54	7 x 3.5	Soda-lime	1000
63B93	7 x 4	Soda-lime	1000
63A54P	7 x 3.5	Soda-lime, Cotton-plugged	1000
63B93P	7 x 4	Soda-lime, Cotton-plugged	1000
63C50	7 x 3.5	Soda-lime blood bank dropper	1000
63DP1005	7 x 3.5	Soda-lime	800

Sand Bath Dish

This dish is useful as a sand bath for heating microscale reactions.

- Top of each KIMAX® dish is reinforced and fire-polished to reduce chipping
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Height x OD (mm)	Overflow Capacity (mL)	Case Qty
23000-8040	40 x 80	170	24

Vacuum Adapter

This adapter is bent at 105° with hose connector and drip tip and permits "closed system" applications.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	GPI Finish	Case Qty
746040-0000	14/10	20-400	1

Aluminum Heating Blocks

Ideal for use in place of a sand bath in microscale experiments.

- Excellent heat transfer
- Does not interfere with magnetic stirring

Part Number	Application	Case Qty
720200-0001	For Standard Taper size 14/10 Kits (Solid Bottom)	1
720200-0002	For Williamson Kits (Solid Bottom)	1
720205-0001	For All Micro Kits (Open Bottom)Four Holes - (2)9/16", 13/16", 21/32"	1
720210-0001	For Vials (Split Block)	1

Accessories

Part Number	Description	Case Qty
309180-0290	Bi-Metallic 10-290 °C Thermometer, Stem OD 4 mm	1

Sand Bath Heating Mantles

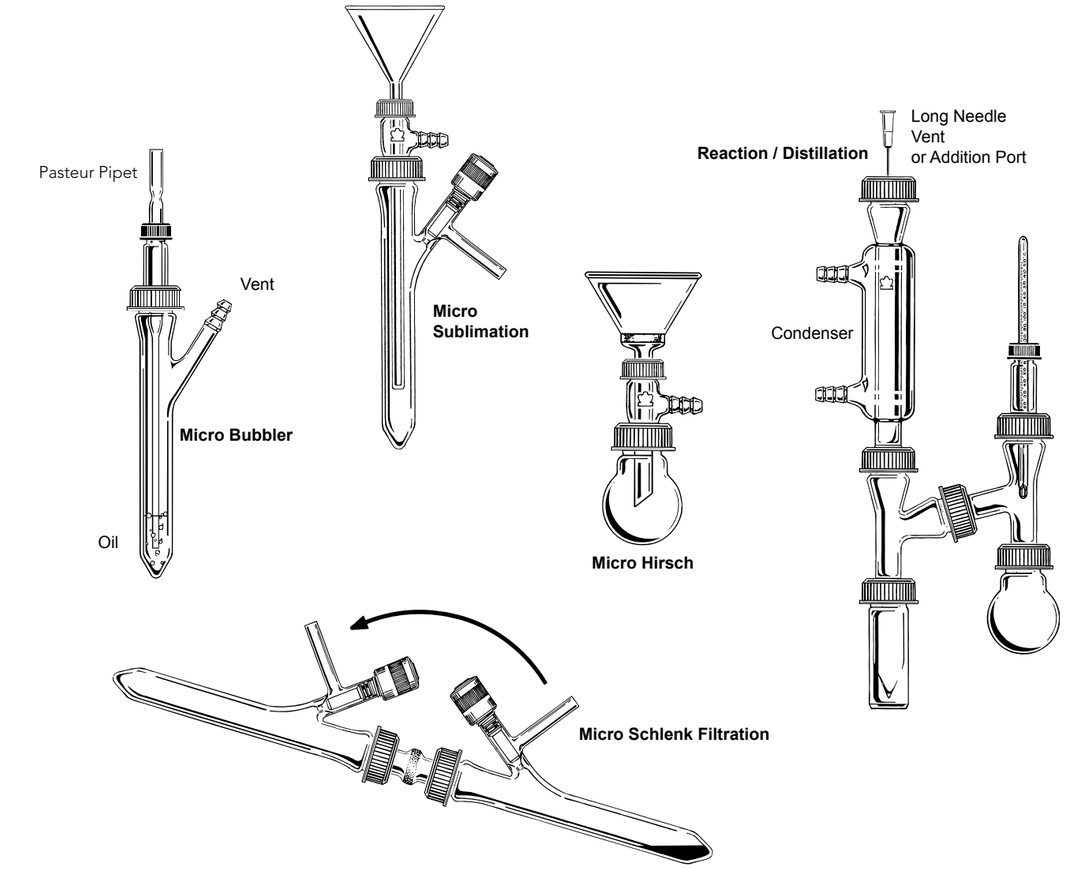
This mantle is recommended for performing the experiments in the Williamson textbook.

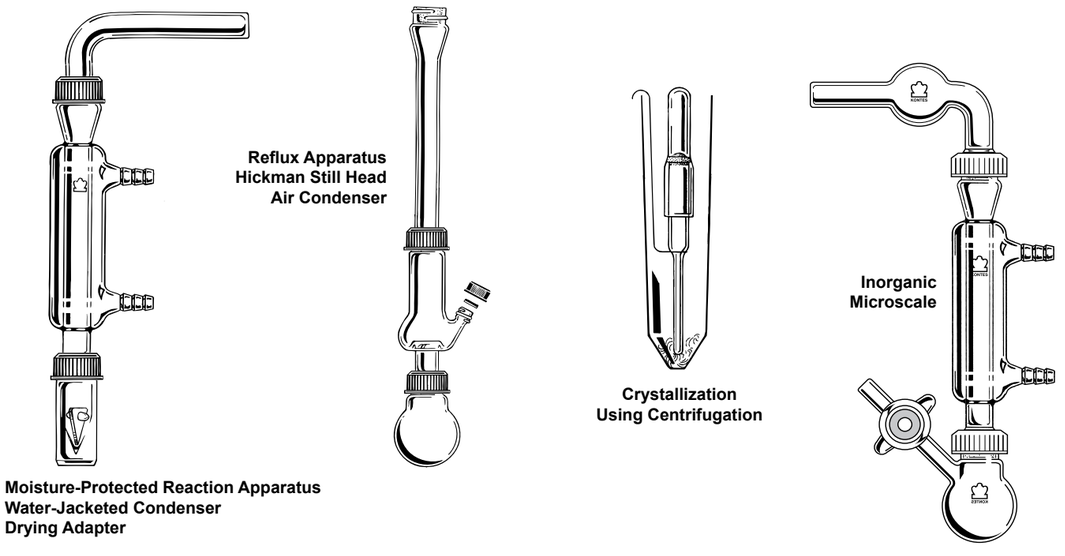
- Electrically heated
- Utilizes commercially available sand used for children's sandboxes
- Designed for 100 mL flask
- Supplied with a one-meter, 3-wire cord and a standard U.S. plug
- CSA certified

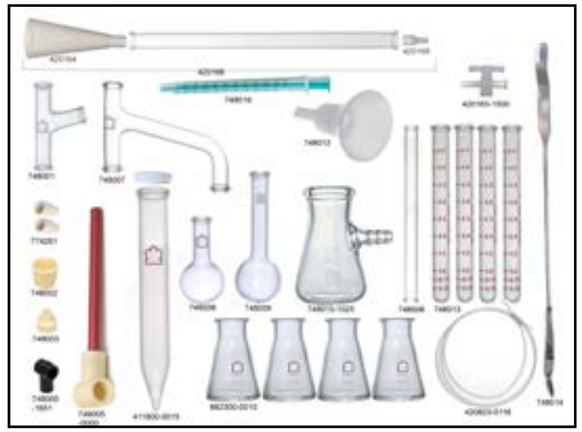
Part Number	Capacity (mL)	Voltage (V)	Case Qty
720500-0101	100	115	1

Accessories

Part Number	Description	Case Qty
748035-0023	Sand, 16-30 mesh, 10 lbs	1
720600-0115	Power Control for Sandbath Heating Mantle, 115V, for 720500, 8 Amps current, 50/60 Hz	1







Williamson Standard Kit

Components used to perform the Williamson experiments described in *Macroscale and Microscale Organic Experiments* are included.

- 748000-0000 is packed in a rugged polyethylene storage case (2 1/2" H x 13 1/2" W x 10" D) with a die cut foam insert
- 748000-0005 is in an EKONO-CASE™, a low-cost corrugated cardboard alternative to plastic
- They fit easily into lab bench drawers
- These MICROFLEX® Kits feature patented chaste connectors and specially tooled glassware components, providing great versatility
- Glassware is manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
748000-0000	1
748000-0005	1

Replacement Parts

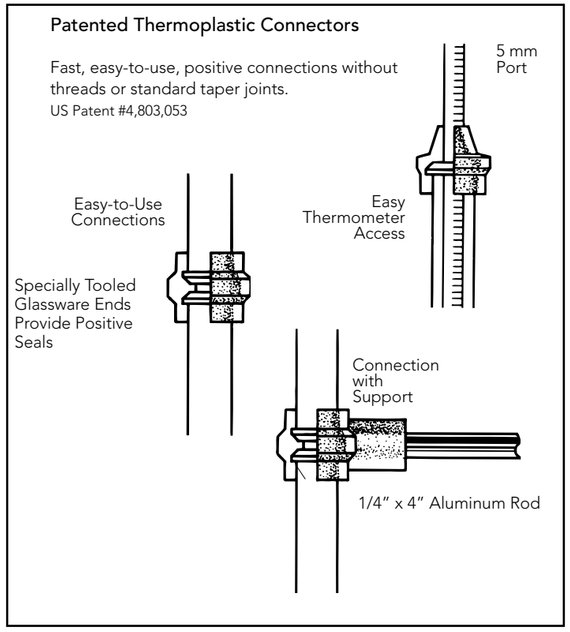
Part Number	Description	Case Qty
748001-1000	Connecting Adapter	1
748001-0000	Connecting Adapter	10
748002-0000	Filter Adapter, Pluro Stopper, 14/20 Standard Taper Joints	10
748003-1000	Thermometer Adapter	5
748003-0000	Thermometer Adapter	10
411800-0015	Plain Centrifuge Tube with Snap Cap, Beaded Top, 15 mL, 2980 max RCF, 120 mm overall height, 20 mm overall OD	1
73837-2	Size 2 Snap Cap, Polyethylene	500
420166-1001	DISPOSAFLEX Column Set, Assembled, 8 mm ID, 150 mm column length, 9 mL reservoir capacity, 6 mL column capacity, overall length 215 mm	5
420164-1000	Polypropylene Reservoir for use with DISPOSAFLEX® columns, 14/20 Standard Taper joints	50
420168-1000	Polypropylene Luer Fitting for use with DISPOSAFLEX® columns	50
420162-0020	20 µm Polyethylene Bed Support	100
420163-1500	One-Way Stopcock Valve, nylon body, HDPE plug, female Luer to male Luer, 14/20 Standard Taper joints	5
748005-1651	Connector Only, FKM	5
748005-1000	Connector w/ Support Rod	5
748005-0000	Connector w/ Support Rod	10
748006-1100	Distillation Column	5
748006-0100	Distillation Column	100
748007-1060	Distillation Head, 60mm	1
748008-1005	Short Neck Flask, 5mL	1
748008-0005	Short Neck Flask, 5mL	10
748009-0005	Long Neck Flask, 5mL	10
748009-1005	Long Neck Flask, 5mL	1
882300-0010	10 mL flask, 50 mm overall height, 31 mm overall width	12
748010-1025	Filter Flask, 25mL, 14/20 Standard Taper Joints	1
748012-1000	Hirsch Funnel, 14/20 Standard Taper joints	5
748017-0020	Polyethylene Disc, 20 Microns	100
748013-1000	Reaction Tube, 10 x 100 mm	25
748014-1000	Rounded / Tapered Micro Spatula, Overall length 7.625", Nickel-Stainless, 2" (51 mm) length and 5/16" (8 mm) width at both ends , Will pass through a 14/10 or 14/20 outer joint	1
774261-0008	Rubber Sleeve, Plug-type, 8 mm diameter, white, 9-10 mm OD stopper fit	50
748019-0001	Micro Syringe, polyethylene, 1 cc, 0.01 cc graduations	12
420823-0116	1/16" OD x 0.038" ID x 10' FEP / PTFE tubing, Fits 20 gauge needle	1
748001-0003	Foam Insert Set	1
746001-0001	Storage Case, 2 1/2" x 13 1/2" x 10"	1

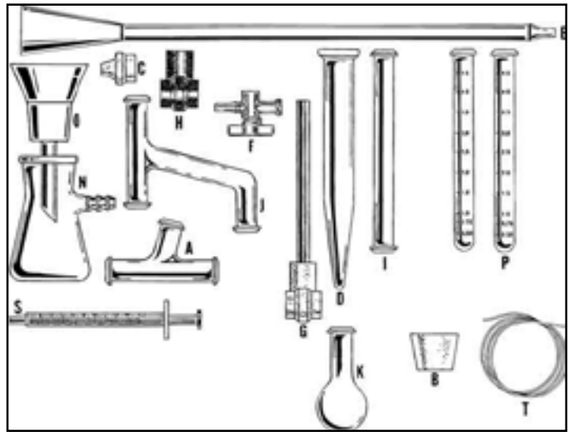
Williamson Intermediate Kit

The Williamson Intermediate Kit includes some of the components used to perform the experiments described in the Williamson text, *Macroscale and Microscale Organic Experiments,* published by D.C. Heath and Company, Lexington, Massachusetts.

- 748110-0000 is packed in a rugged polyethylene storage case (2 1/2" H x 13 1/2" W x 10" D) with a die cut foam insert
- 748110-0005 is in an EKONO-CASE™, a low-cost corrugated cardboard alternative to plastic
- They fit easily into lab bench drawers
- These MICROFLEX® Kits feature patented chaste connectors and specially tooled glassware components, providing great versatility
- Glassware is manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
748110-0000	1
748110-0005	1





Replacement Parts

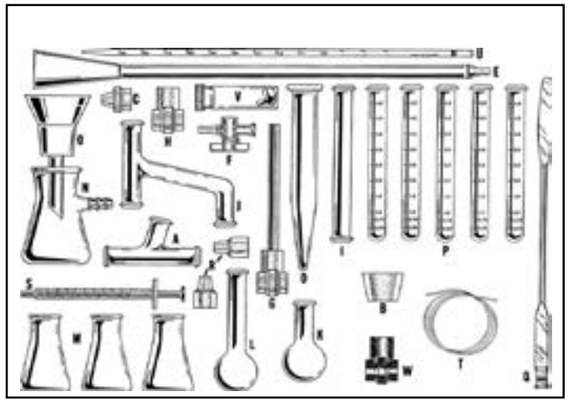
Part Number	Item	Description	Case Qty
748001-1000	A	Connecting Adapter	1
748001-0000		Connecting Adapter	10
748002-0000	B	Filter Adapter, Pluro Stopper, 14/20 Standard Taper joints	10
748003-1000	C	Thermometer Adapter	5
748003-0000		Thermometer Adapter	10
411800-1015		Plain Centrifuge Tube with Snap Cap, Beaded Top, 15 mL, 2980 max RCF, 120 mm overall height, 20 mm overall OD	10
411800-0015	D	Plain Centrifuge Tube with Snap Cap, Beaded Top, 15 mL, 2980 max RCF, 120 mm overall height, 20 mm overall OD	1
73837-2		Size 2 Snap Cap, Polyethylene	500
420166-1001	E	DISPOSAFLEX Column Set, Assembled, 8 mm ID, 150 mm column length, 9 mL reservoir capacity, 6 mL column capacity, overall length 215 mm	5
420164-1000		Polypropylene Reservoir for use with DISPOSAFLEX® columns, 14/20 Standard Taper joints	50
420168-1000		Polypropylene Luer Fitting for use with DISPOSAFLEX® Columns	50
420162-0020		20 µm Polyethylene Bed Support	100
420163-1500	F	One-Way Stopcock Valve, nylon body, HDPE plug, female Luer to male Luer, 14/20 Standard Taper joints	5
748005-1000	H	Connector w/ Support Rod	5
748005-1001		Connector Only	5
748005-1651	G	Connector Only, FKM	5
748006-1100	I	Distillation Column	5
748007-1060	J	Distillation Head, 60mm	1
748008-1005	K	Short Neck Flask, 5 mL	1
748010-1025	N	Filter Flask, 25 mL, 14/20 Standard Taper joints	1
748012-1000	O	Hirsch Funnel, 14/20 Standard Taper joints	5
748017-0020		Polyethylene Disc, 20 Microns	100
748013-1000	P	Reaction Tube, 10 x 100 mm	25
748019-0001	S	Micro Syringe, Polyethylene, 1 cc, 0.01 cc graduations	12
420823-0116	T	1/16" OD x 0.038" ID x 10' FEP / PTFE tubing, Fits 20 gauge needle	1
748001-0003		Foam Insert Set	1
746001-0001		Storage Case, 2 1/2" x 13 1/2" x 10"	1

Williamson Improved Kit

All the components necessary to perform the experiments described in the Williamson text, Macroscale and Microscale Organic Experiments, are included.

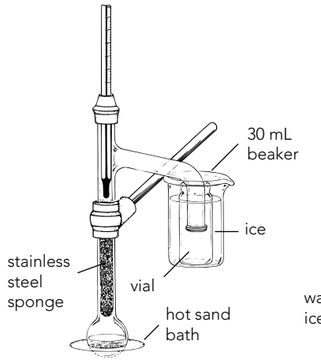
- 748100-0000 is packed in a rugged polyethylene storage case (2 1/2" H x 13 1/2" W x 10" D) with a die cut foam insert
- 748100-0005 is in an EKONO-CASE™, a low-cost corrugated cardboard alternative to plastic
- Kits fit easily into lab bench drawers
- These MICROFLEX® kits feature patented chaste connectors and specially tooled glassware components, providing great versatility
- Glassware is manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
748100-0000	1
748100-0005	1

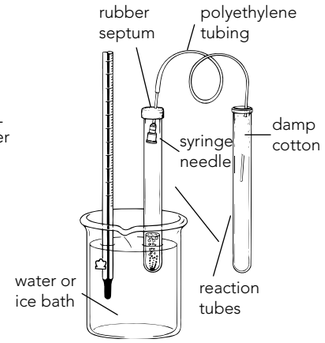


Replacement Parts

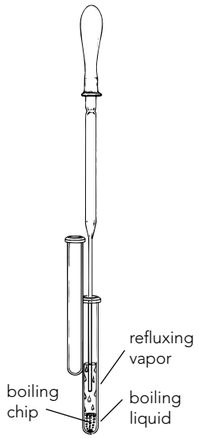
Part Number	Item	Description	Case Qty
748001-1000	A	Connecting Adapter	1
748001-0000		Connecting Adapter	10
748002-0000	B	Filter Adapter, Pluro Stopper, 14/20 Standard Taper Joints	10
748003-1000	C	Thermometer Adapter	5
748003-0000		Thermometer Adapter	10
411800-1015		Centrifuge Tube, Plain, Beaded Top, with Snap Cap, 15mL, 2980 Max RCF, 120 mm Overall Height, 20 mm Overall OD	10
411800-0015	D	Centrifuge Tube, Plain, Beaded Top, with Snap Cap, 15mL, 2980 Max RCF, 120 mm Overall Height, 20 mm Overall OD	1
73837-2		Size 2 Snap Cap, Polyethylene	500
420166-1001	E	DISPOSAFLEX Column Set, Assembled, 8mm ID, 150mm Column Length, 9mL Reservoir Capacity, 6mL Column Capacity, Overall Length 215 mm	5
420164-1000		Polypropylene Reservoir for use with DISPOSAFLEX® Columns, 14/20 Standard Taper Joints	50
420168-1000		Polypropylene Luer Fitting for use with DISPOSAFLEX® Columns	50
420162-0020		20 µm Polyethylene Bed Support	100
420163-1500	F	One-Way Stopcock Valve, Nylon Body, HDPE Plug, Female Luer to Male Luer, 14/20 Standard Taper Joints	5
748005-1000		Connector w/ Support Rod	5
748005-0000		Connector w/ Support Rod	10
748005-1001		Connector Only	5
748006-1100	I	Distillation Column	5
748006-0100		Distillation Column	100
748007-1060	J	Distillation Head, 60mm	1
748008-1005	K	Short Neck Flask, 5mL	1
748008-0005		Short Neck Flask, 5mL	10
748009-0005		Long Neck Flask, 5mL	10
748009-1005	L	Long Neck Flask, 5mL	1
882300-0010	M	Flask Only, 10 mL, 50 mm Overall Height, 31 mm Overall Width	12
748010-1025	N	Filter Flask, 25mL, 14/20 Standard Taper Joints	1
748010-0025		Filter Flask, 25mL	10
748012-1000	O	Hirsch Funnel, 14/20 Standard Taper Joints	5
748012-0000		Hirsch Funnel with Disc	10
748017-0020		Polyethylene Disc, 20 Microns	100
748013-1000	P	Reaction Tube, 10 x 100 mm	25
748013-0000		Reaction Tube, 10 x 100 mm	100
748014-1000	Q	Spatula, Rounded / Tapered, Micro, Overall Length 7.625", Nickel-Stainless, 2" (51 mm) Length at Both Ends, 5/16" (8 mm) Width	1
748014-0000		Spatula, Rounded / Tapered, Micro, Overall Length 7.625", Nickel-Stainless, 2" (51 mm) Length at Both Ends, 5/16" (8 mm) Width	10
774261-0008	R	Rubber Sleeve, Plug-Type, 8mm Diameter, White, 9-10 mm OD Stopper Fit	50
748019-0001	S	Micro Syringe, Polyethylene, 1 cc, 0.01 cc Graduations	12
420823-0116	T	1/16" OD x 0.038" ID x 10' FEP / PTFE Tubing, Fits 20 Gauge Needle	1
764100-1001	U	Pipet, 1mL Capacity Below Bulb	25
791145-0021	V	Magnetic Stir Bar, Round, Micro, PTFE, 4 X 12 mm, 2 Bars per Vial	12
748005-1651	W	Connector Only, FKM	5
748001-0003		Foam Insert Set	1
746001-0001		Storage Case, 2 1/2" x 13 1/2" x 10"	1



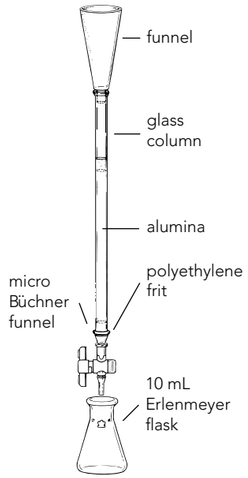
Fractional Distillation



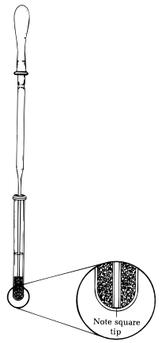
Apparatus for Trapping Evolved Gas in Friedel-Crafts Reactions



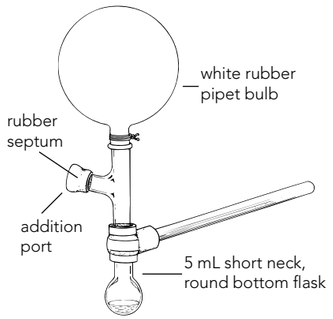
Apparatus for Instant Microscale Distillation



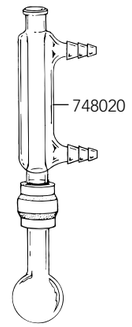
Column Chromatography



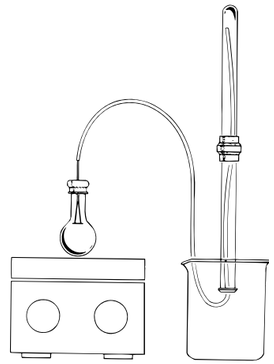
Pasteur Pipet Filtration Technique



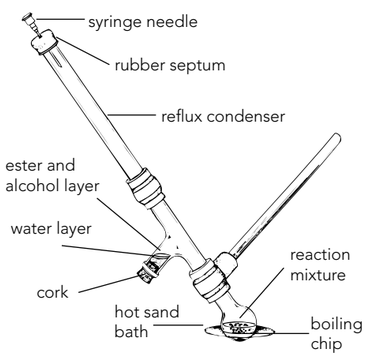
Balloon Technique of Oxygenation



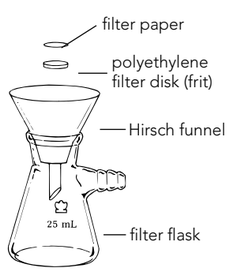
Water Jacketed Reflux for Warm Climates



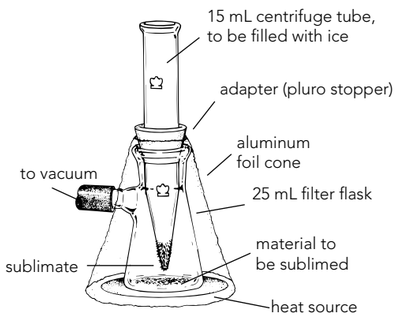
Hydrogenation or Other Gas Generation



Ester Preparation Micro Dean-Stark Water Removal



Hirsch Funnel Filtration



Sublimation

Polyethylene Tubing

- 1.7 mm OD
- Fits 18 gauge needles

Part Number	Gauge	OD (mm)	Case Qty
748016-1017	18	1.7	1
748016-0017	18	1.7	1

Multi-Fiber Test Fabric

This test fabric is useful for testing dyes on a variety of fabrics.

- Three-foot length of fabric five inches wide
- 13 strips of different fibers woven side by side: acetate rayon, SEF, Arnel, cotton, Creslan, Dacron 54 and 64, nylon 6.6, Orlon 75, silk, polypropylene, viscose rayon and wool

Part Number	Length (inches)	Width (inches)	Case Qty
748030-0043	36	5	1

Wilfilter Centrifuge Adapter

Adapter snaps over the end of a 748013 reaction tube and is inverted into a 15 mL polypropylene or glass centrifuge tube. Solvent escapes the reaction tube during centrifugation, leaving the crystals on the top surface of the Wilfilter.

Part Number	Height (mm)	Diameter (mm)	Case Qty
748025-1034	34	14	5

Filtering Tube

This tube is suitable for filtrations in semi-micro analysis and is tooled for use with a 748012-1000 Hirsch funnel.

- With a reinforced lip and a ¼" hose connection
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
748021-1030	30	22 x 150	1

Liebig Condenser with Williamson Chaste Connections

Our Liebig condenser has patented chaste connectors at the top and bottom.

- Accessory for microscale Williamson kits
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Case Qty
748020-1000	97	1

Class A Threaded Micro Volumetric Flasks

- Open-top phenolic cap
- PTFE-lined silicone septum for syringe access
- Calibrated to contain
- V-shaped bottom provides convenient sample retrieval
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Finish	Case Qty
297050-0001	1	13-425	1
297050-0002	2	13-425	1
297050-0003	3	13-425	1
297050-0005	5	13-425	1
297050-0010	10	13-425	1

PTFE Stir Bar

This stirrer bar permits stirring in closed containers without contamination.

- PTFE-covered round magnetic stirring bar
- Excellent chemical resistance
- Supplied in glass vial with polyethylene stopper

Part Number	Overall Length (mm)	Bars per Vial	Case Qty
791145-0021	12	2	12

Test Identification Stain

A proprietary mixture of dyes used to dye cloth according to the procedure in the Williamson textbook.

- Supplied in a polypropylene jar for easy dispensing
- 5 grams

Part Number	Quantity (grams)	Case Qty
748033-0008	5	1

Aluminum Heating Blocks

Ideal for use in place of a sand bath in microscale experiments.

- Excellent heat transfer
- Does not interfere with magnetic stirring

Part Number	Application	Case Qty
720200-0001	For Standard Taper size 14/10 Kits (Solid Bottom)	1
720200-0002	For Williamson Kits (Solid Bottom)	1
720205-0001	For All Micro Kits (Open Bottom)Four Holes - (2)9/16", 13/16", 21/32"	1
720210-0001	For Vials (Split Block)	1

Accessories

Part Number	Description	Case Qty
309180-0290	Bi-Metallic 10-290 °C Thermometer, Stem OD 4 mm	1

Blunt End Syringe Needles

- Non-sterile stainless steel needle with an inert plastic hub
- Blunt end for safety

Part Number	Gauge	OD (mm)	Case Qty
868280-1801	18	1.25	12

Non-Sterile Pasteur Pipets

These Pasteur-type pipets are intended for one-time use in the transfer of small volumes.

- 63A54P and 63B93P are cotton-plugged
- 63C50 is a blood bank dropper which dispenses 25 ±3 drops per 1 ml. of serum or red cells at 23 °C when held at a 45° angle
- 63DP1005 is a monstr-pette which has a tip ID of 1.5 mm
- Soda lime pipets are manufactured from 90 expansion soda lime glass conforming to USP Type III requirements
- Borosilicate pipets are manufactured from 51 expansion, low extractable borosilicate glass conforming to USP Type 1 and ASTM E438, Type 1, Class B requirements

Part Number	OD (mm) x Body Length (in)	Feature	Case Qty
883350-0575	7 x 3.5	Borosilicate	250
883350-0009	7 x 4	Borosilicate	250
63A54	7 x 3.5	Soda-lime	1000
63B93	7 x 4	Soda-lime	1000
63A54P	7 x 3.5	Soda-lime, Cotton-plugged	1000
63B93P	7 x 4	Soda-lime, Cotton-plugged	1000
63C50	7 x 3.5	Soda-lime blood bank dropper	1000
63DP1005	7 x 3.5	Soda-lime	800

Sand Bath Heating Mantles

This mantle is recommended for performing the experiments in the Williamson textbook.

- Electrically heated
- Utilizes commercially available sand used for children's sandboxes
- Designed for 100 mL flask
- Supplied with a one-meter, 3-wire cord and a standard U.S. plug
- CSA certified

Part Number	Capacity (mL)	Voltage (V)	Case Qty
720500-0101	100	115	1

Accessories

Part Number	Description	Case Qty
748035-0023	Sand, 16-30 mesh, 10 lbs	1
720600-0115	Power Control for Sandbath Heating Mantle, 115V, for 720500, 8 Amps current, 50/60 Hz	1

Connectors

Part Number	Description	Case Qty
748004-0000	Thermoplastic Elastomer Connector	10
748004-1000	Thermoplastic Elastomer Connector	5

NMR TUBES

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

Providing superior quality NMR tubes for the marketplace for over 40 years. Performance is guaranteed by the Kimble® design, manufacturing, and quality processes that certify for wall thickness, concentricity, and camber, the three most important criteria for optimal NMR.

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3 mm KIMAX®-HQ Highest Quality NMR Tubes

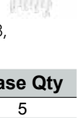
Our KIMAX®-HQ NMR tubes are our highest quality NMR tubes and are 100% gauged for wall thickness, concentricity and camber specifications.

- Attached polyethylene caps
- Sandblasted marking spot
- OD 3.0124 (+0.00/-0.013) mm
- ID 2.4003 (+0.013/+0.00) mm
- Wall thickness 0.284 mm
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Frequency (MHz)	Length (in)	Case Qty
897840-0000	600-800	7	5
897840-0008	600-800	8	5
897835-0000	500	7	5
897835-0008	500	8	5
897830-0000	400	7	5
897825-0000	200	7	5
897820-0008	300	8	5
897805-0000	100	7	5
897800-0000	80	7	5
897800-0008	80	8	5

5 mm KIMAX®-HQ Highest Quality NMR Tubes

Our KIMAX®-HQ NMR tubes are our highest quality NMR tubes and are 100% gauged for wall thickness, concentricity and camber specifications. These tubes are ideal for sealing directly to vacuum manifolds, joints or valves.



- Attached polyethylene caps
- Sandblasted marking spot
- OD 4.97 (+0.0000/-0.013) mm
- ID 4.20 (+0.013/-0.0000) mm
- Wall thickness 0.375 mm
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Frequency (MHz)	Length (in)	Case Qty
897250-3000	900	7	5
897250-3008	900	8	5
897245-3000	800	7	5
897245-3008	800	8	5
897241-0000	600-700	7	5
897241-0008	600-700	8	5
897241-0009	600-700	9	5
897240-0000	500	7	5
897240-0008	500	8	5
897240-0009	500	9	5
897235-0000	400	7	5
897235-0008	400	8	5
897235-0009	400	9	5
897230-0000	300	7	5
897230-0008	300	8	5
897225-0000	200	7	5
897225-0008	200	8	5
897225-0009	200	9	5
897220-0000	150	7	5
897220-0008	150	8	5
897205-0000	100	7	5
897205-0008	100	8	5
897205-0009	100	9	5
897200-0000	100	7	5
897200-0008	100	8	5
897200-0009	100	9	5

10 mm KIMAX®-HQ Highest Quality NMR Tubes

Our KIMAX®-HQ NMR tubes are our highest quality NMR tubes and are 100% gauged for wall thickness, concentricity and camber specifications.

- Polyethylene caps attached
- OD 10 mm (+0.00/-0.013) mm
- ID 9.065 (+0.013/+0.00) mm
- Wall thickness 0.462 mm
- Manufactured from 33 expansion, low extractable *borosilicate glass* conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Frequency (MHz)	Length (in)	Case Qty
897335-0000	360	7	1
897335-0008	360	8	1
897330-0000	150	7	1
897330-0008	150	8	1
897325-0000	80	7	1
897320-0000	60	7	1
897320-0008	60	8	1

Thrift-Grade 5 mm NMR Tubes

- Attached polyethylene caps
- OD 5 mm
- Wall thickness 38 mm (0.01475 in.)
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Frequency (MHz)	Length (in)	Case Qty
897150-0007	500	7	5
897150-0008	500	8	5
897140-0007	400	7	5
897140-0007	400	7	5
897140-0008	400	8	5
897130-0007	300	7	5
897130-0008	300	8	5
897120-0007	200	7	5
897120-0008	200	8	5
897110-0007	>200	7	5
897110-0008	>200	8	5

Disposable Grade 5 mm NMR Tubes

- Polyethylene caps included but not attached
- OD 5 mm
- Wall thickness .381 mm
- Manufactured from borosilicate glass conforming to USP Type I and ASTM E438, Type I requirements

Part Number	Frequency (MHz)	Length (in)	Case Qty
897193-0000	100	7	25
897193-0008	100	8	25
897193-0050	100	7	50
897193-7100	100	7	100
897193-8050	100	8	50
897193-8100	100	8	100

Disposable Grade 10 mm NMR Tubes

- Flat bottom
- Caps not included
- OD 10 mm
- Wall thickness .381 mm
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Frequency (MHz)	Length (in)	Case Qty
897300-0000	100	7	50
897300-0008	100	8	50

Valved 5 mm NMR Tubes

Designed to improve sample handling during the investigation of volatile, air-sensitive, or toxic compounds.

- Kimble® HI-VAC® valve maximizes sample recovery
- Greaseless valve features a borosilicate glass body and PTFE plug so that the sample is always in contact with inert materials
- Rotationally symmetrical design, with two lateral ports located near the valve seat, permits use at higher temperatures
- FKM o-ring seal is used to connect the valved NMR tube to a vacuum system
- Suitable for use in instruments with field strengths greater than 360 MHz
- OD 5 mm
- Wall thickness 0.375 mm

Part Number	Length (in)	Wilmad Equiva-lent	Case Qty
897435-0000	7	528-JY-7	1
897435-0008	8	528-JY-8	1

Threaded NMR Tubes

- Ideal for use with air-sensitive samples and reaction studies
- Compounds may be added via syringe through the septum cap
- For use in instruments with field strengths greater than 360 MHz
- Tube OD 5 mm
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	GPI Finish	Length (in)	Case Qty
897635-0800	8-425	7.5	1

Seal-Off 5 mm NMR Tubes

Seal-Off NMR tubes provide the best security against sample degradation during the investigation of volatile, air-sensitive, or toxic compounds.

- Constriction opening is 0.5 to 2.0 mm and is located 1.8" from the cap end of the tube, leaving a 7.2" long tube after seal-off
- Supplied with a polyethylene cap
- Sandblasted marking spot for easy identification
- OD 5 mm
- Wall thickness .375 mm
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Frequency (MHz)	Length (in)	Case Qty
897750-0245	>800	7.2	5
897750-0240	>400	7.2	5
897750-0235	>360	7.2	5

RAY-SORB® 5 mm NMR Tubes

Kimble® High Grade NMR Tubes processed with our proprietary RAY-SORB® treatment. Our KIMAX®-HQ NMR tubes are our highest quality NMR tubes and are 100% gauged for wall thickness, concentricity and camber specifications. These tubes are ideal for sealing directly to *vacuum manifolds*, joints or valves.

- RAY-SORB® protects your valuable samples from the harmful effect of visible and UV wavelengths, while keeping all the critical characteristics of your specific tube needs intact
- Attached polyethylene caps
- Sandblasted marking spot
- OD 4.97 (+0.0000/-0.013) mm
- ID 4.20 (+0.013/-0.0000) mm
- Wall thickness 0.375 mm
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Frequency (MHz)	Length (in)	Case Qty
897245-9001	800	8	5
897241-9001	600-700	8	5

NMR Sealing Manifold

Provides an easy way to evacuate and tip-off NMR tubes without additional sealing to other glass apparatus.

- NMR sealing manifolds utilize Kimble® HI-VAC® valves
- NMR manifolds feature a BEVEL-SEAL™ threaded connection and a specially designed cap with an aluminum shield for heat deflection
- All o-rings supplied are FKM
- Valve plugs are 826501-0008
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	O-Ring Size Shaft - Tip	Case Qty
897047-0001	110-011	1

Replacement Parts

Part Number	Description	Case Qty
897048-0001	Single NMR Manifold, O-Ring Size Shaft - Tip 110-011	1
897049-0005	Shielded No. 5 Thread Cap with Size 106 O-ring	1

NMR Tube Rack

Polypropylene rack with carrying handles features an upper deck with holes and a lower deck support for tube ends.

- Dimensions: 8-3/8" L x 4-1/2" W x 8-3/4" H
- Accommodates seventy-two 3 or 5 mm tubes

Part Number	Accommodation Range (mm)	Wilmad Equiva-lent	Case Qty
897080-0005	72 - 3 or 5 mm tubes	820-A	1

Polypropylene Funnel

- Polypropylene construction with a lower fitting sized to accommodate 5 mm NMR tubes
- Disposable feature eliminates the possibility of cross-contamination
- Filter using a polyethylene disc or glass wool (not supplied)
- Complete set consists of a reservoir, a column and a lower fitting

Part Number	Case Qty
420160-0000	100

Replacement Parts

Part Number	Description	Case Qty
420164-1000	Polypropylene Reservoir for use with DISPOSAFLEX® Columns, 14/20 Standard Taper Joints	50
420168-1000	Polypropylene Luer Fitting for use with DISPOSAFLEX® Columns	50

Accessories

Part Number	Description	Case Qty
420162-0000	30-50 microns Polyethylene Bed Support	100
420162-0020	20 µm Polyethylene Bed Support	100

Extended Tip Pipets

Extended tip NMR pipets for retrieving and adding samples in NMR tubes.

- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Tip Size (in)	Wilmad Equivalent	Case Qty
897085-0007	7	803	100
897085-0009	9	803A	100

Rubber Septa for NMRTubes

- Useful as a closure or for sample outgassing
- Inner and outer seal
- Ideal for thin-walled tubes
- Soft, natural rubber allows easy penetration
- Penetration point for syringe or cannulation additions

Part Number	Fits Tube Size (mm)	Color	Case Qty
897097-0001	5	White	100
897098-0005	5	Red	100
897098-0007	7	Red	100
897098-0010	10	Red	100

NMR Tube Polyethylene Pressure Caps

Tight-fitting, polyethylene cap which stays in place even with a build-up of internal vaporization pressures.

- Assortment packs include a variety of colors in each pack

Part Number	Fits Tube Size (mm)	Color	Case Qty
897096-0003	3	White	25
897093-0001	3	Red	100
897095-0001	5	Red	100
897095-0021	5	Black	100
897095-0061	5	White	100
897095-0071	5	Green	100
897095-0081	5	Yellow	100
897095-1001	10	Red	100
897095-1021	10	Black	100
897095-1071	10	Green	100
897095-1081	10	Yellow	100
897095-0011	5	Assorted (20 each of Red, Black, White, Green and Yellow)	100
897095-1011	10	Assorted (25 each of Red, Black, Green and Yellow)	100
897095-0012	5	Assorted (100 each of Red, Black, White, Green, Blue and Yellow)	600

NMR Tube PTFE Pressure Caps

Precision machined PTFE caps offer the user a means of universal solvent compatibility.

- Can be used with any 3 or 5 mm NMR tube

Part Number	Fits Tube Size (mm)	Color	Case Qty
897096-0005	5	White	25

Five-Place 3 mm and 5 mm NMR Tube Washer

This design uses flexible PTFE tubing to direct a power wash stream of wash solvent to clean the inside of NMR tubes.

- Accommodates 7" and 8" tubes
- One-liter reservoir bottle provided
- All wetted parts are PTFE or borosilicate glass
- Vacuum source is required

Part Number	O-Ring	Tube Size (mm)	Case Qty
897033-0003	Size 006 EPDM	3	1
897033-0005	Size 106 EPDM	5	1

Single-Place 5mm NMR Tube Washer

Designed to fit standard filtration assemblies available in most labs.

- The cap is positioned on the 5 mm NMR tube bottom and inserted into the washer
- Aspirator suction provides the driving force to direct the solvent stream into the 5 mm NMR tube
- An air stream aids the drying process after the solvent reservoir empties
- 1000 mL filter flask is available as an accessory
- Supplied with one #8 silicone stopper

Part Number	Tube Size (mm)	Case Qty
897030-0005	5	1

Replacement Parts

Part Number	Description	Case Qty
953763-0000	#8 Silicone Stopper, 9/16" / 14.3 mm Hole Size,	5

Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, 3/8" Hose Connection	1

Utility Washer for NMR Tubes

Used for rapid, safe washing and drying of cuvettes, tubes and small scale volumetric items up to approximately 22 mm OD.

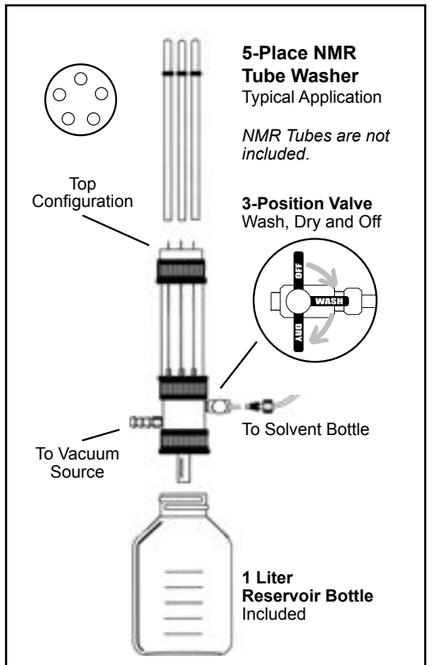
- Unit is supplied with one gasket, a tube washer, an Erlenmeyer flask and a 3/8" hose connection
- Operates efficiently with a conventional sink aspirator
- Recommended for 10 mm NMR tubes
- All glass apparatus manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Overview: Washer is activated by lightly pressing the inverted cell onto the neoprene gasket.

Part Number	Capacity (mL)	Fits Tubing ID (inches)	Case Qty
459960-0000	250	0.375	1

Replacement Parts

Part Number	Description	Case Qty
459961-0000	Cuvette Tube Washer Only	1
459951-0000	Neoprene Gasket for Tube Washer	1
179850-2224	Universal with Hose Connection Inlet, BEV-EL-SEAL®, 6.5-8.5 mm Accomodation Range, PTFE, Fits 3/8" Tubing ID, Size 22, Standard Taper 24/25	1
617000-0424	250mL Erlenmeyer Flask with 24/40 joint, Approx. overall height 155 mm	1



Kimble® Cat. No.	Wilmad	New Era	Norrell
897030-0005	-	NE-230-5	-
897033-0003	-	WG-232-3	-
897033-0005	-	WG-232-5	-
897047-0001	-	-	-
897048-0001	-	-	-
897049-0005	-	-	-
897080-0005	-	NE-330-5	-
897085-0007	803C	NE-201	-
897093-0001	-	NE-310-3	-
897095-0001	521	NE-310-5	-
897095-0011	-	-	-
897095-0012	-	-	-
897095-0021	521	-	-
897095-0061	521	-	-
897095-0071	521	-	-
897095-0081	521	-	-
897095-1001	521-C	NE-310-10	-
897095-1011	-	-	-
897095-1021	521-C	-	-
897095-1071	521-C	-	-
897095-1081	521-C	-	-
897096-0003	-	-	-
897096-0005	-	NE-312-5	-
897097-0001	521-S	-	-
897098-0005	-	-	-
897098-0007	-	-	-
897098-0010	-	-	-
897110-0007	WG-1206-7	NE-LL5-7	505-P-7
897110-0008	WG-1206-8	NE-LL5-8	505-P-8
897120-0007	WG-1208-7	NE-LL5-7	-
897120-0008	WG-1208-8	NE-LL5-8	-
897130-0007	WG-1226-7	NE-ML5-7	XR-55-7
897130-0008	WG-1226-8	NE-ML5-8	XR-55-8
897140-0007	WG-1228-7	NE-HL5-7	507-HP-7
897140-0008	WG-1228-8	NE-HL5-8	507-HP-8
897150-0007	WG-1235-7	NE-UL5-7	508-UP-7
897150-0008	WG-1235-8	NE-UL5-8	508-UP-8
897193-0000	WG-5mm-Economy-7	-	-
897193-0008	WG-5mm-Economy-8	-	-
897193-0050	WG-1000-7-50	NE-RG5-7	502-7
897193-7100	WG-1000-7-100	NE-RG5-8	502-8
897193-8050	WG-1000-8-50	-	ST-500-7
897193-8100	WG-1000-8-100	-	ST-500-8
897200-0000	505-PS-7	NE-LP5-7	-
897200-0008	505-PS-8	NE-LP5-8	-
897200-0009	505-PP-9	NE-LP5-9	-
897205-0000	506-PP-7	NE-LP5-7	-
897205-0008	506-PP-8	NE-LP5-8	-

Kimble® Cat. No.	Wilmad	New Era	Norrell
897205-0009	506-PP-9	NE-LP5-9	-
897220-0000	-	-	-
897220-0008	-	-	-
897225-0000	507-PP-7	NE-LP5-7	S-5-200-7
897225-0008	507-PP-8	NE-LP5-8	S-5-200-8
897225-0009	507-PP-9	NE-MP5-9	-
897230-0000	526-PP-7	NE-MP5-7	S-5-300-7
897230-0008	526-PP-8	NE-MP5-8	S-5-300-8
897230-0009	526-PP-9	NE-MP5-9	-
897235-0000	527-PP-7	NE-MP5-7	S-5-400-7
897235-0008	527-PP-8	NE-MP5-8	S-5-400-8
897235-0009	527-PP-9	NE-MP5-9	-
897240-0000	528-PP-7	NE-HP5-7	S-5-500-7
897240-0008	528-PP-8	NE-HP5-8	S-5-500-8
897240-0009	528-PP-9	NE-HP5-9	-
897241-0000	535-PP-7	NE-UP5-7	S-5-600-7
897241-0008	535-PP-8	NE-UP5-8	S-5-600-8
897241-0009	535-PP-9	NE-UP5-9	-
897245-3000	541-PP-7	NE-SP5-7	S-5-800-7
897245-3008	541-PP-8	NE-SP5-8	S-5-800-8
897250-3000	542-PP-7	NE-SP5-7	S-5-900-7
897250-3008	542-PP-8	NE-SP5-8	S-5-900-8
897300-0000	-	-	-
897300-0008	-	-	-
897320-0000	513-1PP-7	-	-
897320-0008	513-1PP-8	-	-
897325-0000	513-3PP-7	NE-L10-7	-
897330-0000	513-5PP-7	NE-L10-7	C-1005-P-7
897330-0008	513-5PP-8	NE-L10-8	C-1005-P-8
897335-0000	513-7PP-7	NE-H10-7	C-1008-UP-7
897335-0008	513-7PP-8	NE-H10-8	C-1008-UP-8
897435-0000	-	NE-CAV5-178	S-5-400-JY-7
897435-0008	-	NE-CAV5-203	S-5-400-JY-8
897635-0800	513-7TRA-7	-	-
897750-0235	-	-	-
897750-0240	-	NE-HP5-TTO	-
897750-0245	-	NE-UP5-TTO	-
897800-0000	305-PS-7	-	S-3-HT-7
897800-0008	305-PS-8	-	S-3-HT-8
897805-0000	305-PS-7	-	-
897820-0008	307-PP-8	-	S-3-300-8
897825-0000	-	-	S-3-300-7
897830-0000	327-PP-7	NE-H3-7	S-3-400-7
897835-0000	328-PP-7	NE-H3-7	S-3-500-7
897835-0008	328-PP-8	NE-H3-8	S-3-500-8
897840-0000	335-PP-7	-	S-3-800-7
897840-0008	335-PP-8	-	S-3-800-8

PETROCHEMICAL

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

Designed from ASTM specifications, petrochemical glassware from Kimble® is intended for use with standard ASTM test methods. Petrochemical apparatus includes distillation flasks, centrifuge tubes, and glassware unique for testing petroleum products.

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BEVEL-SEAL™ Inlet Adapter

For use with plain thermometers, pipets, syringes or other small items with an OD from 2 to 17 mm.

- A vacuum-tight seal is created with the open top compression cap and FKM o-ring to allow adjustable immersion of thermometers
- Cap is suitable for use to 150 °C
- To use it as a septum port, just replace the o-ring with a PTFE-lined septum
- Ref: ASTM Method D1744
- Supplied with one FKM o-ring and one 410119 cap
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Accommodation Range (mm)	Modified GPI Thread	Case Qty
179700-1424	11-14	22-415	1
179700-0529	2-5	13-415	1
179700-2129	5.5-6.5	13-425	1
179700-1729	14-17	28-415	1

Low Form Griffin Beakers

KIMAX® beakers offer excellent mechanical strength and durability, while providing high resistance to chemical attack and thermal shock. They have been a staple in research laboratories for many generations.

- Thick, slightly flared, beaded top, with a spout designed to have excellent pouring characteristics
- Improved mechanical and thermal properties result from the uniform sidewall and bottom thickness design
- All sizes have a durable matte finish marking area for use with an ordinary pencil
- Easy-to-read white graduated scale is provided on all sizes from 20 to 4000 mL for measuring and/or mixing liquids
- Ref: ASTM Method D2070
- Design meets ASTM Specification E960, Type I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL)	Case Qty
14000-10	10		48
14000-20	20	5 to 15	48
14000-30	30	5 to 25	48
14000-50	50	20 to 40	48
14000-100	100	20 to 80	48
14000-150	150	20 to 140	48
14000-250	250	25 to 200	48
14000-400	400	50 to 325	48
14000-600	600	50 to 500	36
14000-800	800	50 to 750	24
14000-1000	1000	100 to 1000	24
14000-1500	1500	200 to 1400	16
14000-2000	2000	200 to 2000	8
14000-4000	4000	500 to 3500	6

Low Form Heavy Duty Beakers

KIMAX® heavy duty beakers offer superior mechanical strength and durability. They also offer improved safety when used under extreme conditions such as mechanized washing and rough handling.

- Thick uniform walls throughout and extra wall thickness built into the evenly tooled top rim
- Uniformity of construction allows for use on hot plates
- All sizes have a durable matte finish marking area and a white graduated scale
- Design meets ASTM Specification E960, Type II requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL)	Case Qty
14005-250	250	25 to 200	48
14005-400	400	25 to 325	48
14005-600	600	50 to 500	36
14005-1000	1000	100 to 1000	24
14005-2000	2000	200 to 1800	8
14005-4000	4000	500 to 3500	4

Tall Form Berzelius Beakers

KIMAX® Berzelius beakers offer excellent mechanical strength and durability, while providing high resistance to chemical attack and thermal shock. Ideal for use when performing titrations.

- All sizes have a durable matte finish area for marking with an ordinary pencil
- Easy-to-read white double capacity scales to indicate approximate volumes
- Design for 14020 series meets ASTM Specification E960, Type IV requirements and does not include a spout
- Design for 14030 series meets ASTM Specification E960, Type III requirements and includes a spout
- Ref: ASTM Method D94
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL)	Case Qty
14020-100	100	20 to 80	12
14020-200	200	25 to 150	12
14020-300	300	25 to 250	12
14020-400	400	25 to 325	6
14020-600	600	50 to 500	6
14020-1000	1000	50 to 950	6
14030-100	100	20 to 80	48
14030-200	200	25 to 150	48
14030-300	300	25 to 250	48
14030-400	400	25 to 325	36
14030-600	600	50 to 500	24
14030-1000	1000	50 to 950	18

Unsaturation Gasoline Bottles

KIMAX® bottle used in the determination of unsaturated hydrocarbons in gasoline.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

The body of the bottle (*approximately 45 mL capacity*) is a "reaction vessel" in which an accurately measured sample is pipetted into the bottle; excess reagent is then added. After the reaction is complete, more reagent is added to raise the "fat column" into the calibrated neck of the bottle, where results are read directly as a percentage of fat in the sample.

Part Number	Neck Capacity (%)	Tolerance (%)	Case Qty
15066-10	100 (10 mL)	± 1	12

Heavy Duty Carboy

The heavy duty construction of these bottles is designed to prolong life expectancy with harder than normal usage. Ideal for storage and dispensing of solutions.

- KIMAX® carboy-style bottle with sloping shoulders
- Neck is tooled for a uniform fit with a #12 rubber stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Capacity (gallons)	Case Qty
14950-25	9500	2.5	1
14950-35	13200	3.5	1
14950-120	45500	12.0	1
14950-500	19000	5.0	1

Reservoir Bottle with Bottom Hose Outlet

Designed to store and discharge liquids via a bottom hose outlet.

- Glass hose connection outlet is fused to the bottle
- All sizes accept 5/16" ID flexible tubing
- With white enamel marking spot
- Ref: ASTM Method D1744
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Fits Tubing ID (inches)	Case Qty
14607-250	250	5/16	6
14607-500	500	5/16	1
14607-1000	1000	5/16	1
14607-2000	2000	5/16	1
14607-5000	5000	5/16	1

Solution Bottle with Color-Coded PTFE Flathead Stopper

These KIMAX® bottles are designed for storage and dispensing of solutions.

- Bottle necks are Standard Taper ground to accept flathead color-coded PTFE stoppers
- Replacement stoppers are Part Number 41941R.
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Stopper Size	Case Qty
15097-100	100	14	1
15097-250	250	19	6
15097-500	500	24	6
15097-1000	1000	29	6
15097-2000	2000	29	4

GL 45 Media Bottles

Ideal for general laboratory use including mixing, storing or transporting culture media, chemicals or solvents.

- Enhanced graduations and marking spot made with chemically resistant white enamel paint
- 30 mm ID opening
- Autoclavable
- Supplied without caps or with linerless GL 45 screw thread caps
- Replaceable clear (natural) drip-free polypropylene pour ring is included on each bottle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirement

Part Number	Capacity (mL)	Graduation Range (mL)	Case Qty
14395-100	100	20-80	10
14395-250	250	50-200	10
14395-500	500	100-400	10
14395-1000	1000	100-900	10
14395-2000	2000	400-1800	4
14395-5000	5000	1000-4000	1
14395-10000	10000	2000-8000	1

RAY-SORB® GL 45 Media Bottles

Designed to protect contents from UV rays; ideal for light-sensitive products

- Enhanced graduations and marking spot made with chemically resistant white enamel paint
- 30 mm ID opening
- Linerless GL 45 screw thread cap
- Autoclavable
- Replaceable clear (natural) drip-free polypropylene pour ring is included on each bottle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity (mL)	Graduation Range (mL)	Case Qty
14399-100	100	20-80	1
14399-250	250	50-200	1
14399-500	500	100-400	1
14399-1000	1000	100-900	1
14399-2000	2000	400-1800	1
14399-5000	5000	1000-4000	1
14399-10000	10000	2000-8000	1

Static Dilution Bottles

The static dilution bottle provides a simple, inexpensive means to prepare, store and use standards of volatile organic compounds.

- Standards are prepared by injecting a small quantity of the pure compounds into the bottle and using heat to fully evaporate.
- A push-pull, color-coded, (green-for-open, red-for-closed) Mininert valve is supplied for easy use and long lasting performance
- The valve is excellent for sealed tube reactions, long term storage of standards or periodic addition of reactants
- Sample aliquots are withdrawn using a gas-tight syringe
- Septum seal prevents leakage when using a syringe
- Standards prepared by this method are stable for up to one week
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Valve Thread	Case Qty
591190-2000	2000	24-410	1

Sample Containers

This sample container is for use in the determination of the stability of gasoline under accelerated oxidation conditions.

- The cover is intended to prevent material that is refluxing back into the bomb stem from contaminating the sample
- Ref: ASTM D525
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Width (mm)	Case Qty
896670-0000	110	50	1

Cold Test Jar

KIMAX® jar used to determine the temperature (cloud point) at which haziness is first observed at the bottom of the jar when petroleum oils are cooled and examined under specified conditions (ASTM D2500), and also the temperature at which chilled undisturbed oils will pour (ASTM D97).

- Jar has a flat bottom and a reinforced bead at the open end
- With a marking spot and a graduation ring located 54 mm from the inside bottom
- Ref: ASTM Method D97, D2500
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Height (mm)	OD (mm)	Case Qty
32501-99	125	35	36

Class A Burets, Serialized and Certified, Straight Bore PTFE Stopcock, with Dust Cap

KIMAX® precision bore buret is permanently marked with an individual serial number. Supplied with a Certificate of Graduation Accuracy. Designed from ASTM Specification E287, Class A requirements. KIM-KAP® dust cap is included.

Delivery stem of the 10 mL size is 115 mm long to meet requirements of potentiometric titration burets (ASTM D664). PTFE plug for all sizes is 2. Scale is a durable white ceramic enamel. Replacement stopcock is 821001-0002.

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
17027F-10	10	±0.02	1
17027F-25	25	±0.03	1
17027F-50	50	±0.05	1
17027F-100	100	±0.10	1

Class A Serialized and Certified Automatic Zero Burets with PTFE Stopcock and Reservoir Bottle

KIMAX® precision bore automatic burets are used in applications requiring the highest degree of precision and accuracy for volumetric analysis. These are ideal for repeat titrations requiring traceable volumetric accuracy or when the titrant should not be handled.

- Packed complete with a reservoir bottle, U-shaped drying tube, vented connecting tube, rubber squeeze bulb, # 1 single-holed rubber stopper, PTFE stopcock plug and 1/4 inch ID rubber tubing
- Precision ground tips assure uniform outflow
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug
- Permanently marked with an individual serial number and traceable to NIST Standards
- Supplied with a Certificate of Graduation Accuracy
- Easy-to-read durable black enamel scale
- Replacement 2 mm bore size stopcock plug is 823001-0002.
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Buret Capacity (mL)	Tolerance (mL)	Case Qty
17124F-10	10	±0.02	1
17124F-25	25	±0.03	1
17124F-50	50	±0.05	1
17124F-100	100	±0.10	1

Procedure for Using Automatic Buret 17124F: *Place the one-holed rubber stopper, large end first, on the lower tubulation of the buret. Add the U-shaped drying tube, prefilled with drying medium, over the small end of the stopper. Join the drying tube to the connecting tube and then the rubber squeeze bulb with the rubber tubing. To fill the buret, turn the stopcock to connect, filling tube to the buret. Squeeze the rubber bulb several times while closing the vent hole in the connecting tube with your finger. As liquid rises and overflows from the tip above the buret, turn the stopcock to off and remove your finger from the vent hole of the connecting tube. If air is trapped in the stopcock or tip, discharge the air and repeat the filling operation to automatic zero at overflow tip.*

Class A Serialized and Certified Reservoir Fill Burets with Three-Way Stopcock

Used for general purpose titrations requiring traceable volumetric accuracy.

- Permanently marked with an individual serial number and traceable to NIST Standards
- Supplied with a Certificate of Graduation Accuracy
- Filling tube accepts 1/4 inch ID flexible tubing
- Precision ground tips assure uniform outflow
- KIM-KAP® dust cap is included
- Filled through a self-lubricating PTFE stopcock plug
- Easy-to-read durable white enamel scale
- Reservoir fill style buret
- Replacement 2 mm bore size three-way stopcock is 823001-0002.
- Designed from ASTM E287, Class A requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E-438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
17052F-25	25	±0.03	1
17052F-50	50	±0.05	1
17052F-100	100	±0.10	1

Class B Automatic Burets

Used in general purpose volumetric analysis and for repeated titrations where Class B tolerances are appropriate.

- Both the filling and overflow tubes accept 1/4 inch ID flexible tubing
- Filled through a self-lubricating, chemically-resistant PTFE stopcock plug
- Easy-to-read durable black ceramic enamel scale
- Replacement stopcock is 823001-0002.
- Designed from ASTM Specification E287, Class B requirements
- Ref: ASTM Method D1744
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
17051F-10	10	±0.04	1
17051F-25	25	±0.06	1
17051F-50	50	±0.10	1
17051F-100	100	±0.20	1

Class B Straight Bore Burets with PTFE Stopcock

Used in general purpose volumetric analysis and titrations where Class B tolerances are appropriate.

- Funnel fill style buret
- Replacement 2 mm straight bore PTFE stopcock plug is 821001-0002.
- Easy-to-read durable black ceramic enamel scale
- Designed from ASTM Specification E287, Class B requirements
- Ref: ASTM Method D974
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
17026F-10	10	±0.04	1
17026F-25	25	±0.06	1
17026F-50	50	±0.10	1
17026F-100	100	±0.20	1

Automatic Burets

KIMAX® buret ideal for repeat titrations requiring traceable volumetric accuracy.

- Supplied with a Certificate of Graduation Accuracy
- Precision ground tips assure uniform outflow
- Permanently marked with an individual serial number and traceable to NIST standards
- Self-zeroing
- Filled through a self-lubricating PTFE stopcock plug
- Filling tube and overflow tube at the top of the buret accept 1/4 inch ID flexible tubing
- Easy-to-read durable black enamel scale
- Replacement 2 mm bore size three-way stopcock is 823001-0002.
- Designed from ASTM E287, Class A requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
17054F-10	10	±0.02	1
17054F-25	25	±0.03	1
17054F-50	50	±0.05	1
17054F-100	100	±0.10	1

Micro Buret with Side Reservoir

Used for small volume titrations.

- Side reservoir capacity is approximately 70 mL
- Easy-to-read durable white ceramic enamel scale
- Replacement 2 mm straight bore stopcock plug is 821001-0002, and replacement stopper is a medium length 14/20 standard taper glass stopper
- Supplied with two chemically-resistant, self-lubricating PTFE stopcock plugs
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
17132F-2	2	±0.01	1
17132F-5	5	±0.01	1
17132F-10	10	±0.02	1

Serialized and Certified Funnel Top Micro Buret with Straight Bore PTFE Stopcock

Used for small volume titrations requiring traceable volumetric accuracy.

- Precision bore buret is permanently marked with an individual serial number and is traceable to NIST standards
- Supplied with a Certificate of Graduation Accuracy
- Easy-to-read durable white ceramic enamel scale
- Funnel top accepts a one-hole #3 rubber stopper
- Replacement 2 mm straight bore stopcock plug is 821001-0002.
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Ref: ASTM Method D974
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

A short length of glass tubing aids in filling the buret through the tip by vacuum if desired. Stopper and tubing are not supplied.

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
17110F-5	5	±0.01	1
17110F-10	10	±0.02	1

Dispensing Burets

Large capacity KIMAX® burets used for dispensing laboratory solvents or solutions for a variety of clinical and industrial applications.

- Supplied with a chemically-resistant, self-lubricating PTFE stopcock
- Easy-to-read durable white ceramic enamel scale
- Replacement 4 mm straight bore stopcock plug is 821001-0004.
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
17080F-250	250	±2.0	2
17080F-500	500	±2.5	2
17080F-1000	1000	±5.0	2

Tutwiler Gas Burets

This buret is designed for use with high sulfur content gas streams.

- Large ID connections reduce clogging when sulfur precipitates out and deposits on the inside of connectors
- Supplied with a size 4 glass stopcock in the bottom, a size 2 stopcock in the top and a size 13 glass pennyhead stopper
- Designed for use with method UOP 9-85
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance: Buret (mL)	Case Qty
30034A-100	100	±0.2	1

Neutral Oil and Loss Columns

Apparatus for the determination of total neutral oil of natural fats and oils consisting of triglycerides and unsaponifiable matter.

- Unique design of the flask allows the transfer of the weighed sample directly onto the column
- Supplied complete, as shown
- Stopcocks have PTFE plugs, and the column has a 40-60 micron porosity fritted disc
- Joints are Standard Taper 19/22 except for the extension tube, which is Standard Taper 7/25
- Ref: OACS Official Method Ca9f-57, JAOCS Vol. 46, No. 5, Pages 252-255
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Free fatty acids and miscellaneous non-fat substances are removed by passing the sample through a column of activated alumina. Losses are then calculated.

Part Number	Solvent Reservoir Capacity (mL)	Porosity (microns)	Case Qty
427100-0000	175	40-60	1

Friedrich Condenser with Hose Connection Sidearm

Friedrich condenser used primarily in reflux mode and Soxhlet extractions.

- Water inlet and outlet located above ring-sealed inner condensing tube
- Standard Taper inner drip joint and side outlet for drying tube, etc
- Molded inner spiral provides surface area for the condensation of the product
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Cold Finger Length (mm)	Standard Taper Joints	Case Qty
456250-0021	190	34/45	1
456250-0022	190	45/50	1
456250-0023	190	55/50	1

Friedrich Condenser with Standard Taper Sidearm

Friedrich condenser specially designed to provide a long vapor path, good heat transfer and anti-flooding characteristics.

- Molded inner spiral provides surface area for the condensation of the product
- Inclined Standard Taper outer joint on the side
- Water inlet and outlet located above ring-sealed inner condensing tube
- Standard Taper inner drip joint at the bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Jacket Length (mm)	Standard Taper Joints	Case Qty
437000-2440	225	24/40	1
437000-2942	225	29/42	1

Coil-Type Reflux Condenser with Two Upper Hose Barbs

Tightly wound coil provides enough surface area to condense high vapor pressure solvents like hexane.

- With an internal, coil-type cold finger
- Standard Taper outer joint at the top, Standard Taper inner drip joint at the bottom
- Two hose connectors at the top for water inlet and outlet
- Ref: ASTM Method D94, D95
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Approx. Condensing Area (cm²)	Case Qty
283010-0000	94	1
457000-0125	115	1
457000-0175	170	1
457000-0225	229	1

Allihn Condensers with Full Length Joints

Used in many refluxing operations.

- Standard Taper drip joint at bottom and a Standard Taper outer joint at top
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Standard Taper Joints	Case Qty
431000-2420	370	24/40	1
431000-2425	425	24/40	1
431000-2430	470	24/40	1
431000-2440	570	24/40	1
431000-2920	380	29/42	1
431000-2930	480	29/42	1

Graham Condensers

Vapor travels through a coil extending through the length of the condenser and is surrounded by a cooling jacket.

- Standard Taper outer joint at top
- Standard Taper inner drip joint at the bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Jacket Length (mm)	Standard Taper Joints	Case Qty
439000-2420	200	24/40	1
439000-2425	250	24/40	1
439000-2430	300	24/40	1
439000-2440	400	24/40	1

Liebig Condenser with Standard Taper Joints

- Standard Taper outer joint at the top
- Standard Taper inner drip joint at the bottom
- Hose connections accept 3/8" ID flexible tubing
- Ref: ASTM Method D322
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Jacket Length (mm)	Standard Taper Joints	Case Qty
447000-2410	100	24/40	1
447000-2420	200	24/40	1
447000-2425	250	24/40	1
447000-2430	300	24/40	1
447000-2440	400	24/40	1
447000-2920	200	29/42	1

West Condenser with Full Length 24/40 Joints

The narrow annular space of the West design provides high cooling efficiency due to the increased flow rate of the cooling medium.

- Full length 24/40 joints
- Standard Taper outer joint at the top and Standard Taper inner drip joint at the bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Jacket Length (mm)	Standard Taper Joints	Case Qty
452000-2410	100	24/40	1
452000-2420	200	24/40	1
452000-2430	300	24/40	1

Class A Measuring Cylinders

- Letters "TC" on cylinder indicate to contain
- Pour spout
- SAFE-GARD® bumper is supplied
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Intervals (mL)	Tolerance (mL)	Case Qty
20027-10	10	0.1	±0.80	6
20027-25	25	0.2	±0.14	6
20027-50	50	1	±0.2	6
20027-100	100	1	±0.35	6
20027-250	250	2	±0.65	4
20027-500	500	5	±1.10	4
20027-1000	1000	10	±2.00	1
20027-2000	2000	20	±6.00	1

Class A Cylinders with Reverse Graduations

KIMAX® Class A cylinder is marked with a reverse metric scale.

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- SAFE-GARD® bumpers are supplied with sizes 25mL through 2000 mL
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL)	Tolerance (mL)	Case Qty
20028W-10	10	1 to 10	±0.09	6
20028W-25	25	2 to 25	±0.17	6
20028W-50	50	3 to 50	±0.25	6
20028W-100	100	5 to 100	±0.40	6
20028W-250	250	10 to 250	±0.80	4
20028W-500	500	25 to 500	±1.30	4
20028W-1000	1000	50 to 1000	±2.50	1
20028W-2000	2000	100 to 2000	±6.00	1

Class B Cylinders with Pour Spout

The primary function of this TC cylinder is to receive liquids where volumetric calculations are based solely on the volume contained within the cylinder.

- Among other applications, TC cylinders are frequently used as receivers for the condensate from distillation procedures and sedimentation values of precipitates
- "TC" appears on each cylinder and indicates the cylinder is calibrated to contain
- 10 mL size has an enlarged funnel top for ease of filling
- Ref: ASTM Method D86, D892
- Provided with a hexagonal base flat ground for stability and a SAFE-GARD® bumper on sizes 25 mL and larger
- Designed from ASTM E1272, Style I, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL)	Tolerance (mL)	Case Qty
20022-10	10	1 to 10	±0.1	12
20022-25	25	3 to 25	±0.3	1
20022-50	50	3 to 50	±0.4	12
20022-100	100	5 to 100	±0.6	12
20022-250	250	10 to 250	±1.4	6
20022-500	500	25 to 500	±2.6	4
20022-1000	1000	50 to 1000	±5.0	4
20022-2000	2000	100 to 2000	±10.0	2

Class B Cylinders with Single Metric Scale and Red Stripe

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- SAFE-GARD® bumpers are supplied with sizes 25 through 2000 mL
- The 10 mL size has an enlarged funnel-shaped top for ease of filling
- Designed from ASTM Specification E1272, Style I, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL)	Tolerance (mL)	Case Qty
20024D-10	10	1 to 10	±0.1	24
20024D-25	25	2 to 25	±0.3	24
20024D-50	50	3 to 50	±0.4	24
20024D-100	100	5 to 100	±0.6	24
20024D-250	250	10 to 250	±1.4	12
20024D-500	500	25 to 500	±2.6	8
20024D-1000	1000	50 to 1000	±5.0	4
20024D-2000	2000	100 to 2000	±10.0	4

Class B Cylinders for Emulsion Test

KIMAX® cylinder used in the determination of emulsifying and demulsifying tendencies of lubricating oils (ASTM D1401).

- "TC" appears on each cylinder and indicates the cylinder is calibrated to contain
- Round base to fit baths in which this cylinder is generally used
- Pour spout
- Ref: ASTM Method D1401
- Scale is durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
20011-100	100	±1.0	1

Class B Cylinders with Single Metric Scale and Glass Stopper

The 250 mL size may be used to determine unsaponified matter in soaps and soap products (ASTM D460), and anhydrous salt free soda soap and fatty matter in soaps containing synthetic detergents (ASTM D820). The 500 mL size may be used in settlement tests of emulsified asphalts (ASTM D244).

- KIMAX® cylinder with durable white ceramic enamel scale
- Letters "TC" on cylinder indicate to contain
- The 10 and 25 mL sizes are comparatively short to provide increased stability
- Standard Taper glass stopper is supplied
- Heights given below do not include the stopper
- Replacement stopper is 850100
- Designed from ASTM Specification E1272, Style II, Class B requirements
- Ref: ASTM Methods D244, D1094
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
20039-50	50	±0.4	24
20039-100	100	±0.6	24
20039-250	250	±1.4	8
20039-500	500	±2.6	6
20039-1000	1000	±5.0	4
20039-2000	2000	±10.0	2

Hydrometer Cylinders with Pour Spout

- KIMAX® plain, ungraduated cylinder with a hexagonal base flat ground for stability
- Approximate wall thickness is 1.5 mm
- Ref: ASTM Method D287, D1298
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Diameter (mm)	Case Qty
20058-38200	175	38	1
20058-38375	340	38	1
20058-50375	600	50	1
20058-63460	1200	63	1

Dean Stark Distillation Receivers

Ideally suited for the determination of water content in organic solvents.

- Dean Stark design for solvents that are classified as either heavier than water or lighter than water
- Unit is compact in both the Standard Taper 24/40 and Standard Taper 14/20 sizes
- Lower three-way stopcock provides a sample port, and the apparatus can be drained without disassembly
- Trap area is positioned well above the boiling flask
- Thermometer joint is Standard Taper 10/30. Stopcock plug is 822501-0002
- Ref: Design suggested by Dr. A. J. East, Celanese Corp
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Intervals (mL)	Case Qty
535801-0000	20	0-3 in 0.2, 3-20 in 0.5	1

Modified Dean Stark Distillation Receiver

- KIMAX® distilling receiver with full length Standard Taper 24/40 joints and a siphon return arm
- Ref: ASTM Method D95
- Sidearm bridge equalizes pressure
- Designed from ASTM Specification E123, Style A
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
22012-10	10	±0.05 (1st set of subdivisions), ±0.1 (2nd set of subdivisions)	1

Bidwell-Sterling Moisture Test Distillation Receiver

Bidwell-Sterling designed for the determination of moisture in foods and organics.

- Made to ASTM specifications E123
- Also conforms to many methods of the American Oil Chemists Society
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Subdivision (mL)	Case Qty
751350-0005	5	0.1	1
751351-0005	5	0.05	1

General Distillation Apparatus

KIMAX® apparatus used in general purpose distillation and phenol distillation.

- Flask has a flat bottom and a distillation head with a 19/38 joint
- Supplied with a Standard Taper stopper
- Condenser is Graham-style, having a 200 mm jacket with a 19/38 joint at the top only
- For method, reference APHA Examination of Water and Wastewater: Method 4500-NH3 nitrogen (ammonia) in purified drinking water, natural water, and highly purified wastewaters (concentration < 20 µg/L)
- Method calls for use with tall form 50 mL Nessler Tubes (45315A & B-50)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Case Qty
21500-500	500	1
21500-1000	1000	1

Engler Distilling Flasks

KIMAX® distilling flask.

- Sidearm tube is sealed at an angle of 75° from the neck and is 137 ± 3 mm from the bottom of the flask
- Designed from ASTM Specification E133 and intended for use in ASTM D86, D233, D801, and D802
- Ref: ASTM Method D86
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Arm OD (mm)	Case Qty
26015-125	125	7	24

Engler Distilling Flasks with 19/22 Standard Taper Joint

KIMAX® distilling flask.

- Sidearm tube is sealed at an angle of 75° from the neck and is 137 ± 3 mm from the bottom of the flask
- 19/22 Standard Taper Joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Arm OD (mm)	Case Qty
26015G-125	125	7	24

Engler Distilling Flasks with Three Reference Lines

For use with Haage automatic distillation apparatus or others that call for three thermometer depth insertions.

- Sidearm tube is sealed at an angle of 75° from the neck and is 137 ± 3 mm from the bottom of the flask three reference lines
- Ref: ASTM D86
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Arm OD (mm)	Case Qty
26016-125	125	7	24

Barrett Distilling Flasks

- Barrett flasks made to ASTM E133 specifications
- These flasks feature smooth, consistent, heavy walls for uniform heating and minimal breakage
- Supplied with one cork for the sidearm
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Type	Case Qty
610910-0125	125	Engler	12
610900-0200	200	Barrett	24

Thermometer Centering Device

Designed for 6.5 mm OD manual thermometer or 1/4" temperature sensor probe as used on standard Automated Distillation Apparatus with Kimble 26015-125 flasks.

- Fits glassware designed for rubber stopper size 2
- PTFE body with FKM o-ring seal assures proper centering of sensor probe in flask neck
- Cap material is yellow polypropylene
- Ref: ASTM Method D86

Part Number	Body OD (mm)	Case Qty
26015C-125	6.5	1

Class A Volumetric Flasks with Polyethylene Stopper

- KIMAX® flask with a graduation ring blasted on the neck
- Calibrated to contain
- With a marking spot on sizes 10 mL and larger
- Supplied with a 28160R polyethylene stopper to fit in the Standard Taper ground neck
- Enlarged top of the stopper will protect the neck if the flask is tipped over
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
28014P-5	5	±0.02	12
28014P-10	10	±0.02	12
28014P-25	25	±0.03	12
28014P-50	50	±0.05	12
28014P-100	100	±0.08	12
28014P-200	200	±0.10	12
28014P-250	250	±0.12	12
28014P-500	500	±0.20	12
28014P-1000	1000	±0.30	6
28014P-2000	2000	±0.50	4

Serialized and Certified Class A Micro Volumetric Flasks with Glass Stopper

Volumetric flasks are ideal for measuring accurate volumes of liquids.

- Letters "TC" on the flask indicate to contain
- KIMAX® flask is permanently marked with an individual serial number and a marking spot
- Supplied with a Certificate of Graduation Accuracy
- Graduation ring blasted on the neck
- Standard Taper ground glass stopper is supplied with the flask
- Cylindrical bodies allow for better mixing, draining and withdrawal of samples by pipet
- Wide base (circular for sizes 1, 2, and 5 mL and hexagonal for sizes 10 and 25 mL) imparts much greater stability than is possible with a conventionally shaped flask
- Sizes 1-5 mL are designed from recommendations published by the Committee on Microchemical Apparatus of the Analytical Division, American Chemical Society, "Analytical Chemistry," 28, page 1993 (Dec. 1956).
- All sizes are designed from ASTM Specification E237, Class A serialized requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
28017A-1	1	±0.010	6
28017A-2	2	±0.015	6
28017A-5	5	±0.020	6
28017A-10	10	±0.020	6
28017A-25	25	±0.030	6

Serialized and Certified Class A Volumetric Flasks with Pennyhead Glass Stoppers

Volumetric flasks are ideal for measuring accurate volumes of liquids.

- KIMAX® flask is permanently marked with an individual serial number and supplied with a Certificate of Graduation Accuracy.
- Graduation ring is blasted on the neck
- Letters "TC" on the flask indicate to contain
- Supplied with a marking spot and a Standard Taper ground glass stopper
- These flasks have been carefully selected to meet the requirements for accuracy, appearance, glass quality, calibration line, and inscriptions of former NBS Circular 602
- Designed from ASTM Specification E288, Class A serialized requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
28017-10	10	±0.02	12
28017-25	25	±0.03	12
28017-50	50	±0.05	12
28017-100	100	±0.08	12
28017-200	200	±0.10	12
28017-250	250	±0.12	12
28017-500	500	±0.20	12
28017-1000	1000	±0.30	6
28017-2000	2000	±0.50	4

Class A Volumetric Flasks with Pennyhead Glass Stopper

- KIMAX® flask with a single graduation ring blasted on the neck, calibrated to contain
- A Standard Taper ground glass stopper is supplied
- Marking spots on all sizes
- Replacement stopper is 850100
- Sizes 5 mL and larger are designed from ASTM Specification E288, Class A requirements
- 1 and 2 mL sizes are test tube-shaped and are calibrated to E237 tolerances
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
28014-1	1	±0.010	12
28014-2	2	±0.015	12
28014-5	5	±0.02	12
28014-10	10	±0.02	12
28014-25	25	±0.03	12
28014-50	50	±0.05	12
28014-100	100	±0.08	12
28014-200	200	±0.10	12
28014-250	250	±0.12	12
28014-500	500	±0.20	12
28014-1000	1000	±0.30	6
28014-2000	2000	±0.50	4

Class A Volumetric Flasks with Color-Coded PTFE Stopper

- KIMAX® flask with a graduation ring blasted on the neck
- Calibrated to contain
- With a marking spot on 10 mL and larger sizes
- The 2 mL size is test tube-shaped. All other sizes are of a conventional flask shape
- Supplied with a PTFE Standard Taper stopper which has a color-coded handle
- Replacement stopper is 41901R
- The 5 mL and larger sizes are designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
28014F-2	2	±0.015	12
28014F-5	5	±0.02	12
28014F-10	10	±0.02	12
28014F-25	25	±0.03	12
28014F-50	50	±0.05	12
28014F-100	100	±0.08	12
28014F-200	200	±0.10	12
28014F-250	250	±0.12	12
28014F-500	500	±0.20	12
28014F-1000	1000	±0.30	6
28014F-2000	2000	±0.50	4

Jointed Narrow Mouth Erlenmeyer Flasks

- Single neck flask with a Standard Taper outer joint.
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
296500-0005	5	14/20	1
296500-0010	10	14/20	1
296500-0015	15	14/20	1
296500-0025	25	14/20	1
296500-0050	50	14/20	1
296500-0100	100	14/20	1
296500-0125	125	14/20	1
296510-0025	25	19/22	1
296510-0050	50	19/22	1
296510-0100	100	19/22	1
296510-0125	125	19/22	1
296510-0250	250	19/22	1
617000-0124	50	24/40	1
617000-0224	125	24/40	1
617000-0424	250	24/40	1
617000-0624	500	24/40	1
617000-0724	1000	24/40	1
617000-0824	2000	24/40	1
617000-1024	4000	24/40	1
617000-1124	6000	24/40	1
617000-0229	125	29/42	1
617000-0429	250	29/42	1
617000-0629	500	29/42	1
617000-0729	1000	29/42	1
617000-0829	2000	29/42	1
617000-0834	2000	34/45	1
617000-0645	500	45/50	1
617000-0745	1000	45/50	1
617000-0845	2000	45/50	1
617000-1045	4000	45/50	1
617000-1145	6000	45/50	1

Jointed, Narrow Mouth Erlenmeyer Flasks with Capacity Scale

- Flasks have 24/40 standard taper joint except for 50 mL flask, which has a 19/38 standard taper joint
- With capacity scale
- KIMAX® flask with a full length Standard Taper ground glass neck finish
- Ref: ASTM Method D94
- Designed from ASTM Specification E1404, Type II, Class I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL)	Case Qty
26510-50	50	20 to 50	12
26510-125	125	50 to 125	12
26510-250	250	50 to 225	12
26510-500	500	100 to 500	12
26510-1000	1000	250 to 1000	12
26510-2000	2000	600 to 2000	1

Narrow Mouth Erlenmeyer Flasks

KIMAX® flasks for economy and versatility. These flasks are the choice for general laboratory usage.

- Tops are reinforced and tooled with a rounded finish, containing more glass to give them maximum mechanical strength
- Body is thick-walled, with a long tapered outside contour to minimize chipping when struck or rubbed together
- All flasks have durable white ceramic enamel scales to indicate approximate volumes at various levels, useful in measuring and mixing solutions where a high degree of accuracy is not necessary
- Designed from ASTM Specification E1404, Type I, Class I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL)	Case Qty
26500-25	25	10 to 25	48
26500-50	50	20 to 50	48
26500-125	125	50 to 125	48
26500-250	250	50 to 225	48
26500-300	300	100 to 300	48
26500-500	500	100 to 500	36
26500-1000	1000	250 to 1000	24
26500-2000	2000	600 to 2000	8
26500-4000	4000	1000 to 4000	1
26500-6000	6000	1500 to 6000	1

Wide Mouth Erlenmeyer Flasks

- Heavy-duty tooled-top finish with capacity scale
- KIMAX® flask with a wide mouth.
- Designed from ASTM Specification E1404, Type I, Class II requirements
- Ref: ASTM Method D473
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL)	Case Qty
26650-125	125	50 to 125	48
26650-250	250	50 to 225	48
26650-500	500	100 to 500	36
26650-1000	1000	250 to 1000	24
26650-2000	2000	600 to 2000	8

Graduated Filtering Flask with Side Tubulation

KIMAX® flask with side tubulation.

- Capacity scale
- Flasks are designed for vacuum to 29" of mercury
- Made with a heavier wall than a standard Erlenmeyer flask
- All sizes have side hose connection designed to accept 5/16 inch ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL)	Case Qty
27060-25	25	5 to 25	18
27060-50	50	20 to 50	18
27060-125	125	50 to 125	18
27060-250	250	50 to 250	18
27060-500	500	150 to 500	18
27060-1000	1000	300 to 1000	12
27060-2000	2000	600 to 2000	1
27060-4000	4000	1000 to 4000	1

Three Vertical Neck Round Bottom Flask

- Three-neck heavy wall round-bottom flask with Standard Taper outer joints
- Side necks are vertical
- Ref: ASTM Method D1744
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Center	Case Qty
606000-0224	100	24/40	1
606000-0624	250	24/40	1
606000-4824	250	29/42	1
606000-4829	250	29/42	1
606000-1024	500	24/40	1

Flat Bottom Short Neck Boiling Flask

- KIMAX® boiling flask with a short Standard Taper joint neck.
- Designed from ASTM Specification E1403, Type I, Class IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Body OD (mm)	Case Qty
25055-125	125	65	12
25055-250	250	83	12
25055-300	300	87	12
25055-500	500	102	12
25055-1000	1000	130	12

Round Bottom Short Neck Flask

- KIMAX® boiling flask with a round bottom
- 25276 series has a medium length Standard Taper 14/20 joint
- 25277 series has a medium length Standard Taper 19/22 joint
- 25285 series has a full length Standard Taper 24/40 joint
- Designed from ASTM Specification E1403, Type II, Class III requirements
- Ref: ASTM Method D322
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Body OD (mm)	Case Qty
25276-100	100	63	12
25276-250	250	82	12
25277-100	100	63	12
25277-250	250	82	12
25277-500	500	102	12
25285-50	50	48	12
25285-100	100	63	12
25285-200	200	75	12
25285-250	250	83	12
25285-300	300	88	12
25285-500	500	102	12
25285-1000	1000	130	12
25285-2000	2000	161	6
25285-3000	3000	185	6

Flat Bottom Boiling Flasks

- KIMAX® flasks have a low coefficient of expansion to resist thermal shock
- They are constructed with sturdy walls to minimize mechanical breakage and reinforced tooled tops for strength and a secure stopper fit
- Designed from ASTM Specification E1403, Type I, Class I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Body OD (mm)	Case Qty
25000-500	500	102	6
25000-1000	1000	130	6
25000-6000	6000	234	1

Single Standard Taper Neck Round Bottom Flask

- Single neck flask with a Standard Taper outer joint
- Ref: ASTM Method D95
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Body OD (mm)	Case Qty
601000-0124	50	48	1
601000-0129	50	48	1
601000-0224	100	64	1
601000-0724	1000	130	1

Short Stem Addition Funnels

This KIMAX® funnel is constructed with heavy uniform walls, molded rims and fire-polished stems to give a long service life.

- Funnels have a high resistance to chemical attack and mechanical and thermal shock
- A piece of filter paper, when folded to form the filtering cone, forms a precise 60° angle. If the funnel is also 60°, as are the vast majority, then the only effective filtering area is down near the tip
- The exclusive KIMAX® 58° funnel promotes faster, more effective filtering because the cone is suspended by its uppermost edge, leaving most of the conical area for filtration
- Designed from ASTM Specification E1095, Type I, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	ID at Funnel Top (mm)	Length of Stem (mm)	Case Qty
28950-25	25	40	24
28950-35	35	50	24
28950-45	45	50	24
28950-55	55	63	48
28950-65	65	63	48
28950-75	75	75	48
28950-90	90	97	24
28950-100	100	97	24

KIMAX® Squibb Separatory Funnel with PTFE Stopcock

- KIMAX® funnel is supplied with a Standard Taper ground glass stopper and a PTFE stopcock
- Lower stems have an ID large enough that a column of liquid will "break" with the stopcock closed, thereby giving a more complete separation and eliminating the necessity of emptying the funnel
- Designed from ASTM Specification E1096, Type IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Stopcock Bore Size (mm)	Case Qty
29048F-30	30	2	4
29048F-60	60	2	4
29048F-125	125	2	4
29048F-250	250	4	4
29048F-500	500	4	4
29048F-1000	1000	4	2
29048F-2000	2000	6	2

1-1/2" Stem Powder Addition Funnels

- KIMAX® funnel with a short, wide stem
- Constructed with a heavy uniform wall and a strong, fire-polished rim and stem to provide a long service life
- Funnel has a high resistance to chemical attack and mechanical and thermal shock
- Designed from ASTM Specification E1095, Type IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	ID at Funnel Top (mm)	Length of Stem (mm)	Case Qty
29020-60	60	35	24
29020-80	80	35	24
29020-100	100	35	24
29020-125	125	35	12
29020-150	150	35	12

Oxidation Cell

Used in the measurement of inherent stability of middle distillate petroleum fuel under accelerated oxidizing conditions.

- The cell consists of a test tube, a condenser and an oxygen delivery tube
- Ref: ASTM D943 and D2274
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type 1 and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	OD (mm)	Case Qty
896600-0000	600	45	1

Petrochemical Distillation Apparatus for Water in Crude Oil

This apparatus is used for the determination of water in crude oil by distillation.

- Apparatus includes a 1000 mL round bottom flask with Standard Taper 24/40 joint, a distillation receiver with 0.05 graduations, a drying trap and a 400 mL Liebig condenser
- Ref: ASTM D4006
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
513970-0000	1

Petrochemical Filter Stick Apparatus with Hooks and Springs

- Apparatus used in the determination of oil content and solvent extractables in petroleum waxes.
- Assembly consists of a sintered glass filter stick with air pressure inlet tube and delivery nozzle and a cooling tube with 24/40 joints
- Supplied with one pair of springs
- Ref: ASTM D721
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
513880-0000	24/40	1

Unserialized Reusable To Deliver Volumetric Class A Pipets

- Calibrated To Deliver (TD)
- Color coded
- Designed from ASTM Specification E969, Class A requirements
- 75 and 200 mL sizes are designed from ASTM E542
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
37004-1	1	± 0.006	12
37004-1510	1.5	± 0.006	12
37004-2	2	± 0.006	12
37004-2510	2.5	± 0.006	12
37004-3	3	± 0.01	12
37004-4	4	± 0.01	12
37004-5	5	± 0.01	12
37004-6	6	± 0.01	6
37004-7	7	± 0.01	6
37004-8	8	± 0.01	6
37004-9	9	± 0.02	6
37004-10	10	± 0.02	12
37004-12	12	± 0.02	12
37004-15	15	± 0.03	12
37004-20	20	± 0.03	12
37004-25	25	± 0.03	12
37004-30	30	± 0.03	6
37004-40	40	± 0.05	6
37004-50	50	± 0.05	12
37004-75	75	± 0.05	6
37004-100	100	± 0.08	12
37004-200	200	± 0.16	6

Reusable Class B Mohr Style Color-Coded TD Pipets

Designed with small tip openings for chemical laboratory work.

- Calibrated to deliver (TD)
- Scale is permanent brown stain fused into uniform bore tubing without etching
- Pipet is graduated to a base line which is on the straight tube above the taper
- Color-coded for ease in sorting and selecting the correct size pipet
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
37020-110	0.1	± 0.005	12
37020-1110	1	± 0.02	12
37020-11100	1	± 0.02	12
37020-2	2	± 0.02	12
37020-5	5	± 0.04	12
37020-10	10	± 0.06	12
37020-25	25	± 0.10	12
37020-50	50	± 0.16	8

Ramsbottom Coking Bulb

The Ramsbottom Coking Bulb is used in the determination of carbon residue in petroleum products.

- Ref: ASTM D524
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	OD (mm)	Case Qty
896650-0000	57	25	6

Saybolt Viscosity, Volumetric Flask, Class A

KIMAX® flask used in determining Saybolt viscosity of petroleum and bituminous materials as described in ASTM test methods D88 and E102. Made with heavy walls and a reinforced top. Graduation ring is blasted on the neck. Calibrated to contain. With marking spot.

Part Number	Capcity (mL)	± Tolerance (mL)	Case Qty
28126-60 *	60	0.05	1

Gas Measuring Tubes

KIMAX® gas measuring tube closed at the zero end for gas measurement.

- Durable black ceramic enamel scale
- Without stopcock
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
30060-50	50	± 0.10	1

Gas Sampling Tubes with Glass Plugs and Plain Ends

KIMAX® gas collecting tube with tubulations on each end of the tube.

- Tubulations accept 3/8 inch ID tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Stopcock Size	Case Qty
30040-500	500	4	1

API Graduated Centrifuge Tubes

Used to determine the bottom sediment and water in petroleum.

- KIMAX® tube with a long taper
- Calibrated to contain
- Scale, legend and marking spot are durable white ceramic enamel
- Referred to as the "finger" tube
- Made in accordance with the specifications of the American Petroleum Institute (MPMS Chapter 10.4)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Graduation Intervals (%):	Tolerance (%):
0-3 in 0.2	0 to1 – 0.10
	Above 1 to 2 – 0.15
3-10 in 0.5	Above 2 to 5 – 0.20
	Above 5 to 10 – 0.40
10-50 in 1	Above 10 to 25 – 0.50
At 100	Above 25 – 1.00

Part Number	Capacity (%)	Max RCF	Case Qty
45170-125	100 (12.5 mL)	2980	12

Goetz Graduated Centrifuge Tubes

KIMAX® tube used for the determination of small quantities of solids in large volumes of liquids. Recommended for the determination of free water and sediment in diesel and other distillate fuels, as a pass-fail indication of product quality (ASTM D2709).

- Calibrated to contain.
- Durable black ceramic enamel scale
- Replacement stopper is 850100
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

** Do not centrifuge with stopper in tube.*

- Stem graduations in 0.01 mL to 0.2 mL with a tolerance of ±0.01 mL
- Body graduation at 25 mL with a tolerance of ±1.0 mL
- Body graduations at 50 and 100 mL with a tolerance of ±2.0 mL

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
45220-100	100	0 to 0.2 - ±0.01, at 25 - ±1.00, above 25 - ±2.00	6

Graduated Test Tubes with Beaded Rim

- Excellent choice for general laboratory use
- Plain top, beaded rim
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL)	Case Qty
898250-0005	5	0-5	1
898250-0025	25	0-25	1

Pear-Shaped Centrifuge Tubes with White Scale

KIMAX® tube used in the determination of bottom sediment and water in petroleum products.

- Calibrated to contain
- Stem diameter holds 1.5 mL
- Scale and legend are durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

45244-100	
Graduation Intervals (mL):	Tolerance (mL):
0-1.5 in 0.1	0 to 1.5 - ±0.03
1.5-5 in 0.5	Above 1.5 to 3 - ±0.20
	Above 3 to 5 - ±0.30
5-10 in 1	Above 5 to 10 - ±0.50
10-25 in 5	Above 10 to 25 - ±1.0
At 50 and 100	Above 25 - ±2.0

45244-200	
Graduation Intervals (%):	Tolerance (mL):
0-3 in 0.1	0 to 1.5 - ±0.03
	Above 1.5 to 3 - ±0.2
3-5 in 0.5	Above 3 to 5 - ±0.3
5-10 in 1	Above 5 to 10 - ±0.5
10-100 in 10	Above 10 to 25 - ±1.0
100-200 in 20	Above 25 - ±2.0

Part Number	Capacity (mL)	Max RCF	Case Qty
45244-100	100	800	12
45244-200	100 (200%)	800	6

Pear-Shaped Centrifuge Tubes with Red Scale

Graduated tube is used for the determination of water and sediment in petroleum products.

- Top is tooled for a size 5 rubber stopper
- Calibrated to contain
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Intervals (mL)	Case Qty
412510-0000	100	0-3 x 0.1, 3-10 x 0.5, and at 15, 20, 25, 50, and 100	1

6" Short Cone Oil Centrifuge Tubes

KIMAX® tube designed for field use in testing petroleum.

- Calibrated to contain
- Scale and legend are durable white ceramic enamel
- 45243-200 is graduated in %. 100 mL equals 200%
- Top is tooled to accept snap cap 28150R-6
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Intervals (mL)	Case Qty
45243-100	100	0-0.5 in 0.05, 0.5-2 in 0.1, 2-3 in 0.2, 3-5 in 0.5, 5-10 in 1, 10-25 in 5, and at 50, 100	12
45243-200	200	0-0.1% in 0.10%, 1-4 in 0.20, 4-6 in 0.40, 6-10 in 1, 10-20 in 2, 20-50 in 10, and at 100, 200	6

8" Oil Centrifuge Tubes

KIMAX® tube used in the determination of water and sediment in crude mineral oils, fuel oils and other petroleum products (D1796 and MPMS 10.4 standards); in determination of volume of precipitate formed by centrifuging definite quantities of steam cylinder stocks and black oils and other lubricating oils (ASTM D91 and D128); and in testing for acidity of distillation residues or hydrocarbon liquids of gasoline or petroleum solvents (ASTM D1093).

- Calibrated to contain
- Scale and legend are durable white ceramic enamel
- Top is tooled to accept snap cap 28150R-6
- Referenced in ASTM D4007, D91, D1796, D1093
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Intervals (mL)	Case Qty
45240-100	100	0-0.5 in 0.05, 0.5-2 in 0.1, 2-3 in 0.2, 3-5 in 0.5, 5-10 in 1, 10-25 in 5, 25-100 in 25	12

California Centrifuge Tube with Red Stripe

KIMAX® conical bottom centrifuge tube is used for testing of petroleum products according to ASTM D91, D893 and D1796.

- Tube has a permanent red stripe under the white enamel graduations for easy reading of results
- Scale and legend are durable white ceramic enamel
- Top is tooled to accept snap cap 28150R-6
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Intervals (mL)	Case Qty
45239-100	100	0-0.5 in 0.05, 0.5-2 in 0.1, 2-3 in 0.2, 3-5 in 0.5, 5-10 in 1, 10-25 in 5, and at 50, 75, 100	12

8" Oil and Weathering (End Point Index) Centrifuge Tubes

Can be used in the determination of residues in Liquified Petroleum (LP) gases, ASTM Method D2158.

- KIMAX® tube used extensively in California
- Calibrated to contain
- Different graduations than 45240
- Scale and legend are durable white ceramic enamel
- Top is tooled to accept snap cap 28150R-6
- Ref: ASTM Method D2158
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Intervals (mL)	Case Qty
45241-100	100	0-1 in 0.05, 1-3 in 0.1, 3-6 in 0.2, 6-10 in 0.5, 10-100 in 1	12

Soil Analysis Tube

These tubes are designed for use with Teledyne Tekmar 2016/2032 Autosamplers and 4100/4200 Automatic Samplers that are equipped with 3/4" diameter mounts.

- The larger opening of these disposable tubes permits easier sample loading and facilitates the weighing of solid and soil samples
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD (mm)	Length (mm)	Case Qty
591175-0715	19	150	24

Cannon-Fenske Uncalibrated Serialized Viscometer Tubes

Cannon-Fenske uncalibrated viscometer tube for use in obtaining kinematic viscosities of transparent liquids (ASTM Method of Test D445).

- KIMAX® tube designed from ASTM Specification D446
- Permanently marked with an individual serial number
- Viscosity ranges shown below are for an efflux time greater than 200 seconds
- Lines and legend are printed black
- Ref: ASTM Method D445
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Calibration against a standard liquid of known viscosity or against a second viscometer with a known constant must be made before use.

Part Number	Approximate Constant	Kinematic Centistokes	Size	Case Qty
46460-50	0.004	0.8 to 4	50	1
46460-100	0.015	3 to 15	100	1
46460-150	0.035	7 to 35	150	1
46460-200	0.1	20 to 100	200	1
46460-300	0.25	50 to 250	300	1
46460-350	0.5	100 to 500	350	1
46460-400	1.2	240 to 1200	400	1

ASTM Method	Part Number	Description	Page #
D86	26015-125	Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure	280
D86	26015C-125	Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure	280
D86	20022-100	Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure	278
D91	45240-100	Standard Test Method for Precipitation Number of Lubricating Oils	287
D94	26510-250	Standard Test Methods for Saponification Number of Petroleum Products	282
D94	457000-0225	Standard Test Methods for Saponification Number of Petroleum Products	277
D94	14020-300	Standard Test Methods for Saponification Number of Petroleum Products	272
D95	22012-10	Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation	279
D95	601000-0724	Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation	284
D95	457000-0225	Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation	277
D97	32501-99	Standard Test Method for Pour Point of Petroleum Products	274
D128	45240-100	Standard Test Methods for Analysis of Lubricating Grease	287
D233	26015-125	Standard Test Methods of Sampling and Testing Turpentine	280
D244	20039-500	Standard Test Methods and Practices for Emulsified Asphalts	279
D287	20058 (all)	Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)	279
D322	25285-1000	Standard Test Method for Gasoline Diluent in Used Gasoline Engine Oils by Distillation	283
D322	447000-2440	Standard Test Method for Gasoline Diluent in Used Gasoline Engine Oils by Distillation	277
D445	46460 (all)	Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)	287
D473	26650-500	Standard Test Method for Sediment in Crude Oils and Fuel Oils by the Extraction Method	283
D524	896650-0000	Standard Test Method for Ramsbottom Carbon Residue of Petroleum Products	285
D892	20022-1000	Standard Test Method for Foaming Characteristics of Lubricating Oils	278
D974	17026F-50	Standard Test Method for Acid and Base Number by Color-Indicator Titration	275
D974	17026F-10	Standard Test Method for Acid and Base Number by Color-Indicator Titration	275
D974	17110F-5	Standard Test Method for Acid and Base Number by Color-Indicator Titration	276
D1093	45240-100	Standard Test Method for Acidity of Hydrocarbon Liquids and Their Distillation Residues	287
D1094	20039-100	Standard Test Method for Water Reaction of Aviation Fuels	279
D1298	20058 (all)	Standard Test Method for Density, Relative Density, or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method	279
D1401	20011-100	Standard Test Method for Water Separability of Petroleum Oils and Synthetic Fluids	279
D1744	17051F-10	Standard Test Method for Determination of Water in Liquid Petroleum Products by Karl Fischer Reagent	275
D1744	606000-1024	Standard Test Method for Determination of Water in Liquid Petroleum Products by Karl Fischer Reagent	283
D1744	179700-0824	Standard Test Method for Determination of Water in Liquid Petroleum Products by Karl Fischer Reagent	272
D1744	14607-500	Standard Test Method for Determination of Water in Liquid Petroleum Products by Karl Fischer Reagent	273
D1796	45240-100	Standard Test Method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure)	287
D2070	14000-250	Standard Test Method for Thermal Stability of Hydraulic Oils	272
D2158	45241-100	Standard Test Method for Residues in Liquefied Petroleum (LP) Gases	287
D2500	32501-99	Standard Test Method for Cloud Point of Petroleum Products	274
D2709	45220-100	Standard Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge	286
D4007	45240-100	Standard Test Method for Water and Sediment in Crude Oil by the Centrifuge Method (Laboratory Procedure)	287

API MPMS Chapter	Part Number	Description	Page #
10.4	45240-100	Determination of Water and/or Sediment in Crude Oil by the Centrifuge Method (Field Procedure)	287
10.4	45243-100	Determination of Water and/or Sediment in Crude Oil by the Centrifuge Method (Field Procedure)	287
10.4	45170-125	Determination of Water and/or Sediment in Crude Oil by the Centrifuge Method (Field Procedure)	286

PIPETS

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

Whether you are transferring or delivering precise liquid samples, Kimble® has a pipet that will meet your needs. Accuracy and consistency are mainstays of all our pipet varieties. Kimble® offers micro capillary pipets as small as 0.5 µL up to 200 mL volumetric and transfer pipets. Our volumetric pipets are industry standards with unparalleled accuracy, and we have many styles of application-specific pipets such as bacteriological, serological and measuring pipets. Reusable, disposable and sterile versions are standard, stocked items. Look no further; Kimble® has the pipet you need.

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Disposable Milk or Bacteriological Plugged Sterile Pipets

Calibrated to meet APHA requirements for making milk dilutions. 1.1 mL size is also used for the milk phosphatase test.

- Uniform pulled tip
- Clean, plugged, sterile and ready for use
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Graduation Intervals (mL)	Case Qty
72106-11	1.1; ± 0.025	0.5, 1.0, 1.1	1,000
72106-22	2.2; ± 0.040	1, 2, 2.1, 2.2	500

Non-Sterile Disposable Serological Pipets

- Pipets are non-plugged and non-sterile, with a uniform pulled tip
- Calibrated to deliver to the tip
- Two rings near the top indicate that the small amount remaining in the tip after free delivery has ceased must be blown out and added to the main volume delivered
- Blue scale with negative graduations to increase the versatility of the pipet
- Manufactured to ASTM E1380 for color coding
- Bulk packed in sealed plastic bags
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity; Tolerance (mL)	Graduation Intervals (mL)	Case Qty
72120-1110	1; ± 0.03	0.1	1,000
72120-11100	1; ± 0.03	0.01	1,000
72120-21100	2; ± 0.06	0.01	500
72120-5110	5; ± 0.15	0.1	500
72120-10110	10; ± 0.30	0.1	500

Sterile Disposable Serological Pipets, Shorties

These "Shorty" pipets are ideal for use in tissue culture work and other procedures performed under a fume hood or in other confined areas.

- The pipets have "negative" graduations to increase the versatility of the pipet
- Calibrated To Deliver (TD)
- Packaged in color-coded, paper/plastic individual wrap for speed and accuracy in selecting the correct size
- Overpacked in convenient, dispensing shelf-packs
- 72110 series is packaged in a multi-pack bag so one or several can be removed without contaminating the entire pack
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity; Tolerance (mL)	Graduation Intervals (mL)	Case Qty
72115-11100	1; ± 0.04	0.01	400
72115-5110	5; ± 0.2	0.1	200
72115-10210	10; ± 0.4	0.2	200
72115-25210	25; ± 1.0	0.2	200
72115-50510	50; ± 1.5	0.5	50
72110-11100	1; ± 0.04	0.01	400
72110-5110	5; ± 0.2	0.1	200
72110-10210	10; ± 0.4	0.2	200
72110-25210	25; ± 1.0	0.2	200
72110-50510	50; ± 1.5	0.5	50

Sterile Disposable TD Color-Coded Serological Pipets

- Non-pyrogenic
- Pipets have a uniform pulled tip and are clean, plugged, sterile and ready for use
- Calibrated To Deliver (TD) to the tip
- Provided with "negative" graduations to increase the versatility of the pipet
- 72105 series is packaged in color-coded paper/plastic individual wrap and overpacked in convenient dispensing shelf packs for laboratory benches
- 72102 series is packaged in a convenient recloseable canister pack containing 50 pieces sealed in a plastic bag
- Designed from ASTM Specification E714
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity; Tolerance (mL)	Graduation Intervals (mL)	Case Qty
72100-1110	1; ± 0.03	0.1	1,000
72100-11100	1; ± 0.03	0.01	1,000
72100-21100	2; ± 0.06	0.01	500
72100-5110	5; ± 0.15	0.1	500
72100-10110	10; ± 0.30	0.1	500
72105-1110	1; ± 0.03	0.1	1,000
72105-11100	1; ± 0.03	0.01	1,000
72105-21100	2; ± 0.06	0.01	500
72105-5110	5; ± 0.15	0.1	500
72105-10110	10; ± 0.30	0.1	500
72102-11100	1; ± 0.03	0.01	500
72102-21100	2; ± 0.06	0.01	500
72102-5110	5; ± 0.15	0.1	500
72102-10110	10; ± 0.30	0.1	500

Sterile Wide Tip Disposable Serological Pipets

These sterile, plugged, disposable pipets are excellent for transferring viscous or suspended liquids.

- Calibrated To Deliver (TD)
- Non-pyrogenic
- Color coded
- Multi-packed in plastic bags to protect against contamination
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity (mL)	Tolerance (mL)	Case Qty
72108-5110	5	± 0.15	400
72108-10110	10	± 0.30	400

Proper Method of Delivering Contents

- Draw liquid above top graduation using bulb or equivalent device.
- Use forefinger (not thumb) for level control
- Wipe any drops off outside surface only
- Zero meniscus at top graduation
- Drain pipet with tip touching side of receiving container
- After emptying pipet, wait two seconds and remove pipet tip sideways and away from vessel wall. Do not remove the tip with an upward or downward motion
- Only serological type pipets require last drops to be "blown out." Do not "blow out" volumetric (transfer) or measuring (mohr) pipets, as they are calibrated for after "touch-off" to remain.

Reusable Bacteriological Pipets

KIMAX® pipet with a subdivision scale of permanent brown stain fused into the surface of uniform bore tubing without etching.

- Tooled for a cotton plug at the top end
- Correct volume is delivered without the need to blow out.
- Designed from ASTM Specification E1043, Type V requirements
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
37081-110	11; ± 0.10	345	12

Reusable Color-Coded Bacteriological Pipets

- Scale is permanent brown stain fused into uniform bore tubing without etching
- Calibrated to deliver the correct volume of undiluted milk when the small amount remaining in the tip after free delivery has ceased is blown out and added to the free delivery volume
- For diluted milk, the correct volume is delivered without blowing out
- 10 and 11 mL sizes are tooled for a cotton plug at the top end
- Color-coded for ease in sorting and selecting the correct size pipet
- 1.1, 2.2, and 11.0 mL sizes are calibrated in accordance with specifications of the American Public Health Association as published in Standard Methods for the Examination of Dairy Products
- Sizes 2.2 and 11.0 mL are designed from ASTM Specification E1043, Type IV A requirements.
- Size 1.1 mL is designed from ASTM Specification E1043, Type IV requirements
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
37079-11	1.1; ± 0.025	300	12
37079-22	2.2; ± 0.04	300	12
37079-10	10; ± 0.10	300	12
37079-110	11; ± 0.10	345	12

Reusable Class A Serialized and Certified Color-Coded TD Pipets

Intended for chemical laboratory work. Tip openings are smaller than usually desired for clinical laboratory operations.

- KIMAX® measuring pipet has a permanently marked individual serial number
- Supplied with a Certificate of Graduation Accuracy
- Calibrated to deliver
- Scale is permanent brown stain fused into uniform bore tubing without etching
- Pipet is graduated to a base line which is on the straight tube above the taper
- Color-coded for ease in sorting and selecting the correct size pipet
- Designed from ASTM Specification E1293, Style I, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Color of Coding Band	Case Qty
37025-1110	1; ± 0.01	Red	12
37025-11100	1; ± 0.01	Yellow	12
37025-2	2; ± 0.01	Green	12
37025-5	5; ± 0.02	Blue	12
37025-25	25; ± 0.05	White	6
37025-10	10; ± 0.03	Orange	12

Reusable Class B Mohr Style Color-Coded TD Pipets

Designed with small tip openings for chemical laboratory work.

- Calibrated to deliver
- Scale is permanent brown stain fused into uniform bore tubing without etching
- Pipet is graduated to a base line which is on the straight tube above the taper
- Color-coded for ease in sorting and selecting the correct size pipet
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity; Tolerance (mL)	Color of Coding Band	Case Qty
37020-110	0.1; ± 0.005	White	12
37020-1110	1; ± 0.02	Red	12
37020-11100	1; ± 0.02	Yellow	12
37020-2	2; ± 0.02	Green	12
37020-5	5; ± 0.04	Blue	12
37020-10	10; ± 0.06	Orange	12
37020-25	25; ± 0.10	White	12
37020-50	50; ± 0.16	None	8

Reusable Color-Coded Serological Pipets with General Purpose Top

- Designed from ASTM Specification E1044, Style III requirements
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity; Tolerance (mL)	Color of Coding Band	Case Qty
37033-11100	1; ±0.02	Yellow	12
37033-5	5; ±0.04	Blue	12
37033-10	10; ±0.06	Orange	12

Reusable Color-Coded Serological Pipets with Plugging Top

The capacities of the 0.5 mL pipets are ideal for syphilis testing, including VDRL tests.

- Top end has been tooled to accept cotton plugging on all sizes
- 0.5 mL pipets are shorter than the usual serological pipet; because the top of the shorter instrument is better controlled, the process of transferring a liquid to a slide is made easier
- Most procedures require less than 0.5 mL of serum
- Designed from ASTM Specification E1044, Style II requirements
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity; Tolerance (mL)	Color of Coding Band	Case Qty
37034A-210	0.2; ± 0.008	Black	6
37034A-510	0.5; ± 0.01	2 Black	6
37034A-1110	1; ± 0.02	Red	12
37034A-11100	1; ± 0.02	Yellow	12
37034A-2110	2; ± 0.02	Green	6
37034A-21100	2; ± 0.02	2 White	6
37034A-5	5; ± 0.04	Blue	12
37034A-10	10; ± 0.06	Orange	12
37034A-25	25; ± 0.10	White	12

Reusable Wide Tip Opening Color-Coded Serological Pipets with Plugging Top

- For use with viscous liquids, slurries and suspensions
- Wide tip opening for fast delivery
- Constricted top for cotton-plugging
- 2 mL size has a tip opening slightly smaller than the bore of the graduated portion, while the larger sizes have openings of approximately 3 mm
- Designed from ASTM Specification E1044, Style III requirements
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
37034B-2	2; ± 0.05	350	12
37034B-5	5; ± 0.10	350	12
37034B-10	10; ± 0.10	350	12
37034B-25	25; ± 0.20	400	6

Transfer Pipets

- Class A transfer pipet with long delivery and suction stem
- Permanent legend
- Conforms to volumetric tolerances per ASTM E694
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
761000-0200	200; ± 0.10	575 mm (±15 mm)	1

Unserialized Reusable To Deliver Volumetric Class A Pipets

- Calibrated To Deliver (TD)
- Color coded
- Designed from ASTM Specification E969, Class A requirements
- 75 and 200 mL sizes are designed from ASTM E542
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
37004-510	0.5; ± 0.006	310	12
37004-1	1; ± 0.006	310	12
37004-1510	1.5; ± 0.006	335	12
37004-2	2; ± 0.006	335	12
37004-2510	2.5; ± 0.006	350	12
37004-3	3; ± 0.01	350	12
37004-4	4; ± 0.01	350	12
37004-5	5; ± 0.01	365	12
37004-6	6; ± 0.01	375	6
37004-7	7; ± 0.01	400	6
37004-8	8; ± 0.01	400	6
37004-9	9; ± 0.02	400	6
37004-10	10; ± 0.02	400	12
37004-12	12; ± 0.02	460	12
37004-15	15; ± 0.03	455	12
37004-20	20; ± 0.03	505	12
37004-25	25; ± 0.03	505	12
37004-30	30; ± 0.03	525	6
37004-40	40; ± 0.05	525	6
37004-50	50; ± 0.05	545	12
37004-75	75; ± 0.05	515	6
37004-100	100; ± 0.08	550	12
37004-200	200; ± 0.16	560	6

Serialized and Certified Reusable To Deliver Volumetric Class A Pipets

Volumetric pipets are ideal for measuring accurate volumes of liquids.

- Letters "TD" on the pipet indicate to deliver
- Sizes 1 mL and larger are marked with large numerals on the bulb, indicating capacity
- Color-coded (ASTM E1273) for ease in sorting and selecting the correct pipet
- With a legend of permanent brown stain
- KIMAX® pipet has a permanently marked individual serial number and is autoclavable
- Supplied with a Certificate of Graduation Accuracy
- Carefully selected to meet the requirements for accuracy, appearance, glass quality, calibration line, and inscription of former NBS Circular 602
- Designed from ASTM Specification E969, Class A requirements
- 75 and 200 mL sizes are designed from ASTM E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
37010-510	0.5; ± 0.006	310	12
37010-1	1; ± 0.006	310	12
37010-1510	1.5; ± 0.006	335	12
37010-2	2; ± 0.006	335	12
37010-2510	2.5; ± 0.006	350	12
37010-3	3; ± 0.01	350	12
37010-4	4; ± 0.01	350	12
37010-5	5; ± 0.01	365	12
37010-6	6; ± 0.01	375	12
37010-7	7; ± 0.01	400	12
37010-8	8; ± 0.01	400	12
37010-9	9; ± 0.02	400	12
37010-10	10; ± 0.02	400	12
37010-12	12; ± 0.02	460	12
37010-15	15; ± 0.03	455	12
37010-20	20; ± 0.03	505	12
37010-25	25; ± 0.03	505	12
37010-30	30; ± 0.03	525	6
37010-40	40; ± 0.03	525	6
37010-50	50; ± 0.05	545	8
37010-75	75; ± 0.05	550	6
37010-100	100; ± 0.08	550	6
37010-200	200; ± 0.16	560	6

Reusable Volumetric Class B Color-Coded Pipets

The most commonly used volumetric pipet in general laboratory work.

- Color coded
- Designed from ASTM Specification E969, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
37000-1	1; ± 0.012	310	12
37000-2	2; ± 0.012	335	12
37000-3	3; ± 0.02	350	12
37000-5	5; ± 0.02	365	12
37000-10	10; ± 0.04	400	12
37000-20	20; ± 0.06	505	12
37000-25	25; ± 0.06	505	12
37000-50	50; ± 0.10	545	12
37000-100	100; ± 0.16	550	12

Reusable Volumetric Class A To Contain and To Deliver Pipets

- Calibrated To Contain (TC) and To Deliver (TD) to Class A tolerances
- TC feature accommodates use with viscous liquids
- Color coded
- Unserialized
- Designed and manufactured to ASTM E969 requirements
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
37007-1	1; ± 0.006	310	6
37007-2	2; ± 0.006	335	6
37007-3	3; ± 0.01	350	6
37007-4	4; ± 0.01	350	6
37007-5	5; ± 0.01	365	6
37007-6	6; ± 0.01	375	6
37007-7	7; ± 0.01	400	6
37007-8	8; ± 0.02	400	6
37007-9	9; ± 0.02	400	6
37007-10	10; ± 0.02	400	6
37007-15	15; ± 0.03	455	6
37007-20	20; ± 0.03	505	6
37007-25	25; ± 0.03	505	6

TLC Spotting Capillaries, MICROCAPS®

These precision-bore glass capillary tubes are cut to predetermined lengths, so that each capillary tube will hold a known volume of fluid when filled.

- Drummond Microcaps® "5-Pack" (764520) is ideal for use in spotting TLC plates.
- 764500 is supplied with one bulb assembly and one dispenser vial with 100 micropipets
- 764520 is a kit with 5 dispenser vials containing 100 micropipets each of 0.5, 1, 2, 5 and 10 µL sizes; a bulb assembly; and a spotting holder
- Manufactured from low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I requirements

Part Number	Capacity (µL); Tolerance (%)	Length (mm)	Case Qty
764500-0000	0.5; ±1	32	100
764500-0001	1; ±1	32	100
764500-0002	2; ±1	32	100
764500-0005	5; ±1	32	100
764500-0010	10; ±1	41	100
764500-0020	20; ±1	64	100
764500-0025	25; ±1	65	100
764500-0050	50; ±1	100	100
764500-0100	100; ±1	116	100
764520-0000	one each of 0.5, 1, 2, 5, 10		1

To Contain Micro Capillary Pipets

- Pipets are marked with a single black capacity ring and are color-coded for selection of the correct size
- Calibrated to contain
- Packaged in easy-open cylinders for convenient dispensing
- Each cylinder contains 250 pipets and one pipet device
- Designed from ASTM Specification E672
- Manufactured from 90 expansion soda lime glass conforming to USP Type III requirements

Part Number	Capacity; Tolerance (µL)	Cylinder Quantity	Case Qty
71900-5	5; ±1.0	250	1,000
71900-10	10; ±0.5	250	1,000
71900-20	20; ±0.5	250	1,000
71900-25	25; ±0.5	250	1,000
71900-50	50; ±0.5	250	1,000
71900-100	100; ±0.5	250	1,000

Disposable Pasteur Pipets

These Pasteur-type pipets are intended for one-time use in the transfer of small volumes.

- 63C49 and 63C50 are blood bank droppers which dispense 25 ±3 drops per 1 ml. of serum or red cells at 23 °C when held at a 45° angle
- 63DP1005 is a Monstr-Pette™ which has a tip ID of 1.5 mm
- 63A54P, 63B96P, 63B92P and 63A53P are cotton-plugged
- Soda lime pipets are manufactured from 90 expansion soda lime glass conforming to USP Type III requirements
- Designed to ASTM E732-80 specifications
- Borosilicate pipets are manufactured from 51 expansion, low extractable borosilicate glass conforming to USP Type 1 and ASTM E438, Type 1, Class B requirements

Part Number	Overall Length (in)	Feature	Case Qty
63A54	5.75	Soda Lime	1000
63B93	9.0	Soda Lime	1000
63A54P	5.75	Soda Lime, Cotton-plugged	1000
63B93P	9.0	Soda Lime, Cotton-plugged	1000
63DP1005	5.75	Soda Lime, Tip ID of 1.5 mm	800
883350-0575	5.75	Borosilicate	250
883350-0009	9.0	Borosilicate	250
63A53	5.75	Borosilicate	1000
63B92	9.0	Borosilicate	1000
63A53P	5.75	Borosilicate, Cotton-plugged	1000
63B92P	9.0	Borosilicate, Cotton-plugged	1000
63C49	5.75	Borosilicate, Blood bank dropper	1000
63C50	5.75	Soda lime blood bank dropper	1000

Sterile Pasteur Pipets

SteriPettes are sterile, disposable Pasteur pipets.

- Gamma-irradiated to assure sterility
- Convenient 250 piece multi-pack configuration
- 10 peel packs of 25 each
- Available in both 5-3/4" and 9" lengths
- Constricted top for cotton plugging
- Available plugged or unplugged
- Designed to ASTM E732-80 specifications
- Manufactured from 90 expansion soda lime glass conforming to USP Type III requirements

Part Number	Capacity (mL); Overall Length (in)	Feature	Case Qty
63A55	2; 5.75	Unplugged	250
63A55P	2; 5.75	Cotton-plugged	250
63B95	2; 9	Unplugged	250
63B95P	2; 9	Cotton-plugged	250

5 mL Fritted Left Sparger

This 5mL U-shaped fritted sparger is specially designed for use with Teledyne Tekmar® 2000 and 3000 Purge and Trap Concentrators when using either the AquaTek 50 or ALS 2050 Vial Autosamplers.

- Fritted spargers are recommended for potable water and wastewater samples
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Description	Case Qty
591105-2605	5 mL Fritted Left Sparger	1

U-Shaped Spargers

These U-shaped spargers are specially designed for use with Teledyne Tekmar 2000 and 3000 Purge and Trap Concentrators and with the 2016 and 2032 Autosamplers.

- Fritted spargers are recommended for potable water and wastewater samples
- Fritless spargers are recommended for water, soils, polymers, pharmaceuticals and foods
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Description	Case Qty
591100-0005	5 mL Fritless Sparger (2000/3000) with 1/2" mount	1
591100-0025	25 mL Fritless Sparger (2000/3000) with 1/2" mount	1
591101-0025	25 mL Fritless Sparger (2000/3000) with 3/4" mount	1
591100-2605	5 mL Fritted Sparger (2000/3000) with 1/2" mount	1
591101-2605	5 mL Fritted Sparger (2000/3000) with 3/4" mount	1
591100-2625	25 mL Fritted Sparger (2000/3000) with 1/2" mount	1
591101-2625	25 mL Fritted Sparger (2000/3000) with 3/4" mount	1

U-Shaped Sparger for use with EPA Method 603

These U-shaped spargers are designed for use on the Teledyne Tekmar® 2000 and 3000 Purge and Trap Concentrators when doing EPA Method 603 and using either an AQUATek 50 or ALS 2050 Vial Autosampler.

- The introduction stem is located on the foam trap, allowing a sample heater to be placed around the glassware as required by the EPA method
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Description	Case Qty
591120-2605	5 mL U-Shaped Fritted Sparger for use with EPA Method 603	1
591120-2625	25 mL U-Shaped Fritted Sparger for use with EPA Method 603	1

Soil Analysis Tubes

These tubes are designed for use with Teledyne Tekmar® 2016/2032 Autosamplers and 4100/4200 Automatic Samplers that are equipped with 3/4" diameter mounts.

- The larger opening of these disposable tubes permits easier sample loading and facilitates the weighing of solid and soil samples
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD (mm)	Length (mm)	Case Qty
591175-0715	19	150	24

U-Shaped Sparger for use with O-I Analytical Purge and Trap Sample Concentrators

These U-shaped fritted spargers are designed for use with O-I Analytical Purge and Trap Sample Concentrators. Fritted spargers are recommended for potable water and wastewater samples.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Neck OD (mm)	Case Qty
591132-2605	5	209015	1
591132-2625	25	209031	1

Needle Spargers

Needle spargers are recommended for purge and trap analysis of slurries, soils, viscous liquids and foaming liquid samples.

- These spargers are also used for headspace sweep analysis of volatile compounds in oils
- Designed for use with Teledyne Tekmar® 2000 and 3000 Purge and Trap Concentrators and 2016 and 2032 Autosamplers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Description	Case Qty
591150-0005	5 mL Needle Sparger with 1/2" mount	1

Static Dilution Bottles

The static dilution bottle provides a simple, inexpensive means to prepare, store and use standards of volatile organic compounds.

- Standards are prepared by injecting a small quantity of the pure compounds into the bottle and using heat to fully evaporate them
- A push-pull, color-coded, (green-for-open, red-for-closed) Mininert valve is supplied for easy use and long lasting performance
- The valve is excellent for sealed tube reactions, long term storage of standards or periodic addition of reactants
- Sample aliquots are withdrawn using a gas-tight syringe
- Septum seal prevents leakage when using a syringe
- Standards prepared by this method are stable for up to one week
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Valve Thread	Case Qty
591190-2000	2000	24-410	1

Replacement Parts

Part Number	Description	Case Qty
749112-0000	Septa for Mininert Valve	50
749110-0024	24-410 Mininert Valve	1

Accessories

Part Number	Description	Case Qty
749113-0000	Septum Installation Tool for Mininert Valve	1

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Offered in volumetric flasks, media bottles, NMR tubes, separatory funnels, and burets, RAY-SORB® glassware provides superior UV protection for photolabile and photosensitive samples. Innovative RAY-SORB® technology provides a consistent, durable, and uniform coating for light protection.

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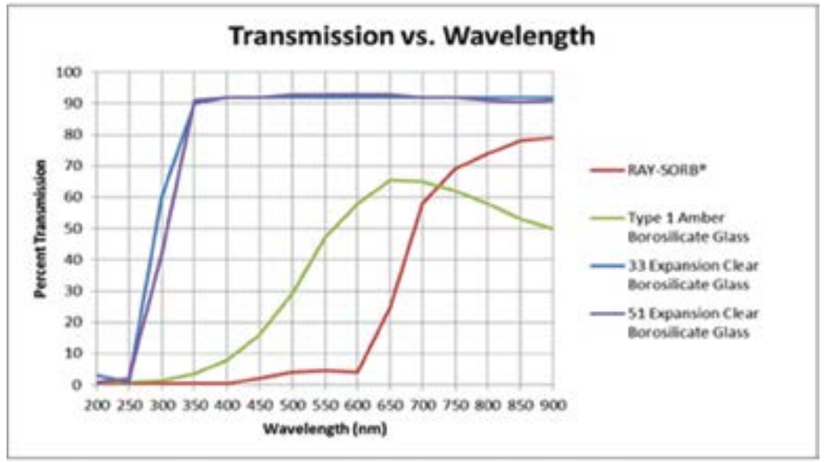

Class A RAY-SORB® Heavy Duty Wide Mouth Volumetric Flask with Pennyhead Glass Stopper

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety provided by heavy, uniform walls
- Quick identification with large, permanent, easy-to-read markings
- Flat interior bottoms for stirring with standard stir bars
- Graduated to Class A volumetric tolerances for wide-mouth flasks
- Glass Standard Taper stoppers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
92822G-5	5; ±0.08	13	6
92822G-10	10; ±0.08	13	6
92822G-20	20; ±0.08	13	6
92822G-25	25; ±0.08	13	6
92822G-50	50; ±0.08	13	6
92822G-100	100; ±0.10	16	6
92822G-200	200; ±0.20	19	6
92822G-250	250; ±0.20	19	6
92822G-500	500; ±0.20	19	6
92822G-1000	1000; ±0.30	22	1
92822G-2000	2000; ±0.50	27	1

Class A RAY-SORB® Heavy Duty Wide Mouth Volumetric Flask with PTFE Stopper

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy, uniform walls
- Quick identification with large, permanent, easy-to-read markings
- Flat interior bottoms for stirring with standard stir bars
- Graduated to Class A volumetric tolerances for wide-mouth flasks
- PTFE Standard Taper stopper provides excellent chemical resistance
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
92822F-5	5; ±0.08	13	6
92822F-10	10; ±0.08	13	6
92822F-20	20; ±0.08	13	6
92822F-25	25; ±0.08	13	6
92822F-50	50; ±0.08	13	6
92822F-100	100; ±0.10	16	6
92822F-200	200; ±0.20	19	6
92822F-250	250; ±0.20	19	6
92822F-500	500; ±0.20	19	6
92822F-1000	1000; ±0.30	22	1
92822F-2000	2000; ±0.50	27	1

Replacement Parts

Part Number	Description	Case Qty
41901R-13	Size 13 Orange PTFE Key-Head Stopper, Approx. diameter at large end 13.4 mm, Length of Ground Zone 14.0 mm	6
41901R-16	Size 16 Blue PTFE Key-Head Stopper, Approx. diameter at large end 16.5 mm, Length of Ground Zone 15.0 mm	6
41901R-19	Size 19 Green PTFE Key-Head Stopper, Approx. diameter at large end 19.7 mm, Length of Ground Zone 17.0 mm	6
41901R-22	Size 22 Yellow PTFE Key-Head Stopper. Approx. diameter at large end 22.05mm, Length of ground zone 20.5mm	6

Class A RAY-SORB® Heavy Duty Wide Mouth Volumetric Flask without Stopper

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy, uniform walls
- Quick identification with large, permanent, easy-to-read markings
- Flat interior bottoms for stirring with standard stir bars
- Graduated to Class A volumetric tolerances for wide-mouth flasks
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper Size	Case Qty
92822N-5	5; ±0.08	13	6
92822N-10	10; ±0.08	13	6
92822N-20	20; ±0.08	13	6
92822N-25	25; ±0.08	13	6
92822N-50	50; ±0.08	13	6
92822N-100	100; ±0.10	16	6
92822N-200	200; ±0.20	19	6
92822N-250	250; ±0.20	19	6
92822N-500	500; ±0.20	19	6
92822N-1000	1000; ±0.30	22	1
92822N-2000	2000; ±0.50	27	1

Class A RAY-SORB® Heavy Duty Wide Mouth Volumetric Flask with Polyethylene Stopper

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy uniform walls
- Quick identification with large, permanent, easy-to-read, markings
- Flat interior bottoms for stirring with standard stir bars
- Calibrated to contain and graduated to Class A volumetric tolerances for wide-mouth flasks
- Polyethylene Standard Taper stoppers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
92822P-5	5; ±0.08	13	6
92822P-10	10; ±0.08	13	6
92822P-20	20; ±0.08	13	6
92822P-25	25; ±0.08	13	6
92822P-50	50; ±0.08	13	6
92822P-100	100; ±0.10	16	6
92822P-200	200; ±0.20	19	6
92822P-250	250; ±0.20	19	6
92822P-500	500; ±0.20	19	6
92822P-1000	1000; ±0.30	22	1
92822P-2000	2000; ±0.50	27	1

Replacement Parts

Part Number	Description	Case Qty
28160R-13	Linear High-Density Polyethylene Stopper, Fits Neck Ground to Standard Taper Stopper Size 13	6
28160R-16	Linear High-Density Polyethylene Stopper, Fits Neck Ground to Standard Taper Stopper Size 16	6
28160R-19	Linear High-Density Polyethylene Stopper, Fits Neck Ground to Standard Taper Stopper Size 19	6
28160R-22	Linear High-Density Polyethylene Stopper, Fits Neck Ground to Standard Taper Stopper Size 22	6
28160R-27	Linear High-Density Polyethylene Stopper, Fits Neck Ground to Standard Taper Stopper Size 27	6

Custom Glass

CGS is the Custom Glass Shop at Kimble®. We can be your single source for custom laboratory glassware design and fabrication. Whether you want a slight variation of a standard product or a completely unique design, CGS can do it! In quantities as small as one piece. Our staff of veteran glassblowers will meet your requirements and exceed your expectations.

CGS Capabilities:

- Engineering and design
- Graduating
- Quartz apparatus
- Glass to metal graded seals
- Grinding and polishing (machine or hand)
- Machine shop
- Microscale glassware
- Precision bore tubing
- Glass tooling
- Large-scale systems
- Flasks to 72 liters
- Decorating

Phone: 800.682.6644 E-mail: customglass@kimble-chase.com

Class A RAY-SORB® Volumetric Flask with Color-Coded PTFE Stopper

These flasks are RAY-SORB® processed to protect your light-sensitive contents from short-length lightwaves.

- Calibrated to contain
- With a marking spot
- Supplied with a PTFE Standard Taper stopper having a color-coded handle
- Replacement stopper is 41901R
- Designed from ASTM Specification E288, Class A unserialized requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper	Case Qty
28016-10	10; ±0.02	9	12
28016-25	25; ±0.03	9	12
28016-50	50; ±0.05	9	12
28016-100	100; ±0.08	13	12
28016-200	200; ±0.10	16	12
28016-250	250; ±0.12	16	12
28016-500	500; ±0.20	19	12
28016-1000	1000; ±0.30	22	6

Replacement Parts

Part Number	Description	Case Qty
41901R-9	Size 9 Black PTFE Key-Head Stopper, Diameter at Large End 9.4, Length of Ground Zone 14.0	6
41901R-13	Size 13 Orange PTFE Key-Head Stopper, Approx. Diameter at Large End 13.4 mm, Length of Ground Zone 14.0 mm	6
41901R-16	Size 16 Blue PTFE Key-Head Stopper, Approx. diameter at large end 16.5 mm, Length of Ground Zone 15.0 mm	6
41901R-19	Size 19 Green PTFE Key-Head Stopper, Approx. Diameter at Large End 19.7 mm, Length of Ground Zone 17.0 mm	6
41901R-22	Size 22 Yellow PTFE Key-Head Stopper. Approx. diameter at large end 22.05mm, Length of ground zone 20.5mm	6

RAY-SORB® Erlenmeyer Flasks

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Without a capacity scale
- Standard Taper PTFE stopper is supplied with the flask
- Replacement stopper is 41901R
- Designed from ASTM Specification E1404, Type II, Class II requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity (mL)	Standard Taper Stopper Size	Case Qty
26610-50	50	19	1
26610-125	125	22	1
26610-250	250	27	1
26610-500	500	32	1

Replacement Parts

Part Number	Description	Case Qty
41901R-19	Size 19 Green PTFE Key-Head Stopper, Approx. Diameter at Large End 19.7 mm, Length of Ground Zone 17.0 mm	1
41901R-22	Size 22 Yellow PTFE Key-Head Stopper. Approx. diameter at large end 22.05mm, Length of ground zone 20.5mm	1
41901R-32	Size 32 Grey PTFE Key-Head Stopper, Approx. Diameter at Large End 38 mm, Length of Ground Zone 31.0 mm	1

RAY-SORB® Boiling Flask with a Short neck and Full Length 24/40 Standard Taper joint

- KIMAX® boiling flask is RAY-SORB® processed to provide protection to solutions sensitive to light of the shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Short neck
- Flat bottom
- Full length 24/40 joint
- Designed from ASTM Specification E1403, Type I, Class IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity (mL)	Case Qty
25057-250	250	1

KIMAX® RAY-SORB® Separatory Funnels

- RAY-SORB® processed to protect your light-sensitive contents from short wavelength light.
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Lower stems have an ID large enough that a column of liquid will "break" with the stopcock closed, thereby giving a more complete separation and eliminating the necessity of emptying the funnel
- Squibb KIMAX® funnel is supplied with a Standard Taper PTFE stopper and a color-coded PTFE stopcock plug
- Pear-shaped
- Replacement stopcock plug is 41500F
- Replacement stopper is 41901R
- Designed from ASTM Specification E1096, Type IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity (mL)	Stem Length (mm)	Case Qty
29052F-125	125	60	1
29052F-250	250	60	1
29052F-500	500	60	1

RAY-SORB® GL 45 Media Bottles

Designed to protect contents from UV rays; ideal for light-sensitive products

- Enhanced graduations and marking spot made with chemically resistant white enamel paint
- 30 mm ID opening
- Linerless GL 45 screw thread cap
- Autoclavable
- Replaceable clear (natural) drip-free polypropylene pour ring is included on each bottle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
14399-100	100	100 x 56	1
14399-250	250	138 x 70	1
14399-500	500	176 x 86	1
14399-1000	1000	225 x 101	1
14399-2000	2000	260 x 136	1
14399-5000	5000	330 x 181	1
14399-10000	10000	410 x 227	1

Replacement Parts

Part Number	Description	Case Qty
14395C-45	Blue Polypropylene GL-45 Solid Top Screw Thread Cap, Max Temperature 140 ºC	10
14395P-45	Clear Polypropylene GL-45 Bottle Pour Ring, Max Temperature 140 ºC	10

RAY-SORB® 5mm NMR Tubes

Kimble® High Grade NMR Tubes processed with our proprietary RAY-SORB® treatment. Our KIMAX®-HQ NMR tubes are our highest quality NMR tubes and are 100% gauged for wall thickness, concentricity and camber specifications. These tubes are ideal for sealing directly to *vacuum manifolds*, joints or valves.

- RAY-SORB® protects your valuable samples from the harmful effect of visible and UV wavelengths, while keeping all the critical characteristics of your specific tube needs intact
- Attached polyethylene caps
- Sandblasted marking spot
- OD 4.97 (+0.0000/-0.013) mm
- ID 4.20 (+0.013/-0.0000) mm
- Wall thickness 0.375 mm
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Frequency (MHz)	Length (in)	Case Qty
897241-9001	600-700	8	5
897245-9001	800	8	5

Class B Straight Bore RAY-SORB® Burets

RAY-SORB® burets are used in titrations containing light sensitive analytes.

- Funnel fill style buret
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug and a KIM-KAP dust cap
- Replacement 2 mm straight bore stopcock plug is 821001-0002
- Easy-to-read durable opaque white ceramic enamel scale
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Overall Length (mm)	Case Qty
17033F-50	50; ±0.10	738	1

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

ROTARY EVAPORATORS

Kimble® offers a variety of traps, flasks and adapters used as component parts for rotary evaporator systems. Use connecting adapters to interface of Standard Taper ground jointed glassware with threaded microscale components and screw thread vials. Select the best trap to reduce potential carry-over from foaming or bumping.

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Heavy Wall Recovery Flasks for Rotary Evaporators

Single neck flask with a Standard Taper outer joint designed for easy recovery of reaction products. Even wall thickness and minimum runout make these flasks ideal for use with rotary evaporators.

- Total contents are accessible with a spatula or policeman
- Lower portion fits standard heating mantles
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
294300-0010	10	14/20	1
294300-0025	25	14/20	1
294305-0025	25	19/22	1
294300-0050	50	14/20	1
294305-0050	50	19/22	1
608675-0124	50	24/25	1
294300-0100	100	14/20	1
608675-0224	100	24/25	1
294300-0200	200	14/20	1
608675-0324	200	24/25	1
608675-0624	500	24/25	1

KimCote® Heavy Wall Recovery Flasks for Rotary Evaporators

Kimble KIMAX® KimCote® plastic-coated single neck flask with a Standard Taper outer joint designed for easy recovery of reaction products.

- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Even wall thickness and minimum runout make these flasks ideal for use with rotary evaporators
- Heavy wall
- Square joint bead
- Total contents are accessible with a spatula or policeman
- Lower portion fits standard heating mantles
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
KC25165-50	50	24/40	1
KC25165-100	100	24/40	1
KC25165-200	200	24/40	1
KC25165-500	500	24/40	1
KC25165-1000	1000	24/40	1

Recovery Flasks with Square Joint Bead

Single neck flask with a Standard Taper outer joint designed for easy recovery of reaction products. Even wall thickness and minimum runout make these flasks ideal for use with rotary evaporators.

- Square bead joints provide superior clamping to Standard Joint beads
- Total contents are accessible with a spatula or policeman
- Lower portion fits standard heating mantles
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
608675-4124	50	24/40	1
608675-6129	50	29/42	1
608675-4224	100	24/40	1
608675-6229	100	29/42	1
608675-4324	200	24/40	1
608675-6329	200	29/42	1
608675-4624	500	24/40	1
608675-6629	500	29/42	1
608675-4724	1000	24/40	1
608675-6729	1000	29/42	1
608675-4824	2000	24/40	1
608675-6829	2000	29/42	1

Heavy Wall Round Bottom Boiling Flasks

This flask is useful for rotary evaporator condensate collection or as a replacement for European designation KS 20/35.

- Single neck flask with a Spherical joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Spherical Joint Size	Case Qty
601050-0128	50	28/15	1
601050-0136	50	35/25	1
601050-0236	100	35/25	1
601050-0428	250	28/15	1
601050-0628	500	28/15	1
601050-0635	500	35/20	1
601050-0636	500	35/25	1
601050-0735	1000	35/20	1
601050-0736	1000	35/25	1
601050-0835	2000	35/20	1
601050-0836	2000	35/25	1
601050-0935	3000	35/20	1
601050-0936	3000	35/25	1
601050-1036	5000	35/25	1

KimCote® Heavy Wall Round Bottom Boiling Flasks

This KIMAX® KimCote® plastic-coated single neck flask is useful as rotary evaporator condensate collection flask or as a replacement for European designation KS 20/35.

- With a Spherical joint
- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Spherical Joint Size (mm)	Case Qty
KC25330-100	100	35/20	1
KC25330-250	250	35/25	1
KC25330-500	500	35/25	1
KC25330-1000	1000	35/25	1
KC25330-2000	2000	35/25	1

Freeze Drying Flasks

This flask may be used with rotary evaporators or removable vacuum hose by selecting the appropriate adapter.

- Thick wall borosilicate glass flask has an extra wide opening for easy access to the sample
- Base is formed so that the unit is free standing, requiring no special support
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height x OD (mm)	Case Qty
562800-0250	250	105 x 75	1
562800-0500	500	175 x 75	1
562800-1000	1000	200 x 100	1
562800-2000	2000	280 x 120	1

Freeze Drying Adapters

Adapts 562800 freeze dry flasks to rotary evaporators for concentration or removal of solvent from single or multiple samples.

- Polyethylene unit with a 24/40 outer joint and a vacuum release
- A vacuum-tight seal is assured through the use of double FKM o-rings
- A special PTFE screen is provided to prevent loss of material

Part Number	Standard Taper Joints	Case Qty
562810-2440	24/40	1

Hose Adapters

This adapter is intended for connection to vacuum hose and a 562830 vacuum adapter.

- 1/2" (12.7 mm) ID size will fit 3/4" (19.1 mm) ID hose
- 5/16" (7.9 mm) ID will accept 1/2" (12.7 mm) ID hose
- Supplied with a size 018 FKM o-ring

Part Number	Fits Hose ID (in)	Tube ID (in)	Case Qty
562850-0516	0.3125	0.5	1
562850-0012	0.5	0.75	1

Vacuum Adapters

Polyethylene vacuum adapter for 562800 freeze dry flasks allows connection to a vacuum system with either 1/2" (12.7 mm) or 3/4" (19.1 mm) ID hose.

- This unit employs the same double FKM o-ring seal and special PTFE screen found in 562810, but does not include the 562850 hose adapters

Part Number	Case Qty
562830-0000	1

Bottom Vapor Tube Trap

This trap is designed for use between flask and rotary evaporator to reduce carry-over from foaming or bumping.

- No drain holes assure that dry residue does not get re-wetted
- The modified joint on the 570260 series features a square bead for better sealing to rotary evaporator equipment
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Top (Outer), Bottom (Inner)	Case Qty
570260-0114	100	24/40, 14/20	1
570260-0124	100	24/40	1
570260-2514	250	24/40, 14/20	1
570260-2524	250	24/40	1
570260-5024	500	24/40	1
570200-0114	100	24/40, 14/20	1
570200-0119	100	24/40, 19/22	1
570200-0124	100	24/40, 24/40	1
570200-2514	250	24/40, 14/20	1
570200-2519	250	24/40, 19/22	1
570200-2524	250	24/40, 24/40	1
570200-5014	500	24/40, 14/20	1
570200-5024	500	24/40, 24/40	1

Bottom Vapor Tube Trap with Drain Holes

Use where foaming is likely to occur and be drawn into the condenser.

- The inner vapor tube features two, 4 mm drain holes at its base placed 180° to each other and 90° to the upper holes, allowing faster drainage of trap contents back into the evaporation flask
- The modified joint on the 570265 series features a square bead for better sealing to rotary evaporator equipment
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Top (Outer), Bottom (Inner)	Case Qty
570265-0114	100	24/40, 14/20	1
570265-0124	100	24/40, 24/40	1
570265-2514	250	24/40, 14/20	1
570265-2524	250	24/40, 24/40	1
570265-5024	500	24/40, 24/40	1
570205-0114	100	24/40, 14/20	1
570205-0124	100	24/40, 24/40	1
570205-2514	250	24/40, 14/20	1
570205-2524	250	24/40, 24/40	1

Fritted Bump Trap for a Rotary Evaporator

This trap has a 40-60 micron porosity fritted disc sealed between the lower inner and top outer joint to prevent the contents of the flask from entering into the condenser in the event of bumping.

- All traps have a Standard Taper 24/40 top outer joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joint: Lower	Case Qty
166600-0314	14/20	1
166600-0324	24/40	1

Top Vapor Tube Traps

The design of this trap provides for expanded volume for organic mixtures that have a tendency to foam excessively.

- Inner vapor tube is ring-sealed at the top of the flask to prevent entry into the condenser
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Top (Outer), Bottom (Inner)	Case Qty
570210-0114	100	24/40, 14/20	1
570210-0119	100	24/40, 19/22	1
570210-0124	100	24/40, 24/40	1
570210-2514	250	24/40, 14/20	1
570210-2519	250	24/40, 19/22	1
570210-2524	250	24/40, 24/40	1
570210-5014	500	24/40, 14/20	1
570210-5024	500	24/40, 24/40	1

Self Washing Top Vapor Tube Traps

This trap is designed to eliminate hold-up common to the round style of rotary evaporator traps.

- Tapered sidewalls permit continuous washing with condensed solvent while preventing vapor cooling points along the path of the condenser
- The upper stem has 4 large holes that allow solvent vapor to flow freely and help to make this portion of the trap easy to clean
- The increased volume of the trap prevents "bumping" and keeps solvent out of the vapor tube
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints: Top (Outer), Bottom (Inner)	Case Qty
570300-0114	100	24/40, 14/20	1
570300-0124	100	24/40, 24/40	1
570300-2524	250	24/40, 24/40	1

Vial Connecting Adapters

This adapter allows the connection of standard rotary evaporator traps to vials with 13-425 or 20-400 GPI threads.

- Standard Taper outer ground joint to GPI thread
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	GPI Finish	Case Qty
747130-1314	14/20	13-425	1
747130-1319	19/22	13-425	1
747130-1324	24/40	13-425	1
747130-2014	14/20	20-400	1
747130-2019	19/22	20-400	1
747130-2024	24/40	20-400	1

Vial Adapter System Receivers

This vial is a standard receiver for a vial adapter system.

- Screw threads
- Graduated to ensure more accurate measurements and dispensing
- Assembled open top closure and PTFE-faced silicone septum
- ACCUFORM® V-shaped interior for minute sample recovery using a syringe needle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD (mm); GPI Finish	Case Qty
60700-1	1	14; 13-425	12
60700-2	2	21; 20-400	12
60700-3	3	21; 20-400	12
60700-5	5	21; 20-400	12
60700-10	10	25; 24-400	12

Glass-filled Nylon Connectors with PTFE Seals

Use these connectors to connect standard rotary evaporator traps to vials with 13-425 or 20-400 GPI threads.

- Open top compression cap and connectors are glass-filled nylon for use to 200 °C
- The necessary components are listed below and must be ordered separately

Part Number	Modified GPI Thread	Case Qty
747205-1313	13-425 to 13-425	1
747205-1315	13-425 to 15-425	1
747205-1320	13-425 to 20-400	1
747205-1520	15-425 to 20-400	1
747205-1820	18-400 to 20-400	1
747205-2020	20-400 to 20-400	1
747205-2022	20-400 to 22-400	1
747205-2024	20-400 to 24-400	1

Clamps

Used to secure Standard Taper joints, this positive closure clamp is made of tough, color-coded plastic.

- Clamp will not scratch glass and can be autoclaved to 200 °C
- Good chemical resistance at a lower cost than metal clips

Part Number	Description	Case Qty
675300-0010	Size 10 Polyacetyl, Standard Taper Clamp, Aqua, Fits joint sizes 10/30,10/18	12
675300-0014	Size 14 Polyacetyl, Standard Taper Clamp, Yellow, Fits joint sizes 14/20, 14/35	12
675300-0019	Size 19 Polyacetyl, Standard Taper Clamp, Blue, Fits joint sizes 19/22, 19/38	12
675300-0024	Size 24 Polyacetyl, Standard Taper Clamp, Green, Fits joint sizes 24/40, 24/25	12
675300-0029	Size 29 Polyacetyl, Standard Taper Clamp, Red, fits joint sizes 29/42, 29/26	12
675300-0034	Size 34 Polyacetyl, Standard Taper Clamp, Orange, Fits joint sizes 34/45, 34/28	12
675300-0040	Size 40 Polyacetyl, Standard Taper Clamp, Gold, Fits joint sizes 40/50, 40/35	12
675300-0045	Size 45 Polyacetyl, Standard Taper Clamp, Brown, Fits joint sizes 45/50	12

Connector Kit

Connector kit with ten connectors, one each of the following sizes: 8-425 to 8-425, 8-425 to 13-425, 13-425 to 13-425, 13-425 to 15-425, 13-425 to 20,400, 15-425 to 20,400, 18-400 to 20-400, 20-400 to 20-400, 20-400 to 22-400, 20-400 to 24-400

- For use to 200 °C
- Connectors have PTFE seals and FKM o-rings
- Blue glass-filled nylon
- 24-400 cap is black polypropylene

Part Number	Case Qty
747205-0000	10

SAFETY

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

KimCote®

Choose KimCote® plastic-coated glassware for an added measure of safety. KimCote® protective glassware coating goes beyond traditional coatings. Should a break occur, it will reduce the hazards of shattered glass and leakage of toxic or corrosive chemicals. It's ultra-clear, extremely durable, autoclavable and resistant to many common laboratory chemicals. The unique KimCote® texture also provides a non-slip handling surface, wet or dry.

KIMAX® Colorware

Choose KIMAX® Colorware for easy identification in the lab. Glassware with colored decorations can help minimize the possibility for cross contamination, and can help identify the glassware designated to certain labs.

Heavy Duty Glassware

Heavy duty glassware provides superior strength and durability and is ideal for applications where mechanical shock is more likely to occur.

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KimCote® Class A Cylinders with Reverse Graduations

KimCote® Class A cylinder is marked with a reverse metric scale.

- KimCote® safety coating reduces the hazards of shattered glass
- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- Cylinder is marked with a white, reverse, single metric scale
- Hexagonal base is flat ground for stability
- SAFE-GARD® bumper is supplied
- Designed from ASTM Specification E1272, Style I, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height (mm)	Case Qty
KC20028W-100	100	255	1
KC20028W-250	250	330	1
KC20028W-500	500	375	1
KC20028W-1000	1000	460	1
KC20028W-2000	2000	520	1

2000mL Atmospheric Environmental Bottles

The design of our Atmospheric Environmental Bottle is recommended by the Atmospheric Environment Service (AES). Available in either a single or double valve configuration.

Several unique design features include:

- KimCote® plastic safety coating
- Borosilicate glass high vacuum plug valve stems instead of PTFE stems, eliminating the chance of outgassing
- FKM valve stem o-rings that are easily changed
- Inlet stems ground to 1/2" OD
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Feature	Case Qty
653200-2000	2000	Single Valve	1
653210-2000	2000	Double Valve	1

KimCote® Reservoir Bottles with Bottom Hose Outlet

Designed to store and discharge liquids via a bottom hose outlet.

- Kimble® KIMAX® KimCote® safety-coated reservoir bottle
- Glass hose connection outlet is fused to the bottle
- White enamel marking spot
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Neck ID (mm)	Case Qty
KC14607-250	250	18	6
KC14607-500	500	22	6
KC14607-1000	1000	27	4
KC14607-2000	2000	27	4
KC14607-5000	5000	42	1
KC14607-10000	10000	58	1
KC14607-20000	20000	58	1

KimCote® Heavy Duty Serum Bottles

The heavy duty construction of these bottles is designed to prolong life expectancy with harder than normal usage. Ideal for packaging and storage.

- Kimble® KIMAX® KimCote® plastic-coated bottle with rounded shoulders.
- Neck is tooled for a uniform fit with a #8 rubber stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
KC14960-4	4000	310 x 167	1
KC14960-9	9000	412 x 203	1

Plastic Safety-Coated Heavy Duty Carboys

Designed for storage of solutions and ideal for media preparation.

- Autoclavable safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- With sloping shoulders of the carboy-style
- Neck is tooled for a uniform fit with a #12 rubber stopper
- 5 gallon size is designed from Federal Specification DD-B-597
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

  Accessories include carboy clamp and silicone stopper assemblies
- 3-port platinum-cured stopper assembly and sanitary PVDF clamp to provide sterile fluid transfer with no extractables, as required in bio-tech and pharmaceutical applications
- The stopper ports are designed to connect 1/8", 1/4" (4-port stopper has two 1/4" tubes) and 3/8" silicone tubing
- The silicone tubing provided is cut into 2' lengths
- Non-sterile
- Autoclavable
- These assemblies are specifically designed to fit all sizes of KIMAX® 14950 solution (carboy) bottles

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
KC14950-25	9500	392 x 222	1
KC14950-35	13200	448 x 257	1
KC14950-120			1
KC14950-500	19000	502 x 294	1

Accessories

Part Number	Description	Case Qty
14950C-12	Clamp	1
14950S-321	Stopper, 3 port	1
14950S-2321	Stopper, 4 port	1

KimCote® Solution Bottles with Color-Coded PTFE Flathead Stoppers

Designed for storage of solutions and ideal for media preparation.

- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Narrow mouth increases mechanical strength
- Bottle necks are Standard Taper ground to accept flathead color-coded PTFE stoppers
- Replacement stoppers are 41941
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Stopper Size	Case Qty
KC15097-100	100	14	12
KC15097-250	250	19	6
KC15097-500	500	24	6
KC15097-1000	1000	29	6
KC15097-2000	2000	29	1

Replacement Parts

Part Number	Description	Case Qty
850540-0014	Solid, Red, Flathead, PTFE Bottle Stopper size 14, 14.5mm Diameter at Large End, 20mm Length of Ground Zone, 10mm Height Above Standard Taper Grind	1
850540-0024	Solid, Blue, Flathead, PTFE Bottle Stopper size 24, 24mm Diameter at Large End, 30mm Length of Ground Zone, 13mm Height Above Standard Taper Grind	1
41941R-24	Solid, Blue, Flathead, PTFE Bottle Stopper size 24, 24mm Diameter at Large End, 30mm Length of Ground Zone, 13mm Height Above Standard Taper Grind	6
41941R-29	Solid, Green, Flathead, PTFE Bottle Stopper size 29, 29.2mm Diameter at Large End, 35mm Length of Ground Zone, 13mm Height Above Standard Taper Grind	6

KimCote® Narrow Mouth Solution Bottles

Designed for storage of solutions and ideal for media preparation.

- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Narrow mouth increases mechanical strength
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD (mm)	Neck ID (mm)	Rubber Stopper Size	Case Qty
KC15093-10000	10000	230	58	12	1
KC15093-20000	20000	290	58	12	1

KimCote® GL 45 Media Bottles

Ideal for general laboratory use including mixing, storing or transporting culture media, chemicals or solvents.

- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Enhanced graduations and marking spot made with chemically resistant white enamel paint
- 30 mm ID opening
- Blue polypropylene linerless GL 45 screw thread cap
- Replaceable clear (natural) drip-free polypropylene pour ring is included on each bottle
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
KC14395-100	100	100 x 56	4
KC14395-250	250	138 x 70	4
KC14395-500	500	176 x 86	4
KC14395-1000	1000	225 x 101	4
KC14395-2000	2000	260 x 136	4
KC14395-5000	5000	330 x 181	1
KC14395-10000	10000	410 x 227	1

Replacement Parts

Part Number	Description	Case Qty
14395C-45	Blue Polypropylene GL-45 Solid Top Screw Thread Cap, Max. Temp. 140° C	10
14395P-45	Clear Polypropylene GL-45 Bottle Pour Ring, Max. Temp. 140° C	10

KimCote® KIMAX® Squibb Separatory Funnels

Kimble® KIMAX® KimCote® plastic-coated pear-shaped funnel.

- Supplied with a Standard Taper ground glass stopper and a totally autoclavable PTFE stopcock plug
- Lower stems have an ID large enough so that a column of liquid will "break" with the stopcock closed, thereby giving a more complete separation and eliminating the necessity of emptying the funnel
- Replacement stopper is 850100
- Designed from ASTM Specification E1096, Type IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL); Stopper Size	Stem Length (mm)	Case Qty
KC29048T-125	125; 22	60	4
KC29048T-250	250; 22	60	4
KC29048T-500	500; 27	60	4
KC29048T-1000	1000; 27	60	1
KC29048T-2000	2000; 38	60	1

Replacement Parts

Part Number	Description	Case Qty
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1
850100-0038	Size 38 Hollow Pennyhead Stopper, Medium Length	1

KimCote® Reusable Screw Thread Culture Tubes with Unattached Caps

KIMAX® KimCote® plastic-coated culture tube is made from tubing with uniform wall thickness for maximum heat transfer and chemical resistance.

- KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or hazardous materials
- Ideal for biohazard test protocols
- Provided with phenolic screw-thread caps, unattached
- Designed from ASTM E982, Type VI, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL); GPI Finish	OD x Length (mm)	Case Qty
KC45066-13100	8; 13-415	13 x 100	144
KC45066-16125	16; 15-415	16 x 125	144
KC45066-20150	30; 18-415	20 x 150	96
KC45066-25150	50; 24*410	25 x 150	48

Accessories - Black Phenolic Caps with Cemented-In Rubber Liners

- Specially formulated phenolic cap material
- Autoclavable
- White rubber liners
- Excellent for general laboratory use
- Identified in ASTM Specification E982, Class A requirement

Part Number	Cap Height (mm)	GPI Finish	Case Qty
45066B-13	14	13-415	300
45066B-15	16	15-415	300
45066B-18	18	18-415	225
45066B-24	19	24-410	150

Accessories - Black Phenolic Screw Thread Caps with PTFE-Faced Rubber Liners

- Excellent for general laboratory use
- Specially formulated phenolic resin and liner adhesive to withstand the effects of repeated autoclaving
- PTFE faced/general purpose white rubber liners are highly resistant to chemical effects
- Identified in ASTM Specification E982, Class A requirements

Part Number	Cap Height (mm)	GPI Finish	Case Qty
45066C-13	14	13-415	300
45066C-15	16	15-415	300
45066C-18	18	18-415	225
45066C-24	19	24-410	150

KimCote® Heavy Wall Round Bottom Flasks

Kimble® KIMAX® KimCote® plastic-coated single neck flask useful as a rotary evaporator condensate collection flask or as a replacement for European designation KS 20/35.

- Spherical socket joint
- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Spherical Joint Size	Case Qty
KC25330-100	100	35/20	1
KC25330-250	250	35/25	1
KC25330-500	500	35/25	1
KC25330-1000	1000	35/25	1
KC25330-2000	2000	35/25	1

ULTRA-WARE® Filtering Flasks with KimCote®

- These Erlenmeyer-style flasks are manufactured from heavy-wall borosilicate glass to ensure the mechanical strength needed for vacuum filtration
- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- The plastic safety coating is steam-autoclavable
- The 125 mL flask has a No. 5 stopper joint
- The 1, 2 and 4 liter flasks have a No. 8 stopper joint
- All flasks have a side arm for connection to 3/8" (6 mm) ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

A second flask should be connected between the filtering flask and the vacuum source to prevent accidental entry of the filtrate into the vacuum line or pump.

Part Number	Capacity (mL)	Rubber Stopper Joint	Case Qty
953760-0122	125	#5	1
953760-1002	1000	#8	1
953760-2002	2000	#8	1
953760-4002	4000	#8	1

KimCote® Recovery Flasks

Kimble® KIMAX® KimCote® plastic-coated single neck flask with a Standard Taper outer joint designed for easy recovery of reaction products.

- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Even wall thickness and minimum runout make these flasks ideal for use with rotary evaporators
- Heavy wall
- Square joint bead
- Total contents are accessible with a spatula or policeman
- Lower portion fits standard heating mantles
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
KC25165-50	50	24/40	1
KC25165-100	100	24/40	1
KC25165-200	200	24/40	1
KC25165-500	500	24/40	1
KC25165-1000	1000	24/40	1

Choose KimCote® Plastic-Coated Glassware for an Added Measure of Safety!

KimCote® protective glassware coating goes beyond traditional coatings. Should a break occur, KimCote® will reduce the hazards of shattered glass and leakage of toxic or corrosive chemicals. It's ultra-clear, extremely durable, autoclavable and resistant to many common laboratory chemicals. KimCote's unique texture also provides a non-slip handling surface, wet or dry.

An MSDS and a certificate of compliance are available by contacting Kimble Chase customer service.

KimCote® is a trademark of Kimble Chase.

KimCote® Class A Volumetric Flasks with Pennyhead Glass Stopper

- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- A single graduation ring is blasted on the neck
- Calibrated to contain
- A Standard Taper ground glass stopper is supplied
- Marking spots on all sizes
- Designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Stopper	Case Qty
KC28014-100	100	13	12
KC28014-250	250	16	12
KC28014-500	500	19	12
KC28014-1000	1000	22	4
KC28014-2000	2000	27	2

Replacement Parts

Part Number	Description	Case Qty
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1

KimCote® GL 45 Screw Cap Erlenmeyer Flasks

These KIMAX® KimCote® plastic-coated Erlenmeyer flasks have large opening, GL 45 thread closures to make filling easier and provide tight seals during storage.

- Flasks come with blue polypropylene caps and clear pour rings
- Autoclavable KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or corrosive chemicals
- Marking spots and scales are durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Finish	Case Qty
KC26720-250	250	GL 45	6
KC26720-500	500	GL 45	6
KC26720-1000	1000	GL 45	4
KC26720-2000	2000	GL 45	2

Replacement Parts

Part Number	Description	Case Qty
14395C-45	Blue Polypropylene GL-45 Solid Top Screw Thread Cap, Max. Temp. 140° C	10
14395P-45	Clear Polypropylene GL-45 Bottle Pour Ring, Max. Temp. 140° C	10

Heavy Wall Graduated Filtering Flasks with Quick-Release Hose Barb Connectors

KIMAX® heavy wall filter flasks have a quick-release connector designed as a safety feature.

- Hose barb accommodates 1/4 inch ID tubing
- Tubing can remain permanently attached since the opposite end is designed to be easily assembled via a positive threaded seal
- Proper positioning of the connector provides greater flask stability, as tubing angled downward has less tendency to tilt the flask
- Flasks are designed for vacuum to 29" of mercury
- Made with a heavier wall than a standard Erlenmeyer flask
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
27070-250	250	6	2
27070-500	500	7	8
27070-1000	1000	8	1
27070-2000	2000	9	1
27070-4000	4000	12	1

Replacement Parts

Part Number	Case Qty
736400-1413	1

Heavy Wall Graduated Filtering Flasks with Detachable Plastic Sidearms

- Detachable autoclavable plastic sidearm designed to accept 5/16 inch ID flexible tubing (U.S. Patent 3,268,300)
- Sidearm has two ears to provide a finger grip for easy insertion into a neoprene bushing by turning the plastic piece
- Opening in the sidearm is larger at the flask end to hold a cotton plug securely
- Made with a heavier wall than a standard Erlenmeyer flask
- All flasks have durable white ceramic enamel scales to indicate approximate volumes at various levels
- Designed from ASTM Specification E1406, Type III, Class II requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
27065-250	250	6	18
27065-500	500	7	18
27065-1000	1000	8	12
27065-2000	2000	9	1
27065-4000	4000	12	1

Replacement Parts

Part Number	Case Qty
DP27067-99	1

Heavy Wall Graduated Filtering Flasks with Side Tubulation

KIMAX® flasks with side tubulation.

- Capacity scale
- Flasks are designed for vacuum to 29" of mercury
- Made with a heavier wall than a standard Erlenmeyer flask
- All sizes have side hose connection designed to accept 5/16 inch ID flexible tubing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduation Range (mL), Subdivision (mL)	Case Qty
27060-25	25	5-25, 5	18
27060-50	50	20-50, 10	18
27060-125	125	50-125, 25	18
27060-250	250	50-250, 25	18
27060-500	500	150-500, 50	18
27060-1000	1000	300-1000, 50	12
27060-2000	2000	600-2000, 100	1
27060-4000	4000	1000-4000, 250	1

Class A RAY-SORB® Heavy Duty Wide Mouth Volumetric Flasks without Stoppers

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy, uniform walls
- Quick identification with large, permanent, easy-to-read, markings
- Flat interior bottoms for stirring with standard stir bars
- Graduated to Class A volumetric tolerances for wide-mouth flasks
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper Size	Case Qty
92822N-5	5; ±0.08	13	6
92822N-10	10; ±0.08	13	6
92822N-20	20; ±0.08	13	6
92822N-25	25; ±0.08	13	6
92822N-50	50; ±0.08	13	6
92822N-100	100; ±0.10	16	6
92822N-200	200; ±0.10	19	6
92822N-250	250; ±0.10	19	6
92822N-500	500; ±0.20	19	6
92822N-1000	1000; ±0.30	22	1
92822N-2000	2000; ±0.50	27	1

Class A RAY-SORB® Heavy Duty Wide Mouth Volumetric Flasks with PTFE Stoppers

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy, uniform walls
- Quick identification with large, permanent, easy-to-read, markings
- Flat interior bottoms for stirring with standard stir bars
- Graduated to Class A volumetric tolerances for wide-mouth flasks
- PTFE Standard Taper stopper provides excellent chemical resistance
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper Size	Case Qty
92822F-5	5; ±0.08	13	6
92822F-10	10; ±0.08	13	6
92822F-20	20; ±0.08	13	6
92822F-25	25; ±0.08	13	6
92822F-50	50; ±0.08	13	6
92822F-100	100; ±0.10	16	6
92822F-200	200; ±0.20	19	6
92822F-250	250; ±0.20	19	6
92822F-500	500; ±0.20	19	6
92822F-1000	1000; ±0.30	22	1
92822F-2000	2000; ±0.50	27	1

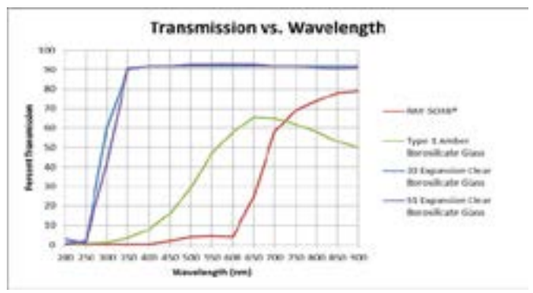
Replacement Parts

Part Number	Description	Case Qty
41901R-13	Size 13 Orange PTFE Key-Head Stopper, Diameter at Large End 13.4 mm, Length of Ground Zone 14.0 mm	6
41901R-16	Size 16 Blue PTFE Key-Head Stopper, Diameter at Large End 16.5 mm, Length of Ground Zone 15.0 mm	6
41901R-19	Size 19 Green PTFE Key-Head Stopper, Diameter at Large End 19.7 mm, Length of Ground Zone 17.0 mm	6
41901R-22	Size 22 Yellow PTFE Key-Head Stopper, Diameter at Large End 22.05 mm, Length of Ground Zone 20.5 mm	6
41901R-27	Size 27 Red PTFE Key-Head Stopper, Diameter at Large End 27.15 mm, Length of Ground Zone 21.5 mm	6

Class A RAY-SORB® Heavy Duty Wide Mouth Volumetric Flasks with Pennyhead Glass Stoppers

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety provided by heavy, uniform walls
- Quick identification with large, permanent, easy-to-read, markings
- Flat interior bottoms for stirring with standard stir bars
- Graduated to Class A volumetric tolerances for wide-mouth flasks
- Glass Standard Taper stoppers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper Size	Case Qty
92822G-5	5; ±0.08	13	6
92822G-10	10; ±0.08	13	6
92822G-20	20; ±0.08	13	6
92822G-25	25; ±0.08	13	6
92822G-50	50; ±0.08	13	6
92822G-100	100; ±0.10	16	6
92822G-200	200; ±0.20	19	6
92822G-250	250; ±0.20	19	6
92822G-500	500; ±0.20	19	6
92822G-1000	1000; ±0.30	22	1
92822G-2000	2000; ±0.50	27	1



Class A RAY-SORB® Heavy Duty Wide Mouth Volumetric Flasks with Polyethylene Stoppers

- RAY-SORB® processed to protect materials sensitive to the light of shorter wavelengths
- Less than 1% transmission below 400 nm and approximately 5% transmission from 400-600 nm
- Pipet access is easy with wide-mouth volumetric flasks
- Superior strength, durability and safety from heavy, uniform walls
- Quick identification with large, permanent, easy-to-read, markings
- Flat interior bottoms for stirring with standard stir bars
- Calibrated to contain and graduated to Class A volumetric tolerances for wide-mouth flasks
- Polyethylene Standard Taper stoppers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements and then RAY-SORB® processed

Part Number	Capacity; Tolerance (mL)	Standard Taper Stopper Size	Case Qty
92822P-5	5; ±0.08	13	6
92822P-10	10; ±0.08	13	6
92822P-20	20; ±0.08	13	6
92822P-25	25; ±0.08	13	6
92822P-50	50; ±0.08	13	6
92822P-100	100; ±0.10	16	6
92822P-200	200; ±0.20	19	6
92822P-250	250; ±0.20	19	6
92822P-500	500; ±0.20	19	6
92822P-1000	1000; ±0.30	22	1
92822P-2000	2000; ±0.50	27	1

Replacement Parts

Part Number	Description	Case Qty
28160R-13	Size 13 Linear High-Density Polyethylene Stopper	6
28160R-16	Size 16 Linear High-Density Polyethylene Stopper	6
28160R-19	Size 19 Linear High-Density Polyethylene Stopper	6
28160R-22	Size 22 Linear High-Density Polyethylene Stopper	6
28160R-27	Size 27 Linear High-Density Polyethylene Stopper	6

Low Form Heavy Duty Beakers

KIMAX® low form heavy duty glass "thick wall" beakers offer superior mechanical strength and durability. Improved safety when used under extreme conditions such as mechanized washing and rough handling.

- Thick uniform walls throughout and extra wall thickness built into the evenly tooled top rim
- Uniformity of construction allows for use on hot plates
- All sizes have a durable matte finish marking area and a white graduated scale
- Design meets ASTM Specification E960, Type II requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Height x OD (mm)	Case Qty
14005-250	250	92 x 67	48
14005-400	400	114 x 77	48
14005-600	600	122 x 87	36
14005-1000	1000	152 x 107	24
14005-2000	2000	190 x 130	8
14005-4000	4000	252 x 161	4

Colorware Low Form Griffin Beakers

Choose KIMAX® Low Form Griffin "Colorware" glass beakers for ease of identification in the lab. These beakers offer excellent mechanical strength and durability, while providing high resistance to chemical attack and thermal shock.

- Use of colored beakers reduces the risk of cross contamination
- Easily identify glassware between labs
- Available in four fabulous colors – Bright Blue, Cool Green, Sunny Yellow, and Raging Red
- All sizes feature double capacity scales with easy-to-read graduations
- Durable, color, matte finish marking area for use with an ordinary pencil or marker
- Design meets ASTM Specification E960, Type I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Color	Case Qty
14000B-50	50	Bright Blue	12
14000B-100	100	Bright Blue	12
14000B-150	150	Bright Blue	12
14000B-250	250	Bright Blue	12
14000B-400	400	Bright Blue	12
14000B-600	600	Bright Blue	6
14000B-1000	1000	Bright Blue	6
14000G-50	50	Cool Green	12
14000G-100	100	Cool Green	12
14000G-150	150	Cool Green	12
14000G-250	250	Cool Green	12
14000G-400	400	Cool Green	12
14000G-600	600	Cool Green	6
14000G-1000	1000	Cool Green	6
14000R-50	50	Raging Red	12
14000R-100	100	Raging Red	12
14000R-150	150	Raging Red	12
14000R-250	250	Raging Red	12
14000R-400	400	Raging Red	12
14000R-600	600	Raging Red	6
14000R-1000	1000	Raging Red	6
14000Y-50	50	Sunny Yellow	12
14000Y-100	100	Sunny Yellow	12
14000Y-150	150	Sunny Yellow	12
14000Y-250	250	Sunny Yellow	12
14000Y-400	400	Sunny Yellow	12
14000Y-600	600	Sunny Yellow	6
14000Y-1000	1000	Sunny Yellow	6

Colorware Narrow Mouth Erlenmeyer Flasks

Available with markings in four colors, the KIMAX® Colorware flasks are brighter in appearance than traditional glassware with white markings. These flasks are also commonly used to help reduce cross-contamination and for easy identification of glassware between labs.

- All flasks have durable, colored, ceramic enamel scales to indicate approximate volumes at various levels
- Tops are reinforced and tooled with a rounded finish, containing more glass to give them maximum mechanical strength
- Body is thick-walled, with a long tapered outside contour to minimize chipping when struck or rubbed together
- Designed from ASTM Specification E1404, Type I, Class I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Color, Rubber Stopper Size	Case Qty
26500B-50	50	Bright Blue, 1	12
26500B-125	125	Bright Blue, 5	12
26500B-250	250	Bright Blue, 6	12
26500B-500	500	Bright Blue, 7	6
26500B-1000	1000	Bright Blue, 9	6
26500G-50	50	Green, 1	12
26500G-125	125	Green, 5	12
26500G-500	500	Green, 7	6
26500G-1000	1000	Green, 9	6
26500Y-50	50	Yellow, 1	12
26500Y-125	125	Yellow, 5	12
26500Y-250	250	Yellow, 6	12
26500Y-500	500	Yellow, 7	6
26500Y-1000	1000	Yellow, 9	6
26500R-50	50	Red, 1	12
26500R-125	125	Red, 5	12
26500R-250	250	Red, 6	12
26500R-500	500	Red, 7	6
26500R-1000	1000	Red, 9	6

Choose KIMAX® Colorware for Easy Identification in the Lab

- Help reduce cross contamination
- Easily identify glassware between labs
- Matte-finish marking spots for use with pencil or marker

Class A Colorware Flasks

Available with markings in four colors, the KIMAX® Colorware flasks are brighter in appearance than traditional glassware with white markings. These flasks are also commonly used to help reduce cross-contamination and for easy identification of glassware between labs.

- KIMAX® flask with a single graduation ring blasted on the neck, calibrated to contain
- A Standard Taper ground glass stopper is supplied, along with a durable, color, matte finish marking area for use with an ordinary pencil
- Replacement stopper is 850100
- Designed from ASTM Specification E288, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL); Stopper Size	Color	Case Qty
28014R-25	25; 9	Raging Red	6
28014R-50	50; 9	Raging Red	6
28014R-100	100; 13	Raging Red	6
28014R-250	250; 16	Raging Red	6
28014R-500	500; 19	Raging Red	6
28014R-1000	1000; 22	Raging Red	1
28014Y-25	25; 9	Sunny Yellow	6
28014Y-50	50; 9	Sunny Yellow	6
28014Y-100	100; 13	Sunny Yellow	6
28014Y-250	250; 16	Sunny Yellow	6
28014Y-500	500; 19	Sunny Yellow	6
28014Y-1000	1000; 22	Sunny Yellow	1
28014E-25	25; 9	Cool Green	6
28014E-50	50; 9	Cool Green	6
28014E-100	100; 13	Cool Green	6
28014E-250	250; 16	Cool Green	6
28014E-500	500; 19	Cool Green	6
28014E-1000	1000; 22	Cool Green	1
28014B-25	25; 9	Bright Blue	6
28014B-50	50; 9	Bright Blue	6
28014B-100	100; 13	Bright Blue	6
28014B-250	250; 16	Bright Blue	6
28014B-500	500; 19	Bright Blue	6
28014B-1000	1000; 22	Bright Blue	1

Replacement Parts

Part Number	Description	Case Qty
850100-0009	Size 9 Solid Pennyhead Stopper, Medium Length	1
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1

Closed System, Sterile Tissue Grinders for Maximum User Safety and Convenience

- Grinding occurs within a closed system for your protection
- Exposure to sample aerosols is eliminated
- Narrow pestles eliminate sample overflow
- Convenient and easy-to-use
- CS1 for standard grinding and CS2 for more aggressive grinding

CS1 and CS2 Sterile Tissue Grinders are easy to use and designed for your safety. The molded-in abrasive surface on the CS1 pestle tip leaves no sediment to obstruct sample examination. CS2 grinders have vitrified tips for more aggressive grinding of tougher tissues. Each grinder comes with a fully assembled pestle, a conical sample tube with solid top cap, an adhesive identification label and an instruction card. All are gamma sterilized in easy-open Tyvek® packs. Tubes are made of PP, pestles are 30% glass-filled PP and caps are HDPE.

Sterile Closed-System Tissue Grinders

- Closed System 1 sterile tissue grinders are easy to use and designed for your safety
- Tissues are ground within a sealed container to minimize the risk of personal contact - exposure to sample aerosols is eliminated
- Narrow pestles eliminate the potential of sample overflow common with other types of grinders
- The molded-in abrasive surface on the pestle tip leaves no sediment to obstruct sample examination
- Each grinder comes with a fully assembled pestle, a conical sample tube with solid top cap, an adhesive identification label and an instruction card.
- All are gamma-sterilized in easy-open Tyvek® packs
- Tubes are made of PP, pestles are 30% glass-filled PP and caps are HDPE

Part Number	Capacity (mL)	Case Qty
749600-0015	15	10
749600-0050	50	10

Sterile Closed-System Tissue Grinders with Vitrified Tip

Closed System 2 sterile tissue grinders are the same as the CS1 grinders but with a vitrified tip for more aggressive grinding of difficult samples.

- The proprietary silica casting process results in a glass-like abrasive tip surface that makes it easier to homogenize fibrous samples
- The closed system design allows for grinding to take place within a sealed container
- Each grinder comes with a fully assembled pestle, a conical sample tube with solid top cap, an adhesive identification label and an instruction card
- All are gamma-sterilized in easy-open Tyvek® packs
- Tubes are made of PP, pestles are 30% glass-filled PP, caps are HDPE and vitrified tips are cast silica

Part Number	Capacity (mL)	Case Qty
749610-0015	15	10
749610-0050	50	10

Biomasher II® Closed System Disposable Tissue Homogenizers

Closed system tissue homogenizer (tube with pestle) ideal for homogenizing of animal tissues and organs as well as plant materials, insects, DNA, RNA, proteins, yeasts and enzymes.

- Micro-sized version of our CS1 and CS2 disposable, closed system tissue homogenizers
- Pestle with a molded-in shaft guard to minimize potential exposure to hazardous materials
- Abrasive surfaces on the pestle tip and inner tube area ensure efficient grinding of samples
- Available both sterile and non-sterile
- The tube is clear polypropylene and the pestle is polyacetal
- 749625-0010 is packaged in a bulk pack configuration
- 749625-0020 and 749625-0030 are individually wrapped

Part Number	Capacity (mL)	Sterile/Non-sterile	Case Qty
749625-0010	1.5	Non-sterile	50
749625-0020	1.5	Non-sterile	50
749625-0030	1.5	Sterile	50

DUALL® Tissue Grinders with Glass Pestles and KimCote® Glass Tubes

- Similar to 885450 series but with plastic safety coating
- KimCote® plastic coating on tube will contain the homogenate if the tube breaks or cracks during motor-driven homogenization
- The coating is transparent, allowing an unobstructed view of the homogenate
- Replacement components are available and completely interchangeable
- Clearance between pestles and tubes is 0.004" to 0.006"
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Size; Working Capacity (mL)	Pestle Shaft OD (mm)	Case Qty
885460-0020	20; 1	6	1
885460-0021	21; 3	6	1
885460-0022	22; 5	8	1
885460-0023	23; 15	10	1
885460-0024	24; 30	10	1
885460-0025	24; 50	16	1

Replacement Parts

Part Number	Description	Case Qty
885451-0021	Size 21 Pestle for DUALL® Tissue Grinder	1
885451-0022	Size 22 Pestle for DUALL® Tissue Grinder	1
885451-0023	Size 23 Pestle for DUALL® Tissue Grinder	1
885451-0024	Size 24 Pestle for DUALL® Tissue Grinder	1
885451-0025	Size 25 Pestle for DUALL® Tissue Grinder	1
885462-0020	Size 20 Plastic-Coated Tube for DUALL® Tissue Grinder	1
885462-0021	Size 21 Plastic-Coated Tube for DUALL® Tissue Grinder	1
885462-0022	Size 22 Plastic-Coated Tube for DUALL® Tissue Grinder	1
885462-0023	Size 23 Plastic-Coated Tube for DUALL® Tissue Grinder	1
885462-0024	Size 24 Plastic-Coated Tube for DUALL® Tissue Grinder	1
885462-0025	Size 25 Plastic-Coated Tube for DUALL® Tissue Grinder	1

ULTRA-WARE® Economy Three-Hole Cap Systems

- The cap body is manufactured from PTFE and is supplied with a TFE/propylene o-ring and a polypropylene screw collar
- The connecting threads on the top of the cap use standard ¼"-28 flangeless fittings
- Two of the ports have 1/8" through-holes; the third port has a 1/16" through-hole
- Assembly instructions included.
- ULTRA-WARE® flat bottom reservoirs have a plastic safety coating which blocks virtually all UV light up to 385 nm, preventing photodegradation of light-sensitive mobile phases
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Reservoir Capacity (mL)	Case Qty
953930-1002	1000	1
953930-2002	2000	1
953930-5002	5000	1
953930-1003	10000	1

Replacement Parts

Part Number	Description	Case Qty
953913-5000	Economy Three-Hole Cap - includes PTFE body, GL45 open top screw collar, and a size 216 TFE/propylene o-ring	1
953913-5001	PTFE Body for Economy Three-Hole Cap	1
953913-5001	PTFE Body for Economy Three-Hole Cap	1
953916-3002	2 µm All PEEK Inlet/Sparge Filter, OD 1.1", Length 0.8", Fits Tubing OD 1/8"	1
420821-0018	ETFE Flangeless Nut for 1/8" OD Tubing, 1/4"-28 Thread, Use with the 420822-Series Flangeless Ferrules	1
420822-0018	ETFE Flangeless Ferrule for 1/8" OD Tubing, for Use with 420821 Series Male Nuts	1
953913-0001	ETFE Nut Plug 1/4"-28, Used to Seal Ports with Flat Bottom 1/4"-28 Threads	1
420823-0018	1/8" OD x 0.063" ID x 10' FEP / PTFE Tubing	1
953902-0252	250 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 133 mm, Overall Diameter 73 mm	1
953902-0502	500 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 165 mm, Overall Diameter 89 mm	1
953902-1002	1000 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 205 mm, Overall Diamter 111 mm	1
953902-2002	2000 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 250 mm, Overall Diameter 138 mm	1
953902-5002	5000 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 320 mm, Overall Diameter 186 mm	1
953902-1003	10000 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 400 mm, Overall Diameter 234 mm	1
953902-2003	20000 mL Flat Bottom HPLC Reservoir without Graduations, Overall Height 490 mm, Overall Diameter 300 mm	1

Accessories

Fittings Kit

- Kit consists of 20' of 1/8" OD FEP PTFE tubing, 20 CTFE ferrules and 20 (1/4"-28) ETFE nuts

Part Number	Case Qty
953882-0000	1

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ULTRA-WARE® Four Valve Filtration/Delivery Caps

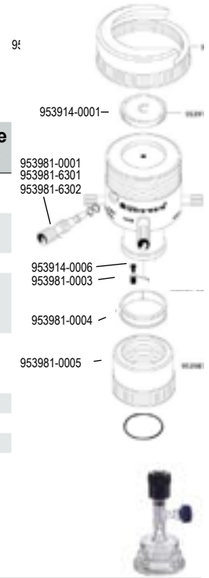
Standard - 953981-0047

- Patent No. 5,397,467.
- This cap combines the mobile phase filtration, sparging/degassing, storage and delivery functions
- All tubing connections are made in the back of the cap, reducing the typical clutter of tubing at the reservoirs
- An integral check valve in the sparge port prevents the mobile phase from backing up into the gas lines
- A pressure release valve prevents the reservoir from being accidentally over-pressurized
- The 1/4"-28 fitting connections allow easy connection to any HPLC pump system
- Cap body is manufactured from glass-filled PTFE
- Cap will fit any reservoir or bottle with a GL 45 thread

THF-Resistant - 953981-6347

- Patent No. 5,397,467
- Tetrahydrofuran (THF), widely used as a mobile phase for GPC, attacks the CTFE valve stems and TFE/propylene o-rings used in the standard four valve cap
- This special THF-resistant version has 316 stainless steel wherever the standard system has CTFE and FFKM o-rings in place of the TFE/propylene o-rings
- This cap is also recommended for aggressive organic solutions such as chlorinated hydrocarbons, ethers and ketones
- Cap body is manufactured from glass-filled PTFE
- Cap will fit any reservoir or bottle with a GL 45 thread

Part Number	Filter Diameter (mm)	THF Resistance	Case Qty
953981-0047	47	No	1
953981-6347	47	Yes	1



Replacement Parts

Part Number	Description	Case Qty
953914-0002	47 mm Upper Screw Clamp	1
953914-0001	47 mm 40-60 micron Porosity Glass Support Frit	1
953981-0001	Short CTFE Valve Stem	1
953981-6301	Short Stainless Steel Valve Stem for Sparge and Pump Ports	1
953981-6302	Long Stainless Steel Valve Stem for Filter, Vent and Recirculate Ports	1
953914-0006	PTFE Drip Tip	1
953981-0003	Check Valve with Retainer	1
953981-0004	Lower Cap Retainer Ring	1
953981-0005	GL 45 Lower Screw Cap	1

Accessories

Part Number	Description	Case Qty
953984-0090	90 mm Base Adapter	1
953906-0090	90 mm Standard Pickup Adapter	1
953906-0047	47 mm Standard Pickup Adapter	1
953906-6390	90 mm THF-Resistant Pickup Adapter	1
953906-0047	47 mm Pickup Adapter	1
953906-6347	47 mm THF-Resistant Pickup Adapter	1

ULTRA-WARE® Five Valve Recirculation/Filtration Caps

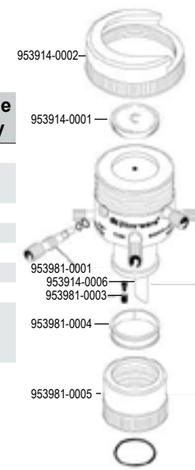
Standard - 953983-0047

- Patent No. 5,397,467
- Specially designed to permit the recirculation of mobile phase back into the reservoir while maintaining the helium sparged environment.
- This cap also performs stepwise filtration, sparging/degassing, storage and delivery to the HPLC pump
- An integral check valve prevents mobile phase from backing up into the gas lines
- A pressure release valve protects the reservoir from being accidentally over-pressurized
- The 1/4"-28 fitting connections allow easy connection to any HPLC pump system
- Cap body is manufactured from glass-filled PTFE
- Cap will fit any reservoir or bottle with a GL 45 thread

- THF-Resistant - 953983-6347
- Patent No. 5,397,467
- Tetrahydrofuran (THF), widely used as a mobile phase for GPC, attacks the CTFE valve stems and TFE/propylene o-rings used in the standard Five Valve Cap
- This special THF-resistant version has 316 stainless steel wherever the standard system has CTFE, and FFKM o-rings in place of the TFE/propylene o-rings
- This cap is also recommended for aggressive organic solutions such as chlorinated hydrocarbons, ethers and ketones
- Cap body is manufactured from glass-filled PTFE
- Cap will fit any reservoir or bottle with a GL 45 thread

Part Number	Filter Diameter (mm)	THF Resistance	Case Qty
953983-0047	47	No	1
953983-6347	47	Yes	1

Replacement Parts



Part Number	Description	Case Qty
953914-0002	47 mm Upper Screw Clamp	1
953914-0001	47 mm 40-60 micron Porosity Glass Support Frit	1
953914-0006	PTFE Drip Tip	1
953981-0003	Check Valve with Retainer	1
953981-0004	Lower Cap Retainer Ring	1
953981-0005	GL 45 Lower Screw Cap	1
953981-0005	GL 45 Lower Screw Cap	1
953981-6301	Short Stainless Steel Valve Stem for Sparge and Pump Ports	1
953981-6302	Long Stainless Steel Valve Stem for Filter, Vent and Recirculate Ports	1

Accessories

Part Number	Description	Case Qty
953984-0090	90 mm Base Adapter	1
953906-6347	47 mm THF-Resistant Pickup Adapter	1
953906-6390	90 mm THF-Resistant Pickup Adapter	1
953906-0047	47 mm Standard Pickup Adapter	1
953906-0090	90 mm Standard Pickup Adapter	1

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Conical Bottom Reservoirs without Graduations

Designed for preparation, storage and delivery of all liquid chromatography mobile phases. As part of our ULTRA-WARE® series, these reservoirs are recommended for use under vacuum for filtration and vacuum degassing of mobile phase solvents.

- Plastic safety-coating blocks UV light up to 385nm, preventing photo-degradation of light-sensitive reagents
- Safety coating helps to retain glass fragments and allows a reasonable amount of time for the safe disposal of liquid contents
- Used with internal pressures up to 0.4 bar (6 psig) for helium sparging and blanketing of the mobile phase
- Operating Pressure: -1.0 to 0.4 bar (-14.5 psig to 6 psig)
- Conical bottom delivers all of the mobile phase without reservoir tilting
- Chemically inert glass prevents leaching of any extractables into the mobile phase solvents
- Supplied with GL-45 screw thread
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953901-0252	250	203 x 85	1
953901-0502	500	230 x 105	1
953901-1002	1000	275 x 130	1
953901-2002	2000	319 x 150	1
953901-5002	5000	373 x 205	1
953901-1003	10000	433 x 255	1
953901-2003	20000	578 x 315	1

Conical Bottom Reservoirs with Side Necks and Graduations

Designed for preparation, storage and delivery of all liquid chromatography mobile phases. As part of our ULTRA-WARE® series, these reservoirs are recommended for use under vacuum for filtration and vacuum degassing of mobile phase solvents.

- Plastic safety-coating blocks UV light up to 385nm, preventing photo-degradation of light-sensitive reagents
- Safety coating helps to retain glass fragments and allows a reasonable amount of time for the safe disposal of liquid contents
- Used with internal pressures up to 0.4 bar (6 psig) for helium sparging and blanketing of the mobile phase
- Operating Pressure: -1.0 to 0.4 bar (-14.5 psig to 6 psig)
- Conical bottom delivers all of the mobile phase without reservoir tilting
- Side neck allows addition of filtered solvent without removing delivery cap
- Chemically inert glass prevents leaching of any extractables into the mobile phase solvents
- Supplied with GL-45 screw thread
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953910-1003	10000	433 x 255	1
953910-2002	2000	319 x 150	1
953910-2003	20000	578 x 315	1
953910-5002	5000	373 x 205	1

Conical Bottom Reservoirs with Graduations

Designed for preparation, storage and delivery of all liquid chromatography mobile phases. As part of our ULTRA-WARE® series, these reservoirs are recommended for use under vacuum for filtration and vacuum degassing of mobile phase solvents.

- Plastic safety-coating blocks UV light up to 385nm, preventing photo-degradation of light-sensitive reagents
- Safety coating helps to retain glass fragments and allows a reasonable amount of time for the safe disposal of liquid contents
- Used with internal pressures up to 0.4 bar (6 psig) for helium sparging and blanketing of the mobile phase
- Operating Pressure: -1.0 to 0.4 bar (-14.5 psig to 6 psig)
- Conical bottom delivers all of the mobile phase without reservoir tilting
- Chemically inert glass prevents leaching of any extractables into the mobile phase solvents
- Supplied with GL-45 screw thread
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953922-0252	250	203 x 85	1
953922-0502	500	230 x 105	1
953922-2002	2000	319 x 150	1
953922-5002	5000	373 x 205	1
953922-1003	10000	433 x 255	1
953922-2003	20000	578 x 315	1

Flat Bottom Reservoirs without Graduations

Designed for preparation, storage and delivery of all liquid chromatography mobile phases. As part of our ULTRA-WARE® series, these reservoirs are recommended for use under vacuum for filtration and vacuum degassing of mobile phase solvents.

- Plastic safety-coating blocks UV light up to 385nm, preventing photo-degradation of light-sensitive reagents
- Safety coating helps to retain glass fragments and allows a reasonable amount of time for the safe disposal of liquid contents
- Used with internal pressures up to 0.4 bar (6 psig) for helium sparging and blanketing of the mobile phase
- Operating Pressure: -1.0 to 0.4 bar (-14.5 psig to 6 psig)
- Chemically inert glass prevents leaching of any extractables into the mobile phase solvents
- Supplied with GL-45 screw thread
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953902-0252	250	133 x 73	1
953902-0502	500	165 x 89	1
953902-1002	1000	205 x 111	1
953902-2002	2000	250 x 138	1
953902-5002	5000	320 x 186	1
953902-1003	10000	400 x 234	1
953902-2003	20000	490 x 300	1

Flat Bottom Reservoirs with Graduations

Designed for preparation, storage and delivery of all liquid chromatography mobile phases. As part of our ULTRA-WARE® series, these reservoirs are recommended for use under vacuum for filtration and vacuum degassing of mobile phase solvents.

- Plastic safety-coating blocks UV light up to 385nm, preventing photo-degradation of light-sensitive reagents
- Safety coating helps to retain glass fragments and allows a reasonable amount of time for the safe disposal of liquid contents
- Used with internal pressures up to 0.4 bar (6 psig) for helium sparging and blanketing of the mobile phase
- Operating Pressure: -1.0 to 0.4 bar (-14.5 psig to 6 psig)
- Chemically inert glass prevents leaching of any extractables into the mobile phase solvents
- Supplied with GL-45 screw thread
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height x Diameter (mm)	Case Qty
953932-0252	250	203 x 85	1
953932-0502	500	230 x 105	1
953932-1002	1000	275 x 130	1
953932-2002	2000	319 x 150	1
953932-5002	5000	373 x 205	1
953932-1003	10000	433 x 255	1
953932-2003	20000	578 x 315	1

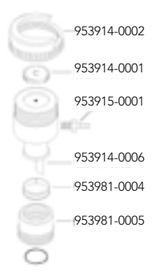
ULTRA-WARE® Filtration Caps

- Body is constructed of glass-filled PTFE with a vacuum adapter for 1/4" ID tubing
- Upper screw clamp holds a solvent pickup adapter or funnel
- 40-60 micron porosity fritted glass filter support is removable
- Supplied with a PTFE/propylene o-ring

Part Number	Filter Diameter (mm)	Screw Thread	Case Qty
953915-0047	47	GL 45	1

Replacement Parts

Part Number	Description	Case Qty
953914-0002	47 mm Upper Screw Clamp	1
953914-0001	47 mm 40-60 micron Porosity Glass Support Frit	1
953915-0001	1/4" PFA Hose Barb	1
953914-0006	PTFE Drip Tip	1
953981-0004	Lower Cap Retainer Ring	1
953981-0005	GL 45 Lower Screw Cap	1



Accessories

Part Number	Description	Case Qty
953984-0090	ULTRA-WARE® Conversion Base for Caps	1
953906-0090	90 mm Standard Pickup Adapter	1
953906-0047	47 mm Standard Pickup Adapter	1

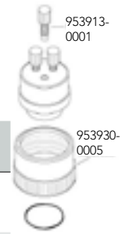
ULTRA-WARE® Three Hole Delivery Caps

- Caps have ¼"-28 threads top and bottom with 1/8" ID holes to accept 1/8" OD PTFE tubing
- Body is PTFE
- Supplied complete with three ¼"-28 CTFE plugs and a TFE/propylene o-ring

Part Number	Screw Thread	Case Qty
953913-0000	GL 45	1

Replacement Parts

Part Number	Description	Case Qty
953913-0001	ETFE Nut Plug 1/4"-28, Used to Seal Ports with Flat Bottom 1/4"-28 Threads	1
953903-0005	GL 45 Screw Cap	1



ULTRA-WARE® Three Valve Delivery Caps

- Three on-off valves have ¼"-28 threads top and bottom
- Valve body is PTFE
- Valve stem material is CTFE
- O-ring material for valve stem and lower seal is TFE/ propylene

Part Number	Screw Thread	Case Qty
953903-0000	GL 45	1

Replacement Parts

Part Number	Description	Case Qty
953903-0002	Blue Valve Handle	1
953903-0003	Red Valve Handle	1
953903-0004	Yellow Valve Handle	1
953903-0042	Short CTFE Valve Stem	1
953903-0005	GL 45 Screw Cap	1

ULTRA-WARE® Solvent Pickup Adapters

Designed to be used with the five valve, four valve and filtration caps to provide safe, in-line filtration that replaces the traditional pour-and-wait funnel filtration method.

- The unique Bevel-Seal™ makes a vacuum-tight o-ring connection to the PTFE tubing
- The HI-VAC® valve is easier to open under vacuum than the standard stopcock
- Closing the valve provides vacuum degassing after filtration
- Each unit is supplied with 3 feet (91 cm) of 1/4" OD FEP PTFE tubing
- 953906-6347 and 953906-6390 have FFKM o-rings and are THF-resistant
- Valve o-ring size is 010 and sidearm o-ring size is 108
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Diameter (mm)	THF Resistance	Case Qty
953906-0047	47	No	1
953906-6347	47	Yes	1
953906-0090	90	No	1
953906-6390	90	Yes	1

Replacement Parts

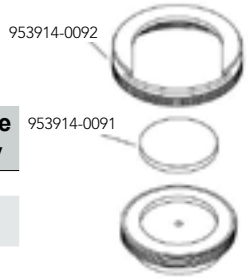
Part Number	Description	Case Qty
953906-0002	47 mm Pickup Adapter Body	1
953906-0092	90 mm Pickup Adapter Body	1
953906-0001	Standard Valve Plug Assembly	1
410119-1508	Blue Glass-Filled Nylon 15-415 Open-Top Compression Cap, Hole Diameter 8.5 mm	12

ULTRA-WARE® Conversion Base

Converts the five valve, four valve and filtration caps to use 90 mm filter membranes, providing up to four times faster filtration.

- The conversion base is manufactured from glass-filled PTFE and is supplied with a coarse porosity (40-60 micron porosity) glass support frit and an upper screw clamp
- Requires a 90 mm 953906 series solvent pickup adapter

Part Number	Case Qty
953984-0090	1



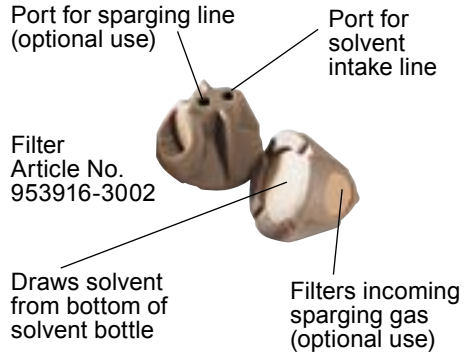
Replacement Parts

Part Number	Description	Case Qty
953914-0092	90 mm Upper Screw Clamp	1
953914-0091	90 mm 40-60 micron Porosity Glass Support Frit	1

Accessories

Part Number	Description	Case Qty
953906-0090	90 mm Standard Pickup Adapter	1
953906-6390	90 mm THF-Resistant Pickup Adapter	1

Safety System 3



Safety System 3 is a unique Solvent Bottle Adapter that is made from PBT and converts ULTRAWARE® GL-45 mobile phase caps to standard 4L solvent bottles for direct connection to your HPLC pump. It is also available without the solvent bottle-to-GL-45 thread adapter.

- Eliminates the safety hazards of aluminum foil-wrapped solvent containers
- ULTRA-WARE® Economy Three Hole Cap is manufactured from PTFE with a TFE/propylene o-ring and a polypropylene screw collar
- Three connecting threads on top of the cap use standard ¼"-28 flangeless fittings
- Two ports have 1/8" through-holes for connection to the inlet / sparge filter
- The third port has a 1/16" through-hole used as a vent port during sparging

Included with your Safety System 3 is the unique Bottom-of-the-Bottle™ Inlet/ Sparge Filter.

- The filter combines the functions of an inlet filter with a sparger in a single, convenient device
- Sparging bubbles are prevented from entering the mobile phase stream while allowing the pump to draw all but a few milliliters of solvent from the reservoir or bottle
- All PEEK construction makes it ideal for virtually all mobile phases
- Supplied with 2 µm porosity frits and connections for 1/8" OD tubing.

Part Number	Description
953930-0000	Safety System 3 with GL-45 Bottle Adapter
953930-0001	Safety System 3 without GL-45 Bottle Adapter

Each Safety System 3 consists of the following:
953913-5000 1 ea. Economy 3-Hole Cap, GL-45
953907-0000 1 ea. Solvent Bottle Adapter, GL-45 (included with 953930-0000 only)
953916-3002 1 ea. Combination Inlet / Sparge Filter, 2 µm, PEEK™
420821-0018 2 ea. Flangeless Nut, ETFE, ¼"-28 x 1/8"
420822-0018 2 ea. Flangeless Ferrule, ETFE, 1/8" (Optional)
953913-0001 1 ea. Vent Port Plug, ETFE, ¼"-28
420823-0018 1 ea. Tubing, FEP PTFE, 1/8" OD x 1/16" ID x 10'

SERIALIZED & CERTIFIED

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

Kimble® offers serialized glassware manufactured from exacting ASTM standards, with an individualized Certificate of Graduation Accuracy for burets, cylinders, volumetric flasks, and pipets.

A serial number on each piece of Kimble® Class A glassware provides an easy way for a laboratory to track which specific items are used during analytical testing. This traceability provides the ultimate control for your quality process.

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Class A Serialized and Certified Burets with Straight Bore PTFE Stopcock

Used for general purpose titrations requiring traceable volumetric accuracy.

- Precision bore buret is permanently marked with an individual serial number and is traceable to NIST standards
- Supplied with a Certificate of Graduation Accuracy
- Delivery stem of the 10 mL size is 115 mm long to meet requirements of potentiometric titration burets (ASTM D664)
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug and a KIM-KAP® dust cap
- Easy-to-read durable white ceramic enamel scale
- Funnel fill style buret
- Replacement 2 mm straight bore stopcock plug is 821001-0002
- Designed from ASTM Specification E287, Class A requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity, Tolerance (mL)	Overall Length (mm)	Case Qty
17027F-10	10; ±0.02	664	1
17027F-25	25; ±0.03	614	1
17027F-50	50; ±0.05	745	1
17027F-100	100; ±0.10	791	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	2 mm Bore PTFE Stopcock Plug, Plug Size 11/25 mm, Chemically-resistant and self-lubricating	1

Class A Serialized and Certified Reservoir Fill Automatic Zero Burets with PTFE Stopcock

KIMAX® buret ideal for repeat titrations requiring traceable volumetric accuracy.

- Supplied with a Certificate of Graduation Accuracy
- Precision ground tips assure uniform outflow
- Permanently marked with an individual serial number and traceable to NIST standards
- Self-zeroing
- Filled through a self-lubricating PTFE stopcock plug
- Filling tube and overflow tube at the top of the buret accept 1/4 inch ID flexible tubing
- Easy-to-read durable black enamel scale
- Replacement 2 mm bore size three-way stopcock is 823001-0002
- Designed from ASTM E287, Class A requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity, Tolerance (mL)	Overall Length (mm)	Case Qty
17054F-10	10; ±0.02	520	1
17054F-25	25; ±0.03	580	1
17054F-50	50; ±0.05	740	1
17054F-100	100; ±0.10	770	1

Replacement Parts

Part Number	Description	Case Qty
41530F-2	2 mm Bore Three-Way PTFE Stopcock Plug, Plug Size 12.9/44 mm,Chemically-resistant and self-lubricating	6

Replacement Parts

Part Number	Description	Case Qty
41530F-2	2 mm Bore Three-Way PTFE Stopcock Plug, Plug Size 12.9/44 mm, Chemically-resistant and self-lubricating	6

Class A Serialized and Certified Automatic Zero Burets with PTFE Stopcock and Reservoir Bottle

KIMAX® precision bore automatic burets are used in applications requiring the highest degree of precision and accuracy for volumetric analysis. These are ideal for repeat titrations requiring traceable volumetric accuracy or when the titrant should not be handled.

- Packed complete with a reservoir bottle, U-shaped drying tube, vented connecting tube, rubber squeeze bulb, # 1 single-holed rubber stopper, PTFE stopcock plug and 1/4 inch ID rubber tubing
- Precision ground tips assure uniform outflow
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug
- Permanently marked with an individual serial number and traceable to NIST Standards
- Supplied with a Certificate of Graduation Accuracy
- Easy-to-read durable black enamel scale
- Replacement 2 mm bore size stopcock plug is 823001-0002
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Procedure for Using Automatic Buret 17124F: Place the one-holed rubber stopper, large end first, on the lower tubulation of the buret. Add the U-shaped drying tube, prefilled with drying medium, over the small end of the stopper.
Join the drying tube to the connecting tube and then the rubber squeeze bulb with the rubber tubing. To fill the buret, turn the stopcock to connect, filling tube to the buret. Squeeze the rubber bulb several times while closing the vent hole in the connecting tube with your finger. As liquid rises and overflows from the tip above the buret, turn the stopcock to off and remove your finger from the vent hole of the connecting tube. If air is trapped in the stopcock or tip, discharge the air and repeat the filling operation to automatic zero at overflow tip.

Part Number	Reservoir, Buret Capacities; Tolerance (mL)	Overall Length (mm)	Case Qty
17124F-10	1000, 10; ±0.02	765	1
17124F-25	1000, 25; ±0.03	858	1
17124F-50	2000, 50; ±0.05	1045	1
17124F-100	2000, 100; ±0.10	1090	1

Replacement Parts

Part Number	Description	Case Qty
41530F-2	2 mm Bore Three-Way PTFE Stopcock Plug, Plug Size 12.9/44 mm,Chemically-resistant and self-lubricating	6

Class A Serialized and Certified Reservoir Fill Burets with Three-Way PTFE Stopcock

Used for general purpose titrations requiring traceable volumetric accuracy.

- Permanently marked with an individual serial number and traceable to NIST Standards
- Supplied with a Certificate of Graduation Accuracy
- Filling tube accepts 1/4 inch ID flexible tubing
- Precision ground tips assure uniform outflow
- KIM-KAP® dust cap is included
- Filled through a self-lubricating PTFE stopcock plug
- Easy-to-read durable white enamel scale
- Reservoir fill style buret
- Replacement 2 mm bore size three-way stopcock is 823001-0002
- Designed from ASTM E287, Class A requirements
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E-438, Type I, Class A requirements

Part Number	Capacity, Tolerance (mL)	Overall Length (mm)	Case Qty
17052F-25	25; ±0.03	617	1
17052F-50	50; ±0.05	748	1
17052F-100	100; ±0.10	794	1

Replacement Parts

Part Number	Description	Case Qty
41530F-2	2 mm Bore Three-Way PTFE Stopcock Plug, Plug Size 12.9/44 mm, Chemically-resistant and self-lubricating	6

Serialized and Certified Reservoir Fill Micro Buret with Three-Way PTFE Stopcock

Used for repeated small volume titrations requiring traceable volumetric accuracy.

- Precision bore buret is permanently marked with an individual serial number and is traceable to NIST standards
- Supplied with a Certificate of Graduation Accuracy
- Easy-to-read durable white ceramic enamel scale
- Both filling and overflow tubes accept ¼" ID flexible tubing
- Supplied with a chemically-resistant, self-lubricating PTFE stopcock plug
- Replacement 2 mm three-way stopcock plug is 823001-0002
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity, Tolerance (mL)	Overall Length (mm)	Case Qty
17115F-5	5; ±0.01	761	1
17115F-10	10; ±0.02	781	1

Replacement Parts

Part Number	Description	Case Qty
41530F-2	2 mm Bore Three-Way PTFE Stopcock Plug, Plug Size 12.9/44 mm, Chemically-resistant and self-lubricating	6

Class A Serialized and Certified Funnel Top Micro Burets with Straight Bore PTFE Stopcock

Used for small volume titrations requiring traceable volumetric accuracy.

- Precision bore buret is permanently marked with an individual serial number and is traceable to NIST standards
- Supplied with a Certificate of Graduation Accuracy
- Easy-to-read durable white ceramic enamel scale
- Funnel top accepts a one-hole #3 rubber stopper
- Replacement 2 mm straight bore stopcock plug is 821001-0002
- Supplied with a chemical-resistant, self-lubricating PTFE stopcock plug
- Manufactured to the specifications found in ASTM E694
- Calibrated to the accuracy requirements found in ASTM Specification E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

A short length of glass tubing aids in filling the buret through the tip by vacuum if desired. Stopper and tubing are not supplied.

Part Number	Capacity, Tolerance (mL)	Overall Length (mm)	Case Qty
17110F-5	5; ±0.01	790	1
17110F-10	10; ±0.02	810	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	2 mm Bore PTFE Stopcock Plug, Plug Size 11/25 mm, Chemically-resistant and self-lubricating	1

Class A Serialized and Certified To Contain Mixing Cylinders

- KIMAX® cylinder is permanently marked with an individual serial number
- Supplied with a Certificate of Graduation Accuracy
- Letters "TC" on cylinder indicate to contain
- A Standard Taper glass stopper is supplied
- Scale is durable white ceramic enamel
- Heights given below do not include the stopper
- Designed from ASTM Specification E1272, Style II, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity, Tolerance (mL)	Standard Taper Stopper	Case Qty
20036-10	10; ±0.08	9	6
20036-25	25; ±0.14	13	6
20036-50	50; ±0.20	16	6
20036-100	100; ±0.35	22	6
20036-250	250; ±0.65	27	1
20036-500	500; ±1.10	32	1
20036-1000	1000; ±2.00	32	1

Class A Serialized and Certified To Deliver Cylinders

KIMAX® Class A cylinder is permanently marked with an individual serial number and supplied with a Certificate of Graduation Accuracy.

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- Provided with a hexagonal base flat ground for stability
- SAFE-GARD® bumpers are supplied with sizes 25 through 1000 mL
- The 10 mL size has an enlarged funnel-shaped top for ease of filling
- Designed from ASTM Specification E1272, Style I, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity, Tolerance (mL)	Height (mm)	Case Qty
20026-10	10; ±0.09	165	6
20026-25	25; ±0.17	195	6
20026-50	50; ±0.25	190	6
20026-100	100; ±0.40	255	6
20026-250	250; ±0.80	330	4
20026-500	500; ±1.30	375	4
20026-1000	1000; ±2.50	460	2

Class A Serialized and Certified Micro Volumetric Flasks with Glass Stopper

Volumetric flasks are ideal for measuring accurate volumes of liquids.

- Letters "TC" on the flask indicate to contain
- KIMAX® flask is permanently marked with an individual serial number and a marking spot
- Supplied with a Certificate of Graduation Accuracy
- Graduation ring blasted on the neck
- Standard Taper ground glass stopper is supplied with the flask
- Cylindrical bodies allow for better mixing, draining and withdrawal of samples by pipet
- Wide base (circular for sizes 1, 2, and 5 mL and hexagonal for sizes 10 and 25 mL) imparts much greater stability than is possible with a conventionally shaped flask
- Sizes 1-5 mL are designed from recommendations published by the Committee on Microchemical Apparatus of the Analytical Division, American Chemical Society, "Analytical Chemistry," 28, page 1993 (Dec. 1956).
- All sizes are designed from ASTM Specification E237, Class A serialized requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity, Tolerance (mL)	Standard Taper Stopper	Case Qty
28017A-1	1; ±0.010	8	6
28017A-2	2; ±0.015	8	6
28017A-5	5; ±0.020	8	6
28017A-10	10; ±0.020	9	6
28017A-25	25; ±0.030	9	6

Replacement Parts

Part Number	Description	Case Qty
850100-0008	Size 8 Solid Pennyhead Stopper, Medium Length	1
850100-0009	Size 9 Solid Pennyhead Stopper, Medium Length	1

Class A Serialized and Certified Volumetric Flasks with Glass Stopper

Volumetric flasks are ideal for measuring accurate volumes of liquids.

- KIMAX® flask is permanently marked with an individual serial number and supplied with a Certificate of Graduation Accuracy.
- Graduation ring is blasted on the neck
- Letters "TC" on the flask indicate to contain
- Supplied with a marking spot and a Standard Taper ground glass stopper
- These flasks have been carefully selected to meet the requirements for accuracy, appearance, glass quality, calibration line, and inscriptions of former NBS Circular 602
- Designed from ASTM Specification E288, Class A serialized requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity, Tolerance (mL)	Standard Taper Stopper	Case Qty
28017-10	10; ±0.02	9	12
28017-25	25; ±0.03	9	12
28017-50	50; ±0.05	9	12
28017-100	100; ±0.08	13	12
28017-200	200; ±0.10	16	12
28017-250	250; ±0.12	16	12
28017-500	500; ±0.20	19	12
28017-1000	1000; ±0.30	22	6
28017-2000	2000; ±0.50	27	4

Replacement Parts

Part Number	Description	Case Qty
850100-0009	Size 9 Solid Pennyhead Stopper, Medium Length	1
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0016	Size 16 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1
850100-0022	Size 22 Solid Pennyhead Stopper, Medium Length	1
850100-0027	Size 27 Solid Pennyhead Stopper, Medium Length	1

Class A Serialized and Certified Volumetric Flasks with Snap Cap

These KIMAX® Class A flasks are permanently marked with individual serial numbers. The 500 mL size is suitable for determination of specific gravity of fine aggregate (ASTM C128).

- Supplied with a Certificate of Graduation Accuracy
- Graduation ring is blasted on the neck
- Letters "TC" on the flask indicate to contain
- Supplied with a polyethylene snap cap and a marking spot
- Flasks have been carefully selected to meet the requirements for accuracy, appearance, glass quality, calibration line, and inscriptions of former NBS Circular 602
- Designed from ASTM Specification E288, Class A serialized requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity, Tolerance (mL)	Plastic Cap Number	Case Qty
28012-50	50; ±0.05	3	12
28012-100	100; ±0.08	4	12
28012-250	250; ±0.12	5	12
28012-500	500; ±0.20	5	12
28012-1000	1000; ±0.30	6	6

Replacement Parts

Part Number	Description	Case Qty
28150R-3	Yellow Polyethylene Snap-Cap, Size 3, Fits flask size 50mL	6
28150R-4	Yellow Polyethylene Snap-Cap, Size 4, Fits flask size 100mL	6
28150R-5	Yellow Polyethylene Snap-Cap, Size 5, Fits flask size 200, 250, 500mL	6
28150R-6	Yellow Polyethylene Snap-Cap, Size 6, Fits flask size 1000mL	6

Class A Serialized Color Coded To Deliver Measuring Pipets

Intended for chemical laboratory work. Tip openings are smaller than usually desired for clinical laboratory operations.

- KIMAX® pipet has a permanently marked individual serial number
- Supplied with a Certificate of Graduation Accuracy
- Calibrated to deliver
- Scale is permanent brown stain fused into uniform bore tubing without etching
- Pipet is graduated to a base line which begins on the straight tube above the taper
- Color-coded for ease in sorting and selecting the correct size pipet
- Designed from ASTM Specification E1293, Style I, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

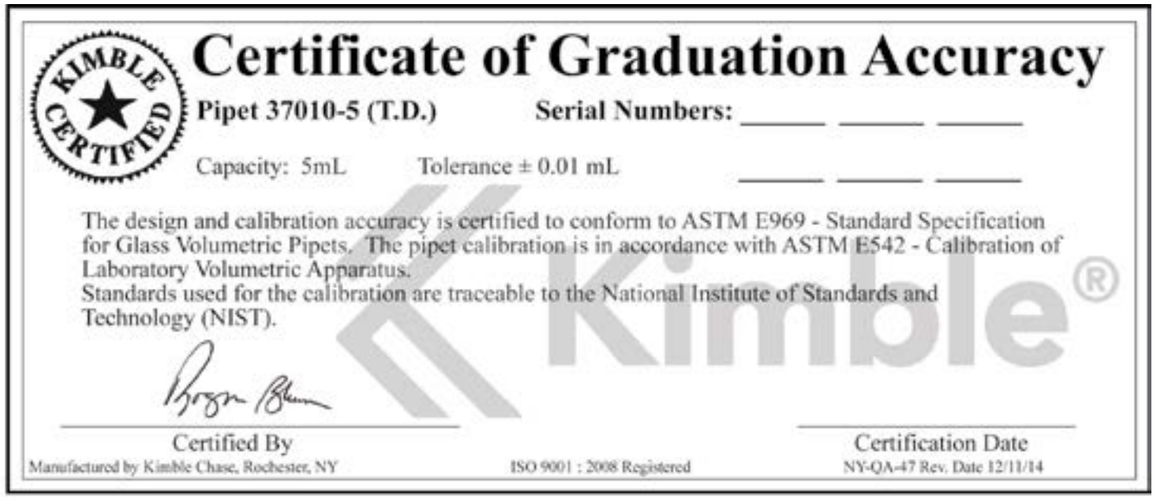
Part Number	Capacity, Tolerance (mL)	Overall Length (mm)	Case Qty
37025-1110	1; ± 0.01	350	12
37025-11100	1; ± 0.01	350	12
37025-2	2; ± 0.01	350	12
37025-5	5; ± 0.02	350	12
37025-10	10; ± 0.03	350	12
37025-25	25; ± 0.05	400	6

Class A Serialized and Certified To Deliver Volumetric Pipets

Volumetric pipets are ideal for measuring accurate volumes of liquids.

- Letters "TD" on the pipet indicate to deliver
- Sizes 1 mL and larger are marked with large numerals on the bulb, indicating capacity
- Color-coded (ASTM E1273) for ease in sorting and selecting the correct pipet
- With a legend of permanent brown stain
- KIMAX® pipet has a permanently marked individual serial number and is autoclavable
- Supplied with a Certificate of Graduation Accuracy
- Carefully selected to meet the requirements for accuracy, appearance, glass quality, calibration line, and inscription of former NBS Circular 602
- Designed from ASTM Specification E969, Class A requirements
- 75 and 200 mL sizes are designed from ASTM E542
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity, Tolerance (mL)	Overall Length (mm)	Case Qty
37010-510	0.5; ± 0.006	310	12
37010-1	1; ± 0.006	310	12
37010-1510	1.5; ± 0.006	335	12
37010-2	2; ± 0.006	335	12
37010-2510	2.5; ± 0.006	350	12
37010-3	3; ± 0.01	350	12
37010-4	4; ± 0.01	350	12
37010-5	5; ± 0.01	365	12
37010-6	6; ± 0.01	375	12
37010-7	7; ± 0.01	400	12
37010-8	8; ± 0.01	400	12
37010-9	9; ± 0.02	400	12
37010-10	10; ± 0.02	400	12
37010-12	12; ± 0.02	460	12
37010-15	15; ± 0.03	455	12
37010-20	20; ± 0.03	505	12
37010-25	25; ± 0.03	505	12
37010-30	30; ± 0.03	525	6
37010-40	40; ± 0.03	525	6
37010-50	50; ± 0.05	545	8
37010-75	75; ± 0.05	550	6
37010-100	100; ± 0.08	550	6
37010-200	200; ± 0.16	560	6



Ribbed PTFE Sleeves with Gripping Ring

Reusable Standard Taper joint sleeve.

- Knurled reinforced gripping ring for easy removal
- Reinforcement ribs provide a vacuum-tight seal and prevent the sleeve from sticking
- Ultra-thick .008" sleeve provides additional strength

Part Number	Fits Standard Taper Joint	Case Qty
676100-1420	14/20	1
676100-1922	19/22	1
676100-2440	24/40	1
676100-2942	29/42	1
676100-3445	34/45	1
676100-4550	45/50	1

PTFE Sleeves

Designed for use in applications where greaseless connections are required.

- Heavy wall weight of .005" helps to eliminate wrinkling and creasing
- Precisely fabricated from high density PTFE, which provides better vacuum and elasticity
- Original sleeve shape is retained after repeated use

Part Number	Fits Standard Taper Joint	Case Qty
676001-1018	10/18	6
676001-1030	10/30	6
676001-1420	14/20	6
676001-1922	19/22	6
676001-1938	19/38	6
676001-2425	24/25	6
676001-2926	29/26	6
676001-2942	29/42	6
676001-3445	34/45	6
676001-4035	40/35	6
676001-4550	45/50	6
676001-5550	55/50	6
676001-7160	71/60	6

STARTER PACKS

Low Form Griffin Beaker Starter Pack

An assortment of popularly sized beakers from our 14000 Low Form Griffin series that is ideal for start-up labs and customers who need a variety of beaker sizes but have limited lab space or glassware needs.

- Double capacity scale
- The pack consists of five beakers from our 14000 Low Form Griffin series
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Case Qty
14080-01	1 each of 50, 100, 250, 600, 1000	1 Set of 5

Heavy Duty Beaker Starter Pack

An assortment of popularly sized beakers from our 14005 Low Form Heavy Duty Griffin series that is ideal for start-up labs and customers who need a variety of heavy duty beaker sizes but have limited lab space or glassware needs.

- Double capacity scale
- The pack consists of four beakers from our 14005 Low Form Heavy Duty series
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Case Qty
14085-01	1 each of 250, 400, 600, 1000	1 Set of 4

Erlenmeyer Flask Starter Pack

An assortment of popularly sized Erlenmeyer flasks from our 26500 series that is ideal for start-up labs and customers who need a variety of Erlenmeyers but have limited lab space and glassware needs.

- The pack consists of 5 flasks (one each) in sizes of 50, 125, 250, 500 and 1000 mL
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Rubber Stopper Size	Case Qty
26520-1	1 each of 50, 125, 250, 500, 1000	1, 5, 6, 7, 9	1

Cylinder Starter Pack

An assortment of popularly sized graduated cylinders from our 20024 series that is ideal for start-up labs and customers who need a variety of cylinders but have limited lab space or glassware needs.

- "TD" appears on each cylinder and indicates the cylinder is calibrated to deliver
- Class B
- Single metric scale, with bumper
- The pack consists of 5 cylinders (one each) in sizes of 10, 25, 50, 100 and 250 mL
- Designed from ASTM Specification E1272, Style I, Class B requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Case Qty
20024-01	1 each of 10, 25, 50, 100, 250	1

GL 45 Media Bottle Starter Pack

NEW!!!

An assortment of popularly sized media bottles from our 14395 series, which is ideal for general laboratory use including mixing, storing or transporting culture media, chemicals or solvents.

- Enhanced graduations and marking spot made with chemically resistant white enamel paint
- 30 mm ID opening
- Autoclavable
- Supplied with blue polypropylene linerless GL 45 screw thread caps
- Replaceable clear (natural) drip-free polypropylene pour ring is included on each bottle
- The pack consists of two 100 mL, three 250 mL, three 500 mL, and two 1000 mL bottles
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Case Qty
14395-01	100, 100, 250, 250, 250, 500, 500, 500, 1000, 1000	1

Stir Bars

This stirrer bar permits stirring in closed containers without contamination.

- PTFE-covered round magnetic stirring bar
- Supplied in glass vial with polyethylene stopper

Part Number	Length (mm)	Width (mm)	Case Qty
791145-0021	12	4	12

V-Shaped PTFE Magnetic Stir Vane

The v-shaped magnetic stir vane for ACCUFORM® vials is useful in performing micro titrations and maintaining good suspensions.

- Magnet is molded in PTFE with a conical shape to fit MICROFLEX® vials
- Design prevents "spin-out" and assures good mixing and vortexing

Part Number	Fits ACCUFORM® Vials (mL)	Case Qty
749060-0000	0.3, 1	6
749060-0003	2, 3, 5	6

6 mm Precision Stirrer Assembly with PTFE Blade

- This semi-micro stirrer assembly has a 6 mm button shaft with a double curvature PTFE blade
- The shaft and blade are sized to be used with Standard Taper 14/20 flasks with a capacity of 25 mL and above
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	For Flask Capacity (mL)	Standard Taper Joints	Case Qty
303860-0000	25 to 500	14/20	1

Replacement Parts

Part Number	Description	Case Qty
303861-0000	Stirrer Bearing, 14/20	1
303862-0000	Stirrer Shaft, 6 x 280 mm OD, 14/20	1
788940-0021	Stirrer Blade, PTFE, 11x33mm	1

10 mm Precision Stirrer Assembly with PTFE Blade

- Complete assembly with a glass shaft and bearing
- Blade is PTFE
- Stirrer adapters 788000-0021 and 788030-0000 allow use with stirrer motors
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	For Flask Capacity (mL)	Standard Taper Joints	Case Qty
781030-0119	50 to 500	19/22	1
781030-0124	500 to 5000	24/40	1
781030-0129	500 to 5000	29/42	1
781030-0134	500 to 5000	34/45	1
781030-0245	2000 to 12000	45/50	1

Replacement Parts

Part Number	Description	Case Qty
304151-0000	Stirrer Shaft, 10 x 440 mm OD, 19/22	1
781001-2440	Stirrer Bearing, Glass, 10mm, 24/40, Approx. overall length 120 mm	1
786500-0261	Size 261 Stirrer Shaft, Shaft OD 10mm, Approx. overall length 445mm, 24/40 and 29/42, Approx. ground length 400 mm, For flask capacity 100 to 5000mL	1
786500-0262	Size 262 Stirrer Shaft, Shaft OD 10mm, Approx. overall length 515mm, 45/50 and 55/50, Approx. ground length 470 mm, For flask capacity 12000mL	1
789030-0019	15x46mm PTFE Stirrer Blade, for flask cap. 50, 100mL, Flask center neck size 19/22	1
789030-0022	Size 22 PTFE Stirrer Blade, For flask cap. 500, 1000mL, Approx. height x width 19 x 75 mm, Flask center neck size 24/40 - 35/20	1
789030-0023	Size 23 PTFE Stirrer Blade, For flask cap. 2000 x 3000mL, Approx. height x width 24 x 110mm, Flask center neck size 29/42-35/25	1

Accessories

Part Number	Description	Case Qty
788020-0021	Flex-Shaft Adapter, 8-10mm, 5/16" OD	1

10 mm Precision Stirrer Assembly with PTFE Blade and Stuffing Box

This assembly is recommended for reaction systems requiring vacuum.

- PTFE blade
- Complete unit includes a polyacetal stuffing box, glass stirrer bearing, 10 mm OD glass shaft, PTFE blade and stirrer packing
- Packing consists of a PTFE and graphite mixture
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	For Flask Capacity (mL)	Standard Taper Joints	Case Qty
782030-0124	500 to 5000	24/40	1

Replacement Parts

Part Number	Description	Case Qty
782001-2440	Stirrer Bearing with Stuffing Box, 24/40	1
782001-2942	Stirrer Bearing with Stuffing Box, 29/42	1
786500-0261	Size 261 Stirrer Shaft, Shaft OD 10mm, Approx. overall length 445mm, 24/40 and 29/42, Approx. ground length 400 mm, For flask capacity 100 to 5000mL	1
789030-0022	Size 22 PTFE Stirrer Blade, For flask cap. 500, 1000mL, Approx. height x width 19 x 75 mm, Flask center neck size 24/40 - 35/20	1

10 mm Stirrer Assembly with PTFE Blade and Polished Glass Shaft

This unit is recommended for systems requiring vacuum.

- Complete unit requires bearing, shaft, blade, and O-ring, each sold individually
- Shaft is 10 mm OD polished glass
- Blade is PTFE
- O-ring is FKM
- 24/40 Standard Taper joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Description	Case Qty
785031-0124	10 mm Stirrer Bearing, 24/40, PTFE and glass	1
786520-0261	445mm HI-VAC® Stir Shaft, OD 10mm, for Flask Capacity 100 to 5000mL, 24/40 or 29/42	1
789030-0022	Size 22 PTFE Stirrer Blade, For flask cap. 500, 1000mL, Approx. height x width 19 x 75 mm, Flask center neck size 24/40 - 35/20	1
758252-1025	10mm FKM O-ring, size 5-102, ID 2.45 mm, width 0.97 mm, black or brown	10

Anodized Aluminum Adapter for Stirrer Motors

Convenient, inexpensive adapter for connecting pestles to stirrer motors.

- Anodized aluminum, with attached flexible tubing serving as a friction-clutch and as a flexible coupling
- Stepped-stem diameter is 1/4" and 5/16" (6.4 and 7.9 mm)

Part Number	Fits Shaft Diameter (mm)	Height (mm)	Case Qty
788000-0021	8-10	45	1

Flex-Coupling Adapter for Glass Stirring Rods

The flex-coupling allows 10 mm glass stirring rods to be used with a motor drive.

- The coupling uses a 3" long epoxy-coated spring to compensate for misalignment, reduces the chance of breakage and eliminates the need for special adapters
- The glass shaft is secured by means of a silicone rubber insert
- The top bushing will accept a 5/16" OD motor rod and is tightened by means of an Allen screw

Part Number	Fits Shaft Diameter (mm)	Max Rod Grip Size (in)	Case Qty
788030-0000	10	0.3125	1

Flex-Shaft Adapter for Stirrer Motors

A convenient stainless steel universal joint with 5/16 inch OD shaft and polyacetal adapter connects stirrer shafts to stirrer motors.

- Flexible design allows connection even if alignment is not precise

Part Number	Fits Shaft Diameter (mm)	OD (in)	Case Qty
788020-0021	8-10	0.3125	1

Polyacetal Stirrer Adapter

A polyacetal stirrer adapter for connecting shafts to stirrer motors.

- Knurled compression nut can be hand-tightened for a positive connection
- Stepped OD on stem allows use with 1/4" and 5/16" precision collet-type chucks

Part Number	Fits Shaft Diameter (mm)	Case Qty
788010-0021	8-10	1

10 mm Precision Water Cooled Stirrer Bearing

Water-cooled bearing with built-in lubricant reservoir for use with a 10 mm OD shaft.

- Compatible stirrer shaft is 786500-0261, 10 mm x 445 mm
- Compatible stirrer blade is 789030-0022, 19 mm x 75 mm
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Use with Shaft OD (mm)	Standard Taper Joints	Case Qty
781501-2440	10	24/40	1

10 mm Precision Stirrer Bearing

Precision bearing for use with 10 mm stirrer shafts.

- Stirrer bearing with built-in lubricant reservoir honed for a 10 mm OD shaft
- Unit has integral Standard Taper joint for use with a variety of flasks
- Manufactured from 33 expansion, low *extractable borosilicate glass conforming to USP Type I and ASTM E438*, Type I, Class A requirements

Part Number	Use with Shaft OD (mm)	Standard Taper Joints	Case Qty
781001-2440	10	24/40	1

10 mm PTFE and Glass Stirrer Bearing

These bearings are ideal for use with series 786500 glass 10 mm precision ground stirring shafts.

- Threaded glass ground joint bearings seal against the stirrer shaft by means of a PTFE o-ring, a precision bore PTFE sleeve bearing and a PTFE tightening screw with lock nut and washer
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Use with Shaft OD (mm)	Standard Taper Joints	Case Qty
781050-2440	10	24/40	1
781050-2942	10	29/42	1
781050-3445	10	34/45	1
781050-4550	10	45/50	1

10 mm and 19mm PTFE Stirrer Bearing

These solid PTFE stirrer bearings are ideal for use with series 786500 glass 10 mm precision ground stirring shafts and 19 mm precision ground glass stirring shafts.

Part Number	Use with Shaft OD (mm)	Standard Taper Joints	Case Qty
781010-2440	10	24/40	1
781010-2942	10	29/42	1
781019-2942	19	29/42	1

10 mm Precision Ground Shaft

- Glass stirrer shaft with a precision-ground surface
- Manufactured from 33 expansion, low *extractable borosilicate glass conforming* to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	For Flask Capacity (mL)	Shaft OD (mm)	Case Qty
304151-0000	500	10	1
786500-0261	100 to 5000	10	1
786500-0262	12000	10	1
786500-0263	22000	10	1
786500-0264	50000	10	1

10 mm Precision Polished Shaft

Glass stirrer shaft with a precision-polished surface.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Shaft OD (mm)	Overall Length (mm)	Case Qty
786520-0260	10	440	1
786520-0261	10	445	1

Propeller Combination Shaft

- Made from #303 stainless steel
- Features three angled blades
- Shaft diameter is 3/8"

Part Number	Shaft OD (mm)	Material	Case Qty
790015-0000	9.5	303 Stainless Steel	1

Stir Blades

PTFE stirrer blade fits 786500 and 786520 shafts.

- Blade is 1/8" thick
- 4" cylindrical reaction flasks accept PTFE blade 789030-0022

Part Number	For Flask Capacity (mL)	Width (mm)	Case Qty
789030-0019	50, 100	46	1
789030-0020	50, 100	48	1
789030-0021	200, 250, 300	60	1
789030-0022	500, 1000	75	1
789030-0023	2000, 3000	110	1
789030-0024	5000	130	1

Stirring Rods

- KIMAX® solid stirring rods with rounded ends
- Designed from Federal Specification NNN-R-560, Type I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Diameter (mm)	Length (mm)	Case Qty
40500-125	4	125	800
40500-150	5	150	800
40500-200	5	200	600
40500-250	6	250	600
40500-300	10	300	300
40500-375	10	375	200

Kimble®

A WORLD OF EXPERTISE IN YOUR HANDS

STOPCOCKS & VALVES

Whether looking for one-way stopcocks or four way stopcocks, PTFE or glass plugs, metering plugs, or Hi-Vac® valves, you can depend on Kimble® to provide the highest quality glass stopcocks and valves.

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Micro Straight-Bore Stopcock with Glass Plug

This stopcock has a smaller plug size (7/20) useful for assembly of micro apparatus.

- The bore of the stopcock is 1 mm with a 1:10 taper
- Solid glass plug
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
807000-0144	6	1	1

Straight-Bore Stopcock with Glass Plug

The solid glass plug and barrel of this straight-bore stopcock are ground to interchangeable Standard Taper specifications.

- 1:10 taper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
801000-0001	8	1	1
801000-0002	8	2	1
801000-0004	10	4	1
801000-0006	13	6	1

Replacement Parts

Part Number	Description	Case Qty
801001-0001	Size 1 Straight Bore Stopcock Glass Plug, solid, plug size 12/30 mm	1
801001-0002	Size 2 Straight Bore Stopcock Glass Plug, solid, plug size 12/30 mm	1
801001-0004	Size 4 Straight Bore Stopcock Glass Plug, solid, plug size 17/40 mm	1
801001-0006	Size 6 Straight Bore Stopcock Glass Plug, solid, plug size 20/44 mm	1

Straight Bore 4 mm Stopcock without Plug

Straight-bore, sandblasted stopcock with a 1:5 taper.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
41004G-4	1

T-Bore 90° Stopcock with Glass Plug

This T-bore stopcock has a solid glass plug and a barrel ground to interchangeable Standard Taper specifications.

- 1:10 taper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
802000-0002	8	2	1
802000-0004	10	4	1

Three-Way Bottom Outlet Stopcock with Glass Plug

Three-way bottom outlet stopcock with a glass plug and barrel ground to interchangeable Standard Taper specifications.

- The bottom outlet bore, having no connection with the straight-through bore, connects to either arm of the stopcock when the plug is rotated 90°
- 1:10 taper
- Standard Taper plug is solid
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Plug Size (mm)	Stopcock Bore Size (mm)	Case Qty
804000-0002	0.4	2	1

Replacement Parts

Part Number	Description	Case Qty
804001-0002	Size 2 Three Way Stopcock Plug, Glass, 12/30 mm Plug Size	1

Three-Way Double Oblique-Bore with Glass Plug

Double-oblique bore three-way stopcock, with a glass plug and barrel ground to interchangeable Standard Taper specifications.

- 1:10 taper
- Standard Taper plug is solid glass
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
803000-0002	8	2	1
803000-0004	10	4	1

Replacement Parts

Part Number	Description	Case Qty
803001-0002	Size 2 Double Oblique Stopcock Plug, Glass, Plug size 14.5/50 mm	1
803001-0004	Size 4 Double Oblique Stopcock Plug, Glass, Plug size 16.2/56 mm	1

PTFE Straight Stopcock Plugs

- PTFE stopcock plug has a 1:5 taper
- PTFE is chemically-resistant and self-lubricating
- 41502T-2 is a high-temperature PTFE plug

Part Number	Stopcock Bore Size (mm)	O-Ring Size	Case Qty
821001-0002	2	109	1
41502T-2	2	109	1
41500F-2	2	109	12
821001-0004	4	5-613	1
41500F-4	4	5-613	12
41500F-6	6	111	12
821001-0006	6	111	1

Straight-Bore Stopcock with Capillary Sidearms

- 2 mm ID capillary sidearms
- 1:5 taper PTFE plug
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
821250-0002	8	2	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25 mm Plug Size	1

Straight-Bore Stopcock with PTFE Plug

The more exaggerated taper of this stopcock permits easier use at higher-than-ambient temperatures.

- With a 1:5 taper PTFE plug and a threaded pressure nut
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
821000-0002	8	2	1
821000-0004	10	4	1
821000-0006	13	6	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25 mm Plug Size	1
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, 15.2/30 mm Plug Size	1
821001-0006	Size 6 Straight Bore Stopcock Plug, PTFE, 16/35 mm Plug Size	1

Straight-Bore Threaded Pressure and Vacuum Stopcock

The nut of this assembly holds the plug securely in the barrel, making the assembly suitable for pressure as well as vacuum applications.

- 2 mm straight bore
- Supplied with an 809000 stopcock plug retainer
- Assembly consists of a glass barrel, threaded glass plug, PTFE washer, EP o-ring and PP nut.
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stopcock Bore Size (mm)	O-Ring Size	Case Qty
831200-0002	2	109	1

Straight-Bore Stopcock with Varibor Metering Valve

The threaded CTFE needle valve of this stopcock allows control of flow rates from droplet addition to full flow.

- Straight bore
- 1:5 taper PTFE plug
- Varibor metering valve
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stopcock Bore Size (mm)	Stem OD (mm)	Case Qty
821110-0002	2	8	1
821110-0004	4	10	1

Replacement Parts

Part Number	Description	Case Qty
821111-0002	Size 2 Varibore Metering Valve Stopcock Plug, PTFE, 11/25 mm Plug Size	1
821111-0004	Size 4 Varibore Metering Valve Stopcock Plug, PTFE, 15.2/30 mm Plug Size	1

Plug Retainer

This plug retainer keeps Kimble® brand stopcock plugs in place under adjustable tension.

- Material is polyacetal

The retainer and ethylene-propylene o-ring are slipped over the end of the plug. Cross cuts at the end of the retainer enable the threaded portion to expand and then snap into place. The o-ring and nut are then moved toward the stopcock barrel to provide a spring-loading effect which secures the assembly.

Part Number	Fits Plug Sizes (mm)	O-Ring Size	Case Qty
809000-0021	14.5/50, 12.60/40, 12/30	205	1
809000-0022	16.2/56, 17.35/50, 17/40, 15/35	207	1
809000-0023	20.9/54, 20/44	210	1

T-Bore 90° Stopcock with Glass Plug

T-bore stopcock is precision ground for pressure applications.

- Solid glass plug is 1:10 taper
- Supplied with an 809000 stopcock plug retainer
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stopcock Bore Size (mm); Plug Size (mm)	Stem OD (mm)	Case Qty
832000-0002	2; 17/40	8	1
832000-0004	4; 20/44	10	1

Replacement Parts

Part Number	Description	Case Qty
809000-0022	Size 22 Stopcock Plug Retainer, Fits Plug Sizes (mm) 16.2/56, 17.35/50, 17/40, 15/35, O-Ring Size 207	1
809000-0023	Size 23 Stopcock Plug Retainer, Fits Plug Sizes (mm) 20.9/54, 20/44, O-Ring Size 210	1

T-Bore 90° Stopcock with PTFE Plug

T-bore stopcock with a threaded pressure nut.

- 1:5 taper PTFE plug
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stopcock Bore Size (mm)	Stem OD (mm); Plug Size (mm)	Case Qty
822000-0002	2	8; 15.2/30	1
822000-0004	4	10, 16/35	1

Replacement Parts

Part Number	Description	Case Qty
822001-0002	Size 2 T-Bore 90 Deg Stopcock Plug, PTFE, 15.2/30 mm Plug Size	1
822001-0004	Size 4 T-Bore 90 Deg Stopcock Plug, PTFE, 16/35 mm Plug Size	1

Three-Way Double Oblique-Bore with Glass Plug

Three-way double-oblique stopcock with precision grinding for use in pressure applications.

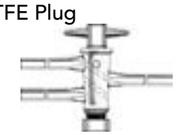
- Solid glass plug is 1:10 taper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm); Plug Size (mm)	Stopcock Bore Size (mm)	Case Qty
833000-0002	8; 14.5/50	2	1
833000-0004	10; 16.2/56	4	1

Replacement Parts

Part Number	Description	Case Qty
809000-0021	Stopcock Plug Retainer, Fits Plug Sizes (mm) 14.5/50, O-Ring Size 205	1
809000-0022	Stopcock Plug Retainer, Fits Plug Sizes (mm) 16.2/56, O-Ring Size 207	1

Three-Way Double Oblique-Bore with PTFE Plug



Double-oblique bore, three-way stopcock.

- PTFE plug
- 1:5 taper
- Threaded pressure nut
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
823000-0002	8	2	1
823000-0004	10	4	1

Replacement Parts

Part Number	Description	Case Qty
823001-0002	Size 2 Double Oblique Stopcock Plug, PTFE, 12.9/44 mm Plug Size	1
823001-0004	Size 4 Double Oblique Stopcock Plug, PTFE, 14.4/44 mm Plug Size	1

Three-Way with 120° Sidearm Separation Stopcock

Three-way stopcock with sidearms 120° apart.

- PTFE with V-bore plug
- Threaded pressure nut
- 1:5 taper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
822500-0002	8	2	1

Replacement Parts

Part Number	Description	Case Qty
822501-0002	Size 2 Three Way 120° Stopcock Plug, PTFE, 15.2/30 mm Plug Size	1

Four-Way Double "V" with 90° Sidearm Separation

Four-way stopcock is precision ground for pressure applications.

- Double "V", 90° plug bore connects opposite sets of adjacent arms
- Solid glass plug is 1:10 taper
- Supplied with an 809000 stopcock plug retainer
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm); Plug Size (mm)	Stopcock Bore Size (mm)	Case Qty
833500-0002	8; 20/44	2	1

Replacement Parts

Part Number	Description	Case Qty
809000-0023	Size 23 Stopcock Plug Retainer, Fits Plug Sizes (mm) 120.9/54, 20/44, O-Ring Size 210	1

Connecting Stopcock with PTFE Plug

Threaded Bevel-Seal™ connector with PTFE stopcock.

- All connectors have an overall length of approximately 80 mm
- Cap 410119 is suitable for use to 200 °C
- O-rings are FKM
- Replacement plug is 821001
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Accommodation Range (mm)	O-Ring Size; Stopcock Bore Size (mm)	Case Qty
179740-0505	3-5 to 3-5	105; 2	1
179740-0808	5-8 to 5-8	108; 4	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 Straight Bore Stopcock Plug, PTFE, 11/25 mm Plug Size	1
821001-0004	Size 4 Straight Bore Stopcock Plug, PTFE, 15.2/30 mm Plug Size	1

Glass Straight Stopcock Plugs

Solid glass plug ground to interchangeable Standard Taper specifications.

- 1:10 taper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Description	Case Qty
305751-0221	Size 2 Straight Bore Glass Stopcock Plug, Plug size 10/25	1
801001-0001	Size 1 Straight Bore Glass Stopcock Plug, solid, plug size 12/30 mm	1
801001-0002	Size 2 Straight Bore Glass Stopcock Plug, solid, plug size 12/30 mm	1
801001-0004	Size 4 Straight Bore Glass Stopcock Plug, solid, plug size 17/40 mm	1
801001-0006	Size 6 Straight Bore Glass Stopcock Plug, solid, plug size 20/44 mm	1

Straight-Bore with Capillary Sidearms and Solid Glass Plug

This straight-bore stopcock has a precision-ground stopcock with a 1:10 taper.

- Capillary sidearms have an ID approximately the same size as the bore
- Solid glass plug
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
841250-0002	8	2	1

Straight-Bore with Solid Glass Plug

Straight-bore, precision-ground stopcock with a 1:10 taper and a solid glass plug.

- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
841100-0002	8	2	1
841100-0004	10	4	1
841100-0006	13	6	1

Straight-Bore with Hollow Glass Plug

This precision-ground stopcock is well-suited for use as a component for gas storage bulbs or in all-glass vacuum systems.

- Hollow glass plug
- Straight bore
- 1:10 taper
- Capable of maintaining vacuum for long periods using a proper stopcock grease
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
841000-0002	8	2	1
841000-0010	19	10	1

T-Bore 90° with Solid Glass Plug

Precision-ground stopcock for use in vacuum applications.

- T-bore
- 1:10 taper
- Solid glass plug
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
843900-0002	8	2	1
843900-0004	10	4	1
843900-0006	13	6	1

T-Bore 90° with Hollow Glass Plug

Precision-ground stopcock for use in vacuum applications.

- T-bore
- 1:10 taper
- Hollow glass plug
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
843800-0004	10	4	1
843800-0008	16	8	1

Oblique-Bore with Hollow Glass Plug

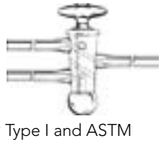
This hollow glass plug is intended for use in vacuum applications.

- Oblique-bore, precision-ground stopcock with a 1:10 taper
- Lower vacuum chamber is not in the line of flow and must be outgassed in a separate operation
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Case Qty
843000-0004	10	1
843000-0006	13	1
843000-0008	16	1
843000-0010	19	1

Three-Way Double Oblique with Solid Glass Plug and Vacuum Chamber

Three-way, double-oblique bore, precision-ground stopcock.



- 1:10 taper
- Solid glass plug
- Lower vacuum chamber is not in the line of flow and must be outgassed in a separate operation
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
845100-0004	10	4	1
845100-0006	13	6	1

Three-Way Double Oblique with Hollow Glass Plug and Vacuum Chamber

Three-way, double-oblique bore, precision-ground stopcock.

- 1:10 taper
- Hollow glass plug
- Lower vacuum chamber is not in the line of flow and must be outgassed in a separate operation
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
845000-0002	8	2	1
845000-0004	10	4	1
845000-0006	13	6	1

Right-Angle with Hollow Glass Plug and Vacuum Chamber

Right angle, precision-ground stopcock for use in vacuum applications.

- 1:10 taper
- Hollow glass plug
- Lower stem is sealed to the vacuum chamber
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
847000-0006	13	6	1

T-Type with Hollow Glass Plug and Vacuum Chamber

T-type, precision-ground stopcock

- 1:10 taper
- Hollow glass plug
- Bottom stem is sealed to the vacuum chamber
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Stopcock Bore Size (mm)	Case Qty
848000-0006	13	6	1
848000-0010	19	10	1

HI-VAC® Straight Valves with PTFE Plug and No Tip O-Ring

This straight high-vacuum valve is for use in vacuum applications up to 5 x 10-7 Torr.

- Similar to 826500 but without tip o-ring exposure.
- Designed with a precision external thread for fine control
- Can be used as a bleed up to 1/2 turn
- Full open position is at 1-1/2 turns
- Primary seal is made with a FKM o-ring on a tapered seat
- Non-rotating PTFE shaft can be used continuously at system temperatures of 230 °C or intermittently at 275 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826600-0004	9	0-4	1
826600-0008	13	0-8	1
826600-0012	16	0-12	1

Replacement Parts

Part Number	Description	Case Qty
826601-0004	Size 4 Valve Plug	1
826601-0008	Size 8 Valve Plug	1
826601-0012	Size 12 Valve Plug	1
826502-0004	Size 4 Valve without Plug	1
826502-0008	Size 8 Valve without Plug	1

HI-VAC® Straight Valves with Tip O-Rings and Glass Plug

This valve uses a glass plug (as an alternative to PTFE or CTFE) for applications where the "out-gassing" plug material is undesirable.

- Designed with a precision external thread for fine control
- This valve can be used as a bleed up to 1/2 turn
- Full open position is at 1-1/2 turns
- All plugs are totally interchangeable with other HI-VAC® counterparts
- Supplied with FKM o-rings
- For greater solvent resistance, see FFKM listing under o-rings ,758240
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826450-0004	9	0-4	1
826450-0008	13	0-8	1
826450-0012	16	0-12	1

Replacement Parts

Part Number	Description	Case Qty
826451-0004	Size 4 Glass Plug	1
826451-0008	Size 8 Glass Plug	1
826451-0012	Size 12 Glass Plug	1
826502-0004	Size 4 Valve without Plug	1
826502-0008	Size 8 Valve without Plug	1

HI-VAC® Straight Valves with Tip O-Rings and PTFE Plug

This straight high-vacuum valve is for use in vacuum applications up to 5 x 10-7 Torr.

- Designed with a precision external thread for fine control
- Can be used as a bleed up to 1/2 turn
- Full open position is at 1-1/2 turns
- Primary seal is made with a FKM o-ring on a tapered seat
- Non-rotating PTFE shaft can be used continuously at system temperatures of 230 °C or intermittently at 275 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

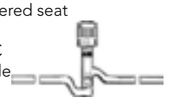
Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826500-0004	9	0-4	1
826500-0008	13	0-8	1
826500-0012	16	0-12	1
826300-0020	22	0-20	1

Replacement Parts

Part Number	Description	Case Qty
826501-0004	Size 4 Valve Plug, PTFE	1
826501-0008	Size 8 Valve Plug, PTFE	1
826501-0012	Size 12 Valve Plug, PTFE	1
826502-0004	Size 4 Valve without Plug	1
826502-0008	Size 8 Valve without Plug	1

HI-VAC® Straight Valves with Tip O-Rings and CTFE Plug

This straight high-vacuum valve is for use in vacuum applications up to 5 x 10-7 Torr.



- Designed with a precision external thread for fine control
- Can be used as a bleed up to 1/2 turn
- Full open position is at 1-1/2 turns
- Primary seal is made with a FKM o-ring on a tapered seat
- Non-rotating CTFE shaft provides for improved outgassing at system temperatures up to 200 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826505-0004	9	0-4	1
826505-0008	13	0-8	1
826505-0012	16	0-12	1

Replacement Parts

Part Number	Description	Case Qty
826506-0004	Size 4 Valve Plug, CTFE	1
826502-0004	Size 4 Valve without Plug	1
826502-0008	Size 8 Valve without Plug	1

HI-VAC® Straight Valve with PTFE Plug

This straight high-vacuum valve is for use in vacuum applications up to 5 x 10-7 Torr.

- Designed with a precision external thread for fine control
- Can be used as a bleed up to 1/2 turn
- Full open position is at 1-1/2 turns
- Primary seal is made with a FKM o-ring on a tapered seat
- Non-rotating PTFE shaft can be used continuously at system temperatures of 230 °C or intermittently at 275 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826530-0004	9	0-4	1
826530-0008	13	0-8	1
826530-0012	16	0-12	1

Replacement Parts

Part Number	Description	Case Qty
826501-0004	Size 4 Valve Plug, PTFE	1
826501-0008	Size 8 Valve Plug, PTFE	1
826501-0012	Size 12 Valve Plug, PTFE	1

HI-VAC® Low Hold-Up with PTFE Plug and No Tip O-Ring

The sidearms of this high-vacuum valve are bent to minimize liquid holdup that would occur in conventional valves.

- PTFE shaft seals protect the FKM o-rings from contact with the system
- Seal design reduces outgassing
- Designed with a precision external thread for fine control
- Can be used as a bleed up to 1/2 turn
- Full open position is at 1-1/2 turns
- Primary seal is made with a FKM o-ring on a tapered seat
- Non-rotating PTFE shaft
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826620-0004	9	0-4	1
826620-0008	13	0-8	1

Replacement Parts

Part Number	Description	Case Qty
826601-0004	Size 4 PTFE Valve Plug	1
826601-0008	Size 8 PTFE Valve Plug	1
826622-0004	Size 4 HI-VAC® Low Hold-Up Valve without PTFE Plug	1
826422-0008	Size 8 HI-VAC® Low Hold-Up Valve with Extended Tip and No Plug	1

HI-VAC® Low Hold-Up with Extended Tip and PTFE Plug

This high-vacuum valve has bent sidearms to minimize holdup of liquids.

- The accurately controlled valve seat and the extended tip on the PTFE plug allow control similar to a needle valve for both liquids and gases
- O-rings are FKM
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826420-0002	8	0-2	1
826420-0004	9	0-4	1

Replacement Parts

Part Number	Description	Case Qty
826411-0002	Size 2 Threaded Plug, PTFE	1
826411-0004	Size 4 Threaded Plug, PTFE	1
826422-0004	Size 4 HI-VAC® Low Hold-Up Valve with Extended Tip and No Plug	1

HI-VAC® Right-Angle with PTFE Plug and No Tip O-Ring

This high-vacuum valve is for use in vacuum applications up to 5 x 10-7 Torr.

- Similar to 826510 but without tip o-ring exposure
- Designed with a precision external thread for fine control
- Can be used as a bleed up to 1/2 turn
- Full open position is at 1-1/2 turns
- Primary seal is made with a FKM o-ring on a tapered seat
- Non-rotating PTFE shaft can be used continuously at system temperatures of 230 °C or intermittently at 275 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826610-0002	8	0-2	1
826610-0004	9	0-4	1
826610-0008	13	0-8	1
826610-0012	16	0-12	1

Replacement Parts

Part Number	Description	Case Qty
826601-0004	Size 4 PTFE Valve Plug	1
826601-4004	Size 4 Valve Plug with PEEK knob	1
826601-0008	Size 8 PTFE Valve Plug	1
826601-0012	Size 12 PTFE Valve Plug	1
826512-0004	Size 4 HI-VAC® Right-Angle Valve Without Plug	1
826512-0008	Size 8 HI-VAC® Right-Angle Valve Without Plug	1
826512-0012	Size 12 HI-VAC® Right-Angle Valve Without Plug	1

HI-VAC® Right-Angle with Tip O-Ring and Glass Plug

This right-angle valve uses a glass plug (as an alternative to PTFE or CTFE) for applications where the "out-gassing" plug material is undesirable.

- All plugs are totally interchangeable with other HI-VAC® counterparts
- Supplied with FKM o-rings
- For greater solvent resistance, see FFKM listing under o-rings, 758240
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826460-0004	9	0-4	1
826460-0008	13	0-8	1
826460-0012	16	0-12	1

Replacement Parts

Part Number	Description	Case Qty
826451-0004	Size 4 Glass Plug	1
826451-0008	Size 8 Glass Plug	1
826451-0012	Size 12 Glass Plug	1
826512-0004	Size 4 HI-VAC® Right-Angle Valve Without Plug	1
826512-0008	Size 8 HI-VAC® Right-Angle Valve Without Plug	1
826512-0012	Size 12 HI-VAC® Right-Angle Valve Without Plug	1

HI-VAC® Right-Angle with Tip O-Ring and PTFE Plug

This right-angle high-vacuum valve is for use in vacuum applications up to 5 x 10-7 Torr.

- Designed with a precision external thread for fine control
- Can be used as a bleed up to 1/2 turn
- Full open position is at 1-1/2 turns
- Primary seal is made with a FKM o-ring on a tapered seat
- Non-rotating PTFE shaft can be used continuously at system temperatures of 230 °C or intermittently at 275 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826510-0004	9	0-4	1
826510-0008	13	0-8	1
826510-0012	16	0-12	1
826310-0020	22	0-20	1

Replacement Parts

Part Number	Description	Case Qty
826501-0004	Size 4 Valve Plug, PTFE	1
826501-0008	Size 8 Valve Plug, PTFE	1
826501-0012	Size 12 Valve Plug, PTFE	1
826512-0004	Size 4 HI-VAC® Right-Angle Valve Without Plug	1
826512-0008	Size 8 HI-VAC® Right-Angle Valve Without Plug	1
826512-0012	Size 12 HI-VAC® Right-Angle Valve Without Plug	1

HI-VAC® Right-Angle with Tip O-Ring and CTFE Plug

This right-angle high-vacuum valve is for use in vacuum applications up to 5 x 10-7 Torr.

- Designed with a precision external thread for fine control
- Can be used as a bleed up to 1/2 turn
- Full open position is at 1-1/2 turns
- Primary seal is made with a FKM o-ring on a tapered seat
- Non-rotating CTFE shaft provides for improved outgassing at system temperatures up to 200 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826515-0004	9	0-4	1
826515-0008	13	0-8	1
826515-0012	16	0-12	1

Replacement Parts

Part Number	Description	Case Qty
826506-0004	Size 4 Valve Plug, CTFE	1
826512-0004	Size 4 HI-VAC® Right-Angle Valve Without Plug	1

HI-VAC® Right-Angle Extended Tip Valves with PTFE Plug

This right-angle high-vacuum valve is designed with a precision external thread for use when fine control is needed.

- The accurately controlled valve seat and the extended tip on the PTFE plug allow control similar to a needle valve for both liquids and gases
- The FKM o-ring on the shaft backs up machined-in PTFE ring seals for high vacuum use which shield the o-ring from direct exposure to gases and liquids within the system
- Plug is interchangeable with other KONTES® valve bodies of the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826410-0002	8	0-2	1
826410-0004	9	0-4	1

Replacement Parts

Part Number	Description	Case Qty
826411-0002	Size 2 Threaded Plug, PTFE	1
826411-0004	Size 4 Threaded Plug, PTFE	1
826412-0002	Size 2 Valve without Plug	1
826412-0004	Size 4 Valve without Plug	1

HI-VAC® Three-Way Valves with PTFE Plug and No Tip O-Ring

Three-way configuration for use in construction of manifolds, adapters, etc.

- No tip o-ring exposure
- Designed with a precision external thread for fine control
- Can be used as a bleed up to 1/2 turn
- Full open position is at 1-1/2 turns
- Primary seal is made with a FKM o-ring on a tapered seat
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826700-0002	8	0-2	1
826700-0004	9	0-4	1

Replacement Parts

Part Number	Description	Case Qty
826601-0004	Size 4 PTFE Valve Plug	1
826702-0002	Size 2 Valve without Plug	1
826702-0004	Size 4 Valve without Plug	1

HI-VAC® T-Type Valve with PTFE Plug and No Tip O-Ring

T-valve configuration, without tip o-ring exposure, allows closure of the bottom arm while vacuum or gases continue to flow through the sidearms.

- O-rings are FKM
- Designed with a precision external thread for fine control
- Can be used as a bleed up to 1/2 turn
- Full open position is at 1-1/2 turns
- Primary seal is made with a FKM o-ring on a tapered seat
- Non-rotating PTFE shaft can be used continuously at system temperatures of 230 °C or intermittently at 275 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD (mm)	Bore Range (mm)	Case Qty
826800-0004	9	0-4	1
826800-0008	13	0-8	1

Replacement Parts

Part Number	Description	Case Qty
826601-0004	Size 4 PTFE Valve Plug	1
826601-0008	Size 8 PTFE Valve Plug	1

Lubricants

Ideal for sealing and lubricating ground joints and stopcocks.

- Smooth-textured, odorless and highly insoluble

Part Number	Melting Point (ºC)	Pkg_ Size (g)	Case Qty
743200-0001	52	75	1

Glass Cap-Type Stopper

Cap-type Standard Taper stopper fits over tubes and other apparatus having a Standard Taper inner opening.

- Cap has an outer Standard Taper joint and a hemispherical top
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
851900-1420	14/20	1

Kimble® Medium Length Standard Taper Glass Stopper

KIMAX® pennyhead stoppers are used with laboratory glassware such as flasks, mixing cylinders and separatory funnels.

- Standard Taper size 13 stopper is solid, stopper size 38 is hollow
- Designed from ASTM Specification E675
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Stopper Size	Diameter at Large End of Ground Zone (mm)	Case Qty
41900R-13	13	13.4	6
41900R-38	38	38	6

Medium Length Glass Stopper

Stoppers are used with laboratory glassware such as flasks, mixing cylinders and separatory funnels.

- Sizes Standard Taper 10/18 through Standard Taper 19/22 are solid
- Sizes Standard Taper 24/25 and larger are hollow
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
850500-1018	10/18	1
850505-1410	14/10	1
850500-1420	14/20	1
850500-1922	19/22	1
850500-2425	24/25	1
850500-2926	29/26	1

Flask Length Standard Taper Glass Stopper

Stoppers are used with laboratory glassware such as flasks, mixing cylinders and separatory funnels.

- All stoppers are solid except Standard Taper stopper sizes 32 and 38, which are hollow
- Made in accordance with ASTM Standard E694
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Stopper Size	Case Qty
850100-0008	8	1
850100-0009	9	1
850100-0013	13	1
850100-0016	16	1
850100-0019	19	1
850100-0019	19	1
850100-0022	22	1
850100-0027	27	1
850100-0032	32	1
850100-0038	38	1

Full Length Standard Taper Glass Stopper

Stoppers are used with laboratory glassware such as flasks and separatory funnels.

- Sizes Standard Taper 10/30 through Standard Taper 19/38 are solid
- Sizes Standard Taper 24/40 and larger are hollow
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
851000-1030	10/30	1
851000-1435	14/35	1
851000-1938	19/38	1
851000-2440	24/40	1
851000-2942	29/42	1
851000-3445	34/45	1
851000-4550	45/50	1

Medium Length Hex Head Hollow Glass Soppers

Stoppers are used with laboratory glassware such as flasks, mixing cylinders and separatory funnels.

- Hollow, hexagonal head medium length Standard Taper stopper that is easily gripped
- May be set on the flattened top to avoid contamination of the ground surface
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
850400-1420	14/20	1
850400-1922	19/22	1
850400-2425	24/25	1
850400-2926	29/26	1

Full Length Hex Head Hollow Glass Stoppers

Stoppers are used with laboratory glassware such as flasks and separatory funnels.

- Hollow, hexagonal head, Standard Taper stopper
- May be set on the flattened top to avoid contamination of the ground surface
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
850800-2440	24/40	1
850800-2942	29/42	1

Flathead Solid PTFE Stopper

Flat head PTFE stoppers are used as closures for laboratory glassware such as solution bottles and separatory funnels.

- Standard Taper medium length joint
- Solid, bottle-style stopper made of PTFE
- PTFE has excellent chemical resistance and resists freezing in ground glass joints
- Color button insert on top of the stopper serves as a means of color coding

Part Number	Standard Taper Stopper Size	Color	Case Qty
850540-0014	14	Red	1
850540-0024	24	Blue	1
41941R-24	24	Blue	6
41941R-29	29	Green	6
41941R-34	34.5	Orange	6

Key-Head Color-Coded Medium Length PTFE Stoppers

Stoppers are used with laboratory glassware such as flasks and separatory funnels.

- PTFE has excellent chemical resistance and resists freezing in ground glass joints
- Remove the colored polyethylene handle from the PTFE stopper before cleaning or exposing to temperatures above 80 °C
- Stoppers of sizes 9 through 22 are solid, and sizes 32 through 38 are hollow
- Designed from ASTM Specification E675

Part Number	Standard Taper Stopper Size	Color	Case Qty
41901R-8	9	Gray	6
41901R-9	9	Black	6
41901R-13	13	Orange	6
41901R-16	16	Blue	6
41901R-19	19	Green	6
41901R-22	22	Yellow	6
41901R-27	27	Red	6
41901R-32	32	Grey	6
41901R-38	38	Black	6

Standard Taper Glass Stoppers with KEM-KLAMP® Lug

These stoppers are designed for use with 675500 KEM-KLAMPS®.

- Pennyhead top has a lug attachment to engage the spring portion of the KEM-KLAMP®
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
851800-2440	24/40	1

Linear High-Density Polyethylene Stopper

Polyethylene stoppers may be used as replacement parts for items that are ground to Standard Taper stopper dimensions.

- These yellow and blue stoppers have a closed bottom
- The enlarged flange is designed to protect the neck if the glass object is tipped over

Part Number	Stopper Size	Case Qty
28160R-9	9	6
28160R-13	13	6
28160R-16	16	6
28160R-19	19	6
28160R-22	22	6
28160R-27	27	6

Polyethylene Stoppers

Low-cost polyethylene stoppers are an alternative to standard glass and PTFE stoppers.

- Leak-proof, air-tight seals
- Wide top flange for ease of use

Part Number	Standard Taper Size	Case Qty
774240-0014	14/10, 14/20, 14/35	100
774240-0019	19/22 ,19/38	100
774240-0024	24/25 ,24/40	100
774240-0029	29/26, 29/42	100

Polyethylene Plug-Style Needle Closure

- Designed for shell vials
- Economical

Part Number	Fits Vials	Case Qty
73835-1	60831D-1544, 60835D-1544	2,000
73835-2	60831D-1231	2,000
73835-3	60831D-830, 60831D-843, 60835D-843	2,000

Pluro Stopper Set

This autoclavable set of neoprene rubber adapters is designed to fit Buchner and fritted glass funnels.

- Set of seven Pluro stoppers for filter funnels
- Can be used singly or nested with adjacent sizes
- Eliminates the need for boring of special size holes in rubber stoppers
- Reduces the risks associated with insertion and removal of glass stems through rubber stoppers

Part Number	Case Qty
852050-0070	7

Plug-Type Rubber Sleeve Stoppers

Uses include outgassing NMR tubes, pressure venting or adding reactants via syringe.

- Hollow, plug-type stopper fits into the neck of the glassware apparatus
- Sleeve extension fits over the neck for a secure seal
- Diaphragm can be punctured with a syringe needle
- Series 774261 may be used at up to 125 °C for up to 8 hours

Part Number	Stopper Fits	Color	Case Qty
774250-0005	5-6 mm OD	Red	50
774261-0005	5-6 mm OD	White	50
774261-0006	6-7 mm OD	White	50
774250-0007	7-8 mm OD	Red	50
774261-0008	9-10 mm OD	White	50
774261-0010	Standard Taper 10/18	White	50
774250-0011	11-12 mm OD	Red	50
774250-0013	13-14 mm OD	Red	50
774250-0014	Standard Taper 14/20	Red	50
774261-0014	Standard Taper 14/20	White	50
774250-0016	16-17 mm OD	Red	50
774261-0019	Standard Taper 19/22	White	50
774261-0024	Standard Taper 24/40	White	50

Silicone Stoppers

These silicone stoppers are used in centrifugal separators and gas sampling tubes.

- Available in blind-hole and full-hole
- Blind hole stopper features easy syringe penetration

Part Number	Stopper OD (mm)	Style	Case Qty
774200-0022	6	Blind hole	12
774200-0023	6	Full hole	12

Silicone Stoppers with Holes

General purpose single-hole silicone rubber stoppers.

- Steam autoclavable
- Opaque yellowish-white color
- Stoppers are manufactured from pure silicone rubber

Part Number	Stopper Number	Hole Size (in)	Case Qty
953715-0501	5	0.375	1
953715-0801	8	0.375	1
953763-0801	8	0.5625	1
953763-0000	8	0.5625	5

Gray Butyl Rubber Lyophilization-Style Stoppers

- Designed for aluminum seal finish vials
- Two-leg style reduces possibility of legs sticking together
- Gray high grade butyl rubber, lyophilization style

Part Number	Fits GPI Aluminum Seal Finish	Number of Legs	Case Qty
73828-13	13	2	1,000
73828A-21	20	2	1,000

Gray Chlorobutyl Straight-Sided Stoppers

These high quality gray chlorobutyl stoppers are used for research and pharmaceutical packaging applications.

- Universal gray chlorobutyl formulation passes Japanese, European and United States pharmacopeia testing for globally marketed pharmaceutical products
- Formulation contains no plasticizers, 2-mercapto-benzothaizole, nitrosamine precursors or natural rubber latex
- Formulation is applicable to aqueous solutions with a pH range of 2 to 10
- 73811T series has PTFE facing to improve chemical compatibility and minimize surface interactions
- Durometer 50

Part Number	Fits GPI Aluminum Seal Finish	Case Qty
73811-13	13	1,000
73811T-13	13	100
73811-21	20	1,000
73811T-21	20	100

Gray Butyl Rubber Stoppers

- Designed for aluminum seal finish vials
- Economical alternative for low temperature applications
- Gray butyl rubber

Part Number	Fits GPI Aluminum Seal Finish	Case Qty
73827-11	11	1,000
73827-13	13	1,000
73827-21	21	1,000

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

TISSUE GRINDERS

Tissue grinders produce homogenates by a combination of shearing and compression actions. The tissue sample is progressively ground (sheared) into smaller pieces at the rounded end of the pestle as the spinning pestle is lowered into the tube. As the pestle is forced lower into the tube, the sample is displaced and forced between the straight outside wall of the pestle and the inside wall of the tube, compressing the tissue cells until they rupture. When the tube is pulled away from the pestle, a slight vacuum is created that pulls the sample back past the compression area, resulting in an additional homogenization stroke.

The degree of homogenization is controlled by the clearance between the pestle's and tube's cylindrical section (radial distance usually 0.002 - 0.003 inches), the rotational speed of the pestle, and the number of compression strokes made. There are three basic types of tissue grinders: Dounce, DUALL® and Potter-Elvehjem. In addition to the reusable glass tissue grinders, disposable plastic tissue grinders are offered in sterile and non-sterile versions from 0.5 mL to 50 mL.

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Dounce

Duall®

Potter-Elvehjem

There are three basic types of tissue grinders: Dounce, DUALL and Potter-Elvehjem.

Dounce

- Round, ball shape on lower portion of pestle.
- Designed for cellular studies where the nucleus needs to remain intact.
- Supplied with two pestles that are used in the same tube:
  - — Large clearance pestle is used for the initial sample reduction.
  - — Small clearance pestle is used to form the final homogenate.
- Stainless steel version is designed to disperse particles ranging in size from 0.1 to 1.0 microns (e.g. viruses).

DUALL®

- Conical shape on the lower portion of the pestle:
  - — Conical shape provides a relatively large surface area for grinding, making this type the most efficient.
  - — Sample is progressively ground to a smaller size as the pestle is spun and lowered into the tube.
  - — Homogenate is produced as the sample is forced through the cylindrical section of the tube.
- Ground glass pestle versions are best suited for connective tissues such as muscle, heart and lung.
- PTFE pestle versions should be used for homogenizing soft tissues such as brain and liver.

Potter-Elvehjem

- Rounded shape on the lower portion of the pestle (sometimes considered to be a Dounce style):
  - — Sample is progressively ground smaller in the rounded section.
  - — Homogenate is produced as the sample is forced through the cylindrical section.
- Does not provide as much grinding surface as the DUALL style because of the differences in the pestles' tip shape (round vs. conical).
- Ground glass pestle versions are suited for connective tissues.
- PTFE pestle versions are used with softer tissues.
- **Tenbroeck** tissue grinders are specially modified versions of the Potter-Elvehjem style:
  - — Hollow glass pestles allow the addition of ice water to keep samples chilled during homogenization.

In choosing the correct tissue grinder for a particular application, there are two rules that apply:

1. Conically shaped pestles homogenize better than pestles with a rounded shape.
2. Ground glass to ground glass surfaces homogenize better than smooth glass to smooth glass or PTFE to smooth glass.

Using these rules, a glass DUALL tissue grinder produces the finest homogenate, while a glass Dounce will produce a relatively coarse homogenate.

Stated clearances for the tubes and pestles on the Tissue Grinder pages are "total," not "annular."

Dounce All-Glass Tissue Grinders

Designed primarily for cellular work where the nucleus remains intact after homogenization.

- All-glass construction
- Two pestles are supplied with each complete unit
- Large clearance pestle is used for the initial sample reduction
- Small clearance pestle is used to form the final homogenate
- Replacement components are available and completely interchangeable
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Working Capacity (mL)	Pestle A Large Clearance (in); Pestle B Small Clearance (in)	Case Qty
885300-0000	0.5	0.0025-0.0055; 0.0005-0.0025	1
885300-0001	1	0.0025-0.0055; 0.0005-0.0025	1
885300-0002	2	0.0030-0.0050; 0.0005-0.0025	1
885300-0007	7	0.0028-0.0047; 0.0008-0.0022	1
885300-0015	15	0.0035-0.0065; 0.0010-0.0030	1
885300-0040	40	0.0030-0.0060; 0.0010-0.0030	1
885300-0100	100	0.0020-0.0100; 0.0005-0.0055	1

Replacement Parts

Part Number	Description	Case Qty
885301-0000	Large Clearance Pestle for 0.5 mL Tissue Grinder	1
885301-0001	Large Clearance Pestle for 1 mL Tissue Grinder	1
885301-0002	Large Clearance Pestle for 2 mL Tissue Grinder	1
885301-0007	Large Clearance Pestle for 7 mL Tissue Grinder	1
885301-0015	Large Clearance Pestle for 15 mL Tissue Grinder	1
885301-0040	Large Clearance Pestle for 40 mL Tissue Grinder	1
885301-0100	Large Clearance Pestle for 100 mL Tissue Grinder	1
885302-0000	Small Clearance Pestle for 0.5 mL Tissue Grinder	1
885302-0001	Small Clearance Pestle for 1 mL Tissue Grinder	1
885302-0002	Small Clearance Pestle for 2 mL Tissue Grinder	1
885302-0007	Small Clearance Pestle for 7 mL Tissue Grinder	1
885302-0015	Small Clearance Pestle for 15 mL Tissue Grinder	1
885302-0040	Small Clearance Pestle for 40 mL Tissue Grinder	1
885302-0100	Small Clearance Pestle for 100 mL Tissue Grinder	1
885303-0000	0.5 mL Tube for Dounce Tissue Grinder	1
885303-0001	1 mL Tube for Dounce Tissue Grinder	1
885303-0002	2 mL Tube for Dounce Tissue Grinder	1
885303-0007	7 mL Tube for Dounce Tissue Grinder	1
885303-0015	15 mL Tube for Dounce Tissue Grinder	1
885303-0040	40 mL Tube for Dounce Tissue Grinder	1
885303-0100	100 mL Tube for Dounce Tissue Grinder	1

Micro DUALL® All-Glass

Designed for dispersing small quantities of tissue in buffer solution.

- Working capacity is 200 microliters
- All-glass tube and pestle
- PTFE bearing prevents misalignment and avoids aerosol formation
- Packed in six matched sets per carton
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Working Capacity (mL)	Pestle Shaft OD (mm)	Case Qty
885470-0000	0.2	3	6

DUALL® with All-Glass

Combines both conical and cylindrical surfaces to effectively reduce tissue and produce a uniform homogenate. Grinding efficiency is greatly improved when this tube is used.

- This ground glass model is ideal for connective tissue such as muscle, heart and lung
- Construction is strong enough to allow the pestle to be motor-driven
- Pestles are designed to be used with 788000 stirrer adapters
- Replacement components are available and completely interchangeable
- Clearance between pestles and tubes is 0.004" to 0.006"
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Working Capacity (mL); Size	Pestle Shaft OD (mm)	Case Qty
885450-0020	1; 20	6	1
885450-0021	3; 21	6	1
885450-0022	5; 22	8	1
885450-0023	15; 23	10	1
885450-0024	30; 24	10	1
885450-0025	50; 25	16	1

Replacement Parts

Part Number	Description	Case Qty
885451-0020	Size 20 Pestle for DUALL® Tissue Grinder	1
885451-0021	Size 21 Pestle for DUALL® Tissue Grinder	1
885451-0022	Size 22 Pestle for DUALL® Tissue Grinder	1
885451-0023	Size 23 Pestle for DUALL® Tissue Grinder	1
885451-0024	Size 24 Pestle for DUALL® Tissue Grinder	1
885451-0025	Size 25 Pestle for DUALL® Tissue Grinder	1
885452-0020	Size 20 Tube for DUALL® Tissue Grinder	1
885452-0021	Size 21 Tube for DUALL® Tissue Grinder	1
885452-0022	Size 22 Tube for DUALL® Tissue Grinder	1
885452-0023	Size 23 Tube for DUALL® Tissue Grinder	1
885452-0024	Size 24 Tube for DUALL® Tissue Grinder	1
885452-0025	Size 25 Tube for DUALL® Tissue Grinder	1

DUALL® with Glass Pestles and KimCote® Glass Tubes

- Similar to 885450 series but with plastic safety coating
- Plastic coating on tube will contain the homogenate if the tube breaks or cracks during motor-driven homogenization
- The coating is transparent, allowing an unobstructed view of the homogenate
- Replacement components are available and completely interchangeable
- Clearance between pestles and tubes is 0.004" to 0.006"
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Working Capacity (mL); Size	Pestle Shaft OD (mm)	Case Qty
885460-0020	1; 20	6	1
885460-0021	3; 21	6	1
885460-0022	5; 22	8	1
885460-0023	15; 23	10	1
885460-0024	30; 24	10	1
885460-0025	50; 25	16	1

Replacement Parts

Part Number	Description	Case Qty
885451-0020	Size 20 Pestle for DUALL® Tissue Grinder	1
885451-0021	Size 21 Pestle for DUALL® Tissue Grinder	1
885451-0022	Size 22 Pestle for DUALL® Tissue Grinder	1
885451-0023	Size 23 Pestle for DUALL® Tissue Grinder	1
885451-0024	Size 24 Pestle for DUALL® Tissue Grinder	1
885451-0025	Size 25 Pestle for DUALL® Tissue Grinder	1
885462-0020	Size 20 Plastic-Coated Tube for DUALL® Tissue Grinder	1
885462-0021	Size 21 Plastic-Coated Tube for DUALL® Tissue Grinder	1
885462-0022	Size 22 Plastic-Coated Tube for DUALL® Tissue Grinder	1
885462-0023	Size 23 Plastic-Coated Tube for DUALL® Tissue Grinder	1
885462-0024	Size 24 Plastic-Coated Tube for DUALL® Tissue Grinder	1
885462-0025	Size 25 Plastic-Coated Tube for DUALL® Tissue Grinder	1

DUALL® with PTFE Pestles and Glass Tubes

Combines both conical and cylindrical surfaces to effectively reduce tissue and produce a uniform homogenate.

- Grinding efficiency is greatly improved when this tube is used
- This PTFE pestle model is ideal for soft tissue such as brain or liver
- Construction is strong enough to allow the pestle to be motor-driven
- Pestles are designed to be used with 788000 stirrer adapters
- Replacement components are available and completely interchangeable
- Clearance between pestles and tubes is 0.004" to 0.006"
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Working Capacity (mL); Size	Pestle Shaft OD (mm)	Case Qty
885480-0020	1; 20	4.5	1
885480-0021	3; 21	6	1
885480-0022	5; 22	6	1
885480-0023	15; 23	6	1
885480-0024	30; 24	10	1
885480-0025	50; 25	10	1

Replacement Parts

Part Number	Description	Case Qty
885481-0020	Size 20 PTFE Pestle, for DUALL® Tissue Grinder	1
885481-0021	Size 21 PTFE Pestle, for DUALL® Tissue Grinder	1
885481-0022	Size 22 PTFE Pestle, for DUALL® Tissue Grinder	1
885481-0023	Size 23 PTFE Pestle, for DUALL® Tissue Grinder	1
885481-0024	Size 24 PTFE Pestle, for DUALL® Tissue Grinder	1
885481-0025	Size 25 PTFE Pestle, for DUALL® Tissue Grinder	1
885482-0020	Size 20 Glass Tube for DUALL® Tissue Grinder	1
885482-0021	Size 21 Glass Tube for DUALL® Tissue Grinder	1
885482-0022	Size 22 Glass Tube for DUALL® Tissue Grinder	1
885482-0023	Size 23 Glass Tube for DUALL® Tissue Grinder	1
885482-0024	Size 24 Glass Tube for DUALL® Tissue Grinder	1
885482-0025	Size 25 Glass Tube for DUALL® Tissue Grinder	1

DUALL® All-Glass with Screw-Cap

An extremely efficient grinder, the DUALL® combines both conical and cylindrical surfaces on a single pestle and tube. These separate areas perform the dual functions of initial grinding in the conical section and final homogenization in the cylindrical section.

- Design innovation on our popular 885450 DUALL® tissue grinders
- PTFE/rubber-lined phenolic screw cap closure permits centrifugation or storage of homogenates without transfer
- Replacement components are available and completely interchangeable
- Clearance between pestles and tubes is 0.004" to 0.006"
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Working Capacity (mL); Size	Pestle Shaft OD (mm)	Case Qty
885350-0021	3; 21	6	1
885350-0022	5; 22	8	1
885350-0023	15; 23	10	1

Replacement Parts

Part Number	Description	Case Qty
885351-0021	Size 21 Pestle for DUALL® Tissue Grinder	1
885351-0022	Size 22 Pestle for DUALL® Tissue Grinder	1
885351-0023	Size 23 Pestle for DUALL® Tissue Grinder	1
885352-0021	Size 21 Tube with cap for DUALL® Tissue Grinder	1
885352-0022	Size 22 Tube with cap for DUALL® Tissue Grinder	1
885352-0023	Size 23 Tube with cap for DUALL® Tissue Grinder	1

DUALL® PTFE Pestle and Glass Tube with Screw-Cap

An extremely efficient grinder, the DUALL combines both conical and cylindrical surfaces on a single pestle and tube. These separate areas perform the dual functions of initial grinding in the conical section and final homogenization in the cylindrical section.

- Pestle is made of solid PTFE and threaded to a stainless steel shaft
- PTFE-lined phenolic screw cap closure permits centrifugation or storage of homogenates without transfer
- Replacement components are available and completely interchangeable
- Clearance between pestles and tubes is 0.004" to 0.006"
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Working Capacity (mL); Size	Pestle Shaft OD (mm)	Case Qty
885380-0021	3; 21	6	1
885380-0022	5; 22	6	1
885380-0023	15; 23	6	1

Replacement Parts

Part Number	Description	Case Qty
885381-0021	Size 21 Pestle for DUALL® Tissue Grinder	1
885381-0022	Size 22 Pestle for DUALL® Tissue Grinder	1
885381-0023	Size 23 Pestle for DUALL® Tissue Grinder	1
885352-0021	Size 21 Tube with cap for DUALL® Tissue Grinder	1
885352-0022	Size 22 Tube with cap for DUALL® Tissue Grinder	1
885352-0023	Size 23 Tube with cap for DUALL® Tissue Grinder	1

Micro DUALL® All-Glass with Screw-Cap

Can serve as a storage vessel following homogenization. Centrifugation, concentrations and lyophilization can be accomplished without a transfer.

- Flat base allows tube to stand upright without support
- Heavy wall construction minimizes breakage
- Capacities shown are without the pestle inserted
- Supplied complete with pestle, tube, phenolic cap and PTFE liner
- Replacement components are available and completely interchangeable
- Clearance between pestles and tubes is 0.004" to 0.006"
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Working Capacity (mL); Size	Pestle Shaft OD (mm)	Case Qty
885490-0017	0.3; 17	6	1
885490-0019	1; 19	6	1
885490-0020	3; 20	9	1
885490-0021	5; 21	9	1

Replacement Parts

Part Number	Description	Case Qty
885491-0017	Pestle for Size 17 & 19 Tubes for DUALL® Tissue Grinder	1
885491-0020	Pestle for Size 20 & 21 Tubes for DUALL® Tissue Grinder	1
885492-0017	Size 17 Tube for DUALL® Tissue Grinder	1
885492-0019	Size 19 Tube for DUALL® Tissue Grinder	1
885492-0020	Size 21 Tube for DUALL® Tissue Grinder	1
885492-0021	Size 21 Tube for DUALL® Tissue Grinder	1

Potter-Elvehjem with All-Glass

Designed for a motor drive using a 788000 Stirrer Adapter.

- All-glass construction
- Replacement components are available and completely interchangeable
- Clearance between pestles and tubes is 0.004" to 0.006"
- Special clearance pestles can be manufactured upon request. Contact Customer Service at 888-546-2531
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Working Capacity (mL); Size	Pestle Shaft OD (mm)	Case Qty
885500-0019	1; 19	5	1
885500-0021	5; 21	6	1
885500-0022	8; 22	8	1
885500-0023	17; 23	10	1
885500-0024	45; 24	10	1

Replacement Parts

Part Number	Description	Case Qty
885501-0019	Size 19 Pestle for Potter-Elvehjem Tissue Grinder	1
885501-0021	Size 21 Pestle for Potter-Elvehjem Tissue Grinder	1
885501-0022	Size 22 Pestle for Potter-Elvehjem Tissue Grinder	1
885501-0023	Size 23 Pestle for Potter-Elvehjem Tissue Grinder	1
885501-0024	Size 24 Pestle for Potter-Elvehjem Tissue Grinder	1
885502-0019	Size 19 Tube for Potter-Elvehjem Tissue Grinder	1
885502-0021	Size 21 Tube for Potter-Elvehjem Tissue Grinder	1
885502-0022	Size 22 Tube for Potter-Elvehjem Tissue Grinder	1
885502-0023	Size 23 Tube for Potter-Elvehjem Tissue Grinder	1
885502-0024	Size 24 Tube for Potter-Elvehjem Tissue Grinder	1

Large Volume Potter-Elvehjem with PTFE Pestle and Glass Tube

- Large volume with a finely machined PTFE pestle
- Tube has a convenient pouring lip
- Radial serrations on the lower portion of the pestle deliver the homogenate into the cylindrical portion of the tube
- Pestle rod is stainless steel
- Replacement components are available and completely interchangeable
- Clearance between pestles and tubes is 0.004" to 0.006"
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Working Capacity (mL)	Pestle Shaft OD (mm)	Case Qty
885520-0100	100	6	1

Replacement Parts

Part Number	Description	Case Qty
885303-0100	100 mL Tube for Large Volume Potter-Elvehjem Tissue Grinder	1
885521-0100	100 mL Pestle for Large Volume Potter-Elvehjem Tissue Grinder	1

Potter-Elvehjem with PTFE Pestle and Graduated Glass Tube

A graduated tube and a finely machined PTFE pestle comprise this popular style

- Radial serrations on the lower portion of the pestle deliver the homogenate into the cylindrical portion of the tube
- Graduations are fused into the glass
- Replacement components are available and completely interchangeable
- 4 mL tubes have a clearance of 0.003-0.005" between pestles and tubes
- 10 mL tubes have a clearance of 0.004-0.006" between pestles and tubes
- 30 mL tubes have a clearance of 0.005-0.007" between pestles and tubes
- 55 mL tubes have a clearance of 0.006-0.009" between pestles and tubes
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Working Capacity (mL); Size	Pestle Shaft OD (mm)	Case Qty
885510-0020	4; 20	4	1
885510-0021	10; 21	6	1
885510-0022	30; 22	6	1
885510-0023	55; 23	6	1

Replacement Parts

Part Number	Description	Case Qty
885511-0020	Size 20 Pestle for Potter-Elvehjem Tissue Grinder (0.003-0.005" clearance)	1
885511-0021	Size 21 Pestle for Potter-Elvehjem Tissue Grinder (0.004-0.006" clearance)	1
885511-0022	Size 22 Pestle for Potter-Elvehjem Tissue Grinder (0.005-0.007" clearance)	1
885511-0023	Size 23 Pestle for Potter-Elvehjem Tissue Grinder (0.006-0.009" clearance)	1
885512-0020	Size 20 Tube for Potter-Elvehjem Tissue Grinder	1
885512-0021	Size 21 Tube for Potter-Elvehjem Tissue Grinder	1
885512-0022	Size 22 Tube for Potter-Elvehjem Tissue Grinder	1
885512-0023	Size 23 Tube for Potter-Elvehjem Tissue Grinder	1

Potter-Elvehjem with PTFE Pestle and Glass Tube

- Similar to 885500 but with a PTFE pestle and an unground tube
- Sizes 21 to 24 have radial serrations on the lower portion of the pestle to deliver the homogenate into the cylindrical portion of the tube
- Replacement components are available and completely interchangeable
- Clearance between pestles and tubes is 0.004" to 0.006"
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Working Capacity (mL); Size	Pestle Shaft OD (mm)	Case Qty
886000-0018	0.5; 18	3	1
886000-0019	1; 19	5	1
886000-0020	3; 20	5	1
886000-0021	5; 21	6	1
886000-0022	8; 22	6	1
886000-0023	17; 23	6	1
886000-0024	45; 24	6	1

Replacement Parts

Part Number	Description	Case Qty
885752-0018	Size 18 Tube for Potter-Elvehjem Tissue Grinder	1
885752-0019	Size 19 Tube for Potter-Elvehjem Tissue Grinder	1
885752-0020	Size 20 Tube for Potter-Elvehjem Tissue Grinder	1
885752-0021	Size 21 Tube for Potter-Elvehjem Tissue Grinder	1
885752-0022	Size 22 Tube for Potter-Elvehjem Tissue Grinder	1
885752-0023	Size 23 Tube for Potter-Elvehjem Tissue Grinder	1
885752-0024	Size 24 Tube for Potter-Elvehjem Tissue Grinder	1
886001-0018	Size 18 PTFE Pestle, for Potter-Elvehjem Tissue Grinder	1
886001-0019	Size 19 PTFE Pestle, for Potter-Elvehjem Tissue Grinder	1
886001-0020	Size 20 PTFE Pestle, for Potter-Elvehjem Tissue Grinder	1
886001-0021	Size 21 PTFE Pestle, for Potter-Elvehjem Tissue Grinder	1
886001-0022	Size 22 PTFE Pestle, for Potter-Elvehjem Tissue Grinder	1
886001-0023	Size 23 PTFE Pestle, for Potter-Elvehjem Tissue Grinder	1
886001-0024	Size 24 PTFE Pestle, for Potter-Elvehjem Tissue Grinder	1

Tenbroeck All Glass Tissue Grinders

- All-glass construction
- Popular style which affords the choice of hand or motor operation
- Pestle is tooled for an appropriately sized single-hole rubber stopper (not supplied)
- These grinders can be motor-driven at slow speeds by inserting one end of a short metal rod in the stopper and inserting the other end into the motor chuck
- Replacement components are available and completely interchangeable
- Clearance between pestles and tubes is 0.004" to 0.006"
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Working Capacity (mL)	Stopper Number	Case Qty
885000-0002	2	0	1
885000-0007	7	0	1
885000-0015	15	1	1
885000-0040	40	3	1

Replacement Parts

Part Number	Description	Case Qty
885001-0002	Pestle for 2 mL Tenbroeck Tissue Grinder	1
885001-0007	Pestle for 7 mL Tenbroeck Tissue Grinder	1
885001-0015	Pestle for 15 mL Tenbroeck Tissue Grinder	1
885001-0040	Pestle for 40 mL Tenbroeck Tissue Grinder	1
885002-0002	Tube for 2 mL Tenbroeck Tissue Grinder	1
885002-0007	Tube for 7 mL Tenbroeck Tissue Grinder	1
885002-0015	Tube for 15 mL Tenbroeck Tissue Grinder	1
885002-0040	Tube for 40 mL Tenbroeck Tissue Grinder	1

Microscale Tissue Grinder Kit with Grinder and Pestle Varieties

Kit contains a variety of the finest microscale tissue grinders available. It includes ground glass, smooth glass and PTFE grinders suitable for tough connective tissue and soft tissue such as brain or liver.

- Working with micro quantities reduces heat build-up and yields greater enzyme activity
- Samples can be handled with minimal loss; transfers can often be eliminated
- Kit items are packaged in a convenient high-density polyethylene case with die cut foam inserts that protect grinders in transit and in storage
- Grinders are also available individually
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Case Qty
884900-0000	1

Replacement Parts

Part Number	Description	Case Qty
885300-0002	2 mL Dounce Tissue Grinder, Pestle A large clearance .0030-.0050", Pestle B small clearance .0005-.0025, Tube overall 60 mm	1
885480-0020	Size 20 DUALL® Tissue Grinder with PTFE Pestle and Glass Tubes, Working Capacity 1 mL, Pestle Length 155 mm, Shaft OD 4.5 mm, Tube Length 80 mm, Reservoir OD 14 mm, Clearance 0.004" - 0.006"	1
885490-0017	Size 17 Micro DUALL® Tissue Grinder, All-Glass with Screw-Cap, Working Capacity 0.3 mL, GPI Thread Size 13-425, Pestle Length 148 mm, Shaft OD 6 mm, Clearance 0.004" - 0.006"	1
885470-0000	Micro All-Glass Tissue Grinder, Working Capacity 200 µL, Pestle Length 75 mm, Shaft OD 3 mm, Tube Length 33 mm, Tube OD 8 mm	6
885500-0019	Size 19 Potter-Elvehjem Tissue Grinder, All-Glass, Clearance 0.004" - 0.006"	1
886000-0019	Size 19 Potter-Elvehjem Tissue Grinder, PTFE Pestle and Glass Tube, Clearance 0.004" - 0.006"	1
885000-0002	Complete 2 mL Tenbroek Tissue Grinder, Pestle Length 160 mm, Shaft Length 50 mm, Tube overall x reservoir OD 100 x 30 mm, Clearance 0.004" - 0.006"	1

Polyacetal Stirrer Adapter

A polyacetal stirrer adapter for connecting shafts to stirrer motors.

- Knurled compression nut can be hand-tightened for a positive connection
- Stepped OD on stem allows use with 1/4" and 5/16" precision collet-type chucks

Part Number	Fits Shaft Diameter (mm)	Case Qty
788010-0021	8-10	1

Anodized Aluminum Stirrer Adapter

Convenient, inexpensive adapter for connecting pestles to stirrer motors.

- Anodized aluminum, with attached flexible tubing serving as a friction-clutch and as a flexible coupling
- Stepped-stem diameter is 1/4" and 5/16" (6.4 and 7.9 mm)

Part Number	Fits Shaft Diameter (mm)	Height (mm)	Case Qty
788000-0021	8-10	45	1

Replacement Parts

Part Number	Description	Case Qty
788020-0021	Flex-Shaft Adapter, 8-10mm, 5/16" OD	1

Biomasher II® Closed System Disposable Tissue Homogenizer

Closed system tissue homogenizer (tube with pestle) ideal for homogenizing of animal tissues and organs as well as plant materials, insects, DNA, RNA, proteins, yeasts and enzymes.

- Micro-sized version of our CS1 and CS2 disposable, closed system tissue homogenizers
- Pestle with a molded-in shaft guard to minimize potential exposure to hazardous materials
- Abrasive surfaces on the pestle tip and inner tube area ensure efficient grinding of samples
- Available both sterile and non-sterile
- The tube is clear polypropylene and the pestle is polyacetal
- 749625-0010 is packaged in a bulk pack configuration
- 749625-0020 and 749625-0030 are individually wrapped

Part Number	Capacity (mL)	Sterile/Non-sterile	Case Qty
749625-0010	1.5	Non-sterile	50
749625-0020	1.5	Non-sterile	50
749625-0030	1.5	Sterile	50

Sterile Closed-System Tissue Grinders

- Closed System 1 sterile tissue grinders are easy to use and designed for your safety
- Tissues are ground within a sealed container to minimize the risk of personal contact - exposure to sample aerosols is eliminated
- Narrow pestles eliminate the potential of sample overflow common with other types of grinders
- The molded-in abrasive surface on the pestle tip leaves no sediment to obstruct sample examination
- Each grinder comes with a fully assembled pestle, a conical sample tube with solid top cap, an adhesive identification label and an instruction card.
- All are gamma-sterilized in easy-open Tyvek® packs
- Tubes are made of PP, pestles are 30% glass-filled PP and caps are HDPE

Part Number	Capacity (mL)	Case Qty
749600-0015	15	10
749600-0050	50	10

Sterile Closed-System Tissue Grinders with Vitrified Tip

Closed System 2 sterile tissue grinders are the same as the CS1 grinders but with a vitrified tip for more aggressive grinding of difficult samples.

- The proprietary silica casting process results in a glass-like abrasive tip surface that makes it easier to homogenize fibrous samples
- The closed system design allows for grinding to take place within a sealed container
- Each grinder comes with a fully assembled pestle, a conical sample tube with solid top cap, an adhesive identification label and an instruction card
- All are gamma-sterilized in easy-open Tyvek® packs
- Tubes are made of PP, pestles are 30% glass-filled PP, caps are HDPE and vitrified tips are cast silica

Part Number	Capacity (mL)	Case Qty
749610-0015	15	10
749610-0050	50	10

RNase-Free Disposable PELLET PESTLE® and Microtubes

- RNase, DNase and Pyrogen-free
- Individually wrapped to ensure purity
- Autoclavable blue polypropylene
- Pestles specially designed to match microtubes
- Can be driven by cordless motor 749540-0000

Part Number	Size (mL)	Case Qty
749520-0090	1.5	100
749520-0590	0.5	100
749521-0590	0.5	100
749521-1590	1.5	100
749510-0590	0.5	100
749510-1590	1.5	100

Disposable PELLET PESTLES® and Microtubes

Resuspend protein and DNA pellets or grind soft tissues in micro centrifuge tubes.

- Disposable PELLET PESTLES® and microtubes
- Autoclavable blue polypropylene
- Pestles specially designed to match microtubes
- Can be driven by cordless motor 749540-0000

Part Number	Size (mL)	Pestle Length (mm)	Case Qty
749520-0500	0.5	70	100
749520-0000	1.5	70	100
749521-0500	0.5	70	100
749521-1500	1.5	70	100

Polypropylene PELLET PESTLE® Microtubes

- Autoclavable polypropylene
- Selected to give best fit to Pellet Pestles®

Part Number	Size (mL)	Color	Case Qty
749510-1500	1.5	Blue	100
749510-1501	1.5	Blue	500
749560-0500	0.5	Natural	1,000
749560-1500	1.5	Natural	500
749530-1500	15	Natural	25
749530-5000	50	Natural	25

Reusable PELLET PESTLE®, CTFE/Stainless Steel Tissue Grinders

- Autoclavable CTFE/stainless steel for reuse
- 0.5 and 1.5 mL PELLET PESTLE grinders fit micro centrifuge tubes

Part Number	Size (mL)	Pestle Length (mm)	Case Qty
749516-0500	0.5	60	1
749515-0000	1.5	140	1
749515-1500	15	210	1
749515-5000	50	210	1

PELLET PESTLE® Cordless Motor

Resuspend protein and DNA pellets or grind soft tissues in micro centrifuge tubes.

- For all PELLET PESTLE® mixers
- Complete with two AA batteries
- Operates at 2000-3000 RPM's with fresh batteries and no load

Part Number	Case Qty
749540-0000	1

Replacement Parts

Part Number	Description	Case Qty
749541-0000	Replacement PELLET PESTLE® Rubber Adapter Sleeve	1

Kimble®
A WORLD OF EXPERTISE IN YOUR HANDS

TUBES

For the largest and most diverse offerings of laboratory tube products, look no further than Kimble®. From highly technical engineered and produced NMR tubes, to the basic disposable tubes that every lab needs, Kimble® has it covered. Our tube selection serves such applications and markets such as blood collection and typing, centrifuge applications, color comparison and many others and also features the broadest selection of sizes and accessories.

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Caraway

Kimble® Caraway tubes are manufactured with tapered tips for easy collection of micro blood samples.

- Designed for use with the Caraway technique
- Packed in lint-free boxes
- Ends may be sealed with clay or caps
- Heparinized tubes are evenly coated with ammonium heparin to prevent coagulation and do not interfere with sodium identification
- Manufactured from 90 expansion soda lime glass conforming to USP Type III requirements

Part Number	ID x Length (mm)	Feature	Case Qty
42G605	2.6 x 75	Heparinized, Red coded	600
42H606	2.6 x 75	Non-heparinized, Blue coded	600

Micro-Hematocrit Capillary Tubes

Kimble® micro-hematocrit tubes are used to measure the volume percentage of red blood cells in blood.

- Packed in plastic vials with reclosable snap-lock caps to maintain cleanliness
- Ends may be sealed by flame or sealing clay
- Heparinized capillary tubes are designed to prevent blood clotting
- Ammonium heparin does not interfere with sodium identification
- 44B508 and 44A509 are bulk quantities
- Tubes are manufactured from 90 expansion soda lime glass conforming to USP Type III requirements

Part Number	ID x Length (mm)	Feature	Case Qty
40B501	1.1 x 75	Heparinized, Red coded	1200
40A502	1.1 x 75	Heparinized, Blue coded	1200
41B2501	1.1 x 75	Heparinized, Red coded	2400
41A2502	1.1 x 75	Non-heparinized, Blue coded	2400
40C505	0.5 x 75	Heparinized, 60 mm calibration, Black coded	1200
44B508	1.1 x 75	Heparinized, Red coded	4252
44A509	1.1 x 75	Non-heparinized, Blue coded	4252

Natelson Tubes

Kimble® brand Natelson tubes are manufactured with tapered tips for easy collection of micro blood samples.

- Designed for use with the Natelson technique
- Packed in lint-free boxes
- Ends may be sealed with clay or caps
- Manufactured from 90 expansion soda lime glass conforming to USP Type III requirements

Part Number	ID x Length (mm)	Feature	Case Qty
42F604	1.6 x 150	Non-heparinized, Blue coded	600
42E603	1.6 x 150	Heparinized, Red coded	600

Cha-seal Tube Sealing Compound

Cha-seal tube sealing compound is used to seal hematocrit capillary blood collection tubes before centrifugation.

- Non-toxic
- Non-hardening
- Non-drying material
- Maintains excellent retention during centrifugation
- Light color provides a sharp contrast line with blood for easy reading

Part Number	Case Qty
43510	100

A1 Yellow Color-Coded Tubes

Kimble® brand blood typing tubes feature a permanent ceramic label, fused to the glass, which is easily written on with marker or pencil.

- Pre-labeled with blood type
- Convenient package quantities
- Permanent yellow labels placed to allow an unobstructed view of cell suspension
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
60A10BZ1	3	10 x 75	1000
60B12BZ1	5	12 x 75	1000

ANTI A Blue Color-Coded Tubes

Kimble® brand blood typing tubes feature a permanent ceramic label, fused to the glass, which is easily written on with marker or pencil.

- Pre-labeled with blood type
- Convenient package quantities
- Permanent blue labels placed to allow an unobstructed view of cell suspension
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
60A10BZ2	3	10 x 75	1000
60B12BZ2	5	12 x 75	1000

ANTI B Yellow Color-Coded Tubes

Kimble® brand blood typing tubes feature a permanent ceramic label, fused to the glass, which is easily written on with marker or pencil.

- Pre-labeled with blood type
- Convenient package quantities
- Permanent yellow labels placed to allow an unobstructed view of cell suspension
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
60A10BZ4	3	10 x 75	1000
60B12BZ4	5	12 x 75	1000

B Blue Color-Coded Tubes

Kimble® brand blood typing tubes feature a permanent ceramic label, fused to the glass, which is easily written on with marker or pencil.

- Pre-labeled with blood type
- Convenient package quantities
- Permanent blue labels placed to allow an unobstructed view of cell suspension
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
60A10BZ3	3	10 x 75	1000
60B12BZ3	5	12 x 75	1000

IIS White Color-Coded Tubes

Kimble® blood typing tubes feature a permanent ceramic label, fused to the glass, which is easily written on with marker or pencil.

- Pre-labeled with blood type
- Convenient package quantities
- Permanent white labels placed to allow an unobstructed view of cell suspension
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
60A10BZ6	3	10 x 75	1000
60B12BZ6	5	12 x 75	1000

IS Green Color-Coded Tubes

Kimble® blood typing tubes feature a permanent ceramic label, fused to the glass, which is easily written on with marker or pencil.

- Pre-labeled with blood type
- Convenient package quantities
- Permanent green labels placed to allow an unobstructed view of cell suspension
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
60A10BZ5	3	10 x 75	1000
60B12BZ5	5	12 x 75	1000

Wintrobe Erythrocyte Sedimentation Rate (ESR) Tubes

ESR tubes measure the rate at which red blood cells settle out of plasma.

- Use with standard or modified procedure
- Precision-drawn glass and accurate calibrations ensure that results are accurate with standard normal values
- Self-zeroing Wintrobe tubes (68F828SO) are filled by means of an aspirating bulb
- Round-bottomed Wintrobe tubes (64FR828B-BLUE and 64FR-828-B) are filled with a 9" Pasteur pipet
- Manufactured from 90 expansion soda lime glass conforming to USP Type III requirements

Part Number	ID (mm)	Length (mm)	Case Qty
64FR828B-BLUE	3	115	2000
64FR828B	3	115	2000
66F828SO	3	150	1000

Westergren Erythrocyte Sedimentation Rate (ESR) Tubes

ESR tubes measure the rate at which red blood cells settle out of plasma. Kimble® Westergren sedimentation rate tubes may be used for the standard procedure, by drawing blood in a liquid sodium citrate vacuum tube, or the modified procedure, using a saline-diluted EDTA vacuum tube.

- Precision-drawn glass and accurate calibrations ensure that the results are accurate with the standard normal values
- Manufactured from 90 expansion soda lime glass conforming to USP Type III requirements

Part Number	ID (mm)	Length (mm)	Case Qty
67G830SO	2.55	240	1000

Sedimentation Tube Racks with Leveling Bubbles and Adjustment Screws

Sedimentation tube racks hold Westergren or Wintrobe sedimentation tubes

- Sedimentation tube racks feature leveling bubbles and adjustment screws
- Tubes are held firmly in a perpendicular position to ensure accurate readings

Part Number	Feature	Case Qty
2212N	6-Slot	1
2215N	10-Slot	1

Melting Point Capillary

KIMAX® melting point capillary tubes are used to determine the point at which a solid sample turns to liquid.

- Tubes are 100 mm long when supplied with both ends open, so that approximately 90 mm will remain after sealing
- Tube length insures that the open end will extend well above the bath's surface to prevent the bath liquid from entering the tube
- 34502-99 and 34507-99 have a smaller I.D. than 34500-99 and are designed from requirements contained in the United States Pharmacopeia (USP)
- Packaged with 100 tubes per vial and 20 vials per case
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	OD x Length (mm)	Feature	Case Qty
34500-99	1.5-1.8 x 100	Open at both ends	2000
34502-99	1.5-1.8 x 100	Open at both ends	2000
34505-99	1.5-1.8 x 90	Sealed at one end	2000
34507-99	1.5-1.8 x 90	Sealed at one end	2000

MICROCAPS® Disposable Capillary Tubes

Drummond Microcaps® are ideal for spotting pre-adsorbent TLC plates.

- Precision-bore glass capillary tubes
- Cut to predetermined lengths, so that each capillary tube will hold a known volume of fluid when filled
- Supplied with one bulb assembly and one dispenser vial with 100 micropipets
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (µL)	Volume Tolerance (%)	Case Qty
764500-0000	0.5	±1	100
764500-0001	1	±1	100
764500-0002	2	±1	100
764500-0005	5	±1	100
764500-0010	10	±1	100
764500-0020	20	±1	100
764500-0025	25	±1	100
764500-0050	50	±1	100
764500-0100	100	±1	100

MICROCAPS® Kit

The Microcaps "5-Pack" contains 100 micropipets each of 0.5, 1, 2, 5 and 10 µL sizes, in 5 dispenser vials.

- Drummond Microcaps® are ideal for spotting preadsorbent TLC plates
- Precision-bore glass capillary tubes
- Cut to predetermined lengths, so that each capillary tube will hold a known volume of fluid when filled
- Supplied with one bulb assembly and one spotting holder
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (µL)	Case Qty
764520-0000	one each of 0.5, 1, 2, 5, 10	1

To Contain Micro Capillary Pipets

- Pipets are marked with a single black capacity ring and are color-coded for selection of the correct size
- Calibrated to contain
- Packaged in easy-open cylinders for convenient dispensing
- Each cylinder contains 250 pipets and one pipet device
- Designed from ASTM Specification E672
- Manufactured from 90 expansion soda lime glass conforming to USP Type III requirements

Part Number	Capacity; Tolerance (µL)	Color of Coding Band	Case Qty
71900-5	5; ±1.0	White	1,000
71900-10	10; ±0.5	Orange	1,000
71900-20	20; ±0.5	Black	1,000
71900-25	25; ±0.5	2 White	1,000
71900-50	50; ±0.5	Green	1,000
71900-100	100; ±0.5	Blue	1,000

Snap Cap Disposable Centrifuge Tubes

Plain, disposable centrifuge tube can withstand centrifugation up to 2980 RCF.

- Conical bottom
- The 5, 10, and 15 mL sizes have a finished top for a snap-cap closure (not supplied)
- The 50 mL size has a tooled top
- Tubes are plastic shrink wrapped in modular trays to keep them clean and safe in transit
- See 73837 for snap cap closures
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
73790-5	5	13 x 110	125
73790-10	10	16 x 114	125
73790-15	15	17 x 126	125
73790-50	50	29 x 137	72

Accessories

Part Number	Description	Case Qty
73837-1	Size 1 Snap Cap for 5 mL tube, Polyethylene	500
73837-2	Size 2 Snap Cap for 10 mL and 15 mL tubes, Polyethylene	500

Screw Thread Disposable Centrifuge Tubes

With conical-shaped bottoms on the 5, 10, and 15 mL sizes and a bullet-nosed shape on the 50 mL size, these tubes withstand centrifugation up to 2980 RCF.

- Tubes are plastic shrink-wrapped in modular trays for cleanliness and safety
- Closures are not supplied
- For closures see 73800 and 73802
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
73785-5	5	13 x 110	125
73785-10	10	16 x 114	125
73785-15	15	17 x 126	125
73785-50	50	29 x 137	72

Accessories

Part Number	Description	Case Qty
73800-13415	13-415 Black Phenolic Cap, Cemented White Rubber Liner, for 73785-5	1,000
73802-13415	13-415 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner, for 73785-5	500
73800-15415	15-415 Black Phenolic Cap, Cemented White Rubber Liner, for 73785-10 and 73785-15	1,000
73802-15415	15-415 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner, for 73785-10 and 73785-15	500
73802-24400	24-400 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner, for 73785-50	144

Plain Reusable Centrifuge Tube without Closures

KIMAX® reusable centrifuge tube has a beaded top for added strength.

- Supplied without closures
- Designed from Federal Specification A-A-51244, Type II ungraduated requirements
- 45150 series is designed from ASTM Specification E237
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45150-2	2	11 x 66	12
45150-5	5	13 x 101	12
45160-15	15	17 x 118	12

Plain Reusable Centrifuge tube with Screw Caps

Threaded conical centrifuge tube with a PTFE/rubber-lined black phenolic screw cap.

- Ungraduated
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
410090-0015	15	17 x 130	12
410090-0050	50	28 x 158	12

Replacement Parts

Part Number	Description	Case Qty
45066C-15	15-415 Cap, Phenolic, PTFE Liner, Cap height 16 mm; for 410090-0015	300
45066C-24	24-410 Cap, Phenolic, PTFE Liner, Cap height 19 mm; for 410090-0050	150

Plain Reusable Centrifuge Tube with Snap Caps

Ungraduated, conical centrifuge tube with a beaded top.

- Supplied with size 2 snap cap; replacement cap is 28150R-2
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
411800-0015	15	20 x 120	1
411800-1015	15	20 x 120	10

Plain Round Bottom Reusable Centrifuge Tubes with Flat Head Glass Stopper

- Round bottom ungraduated centrifuge tube with a flat head Standard Taper stopper
- The flat head design permits stoppers to be placed on work surfaces without contaminating the ground zone and also facilitates the use of this vessel as a shaking tube
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Do not centrifuge with stopper in tube

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
411050-0050	50	28 x 140	1
411050-0100	100	32 x 210	1

Heavy-Duty Plain Centrifuge Tubes

Standard Taper KIMAX® tube made with heavy-walled tubing to withstand higher centrifugation speeds.

- Top is beaded for strength
- Outside dimensions are the same as 45160; however, tubes will hold less due to heavier wall thickness
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45194-12	12	17 x 118	12

Heavy-Duty Plain Centrifuge Tubes with Flathead PTFE Stoppers

This Standard Taper KIMAX® tube is made with heavier-walled tubing to withstand higher centrifugation speeds.

- Color-coded flathead PTFE stopper
- Conical bottom
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Do not centrifuge with stopper in tube.

Part Number	Capacity (mL)	Approx. OD x Length (mm)	Case Qty
45174-13	13	17 x 141	6
45174-50	50	29 x 167	6

Heavy-Duty Plain Centrifuge Tubes with Screw Caps

Standard Taper KIMAX® tube is a heavy-duty version of 45161.

- Made with heavier walled tubing to withstand higher centrifugation speeds
- Top has screw thread finish
- Cap with rubber liner is included but not attached
- Replacement cap is 45066B
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45196-40	40	29 x 140	12

Heavy Duty Round Bottom Centrifuge Tubes with Screw Caps

KIMAX® tube useful in separating neutralized sediment for culturing from specimens of sputum. Will be found useful also for other clinical work and in many microbiological applications.

- KIMAX® tube with a heavy wall to withstand higher speeds in centrifuging
- Marking spot is sandblasted
- Autoclavable black phenolic caps with cemented-in rubber liners are supplied unattached
- Replacement cap is 45066B-24
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45212-35	35	29 x 100	12
45212-50	50	29 x 123	12

Replacement Parts

Part Number	Description	Case Qty
45066B-24	24-410 Cap, Phenolic, White Rubber Liner, Cap height 19 mm	150

Graduated Reusable Centrifuge Tubes

This Standard Taper KIMAX® tube is reusable.

- Graduated and calibrated to contain
- Top is beaded for strength
- Scale, legend and marking spot are printed in durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45165-10	10	17 x 108	12
45165-15	15	17 x 118	12
45165-50	50	29 x 133	12

Graduated Hopkins Vaccine Centrifuge Tube

KIMAX® tube used to standardize vaccines.

- The stem is marked from 0.01 mL to 0.05 mL in 0.01 mL intervals with a tolerance of ±0.0025 mL
- The body has graduations at 1, 5 and 10 mL with a tolerance of ±0.20 mL
- Scale and legend are durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45225-10	10	17 x 119	12

Graduated Reusable Centrifuge Tube with Spout

KIMAX® tube with a short tapered bottom

- Beaded top
- Graduated and calibrated to contain
- Top end has a pour spout
- Scale, legend and marking spot are durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45186-50	50	29 x 118	12

Graduated Reusable Centrifuge Tubes with Red Stain Scale

Standard taper KIMAX® tube.

- Calibrated to contain
- Top is beaded for strength
- Scale and legend are printed in permanent red stain
- Marking spot is sand-blasted on both sizes
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45164-15	15	17 x 118	12

Graduated Reusable Centrifuge Tubes with Pennyhead Glass Stoppers

- KIMAX® tube with a top finished to accept a Standard Taper stopper (supplied)
- Graduated and calibrated to contain
- Scale, legend and marking spot are durable white ceramic enamel
- Replacement stopper is 850100
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Approx. OD x Length (mm)	Case Qty
45153-15	15	17 x 136	12
45153-50	50	29 x 148	12

Replacement Parts

Part Number	Description	Case Qty
850100-0013	Size 13 Glass Stopper, for 15 mL tube	1
850100-0019	Size 19 Glass Stopper, for 50 mL tube	1

Graduated Reusable Centrifuge Tubes with Flat Head Glass Stoppers

Conical-type graduated centrifuge tube with a flat head Standard Taper stopper.

- Flat head design permits stoppers to be placed on work surfaces without contaminating the ground zone and also facilitates the use of this vessel as a shaking tube
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Do not centrifuge with stopper in tube.

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
410550-0025	2.5	11 x 98	1
410550-0005	5	13 x 123	1
410550-0013	13	17 x 141	1

Replacement Parts

Part Number	Description	Case Qty
410551-0005	5 mL Graduated Centrifuge Tubes	1
410551-0013	13 mL Graduated Centrifuge Tubes	1

Graduated Reusable Centrifuge Tubes with Screw Caps

- Standard Taper KIMAX® tube with a screw thread finish
- Graduated and calibrated to contain
- Cap supplied has cemented-in white rubber liner and is packaged separately
- Scale, legend and marking spot are durable white ceramic enamel
- Replacement cap for 45166 is 45066B
- Replacement cap for 45246 is 45066C
- 45246 is a large-capacity, 100mL tube with screw thread closure
- Manufactured to the specifications found in ASTM 2158
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL); GPI Finish	OD x Length (mm)	Case Qty
45166-15	15; 15-415	17 x 130	12
45166-50	50; 24-410	29 x 147	12
45246-100	100; 28-410	37 x 203	12

Replacement Parts

Part Number	Description	Case Qty
45066B-15	15-415 Cap, Phenolic, White Rubber Liner, Cap height 16 mm, for 15 mL tube	300
45066B-24	24-410 Cap, Phenolic, White Rubber Liner, Cap height 19 mm, for 50 mL tube	150
45066C-28	24-410 Cap, Phenolic, PTFE-faced White Rubber Liner, Cap height 19 mm	150

Heavy Duty Graduated Centrifuge Tubes

This Standard Taper KIMAX® tube is a heavy-duty version of 45165.

- Made with heavier walled tubing to withstand higher centrifugation speeds
- Beaded top for strength
- Graduated and calibrated to contain
- Scale is white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45199-12	12	17 x 118	12

Heavy-Duty Graduated Centrifuge Tubes with Glass Pennyhead Stoppers

- Standard Taper KIMAX® tube is a heavy-duty version of 45153
- Calibrated to contain
- Scale, legend and marking spot are durable white ceramic enamel
- Tooled for a Standard Taper stopper, which is included
- Replacement stopper is 850100-0013
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Do not centrifuge with stopper in tube.

Part Number	Capacity (mL)	Approx. OD x Length (mm)	Case Qty
45201-10	10	17 x 117	6

Replacement Parts

Part Number	Description	Case Qty
850100-0013	Size 13 Glass Stopper	1

Heavy-Duty Graduated Centrifuge Tubes with Flat Head PTFE Stoppers

- Heavy-duty KIMAX® tube with a graduated scale and a PTFE Standard Taper stopper
- Calibrated to contain
- With top finish to accept a Standard Taper stopper
- Scale and legend are printed in permanent red stain on the 13 mL size and permanent brown stain on 50 mL size
- Marking spot is sandblasted on
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Do not centrifuge with stopper in tube.

Part Number	Capacity (mL)	Approx. OD x Length (mm)	Case Qty
45176-13	13	17 x 130	6
45176-50	50	29 x 155	6

Heavy-Duty Graduated Centrifuge Tubes with Screw Caps

Standard Taper KIMAX® tube is a heavy-duty version of 45166.

- Graduated and calibrated to contain
- Scale is durable white ceramic enamel
- Made with heavier walled tubing to withstand higher centrifugation speed
- Top has a screw thread finish
- Autoclavable cap with rubber liner is included but not attached
- Replacement cap is 45066B
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL); GPI Finish	OD x Length (mm)	Case Qty
45200-10	10; 15-415	17 x 116	12
45200-40	40; 24-410	29 x 140	12

Replacement Parts

Part Number	Description	Case Qty
45066B-15	15-415 Cap, Phenolic, White Rubber Liner, Cap height 16 mm, for 10 mL tube	300
45066B-24	24-410 Cap, Phenolic, White Rubber Liner, Cap height 19 mm, for 40 mL tube	150

Screw Thread High Strength Centrifuge Tubes

These tubes can be centrifuged up to 13,100 RCF when used with an accessory rubber adapter sleeve in a 50 mL rotor cavity.

- Tubes have been chemically strengthened to achieve a greater mechanical strength than standard borosilicate centrifuge tubes
- Excluding caps, tubes can withstand temperatures up to 300 °C
- Supplied with 73802 black phenolic cap with PTFE-faced rubber liner
- Reusable centrifuge tubes are manufactured from ASTM E438 Type I, Class B, borosilicate glass

Part Number	Capacity (mL); GPI Finish	OD x Length (mm)	Case Qty
45600-15	15; 20-400	18 x 102	6
45600-30	30, 24-400	24 x 106	6

Replacement Parts

Part Number	Description	Case Qty
73802-20400	20-400 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner, for 15 mL tube	144
73802-24400	24-400 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner, for 30 mL tube	144

Accessories

Part Number	Description	Case Qty
45550-15	15mL Centrifuge Tube Rubber Adapter Sleeve	2
45550-30	30mL Centrifuge Tube Rubber Adapter Sleeve	2

Plain High Strength Centrifuge Tubes

These tubes can be centrifuged up to 13,100 RCF when used with an accessory rubber adapter sleeve in a 50 mL rotor cavity.

- Tubes have been chemically strengthened to achieve a greater mechanical strength than standard borosilicate centrifuge tubes
- Without closures
- Tubes can withstand temperatures up to 300 °C
- Reusable centrifuge tubes are manufactured from ASTM E438 Type I, Class B, borosilicate glass

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45500-15	15	18 x 102	6
45500-30	30	24 x 106	6

Heavy-Duty Centrifuge Bottles with Screw Caps

This centrifuge bottle has a small bottom area for better concentration of sediment, facilitating decanting of liquid.

- KIMAX® bottle has a screw thread finish
- Supplied with an unattached, white polypropylene closure with a pulp/vinyl coated liner
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
14720-200	200	60 x 145	1

8" Oil Centrifuge Tubes

KIMAX® tube used in the determination of *water and sediment in crude mineral oils, fuel oils and other petroleum* products (D1796 and MPMS 10.4 standards); in determination of volume of precipitate formed by centrifuging definite quantities of steam cylinder stocks and black oils and other lubricating oils (ASTM D91 and D128); and in testing for acidity of distillation residues or hydrocarbon liquids of gasoline or petroleum solvents (ASTM D1093).

- Calibrated to contain
- Scale and legend are durable white ceramic enamel
- Top is tooled to accept snap cap 28150R-6
- Referenced in ASTM D4007
- Manufactured from 33 expansion, low extractable *borosilicate glass* conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45240-100	100	37 x 203	12

API Graduated Centrifuge Tubes

Used to determine the bottom sediment and water in petroleum.

- KIMAX® tube with a long taper
- Calibrated to contain
- Scale, legend and marking spot are durable white ceramic enamel
- Referred to as the "finger" tube
- Made in accordance with the former specifications of the American Petroleum Institute (API Standard 2542)
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (%)	OD x Length (mm)	Case Qty
45170-125	100 (12.5 mL)	17 x 118	12

Goetz Graduated Centrifuge Tubes

KIMAX® tube used for the determination of small quantities of solids in large volumes of liquids. Recommended for the determination of free water and sediment in diesel and other distillate fuels, as a pass-fail indication of product quality (ASTM D2709).

- Calibrated to contain.
- Durable black ceramic enamel scale
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Do not centrifuge with stopper in tube.

Stem graduations in 0.01 mL to 0.2 mL with a tolerance of ±0.01 mL
Body graduation at 25 mL with a tolerance of ±1.0 mL
Body graduations at 50 and 100 mL with a tolerance of ±2.0 mL

Part Number	Capacity (mL)	Approx. OD x Length (mm)	Case Qty
45220-100	100	58 x 160	6

Pear-Shaped Centrifuge Tubes with Red Scale

Graduated tube is used for the determination of water and sediment in petroleum products.

- Top is tooled for a size 5 rubber stopper
- Calibrated to contain
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Stem Volume (mL)	Case Qty
412510-0000	100	3	1

Pear-Shaped Centrifuge Tubes with White Scale

KIMAX® tube used in the determination of bottom sediment and water in petroleum products.

- Calibrated to contain
- Stem holds 1.5 mL
- Scale and legend are durable white ceramic enamel
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45244-100	100	58 x 158	12
45244-200	100 (200%)	58 x 158	6

6" Short Cone Oil Centrifuge Tubes

KIMAX® tube designed for field use in testing petroleum. Centrifuge tubes with 6-inch short cone.

- Calibrated to contain
- Scale and legend are durable white ceramic enamel
- 45243-200 is graduated in %. 100 mL equals 200%
- Top is tooled to accept snap cap 28150R-6
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45243-100	100	45 x 165	12
45243-200	100, 200%	45 x 165	6

8" Oil and Weathering (End Point Index) Centrifuge Tubes

Can be used in the determination of residues in Liquified Petroleum (LP) gases, ASTM Method D2158.

- KIMAX® tube used extensively in California
- Calibrated to contain
- Different graduations than 45240
- Scale and legend are durable white ceramic enamel
- Top is tooled to accept snap cap 28150R-6
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45241-100	100	37 x 203	12

California Centrifuge Tube with Red Stripe

KIMAX® conical bottom centrifuge tube is used for testing of petroleum products according to ASTM D91, D893 and D1796.

- Tube has a permanent red stripe under the white enamel graduations for easy reading of results
- Scale and legend are durable white ceramic enamel
- Top is tooled to accept snap cap 28150R-6
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
45239-100	100	38 x 200	12

Chromatography Sample Tube with Screw Caps

- Design allows access to the sample via a microliter syringe needle through the hole in the PTFE-lined screw cap
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Graduations x Sub-divisions (mL)	Case Qty
422570-0000	2	0-0.3 x 0.01	1

Replacement Parts

Part Number	Description	Case Qty
410116-1325	PTFE-Lined 13-425 Open Top Phenolic Cap	1
774161-0013	PTFE-Faced Silicone Rubber Septa	48

Nessler Color Comparison Tubes

These Nessler tubes are ideal for color comparison.

- Shadowless bottom of each tube transmits undistorted light
- Rings and legend are durable white ceramic enamel
- 45310 series is unmatched
- 45310A series is supplied in matched sets of 6. Graduated ring scale of any of the six tubes will not vary by more than 3 mm from that of any other tube within the set
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Length (mm)	Graduation (mL)	Case Qty
45310-50	25 x 175	50	6
45310-100	32 x 200	100	6
45310-50100	32 x 200	50 & 100	6
45310A-50	25 x 175	50	6
45310A-100	32 x 200	100	6

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APHA Nessler Color Comparison Tubes

These Nessler tubes are ideal for color comparison.

- Shadowless bottom of each tube transmits undistorted light
- Rings and legend are durable white ceramic enamel which correspond with specific volumes of liquid
- 45315 series is unmatched
- 45315A series is supplied in a matched set of 6
- 45315B series is supplied in a matched set of 12
- Graduated ring scale of any of the tubes within a set will not vary from that of any other tube within the set by more than 1.5 mm for the 50 mL and 2.0 mm for the 100 mL sizes
- The 50 mL size is specifically mentioned by the American Public Health Association in Standard Methods for the Examination of Water and Waste Water
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I Class A requirements

Part Number	OD x Length (mm)	Graduation (mL)	Case Qty
45315-50	20 x 300	50	6
45315-100	24 x 375	100	6
45315-50100	24 x 375	50 & 100	6
45315A-50	20 x 300	50	6
45315A-100	24 x 375	100	6
45315A-50100	24 x 375	50 & 100	6
45315B-50	20 x 300	50	12
45315B-100	24 x 375	100	12

APHA Nessler Color Comparisons Tubes with Cap Stoppers

These Nessler tubes are ideal for color comparison and feature cap style stoppers that do not need to be removed to take readings.

- Shadowless bottom of each tube transmits undistorted light
- Standard Taper cap style stopper
- Replacement cap is 15182
- 45325A is supplied in a matched set of 6
- 45325B is supplied in a matched set of 12.
- Graduated ring scale of any of the tubes within a set will not vary from that of any other tube within the set by more than 1.5 mm for the 50 mL and 2.0 mm for the 100 mL sizes
- The 50-100 mL size is designed from ASTM D1209
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Length (mm)	Graduation (mL); Standard Taper Joint	Case Qty
45325A-50	20 x 312	50; 19/10	1
45325B-50100	24 x 390	50 & 100; 24/12	1

Replacement Parts

Part Number	Description	Case Qty
15182-1910	Nessler Tubes Stopper, 19/10 Standard Taper Joint	1
15182-2412	Nessler Tubes Stopper, 24/12 Standard Taper Joint	1

AOCS Color Comparison Tube

Used to determine the color of refined vegetable oils such as cottonseed, corn and soybean oils, as well as tallows, greases, fatty acids, etc., with Wesson type tintometers (AOCS Method Cc 13b). Also used to determine the color of whole and refined tall oils with a Lovibond tintometer.

- Shadowless bottom transmits undistorted light
- Rings and legend are durable white ceramic enamel
- Rings are located at specific distances from the inside bottom of the tube
- For use with AOCS Method Cc 13b
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x ID (mm)	Length (mm)	Case Qty
45290-154	22 x 19	154	6

Borosilicate Glass Tubes with 3/4" Banded Labels

These Kimble® Mark-M™ glass culture tubes feature a permanent banded ceramic label, fused to the glass, which is easily written on with marker or pencil.

- Permanent marking spots
- Borosilicate glass tubes have excellent chemical resistance against sodium leaching
- Labels are located 3/4" from the open end and are available in a variety of colors
- All tubes have sturdy, uniform bottoms and consistent lengths
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity (mL); Color	OD x Length (mm)	Case Qty
60A10BZXB	3; blue	10 x 75	1000
60A10BZXG	3; green	10 x 75	1000
60A10BZXL	3; yellow	10 x 75	1000
60A10BZXW	3; white	10 x 75	1000
60B12BZXW	5; white	12 x 75	1000

Borosilicate Glass Tubes with 1-3/8" Vertical Labels

These Kimble® brand Mark-M™ glass culture tubes feature a permanent vertical ceramic label, fused to the glass, which is easily written on with marker or pencil.

- Permanent marking spots
- Borosilicate glass tubes have excellent chemical resistance against sodium leaching
- Labels are located 3/4" from the open end and are available in a variety of colors
- All tubes have sturdy, uniform bottoms and consistent lengths
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity (mL); Color	OD x Length (mm)	Case Qty
60A10BZB	3; blue	10 x 75	1000
60A10BZG	3; green	10 x 75	1000
60A10BZL	3; yellow	10 x 75	1000
60A10BZW	3; white	10 x 75	1000
60B12BZB	5; blue	12 x 75	1000
60B12BZG	5; green	12 x 75	1000
60B12BZL	5; yellow	12 x 75	1000
60B12BZW	5; white	12 x 75	1000
60C13BZW	9; white	13 x 100	1000
60E16BZW	14; white	16 x 100	1000

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Soda-Lime Glass Tubes with 3/4" Banded Labels

These Chase brand Mark-M™ glass culture tubes feature a permanent vertical ceramic label, fused to the glass, which is easily written on with marker or pencil.

- Permanent marking spots
- Labels are located 3/4" from the open end and are available in a variety of colors
- All tubes have sturdy, uniform bottoms and consistent lengths
- Manufactured from 90 expansion soda-lime glass conforming to USP Type III requirements

Part Number	Capacity (mL); color	OD x Length (mm)	Case Qty
60AM10MXW	3; white	10 x 75	1000
60BM12MXW	5; white	12 x 75	1000

Soda-Lime Glass Tubes with 1-3/8" Vertical Labels

These Kimble® Mark-M™ glass culture tubes feature a permanent vertical ceramic label, fused to the glass, which is easily written on with marker or pencil.

- Permanent marking spots
- Labels are located 3/4" from the open end
- All tubes have sturdy, uniform bottoms and consistent lengths
- Manufactured from 90 expansion soda-lime glass conforming to USP Type III requirements

Part Number	Capacity (mL); Color	OD x Length (mm)	Case Qty
60AM10MW	3; white	10 x 75	1000
60BM12MW	5; white	12 x 75	1000

Plain Disposable Borosilicate Glass Tubes

These premium quality tubes feature sturdy, uniform bottoms and consistent lengths. The 10 x 75 and 12 x 75 mm sizes are suitable for cell washing procedures.

- 51 expansion borosilicate glass offers excellent chemical resistance against sodium leaching, a factor common in soda lime glass products
- Tubes are packed in convenient trays for ease of use on bench tops and in drawers
- The 6 x 50 mm size is often referred to as a "Durham tube"
- Trays are shrink-wrapped in plastic film, with tubes remaining in constant alignment for protection against in-transit breakage and contamination
- No marking spot
- Designed from ASTM Specification E890
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Overflow Capacity (mL)	OD x Length (mm)	Case Qty
73500-650	1	6 x 50	1000
73500-1075	4	10 x 75	1000
73500-1275	6	12 x 75	1000
73500-13100	10	13 x 100	1000
73500-1585	11	15 x 85	1000
60T1685B	13	16 x 85	1000
73500-16100	15	16 x 100	1000
73500-16125	19	16 x 125	1000
73500-16150	23	16 x 150	1000
73500-18150	28.5	18 x 150	500
73500-20150	36	20 x 150	500
73500-25150	55	25 x 150	500

Plain Disposable Soda-Lime Glass Tubes

- All tubes have sturdy, uniform bottoms and consistent lengths
- No marking spot
- Manufactured from 90 expansion soda-lime glass conforming to USP Type III requirements

Part Number	Overflow Capacity (mL)	OD x Length (mm)	Case Qty
60AM10	4	10 x 75	1000
60BM12	6	12 x 75	1000
60CM13	10	13 x 100	1000
60MM190	13	16 x 75	1000
60EM16	15	16 x 100	1000
60FM165	19	16 x 125	1000
60GM166	23	16 x 150	1000
60KM18	28.5	18 x 150	500

Disposable Screw Thread Culture Tubes with Marking Spot

These culture tubes are suitable for tissue culture work and general bacteriological use.

- Round-bottomed
- Each tube has a marking area
- Modular trays are shrink-wrapped in plastic film
- Supplied without caps
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	OD x Length (mm)	GPI Finish; Capacity (mL)	Case Qty
73750-13100	13 x 100	13-415; 8	1,000
73750-16100	16 x 100	15-415; 12	1,000
73750-16125	16 x 125	15-415; 16	1,000
73750-16150	16 x 150	15-415; 20	1,000
73750-20125	20 x 125	18-415; 25	500
73750-20150	20 x 150	18-415; 30	500

Accessories for Screw Thread Culture Tubes

Part Number	Description	Case Qty
73800-13415	13-415 Black Phenolic Cap, Cemented White Rubber Liner	1,000
73800-15415	15-415 Black Phenolic Cap, Cemented White Rubber Liner	1,000
73800-18415	18-415 Black Phenolic Cap, Cemented White Rubber Liner	1,000
73802-13415	13-415 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner	500
73802-15415	15-415 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner	500
73805-15415	15-415 White Polypropylene, Linerless, Economy, for Screw Thread Culture Tube	1,000
73805B-13415	13-415 Natural Polypropylene, Linerless	1,000
73805B-15415	15-415 Natural Polypropylene, Linerless	1,000
73805B-18415	18-415 Natural Polypropylene, Linerless	500

NEW!!!

Amber Plain Disposable Borosilicate Glass Tubes

These premium quality tubes are produced from amber borosilicate glass to give superior protection for light sensitive applications.

- Amber 51 expansion borosilicate glass offers excellent chemical resistance against sodium leaching, a factor common in soda lime glass products
- Tubes are packed in convenient trays for ease of use on bench tops and in drawers
- Trays are shrink-wrapped in plastic film, with tubes remaining in constant alignment for protection against in-transit breakage and contamination
- No marking spot
- Designed from ASTM Specification E890
- Manufactured from amber 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Overflow Capacity (mL)	OD x Length (mm)	Case Qty
73500-1075A	4	10 x 75	1000
73500-13100A	10	13 x 100	1000
73500-16100A	15	16 x 100	1000

Disposable Screw Thread Culture Tubes

These tubes are suitable for tissue culture work and general bacteriological use.

- 73760 series and 90 series items that end in 'F' have flat bottoms which contribute to stability
- 73770 series are produced with a round bottom
- Modular trays are shrink-wrapped in plastic film
- Supplied without caps
- No marking spot
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	GPI Finish; Capacity (mL)	OD x Length (mm)	Case Qty
73770-13100	13-415; 8	13 x 100	1,000
73770-16100	15-415; 12	16 x 100	1,000
73770-16125	15-415; 16	16 x 125	1,000
73770-16150	15-415; 20	16 x 150	1,000
73770-20125	18-415; 25	20 x 125	500
73770-20150	18-415; 30	20 x 150	500
73760-16125	15-415; 16	16 x 125	1,000
90H13100F	13-415; 8	13 x 100	1000
90K16100F	15-415; 12	16 x 100	1000
90P20113F	18-415; 20	20 x 113	500
90P20125F	18-415; 25	20 x 125	500
90P20150F	18-415; 30	20 x 150	500

Plain Disposable Plastic Tubes

These non-sterile plastic culture tubes are ideal for use in routine laboratory procedures.

- Polypropylene versions (-200) can be centrifuged up to 3000 RCF and will tolerate most common acids, solvents and alkalies at room temperature
- Polystyrene tubes (-100) are transparent and can withstand up to 1400 RCF
- Autoclavable at 120 °C for 15 minutes
- Will tolerate aqueous solutions, mild bases and weak acids

Part Number	OD x Length (mm)	Capacity (mL)	Case Qty
51012-100	12 x 75	6	1,000
51012-200	12 x 75	6	1,000
51013-100	13 x 100	10	1,000
51017-100	17 x 100	17	1,000
51017-200	17 x 100	17	1,000

Reusable Unmarked Culture Tubes

Borosilicate glass tubes with fire-polished top rims and uniform wall thicknessess for maximum heat transfer and chemical resistance.

- The 6 x 50 mm size is often referred to as a "Durham tube"
- No marking spot
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	OD x Length (mm)	Overflow Capacity (mL)	Case Qty
45060-650	6 x 50	1	720
45060-13100	13 x 100	10	720
45060-16150	16 x 150	23	576
45060-19150	19 x 150	30	576
45060-25150	25 x 150	55	288
45060-25200	25 x 200	75	192

Reusable Culture Tubes with Marking Spot

KIMAX® culture tube has a fire-polished top rim and uniform wall thickness for maximum heat transfer and chemical resistance.

- Durable white ceramic enamel marking spot
- Designed from ASTM Specification E982, Type IV requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overflow Capacity (mL)	OD x Length (mm)	Case Qty
45048-1075	4	10 x 75	720
45048-1275	6	12 x 75	720
45048-13100	10	13 x 100	720
45048-15125	16	15 x 125	720
45048-16100	15	16 x 100	576
45048-16125	19	16 x 125	576
45048-16150	23	16 x 150	576
45048-18150	28.5	18 x 150	576
45048-20150	36	20 x 150	576
45048-25150	55	25 x 150	288
45048-25250	95	25 x 250	144

Reusable Culture Tubes with Marking Spot and 10 mL Graduation Line

KIMAX® culture tube intended primarily for use in the testing of milk for the presence of bacteria by the methylene blue reductase test.

- Smooth, fire-polished rim
- Graduation line is located at the 10 mL level.
- Durable white ceramic enamel marking spot
- Described in APHA Standard Methods for the Examination of Dairy Products
- Designed from ASTM Specification E982, Type II requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type 1 and ASTM E438, Type 1, Class A requirements

Part Number	OD x Length (mm)	Overflow Capacity (mL)	Case Qty
45071-10	16 x 150	23	72

Reusable Screw Thread Culture Tubes with Unattached Caps

KIMAX® culture tube made from tubing with uniform wall thickness for maximum heat transfer and chemical resistance.

- The 20 x 125 mm size of these tubes is suitable for the determination of insulin according to the method of Alving, Rubin and Millor, Journal of Biological Chemistry, 127, 3 (March 1939)
- Provided with phenolic screw-thread caps, unattached
- Series 45066 is designed from ASTM E982, Type VI, Class A requirements and includes rubber lined caps
- Series 45066A is designed from ASTM E982, Type VI, Class B requirements and includes PTFE faced, rubber lined caps
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Length (mm)	GPI Finish; Capacity (mL)	Case Qty
45066-13100	13 x 100	13-415; 8	288
45066-16100	16 x 100	15-415; 12	288
45066-16125	16 x 125	15-415; 16	288
45066-16150	16 x 150	15-415; 20	288
45066-20125	20 x 125	18-415; 25	192
45066-20150	20 x 150	18-415; 30	192
45066-25150	25 x 150	24-410; 50	144
45066-25200	25 x 200	24-410; 70	144
45066-38200	38 x 200	38-430; 160	24
45066A-13100	13 x 100	13-415; 8	288
45066A-16100	16 x 100	15-415; 12	288
45066A-16125	16 x 125	15-415; 16	288
45066A-16150	16 x 150	15-415; 20	288
45066A-20125	20 x 125	18-415; 25	192
45066A-20150	20 x 150	18-415; 30	192
45066A-25150	25 x 150	24-410; 50	144
45066A-25200	25 x 200	24-410; 70	144

KimCote® Reusable Screw Thread Culture Tubes with Unattached Caps

KIMAX® KimCote® plastic-coated culture tube is made from tubing with uniform wall thickness for maximum heat transfer and chemical resistance.

- KimCote® safety coating reduces the hazards of shattered glass and leakage of toxic or hazardous materials
- Ideal for biohazard test protocols
- Provided with phenolic screw-thread caps, unattached
- Designed from ASTM E982, Type VI, Class A requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Length (mm)	GPI Finish; Capacity (mL)	Case Qty
KC45066-13100	13 x 100	13-415; 8	144
KC45066-16125	16 x 125	15-415; 16	144
KC45066-20150	20 x 150	18-415; 30	96
KC45066-25150	25 x 150	24-410; 50	48

Black Phenolic Caps with Cemented-In Rubber Liners

- Specially formulated phenolic cap material
- Autoclavable
- White rubber liners
- Excellent for general laboratory use
- Identified in ASTM Specification E982, Class A requirements

Part Number	GPI Finish	Case Qty
45066B-13	13-415	300
73800-13415	13-415	1,000
45066B-15	15-415	300
73800-15415	15-415	1,000
45066B-18	18-415	225
73800-18415	18-415	1,000
75204G-20400	20-400	144
75204G-22400	22-400	144
75204G-24400	24-400	144
45066B-24	24-410	150
75204G-28400	28-400	144
14255-28	28-400	150
45066B-28	28-410	150
75204G-33400	33-400	144
73803-33430	33-430	144
75204G-38400	38-400	144
45066B-38	38-430	150
73803-38430	38-430	144
75204G-43400	43-400	144
75204G-45400	45-400	144
75204G-48400	48-400	144
75204G-53400	53-400	144
75204G-58400	58-400	144
75204G-63400	63-400	144
75204G-70400	70-400	144
75204G-89400	89-400	144

Linerless Polypropylene Caps for Screw Thread Culture Tubes

- Economical, one-piece construction
- Unique design provides exceptional sealing properties
- Autoclavable

Part Number	GPI Finish	Case Qty
73805B-13415	13-415	1,000
73805-15415	15-415	1,000
73805B-15415	15-415	1,000
73805B-18415	18-415	500

Caps with PTFE-Faced Rubber Liners

- Excellent for general laboratory use
- Specially formulated phenolic resin and liner adhesive to withstand the effects of repeated autoclaving
- PTFE faced/general purpose white rubber liners are highly resistant to chemical effects
- Identified in ASTM Specification E982, Class A requirements

Part Number	GPI Finish	Case Qty
73802-13415	13-415	500
45066C-13	13-415	300
73802-15415	15-415	500
45066C-15	15-415	300
73802-15425	15-425	144
73802-18400	18-400	144
45066C-18	18-415	225
73802-20400	20-400	144
73802-22400	22-400	144
73802-24400	24-400	144
45066C-24	24-410	150
45066C-28	28-410	150
73802-33430	33-430	144
73802-38430	38-430	144
45066C-38	38-430	50
73802-8425	8-425	144

KIM-KAP™ Polypropylene Closures

KIM-KAP® polypropylene closures for culture tubes.

- Autoclavable
- Color coded

Part Number	Tube OD (mm)	Color	Case Qty
73660-13	13	Natural	1,000
73660-16	16	Natural	1,000
73660-18	18	Natural	1,000
73660-20	20	Natural	500
73660-25	25	Natural	500
73660-38	38	Natural	250
73662-13	13	Red	1,000
73662-16	16	Red	1,000
73662-18	18	Red	1,000
73662-20	20	Red	500
73662-25	25	Red	500
73663-13	13	Green	1,000
73663-16	16	Green	1,000
73663-18	18	Green	1,000
73663-20	20	Green	500
73663-25	25	Green	500
73664-13	13	Yellow	1,000
73664-16	16	Yellow	1,000
73664-18	18	Yellow	1,000
73664-20	20	Yellow	500
73664-25	25	Yellow	500
73665-13	13	Blue	1,000
73665-16	16	Blue	1,000
73665-18	18	Blue	1,000
73665-20	20	Blue	500
73665-25	25	Blue	500

Drum Sampler

Conventional open-end drum thieves provide a quick method for sampling unmarked drums.

- Units are easily broken for quick disposal
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD (mm)	Case Qty
76000-25	25	8	100
76000-75	75	12	25
76000-150	150	18	25

Straight Drying Tubes with 14/20 Joints

Vertical-type drying tube for use with a suitable desiccant such as calcium chloride, or a molecular sieve.

- Joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Length (mm)	Standard Taper Joints	Case Qty
291000-0000	130	14/20	1

Straight Drying Tubes

Useful as a molecular sieve for running anhydrous reactions.

- Straight tube with a bulb desiccant chamber
- The stem is designed for use with a BEVEL-SEAL™ adapter or a rubber stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Length x Width (mm)	Stem OD (mm)	Case Qty
562490-0000	145 x 30	8	1

Standard Taper Joint Bent Tubes

75° angle-type tube for use in fume hoods where a vertical-type tube will not fit.

- Beaded rim resists breakage
- Supplied with rubber stopper and glass inlet tube
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Length (mm)	Overall Width (mm)	Case Qty
291100-0000	65	105	1

Coliwasa Tubes

The Coliwasa tube is used to obtain a vertical column of liquid representing an accurate cross-section of the sampled material.

- Two-part borosilicate glass tube has a ball in the lower end which acts as a check valve to prevent sample loss during transfer
- Both parts are prescored, allowing the unit to be easily snapped apart for safe disposal
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Outer Tube OD (in)	Case Qty
76100-200	200	0.875	12

Bent Drying Tubes

This drying tube is used with an unsealed system to protect moisture-sensitive reactions from the atmosphere.

- Modified drying tube with an expansion bulb for $CaCl_2$, as shown in the textbook, Microscale Organic Chemistry, Szafran, Pike, Singh, John Wiley & Sons, Inc.
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Bulb OD (mm)	Case Qty
746095-0000	14/10	30	1

U-Shaped Drying Tubes

- "U" shaped drying tube is supplied with a bent inlet tube
- Inner joint at the bottom with a bulb desiccant chamber
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Length x Width (mm)	Standard Taper Joints	Case Qty
291200-0000	90 x 55	14/20	1
562500-2440	185 x 80	24/40	1

Fermentation Tubes

KIMAX® fermentation tube is used to collect gas in a broth culture formed by microorganisms.

- With a bulb and a glass foot
- Vertical tube has a closed rounded top
- 46155-99 is ungraduated
- 46162-5 is graduated with durable white ceramic starting at 0.3 mL
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Vertical Tube OD (mm)	Bulb OD (mm)	Case Qty
46155-99	17	38	1
46162-5	13	30	1

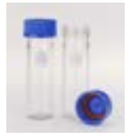
Gas Measuring Tubes

KIMAX® gas measuring tube closed at the zero end for gas measurement.

- Manufactured from precision bore tubing
- Durable black ceramic enamel scale
- Without stopcock
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Length (mm)	Case Qty
30060-50	50	635	1

Hybridization Tubes with Screw Cap



For use with hybridization incubators with rotators, these tubes offer a cleaner and safer alternative to hybridizing in bags.

- Multiple Northern, Southern or Western blots (up to 5 per tube) can be hybridized in a single tube, using nylon mesh sheets to separate the hybridization membranes
- Probe volumes are significantly reduced with tubes; approximately 5 mL of probe per blot
- GL-45 polypropylene caps
- Silicone o-rings size 323
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	ID x Length (mm)	Cap Size (mm)	Case Qty
736500-3515	35 x 150	45-4	2
736500-3530	35 x 300	45-4	2
PF13247225	35 x 225	45-4	2

Replacement Parts

Part Number	Description	Case Qty
14395C-45	Blue Polypropylene GL-45 Solid Top Screw Thread Cap, 140 ºC Max. Temperature	10

Hydrolysis/Derivatization Vials

Versatile reaction vial for protein hydrolysis and derivatization.

- PTFE cap
- CTFE screw-type on-off valve
- FKM o-ring
- Vial holds twelve 6 x 50 mm sample tubes
- Not recommended for use over 150 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Length (mm)	Top Port OD (mm)	Case Qty
896820-0000	30 x 120	3	1

Vacuum Hydrolysis Tubes

Versatile tube for use where a vacuum environment is desired.

- Useful in protein hydrolysis and amino acid separations
- Other applications include sealed tube reactions, freeze drying and concentration
- Not recommended for use over 150 °C
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Tube Capacity (mL); Valve Size (mm)	OD x Length (mm)	Case Qty
896860-2860	1.5; 2	8 x 108	1
896860-4010	5; 4	10 x 158	1
896860-4015	7.5; 4	10 x 208	1
896860-8910	20; 8	19 x 165	1

Replacement Parts

Part Number	Description	Case Qty
826601-4004	Size 4 Valve Plug with PEEK knob	1
826601-4008	Size 8 Valve Plug with PEEK knob	1

Graduated Test Tubes with Flat Head Glass Stoppers

- Round bottom
- Solid flat head Standard Taper stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

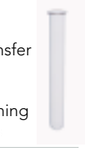
Part Number	Capacity (mL)	OD (mm); Standard Taper Joint	Case Qty
898500-0005	5	13; 9	1
898500-0010	10	16; 13	1
898500-0025	25	19; 16	1

Test Tubes with Standard Taper Joint

- Round bottom
- Standard taper outer joint
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Capacity (mL)	Standard Taper Joint	Case Qty
926252-0021	100	29/42	1
926252-0022	200	34/35	1
926252-0024	350	45/45	1
926252-0025	300	40/50	1
926252-0026	500	50/50	1
926252-0023	800	55/50	1

Unmarked Borosilicate Test Tubes



- Sturdy lip and uniform wall thickness for maximum heat transfer and chemical resistance
- Without a marking spot
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	Overflow Capacity (mL)	OD x Length (mm)	Case Qty
45050-19150	30	19 x 150	576
45050-25150	55	25 x 150	288
45050-25200	75	25 x 200	192

Reusable Plain Test Tubes with Marking Spot

- Sturdy lip and uniform wall thickness for maximum heat transfer and chemical resistance
- Durable white ceramic enamel marking spot on each tube
- Designed from ASTM Specification E982, Type I requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overflow Capacity (mL)	OD x Length (mm)	Case Qty
45042-1075	4	10 x 75	720
45042-1275	6	12 x 75	720
45042-13100	10	13 x 100	720
45042-15125	16	15 x 125	720
45042-16150	24	16 x 150	576
45042-18150	28	18 x 150	576
45042-20150	36	20 x 150	576
45042-25150	55	25 x 150	288
45042-25200	75	25 x 200	192

Reusable Test Tubes with Flat Head Stoppers

- Round bottom
- Uniform wall thickness for maximum service
- Solid, flat head Standard Taper stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD (mm); Standard Taper Stopper	Case Qty
898000-0005	5	13; 9	1
898000-0010	10	16; 13	1
898000-0025	25	19; 16	1

Reusable Test Tubes with Glass Pennyhead Stoppers

- Round bottom
- Uniform wall thickness for maximum service
- Durable white ceramic enamel marking spot on each tube
- Designed from ASTM Specification E982, Type III requirements
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity to Neck (mL)	Stopper Size	OD x Length (mm)	Case Qty
45100-13100	7	9	13 x 100	6
45100-16150	18	13	16 x 150	24
45100-19150	26	13	19 x 150	24
45100-25200	65	19	25 x 200	24

Replacement Parts

Part Number	Description	Case Qty
850100-0009	Size 9 Solid Pennyhead Stopper, Medium Length	1
850100-0013	Size 13 Solid Pennyhead Stopper, Medium Length	1
850100-0019	Size 19 Solid Pennyhead Stopper, Medium Length	1

Graduated Test Tubes with Beaded Rim

- Excellent choice for general laboratory use
- Plain top, beaded rim
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
898250-0005	5	13 x 90	1
898250-0025	25	19 x 170	1

Graduated Test Tubes with Reinforced Bead Top

- Reinforced bead top
- Scale is permanent brown stain
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	OD x Length (mm)	Case Qty
46350-10	10	16 x 125	1

Large Craig Recrystallization Tubes

A combination crystallizing and filtration centrifuge tube. Filtered solutions are allowed to cool in the Craig tube, inducing crystallization.

- Two are required to balance in a centrifuge
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

The Craig stopper is placed in the tube neck and the whole apparatus is inverted into a test or centrifuge tube. Centrifuging forms a mat of crystals between the stopper and the walls of the Craig tube and draws away excess solvent. Further washing and crystallization steps are possible.

Part Number	Capacity (mL)	Tube Height (mm)	Case Qty
283550-0004	4	80	1
283550-0007	7	100	1

Small Craig Recrystalization Tubes

A combination crystallizing and filtration centrifuge tube. Filtered solutions are allowed to cool in the Craig tube, inducing crystallization.

- Two are required to balance in a centrifuge
- Tubes and stoppers sold separately
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

The Craig stopper is placed in the tube neck and the whole apparatus is inverted into a test or centrifuge tube. Centrifuging forms a mat of crystals between the stopper and the walls of the Craig tube and draws away excess solvent. Further washing and crystallization steps are possible.

Part Number	Description	Case Qty
747332-0001	Craig Tube, 1 mL	1
747332-0002	Craig Tube, 2 mL	1
747331-0001	Glass Plug for 1 and 2 mL Craig Tube	1

Accessories

Part Number	Description	Case Qty
747331-0631	PTFE Plug for 1 and 2mL Craig Tube	1

Varnish Viscosity Tubes

These viscosity tubes are for rough control work where bubble comparison is made to limit samples of known viscosity.

- Flat bottomed
- Durable white ceramic enamel lines at 27 mm, 100 mm and 108 mm from the outside bottom
- Reference ASTM D1545
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	ID (mm)	Length (mm)	Case Qty
46463-1075	10.75	114	144

Viscometer Tubes

Cannon-Fenske uncalibrated viscometer tube for use in obtaining kinematic viscosities of transparent liquids (ASTM Method of Test D445).

- KIMAX® tube designed from ASTM Specification D446
- Permanently marked with an individual serial number
- Viscosity ranges shown below are for an efflux time greater than 200 seconds
- Lines and legend are printed black
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Calibration against a standard liquid of known viscosity or against a second viscometer with a known constant must be made before use.

Part Number	Approximate Constant	Kinematic Centistokes	Case Qty
46460-50	0.004	.8 to 4	1
46460-100	0.015	3 to 15	1
46460-150	0.035	7 to 35	1
46460-200	0.1	20 to 100	1
46460-300	0.25	50 to 250	1
46460-350	0.5	100 to 500	1
46460-400	1.2	240 to 1200	1

VACUUM & AIRLESS

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Airless-ware® is a family of ground-jointed glassware designed for the manipulation of air-sensitive compounds on a medium to large scale, using an inert gas to exclude air or moisture vapors. The essential feature of most of the Airless-ware® apparatus is a sidearm fitted with a stopcock. Through this sidearm the apparatus is evacuated to eliminate air and an inert gas is introduced. A high vacuum is not necessary because the purge cycle is repeated several times. For example, suppose an initial evacuation of 2 mm pressure; after the second pumping and filling, the pressure of residual air is 2 x 2/760 mm, and after the third cycle it is 2 x (2/760)2 mm, or approximately 10-5 mm of residual air.

Due to the frequency with which these purging cycles are performed, it is useful to have a 216060 manifold equipped with a series of vacuum valves. Attached to this manifold is a source of purified nitrogen or argon and a source of vacuum.

The source of vacuum should be a mechanical vacuum pump. The pump should be protected by a dry ice-cooled or liquid nitrogen-cooled trap. A 926050 size 25 vacuum trap would serve this purpose. This trap must have a relatively large volume and be easily removed from the system since considerable quantities of condensables are accumulated at this point. For moderately air sensitive materials, the solvent may be purged with an inert gas stream prior to use.

Balloon Type Inlet Adapters

This gas balloon type adapter is used for protective storage in jointed vessels.

- The inert gas tubing may be disconnected, giving the vessel its own portable inert gas source to balance volume changes caused by sample removal
- Supplied without the balloon
- Replacement retainer is 809000-0022
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

One arm of the T-bore stopcock is connected to the inert gas source. The arm with a hose connector is connected to a balloon. Vessels connected to this adapter may be flushed and filled with inert gas. The balloon can be expanded with inert gas for storage at the same time or separately. The stopcock bore is then rotated to connect the balloon to the vessel.

Part Number	Standard Taper Joints	Fits Tubing ID (inches)	Case Qty
211250-1420	14/20	0.25	1
211250-2440	24/40	0.25	1

Replacement Parts

Part Number	Description	Case Qty
809000-0022	Size 22 Stopcock Plug Retainer, Fits Plug Sizes (mm) 16.2/56, 17.35/50, 17/40, 15/35, O-Ring Size 207	1

Inlet Adapters with Septum

This gas inlet adapter has a standard taper joint.

- Sidearm has a 2 mm bore 821001 PTFE stopcock with a port for gas introduction and a rubber-stoppered port on the top tube for syringe retrieval
- Supplied complete with one 882311 septum stopper
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
211275-1420	14/20	1
211275-2440	24/40	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 mm Straight Bore Stopcock Plug, PTFE, 11/25 mm Plug Size	1
882311-0000	Sleeved septum stopper with off-center hole	144

Inlet Adapters

- Supplied with the patented 809000 pressure/vacuum retainer
- Used with sleeved stopper 882311
- 211300 series has a 801001 glass plug and an inner standard taper joint
- 211330 series has a PTFE plug and an outer standard taper joint
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Plug Material	Case Qty
211300-1420	14/20 inner	Glass	1
211300-2440	24/40 inner	Glass	1
211330-1420	14/20 outer	PTFE	1
211330-1922	19/22 outer	PTFE	1
211330-2440	24/40 outer	PTFE	1

Replacement Parts

Part Number	Description	Case Qty
821001-0002	Size 2 mm Straight Bore Stopcock Plug, PTFE, 11/25 mm Plug Size	1
809000-0021	Size 21 Stopcock Plug Retainer	1
882311-0000	Sleeved septum stopper with off-center hole	144

AIRLESS-WARE® Transfer Adapters

Used to transfer fluids between two flasks or as a one-piece distillation unit.

- A variety of flasks or adapters may be connected to this unit to use at reduced pressure or under an inert atmosphere
- All joints are the same size
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
211410-2440	24/40	155 x 270	1

AIRLESS-WARE® Filling Adapters

Designed for use with a solvent repurifier to facilitate product removal from the storage area.

- This adapter will provide clearance from the boiling flask and attaches to a 213210 solvent storage flask
- Hose connection allows access to vacuum source or inert gas
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm)	Case Qty
211230-2440	24/40	250	1

AIRLESS-WARE® Pressure Release Valve

Designed for applications that require evacuated apparatus to be filled with an inert gas to one atmosphere.

- Uses include the introduction of an inert gas into a vacuum desiccator or nitrogen into Airless-ware® apparatus
- A pressure release valve should be placed between the nitrogen source and nitrogen manifold on all Airless-ware® manifold installations
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Operation: Three mL of paraffin or silicone oil is added to the bubbler. One arm is connected to the low-pressure gas source, the other to the manifold or Airless-ware® equipment. The check valve prevents oil or air from surging into the apparatus.

Part Number	Height (mm)	Fits Tubing ID (inches)	Case Qty
216100-0000	130	0.375	1

AIRLESS-WARE® Vacuum Valve Adapters

Vacuum valve adapter for closing joints on AIRLESS-WARE® vessels while allowing reconnection to funnels or other components, with minimum exposure to air or water vapor.

- Kimble® PTFE vacuum valve minimizes contamination and maintains vacuum in the micron region
- Tip seal of valve is directed toward a normal storage vessel
- Plug is 826601
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
211450-1420	14/20	130 x 60	1
211450-2440	24/40	190 x 60	1

Replacement Parts

Part Number	Description	Case Qty
826601-0004	Size 4 Valve Plug	1

AIRLESS-WARE® Connecting Adapter with Glass Plug

Converts standard flasks, funnels or other components to airless applications.

- Stopcock has patented 809000 pressure/vacuum retainer
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
211200-1420	14/20	115 x 80	1
211200-2440	24/40	155 x 80	1

AIRLESS-WARE® Connecting Adapters

This adapter has a three-arm design for the assembly of three vessels.

- Standard Taper outer joint at the top; bottom joints are Standard Taper inner joints
- With hooks
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Overall Height (mm) x Overall Width (mm)	Case Qty
211050-1420	14/20	60 x 90	1

AIRLESS-WARE® Solvent Transfer Manifold

This manifold is designed for the purification and transfer of solvents under airless conditions.

- The manifold allows the vacuum transfer of solvent at room temperature from a boiling flask with a vacuum valve directly into an evacuated solvent storage flask
- Solvent is then cooled to a low temperature with liquid nitrogen or dry ice/acetone
- Manifold incorporates a HI-VAC® valve with an 826601-0004 plug and 3/8" ground connection
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints	Case Qty
216080-2440	24/40	1

Airless Gas Bubbler

This bubbler is for use with mineral oil to observe gaseous addition to reactions. It also may be used to vent a reaction mixture to the atmosphere.

- Tubing connections are 8 mm OD
- May be used with 179730-0808 or 179920-0808 to join multiple bubblers if necessary
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Body OD (mm)	Overall Height (mm) x Overall Width (mm)	Case Qty
652220-0000	25	185 x 80	1

Airless Gas Bubbler with Ground Joint

This gas bubbler is designed to be used with mineral oil or a similar liquid to monitor gas flow to organic reactions. The unit has a 24/40 Standard Taper ground joint and can be used with single or multi-necked flasks having a similar opening.

- Approximately 10 mL of oil is required to seal the lower inner tube. The rate of gas flow can then be observed
- Tubing connection is 8 mm OD
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Body OD (mm)	Overall Height (mm) x Overall Width (mm)	Case Qty
652210-0000	22	205 x 70	1

Airless Gas Bubbler with HI-VAC® Valve

This bubbler is designed with an integral valve for controlling gas flow in reactions or to provide an inert atmosphere when either nitrogen or argon is used.

- The inner tube is positioned to within 5 mm of the tube bottom, requiring a minimal amount of mineral oil
- Valve plug is 826601-0004
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Body OD (mm)	Overall Height (mm) x Overall Width (mm)	Case Qty
652230-0000	25	225 x 80	1

Jacketed Dewar Flasks

Specially constructed Dewar flask is fully jacketed with aluminum for excellent insulation of contents.

- Viewing ports allow visual inspection of the contents through the strip-silvered glass
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	ID (mm)	Depth (mm)	Case Qty
611795-2430	95	300	1

AIRLESS-WARE® Reaction Flasks

The modified Kjeldahl shape of this flask facilitates heating, stirring and solvent stripping without impairing ease of liquid and solid transfer.

- Improved version of classic Schlenk tube
- Bottom of the flask is shaped to fit spherical heating mantles
- Supplied with a glass plug and the patented 809000-0021 pressure/vacuum retainer
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Standard Taper Joints	Case Qty
213100-0114	10	14/20	1
213100-0214	25	14/20	1
213100-0514	50	14/20	1
213100-1014	100	14/20	1
213100-2014	200	14/20	1
213100-1024	100	24/40	1
213100-2024	200	24/40	1
213100-5024	500	24/40	1

Replacement Parts

Part Number	Description	Case Qty
801001-0002	Size 2 mm Straight Bore Stopcock Glass Plug, solid, plug size 12/30 mm	1
809000-0021	Size 21 Stopcock Plug Retainer	1

AIRLESS-WARE® Straus Flask

This round bottom flask was developed for solvent storage as required by many inorganic reactions.

- Dry, deoxygenated and grease-free solvents are maintained in this state for relatively long periods of time
- Solvent integrity is provided by the Kimble® HI-VAC® valve, which provides access to the flask contents
- Quantities of solvent are withdrawn from the flask using either a cannula or a syringe with a proper length needle
- Valve is 0-4 mm and has an 826601 plug
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height (mm) x Overall Width (mm)	Case Qty
213210-0500	500	195 x 110	1
213210-1000	1000	220 x 135	1

AIRLESS-WARE® Vacuum Schlenk Tube

This Schlenk tube is suitable for use with 216050 or 216060 manifolds.

- Tube has a HI-VAC® valve to control gas flow to the reaction tube
- Tubes are constructed of medium wall borosilicate glass and perform well under both thermal and pressure-type reactions
- The 25 and 50 mL tubes have 0-4 mm valves with 826601-0004 plugs
- The 100 and 350 mL tubes have 0-8 mm valves with 826601-0008 plugs
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Stem, Body OD (mm)	Case Qty
218710-0015	15	9, 19	1
218710-0025	25	9, 25	1
218710-0050	50	9, 32	1
218710-0100	100	13, 38	1
218710-0350	350	13, 51	1

Replacement Parts

Part Number	Description	Case Qty
826601-0004	Size 4 Valve Plug	1
826601-0008	Size 8 Valve Plug	1

AIRLESS-WARE® Vacuum Schlenk Tube with O-Ring Sidearm

This modified version of the Schlenk tube is suitable for connection to 216030 or 216040 vacuum manifolds.

- Size 15 standard socket joint at the sidearm
- The 25 and 50 mL tubes have 0-4 mm valves with 826601-0004 plugs
- The 100 and 350 mL tubes have 0-8 mm valves with 826601-0008 plugs
- All sizes have #116 o-ring
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Body OD (mm)	Case Qty
218720-0025	25	25	1
218720-0050	50	32	1
218720-0100	100	38	1
218720-0350	350	51	1

Replacement Parts

Part Number	Description	Case Qty
826601-0004	Size 4 Valve Plug	1
826601-0008	Size 8 Valve Plug	1

Vacuum/Gas Manifold with Metering Valves

This all-glass manifold is for connecting inert gas and vacuum sources to sidearm stopcocks.

- Fine control of vacuum and inert gases provided by metering groove cut into plug of each stopcock
- Distance between stopcocks is 65 mm for the 3-position size and 100 mm for the 5-position size
- Supplied with patented 809000-0021 pressure/vacuum retainers
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Number of Places	Overall Width (mm)	Case Qty
216050-0000	3	230	1
216050-0005	5	500	1

Replacement Parts

Part Number	Description	Case Qty
809000-0021	Size 21 Stopcock Plug Retainer	1
803001-0002	Size 2 Double Oblique Stopcock Glass Plug, plug size 14.5/50 mm	1

Vacuum/Gas Manifold with PTFE Valves

This manifold is for connecting inert gas and vacuum sources.

- 4 mm PTFE vacuum valves provide grease-free fine control
- Sample contacts only PTFE and borosilicate glass
- Beams are 1/2" (12.7 mm) OD, with upper-left and lower-right ends open
- Ports have 9 mm OD openings
- Distance between valves is 100 mm
- 216060 series has tip o-rings; 216140 series does not
- Plugs for 216140 series are 826601-0004
- Plugs for 216060 series are 826501-0004
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Number of Places	Overall Width (mm)	Case Qty
216060-0003	3	300	1
216060-0000	5	500	1
216140-0003	3	400	1
216140-0004	4	500	1
216140-0005	5	600	1

Replacement Parts

Part Number	Description	Case Qty
826501-0004	Size 4 Valve Plug, PTFE	1
826601-0004	Size 4 PTFE Valve Plug	1

Double Vacuum/Gas Manifold with PTFE Valves at 45° Angle

This manifold is for connecting inert gas and vacuum sources. Double vacuum gas manifold with PTFE valves at 45 angle.

- Supplied with 4 mm PTFE vacuum valves for grease-free operation
- Fabricated from larger 3/4" medium wall tubing
- Upper left and lower right beams are open
- Ports are spaced 100 mm apart and have serrated hose connections
- Rod braces are located between each bank for added strength
- Valves are sealed at a 45° angle to allow easier manipulation
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Number of Places	Overall Width (mm)	Case Qty
216145-0004	4	500	1
216145-0005	5	600	1

Double Vacuum/Gas Manifold with Vacuum Chambers

An all-glass manifold for connecting inert gas and vacuum sources. Double vacuum gas manifold with vacuum chambers.

- Fabricated from ½" medium wall tubing
- Stopcocks are 4 mm bore glass with lower vacuum chamber and are spaced 85 mm apart
- Top right connection is for inert gas and lower left connection is for vacuum
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Number of Places	Overall Width (mm)	Case Qty
216130-0003	3	280	1
216130-0004	4	365	1
216130-0005	5	450	1

Single Vacuum Manifold with HI-VAC® Valves

This single manifold is designed for grease-free operation.

- Incorporates reliable Kimble® 826610-0008 HI-VAC® valves, with size 15 o-ring connectors and size 116 FKM o-rings
- 675000-0028 pinch clamp fits size 15 o-ring connectors
- Forward-facing valves allow good access
- Compact enough for ease of assembly within a fume hood, thereby protecting the researcher from noxious chemicals
- Designed for use with 211320 adapters
- Can easily be disassembled for cleaning if necessary
- Replacement plug is 826601-0008 with a size 110 FKM o-ring
- Ports are spaced 75 mm apart
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Number of Places	Overall Length (mm)	Case Qty
216030-0003	3	250	1

Double Vacuum/Gas Manifold with HI-VAC® Valves

This manifold is designed for grease-free operation. Double vacuum gas manifold with HI-VAC® valves.

- Incorporates reliable Kimble® HI-VAC® valves, with size 15 o-ring connectors and size 116 FKM o-rings
- 675000-0028 pinch clamp fits size 15 o-ring connectors
- Designed for use with 211320 adapters -
- Forward-facing valves allow good access
- Compact enough for ease of assembly within a fume hood, thereby protecting the researcher from noxious chemicals
- Unit is modular in concept, allowing experiments to be done with maximum flexibility
- Unions and flexible stainless steel tubing are also available to maximize the utility of this manifold
- Can easily be disassembled for cleaning if necessary
- Replacement plug is 826501-0008 with two size 110 FKM o-rings and one size 011 FKM tip o-ring
- Ports are spaced 100 mm apart
- Ref: Andrea Wayda, AT&T Bell Laboratories
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Number of Places	Overall Height (mm)	Case Qty
216040-0003	3	160	1
216040-0004	4	160	1
216040-0005	5	160	1

Threaded Microscale Vacuum Manifold

This 6-place manifold is designed for concentration of multiple samples using an inert atmosphere or vacuum. It is also useful for molecular distillation.

- Unused ports are easily closed off with caps
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	GPI Thread Size	Overall Height (mm)	Case Qty
747650-0006	13-425	40	1

Accessories

Part Number	Description	Case Qty
747185-0013	PTFE Hose Connector, 13-425 to 1/4"-28	1
747205-1313	13-425 to 13-425 Threaded Connecting Adapter	1
747205-1320	13-425 to 20-400 Threaded Connecting Adapter	1

Vacuum Schlenk Tube

Modified version of the Schlenk tube, with a size 15 standard socket joint at the sidearm, suitable for connection to 216030 or 216040 vacuum manifolds.

- The 25 and 50 mL tubes have 0-4 mm valves with 826601-0004 plugs
- The 100 and 350 mL tubes have 0-8 mm valves with 826601-0008 plugs
- All sizes have #116 o-ring
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Body OD (mm)	Case Qty
218720-0025	25	25	1
218720-0050	50	32	1
218720-0100	100	38	1
218720-0350	350	51	1

Replacement Parts

Part Number	Description	Case Qty
826601-0004	Size 4 Valve Plug	1
826601-0008	Size 8 Valve Plug	1

AIRLESS-WARE® Pressure Release Valve

Designed for applications that require evacuated apparatus to be filled with an inert gas to one atmosphere.

- Uses include the introduction of an inert gas into a vacuum desiccator or nitrogen into Airless-ware® apparatus
- A pressure release valve should be placed between the nitrogen source and nitrogen manifold on all Airless-ware® manifold installations
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Operation: Three mL of paraffin or silicone oil is added to the bubbler. One arm is connected to the low-pressure gas source, the other to the manifold or Airless-ware® equipment. The check valve prevents oil or air from surging into the apparatus.

Part Number	Height (mm)	Fits Tubing ID (inches)	Case Qty
216100-0000	130	0.375	1

90° Vacuum Connectors with HI-VAC® Valves

90 degree vacuum connectors with HI-VAC® valves. This adapter is for use with size 15 o-ring glassware and 216030 and 216040 HI-VAC® manifolds.

- HI-VAC® valve has a right angle
- Two size 15 o-ring connectors (15 mm ID)
- Size 116 FKM o-rings
- PTFE plug is 826601
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Bore Range (mm)	Overall Height (mm) x Overall Width (mm)	Case Qty
211320-0815	0-8	100 x 58	1
211320-1215	0-12	115 x 58	1

180° Vacuum Connectors with HI-VAC® Valves

Vacuum connectors with HI-VAC® valves. 180 degree. This adapter is for use with size 15 o-ring glassware and 216030-0003 and 216040 HI-VAC® manifolds.

- HI-VAC® valve 826600 has 180° connections
- Two size 15 o-ring connectors (15 mm ID)
- Size 116 FKM o-rings
- PTFE plug is 826601
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Bore Range (mm)	Overall Height (mm) x Overall Width (mm)	Case Qty
211210-0015	0-4	65 x 100	1

O-Ring Vacuum Connector with Hose Connection

Size 15 o-ring connector (15 mm ID) for use with 216030 and 216040 HI-VAC® manifolds and 179920 adapters.

- For applications utilizing tubing
- Fits flexible tubing with 3/8" ID
- Supplied with one size 116 FKM o-ring
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Fits Flexible Tubing ID (in)	Overall Height (mm)	Case Qty
183100-1502	0.375	50	1

O-Ring Vacuum Connector with Standard Taper Joint

Size 15 o-ring connector (15 mm ID) for use with 216040 HI-VAC® manifolds.

- For applications utilizing standard taper glassware
- Supplied with one size 116 FKM o-ring
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Standard Taper Joints: Inner	Overall Height (mm)	Case Qty
211010-1415	14/20	60	1
211010-2415	24/40	90	1

O-Ring Vacuum Connector with Stem

Size 15 o-ring connector (15 mm ID) for use with 216030 and 216040 HI-VAC® manifolds and 179920 adapters.

- For applications utilizing tubing
- Supplied with one size 116 FKM o-ring
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Stem OD for Tubing (mm)	Overall Height (mm)	Case Qty
211040-0015	9	50	1
211040-1215	16	50	1

O-Ring Glass Connector Cap

Size 15 o-ring connector (15 mm ID) to seal flasks or for use with 216040 HI-VAC® manifold.

- Supplied with one size 116 FKM o-ring
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Approx. ID (mm)	Case Qty
851810-0015	25	16	1

ULTRA-WARE® Vacuum/Pressure Pump

The GAST diaphragm pump offers a quiet, reliable vacuum/pressure source in a compact, light-weight design. Protected internal surfaces provide high resistance to corrosion and solvent attack.

- 3/8" hose barbs on both inlet and outlet
- 1/8 HP, 115V, 60Hz, 4.2A
- 7-5/8" long X 5-1/8" wide X 11" high
- 14.4 lbs. / 6.5 kg

Part Number	Ultimate Vacuum (inches Hg)	Max Pressure (psi)	Case Qty
923910-0110	25.5	60	1

One-Piece Vacuum Traps with 180° Connections

Protects the mechanical pump from attack by corrosive vapors which can be condensed by using liquid nitrogen or dry ice/slurry mixtures.

- Connections are 180° apart for easy installation into a variety of vacuum systems
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Body OD (mm)	Overall Height (mm) x Overall Width (mm)	Case Qty
926050-0021	25	260 x 105	1
926050-0022	30	300 x 125	1
926050-0023	35	315 x 130	1

Two-Piece Vacuum Traps with 180° Connections

This trap protects the mechanical pump from attack by corrosive vapors which can be condensed by using liquid nitrogen or dry ice/slurry mixtures.

- Outlets are 180° apart for easy installation into a variety of vacuum systems.
- Two-piece construction allows removal of condensate
- Connectors of 926035 series are barbed and fit 1/2" ID flexible tubing
- Connectors of 926300 series are plain
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Overall Width (mm)	Case Qty
926300-0021	310	110	1
926300-0022	350	130	1
926300-0023	385	155	1
926300-0024	400	160	1
926300-0025	435	190	1
926300-0026	485	195	1
926035-0021	310	110	1
926035-0022	350	130	1
926035-0023	385	155	1
926035-0025	435	190	1
926035-0026	485	195	1

Replacement Parts

Part Number	Description	Case Qty
926252-0021	29/42 Vacuum Trap Tube; Capacity 100 mL; OD 35 mm; Length 230 mm	1
926252-0022	34/45 Vacuum Trap Tube; Capacity 200 mL; OD 40 mm; Length 260 mm	1
926252-0023	40/50 Vacuum Trap Tube; Capacity 800 mL; OD 60 mm; Length 405 mm	1
926252-0024	45/50 Vacuum Trap Tube; Capacity 350 mL; OD 50 mm; Length 295 mm	1
926252-0025	50/50 Vacuum Trap Tube; Capacity 300 mL; OD 45 mm; Length 340 mm	1
926252-0026	55/50 Vacuum Trap Tube; Capacity 500 mL; OD 55 mm; Length 325mm	1
926301-0023	40/50 Inner Vacuum Trap	1
926301-0024	45/50 Inner Vacuum Trap	1
926306-0021	29/42 Inner Vacuum Trap	1
926306-0023	40/50 Inner Vacuum Trap	1

Two-Piece Vacuum Traps

This unit is positioned between the pump and manifold and is used with a Dewar flask containing liquid nitrogen or other coolant.

- Two-piece construction allows easy removal of condensed material which may damage the pump
- Inlet and outlet are # 15 o-ring connectors, which use size 116 o-rings (not supplied) for connection to other components in the vacuum system
- Size 15 o-ring connector uses a 675000-0028 pinch clamp
- Main connector is size 50 and is supplied with a size 229 FKM o-ring
- Size 75 pinch clamp supplied with the unit to connect the two pieces of the trap together
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Height (mm)	Overall Width (mm)	Case Qty
926060-0015	430	195	1

Replacement Parts

Part Number	Description	Case Qty
926061-0015	Vacuum Trap Tube	1

Accessories

Part Number	Description	Case Qty
611795-2430	Dewar Flask, Aluminum Jacketed, 95 mm ID x 300 mm depth	1
675000-0028	Size 28 Pinch Clamp, Fits O-Ring Conn. Size 12-15, screw lock provided	1

Large Volume Vacuum Trap

This trap is designed for large volume solvent removal by vacuum.

- Connections accept standard flexible 1/2" hose
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height (mm) x Overall Width (mm)	Case Qty
926400-0500	500	305 x 130	1
926400-1000	1000	335 x 130	1

Replacement Parts

Part Number	Description	Case Qty
926401-0500	40/35 Inner Vacuum Trap, 500 and 1000 mL Capacities	1
926402-0500	40/35 Large Volume Vacuum Trap, 500 mL Flask	1
926402-1000	40/35 Large Volume Vacuum Trap, 1000 mL Flask	1

Large-Volume Two-Piece Vacuum Traps

This trap is designed for large volume solvent removal by vacuum.

- O-ring joint provides a vacuum-tight, grease-free seal and permits the trap body to be easily disconnected from the stopper for cleaning
- Connections accept standard flexible 1/2" hose
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	Overall Height (mm) x Overall Width (mm)	Case Qty
926055-0500	500	360 x 130	1

Replacement Parts

Part Number	Description	Case Qty
675000-0065	Size 65 Pinch Clamp, Fits O-Ring Conn. Size 40, screw lock provided	1

Vacuum Gauge Trap

For direct connection to vacuum gauges and to trap particulates which would contaminate these instruments when they are vented to the atmosphere.

- Comes packed with glass wool
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Fits Tubing ID (inches)	OD (mm), Length (mm)	Case Qty
923250-0000	0.375	22, 120	1

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VIALS

Kimble®, the largest manufacturer of laboratory glassware products in the world, offers the most comprehensive vial and accessory product portfolio into the Life Science and Chemistry market place. Our offerings include vials, caps and septa for any application which involves sample analysis, storage or retrieval. From sample storage vials to plastic scintillation vials, Kimble® can provide an answer for even the most obscure application.

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33 Expansion Borosilicate Glass Vials Without Caps

- Clear, screw thread sample vials
- Closures not included
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60812-1232	12 x 32	8-425; 1.8	200
60812-1235	12 x 35	8-425; 2	200
60812-1528	15 x 28	13-425; 2	200
60810-1528	15 x 28	13-425; 2	1,000
60812-1545	15 x 45	13-425; 4	200
60812-1738	17 x 38	15-425; 4	200
60812-1940	19 x 40	15-425; 6	200
60810-1940	19 x 40	15-425; 6	1,000
60812-1760	17 x 60	15-425; 8	200
60810-1760	17 x 60	15-425; 8	1,000
60812-1965	19 x 65	15-425; 12	200
60810-1965	19 x 65	15-425; 12	1,000
60812-2170	21 x 70	18-400; 16	200
60810-2170	21 x 70	18-400; 16	1,000
60812-2857	28 x 57	24-400; 20	200
60812-2385	23 x 85	20-400; 24	200
60810-2385	23 x 85	20-400; 24	1,000
60812-2870	28 x 70	24-400; 25	200
60812-2895	28 x 95	24-400; 40	200

33 Expansion Borosilicate Glass Vials with Unattached Black Phenolic Caps and Rubber Liners

- Clear screw thread sample vials
- Closed-top black phenolic closures with rubber liners, unattached
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60812D-12	12 x 35	8-425; 2	200
60940D-12	12 x 35	8-425; 2	2,304
60940D-1	15 x 45	13-425; 4	2,304
60940D-2	17 x 60	15-425; 8	1728
60940D-3	19 x 65	15-425; 12	1,152
60940D-4	21 x 70	18-400; 16	1,152
60940D-6	23 x 85	20-400; 24	864

33 Expansion Borosilicate Glass Vials with Unattached Black Phenolic Caps and PTFE-faced White Rubber Liners

- Screw thread clear glass sample vials
- Supplied with closed-top black phenolic caps with PTFE-faced white rubber liner, unattached
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60812B-1232	12 x 32	8-425; 1.8	200
60812B-12	12 x 35	8-425; 2	200
60812B-1	15 x 45	13-425; 4	200
60812B-2	17 x 60	15-425; 8	200
60812B-3	19 x 65	15-425; 12	200
60812B-4	21 x 70	18-400; 16	200
60812B-6	23 x 85	20-400; 24	200

33 Expansion Borosilicate Glass Vials with Attached Black Phenolic Caps and Cone-Shaped Polyethylene Liners

- Clear, screw thread sample vials
- Black phenolic cap and cone-shaped polyethylene liner
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I,

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60941A-8	17 x 60	15-425; 8	144
60941A-12	19 x 65	15-425; 12	144
60941A-16	21 x 70	18-400; 16	144
60941A-24	23 x 85	20-400; 24	144
60941A-40	28 x 95	24-400; 40	72

33 Expansion Borosilicate Glass Vials with Attached Black Phenolic Caps and White Rubber Liners

- Clear glass sample vials
- Packaged in corrugated trays with partitions
- Closed-top black phenolic closures with white rubber liners, attached
- Small case quantities
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60811D-12	12 x 35	8-425; 2	288
60811D-1528	15 x 28	13-425; 2	200
60811D-1	15 x 45	13-425; 4	144
60811D-11	15 x 45	13-425; 4	144
60811D-1738	17 x 38	15-425; 4	200
60811D-1940	19 x 40	15-425; 6	200
60811D-2	17 x 60	15-425; 8	144
60811D-3	19 x 65	15-425; 12	144
60811D-4	21 x 70	18-400; 16	144
60811D-5	28 x 57	24-400; 20	72
60811D-6	23 x 85	20-400; 24	144
60811D-612	28 x 70	24-400; 25	72
60811D-10	28 x 95	24-400; 40	72

Sample

33 Expansion Borosilicate Glass Vials with Attached Black Phenolic Caps and PTFE-faced White Rubber Liners

- Clear glass sample vials
- Packaged in corrugated trays with partitions
- Closed-top black phenolic closures with PTFE-faced white rubber liners, attached
- Small case quantities
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60811B-12	12 x 35	8-425; 2	288
60811B-1	15 x 45	13-425; 4	144
60811B-2	17 x 60	15-425; 8	144
60811B-3	19 x 65	15-425; 12	144
60811B-4	21 x 70	18-400; 16	144
60811B-5	28 x 57	24-400; 20	72
60811B-6	23 x 85	20-400; 24	144
60811B-612	28 x 70	24-400; 25	72
60811B-10	28 x 95	24-400; 40	72

33 Expansion Borosilicate Glass Vials with Attached White Urea Caps and PTFE-faced White Rubber Liners

- Clear glass sample vials
- Closed-top white urea caps with PTFE-faced white rubber liners, attached
- 60940A-4 complies with EPA 600 series methods
- Packaged in corrugated trays with partitions
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60940A-2	12 x 35	8-425; 2	144
60940A-4	15 x 47	13-425; 4	144
60940A-8	17 x 63	15-425; 8	144
60940A-12	19 x 67	15-425; 12	144
60940A-16	21 x 72	18-400; 16	144
60940A-24	23 x 87	20-400; 24	144

33 Expansion Borosilicate Glass Vials with Attached White Polypropylene Caps and PTFE-faced Silicone Septa

- Clear glass sample vials
- Open-top white polypropylene closures with PTFE-faced silicone septa, attached
- Packaged in corrugated trays with partitions
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60811S-5	28 x 57	24-400; 20	72
60811S-10	28 x 95	24-400; 40	72

33 Expansion Borosilicate Glass Vials with Attached Black Polypropylene Caps and PTFE-faced Silicone Septa

- Clear glass screw thread sample vial
- Open-top black polypropylene closures with PTFE-faced silicone septa, attached
- Vials packed in corrugated trays with partitions
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60942A-8	17 x 63	15-425; 8	144
60942A-12	19 x 67	15-425; 12	144
60942A-16	21 x 72	18-400; 16	144
60942A-24	23 x 87	20-400; 24	144
60942A-40	28 x 98	24-400; 40	72

51 Expansion Borosilicate Glass Vials Without Caps

- Screw thread sample vials
- Closures not included
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60910-1	15 x 45	13-425; 4	3456
60910-2	17 x 60	15-425; 8	2160
60910-3	19 x 65	15-425; 12	1,728
60910-4	21 x 70	18-400; 16	1,152
60957-1	28 x 57	24-400; 20	720
60910-6	23 x 85	20-400; 24	864
60910-8	25 x 95	22-400; 30	864
60957-4	28 x 108	24-400; 45	432

51 Expansion Borosilicate Glass Vials with Unattached Black Phenolic Caps and Rubber Liners

- Clear, screw thread sample vials
- Closed-top black phenolic closure with polyvinyl-faced rubber liner, unattached
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60910D-1	15 x 45	13-425; 4	2304
60910D-2	17 x 60	15-425; 8	1,728
60910D-3	19 x 65	15-425; 12	1,152
60910D-4	21 x 70	18-400; 16	1,152
60957D-4	28 x 57	24-400; 20	432
60957D-6	28 x 70	24-400; 24	432
60957D-11	28 x 108	24-400; 45	432

Sample

51 Expansion Borosilicate Glass Vials with Unattached Black Phenolic Caps and Polyvinyl-faced Pulp Liners

- Clear screw thread sample vials
- Closed-top black phenolic closures with polyvinyl-faced pulp liner (not attached)
- 60910L series vials are packaged in lab packs
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60910C-12	12 x 35	8-425; 2	2,304
60910L-12	12 x 35	8-425; 2	576
60910C-1	15 x 45	13-425; 4	2,304
60910L-1	15 x 45	13-425; 4	576
60910C-112	16 x 50	13-425; 6	2,304
60910C-2	17 x 60	15-425; 8	1,728
60910L-2	17 x 60	15-425; 8	576
60910C-3	19 x 65	15-425; 12	1,152
60957C-4	28 x 57	24-400; 16	432
60910C-4	21 x 70	18-400; 16	1,152
60957C-6	28 x 70	24-400; 24	432
60910C-6	23 x 85	20-400; 25	864
60910C-8	25 x 95	22-400; 30	576
60957C-11	28 x 108	24-400; 45	432

Amber Vials without Caps

- Amber screw thread sample vials
- Closures not included
- Manufactured from 51 expansion borosilicate amber glass conforming to USP Type I requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60912-1235	12 x 35	8-425; 2	200
60912-1528	15 x 28	13-425; 2	200
60912-1545	15 x 45	13-425; 4	200
60912-1738	17 x 38	15-425; 4	200
60912-1940	19 x 40	15-425; 6	200
60912-1760	17 x 60	15-425; 8	200
60815-1760	17 x 60	15-425; 8	1,000
60815-1965	19 x 65	15-425; 12	1,000
60912-2857	28 x 57	24-400; 20	200
60912-2895	28 x 95	24-400; 40	200

Amber Vials with Unattached Black Phenolic Caps with White Rubber Liners

- Amber glass vials
- Closed-top black phenolic closures with PTFE-faced white rubber liners, unattached
- Manufactured from 51 expansion borosilicate amber glass conforming to USP Type I requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60912D-12	12 x 35	8-425; 2	200
60912D-1	15 x 45	13-425; 4	200
60920D-1	15 x 45	13-425; 4	2304
60912D-2	17 x 60	15-425; 8	200
60920D-4	21 x 70	18-400; 16	1,152
60920D-8	25 x 95	22-400; 30	576

Amber Vials with Unattached Black Phenolic Caps and PTFE-faced White Rubber Liners

- Amber screw thread vials
- Closed-top black phenolic closures with PTFE-faced white rubber liners, unattached
- Manufactured from 51 expansion borosilicate amber glass conforming to USP Type I requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60912B-1232	12 x 32	8-425; 1.8	200
60912B-12	12 x 35	8-425; 2	200
60912B-1	15 x 45	13-425; 4	200
60912B-2	17 x 60	15-425; 8	200

Amber Vials with Attached Black Phenolic Caps and White Rubber Liners

- Amber glass vials
- Packaged in corrugated trays with partitions
- Closed top black phenolic closure with white rubber liners, attached
- Manufactured from 51 expansion borosilicate amber glass conforming to UPS Type I requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60911D-12	12 x 35	8-425; 2	288
60911D-1	15 x 45	13-425; 4	144
60911D-2	17 x 60	15-425; 8	144
60911D-5	28 x 57	24-400; 20	72

Amber Vials with Attached Black Phenolic Caps and Cone-Shaped Polyethylene Liners

- Amber glass screw thread sample vials
- Packaged in corrugated trays with partitions
- Closed-top black phenolic closures with cone-shaped polyethylene liners, attached
- Manufactured from 51 expansion borosilicate amber glass conforming to USP Type I requirements

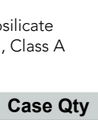
Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60951A-4	15 x 45	13-425; 4	144
60951A-8	17 x 60	15-425; 8	144
60951A-12	19 x 65	15-425; 12	144

Amber Vials with Attached Black Phenolic Caps and PTFE-faced White Rubber Liners

- Amber glass vials
- Packaged in corrugated trays with partitions
- Closed-top black phenolic closures with PTFE-faced white rubber liners, attached
- Manufactured from 51 expansion borosilicate amber glass conforming to USP Type I requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60911B-12	12 x 35	8-425; 2	288
60911B-1528	15 x 28	13-425; 2	200
60911B-1	15 x 45	13-425; 4	144
60911B-1738	17 x 38	15-425; 4	200
60911B-1940	19 x 40	15-425; 6	200
60911B-2	17 x 60	15-425; 8	144
60911B-5	28 x 57	24-400; 20	72
60911B-10	28 x 95	24-400; 40	72

Amber Vials with Attached Open-Top Caps



- Amber screw thread sample vials
- Open-top white polypropylene closures with PTFE-faced silicone septa attached
- Vials packaged in corrugated trays with partitions
- 60911P features 0.005" PTFE-faced septa on 0.120" silicone liner
- 60911S features 0.0055" PTFE-faced septa on 0.06" silicone liner
- Manufactured from 51 expansion borosilicate amber glass conforming to USP Type I requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60911S-5	28 x 57	24-400; 20	72
60911S-10	28 x 95	24-400; 40	72
60911P-10	28 x 95	24-400; 40	72

20 mL Glass Scintillation Vials without Caps

20mL glass scintillation vials without caps. Vials are packaged in cellular trays which have alphanumeric coordinates for fast, easy identification.

- 28 mm OD; 57 mm height
- Closures packed separately in polyethylene bags of 100 pieces
- Each cellular tray contains 100 vials and has alphanumeric coordinates for fast, easy identification
- Five trays per case, shrink-wrapped to preserve cleanliness
- Closures not included
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Cap Size (mm)	Case Qty
74506-20	22	500

20 mL Glass Scintillation Vials with Unattached Caps

Vials are packaged in cellular trays which have alphanumeric coordinates for fast, easy identification.

- 28 mm OD; 57 mm height
- The wider opening of the 24 mm cap vials facilitates introduction of large size samples.
- Closures packed separately in polyethylene bags of 100 pieces
- Each cellular tray contains 100 vials and has alphanumeric coordinates for fast, easy identification
- Five trays per case, shrink-wrapped to preserve cleanliness
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Cap Size (mm)	Cap Liner	Case Qty
74510-20	22	Cork-backed Foil	500
74511-20	22	linerless	500
74512-20	22	Pulp-backed Foil	500
74513-20	22	Foamed Polyethylene	500
74515-20	22	Cone-shaped Polyethylene	500
74514-20	24	Foamed Polyethylene	500
74517-20	24	Metal Foil	500
74503-20	24	Cork-backed Foil	500

20 mL Glass Scintillation Vials with Attached Caps

Glass 20mL scintillation vials with attached caps. Vials packaged in cellular trays which have alphanumeric coordinates for fast, easy identification.

- 28 mm OD; 57 mm height
- The wider opening of the 24 mm cap vials facilitates introduction of large size samples.
- Caps attached
- Choice of cap material and liner
- Each tray contains 100 vials
- Five trays per case, shrink-wrapped to preserve cleanliness
- Vials are manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Cap Size (mm)	Cap Liner	Case Qty
74500-20	22	Cork-backed Foil	500
74501-20	22	Polyethylene	500
74504-20	22	Pulp-backed Foil	500
74505-20	22	Foamed Polyethylene	500
74516-20	22	Cone-shaped Polyethylene	500
74508-20	24	Polyethylene	500
74509-20	24	Metal Foil	500
74502-20	24	Foamed Polyethylene	500
74507-20	24	Metal Foil	500

20 mL Polyethylene Scintillation Vials with Unattached Caps (500/case)

Polyethylene 20mL scintillation vials with unattached caps.

- 28 mm OD; 57 mm height
- 20 mL vials with 22 mm caps
- Choice of cap material and liner
- Vials in cases of 500 are packaged in cellular trays which have alphanumeric coordinates for fast, easy identification.
- Each cellular tray contains 100 vials; five trays per case, shrink-wrapped to preserve cleanliness
- Vials in cases of 1000 are packed in polyethylene bags of 1000 pieces each
- Closures are packed separately in PE bags
- Vials are manufactured from high density polyethylene

Part Number	Cap Liner	Cap Material	Case Qty
58510-20	Cork-backed Foil	Urea	500
58511-20	Foamed Polyethylene	Polypropylene	500
58512-20	Pulp-backed Foil	Polypropylene	500
58515-20	Cone-shaped Poly-ethylene	Urea	500
58501-20	Pulp-backed Foil	Polypropylene	1,000
58510B-20	Cork-backed Foil	Urea	1,000
58511B-20	Foamed Polypropyl-ene	Polypropylene	1,000

20 mL Polyethylene Scintillation Vials with Attached Caps

Polyethylene 20mL scintillation vials with attached caps. Vials are packaged in cellular trays which have alphanumeric coordinates for fast, easy identification.

- 28 mm OD; 57 mm height
- Caps attached
- Choice of cap material and liner
- Each cellular tray contains 100 vials
- Five trays per case, shrink-wrapped to preserve cleanliness
- Vials are manufactured from high density polyethylene

Part Number	Cap Size (mm)	Cap Liner	Case Qty
58500-20	22	Cork-backed Foil	500
58504-20	22	Pulp-backed Foil	500

7 mL Glass Scintillation Vials with Unattached Caps

These glass SOLVENT SAVER® vials are dimensionally smaller than conventional scintillation vials, permitting a reduction in the amount of solvent required.

- Trays are shrink-wrapped to preserve cleanliness
- Choice of cap material and liner
- Dimensions with closures attached are 17 mm x 57 mm
- Vials are packaged in cellular trays of 200
- Closures are packed in polyethylene bags of 200 pieces in a separate tray of 1000 pieces
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Cap Size (mm)	Cap Liner	Case Qty
74502-7	15	Cork-backed Foil	1,000
74503-7	15	Pulp-backed Foil	1,000

4 mL Polyethylene Scintillation Shell Vials with Snap-On Caps

These SOLVENT SAVER® vials are designed for beta and gamma counting.

- Dimensionally smaller than conventional scintillation vials, permitting a reduction in the amount of solvent required
- Polyethylene shell vials and linerless polyethylene snap-on closures are packed separately, 1000 per polyethylene bag

Part Number	Overall OD (mm)	Height with Cap (mm)	Case Qty
58552-4	14	56	1,000

7 mL Polyethylene Scintillation Vials with Unattached Caps

Our most economical SOLVENT SAVER® offering.

- 58502-7 is sold in trays; shrink-wrapped trays contain 250 vials each, four trays per case; closures are packed in polyethylene bags
- 58503-7 is sold in KIM-BULK™ packs; vials and closures are packed separately, 1000 per polyethylene bag
- Dimensions with closures attached are 17 mm x 57 mm
- Vials are manufactured from high density polyethylene

Part Number	Cap Size (mm)	Cap Material	Case Qty
58502-7	15	Polyethylene	1,000
58503-7	15	Polyethylene	1,000

White Polyethylene Closures without Liners

- Closure is made from white polyethylene and is linerless
- Top is suitable for marking
- Closure is not autoclavable
- Ideal for scintillation vials

Part Number	GPI Finish	Case Qty
74522-22400	22-400	1,000

White Polypropylene Closures with Pulp-Backed Aluminum Foil Liners

- Closure is made from white polypropylene and has a pulp-backed aluminum foil liner
- Top is suitable for marking
- Suitable for use with various strong oxidizing agent mixtures
- Ideal for scintillation vials

Part Number	GPI Finish	Case Qty
74521-15425	15-425	1,000
74521-22400	22-400	1,000

White Urea Closure with Cork-Backed Aluminum Foil Liners

- Closure is made from white urea and features a cork-backed aluminum foil liner
- Top is suitable for marking
- Ideal for scintillation vials
- Closure is not autoclavable

Part Number	GPI Finish	Case Qty
74520-15425	15-425	1,000
74520-22400	22-400	1,000

White Urea Closures with PTFE-Faced White Rubber Liners

- Closure is made from white urea and features a foam-backed F-217 PTFE liner
- Liner resists attack from virtually all chemicals at room temperature
- Perfect for long term sample storage
- Provides excellent resilience for a tight seal
- Top is suitable for marking
- Ideal for scintillation vials

Part Number	GPI Finish	Case Qty
74526-22400	22-400	500

White Urea Closures with Cone-Shaped Liners

- Cap is made from white urea and has a polyethylene cone-shaped liner
- Top is suitable for marking
- Closure is not autoclavable
- Ideal for scintillation vials

Part Number	GPI Finish	Case Qty
74525-22400	22-400	1,000

4 mL Dilution Vials with Attached Closures

This dilution vial is ideal for use in research studies.

- 15 mm OD; 45 mm height
- Marked with blue line at 3 mL
- Fully autoclavable
- Can be stored at low temperatures
- Closed top, black phenolic screw cap with white rubber liner, attached
- Packed in corrugated trays with partitions
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Capacity (mL)	GPI Finish	Case Qty
60811D-312	4	13-425	144

Crimp Finish Headspace Vials

Clear glass vials with 20 mm crimp seal finish are designed to fit most headspace autosamplers.

- Beveled edge finish features a sturdy rim that presses into the septum for a more effective seal
- Flat or modified top style
- Round bottom vials distribute the internal pressure created at high temperatures across the glass surface and are more easily handled by robotic arms that lift the vial from the tray
- Uniform wall thickness for even heat distribution
- Flat top vials have traditional flat finish on top and bottom to maximize heating efficiency
- Headspace vials meet or exceed OEM specifications
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	Capacity (mL); Style	Case Qty
332346B	23 x 46	10; Modified top	1000
332375	23 x 75	20; Flat top	1000
332375B	23 x 75	20; Modified top	1000
332375BMB	23 x 75	20; Modified top and bottom	1000

Screw Thread Headspace Vials

Clear glass vials with 18 mm screw thread finish are designed for consistent use in magnetized autosamplers.

- 18 mm screw thread finish offers superior sealing characteristics
- Designed for use with thinner septa and ensures a consistently flat surface is available for the magnet
- Round bottom vials distribute the internal pressure created at high temperatures across the glass surface and are more easily handled by robotic arms that lift the vial from the tray
- Uniform wall thickness for even heat distribution
- Headspace vials meet or exceed OEM specifications
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	Capacity (mL)	Case Qty
332346S	23 x 46	10	1000
332375S	23 x 75	20	1000

Clear Autosampler Vials

- Clear glass autosampler vials
- Available in a variety of standard sizes and finishes
- Packed 100 per tray
- Vials with large opening and/or marking spot available
- Closures not included
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	Description	Case Qty
331232C	12 x 32	11 mm Crimp	2000
331232CW	12 x 32	1 mm Crimp with marking spot, graduated	2000
331232CL	12 x 32	11 mm Crimp Large Opening	2000
331232CLW	12 x 32	11 mm Crimp Large Opening with Marking Spot	2000
331232S	12 x 32	Screw Thread, 8-425	2000
331232SN	12 x 32	Screw Thread, 9-425	2000
331232SW	12 x 32	Screw Thread, 9-425 w/marking spot, graduated	2000
331232SNW	12 x 32	11 mm Snap Cap Opening with Marking Spot, Graduated	2000
331545S	15 x 45	Screw Thread, 13-425	2000
331545SW	15 x 45	Screw Thread, 13-425, with Marking Spot	2000

Amber Autosampler Vials

- Amber glass autosampler vials
- Available in a variety of standard sizes and finishes
- Packed 100 per tray
- Vials with large opening and/or marking spot available
- Closures not included
- Manufactured from 51 expansion borosilicate amber glass conforming to USP Type I requirements

Part Number	OD x Height (mm)	Finish	Case Qty
511232CA	12 x 32	11 mm Crimp	2000
511232CAW	12 x 32	11 mm Crimp w/marking spot	2000
511232CLA	12 x 32	11 mm Crimp Large Opening	2000
511232CLAW	12 x 32	11 mm Crimp Large Opening with Marking Spot	2000
511232SA	12 x 32	Screw Thread, 8-425	2000
511232DPA	12 x 32	Screw Thread, 9-425	2000
511232SAW	12 x 32	Screw Thread, 9-425 w/marking spot, graduated	2000
511232SNAW	12 x 32	11 mm Snap Cap Opening, with Marking Spot, Graduated	2000
511545SA	15 x 45	Screw Thread, 13-425	2000
511545SAW	15 x 45	Screw Thread, 13-425, with Marking Spot	2000

Polypropylene Rack for 12 mm and 16 mm OD Vials

- Disposable polypropylene vial rack
- Lettered and numbered for indexing individual tubes
- Corners interlock for convenient stacking

Part Number	Hole Diameter (mm)	Depth (mm)	Case Qty
749210-0012	12	15	10
749210-0016	16	18	10

EPA Water Analysis Vials without Closures

These clear and amber screw thread EPA vials for the collection and storage of water samples comply with the guidelines for establishing test procedures for the analysis of pollutants (Ref. EPA Methods 601, 602, 603 and 604).

- Open-top closures and PTFE-faced silicone septa or solid-top PFTE-faced white rubber-lined closures are available separately
- While vials are not "pre-cleaned," they are packaged in a plastic shrink wrap module, lehr-clean, as they come from the end of the production lehr and then are placed into a corrugated shelf-pack
- Amber EPA vials are manufactured from 51 expansion borosilicate amber glass conforming to ASTM E438, Type I requirements
- Clear EPA vials are manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

EPA 40 CFR 136 "Guidelines for Establishing Test Procedures for the Analysis of Pollutants" and EPA 40 CFR 141 "National Interim Primary Drinking Water Regulations; Control of Trihalomethanes in Drinking Water" recommends the use of 28 x 95 mm vial (60958A-912 or 60960A-912) for discrete water sampling. Kimble® also offers the specified open-top closures (73804-24400 and 73806A-24400) as well as the PTFE-faced silicone rubber septum (73818A-24).

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
Clear			
60958A-4	28 x 57	24-400; 20	432
60958A-6	28 x 70	24-400; 30	432
60958A-912	28 x 95	24-400; 40	432
60958A-11	28 x 108	24-400; 45	432
60958A-16	30 x 123	24-400; 60	432
Amber			
60960A-4	28 x 57	24-400; 20	432
60960A-912	28 x 95	24-400; 40	432

EPA Water Analysis Vials with Closures

These clear screw thread EPA vials for the collection and storage of water samples comply with the guidelines for establishing test procedures for the analysis of pollutants (Ref. EPA Methods 601, 602, 603 and 604).

- 60961B series has open-top, white polypropylene, screw thread closures with PTFE-faced 14B white rubber septa attached
- 60961C series has open-top, white polypropylene, screw thread closures with PTFE-faced (0.005") silicone rubber (0.120") septa attached
- While vials are not "pre-cleaned," they are packaged in a plastic shrink wrap module, lehr-clean, as they come from the end of the production lehr and then are placed into a corrugated shelf-pack
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60961B-4	28 x 57	24-400; 20	432
60961C-4	28 x 60	24-400; 20	432
60961C-6	28 x 73	24-400; 30	432
60961B-912	28 x 98	24-400; 40	432
60961C-912	28 x 98	24-400; 40	432

ACCUFORM® SSR™ Standard Vials

Kimble® ACCUFORM® SSR™ vials are designed to facilitate reliable storage, retrieval, analysis and delivery of valuable liquid or powder samples.

- Engineered for consistently high performance in laboratory automation equipment
- Smooth, conical interior surfaces facilitate complete sample recovery
- Less than 10 microliters of dead space
- Ideal for high-throughput screening
- Smooth exterior bottoms are perfect for 2D barcoding
- Closures not included
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60680-12	13 x 39	13-425; 2	1,000
60680-1	15 x 45	13-425; 4	1,000
60680-2	18 x 60	15-425; 7	1,000
60680-4	21 x 70	18-400; 15	1,000

Mininert® Valves for ACCUFORM® Vials

This Mininert® valve is excellent for sealed tube reactions, long term storage of standards or periodic addition of reactants.

- A push-pull, color-coded, green-for-open, red-for-closed position valve for easy use and long lasting performance
- Contents are accessible with a syringe needle
- Septum seal prevents leakage when using a syringe
- Vial not supplied
- Mininert® is a registered trademark of Dynatech

Part Number	Modified GPI Thread	Fits ACCUFORM® Vials (mL)	Case Qty
749110-0021	13-425	0.3, 1	1
749110-0022	20-400	2, 3, 5	1

ACCUFORM® SSR™ Shoulderless, Straight-Sided Vials

Kimble® ACCUFORM® SSR™ shoulderless, straight-sided vials are designed to facilitate reliable storage, retrieval, analysis and delivery of valuable liquid or powder samples.

- Feature a wider opening for ease of access to the contents
- Engineered for consistently high performance in laboratory automation equipment
- Smooth, conical interior surfaces facilitate complete sample recovery
- Less than 10 microliters of dead space
- Ideal for high-throughput screening
- Smooth exterior bottoms are perfect for 2D barcoding
- Closures not included
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
60690-12	13 x 39	15-425; 2	1,000
60690-1	15 x 45	18-400; 4	1,000
60690-2	18 x 60	20-400; 7	1,000
60690-4	21 x 70	24-400; 15	1,000

Ungraduated ACCUFORM® Aluminum Seal Micro-Vials without Closures

ACCUFORM® micro-vials have a V-shaped interior to enable recovery of a minute residual sample by means of a syringe needle.

- Designed for an aluminum seal
- Ungraduated
- Closures not included
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	A/S Finish (mm); Capacity (mL)	Case Qty
60730-310	14 x 36	13; 0.3	12

Graduated ACCUFORM® Aluminum Seal Vials without Closures

ACCUFORM® micro-vials have a V-shaped interior to enable recovery of a minute residual sample by means of a syringe needle.

- Designed for an aluminum seal
- Graduated
- Closures not included
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	A/S Finish (mm); Capacity (mL)	Case Qty
60720-1	14 x 49	13; 1	12
60720-2	21 x 40	20; 2	12
60720-3	21 x 51	20; 3	12
60720-5	21 x 62	20; 5	12

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Graduated ACCUFORM® Vials with Attached Open Top Closures and PTFE-Faced Silcone Septa

These ACCUFORM® vials are internally contoured for optimal performance with limited samples. Graduated to ensure more accurate measurements and dispensing

- Tapered bases allow for maximum sample recovery
- Open-top closure and PTFE-faced silicone septa, assembled and attached
- Tapered bases allow for maximum sample recovery
- 60700 series is manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements
- 60705 series is manufactured from 51 expansion borosilicate amber glass conforming to USP, Type I requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
Clear			
60700-1	14 x 49	13-425; 1	12
60700-2	21 x 40	20-400; 2	12
60700-3	21 x 51	20-400; 3	12
60700-5	21 x 62	20-400; 5	12
60700-10	25 x 73	24-400; 10	12
Amber			
60705-1	14 x 49	13-425; 1	12
60705-2	21 x 40	20-400; 2	12
60705-3	21 x 51	20-400; 3	12
60705-5	21 x 62	20-400; 5	12

Ungraduated ACCUFORM® Vials with Attached Open Top Closures and PTFE-Faced Silcone Septa

ACCUFORM® vials are internally contoured for optimal performance with limited samples.

- Open-top closure with PTFE-faced silicone septa, attached
- Tapered bases allow for maximum sample recovery
- Ungraduated
- 60710 series is manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements
- 60715 series is manufactured from 51 expansion borosilicate amber glass conforming to USP Type I requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
Clear			
60710-110	12 x 32	8-425; 0.1	12
60710-310	14 x 36	13-425; 0.3	12
60710-1	14 x 49	13-425; 1	12
60710-2	21 x 40	20-400; 2	12
60710-3	21 x 51	20-400; 3	12
60710-5	21 x 62	20-400; 5	12
60710-10	25 x 73	24-400; 10	12
Amber			
60715-110	12 x 32	8-425; 0.1	12
60715-310	14 x 36	13-425; 0.3	12
60715-1	14 x 49	13-425; 1	12
60715-2	21 x 40	20-400; 2	12
60715-3	21 x 51	20-400; 3	12
60715-5	21 x 62	20-400; 5	12

Graduated ACCUFORM® Vials with Attached Solid Top Closures and PTFE-Faced White Rubber Liners

These ACCUFORM® vials are internally contoured for optimal performance with limited samples.

- Graduated to ensure more accurate measurements and dispensing
- Tapered bases allow for maximum sample recovery
- Solid-top closure and PTFE-faced, white rubber liner, assembled and attached
- 60702 series is manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements
- 60707 series is manufactured from 51 expansion borosilicate amber glass conforming to USP, Type I requirements

Part Number	OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
Clear			
60702-1	14 x 49	13-425; 1	12
60702-2	21 x 40	20-400; 2	12
60702-3	21 x 51	20-400; 3	12
60702-5	21 x 62	20-400; 5	12
60702-10	25 x 73	24-400; 10	12
Amber			
60707-1	14 x 49	13-425; 1	12
60707-2	21 x 40	20-400; 2	12
60707-3	21 x 51	20-400; 3	12
60707-5	21 x 62	20-400; 5	12

Molded Borosilicate Glass Serum Vials without Closures

Autoclavable Kimble® serum bottles and vials are well-suited for the handling, containment, and storage of a variety of liquids including reagents, culture media, chromatography samples, and more. Ideal for packaging and storage where applications of injectable and parenteral solutions require utmost purity.

- Highly resistant to thermal and mechanical shock as well as chemical attack
- Manufactured from USP Type 1 borosilicate molded glass

Part Number	Body OD x Height (mm)	GPI Finish; Capacity (mL)	Case Qty
61000G-5	23 x 47	20A; 5	288
61000G-10	25 x 52	20A; 10	288
61000G-20	33 x 59	20A; 20	288
61000G-30	37 x 66	20A; 30	288
61000G-50	43 x 75	20A; 50	288
61000G-60	40 x 90	20A; 60	144
61000G-100	52 x 94	20A; 100	144
61000G-125	54 x 106	20A; 125	144
61000G-200	65 x 114	20A; 200	24

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33 Expansion Tubular Borosilicate Glass Serum Vials without Closures

Autoclavable Kimble® serum vials are ideally suited for the handling, containment, and storage of a variety of liquids, including reagents, vaccines, blood plasma, culture media, chromatography samples, and more.

- Special design provides extra strength for freeze-drying applications
- Serum vials are lighter in weight than molded bottles, with more closely held tolerances and uniformity of glass
- Special blowback design provides ease of use for lyophillization stoppers
- Autoclavable
- Aluminum seals, stoppers and septa are available separately
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	OD x Height (mm)	A/S Finish (mm); Capacity (mL)	Case Qty
62113D-2	15 x 40	13; 2	1,440
62113U-2	15 x 32	13; 2	4,640
62113U-3	17 x 37	13; 3	3,185
62113D-312	18 x 45	13; 3.5	1,440
62113U-5	21 x 38	13; 5	2,352
62121D-5	23 x 47	20; 5	864
62121U-6	22 x 40	20; 6	1,904
62113U-10	24 x 50	13; 10	1,085
62121U-10	24 x 50	20; 10	1,085
62121D-10	25 x 54	20; 10	864
62121D-20	30 x 57	20; 20	720

Amber Glass Serum Vials without Closures

Autoclavable Kimble® serum vials are ideally suited for the handling, containment and storage of a variety of liquids including reagents, culture media, chromatography samples and more.

- Special design provides extra strength for freeze-drying applications
- Serum vials are lighter in weight than molded bottles, with more closely held tolerances and uniformity of glass
- Special blowback design provides ease of use for lyophillization stoppers
- Autoclavable
- Aluminum seals, stoppers and septa are available separately
- Manufactured from 51 expansion borosilicate amber glass conforming to ASTM E438, Type I requirements

Part Number	OD x Height (mm)	A/S Finish (mm); Capacity (mL)	Case Qty
62413D-2	15 x 40	13; 2	1,440
62421D-5	23 x 47	20; 5	864
62421D-10	25 x 54	20; 10	864
62421D-30	30 x 86	20; 30	576

51 Expansion Glass Tooled Vials with Unattached Polyethylene Closures

Tooled neck OPTICLEAR™ vials are excellent for packaging drug products.

- Necks are tooled for an accurate fit with polyethylene closures
- Vials and closures are supplied in both the pack and case quantities
- Supplied with closed-bottom, two-piece closures
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	OD x Height (mm)	Capacity (mL)	Case Qty
60975L-1	15 x 45	4	864
60975L-3	21 x 50	12	432
60975L-4	25 x 52	16	288
60975L-5	27 x 55	20	216

51 Expansion Short Style Glass Shell Vials without Closures

Short-style shell vials are ideal for storing dry products.

- Plain top design
- 74400-2040 vials are for use as sample containers during dilution and titration procedures of chloride determinations
- Lab pack quantities
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	OD x Height (mm)	Capacity (mL)	Case Qty
60931-14	9 x 30	1	1,440
60931-12	12 x 35	2	1,440
60931-1	15 x 45	4	1,440
60931-2	17 x 60	8	864
74400-2040	20 x 40	10	500
60931-4	21 x 70	16	576
60965-4	24 x 62	16	576
60931-6	23 x 85	24	576
60931-8	25 x 95	30	576

51 Expansion Glass Shell Vials with Plug Style Closures

- TITESEAL® vials
- Plain tops
- Open-bottom plug style plastic closures, unattached
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements

Part Number	OD x Height (mm)	Capacity (mL)	Case Qty
60965D-12	12 x 35	2	2,304
60965D-1	15 x 45	4	2,304
60965D-3	19 x 65	12	1,152
60965D-7	29 x 65	26	432
60965D-120	29 x 94	44	432

51 Expansion Glass Shell Vials with Plug Style Needle Closures

These shell vials are ideal for chromatography applications.

- White polyethylene plug style needle closures, unattached
- Manufactured from 51 expansion borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class B requirements
- 60835D-1544 is manufactured from 51 expansion borosilicate amber glass conforming to USP Type I requirements

Part Number	OD x Height (mm)	Capacity (mL)	Case Qty
60831D-830	8 x 30	0.75	2,000
60831D-843	8 x 43	1	2,000
60831D-1231	12 x 31	2	2,000
60831D-1544	15 x 44	4	2,000
60835D-1544	15 x 44	4	2,000

Caps for EPA Water Analysis Vials

Part Number	Description	Case Qty
73802-24400	24-400 Black Phenolic Cap, Cemented PTFE Faced, White Rubber Liner	144
73804-24400	24-400 Black Phenolic Cap, without Liner, 14 mm Hole ID	144
73808-24400	24-400 Black Polypropylene Cap, PTFE faced/ Silicone Welded Line	72
75203G-24400	24-400 Cap, Phenolic, Tin Foil Liner	144
75204G-24400	24-400 Cap, Phenolic, White Rubber Liner	144
75205G-24400	24-400 Cap, Phenolic, Taperseal Liner	144
75206G-24400	24-400 Cap, Phenolic, PTFE Liner	144

Closed Top Linerless Polypropylene Screw Thread Caps

- Economical, one-piece construction in natural or white
- Unique design provides exceptional sealing properties
- Autoclavable
- Designed from ASTM Specification E982

Part Number	GPI Finish	Color	Case Qty
73805B-13415	13-415	Natural	1,000
2513415	13-415	Natural	12000
2513415-B	13-415	Black	12000
73805-15415	15-415	White	1,000
73805B-15415	15-415	Natural	1,000
2515415	15-415	Natural	7000
2515415-B	15-415	Black	7000
73805B-18415	18-415	Natural	500
2518415	18-415	Natural	5000
2518415-B	18-415	Black	5000

Closed Top Polypropylene Screw Thread Caps with Welded PTFE-Faced Silicone Liners

- Welded liner technology eliminates the possibility of glue contamination
- PTFE-faced/general purpose white rubber liners are highly resistant to chemical effects
- Closures are ideal for repeated autoclaving

Part Number	GPI Finish	Case Qty
73808-13415	13-415	288
73808-15415	15-415	288
73808-18415	18-415	288
73808-24400	24-400	72
73808-24410	24-410	144
73808-28400	28-400	48
73808-28410	28-410	36
73808-33430	33-430	48
73808-38430	38-430	48

Open-Top Polypropylene Screw Thread Caps with Red PTFE-Faced Silicone Septa

- Convenient pre-assembled caps and liners reduces the risk of contamination
- Available with standard or pre-slit septa
- Can be used for multiple injections
- Ideal for use with autosampler vials
- Autoclavable

Part Number	GPI Finish	Septa	Case Qty
73812BK-8425	8-425	standard	1000
73813BK-8425	8-425	pre-slit	1000
73812WH-8425	8-425	standard	1000
73813WH-8425	8-425	pre-slit	1000
73812BK-9425	9-425	standard	1000
73813BK-9425	9-425	pre-slit	1000
73812BL-9425	9-425	standard	1000
73813BL-9425	9-425	pre-slit	1000
73812BK-13425	13-425	standard	1000
73813BK-13425	13-425	pre-slit	1000
73812WH-13425	13-425	standard	1000
73813WH-13425	13-425	pre-slit	1000

Open Top Polypropylene Screw Thread Caps with Bonded White PTFE Septa

- Standard (no slit) septa

Part Number	GPI Finish	Case Qty
73814WH-8425	8-425	1000
73814BL-9425	9-425	1000
73814BK-13425	13-425	1000
N73805-24	24-400	144

Magnetic Screw Thread Headspace Vial Caps

Designed to fit 18 mm screw thread headspace vials

- 73880-18 is silver with red PTFE/white silicone press fit septum
- 73885-18 is silver with red PTFE/gray press fit butyl rubber septum

Part Number	PTFE Thickness (mm)	Rubber Thickness (mm)	Case Qty
73880-18	0.08	1.8	1,000
73885-18	0.13	1.4	1,000

Open-Top Polypropylene Screw Thread Caps Without Septa

- Economical, one-piece construction
- Autoclavable
- 73806A-24400 is white; all others are black

Part Number	GPI Finish	Hole ID (mm)	Case Qty
73806A-15425	15-425	8.7	1,000
73806A-18400	18-400	12	1,000
73806A-20400	20-400	12	1,000
73806-24400	24-400	14	1,000
73806A-24400	24-400	14	144

Open Top Phenolic Screw Thread Caps without Liners

- Open top closures with excellent chemical resistance
- Specially formulated phenolic resin to withstand the effects of repeated autoclaving
- Linerless
- Identified in ASTM Specification E982, Class A requirements

Part Number	GPI Finish	Hole ID (mm)	Case Qty
73804-15425	15-425	8.7	144
73804-18400	18-400	12	144
73804-20400	20-400	12	144
73804-24400	24-400	14	144

Black Phenolic Screw Thread Caps with Cone-Shaped LDPE Liners

Black phenolic cap has a securely mounted LDPE cone-shaped liner which offers a two part seal. The closure forms a seal around the rim and the polyseal cone forms a seal against the inner diameter of the vial opening.

- Specially formulated phenolic resin to withstand the effects of repeated autoclaving
- Designed for superior torque retention
- Stress crack resistant
- Excellent for sample storage and re-sealing

Part Number	GPI Finish	Case Qty
73809-13425	13-425	144
73809-15425	15-425	144
73809-18400	18-400	144
73809-20400	20-400	144
73809-22400	22-400	144
75205-20400	20-400	5,500
75205-22400	22-400	4,700
75205-24400	24-400	4,200
75205-28400	28-400	3,100
75205-33400	33-400	2,300
75205-38400	38-400	1,600
75205G-20400	20-400	144
75205G-22400	22-400	144
75205G-24400	24-400	144
75205G-28400	28-400	144
75205G-33400	33-400	144
75205G-38400	38-400	144

Phenolic Screw Thread Caps with PTFE-Faced Rubber Liners

- Excellent for general laboratory use
- Specially formulated phenolic resin and liner adhesive to withstand the effects of repeated autoclaving
- PTFE-faced/general purpose white rubber liners are highly resistant to chemical effects
- Identified in ASTM Specification E982, Class A requirements

Part Number	GPI Finish	Case Qty
73802-8425	8-425	144
45066C-13	13-415	300
73802-13415	13-415	500
45066C-15	15-415	300
73802-15415	15-415	500
73802-15425	15-425	144
73802-18400	18-400	144
45066C-18	18-415	225
73802-20400	20-400	144
73802-22400	22-400	144
73802-24400	24-400	144
45066C-24	24-410	150
45066C-28	28-410	150
73802-33430	33-430	144
45066C-38	38-430	50
73802-38430	38-430	144

Phenolic Screw Thread Caps with Cemented-In Rubber Liners

- Specially formulated phenolic cap material
- Autoclavable
- White rubber liners
- Excellent for general laboratory use
- Identified in ASTM Specification E982, Class A requirements

Part Number	GPI Finish	Case Qty
45066B-13	13-415	300
73800-13415	13-415	1,000
45066B-15	15-415	300
73800-15415	15-415	1,000
45066B-18	18-415	225
73800-18415	18-415	1,000
75204G-20400	20-400	144
75204G-22400	22-400	144
75204G-24400	24-400	144
45066B-24	24-410	150
75204G-28400	28-400	144
14255-28	28-400	150
73803-38430	38-430	144
45066B-28	28-410	150
75204G-38400	38-400	144
73803-33430	33-430	144
45066B-38	38-430	150
75204G-33400	33-400	144
75204G-43400	43-400	144
75204G-45400	45-400	144
75204G-48400	48-400	144
75204G-53400	53-400	144
75204G-58400	58-400	144
75204G-63400	63-400	144
75204G-70400	70-400	144
75204G-89400	89-400	144

Phenolic Screw Thread Caps with Pulp/Vinyl Liners

- Economical general purpose cap/liner combination
- Good chemical resistance to mild acids, alkalis, alcohols, aqueous solutions, oils and solvents
- Not autoclavable
- Specially formulated phenolic cap material
- Polyvinyl-faced pulpboard liner

Part Number	GPI Finish	Case Qty
75201G-20400	20-400	144
75201G-22400	22-400	144
75201G-24400	24-400	144

Phenolic Caps with PTFE-Faced Rubber Liners

- Excellent for general laboratory use
- Specially formulated phenolic resin and liner adhesive to withstand the effects of repeated autoclaving
- PTFE faced/general purpose white rubber liners are highly resistant to chemical effects
- Identified in ASTM Specification E982, Class A requirements

Part Number	GPI Finish	Case Qty
73802-8425	8-425	144
73802-13415	13-415	500
45066C-13	13-415	300
73802-13425	13-425	144
45066C-15	15-415	300
73802-15415	15-415	500
73802-15425	15-425	144
73802-18400	18-400	144
45066C-18	18-415	225
73802-20400	20-400	144
73802-24400	24-400	144
45066C-24	24-410	150
45066C-28	28-410	150
73802-33430	33-430	144
45066C-38	38-430	50
73802-38430	38-430	144

White Urea Screw Thread Caps with PTFE-Faced Foam-Backed Rubber Liners

- White urea
- PTFE-faced foam-backed rubber liner
- Ideal for use with scintillation vials

Part Number	GPI Finish	Case Qty
73802U-8425	8-425	432
73802U-13425	13-425	432
73802U-15425	15-425	432
73802U-18400	18-400	432
73802U-20400	20-400	432
73802U-24400	24-400	432

White Polyethylene Plug-Style Needle Closures

- Designed for shell vials
- Economical

Part Number	Fits Vials	Case Qty
73835-1	60831D-1544, 60835D-1544	2,000
73835-2	60831D-1231	2,000
73835-3	60831D-830, 60831D-843, 60835D-843	2,000

Gray Cholorobutyl Straight-Sided Stoppers

These high quality gray chlorobutyl stoppers are used for research and pharmaceutical packaging applications.

- Universal gray chlorobutyl formulation passes Japanese, European and United States pharmacopeia testing for globally marketed pharmaceutical products
- Formulation contains no plasticizers, 2-mercapto-benzothaizole, nitrosamine precursors or natural rubber latex
- Formulation is applicable to aqueous solutions with a pH range of 2 to 10
- 73811T series has PTFE facing to improve chemical compatibility and minimize surface interactions
- Durometer 50

Part Number	Fits GPI Aluminum Seal Finish	Case Qty
73811-13	13	1,000
73811-21	20	1,000
73811T-13	13	100
73811T-21	20	100

Gray Butyl Rubber Lypholization Style Stoppers

- Designed for aluminum seal finish vials
- Two-leg style reduces possibility of legs sticking together
- Gray high grade butyl rubber, lyophilization style

Part Number	Fits GPI Aluminum Seal Finish	Number of Legs	Case Qty
73828-13	13	2	1,000
73828A-21	20	2	1,000

Gray Butyl Rubber Stoppers

- Designed for aluminum seal finish vials
- Economical alternative for low temperature applications
- Gray butyl rubber

Part Number	Fits GPI Aluminum Seal Finish	Case Qty
73827-11	11	1,000
73827-13	13	1,000
73827-21	21	1,000

Open Style Unlined One Piece Aluminum Seals

- Fits GPI aluminum seal finish 13 and 20
- Allows easy access to septa (not included)

Part Number	Fits GPI Aluminum Seal Finish	Color	Case Qty
73822A-13	13	Natural	1,000
73822B-13	13	Blue	1,000
73822C-13	13	Red	1,000
73822D-13	13	Green	1,000
73822B-20	20	Blue	1,000
73822C-20	20	Red	1,000
73822D-20	20	Green	1,000
N73822A-20	20	Natural	1,000

Button-Top Unlined Aluminum Seals

Safe and easy-to-use flip off seals allow one-handed operation.

- Autoclavable
- Tamper evident
- No sharp metal edges

Part Number	Fits GPI Aluminum Seal Finish	Color	Case Qty
Flip-Off			
73843A-13	13	White	1,000
73843B-13	13	Blue	1,000
73843C-13	13	Red	1,000
73843D-13	13	Green	1,000
73843A-20	20	White	1,000
73843B-20	20	Blue	1,000
73843C-20	20	Red	1,000
73843D-20	20	Green	1,000
Flip-Up/Tear-Off			
73844A-13	13	White	1,000
73844B-13	13	Blue	1,000
73844C-13	13	Red	1,000
Flip-Off/Tear-Off			
73845A-20	20	White	1,000
73845B-20	20	Blue	1,000
73845C-20	20	Red	1,000
73845D-20	20	Green	1,000

Tear-Off Style Unlined One Piece Aluminum Seals

- Tear-off style seal can be completely removed from vial or bottle
- Allows for easy access to vial contents

Part Number	Fits GPI Aluminum Seal Finish	Color	Case Qty
73821-13	13	Natural	1,000
73821C-13	13	Red	1,000
73821D-13	13	Green	1,000
73821-20	20	Natural	1,000
73821B-20	20	Blue	1,000
73821C-20	20	Red	1,000
73821D-20	20	Green	1,000

Aluminum Seals with PTFE-Faced Silicone Septa

- Medium durometer PTFE / silicone septum
- Allows for good resealability, core resistance, multiple injections and easy penetration

Part Number	Fits GPI Aluminum Seal Finish	Case Qty
N73824-11	11	100
N73826-11	11	1000
N73824-13	13	100
N73826-13	13	1000
N73823-13	13	144
N73823-20	20	144
N73823T-20	20	100
N73834B-20	20	1,000
N73824T-20	20	100

Tear-Out Style Unlined One Piece Aluminum Seals

- Center disc tears out, leaving the outside edge of the aluminum seal firmly crimped on the container
- Allows for easy access to septa

Part Number	Fits GPI Aluminum Seal Finish	Color	Case Qty
73820-13	13	Natural	1,000
73820B-13	13	Blue	1,000
73820C-13	13	Red	1,000
73820D-13	13	Green	1,000
73820-20	20 or 20A	Natural	1,000
73820B-20	20	Blue	1,000
73820C-20	20	Red	1,000
73820D-20	20	Green	1,000

Crimper

Manual hand crimper for aluminum seals and vials.
Perfect for chromatography and general crimping needs.

Part Number	Cap size (mm)	Case Qty
69902-11	11	1
69902-13	13	1
69902-20	20	1

Decrimper

Manual hand de-crimper for aluminum seals and vials.
Perfect for chromatography and general crimping needs.

Part Number	Cap size (mm)	Case Qty
69904-11	11	1
69904-13	13	1
69904-20	20	1

PTFE-Faced Silicone Rubber Septa

- Excellent for use with open-top caps to access container contents with a syringe
- Highly chemically resistant PTFE facing maintains integrity of contents
- Silicone rubber backing allows repeated puncturing through seal
- Resists coring
- Autoclavable
- Recommended for use in all autosamplers using screw thread vials
- 73818A-24 is white PTFE / tan silicone and is recommended for use with EPA vials

Part Number	Thickness - PTFE (inches)	Thickness - Silicon Rubber (inches)	Fits Thread Cap Size (mm)	Case Qty
774161-0008	0.005	0.060	8	48
774161-0013	0.005	0.060	13	48
N73818T-13	0.005	0.060	13	1,000
774161-0015	0.005	0.060	15	48
73818-15	0.005	0.060	15	144
774161-0018	0.005	0.060	18	24
73818-18	0.005	0.060	18	144
73818X-18	0.005	0.090	18	144
774161-0020	0.005	0.060	20	24
73818-20	0.005	0.060	20	144
774161-0024	0.005	0.060	24	24
774161-0924	0.010	0.090	24	24
73818-24	0.005	0.060	24	144
73818A-24	0.005	0.120	24	144
73818X-24	0.010	0.090	24	144

PTFE-Faced Red Rubber Septa

- Economical
- Excellent resealability
- Low extractables
- Highly chemical resistant PTFE facing maintains integrity of contents
- Resists coring

Part Number	Thickness - PTFE (inches)	Thickness - Red Rubber (inches)	GPI Finish	Case Qty
73816-15	0.002	0.060	15-425	144
73816-18	0.002	0.060	18-400	144
73816-20	0.002	0.060	20-400	144
73816-24	0.002	0.060	24-400	144
N73812-13	0.005	0.060	13-425	1,000
N73816T-13	0.002	0.050	13-425	1,000
N73830A-20	0.01	0.115	20 or 20A	1,000
N73832-20	0.25		20 or 20A	100
N73832A-20	0.25		20 or 20A	1,000

Red PTFE-Faced Silicone Rubber Septa

- Highly chemically resistant PTFE-faced silicone rubber maintains integrity of contents
- Excellent compressibility and resealability
- Withstands multiple injections
- Resists coring

Part Number	Thickness - PTFE (inches)	Thickness - Silicon Rubber (inches)	GPI Finish	Shelf-Pack Qty	Case Qty
N73818B-13	0.005	0.070	13-425	100	1,000

White FEP/Silicone Septa

Designed for use with headspace autosamplers for sealing sample vials used in operating temperature ranges of -60 to 200 °C.

- For aluminum seal finishes

Part Number	Thickness - FEP (inches)	Thickness - Silicon Rubber (inches)	GPI Finish	Case Qty
N73831A-20	0.003	0.120	20 or 20A	1000

WASHERS

Single-Place 5 mm NMR Tube Washer

Designed to fit standard filtration assemblies available in most labs.

- The cap is positioned on the 5 mm NMR tube bottom and inserted into the washer
- Aspirator suction provides the driving force to direct the solvent stream into the 5 mm NMR tube
- An air stream aids the drying process after the solvent reservoir empties
- 1000 mL filter flask is available as an accessory
- Supplied with one #8 silicone stopper

Part Number	Tube Size (mm)	Case Qty
897030-0005	5	1

Replacement Parts

Part Number	Description	Case Qty
953763-0000	#8 Silicone Stopper, 9/16" (14.3mm) Hole Size	5

Accessories

Part Number	Description	Case Qty
953760-0000	1000 mL Filter Flask, #8 Stopper Joint, 3/8" Hose Connection	1

Utility Washer

Used for rapid, safe washing and drying of cuvettes, tubes and small scale volumetric items up to approximately 22 mm OD.

- Unit is supplied with one gasket, a tube washer, an Erlenmeyer flask and a 3/8" hose connection
- Operates efficiently with a conventional sink aspirator
- Recommended for 10 mm NMR tubes
- All glass apparatus manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Overview: Washer is activated by lightly pressing the inverted cell onto the neoprene gasket.

Part Number	Capacity (mL)	Fits Tubing ID (inches)	Case Qty
459960-0000	250	0.375	1

Replacement Parts

Part Number	Description	Case Qty
459961-0000	Cuvette Tube Washer Only	1
459951-0000	Neoprene Gasket for Tube Washer	12
179850-2224	Universal with Hose Connection Inlet, BEV-EL-SEAL™, Accomodation Range 6.5-8.5 mm, PTFE Bottom, Fits Tubing ID 3/8", Standard Taper 24/25, Size 22	1
617000-0424	250mL Erlenmeyer Flask with 24/40 joint, Approx. overall height 155 mm	1

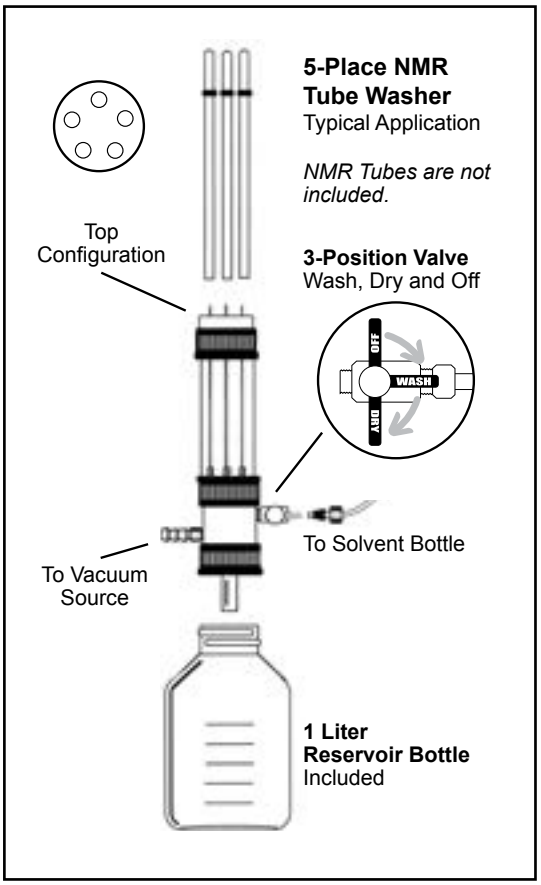
Five-Place 3 mm and 5 mm NMR Tube Washer

This design uses flexible PTFE tubing to direct a power wash stream of wash solvent to clean the inside of NMR tubes.

- Accommodates 7" and 8" tubes
- A vacuum source (user-supplied) is required
- Complete unit is provided with a one liter reservoir bottle
- All wetted parts are PTFE or borosilicate glass

Instructions for Use:
An o-ring is slipped over each tube to form a vacuum tight seal and is removed after washing. When all tubes are positioned for cleaning, the wash valve is configured to either wash or dry; this action may easily be repeated, and cleaned tubes can be quickly removed for use.

Part Number	Tube Size (mm)	Case Qty
897033-0003	3	1
897033-0005	5	1
897030-0005	5	1



WEIGHING BOATS

Weighing/Transfer Funnels

These funnels are designed for use with micro volumetric flasks.

- Accessory for microscale MICROFLEX® threaded kits
- Ideal for the easy transfer of liquids or powders
- Flat bottom allows weighing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Overall Heigh x Width (mm)	GPI Thread Size	Case Qty
747585-0013	13 x 45	13-425	1
747585-0020	22 x 50	20-400	1

Transfer/Weighing Funnels

Transfer / weighing funnels are ideal for easy transfer of liquids or powders.

- Flat bottom allows weighing
- Manufactured from 33 expansion, low extractable borosilicate glass conforming to USP Type I and ASTM E438, Type I, Class A requirements

Part Number	Fits Neck Diameter (mm)	Overall Width (mm)	Case Qty
747600-0013	13 or less	60	1
747600-0020	20 or less	70	1

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SYSTEMS OF WEIGHTS AND MEASURES

The metric system of weights and measures

As its name implies, the metric system was intended to be based on the meter, a fundamental unit of length. All of the essential features of the system were contained in a proposal submitted to the French National Assembly in 1791. The metric system thus was originally a national system and was not given international recognition until 1889.

The meter was to be equal to one ten-millionth part of a quadrant of the earth's meridian. The kilogram was to be the mass of a volume of pure water at its temperature of maximum density occupying a space of one cubic decimeter (one one-thousandth of a cubic meter.)

To propose such a system is one thing, but to make it practical, material standards are necessary. The French measure of length in 1791 was the "toise," and the actual determination of the meridianal distance was made in terms of it. From the value found, a standard platinum bar was constructed called the "Metre des Archives," and the meter was defined as the length between the centers of the end faces of this bar at the temperature of melting ice.

To determine the mass of a cubic decimeter of water the principle of Archimedes was used, namely, that a submerged body is buoyed up by a force equal to the weight of the water displaced. This was accomplished by hydrostatic weighing of a carefully measured bronze cylinder from which, by comparison, a platinum weight called the "Kilogramme des Archives" was adjusted.

During the years immediately preceding 1889, the metric system was studied exhaustively by an international commission. Redeterminations of the kilogram showed that there was a slight error in the original standard, but it was decided that the International Kilogram should be based on the "Kilogramme des Archives" in its actual state. Thus, the kilogram became a fundamental rather than a derived unit and the definition of the kilogram as the mass of one cubic decimeter of water was abandoned.

Prototype Kilogram 20, replica
Photo courtesy NIST

Fig. 1

The name originally proposed for the volume of one cubic decimeter was liter. Due to the error in the original standard kilogram, it was decided in 1901 to redefine the liter in terms of the International kilogram. This definition was used until the Twelfth General (International) Conference on Weights and Measures.

The delegates to this conference decided to redefine the liter as a "special name for the cubic decimeter." It was agreed that the terms "liter," "milliliter" and "mL" might be continued, except in association with measurements of the highest precision, where "cubic centimeter" or "cm^3" must be used.

The difference in volume between the old and the new meanings of liter is so small as to be negligible in most technical work, being less than 3 parts in 100,000. Hence, it can be expected that volumetric apparatus will continue to be marked with the familiar "liter" or "milliliter" for some time to come.

United States and British Weights and Measures

The basic units of the United States and British systems have been officially defined in terms of metric equivalents. In glass volumetric apparatus only the units of liquid measure are of importance.

GRAVIMETRIC CALIBRATION

When temperature corrections are not made to the results obtained in volumetric work, it is seldom necessary to know the capacity of a vessel more closely than the guaranteed tolerances. However, more precise values can be obtained in the laboratory by careful calibration, and directions are given on the following pages for determination of capacity to this higher degree of precision.

The liquid regularly used by the National Institute of Standards and Technology (NIST) for calibration of apparatus is distilled water. Accordingly, manufacturers base their testing methods also on distilled water, except where some particular liquid such as mercury for calibration is described. Calibration by weighing the quantity of water delivered is recommended for apparatus made to deliver the contents through a tip such as burets and pipets. In the case of volumetric flasks, cylinders, and similar containers, gravimetric calibration is preferred, although volumetric methods may be used when quantities of glassware are to be checked.

The balance must be mounted in such a way as to damp out external vibrations. The temperature of the liquid must be known accurately enough to eliminate errors from this cause. The precision needed in the temperature measurement depends on the volume of the vessel. For small articles, the nearest 1 °C is usually sufficient, while for a 1 liter flask, it may be necessary to know the temperature to the nearest 0.1 °C.

The empty object to be calibrated, or the receiver into which water from the instrument being calibrated is to be delivered, is placed on one pan of the balance and weighed. The container is filled and reweighed. The difference is the apparent weight of the liquid. This apparent weight must be corrected in order to obtain the volume at 20 °C. The method of doing so will be described later.

The best type of receiver for water delivered from a buret or pipet is a flat-bottomed flask. Use a tight fitting rubber stopper from which all loose particles have been removed by scrubbing with 1% sodium pyrophosphate and rinsing well. When the balance has hooks at the top of the bows, it will be found convenient to hang the vessel, such as a "to contain" (IN) pipet, from a hook. If there is no hook, then it may be necessary to rest the vessel or pipet on a saddle placed on the pan.

Care must be exercised in handling the receivers to prevent moisture or grease from the fingers from being deposited on the outside. Wiping of the outside with a cloth is sometimes necessary, but in doing so surface moisture may be removed or an electrical charge may be produced on the surface. Usually about 30 minutes are required to restore the surface moisture so that it is in equilibrium with the room. Static electricity will dissipate itself in time, and frequently can be discharged by touching the glass to a clean dry conductor.

With experience, settings of menisci of water at a line can be made easily to within one-tenth of a millimeter, without using anything to assist the eye. However, many observers prefer to have some magnification. Small telescopes with short focal lengths are available which can be clamped to the glass. An ordinary reading glass of 4x or 6x magnification will also serve.

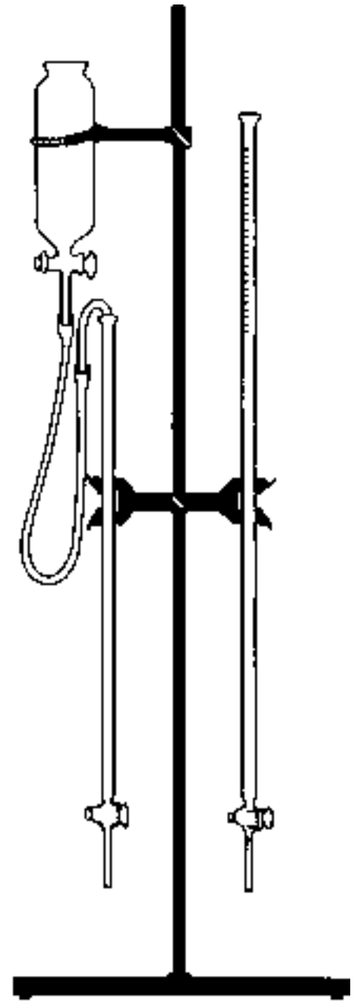

Fig. 2

GRAVIMETRIC CALIBRATION

CALIBRATION WITH WATER

Burets
When determining the capacity of a buret, the water should always be run out from the 0 mark to the line to be checked. This is the method used by manufacturers in producing burets. Values are obtained for at least five points (every 10 mL on a 50 mL), and many laboratories calibrate at ten points to further assure accuracy.

The buret and a plain glass tube of about the same length are clamped vertically on a stand as shown in Figure 2. A thermometer is placed in the plain tube, whose diameter should be somewhat greater than that of the buret so that it will hold about the same volume of water when the thermometer is immersed in it.

A water reservoir, which can be made from a cylindrical separatory funnel, is useful. By keeping a supply of distilled water in it, the water will be near the temperature of the room when needed. Rubber hose is attached to the stem of the funnel and a bent glass tube is inserted into the free end of the hose. Water is easily conveyed to the two tubes in this way. For occasional calibration, a beaker of distilled water will serve.

The first operation is the filling of the two tubes several times and emptying through the stopcocks, in order to bring the tubes to the temperature of water and room. They are both refilled and allowed to stand for about 30 minutes to check for leakage, not only at the tip, but also around the stopcock plug. Then both are filled again, with the level of water in the buret about 10 mm above the 0 mark. Any water on the outside of the buret tip is removed with clean filter paper. Then the water in the buret is lowered slowly to a setting at the 0 line. After setting has been made, any water on the outside of the tip is touched-off against the wet side of the container. The temperature of the water is observed just after setting the water at the 0 line.

The receiver, which is kept stoppered except when actually delivering water into it, is brought under the buret tip and delivery started. The stopcock should be completely open. Keep water from splashing up into the neck or onto the tip of the buret by inclining the receiver at an angle of about 20° and touching the receiver with the buret tip, being sure that no water touches the side of the neck in the region covered by the stopper. Otherwise an error may be introduced in subsequent determinations made with the same receiver due to evaporation from the stopper when it is removed to allow another delivery to be made.

When the water has descended to a few mm above the line to be checked, delivery is slowed down in order to set the meniscus accurately. After setting is completed, the tip is removed horizontally from the receiver to secure any water on the outside of the tip, and the receiver removed and stoppered.

As soon as a delivery has been made, empty buret and thermometer tube and refill both, with water level in buret above 0 mark. Balance receiver, record weight, obtain volume as directed later on, and proceed to deliver next volume into receiver, using the same technique as given above.

Note that the thermometer tube is handled in the same manner as the buret, to insure that water of the same temperature will be in both. With burets of sufficient diameter, such as the standard 50 mL and 100 mL types, the thermometer tube may be dispensed with and the thermometer inserted in the top of the buret itself. If this is done, the thermometer is read just before delivery and removed, more water being added if necessary to raise the level in the buret above the 0 mark. Then the procedure of setting to 0 and delivering into the receiver is the same as described originally.

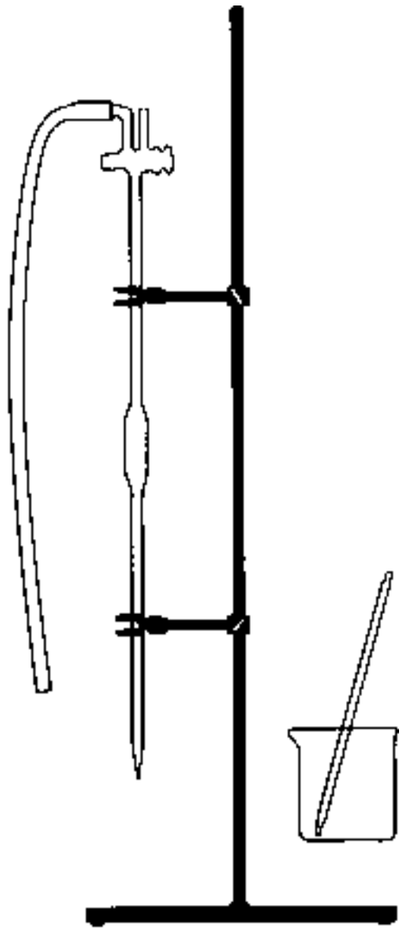

Fig. 3

CALCULATION FROM APPARENT WEIGHT

CALIBRATION WITH WATER

The true capacity of a glass vessel at a standard temperature can be obtained from the apparent weight of the liquid container or delivered at any other temperature. To do this, it is necessary to take into account four factors for single pan balances having built in weights — the buoyant effect of the air on the liquid and weights; the change of density of the liquid; the change of volume of the glass with temperature; and the apparent mass of the built-in weights as compared to their true mass. Details for this deviation of these corrective factors are covered in NIST IR 74-461, "The Calibration of Small Volumetric Laboratory Glassware".

Buoyant Effect
When a body is weighed in air, it does not weigh the same as it would in a vacuum, because both the weights and the body itself are buoyed up by the air. This is in accordance with the principle of Archimedes, which states that any body immersed in a gas or a liquid is pushed upward by a force equal to the weight of an equal volume of the gas or liquid.

The density of air varies according to the height above sea level and even in any one place from time to time depending on the weather. As a result, the apparent weight of a volume of water also may vary due to changes in the forces acting on it and on the weights. In order to be able to compare weighings, it is necessary to take into account changes in the density of air. The best solution is to calculate the net upward thrust at the time of weighing and add it to the apparent weight. The result is the true weight and is the same as if the weighing actually had been made in a vacuum ("in vacuo"). Since this establishes all weighings on a common basis, the results of several weighings at different times or places can be compared.

For very accurate calibration of volumetric glassware, the actual density of the air at the time of weighing is determined. However, if it is assumed that the barometer reading is 760 mm, the relative humidity is 50%, and the carbon dioxide in the air is 0.04% by volume, then densities of air for various temperatures calculated on this basis will be sufficiently accurate for most purposes. Further assumptions usually made are that the air and the liquid are at the same temperature and that weighings are made with brass weights having a density of 8.4 grams per mL. The difference between the mass and the apparent weight of one mL of water is called the buoyancy constant.

This constant multiplied by the volume of water expressed in milliliters is the buoyancy correction, and it must be added to the apparent weight of a volume of water to get the true mass of the water. The exact volume may not be known, but the use of the approximate or nominal value will not introduce any significant error.

Change of Density of the Water
The volume of a liquid at any temperature is equal to its mass divided by the mass of one mL of the liquid at that temperature. The maximum weight of one mL of water is one gram at 4 °C. At all other temperatures water is lighter, and, consequently, athe volume is a larger number than the mass. The difference between volume and mass for one mL at any temperature is equal to one minus the density at that temperature.

If this difference is multiplied by the nominal volume of water, a density correction is obtained which can be added to the mass of the water to give the actual volume of the glass vessel at the temperature of weighing. Here, too, the nominal volume can be used to determine the correction.

Change in Volume of Glass
Glass also changes volume with temperature change. To find the capacity of a glass vessel at the standard temperature from its capacity at the temperature of weighing, use the following formula:

$$V_T = V_{20}\,(1 + \alpha\,(T_T - T_{20})$$

Where V_{20} = capacity at standard T_{20},
V_T = capacity at temperature of weighing T_T, and
α = cubical coefficient of expansion of the glass.
$1 + \alpha\,(T_T - T_{20})$ = the temperature correction of the glass vessel.

To obtain it, the nominal capacity can be used for V_T, without introducing an appreciable error.

Apparent Mass of Built-In Weights
When, under specified ambient conditions, an unknown object exerts the same force on a balance as the mass of a specified hypothetical reference material, the object is said to have an apparent mass versus the reference material. The specified ambient conditions are 1) temperature = 20 °C, and 2) air density = 0.0012 g/cm³. The hypothetical reference material is completely specified by its density at 20 °C. For the older apparent mass scale, this specified density at 20 °C, D_{20} is 8.3909 g/cm³, and for the more recent scale, 8.0. (Quotation from NIST IR 74-461.)

CORRECTION TABLES FOR 33 EXPANSION BOROSILICATE GLASS WHEN SINGLE PAN BALANCES ARE USED

Tables 1, 2, & 3 on page 397 give the sum of all four corrections — buoyant effect, water density, glass expansion, and apparent mass of built-in weights. Table 1 is to be used for KIMAX® apparatus, made of 33 expansion borosilicate glass (ASTM E- 438, Type I Class A); Table 2 is for apparatus made of Kimble® soda lime glass (ASTM E438, Type II); and Table 3 is for apparatus made of Kimble® 51 expansion borosilicate glass (ASTM E438, Type I, Class B). The example below illustrates the use of the Tables.

a) Nominal Capacity of vessel (33 expansion borosilicate glass) = 25 mL
b) Temperature of weighing = 22.5 °C
c) Barometric Pressure of weighing = 760 mm Hg.
d) Weight recorded on balance before filling receiver = 28.841 g.
e) Weight recorded on balance after filling receiver = 53.761 g.
f) Apparent or hypothetical weight of water at 22.5 °C and 760 mm Hg (e – d) = 24.920 g.
g) Corrective factor at 22.5 °C and 760 mm Hg from Table 1

$$\frac{1.00327 + 1.00349}{2} = 1.00338 \text{ g.}$$

h) Volume of vessel at 20 °C and 760 mm Hg. (f x g) = 25.004 mL

ERRORS CAUSED BY USING TABLES 1, 2, & 3 ON PAGE 397 WITHOUT CORRECTING FOR ACTUAL CONDITIONS

The size of errors introduced into calibrations by ignoring actual air conditions and glass expansion is indicated below.

Variation in Density of the Air
TEMPERATURE. For each 1 °C difference between air and water temperatures, the error is to 0.004 mL per liter. Volumes will be too large when the air is hotter than the water, and vice versa.

PRESSURE. For each 10 mm that the barometer departs from 760 mm, the error amounts to 0.014 mL per liter. Volumes will be too small if the actual pressure is greater than 760 mm, and vice versa.

RELATIVE HUMIDITY. If the relative humidity differs from 50%, errors of 0.001 to 0.004 mL per liter may occur, depending on the actual humidity and temperature.

Expansion of Glass
For each 0.000001 change in the cubical coefficient of expansion, the change in corrections amounts to 0.001 mL liter/1 °C. The effect of this on the calculated volume at 20 °C is shown in Table 1.

VOLUMETRIC CALIBRATION & VOLUMETRIC STANDARDS

Just as in gravimetric calibration, cleanliness of all vessels to be calibrated and of the standards used is necessary for accuracy in volumetric calibration.

It was mentioned before that burets and pipets should be calibrated gravimetrically when accurate results are wanted. The occasional small flask also can be handled best by a gravimetric method. If large quantities of flasks or similar items are to be checked, vacuum standards similar to those developed by NIST will be useful. Figure 4 illustrates this type of standard.

The bulb of the standard is calibrated gravimetrically to deliver from tip to tip slightly less than the nominal volume desired. To fill it the tube at the left is connected to a vacuum line with both stopcocks closed. The delivery tip is immersed in a container of distilled water and the left hand stopcock opened. As soon as the water fills the standard to overflow, this stopcock is closed and the container of water withdrawn. The delivery tip is wiped clean, the flask to be calibrated is brought under the tip so that the tip extends into the neck about 10 mm and the right hand stopcock is opened. The water then flows out into the flask. Any water in the cup at the top can be drawn off through the right hand tube. To complete the filling of the flask a buret with a smaller diameter than the neck of the flask is used. The capacity of the flask is the sum of the volume of the standard and the volume delivered by the buret.

Burets may be used to calibrate small cylinders, centrifuge tubes, Babcock test bottles, and similar instruments. However, the buret must be selected with due regard for the precision of reading wanted. To illustrate this, suppose the 100 mL oil centrifuge tube shown in Figure 5 is to be calibrated. The accuracy specified by the American Society for Testing Materials for it at the various points is:

Range	Limit of Error	Range	Limit of Error
0 to 0.1 mL	0.02 mL	Above 3 to 5 mL	0.2 mL
Above 0.1 to 0.3	0.03	Above 5 to 10	0.5
Above 0.3 to 1.0	0.05	Above 10 to 100	1.0
Above 1 to 3	0.1		

A 50 mL or 100 mL buret is satisfactory for the upper part of the scale, but it is obvious that the first few milliliters at the bottom of the tube should be checked by a buret of about 5 mL capacity subdivided to 0.01 mL or 0.02 mL.

If a large cylinder is to be calibrated at one or more points, the most convenient and accurate method for the average laboratory consists in delivering quantities from volumetric pipets of as large a size as possible, finishing up with a measuring pipet. The differences in diameters and tolerances at the calibration marks between pipets and cylinders are so great that no appreciable error will occur with the multiple deliveries necessary from the pipets to calibrate a cylinder.

Fig. 4 Fig. 5

Table 1: CORRECTIVE FACTORS FOR 33 EXPANSION BOROSILICATE GLASS

Barometric Pressure mm Hg	Temperature, °C 19	20	21	22	23	24	25	26	27	28
580	1.00243	1.00262	1.00281	1.00302	1.00324	1.00347	1.00371	1.00396	1.00422	1.00449
600	1.00245	1.00264	1.00283	1.00304	1.00326	1.00349	1.00374	1.00399	1.00424	1.00451
620	1.00248	1.00267	1.00287	1.00308	1.00330	1.00353	1.00377	1.00402	1.00428	1.00455
640	1.00251	1.00270	1.00290	1.00311	1.00333	1.00356	1.00380	1.00405	1.00431	1.00458
660	1.00254	1.00272	1.00292	1.00313	1.00335	1.00358	1.00382	1.00408	1.00433	1.00460
680	1.00256	1.00275	1.00295	1.00316	1.00338	1.00361	1.00385	1.00410	1.00436	1.00463
700	1.00259	1.00278	1.00298	1.00319	1.00341	1.00364	1.00388	1.00413	1.00439	1.00466
720	1.00262	1.00281	1.00301	1.00322	1.00344	1.00367	1.00391	1.00416	1.00442	1.00468
740	1.00265	1.00284	1.00304	1.00324	1.00346	1.00370	1.00393	1.00418	1.00444	1.00471
760	1.00268	1.00286	1.00306	1.00327	1.00349	1.00372	1.00396	1.00421	1.00447	1.00474
780	1.00270	1.00289	1.00309	1.00330	1.00352	1.00375	1.00399	1.00424	1.00450	1.00477
800	1.00273	1.00291	1.00312	1.00333	1.00355	1.00378	1.00402	1.00427	1.00452	1.00479

Values taken from “The Calibration of Small Volumetric Laboratory Apparatus”, NIST-IR 74-461 and based on a cubical coefficient of expansion of 0.000010 mL/mL/1°C.

Table 2: CORRECTIVE FACTORS FOR SODA LIME GLASS

Barometric Pressure mm Hg	Temperature, °C 19	20	21	22	23	24	25	26	27	28
580	1.00244	1.00262	1.00279	1.00299	1.00319	1.00341	1.00363	1.00387	1.00411	1.00437
600	1.00246	1.00264	1.00281	1.00301	1.00321	1.00343	1.00366	1.00390	1.00414	1.00439
620	1.00250	1.00267	1.00285	1.00305	1.00326	1.00347	1.00369	1.00393	1.00417	1.00443
640	1.00253	1.00270	1.00288	1.00308	1.00328	1.00350	1.00372	1.00396	1.00420	1.00446
660	1.00256	1.00272	1.00290	1.00310	1.00330	1.00352	1.00374	1.00399	1.00422	1.00448
680	1.00258	1.00275	1.00293	1.00313	1.00333	1.00355	1.00377	1.00401	1.00425	1.00451
700	1.00261	1.00278	1.00296	1.00316	1.00336	1.00357	1.00380	1.00404	1.00428	1.00454
720	1.00264	1.00281	1.00299	1.00319	1.00339	1.00361	1.00383	1.00407	1.00431	1.00456
740	1.00267	1.00284	1.00302	1.00321	1.00341	1.00364	1.00385	1.00409	1.00433	1.00459
760	1.00270	1.00286	1.00304	1.00324	1.00344	1.00366	1.00388	1.00412	1.00436	1.00462
780	1.00272	1.00289	1.00307	1.00327	1.00347	1.00369	1.00391	1.00415	1.00439	1.00465
800	1.00275	1.00291	1.00310	1.00330	1.00350	1.00372	1.00394	1.00418	1.00441	1.00467

Values derived from NIST IR 74-461, page 12 and based on a cubical coefficient of expansion of 0.000025 mL/mL/1°C.

Table 3: CORRECTIVE FACTORS FOR 51 EXPANSION BOROSILICATE GLASS

Barometric Pressure mm Hg	Temperature, °C 19	20	21	22	23	24	25	26	27	28
580	1.00243	1.00262	1.00281	1.00302	1.00323	1.00346	1.00370	1.00394	1.00420	1.00447
600	1.00246	1.00265	1.00284	1.00304	1.00326	1.00348	1.00372	1.00397	1.00422	1.00448
620	1.00249	1.00267	1.00287	1.00307	1.00328	1.00351	1.00375	1.00399	1.00425	1.00451
640	1.00251	1.00270	1.00289	1.00310	1.00331	1.00354	1.00378	1.00402	1.00427	1.00454
660	1.00254	1.00272	1.00292	1.00312	1.00334	1.00357	1.00380	1.00405	1.00430	1.00456
680	1.00257	1.00275	1.00295	1.00316	1.00337	1.00359	1.00383	1.00407	1.00433	1.00459
700	1.00259	1.00278	1.00298	1.00318	1.00340	1.00362	1.00386	1.00410	1.00435	1.00461
720	1.00262	1.00281	1.00301	1.00321	1.00342	1.00365	1.00389	1.00413	1.00438	1.00464
740	1.00266	1.00284	1.00303	1.00324	1.00345	1.00367	1.00391	1.00415	1.00441	1.00467
760	1.00268	1.00286	1.00306	1.00326	1.00348	1.00370	1.00393	1.00418	1.00444	1.00470
780	1.00271	1.00289	1.00309	1.00329	1.00350	1.00373	1.00397	1.00421	1.00447	1.00473
800	1.00273	1.00292	1.00311	1.00331	1.00353	1.00375	1.00399	1.00424	1.00449	1.00476

Values derived from NIST IR 74-461, page 12 and based on a cubical coefficient of expansion of 0.000015 mL/mL/1°C.

"TO CONTAIN" VERSUS "TO DELIVER"

Proper use of calibrated volumetric glassware requires that the user be informed whether the ware is a "to contain" or "to deliver" vessel. All Kimble calibrated ware is marked either "TC" or "TD". When the graduation line denotes the volume contained in the calibrated vessel, the ware is marked "TC". When the graduation line indicates the volume delivered from the vessel, the ware is marked "TD". When a vessel is calibrated "TD", it differs from a "TC" calibrated vessel in that a drainage holdback error, the amount of water required to wet the inner surface of the vessel in contact with the water, is added to the "TC" volume. The "TD" vessel then delivers the same volume as contained in a "TC" vessel. Product descriptions in this catalog usually state the method of calibration used. (The International Standards Organization designation for "to contain" is "IN" and "to deliver", is "EX".)

Pipets Calibrated "To Deliver" (EX)

The pipet is clamped in a vertical position and the 3-way stopcock connected to it with rubber tubing. The bent arm of the stopcock has a length of rubber hose attached which can be connected to a vacuum line. Distilled water at the temperature of the room is placed in the large beaker. The water is stirred before use, care being taken not to introduce air into it.

Before making a weighing, the pipet is filled one or more times from the beaker by applying suction through the stopcock, in order to bring the pipet to the temperature of the water. Finally the pipet is filled to about 10 mm above the mark, the stopcock closed, and the beaker removed. The stopcock now is opened to connect the pipet to the straight vertical tube and the water lowered slowly to the 0 line. During this emptying, the edge of the tip is kept in contact with the side of the beaker. The rate of descent of the water is controlled by a finger applied to the upper end of this tube. After setting to 0, the stopcock is closed. Then the temperature of the water in the large beaker is taken and this reading is used as the temperature of the water in the pipet. All deliveries should start at the 0 line.

To start the delivery into the receiver the stopcock is opened fully, again connecting pipet and vertical tube. The plug is not touched after this, any control needed being exercised by the forefinger on the vertical tube. The same precautions are taken as for burets against splashing of water and wetting the upper part of the neck of the receiver.

Where delivery of a measuring or serological pipet is very rapid, the forefinger must be held on the vertical tube from the start of delivery, but water is retarded as little as possible without losing control. For weighings of intermediate lines, water is allowed to empty until a few mm above the line. Then a finger on the vertical tube is used to slow up the delivery so that the water can be set accurately at the mark. The tip is kept in constant contact with the receiving vessel throughout the delivery. Then the receiver is withdrawn and the stopcock closed.

When the pipet has an opaque ring or rings near the top, this indicates that the amount of water remaining in the tip after free delivery has ceased is to be blown out and added to the original delivery. A count of two seconds is made after free delivery has ended and while the neck and tip are still in contact, then air is blown through the rubber hose on the bent arm of the stopcock to eject the liquid in the tip. The neck of the bottle is removed from contact immediately after this. Give only one puff, strong enough to expel the liquid. The time of two seconds has been selected as being the average length of time required in actual service after free delivery has ceased to insert the top of the pipet in the bulb preparatory to blowing through.

Pipets Calibrated "To Contain" (IN)

If the capacity is from a mark to the tip, the pipet should be weighed dry, filled with water to the mark and reweighed. To hold the pipet a saddle may be used on the balance pan. Then, a rubber cap or a piece of rubber tubing closed by a short glass rod is slipped up over the tip and the pipet is removed from the stand and weighed. The first weighing of the dry pipet should include the rubber cap or rubber tubing.

When the indicated volume is between marks, the pipet is filled completely up to the top mark, weighed, dried and then filled up to bottom mark and weighed. The difference in weight is the apparent weight of the water contained between the two marks. In this case the weight of the empty pipet is not needed.

Flasks and Cylinders Calibrated "To Contain" (IN)

Flasks and cylinders calibrated to contain are cleaned, dried and weighed empty, filled accurately and weighed again. The difference between the two weights, of course, is the apparent weight of the volume contained.

Flasks and Cylinders Calibrated "To Deliver" (EX)

If flasks and cylinders calibrated to deliver are to be calibrated, it will be found best to weigh the filled piece first, empty it and weigh again. The second weight includes the film remaining on the walls after delivery.

In all cases, the top of the flask or cylinder should be closed by a cap of some type to minimize evaporation losses. Care must also be taken in handling not to deposit moisture or grease from the hands on the surface of the glass. Therefore, the actual contact with the glass should be by means of a clean cloth, gloves or secure holding device.

The entire neck of a flask is wetted by the distilled water and a drainage time of about 2 minutes allowed before completing the setting. To fill a cylinder, the water is allowed to run down one side only, although the entire wall is wetted for about 10 mm above the line to be calibrated by rotation or slightly tipping in several directions. A drainage time of about 2 minutes is allowed before the final adjustment is made. For the final adjustment, a pipet or dropper with a finely drawn point should be used. The temperature of the water can be taken in the filled piece just after the weighing has been completed unless the volume is small. In the latter case, if the thermometer happens to be at a different temperature, the reading obtained may be in error due to the effect of the comparatively large bulk of the thermometer in heating or cooling the water. The alternative is to fill the flask from a reservoir and use the temperature of the water in the reservoir.

To calibrate centrifuge tubes, Babcock test bottles and similar articles by weighing the water contained, use the methods outlined for flasks and cylinders, except that the wall is wetted above the line being checked only far enough to insure a correctly shaped meniscus.

MILLILITER VERSUS CUBIC CENTIMETER

The Twelfth General (International) Conference on Weights and Measures redefined the liter as, "a special name for the cubic decimeter." Thus, the relationships previously used —

1 liter = 1.000028 cubic decimeters, and
1 milliliter = 1.000028 cubic centimeters

— became void.

The Conference did agree that use of the terms "liter," "milliliter," and "mL" might be continued, except in association with measurements of the highest precision. Incidentally, the preferred abbreviation for cubic centimeters is "cm^3" — the use of "cc" is not permitted.

The difference in volume between the old and the current meanings of liter is so small as to be negligible for volumetric glassware. This being so, we continue to use "liter" and "milliliter" in catalog descriptions and for inscriptions on glass apparatus. In the worst case, that of a 2000 "milliliter" flask, the difference is only 10% of the Class A tolerance.

CAPACITY TOLERANCES FOR GLASS VOLUMETRIC APPARATUS

Many listings of Kimble® volumetric glass apparatus are designated as CLASS A, and all such glassware is permanently marked with a large A. This custom resulted from a requirement of Federal Specification DD-V-581a, Volumetric Apparatus, Glass, wherein apparatus meeting certain high requirements for accuracy was described as CLASS A and was to be marked with A. DD-V-581a has been replaced by ASTM Specification E694 and for individual items E287 for burets; E237 and E288 for volumetric flasks; E1094 for pharmaceutical graduates; and E969 for volumetric pipets. They cover the same groups of ware, and the same requirements for accuracy and marking have been continued. The accuracy requirements are identical with those of Circular 602* of NIST, Testing of Glass Volumetric Apparatus. These various publications cover the usual burets, cylinders, volumetric flasks, volumetric pipets, and measuring pipets. In addition to these, a number of other items are held to accuracies equivalent to the values assigned by NIST to the particular items mentioned in Circular 602. Hence, the designation CLASS A has been given to many items which are not included by name or description in either the Federal Specifications or Circular 602.

The tolerances allowed on capacity for apparatus now designated as CLASS B are twice as large as the CLASS A tolerances.

*NOTE: This publication is out of print but is available for loan at most Government Depository Libraries throughout the country. The new companion ASTM publications E-542 and E-694 cover what C-602 did in the past.

STANDARD TEMPERATURE FOR GLASS VOLUMETRIC APPARATUS

The standard temperature in the United States and the International Standard for volumetric apparatus (ISO No. 4787) is 20 °C, and all apparatus is calibrated by manufacturers to contain or deliver the indicated capacity at this temperature unless a different temperature is specifically requested.

When it is necessary in tropical countries to work at an ambient temperature considerably above 20 °C, it is recommended by the International Standards Organization that a temperature of 27 °C be adopted.

The table below illustrates this for a standard temperature of 27 °C, which is selected frequently for apparatus to be used in the tropics.

Difference in volume of glass vessels of 33 expansion borosilicate glass and 51 expansion borosilicate glass between 20 °C and 27 °C, expressed as percentage of tolerance on capacity of apparatus made to requirements of ASTM (Class A Apparatus).

Nominal Capacity	Burets		Cylinders (TD)		Volumetric Flasks		Volumetric Pipets	
	33 expansion borosilicate glass	51 expansion borosilicate glass	33 expansion borosilicate glass	51 expansion borosilicate glass	33 expansion borosilicate glass	51 expansion borosilicate glass	33 expansion borosilicate glass	51 expansion borosilicate glass
1	-	-	-	-	0.5%	1%	0.5%	1%
5	3.5%	5.5%	-	-	1.5%	3%	1.5%	3%
10	3.5%	5.5%	0.5%	1%	3.5%	6%	3.5%	6%
25	5.5%	9.5%	1%	1.5%	5.5%	9.5%	5.5%	9.5%
50	7%	11%	1.5%	2%	6.5%	11%	6.5%	11%
100	7%	11%	2%	3%	8.5%	14%	8.5%	14%
250	-	-	2.0%	3.5%	14%	23%	14%	23%
500	-	-	2.5%	4.5%	17%	28%	17%	28%
1000	-	-	2.5%	4.5%	22.5%	37%	22.5%	37%
2000	-	-	-	-	27%	44%	27%	44%

For similar apparatus made to Class B tolerances, the percentages are only one-half as much.

CAPACITY FOR CYLINDRICAL CONTAINERS

Rules for finding inside diameter, length, or capacity of a cylindrical tube or container:

Change all lengths and diameters to millimeters.

Change all capacities to milliliters.

CASE I — Capacity and total length are known. Find inside diameters. Divide total length in mm by the capacity in mL to obtain length of 1mL. From the table obtain the proper inside diameter for this length.

CASE II — Capacity and inside diameter are known. Find total length. From the table obtain the length for 1mL corresponding to the inside diameter. Multiply the length found by the capacity to get the total length.

CASE III — Total length and inside diameter are known. Find capacity. From the table find the length for 1mL corresponding to the inside diameter. Divide the total length by the length for 1mL to calculate the capacity.

$$ID = \frac{L}{C}$$

L = Length for 1 mL of I.D. x Capacity

$$C = \frac{L}{\text{Length for 1 mL of I.D.}}$$

The Column Height per mL of Capacity for any Inside Diameter (I.D.) in mm can be found as follows:

$$\frac{1}{\left(\frac{I.D.}{2}\right)^2 \times Pi \times 0.001}$$

Inside Diameter Of Container	Column Height Per mL Of Capacity	Inside Diameter Of Container	Column Height Per mL Of Capacity
3 mm	141.47 mm	16.5 mm	4.68 mm
3.5	103.94	17	4.41
4	79.58	17.5	4.16
4.5	62.88	18	3.93
5	50.93	18.5	3.72
5.5	42.09	19	3.53
6	35.37	19.5	3.35
6.5	30.14	20	3.18
7	25.99	20.5	3.03
7.5	22.64	21	2.89
8	19.89	21.5	2.75
8.5	17.62	22	2.63
9	15.72	22.5	2.52
9.5	14.11	23	2.41
10	12.73	23.5	2.31
10.5	11.55	24	2.21
11	10.52	24.5	2.12
11.5	9.63	25	2.04
12	8.84	25.5	1.96
12.5	8.15	26	1.88
13	7.53	26.5	1.81
13.5	6.99	27	1.75
14	6.50	27.5	1.68
14.5	6.06	28	1.62
15	5.66	28.5	1.57
15.5	5.30	29	1.51
16	4.97	29.5	1.46
		30	1.41

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1. N. S. OSBOURNE and B. H. VEAZEY, The Testing of Glass Volumetric Apparatus, Bulletin of Bur. of Stds., 4, 553-601 (1907-8).

2. E. L. PEFFER and G. C. MULLIGAN, The Testing of Glass Volumetric Apparatus, Circular C434, Nat'l Bur. of Stds.

3. J. C. HUGHES, The Testing of Glass Volumetric Apparatus, Circular 602, Nat'l Bur. of Stds.

4. Standard Density and Volumetric Tables, Circular No. 19, Nat'l Bur. of Stds.

5. VERNEY STOTT, Volumetric Glassware, Witherby, London (1929).

6. JOSEPHINE LEMBECK, "The Calibration of Small Volumetric Laboratory Glassware:, NBS IR 74-461, Nat'l. Bur. of Stds.

Assistance has been received also from many friends in the apparatus industry and users of glass volumetric apparatus in the preparation of the manuscript.

CLASS A and CLASS B TOLERANCES

			Pipets			Volumetric Flasks[7]	
	Burets[2]	Graduated Cylinders[3]	Measuring[4]	Serological[5]	Transfer[6]	Standard	Wide Mouth
Capacity[1], mL, Less than and Including	Class A[8] Tolerance, ± mL	Class A[8] Tolerance, ± mL To Contain or To Deliver	Class A[8] Tolerance, ± mL	Tolerance, ± mL	Class A[8] Tolerance, ± mL	Class A[8] Tolerance, ± mL To Contain	Class A[8] Tolernace, ± mL To Deliver
0.1				0.005			
0.2				0.008			
0.5				0.010	0.006	0.010	
1			0.01	0.02	0.006	0.015	
2			0.01	0.02	0.006	0.015	
3					0.01	0.020	
4					0.01	0.020	
5		0.05	0.02	0.04	0.01	0.020	0.08
10	0.02	0.10	0.03	0.06	0.02		0.08
15					0.03		
20					0.03		
25	0.03	0.17	0.05	0.10	0.03	0.03	0.08
50	0.05	0.25			0.05	0.05	0.08
100	0.10	0.50			0.08	0.08	0.10
200						0.10	0.20
250		1.00				0.12	0.20
500		2.00				0.20	
1000		3.00				0.30	
2000		6.00				0.50	
4000		14.50					

1. Tolerances are established on the basis of capacity only and are independent of subdivisions.
2. From ASTM E287 - Standard Specification for Laboratory Glass Graduated Burets.
3. From ASTM E1272 - Standard Specification for Laboratory Glass Graduated Cylinders.
4. From ASTM E1293 - Standard Specification for Laboratory Glass Measuring Pipets.
5. From ASTM E1044 - Standard Specification for Laboratory Glass Serological Pipets (General Purpose and Kahn).
6. From ASTM E969 - Standard Specification for Laboratory Glass Volumetric (Transfer) Pipets.
7. From ASTM E237 and E288 - Standard Specification for Laboratory Glass Microvolumetric Vessels (Volumetric Flasks and Centrifuge Tubes), Standard Specification for Laboratory Glass Volumetric Flasks.
8. Tolerances of Class B glassware are twice as large as Class A glassware where not otherwise specified.

Care and Use — Cleaning Methods

Care should be exercised when using most cleaning solutions, as they can cause skin irritations or severe burns on contact. Dilute solutions become concentrated as the water evaporates; therefore, always flush the exposed area immediately with large quantities of water.

The list of methods given here is by no means complete, but offers a fairly wide variety and should cover all the usual contaminants, as well as the more important special cases.

Frequently it is desirable to give glassware a preliminary rinse or soak with organic solvent to remove grease, followed by a water rinse. The rinsing with water must be done thoroughly if acid will be used later to clean the glassware.

Unless autoclaving is necessary, glassware should be cleaned as soon as possible after use to avoid setting and caking of residues. Pipets, for example, may be placed in a convenient jar containing a weak antiseptic solution, immediately after use. Autoclaving is necessary to disinfect glassware that may have been used to contain potentially dangerous biological fluids.

There is a wide variety of cleaning agents available that will remove surface contaminants such as silicone and other organic and biological residues, blood residues, and other contaminants that may interfere with trace analyses. These cleaners are available in biodegradable, phosphate-free, and chromium-free formulations if desired and can be obtained from laboratory supply houses.

NOTE: If wiping or other mechanical cleaning action in necessary, it should be done gently using non-abrasive cleaners and wiping materials. The use of abrasive materials will damage the glass surface, degrading its inherent strength.

There are some specific contaminants that may require specialized cleaning methods, and some are given here:

1. **Permanganate stains.** Use a mixture of equal volume of 3% sulfuric acid and 3% hydrogen peroxide.

2. **Iron stains.** Use a solution containing one part hydrochloric acid and one part water.

3. **Bacteriological material.** Glassware should be soaked in a suitable disinfectant solution or steam autoclaved followed by cleaning with a suitable agent.

CAUTIONS: Before using any cleaning solution, refer to its Material Safety Data Sheet for precautions to be observed during use. Some of the cleaning materials used may leave trace residue unless rinsing process is carried out thoroughly. While such traces may not be harmful if the object of cleaning is to prepare the glassware for calibration, they can give trouble in certain laboratory operations. When glassware is to be calibrated, the final rinsings must be distilled water.

If an article is to be dried after cleaning, as is necessary for all vessels marked "To Contain," ethyl alcohol or acetone (American Chemical Society Specification) may be used. Drying may be hastened by blowing clean, dry air into the vessel (or sucking the air through the vessel).

Efficient air filters must be provided to remove any particles of oil or dirt from compressed air. Drying should be done in a fume hood.

Glassware Safety

You play by common, ordinary, everyday rules, the kinds of things you'd do naturally if you just took time to think about them:

1. Don't get cut – it hurts you and your productivity.
2. Don't drop glassware – avoid the bruises that lead to breakage.
3. Don't use chipped or broken glassware – it's dangerous and breaks more readily.
4. Don't mouth pipet – you could inhale a toxic substance, burn your mouth, or cut your lip.
5. Don't leave pipets sticking out of beakers or flasks – an invitation for an accident.
6. Insert tubing carefully. Use a protective towel for your hand and lubricate the tubing.
7. Dispose of broken glassware in a special receptacle.
8. Carry large containers carefully, using a bottle carrier.
9. Clean and rinse glassware very well with deionized water, then let it drain dry on a clean, lint-free towel.

To back up the rules, you need a formal laboratory safety program. It begins with a written safety policy, a safety committee, and regular safety inspections. That way, you can investigate accidents thoroughly, keep a record and analysis of them, and promote safety awareness all the time. It could lead you to the best safety record ever.

Fig. 4 Don't leave in detergent solutions for prolonged periods

Fig. 5 Don't pipet by mouth

Fig. 6 Don't apply direct heat

Care and Use — Cleanliness of Apparatus

The usual criterion of cleanliness of glass apparatus is uniform wetting of the surface by distilled water. Certain contaminants, especially grease, adhering to the walls prevent them from being uniformly wetted, and there is a tendency for water to collect into drops.

Imperfect wetting causes irregularities in capacity of volumetric glassware by distorting the meniscus, and also by affecting the volume of the residue adhering to the walls after emptying instruments calibrated to deliver the indicated volume.

Even when the surface of the vessel is uniformly wetted, variations in the apparent capacity still may occur, due to contamination of the liquid surface by minute quantities of fatty or other organic substances which produce a change in surface tension affecting the shape of the meniscus. The cleaning, rinsing, and drying, therefore, must be carried out in such a way as to prevent this from happening.

The choice of the procedure to be used in cleaning glassware depends on the nature of the contaminant. In many cases special reagents or methods must be used to remove a particular substance. Before listing the more important methods, it is desirable to make a few general statements.

Glass

Glasses used in chemical apparatus have excellent resistance to acids, except hydrofluoric. Strong alkaline solutions, such as hot caustic solutions, will attack any glass if contact is prolonged. This is true even though a particular glass may not exhibit any visible effect, due to the solubility of the reaction products. Dilute detergent solutions, up to about 2% strength, will have no serious effect on the glass unless the glass is exposed for unnecessarily long periods or the detergent is allowed to dry on the glass.

Colored Graduations

The scales and inscriptions of many items of Kimble glassware are colored by staining a thin layer of the glass. Since the colored portion is of the same composition as the glass object, the resistance to chemical attack is the same as that of the rest of the glass. Here, the color can be removed only by dissolving a layer of glass from the surface.

Some Kimble volumetric glassware has fused on, ceramic enamel printed lines and inscriptions. These fused-on enamels are quite resistant to acids and alkalies. In most cases they should last as long as the piece of apparatus if cared for properly. However, by their nature, they cannot be as resistant as the ware to which they adhere. Consequently, the graduated lines should not be subjected to prolonged immersion in acids or alkalies. Whenever the lines are wetted by reagents, they should be rinsed as soon as conveniently possible.

Safety Precautions

With many pieces of glassware, it is necessary or desirable to fill by suction when cleaning. ***Do not suck up acid or other cleaners by mouth.*** In fact, do not pipet by mouth at all. Use hand held, manual or electronic pipetting aids.

Abrasives

Do not use abrasives on glassware, particularly volumetric ware. The surface will be marred over time, and the resultant scratches may prevent proper drainage or act as resting places for adulterants which will be difficult to remove.

Water for Rinsing

When preparing a piece of glassware for calibration, rinsing with tap water should be followed by a thorough rinsing with distilled water. Sufficient material may be deposited on the surface by tap water to cause erratic results, particularly with small items, even though water wets the surface uniformly. Even in ordinary cleaning processes, the use of deionized water is recommended.

Adherent Organic Residues

Never attempt to remove such residues by the application of direct heat. Permanent strains may be introduced and, what is more important, the calibration of volumetric apparatus may be changed.

Care and Use — Ground-Glass Surfaces

Ground-glass joints and stopcocks should never be used when dry. Although ground-glass surfaces seal well without the use of lubricants, it is advisable to lubricate them to prevent sticking and breakage. Ground surfaces must be cleaned prior to lubrication—dust, dirt, and particulate matter may score the surface and cause leakage.

Different lubricants are used for these operating conditions:

Silicone grease—for high temperature and high vacuum
Glycerin—for long term reflux or extraction
Hydrocarbon grease—for general laboratory use

Lubricating Ground-Glass Joints

1. Lubricate joints that must be airtight and when glassware contains strong alkaline solutions.
2. Lubricate only the upper part of the inner joint. A properly lubricated joint appears clear, without striations.
3. Do not allow grease to come in contact with vapor or liquid and cause contamination.

Lubricating Stopcocks

Spread two circular bands of grease around the stopcock plug. Insert the plug into the barrel and twist several times until the assembly is completely transparent. Be careful not to use too much lubricant or the bore will become plugged.

Care and Use — HI-VAC® PTFE VALVES

1. Valves are assembled with FKM O-rings, suitable for use with oxidizing and NON-POLAR compounds at temperatures from -23 °C to 204 °C.
2. All elastomers have outgassing rates higher than glass. Long pump-down periods will typically reduce these rates by a factor of ten. Vacuum systems using PTFE valves normally operate at pressures up to 10^{-6} mm Hg. Heating of this valve during pump-down with an air heat gun will improve ultimate vacuum.
3. O-rings should be lubricated with a thin film of vacuum grease to prolong life and reduce leakage by allowing the o-ring to slip easily along the tube. Excess grease should be thoroughly wiped off.
4. Any leakage across the o-ring stem seal occurs mainly on the inward movement. Turning the stem in and out during pump-down helps evacuate the space between the two stem o-rings. One o-ring may be removed if preferred, improving performance under some conditions.
5. O-rings may be removed from the stem by pushing the o-ring into the groove with thumb and forefinger, distorting ring sufficiently to form a small loop which can be "picked up" and the o-ring pulled off of the stem without damaging surfaces.

Care and Use — Stopcocks with Plugs Made of Polytetrafluoroethylene (PTFE)

Kimble® stopcock plugs of PTFE are made of the most chemically inert material in laboratory use today. Only a few chemicals have any effect on PTFE and these only at elevated temperatures and pressures. The material is extremely tough, durable, and heat resistant, with practically zero moisture-absorption. It remains non-brittle even at sub-zero temperatures.

To obtain maximum performance from your stopcock plugs of PTFE, observe the following hints:

1. To clean new plugs, carefully disassemble, lift plug free of glass barrel, and rinse all parts of plug and barrel in acetone. After drying, reassemble and the stopcock is ready for use. (Do not use abrasive materials to clean either plug or barrel at any time.)
2. The washer of PTFE must always be placed adjacent to the end of the glass barrel, to secure minimal friction when turning. When properly tightened, the plug will be slightly more resistant to turning than a lubricated glass plug.
3. Plugs of PTFE can be easily scored around the bore if rotated when solid particles are lodged between plug and barrel or project beyond mating edges of glass parts. Once scored, the plug may leak.
4. Do not use a stopcock plug of PTFE on a vessel used for long-time storage of liquids known to attack glass, since the surface of the barrel may become roughened and leakage may occur between the plug and and barrel, causing a potential safety hazard.
5. If plugs of PTFE are used with liquids corrosive to glass, such as alkalies, rinse the stopcock thoroughly with water after use. Do not allow the liquid to evaporate. The concentrated solution remaining will attack the glass surface, and the eventual solids may also mar the surface of PTFE if the plug is then rotated.
6. When not in use, store in a dust-free area with plug loosened within the glass barrel Although tough and unbreakable, PTFE is softer than glass and has a tendency to conform to the glass surface, including eventual expansion into the hollow parts of the barrel.

Care and Use — Recommendations

A. <u>TO AVOID SERIOUS AND PERSONAL INJURY, AVOID ABRASIONS</u> - An abrasion reduces the strength of glass, making it more susceptible to breakage under impact and/or thermal shock. Thermal shock may result from sudden changes in temperature or use on either a burner or hot plate. Serious injuries could result if breakage occurs while glass holds heated and/or corrosive liquid.

B. <u>RECOMMENDED GLASSWARE CLEANING AND HANDLING PROCEDURES</u>

<u>PROPER CLEANING PROCEDURE</u>

1. Washing machines may be used. Support racks on the washer must be well maintained. The support pins should be coated with a nonabrasive material to prevent metal to glass contact and scratching.
2. For manual washing, use only plastic core brushes that have soft non-abrasive bristles. Soft, clean sponges or other wiping materials may be used. <u>DO NOT USE THESE BRUSHES OR WIPING MATERIALS WITH ABRASIVE CLEANERS</u>. Keep them clean. Scotch Brite and similar scouring pads will scratch glass and should not be used.
3. Inspect the glassware before each use and discard if scratched on inner surfaces, chipped, cracked, or damaged in any way.
4. Many commercial glass cleaners are available. Follow the manufacturer's directions for the use of these products since some are corrosive and can damage the glass.
5. Organic solvents are acceptable cleaning agents when conditions warrant their use.

<u>IMPROPER CLEANING PROCEDURE</u>:

1. <u>Do not</u> place metal or other hard objects, such as spatulas, glass stirring rods, or brushes with metal parts, inside the glassware. This will scratch the glass and cause eventual breakage and injury.
2. <u>Do not</u> use strong alkaline products and hydrofluoric acid as cleaning agents; they are glass dissolvers and can damage the glassware and eventually cause breakage which can result in injury.
3. <u>Do not</u> use any abrasive cleansers, including soft cleansers (i.e. Ajax, Comet, Old Dutch, Soft Scrub, etc.), as these will scratch the glass and cause eventual breakage and injury.
4. <u>Do not</u> place hands inside glassware while wearing any jewelry, particularly diamond rings, as these will score the inside of the glassware and eventually cause breakage and injury.
5. <u>Do not</u> heat glassware to temperatures (>800°F) needed to burn out carbon residues. This will result in the introduction of permanent stresses in the glass that will eventually cause the glassware to break resulting in possible injury.

C. <u>AVOID IMPACT</u> - Glass will break as a result of impact. Use care when handling to avoid impacting hard objects, such a spigots, other glassware, counter tops, etc.

D. <u>HEATING GLASSWARE</u>

1. Use wire gauze when heating over open flame.
2. Use either low or medium heat settings when using a hot plate High hot plate settings will cause excessive localized heating of the glassware and will eventually cause breakage and possible injury.
3. <u>Do not</u> heat glassware designated as heavy duty unless recommended by manufacturer. Even though these items have added mechanical strength, they are more susceptible to breakage from thermal stock when heated.
4. <u>Do not</u> allow the contents of the container to boil dry as this may induce permanent stresses that will eventually cause breakage. Discard containers that have been boiled dry.

<u>DO NOT</u> evacuate or pressurize unless recommended in the current Kimble® Laboratory catalog.

E. <u>CENTRIFUGE TUBES</u> – RCF values can be significantly reduced if the glass tubes have been scratched or otherwise physically abused resulting in surface damage and lowered glass strength. Refer to the current Kimble® Laboratory catalog.

FILLING AND EMPTYING

The results obtained with volumetric apparatus depend not only on the accuracy with which the ware is calibrated, but also on the method of use. Insofar as possible, users should manipulate the instruments in exactly the same way as the manufacturer does when locating the calibration lines.

The instructions given here apply particularly to apparatus used with a liquid which wets the glass and must be followed in every respect to obtain the most accurate results when such apparatus is to be calibrated. Since mercury does not wet glass, the factors of importance are cleanliness, the use of an ascending meniscus when possible, and the tapping of the vessel before reading the meniscus.

The following rules have been suggested by NIST. (These requirements may seem at times to be unduly detailed, but they are based on exact knowledge of the behavior of the various types of apparatus as determined experimentally.)

Burets

Burets should be held in a vertical position and filled to about 10 mm above the 0 line. Any liquid on the outside of the tip is removed at this time with clean filter paper.

The setting to the 0 line is made by slowly emptying the excess liquid into a beaker or other receptacle with the side touching the edge of the tip. Any liquid remaining at the tip after setting has been made is touched-off against the wet side of the receptacle. When delivery is started, stopcocks should be completely open, even though it is necessary to slow the delivery near the end of a titration. If an exact quantity is desired, the liquid is slowed down when it is about 10 mm above the final line in order to set the meniscus accurately at this line. As soon as delivery has been completed the tip is touched to the side of the receiver and the latter removed from contact.

Measurements made in laboratories with burets ordinarily are from the 0 mark. Other initial points may be used on precision apparatus without serious error, but this is not advised with burets having very rapid delivery.

Cylinders

In filling a cylinder the liquid is allowed to flow down one side only. However, the entire wall is wetted for about 10 mm above the meniscus, by a gentle rotation of the cylinder or, preferably, by tipping it slightly in several directions. Here, a drainage time of about 2 minutes is allowed before completing the setting.

The delivery of the contents of a cylinder is accomplished in the same way as described for a flask.

(**NOTE:** These directions apply when highly accurate deliveries are wanted. In ordinary laboratory work where measurements are of approximate volumes only, no special precautions in filling and emptying cylinders are necessary.) You should bear in mind, however, that the accuracy you achieve is dependent on your method. Good method, consistently applied, will yield good results. Poor or sloppy methods will yield poor results.

Flasks

When a solution is made up to a definite strength in a volumetric flask, the entire neck usually is wet at the time the volume is adjusted, due to the mixing process. Consequently, in filling flasks the entire neck is wetted by the distilled water. A drainage time of about 2 minutes is allowed before completing the setting.

If a flask is calibrated to deliver its indicated capacity, the delivery is made by gradually inclining the flask, avoiding, as much as possible, agitation of the contents and sloshing around of the liquid. The process should take half a minute. At the end of the emptying the instrument should be nearly vertical and should be held so for another half minute. Then the drop adhering to the lip should be touched off against the wet surface of the receiving vessel.

Pipets

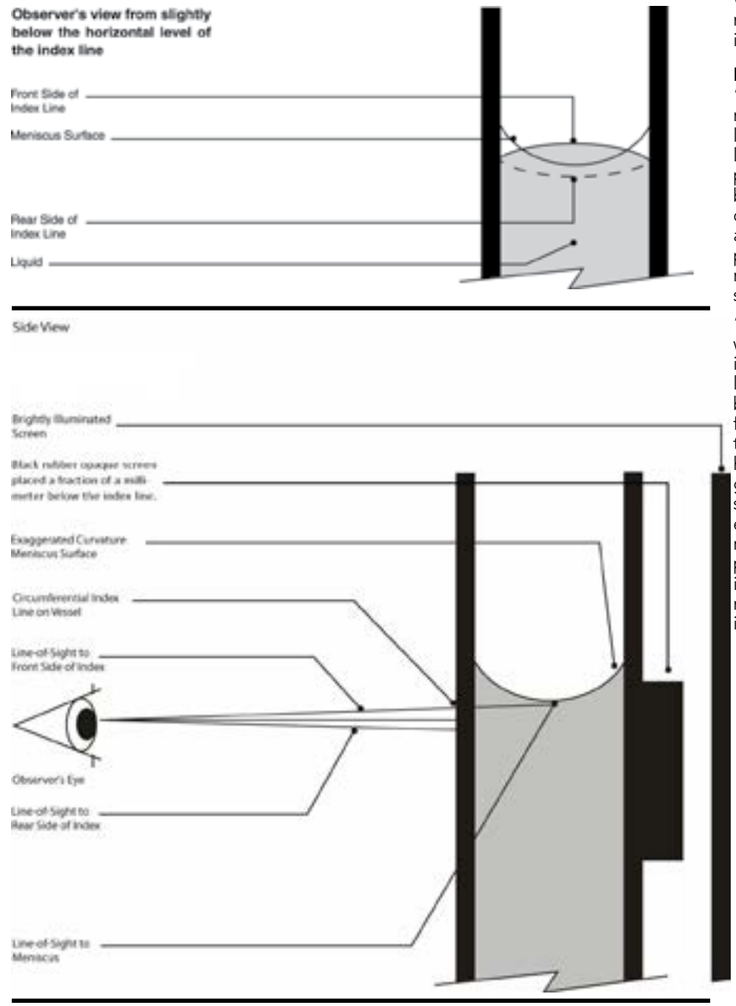
Pipets also are held in a vertical position and filled to about 10 mm above the 0 line. The technique of setting to this line is the same as used for burets. The rate of outflow at this point is controlled by slight pressure of the forefinger on the top.

With MEASURING and SEROLOGICAL PIPETS, delivery is unrestricted, unless the liquid descends so rapidly that it would be impossible to stop at the desired place. In this case, however, delivery should be as fast as possible while retaining control with a finger. The tip is touched to the side of the receiver when delivery is completed and then removed immediately, except for certain types of serological pipets. These are "calibrated for blowout", i.e., to deliver the indicated capacity when the small amount remaining in the tip after free delivery has ceased is blown out (with tip in contact with the wet side of the receiver, if possible) and added to the initial volume. As mentioned before, all blowout pipets are marked with either a wide opaque ring, two narrower opaque rings near the top, or two printed rings near the top.

(**NOTE:** With measuring pipets of small capacity, there may be a tendency for free delivery to cease before the liquid reaches the lowest graduation lines. If this is so, the tip should be kept in contact with the receiving vessel during the delivery, and not just to touch off the last drop when delivery is finished.)

VOLUMETRIC PIPETS are held in a vertical position and outflow is unrestricted. The tip is touched to the wet surface of the receiving vessel and kept in contact with it until the water has ceased to flow. A count of two is made and the tip then withdrawn horizontally from contact with the receiver. The water remaining in the tip is not blown out, except in the case of Ostwald pipets used in biochemical work. These pipets are usually "calibrated for blowout" and are marked also with an opaque ring near the top.

Fig. 1
These diagrams illustrate the procedure for observing the meniscus position described in the text.



METHOD OF READING THE MENISCUS

Where water or other wetting liquid is used, the method of reading advised by NIST and ASTM is illustrated in Figure 1 and described as follows:

Method of Reading

"In all apparatus where the volume is limited by a meniscus, the reading or setting is made on the lowest point of the meniscus. In order that the lowest point may be observed it is necessary to place a shade of some dark material immediately below the meniscus, which renders the profile of the meniscus dark and clearly visible against a light background. A convenient device for this purpose is a collar-shaped section of thick black rubber tubing, cut open at one side and of such size as to clasp the tube firmly."

"The position of this lowest point of the meniscus with reference to the graduation line is such that it is in the plane of the middle of the graduation line. This position of the meniscus is obtained by making the setting in the center of the ellipse formed by the graduation line on the front and the back of the graduated tube as observed by having the eye slightly below the plane of the graduation line. This is illustrated in Figure 1. The setting is accurate if, as the eye is raised and the ellipse narrows, the lowest point of the meniscus remains midway between the front and rear positions of the graduation line. By this method it is possible to observe the approach of the meniscus from either above or below the line to its proper setting."

Fig. 2

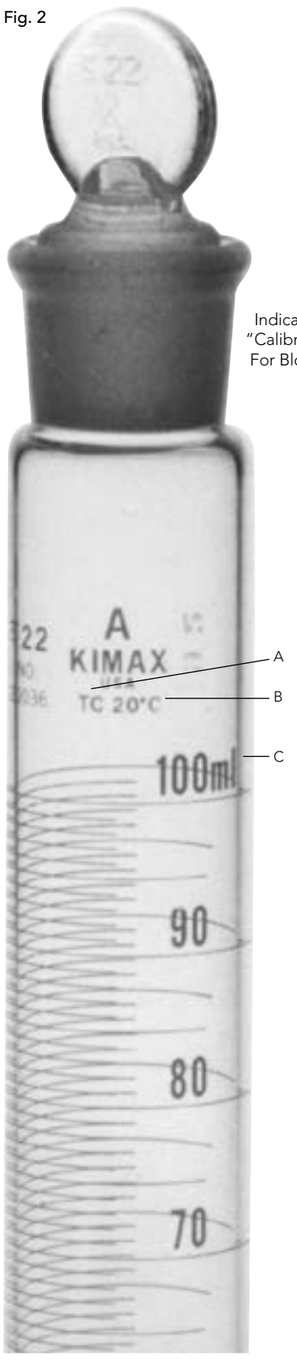


Fig. 3

GLASS VOLUMETRIC APPARATUS

Glass volumetric apparatus comprises a class of objects used to measure volume. These volumes are indicated by lines in or on the outer surface of the glass produced by etching with hydrofluoric acid, by engraving with a thin wheel or abrasive blast, by applying a staining material which colors a thin layer of the glass when heat is applied, or by application of an enamel which is fused on the glass without etching. Etched and engraved lines are usually colored by filling them with a fused-on glass enamel or by staining.

The development of more durable and compatible stains and enamels has encouraged producers to favor these methods over the "etched and filled" method, thus reducing safety hazards to production workers involved in the acid etching process.

In addition to the lines indicating the volumes, the numerical values of these volumes in the particular system of weights and measures used also must be marked on the apparatus (Fig. 2-C). The temperature of calibration (Fig. 2-B) also usually appears on the instruments since the volume of a glass vessel changes slightly with temperature.

Finally, the method of use — whether calibrated to contain or to deliver the indicated volume — generally is marked either as "contains" or "delivers," or more frequently as "TC" or "TD" (Fig.2-A). The International Standards Organization designation for "contains" is "IN" and "delivers" is "EX". Some United States manufacturers are currently adopting this international designation. Some pipets (Fig. 3) are calibrated to deliver the indicated volume when the small amount remaining in the tip after free delivery has ceased is blown out and added to the main delivery. These pipets sometimes are said to be "calibrated for blowout." To call attention to this method of calibration, two lines with the words "blow out" above them are printed near the top.

A color-coded size and/or subdivision identity band is found just below the top end of the pipet. This band is to aid in sorting and selection of the pipet; however, a final check of the printed capacity and subdivision should always be made to minimize the possibility of errors.

KIMBLE GLASSES FOR VOLUMETRIC APPARATUS

KIMAX® 33 expansion borosilicate glass
33 expansion borosilicate glass glass is a borosilicate composition with low coefficient of expansion. Consequently, apparatus made of it can have heavy walls to minimize mechanical breakage, and still possess high resistance to thermal shock.

KIMAX® 33 expansion borosilicate glass also has very high resistance against chemical attack. It is a borosilicate glass meeting the requirements for the Type I, Class A glass of American Society of Testing and Materials — E438. The alkali content is low and it is made without elements of the calcium, magnesium, and zinc groups or the heavy metals. The combined total of arsenic and antimony oxides is less than 0.005%. Volumetric apparatus made of 33 expansion borosilicate glass is trademarked KIMAX®.

Kimble® 51 expansion borosilicate glass
51 expansion borosilicate glass is also a borosilicate composition with the best all-around chemical durability of available commercial glasses; and because of a comparatively low coefficient of expansion, it also possesses good resistance to heat shock. 51 expansion borosilicate glass meets the requirements for the Type I, Class B glass of ASTM-E438. Apparatus made of this glass is trademarked KIMAX-51® and liquids contained in apparatus made of the glass.

DRAINAGE TIMES FOR VOLUMETRIC GLASSWARE

Burets and Measuring Pipets
When a liquid which wets glass is delivered from a buret or measuring pipet, some of the liquid is retained on the inner wall. Unless delivery is extremely slow, the volume held back is greater than the amount needed to form a wetting film. The excess eventually drains down.

It is customary to calibrate burets and measuring pipets for unrestricted delivery and without any waiting period after delivery before a reading is made. Other methods of calibration, such as delivery with the stopcock partially closed or the prescription of a waiting period before reading, are not practical.

On the other hand, in actual titrations, a considerable time in excess of the free delivery time may elapse due to the necessity for slowing down when nearing the end-point. During this time, some of the liquid left on the wall drains and rejoins the main column. This results in a rise in the position of the meniscus and an apparent decrease in the volume delivered.

For accurate work, therefore, a buret should be used which has a free delivery time long enough that after-drainage is very small. NIST has specified minimum times for tubes of different graduated lengths which meet this requirement. Kimble® burets and measuring pipets of Class A grade comply.

Many chemists object to these times as being too long. However, if more rapid times are used, some sacrifice in accuracy must be accepted in many titrations. For example, the behavior of 50 mL burets calibrated for different free delivery times is shown in Figure 4. The time of 106 seconds approximates to the minimum requirement of NIST. The time of 56 seconds is approximately the average for Kimble® burets other than Class A. It can be seen that appreciable errors due to after-drainage may occur in titrations when burets are calibrated for deliveries much faster than this. One more point concerning the delivery time of burets deserves attention. Sometimes the tip or stopcock of a buret is damaged and a repair is made. Unless the original delivery time is duplicated rather closely, the accuracy of the buret may be impaired, due to a change in the delivery characteristics.

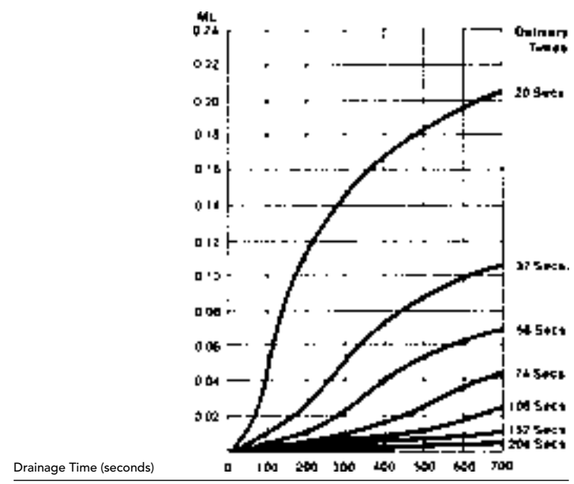
Volumetric Pipets
The amount of liquid retained on the wall of a volumetric pipet also depends on the delivery time. NIST has established minimum delivery times for this type of instrument, so that slight changes in technique will have the least possible effect on accuracy and reproducibility of deliveries from pipets of various capacities.

To overcome uncertainty concerning the volume delivered by large tips, some authorities have advocated a waiting period before considering that delivery has been completed. However, if a certain total time is to be allowed for the delivery, more complete and consequently more reproducible deliveries will be obtained by using this time for the initial delivery and eliminating the waiting time.

This is illustrated in Figure 5, which shows the total volumes delivered by a 100 mL pipet when various drainage periods are allowed after different free delivery times. The maximum delivery time allowed by NIST for a 100 mL pipet is 60 seconds. If all of this time is used in the initial delivery, 99.94 mL will be obtained from this particular pipet. To get this much with a free delivery of 30 seconds, a drainage time of 140 seconds also must be allowed, or a total time of 170 seconds. Sometimes, repairs to the tips of pipets of this type are attempted. Since the capacity is to the tip, it may be changed by the repair, even though the delivery time has not been changed. A recalibration should be made before reusing the pipet.

Fig. 4

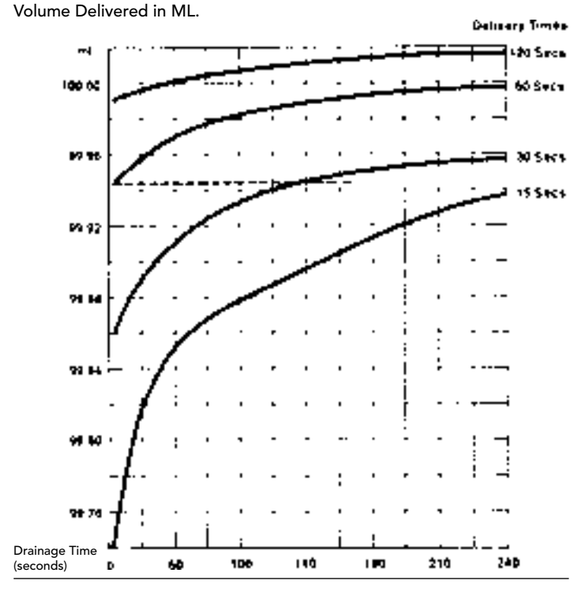
Volume of after-drainage in 50 mL buret for various delivery times and after-drainage times.



(V. Stott. J. Soc. Gl. Tech., 169-198 (1928))

Fig. 5

Volumes delivered by 100 ML volumetric pipet for various delivery times plus various drainage periods.



Care and Use of KimCote® Plastic-Coated Glassware

Choose KimCote® Plastic-Coated Glassware for an Added Measure of Safety!

KimCote® protective glassware coating goes beyond traditional coatings. Should a break occur, KimCote® will reduce the hazards of shattered glass and leakage of toxic or corrosive chemicals. It's ultra-clear, extremely durable, autoclavable and resistant to many common laboratory chemicals. KimCote's unique texture also provides a non-slip handling surface, wet or dry.

Care and Use

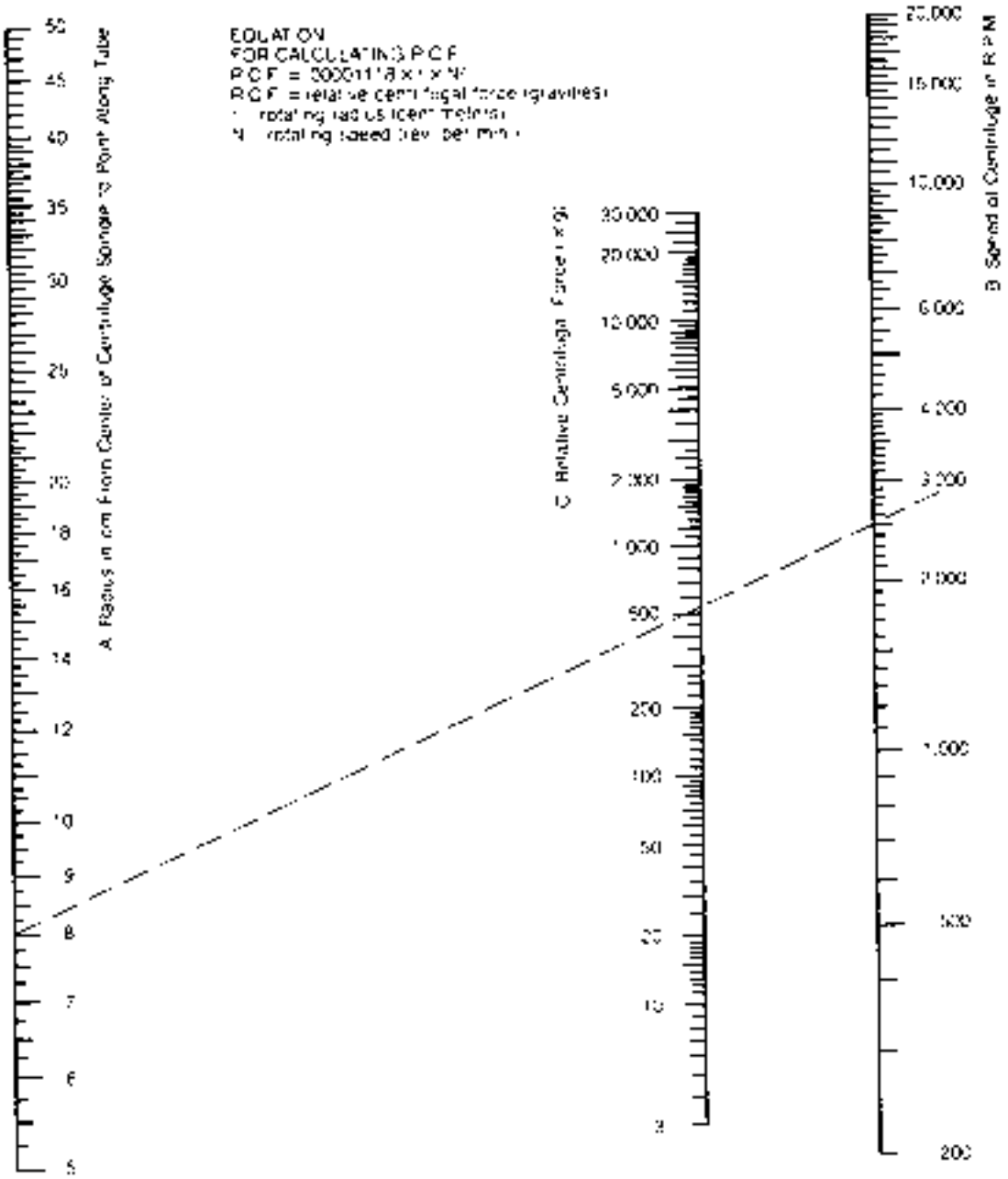
- Do not expose coated ware to dry heat above 110 °C (230 °F)
- Do not place coated ware over direct heat or open flames
- Do not use coated ware on hot plates
- Steam autoclaving temperature is 121 °C (250 °F) maximum
- Freezing temperature is -20 °C (-4 °F) maximum
- Coated ware is dishwasher safe as long as the above guidelines are followed
- Coated ware is microwavable provided standard microwave safety guidelines are followed
- Labeling and marking on the coating is permitted

Please note that an MSDS and a certificate of compliance are available by contacting Kimble customer service.
KimCote® is a trademark of Kimble Chase.

Centrifuge Tube Quick Reference Chart and Page Index									
Cat. No.	**Page**	**Shape**	**Graduations**	**Stopper / Cap**	**< 15mL**	**≥ 15mL**	**Heavy Duty**	**Max RCF**	**Test Reference**
14720	67	round	ungraduated	screw cap		x		3550	
45150	63	conical	ungraduated	beaded	x			2980	
45153	64	conical	white ceramic	pennyhead	x	x		2980	D2792
45160	65	conical	ungraduated	beaded		x		2980	
45164	64	conical	red stain	beaded		x		2980	
45165	64	conical	white ceramic	beaded top	x	x		2980	
45166	65	conical	white ceramic	screw cap	x	x		2980	
45170	67	conical	white ceramic	beaded	x			2980	API MPMS 10.4
45174	65	conical	ungraduated	flathead	x	x	x	2050	
45176	66	conical	red/brown stain	flathead	x	x	x	2050	
45186	64	conical	white ceramic	beaded top		x		2000	
45194	65	conical	ungraduated	beaded	x		x	2980	
45196	65	conical	ungraduated	screw cap		x	x	3550	
45199	66	conical	white ceramic	beaded	x		x	2980	
45200	66	conical	white ceramic	screw cap	x	x	x	2980	
45201	66	conical	white ceramic	pennyhead	x		x	2980	
45212	66	round	ungraduated	screw cap		x	x	3550	
45220	67	conical	black ceramic	pennyhead		x		800	ASTM D2709
45225	64	capillary	white ceramic	beaded	x			2980	
45240	68	conical	white ceramic	snap cap		x		800	ASTM D91, D128, D1093, D1347, D1796, D4007
45241	68	conical	white ceramic	snap cap		x		800	ASTM D2158
45243	68	conical	white ceramic	snap cap		x		800	API MPMS 10.4
45244	68	conical	white ceramic	—		x		800	
45246	65	conical	white ceramic	screw cap		x		2980	
45500	67	round	ungraduated	—	x	x	high strength	13100*	
45600	67	round	ungraduated	screw cap	x	x	high strength	13100*	
73785	63	conical	ungraduated	screw cap	x	x		2980	
73790	63	conical	ungraduated	snap cap	x	x		2980	
410090	63	conical	ungraduated	screw cap	x	x		2980	
410550	65	conical	red ceramic	flathead	x	x		2980	
411050	64	round	ungraduated	flathead		x		2980	
411800	63	conical	ungraduated	snap cap		x		2980	
412510	68	conical	red ceramic	#5 stopper		x		800	

* when used with rubber adapter sleeve

Nomogram for Computing Relative Centrifugal Force



Sample Calculation
The relative centrifugal force (RCF) at a radial distance of 8cm from the center of centrifuge spindle, when operating at a speed of 2500 r.p.m., may be determined by placing a straight edge on the nomogram connecting the 8cm point on the Radius from Center of Spindle Scale (A), with the 2500 r.p.m. point on the Speed Scale (B). The point of intersection on the Relative Centrifugal Force Scale (C), or 550xg.

If the desired RCF is known, the speed of rotation for a given radius may be found by connecting the two known points and reading the Speed Scale at the intersection.

CORK STOPPERS

For I.D. Opening (mm)	Size #	Diameter (mm) Bottom	Top	Length
3-4	0000	3	5	13
4-5	000	4	6	13
5-6	00	5	8	13
7-8	0	7	10	13
8-9	1	8	11	16
8-11	—	—	—	—
10-11	2	10	13	17
10-13	—	—	—	—
11-12	3	11	14	19
12-14	4	12	16	20
13-15	5	13	17	22
15-17	6	15	19	24
16-18	7	16	21	25
17-19	8	17	22	27
18-21	9	18	24	29
20-22	10	20	25	31
20-23	—	—	—	—
21-24	11	21	27	31
22-26	12	22	29	31
23-25	—	—	—	—
24-27	13	24	30	31
25-26	—	—	—	—
25-29	14	25	32	31
26-29	—	—	—	—
27-30	15	27	33	31
27-31	—	—	—	—
27-32	16	27	35	38
30-33	17	30	36	38
30-34	—	—	—	—
31-35	18	31	38	38
31-36	—	—	—	—
33-36	19	33	39	38
33-37	—	—	—	—
34-37	20	34	41	38
36-40	—	—	—	—
37-41	—	—	—	—
38-40	22	38	44	38
38-42	—	—	—	—
40-44	24	40	48	38
42-46	—	—	—	—
44-48	26	44	51	38
45-48	—	—	—	—
47-50	28	47	54	38
48-51	—	—	—	—
50-52	30	50	56	38
51-55	—	—	—	—
54-59	—	—	—	—
58-63	—	—	—	—
62-70	—	—	—	—
75-85	—	—	—	—
83-95	—	—	—	—
Special Kjeldahl Stoppers				
500 ml	—	—	—	—
800 ml	—	—	—	—

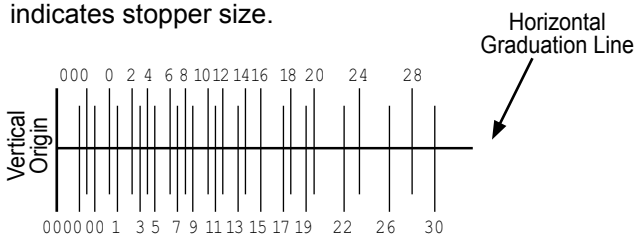
RUBBER STOPPERS

Size #	Diameter (mm) Bottom	Top	Length
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
000	8	13	21
—	—	—	—
00	10	15	26
—	—	—	—
—	—	—	—
0	13	17	26
1	15	19	26
2	16	20	26
—	—	—	—
3	18	24	26
—	—	—	—
4	20	26	26
—	—	—	—
—	—	—	—
5	23	27	26
—	—	—	—
5 1/2	25	29	26
—	—	—	—
6	26	32	26
—	—	—	—
6 1/2	27	34	26
—	—	—	—
—	—	—	—
7	30	37	26
—	—	—	—
7 1/2	31	39	26
—	—	—	—
8	33	41	26
—	—	—	—
8 1/2	36	43	26
9	37	45	26
—	—	—	—
9 1/2	38	46	26
—	—	—	—
10	42	50	26
—	—	—	—
10 1/2	45	53	26
—	—	—	—
11	48	56	26
—	—	—	—
11 1/2	51	60	26
12	54	64	26
13	58	67	26
13 1/2	62	75	35
14	75	90	39
15	83	103	39
500	26	32	34
800	28	39	35

Bore diameters for holed rubber stoppers - **Size 0 and less - 3mm, Size 1 - 4mm, Size 2 and greater - 5mm, Spec. Kjeldahl - 8mm**

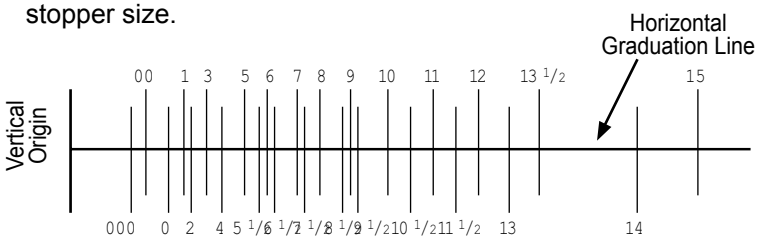
CORK STOPPER SIZER

Center the bottom of the stopper on the horizontal graduation line. Slide the stopper to the left to meet the vertical origin. The line at the point where the right side of the stopper intersects the horizontal graduation line indicates stopper size.



RUBBER STOPPER SIZER

Center the bottom of the stopper on the horizontal graduation line. Slide the stopper to the left to meet the vertical origin. The line at the point where the right side of the stopper intersects the horizontal graduation line indicates stopper size.



PHYSICAL PROPERTIES OF GLASS

Glass is an inorganic product of fusion that has cooled to a rigid condition without crystallizing and, therefore, has no melting point as such. There are, however, four temperatures that are of interest to the glassblower. They are:

1. **The Working Point** — the temperature at which glass has a viscosity of 10^4 poises. At this temperature, glass is soft enough for most lampworking or sealing operations.

2. **The Softening Point** — the temperature at which glass has a viscosity of $10^{7.6}$ poises. In this temperature range glass will deform noticeably under its own weight: ASTM C 338.

3. **The Annealing Point** — the temperature at which the internal stress caused by rapid cooling from lampworking or forming temperatures may be substantially removed in a matter of minutes. It is determined by measuring the elongation rate versus temperature of a fiber of glass under conditions prescribed by ASTM Designation C 336. The values given herein are typical for production glasses.

4. **The Strain Point** — the temperature at which the internal strain in a glass is substantially relieved only after a matter of hours and not at a commercially desirable rate. It is determined by extrapolation of annealing point data for fiber elongation: ASTM C 336.

Table 2

Physical Properties of 33 Expansion Borosilicate Glass and 51 Expansion Borosilicate Glasses

	33 Expansion Borosilicate Glass	51 Expansion Borosilicate Glass
Working Point	1255°C	1140°C
Strain Point	513°C	530°C
Annealing Point	565°C	570°C
Softening Point	827°C	785°C
Linear Coefficient of Expansion (from 0 to 300°C), in./in./°C	$32x10^{-7}$	$55x10^{-7}$
Density grams per cm^3	2.22	2.33
Refractive Index—Sodium D line (.5893 microns)	1.47	1.49
Visible Light Transmission, 2 mm thickness	92%	91%
Specific Heat (in g. cals per g. deg.)	0.204 (25 to 175°C)	0.204 (25 to 175°C)
Thermal Conductivity (in cals/cm/cm^2/sec/°C)	0.0027	0.0026

Glass	Type	Principal Use	Working Point °C	Softening Point °C	Annealing Point °C	Strain Point °C	Expansion Coefficient 0-300 °C $x10^{-7}$/°C	Contraction Coefficient Annealing Point to 25°C x 10^{-7}/°C	Density g/cm3	Refractive Index Sodium D Line	Stress Optical Coefficient mμ/cm/kg/cm2
Amber 203	Borosilicate	General Pharmaceutical Containers	1105	765	558	520	54	71	2.39	1.51	3.4
CA-2	Soda Lime	Pharmaceutical Contianer	1035	730	560	525	89	103	2.50	1.52	2.6
33	Expansion Borosilicate Glass	General	1255	827	565	513	32	35	2.23	1.47	3.7
51	Expansion Borosilcate Glass	General	1140	785	570	530	55	70	2.33	1.49	3.5

NOTE: All data subject to normal manufacturing variation.

Glass	Volume Resistivity ohm-cm Logarithm		Dielectric Properties 25 °C 1 Megahertz			Estimated ΔT Thermal Shock Resistance °C			Chemical Durability U.S.P. XIX mL N/50 H_2SO_4	Calculated Thermal Conductivity Units Expressed Cal/cm/cm^2/ sec°C$x10^{-3}$			Young's Modulus x 10^6 psi
	250 °C	350 °C	K	Δ %	Loss Factor %	⅛ Thick	¼ Thick	½ Thick		-100 °C	0 °C	100 °C	
Amber 203	7.4	6.0	5.7	0.60	3.4	105	85	60	0.44	2.0	2.5	2.8	10.3
CA-2	6.7	5.4	7.1	0.71	5.1	70	55	35	5.9	2.0	2.5	2.7	11.1
33 expansion borosilicate glass	7.9	6.4	4.6	0.48	2.2	180	150	100	0.20	2.1	2.7	3.1	9.5
51 expansion borosilicate glass	7.0	5.7	5.8	0.84	4.9	105	85	60	0.36	2.0	2.6	2.9	10.4

Glossary of Glass Fabricating Terms

anneal—to prevent or remove objectionable stresses in glassware by controlled cooling from a suitable temperature.

annealing point, AP—the temperature corresponding to a rate of elongation of 0.0136 cm/min when measured by ASTM Method C 336, Test for Annealing Point and Strain Point of Glass by Fiber Elongation. This test prescribes a rate of cooling of approximately 4 C/min with a fiber of approximately 0.065 cm in diameter, and a suspended load of 1000 g. The annealing point numerically approximates log = 13.0 poises, where internal stress is substantially relieved in a few minutes.

annealing range—the range of glass temperature in which stresses in glass articles can be relieved at a commercially desirable rate. For purposes of comparing glasses, the annealing range is assumed to correspond with the temperatures between the annealing point (AP) and the strain point (StP).

batch—the raw materials, properly proportioned and mixed, for delivery to the furnace.

batch charger—a mechanical device for conducting a batch to the furnace.

batch house—the place where batch materials are received, handled, weighed, and mixed for delivery to melting units.

bead—(1) an enlarged, rounded edge of a tumbler or other glass article, or any raised section extending around the article. (2) a small piece of glass tubing used around a lead wire.

blank—(1) a parison or preliminary shape from which a finished article is further formed, or mold for producing same. (2) any article of glass on which subsequent forming or finishing is required.

blister—an imperfection; a relatively large bubble or gaseous inclusion.

bloom—a surface film resulting from attack by the atmosphere or from the deposition of smoke or other vapors.

blower—one who forms glass by blowing. (See also **gaffer**.)

blowpipe—the pipe used by a glassmaker for gathering and blowing by mouth. Also known as blowing iron.

blown glass—glassware shaped by air pressure, as by mouth blowing or by compressed air.

blow mold—the metal mold in which a blown glass article is finally shaped.

borosilicate glass—any silicate glass having at least 5% of boron oxide (B_2O_3), like Kimble® 33 expansion borosilicate glass.

burn-off—the process of severing an unwanted portion of a glass article by fusing the glass.

chain marks—marks made on the bottoms of slightly overheated glass articles as they ride through a lehr on a chain belt.

check—an imperfection; a surface crack in a glass article.

chemical durability—the lasting quality (both physical and chemical) of a glass surface. It is frequently evaluated, after prolonged weathering or storing, in terms of chemical and physical changes in the glass surface or in terms of changes in the contents of a vessel.

chip—an imperfection due to breakage of a small fragment out of an otherwise regular surface.

continuous tank—a glass furnace in which the level of glass remains constant because the feeding of batch continuously replaces the glass withdrawn.

Contraction Coefficient—is the decrease in length per unit length per °C change in temperature of the glass when it is cooled from the annealing point to 25°C. This figure is useful in considering the glass for sealing to metals or other materials, because the contraction characteristics influence the final stresses in such seals.

cord—an attenuated glassy inclusion possessing optical and other properties differing from those of the surrounding glass.

crack-off—the process of severing a glass article by breaking, as by scratching and then heating.

cullet—(1) waste or broken glass, usually suitable as an addition to raw batch. (2) foreign cullet — cullet from an outside source. (3) domestic cullet (factory cullet) — cullet from within the plant. (4) the portion of a glass article that will later be cut off and discarded or remelted.

Danner process—a mechanical process for continuously drawing glass cane or tubing from a rotating mandrel.

density—the weight per unit volume. Values listed are reported in grams per cubic centimeter.

devitrification—crystallization in glass.

dielectric constant—is the ratio of the parallel capacitance of a capacitor with the material as the dielectric to the capacitance of the same capacitor with a vacuum as the dielectric. The dielectric constant determines the amount of electrostatic energy which can be stored in a material per unit volume per unit potential gradient.

dielectric loss factor—is the product of the dielectric constant and the dissipation factor. At low values (below 1) the dissipation factor is less than 5% different than the power factor so the power factor can be used for most calculations. The power lost in a dielectric is directly proportional to the loss factor if voltage gradient and frequency remain constant.

dielectric power factor—the cosine of the dielectric phase angle or its equivalent expressed in percent and represents the energy lost in the dielectric in an alternating current field.

distribution—the thicknesses of the walls of a glass article over its entire area.

down-draw—process of continuously drawing glass downward from an orifice.

dummy—a mechanical device, operated by the blower's feet, for wetting, raising, opening and closing the paste mold in mouth-blown glassware.

etch—to attack the surface of glass with hydrofluoric acid or other agent, generally for marking or decoration.

etched—(1) treated by etching. (2) weathered so that the surface is roughened.

expansion coefficient—is the average increase in length per unit length per °C change in temperature over the range of 0 to 300°C. Since the expansion coefficient is affected slightly by annealing, the values given are for annealed glass.

filling point—the level up to which a glass bottle has the nominal capacity.

fine annealing—annealing to an extremely low stress and uniform index of refraction.

finish—(1) the part of a bottle for holding the cap or closure. (2) stage in melting process after glass appears free of seeds.

fire cracks—cracks in ware caused by local temperature shock.

fire-polish—to make glass smooth, rounded, or glossy by heating in a fire.

forming—the shaping of hot glass.

Fourcault process—a method of manufacturing flat glass using a "vertical draw" process.

frosted surface—treated to scatter light or to simulate frost.

gaffer—head workman, foreman, or blower of a glass hand shop.

gather, (n)—the mass of glass picked up by the hand shop worker on the punty or blowing iron.

gather, (v)—to get glass from a pot or tank on the pipe or punty.

glass—an inorganic product of fusion that has cooled to a rigid condition without crystallizing.

Glass is typically hard and brittle, and has a conchoidal fracture. It may be colorless or colored, and transparent to opaque. Masses or bodies of glass may be made colored, translucent, or opaque by the presence of dissolved, amorphous, or crystalline material.

When a specific kind of glass is indicated, such descriptive terms as flint glass, barium glass, and window glass should be used following the basic definition, but the qualifying term is to be used as understood by trade custom.

Objects made of glass are loosely and popularly referred to as glass; such as glass for a tumbler, a barometer, a window, a magnifier, or a mirror.

glass-blowing—the shaping of hot glass by air pressure.

glory hole—an opening exposing the hot interior of a furnace used to reheat the ware in hand working.

gob—(1) a portion of hot glass delivered by a feeder. (2) a portion of hot glass gathered on a punty or pipe.

graduated glassware—glassware that is marked with one or more graduations for volumetric measuring purposes.

hackle marks—fine ridges on the fracture surface of glass, parallel to the direction of propagation of the fracture.

hard glass—(1) a glass of exceptionally high viscosity at elevated temperatures. (2) a glass of high softening point. (3) a glass difficult to melt. (4) a glass hard to scratch.

hot end—those manufacturing operations concerned with hot glass, that is, melting, forming, annealing.

lampworking—forming glass articles from tubing and cane by heating in a gas flame.

lehr, leer—a long, tunnel-shaped oven for annealing glass by continuous passage.

lime glass—a glass containing a substantial proportion of lime, usually associated with soda and silica.

liquidus temperature—the maximum temperature at which equilibrium exists between the molten glass and its primary crystalline phase.

melt—a specific quantity of glass made at one time.

melting temperature—the range of furnace temperatures within which melting takes place at a commercially desirable rate, and at which the resulting glass generally has a viscosity of 10^{15} to 10^{25} poises. For purposes of comparing glasses, it is assumed that the glass of melting temperature has a viscosity of 10^{2} poises.

moil—(1) the glass remaining on a punty or blowpipe after a gob has been cut off or after a piece of ware has been blown and severed. (2) the glass originally in contact with the blowing mechanism or head, which becomes cullet after the desired article is severed from it.

mold—a form (usually metal) in which glass is shaped.

mold mark—mark or seam on glassware resulting from a mold joint.

obsidian—a highly siliceous natural glass.

out-of-round—the imperfection of nonroundness in glass articles.

Owens process—a bottle-making process in which the blank or parison mold is filled by suction.

paddling the rough—shaping of a piece of glass in a furnace by means of paddles or tools preparatory to the pressing operation for making optical glass blanks.

parison—tube-like piece of plastic which air is blown through during blow molding.

paste mold—a mold lined with adherent carbon, used wet for blown ware.

peephole—a small opening in a furnace used for observation purposes.

pig—a rest for blowpipe or punty during the gathering operation.

pot—a one-piece refractory container for molten glass. Open pot: a pot wherein the glass surface is not protected from the furnace atmosphere. Closed pot: a pot having a crown protecting the glass from the furnace atmosphere.

pot furnace—a furnace for melting glass in pots.

pressed glass—glassware formed by pressure between a mold and a plunger.

pull—the quantity of glass delivered by a furnace in a given time, usually 24 hours.

punty—(1) a gathering iron of solid cross-section. (2) a device to which ware is attached for holding during fire polishing or finishing.

reboil—reappearance of bubbles in molten glass after it previously appeared plain.

refractive index—the ratio of the speed of light in vacuo to the speed of light in glass.. The value of the refractive index is given for the sodium D line (589.3 mμ and the values listed are for annealed glass.

ring—(1) a floating refractory body surrounding a glass surface from which gathers are made. (2) a mold part that forms the rim of a pressed article.

sagging process—of forming glass by reheating until it conforms to the shape of the mold or form on which it rests.

sealing surface—the portion of the finish which makes contact with the sealing gasket or liner. (See also **finish**.)

seam, n—mark on glass surface resulting from joint of matching mold parts.

seam, v—to slightly grind the sharp edges of a piece of glass.

seed—an extremely small gaseous inclusion of glass.

sharp fire—combustion with excess air and short flame.

shear mark—a scar appearing in glassware, caused by the cooling action of the cutting shear.

silica glass—vitreous silicon dioxide (SiO_2).

silk screen process—a decorating process in which a design is printed on glass through a silk mesh, woven wire, or similar screen.

soda—sodium oxide (Na_2O). Loosely, a carbonate of sodium.

softening point, SP—the temperature at which a uniform fiber, 0.55 to 0.75 mm in diameter and 235 mm in length, elongates under its own weight at a rate of 1 mm/min when the upper 100 mm of its length is heated in the manner prescribed in ASTM Method C338. Test for Softening Point of Glass at a rate of approximately 5 C/min. For glass of density near 2.5, this temperature corresponds to a viscosity of $10^{7.6}$ poises.

stability—(1) resistance to devitrification. (2) chemical durability, resistance to weathering.

stain—(1) an imperfection; chemical corrosion on the surface of glass. (2) color applied to glass by absorption at an elevated temperature.

stones—an imperfection or crystalline contaminations in glass.

strain point, StP—the temperature corresponding to a rate of elongation of 0.00043 cm/min when measured by ASTM Method C 336. This test prescribed a linear extrapolation of the data obtained in the annealing point determination to the above designated rate. Internal stress is substantially relieved at the strain point in a few hours.

stress—any condition of tension or compression existing within the glass, particularly due to incomplete annealing, temperature gradient, or inhomogeneity.

stria—a cord of low intensity generally of interest only in optical glass. (See also **cord**.)

string—an imperfection; a straight or curled line, usually resulting from slow solution of a large grain of sand or foreign material.

tank—a melting unit, in which the container for the molten glass is constructed from refractory blocks.

temper—(1) the degree of residual stress in annealed glass measured polarimetrically or by polariscopic comparison with a standard such as one or more strain disks. (2) term sometimes employed in referring to tempered glass. (See also **tempered glass**.)

tempered glass—glass that has been rapidly cooled from near the softening point, under rigorous control, to increase its mechanical and thermal endurance.

Thermal Conductivity—data has been calculated for three temperatures from compositions.

thermal shock resistance—an estimated figure based on the expansion coefficient.

updraw—the process of continuously drawing glass of various cross sections, such as cane or tubing, by a method similar to the Fourcault process.

volume resistivity—is equivalent to the electrical resistance in ohms across a sample in the form of a cube 1cm x 1cm x 1cm. Because of the wide range of values obtained at the different temperatures, the log 10 of the volume resistivities are listed. Values are on annealed glass.

washboard—an imperfection; ripples, waves, etc., on the surface of glassware.

water glass—sodium silicate glass that is soluble in water.

wave—an optical effect due to uneven glass distribution, or to striae.

weathering—attack of a glass surface by atmospheric elements.

working range—the range of surface temperature in which glass is formed into ware in a specific process. The "upper end" refers to the temperature at which the glass is ready for working (generally corresponding to a viscosity of 10^{3} to 10^{4} poises), while the "lower end" refers to the temperature at which it is sufficiently viscous to hold its formed shape (generally corresponding to a viscosity greater than 10^{6} poises). For comparative purposes, when no specific process is considered, the working range of glass is assumed to correspond to a viscosity range from 10^{4} to $10^{7.6}$ poises.

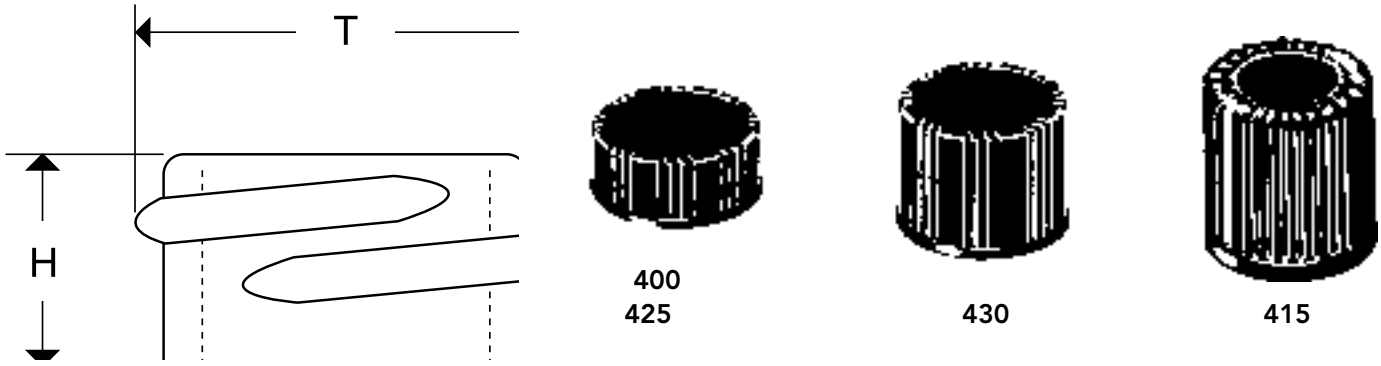
Young's Modulus—the modulus of elasticity. The stress required to produce a unit change of length.

NOTE: For additional definitions of terms relating to glass and glass products, see ASTM Standard C162.

GPI THREAD FINISHES

GPI refers to the "Glass Packaging Institute" which is responsible for establishing and issuing uniform standards regarding the types of finishes produced by American Glass Manufacturers. GPI replaces the former GCMI or "Glass Container Manufacturers Institute". When a cap is designated as 15-425, it means that the diameter across the threaded area is approximately 15 millimeters. (See "T" dimension on illustration below.) The numerical 425 designates a specific style. The methods employed in manufacturing containers and culture tubes from tubing do not include a transfer ring as commonly observed on mold blown vessels. As a result the "H" dimension may vary slightly from GPI's published values. Since the "H" dimension is not designated in the size code, the chart below will assist in differentiating styles of finishes having similar thread diameters. The dimensions listed are averages. The finishes below appear in this catalog.

GPI Thread Finish Comparison Chart



"T" Dimension	"H" Measurements in millimeters (mm)				
	400	410	415	425	430
8				6.52	
10				6.86	
13			11.22	7.50	
15			13.90	7.50	
18	9.05	13.03	15.42		15.34
20	9.50	13.82	18.59		15.34
22	9.50	14.60	21.01		15.34
24	10.25	16.15	24.05		16.43
28	10.25	17.73	27.23		18.39
33	9.85				19.69
38	9.85				24.03
38					22.00

SUGGESTED SCREW CAP APPLICATION TORQUE

Cap Size (Millimeters)	Torque (Inch-Pounds)	Cap Size (Millimeters)	Torque (Inch-Pounds)
8	3-5	38	15-23
10	4-6	43	17-26
13	5-7	48	19-29
15	6-9	53	21-32
18	7-11	58	23-35
20	8-12	63	25-38
22	9-13	70	28-42
24	10-15	83	34-49
28	11-17	89	36-53
33	13-20	120	48-72

The figures at left are offered as guidelines for automatic capping machines. Obviously, variables such as cap and liner material and product characteristics play an important part in correct torque application.

The recommended procedure for checking capping machine torque application is as follows:

Apply caps to a representative number of product filled containers with the torque required. Then, the cap removal torque is established. Once the removal torque for a known application is established, the machine can be checked at intervals for proper application torque by measuring removal cap torque.

Standard Taper Symbol

℔ is the symbol used to designate "standard taper" interchangeable joints, stoppers and stopcocks, complying with the requirements of ASTM E675 for stopcocks, stoppers and reagent bottle necks and E676 for interchangeable joints. All mating parts are finished to a 1:10 taper.

The size of a particular piece appears after the appropriate symbol. Due primarily to the greater variety of apparatus equipped with ℔ fittings, a number of different types of identifications are used, as follows:

Apparatus and Bottles

- **For joints —** a two part number, as ℔ 24/40, with 24 being the approximate diameter in mm at the large end of the taper, and 40 the axial length of taper, also in mm.
- **For bottles —** a single number, as ℔ 19, with 19 being the approximate diameter in mm of the opening at top of neck.
- **For glass stopcocks —** a single number, as ℔ 2, with 2 being the approximate diameter in mm of the bore or bores through the plug.

Flasks

- **For volumetric and Erlenmeyer flasks, graduated cylinders, etc. —** a single number as ℔ 19, with 19 again being the approximate diameter in mm at top of neck; however, there are differences in dimensions between the bottle and flask stoppers, see the individuals listings in this catalog.

Spherical Joint Symbol

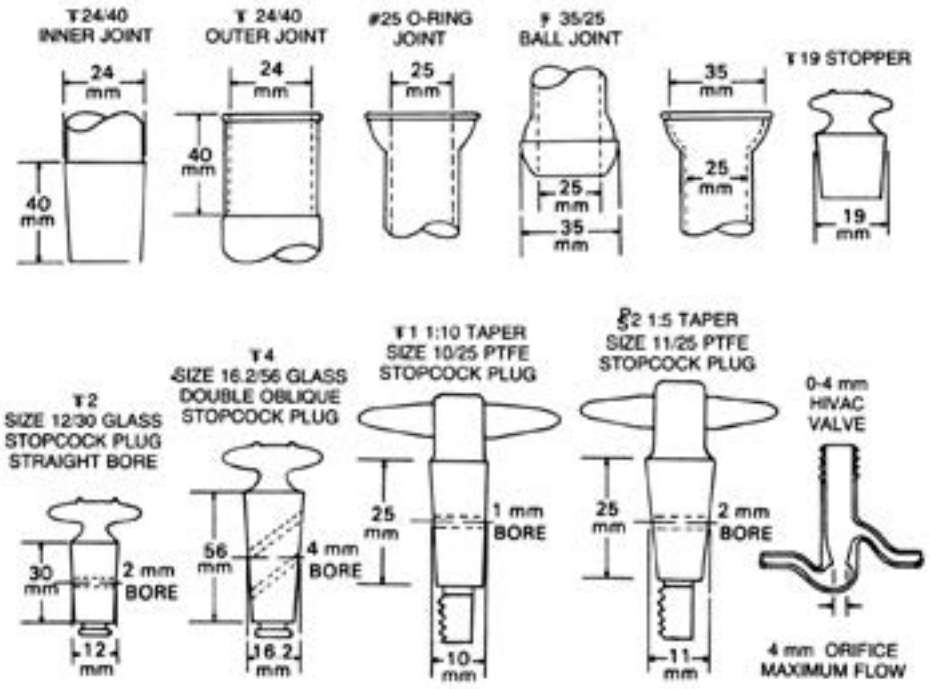
℘ is the designation for "spherical (semi-ball) joints" complying with ASTM E677.

The complete designation of a spherical joint also consists of a two part number, as ℘ 12/2, with 12 being the approximate diameter in mm of the ball and 2 the bore in mm of the ball and the socket.

Product Standard Symbol

℘ is the symbol used to designate "product standard" compliance. Kimble glass stopcocks with plugs made of PTFE meet the requirements of ASTM Specification E911. The symbol ℘ is used to designate that Kimble stopcocks comply with this standard. All mating parts are finished to a 1:5 taper.

Finally, for the PTFE plug ware, a single number is used, as with ℔ stopcocks. Thus, ℘ 2 means a stopcock with a bore of approximately 2 mm in the plug.



Standard Dimensions for Full-length Interchangeable Taper-Ground Joints

Standard Joint Size Number (Ⓢ Designation)	Approximate Diameter at Small End mm	Approximate Length of Ground Zone mm	Computed Diameter at Large End of Ground Zone (Gauging Point) mm
7/25	5	25	7.5
10/30	7	30	10.0
12/30	9.5	30	12.5
14/35	11	35	14.5
19/38	15	38	18.8
24/40	20	40	24.0
29/42	25	42	29.2
34/45	30	45	34.5
40/50	35	50	40.0
45/50	40	50	45.0
50/50	45	50	50.0
55/50	50	50	55.0
60/50	55	50	60.0
71/60	65	60	71.0
103/60	97	60	103.0

Standard Dimensions for Short-length Interchangeable Taper-Ground Joints

Standard Joint Size Number (Ⓢ Designation)	Approximate Diameter at Small End mm	Approximate Length of Ground Zone mm	Computed Diameter at Large End of Ground Zone (Gauging Point) mm
5/8	4.2	8	5.0
7/10	6.5	10	7.5
10/7	9.3	7	10.0
10/10	9.0	10	10.0
12/10	11.5	10	12.5
14/10	13.5	10	14.5
19/10	17.8	10	18.8
24/12	22.8	12	24.0
29/12	28.0	12	29.2
34/12	33.3	12	34.5
40/12	38.8	12	40.0
45/12	43.8	12	45.0
50/12	48.8	12	50.0
55/12	53.8	12	55.0
60/12	58.8	12	60.0
71/15	69.5	15	71.0

Standard Dimensions for Medium-length Interchangeable Taper-Ground Joints

Standard Joint Size Number (Ⓢ Designation)	Approximate Diameter at Small End mm	Approximate Length of Ground Zone mm	Computed Diameter at Large End of Ground Zone (Gauging Point) mm
5/12	3.8	12	5.0
7/15	6.0	15	7.5
10/18	8.2	18	10.0
12/18	10.7	18	12.5
14/20	12.5	20	14.5
19/22	16.6	22	18.8
24/25	21.5	25	24.0
29/26	26.6	26	29.2
34/28	31.7	28	34.5
40/35	36.5	35	40.0

Standard Dimensions for Interchangeable Spherical-Ground Joints

Standard Joint Size Number (Ⓢ Designation)	Nominal Diameter mm	Nominal Tube Diameter I.D. mm	Gauging Ball Diameter inches
7/1	7	1	.28125 ± .00005
12/1	12	1	.5000 ± .0001
12/1.5	12	1.5	.5000 ± .0001
12/2	12	2	.5000 ± .0001
12/3	12	3	.5000 ± .0001
12/5	12	5	.5000 ± .0001
18/7	18	7	.7500 ± .0001
18/9	18	9	.7500 ± .0001
28/12	28	12	1.1250 ± .00015
28/15	28	15	1.1250 ± .00015
35/20	35	20	1.3750 ± .00015
35/25	35	25	1.3750 ± .00015
40/25	40	25	1.6500 ± .00015
50/30	50	30	2.0000 ± .00015
65/40	65	40	2.5000 ± .0002
75/50	75	50	3.0000 ± .00025
102/75	102	75	4.0000 ± .0003

Standard Dimensions for Interchangeable Straight-bore Taper-Ground Stopcocks Standard

Standard Stopcock Number (Ⓢ Designation)	Diameter of Plug at Center Line of Bore mm	Length of Shell ±0.5 mm, mm	Diameter of Bore Hole in Plug mm
1M (Micro size)	7	20	1
1	12	30	1
1.5	12	30	1.5
2	12	30	2
3	17	40	3
4	17	40	4
5	20	44	5
6	20	44	6
8	25	52	8
10	35	56	10

Standard Dimensions for Interchangeable Single Oblique-bore Taper-Ground Stopcocks

Standard Stopcock Number (Ⓢ Designation)	Diameter of Plug at Gauging Point mm	Length of Shell ±0.5 mm, mm	Diameter of Bore Hole in Plug mm
1	12.60	40	1
1.5	12.60	40	1.5
2	12.60	40	2
3	17.35	50	3
4	17.35	50	4

Standard Dimensions for Interchangeable Double Oblique-bore (3-Way) Taper-Ground Stopcocks

Standard Stopcock Number (Ⓢ Designation)	Diameter of Plug at Gauging Point mm	Length of Shell ±0.5 mm, mm	Diameter of Bore Hole in Plug mm
1	14.5	50	1
1.5	14.5	50	1.5
2	14.5	50	2
3	16.2	56	3
4	16.2	56	4

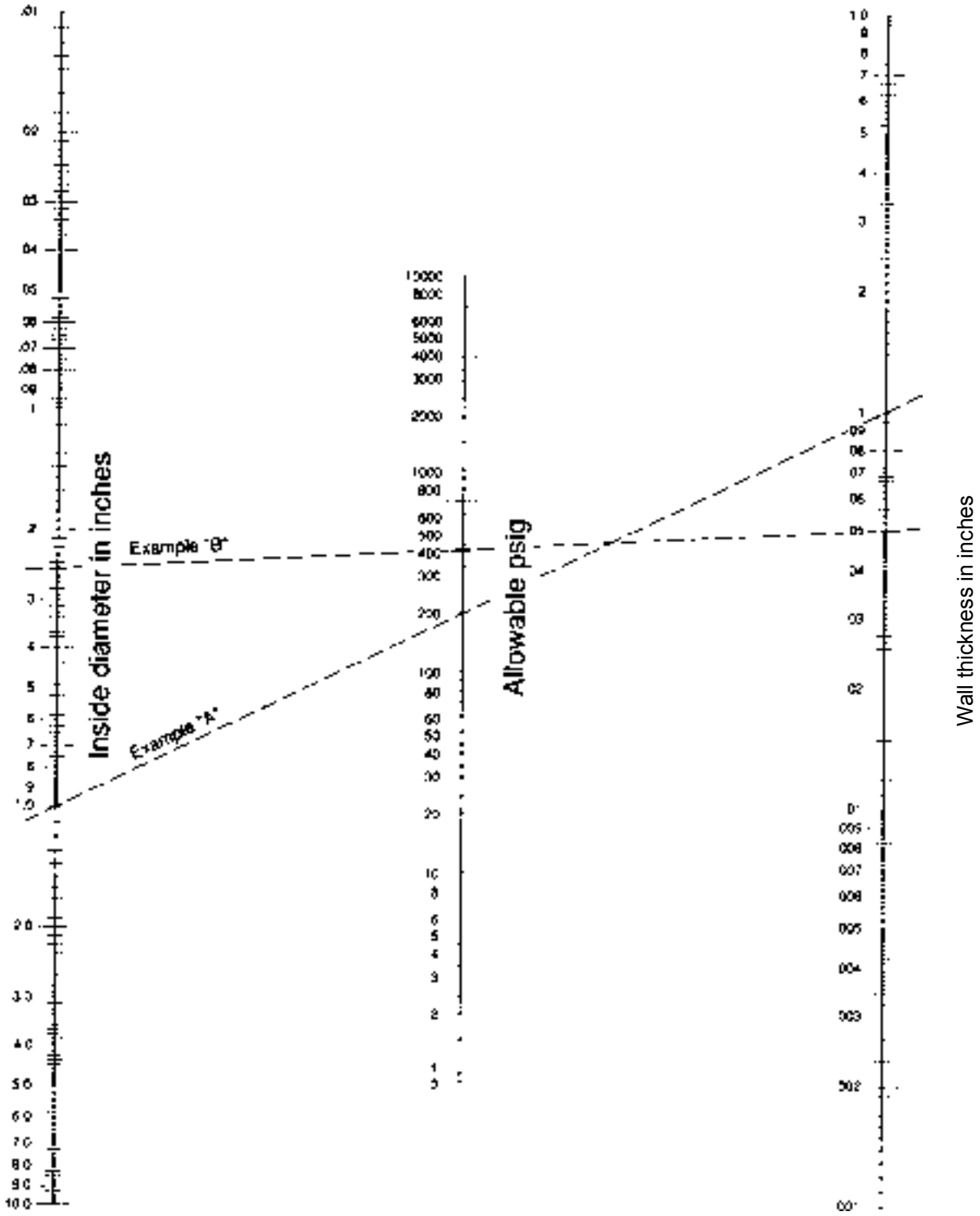
Standard Dimensions for Interchangeable T-bore and 120° bore Taper-Ground Stopcocks

Standard Stopcock Number (Ⓢ Designation)	Diameter of Plug at Gauging Point mm	Length of Shell ±0.5 mm, mm	Diameter of Bore Hole in Plug mm
1	17	40	1
1.5	17	40	1.5
2	17	40	2
3	20	44	3
4	20	44	4

Standard Dimensions for Interchangeable Taper-Ground Flask Stoppers

Standard Flask Stopper Number (Ⓢ Designation)	Approximate Diameter at Small End mm	Length of Ground Zone mm	Computed Diameter at Large End of Ground Zone (Gauging Point) mm
8	7.25	10.0 ± 1.0	8.25
9	8	14.0 ± 1.0	9.4
13	12	14.0 ± 1.0	13.4
16	15	15.0 ± 1.0	16.5
19	18	17.0 ± 1.0	19.7
22	20	20.5 ± 1.5	22.05
27	25	21.5 ± 1.5	27.15
32	30	21.5 ± 1.5	32.15
38	35	30.0 ± 2.0	38.0

Nomogram of Allowable Pressures For Borosilicate Glass Tubes



CAUTION: With any glassware used for pressure or vacuum applications, great care must be taken in handling. The strength of the glass can be degraded due to scratches, checks and abrasions. Always use protective shielding and eyewear when working with glass under pressure or vacuum.

ASTM Method	Part Number	Description	Page #
D86	26015-125	Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure	280
D86	26015C-125	Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure	280
D86	20022-100	Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure	278
D91	45240-100	Standard Test Method for Precipitation Number of Lubricating Oils	287
D94	26510-250	Standard Test Methods for Saponification Number of Petroleum Products	282
D94	457000-0225	Standard Test Methods for Saponification Number of Petroleum Products	277
D94	14020-300	Standard Test Methods for Saponification Number of Petroleum Products	272
D95	22012-10	Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation	279
D95	601000-0724	Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation	284
D95	457000-0225	Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation	277
D97	32501-99	Standard Test Method for Pour Point of Petroleum Products	274
D128	45240-100	Standard Test Methods for Analysis of Lubricating Grease	287
D233	26015-125	Standard Test Methods of Sampling and Testing Turpentine	280
D244	20039-500	Standard Test Methods and Practices for Emulsified Asphalts	279
D287	20058 (all)	Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)	279
D322	25285-1000	Standard Test Method for Gasoline Diluent in Used Gasoline Engine Oils by Distillation	283
D322	447000-2440	Standard Test Method for Gasoline Diluent in Used Gasoline Engine Oils by Distillation	277
D445	46460 (all)	Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)	287
D473	26650-500	Standard Test Method for Sediment in Crude Oils and Fuel Oils by the Extraction Method	283
D524	896650-0000	Standard Test Method for Ramsbottom Carbon Residue of Petroleum Products	285
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D974	17026F-50	Standard Test Method for Acid and Base Number by Color-Indicator Titration	275
D974	17026F-10	Standard Test Method for Acid and Base Number by Color-Indicator Titration	275
D974	17110F-5	Standard Test Method for Acid and Base Number by Color-Indicator Titration	276
D1093	45240-100	Standard Test Method for Acidity of Hydrocarbon Liquids and Their Distillation Residues	287
D1094	20039-100	Standard Test Method for Water Reaction of Aviation Fuels	279
D1298	20058 (all)	Standard Test Method for Density, Relative Density, or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method	279
D1401	20011-100	Standard Test Method for Water Separability of Petroleum Oils and Synthetic Fluids	279
D1744	17051F-10	Standard Test Method for Determination of Water in Liquid Petroleum Products by Karl Fischer Reagent	275
D1744	606000-1024	Standard Test Method for Determination of Water in Liquid Petroleum Products by Karl Fischer Reagent	283
D1744	179700-0824	Standard Test Method for Determination of Water in Liquid Petroleum Products by Karl Fischer Reagent	272
D1744	14607-500	Standard Test Method for Determination of Water in Liquid Petroleum Products by Karl Fischer Reagent	273
D1796	45240-100	Standard Test Method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure)	287
D2070	14000-250	Standard Test Method for Thermal Stability of Hydraulic Oils	272
D2158	45241-100	Standard Test Method for Residues in Liquefied Petroleum (LP) Gases	287
D2500	32501-99	Standard Test Method for Cloud Point of Petroleum Products	274
D2709	45220-100	Standard Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge	286
D4007	45240-100	Standard Test Method for Water and Sediment in Crude Oil by the Centrifuge Method (Laboratory Procedure)	287

API MPMS Chapter	Part Number	Description	Page #
10.4	45240-100	Determination of Water and/or Sediment in Crude Oil by the Centrifuge Method (Field Procedure)	287
10.4	45243-100	Determination of Water and/or Sediment in Crude Oil by the Centrifuge Method (Field Procedure)	287
10.4	45170-125	Determination of Water and/or Sediment in Crude Oil by the Centrifuge Method (Field Procedure)	286

Properties of Plastics

Three different polyolefins are included in the plastics used by KIMBLE in our chromatography product line – low-density polyethylene (simply called polyethylene in the catalog descriptions), polypropylene, and polymethylpentene.

- Low-density polyethylene (L.D.P.E.) is translucent and flexible. The latter property makes this material ideal for items such as our snap caps. This material is also known as conventional polyethylene.
- Polypropylene (P.P.), the most rigid of the family of olefins, is also translucent, but can and does come in a variety of colors. This material is used for KIMBLE color-coded caps. Due to its stiffness and overall resistance to chemical attack at room temperature, polypropylene is the material of choice for selected closures.
- Polymethylpentene (T.P.X.) is like other polyolefins, is highly resistant to chemical attack at room temperature. Transparency and a relatively high melting point are distinguishing characteristics of this material.

Polytetrafluoroethylene (PTFE) offers unique performance characteristics. This material performs well in aggressive chemical environments, and is totally insoluble with common organic solvents. It is also unaffected by reactive chemicals such as hot concentrated acids and bases.

Plastic Resin Codes

Abbreviation	Chemical Designation	Temp °C (Max)	Temp °C (IMin)	Autoclavable	Microwavable	Dry Heat	Gas	Gamma	Disinfectants
ABS	Acryl-Butadienestyrene	100	-40	NO	YES	NO	YES	YES	YES
	Acetal	100	-40	NO	YES	NO	YES	YES	YES
LDPE	Low Density Polyethylene	100	-80	NO	YES	NO	YES	YES	YES
HDPE	High Density Polyethylene	120	-100	NO	YES	NO	YES	YES	YES
NYL	Polyamide	90	0	NO	YES	NO	YES	YES	YES
PCTFE	Polychlorotrifluoroethylene	80	0	NO	YES	NO	YES	YES	YES
PC	Polycarbonate	135	0	YES	YES	NO	YES	YES	YES
PP	Polypropylene	135	0	YES	YES	NO	YES	NO	YES
PTFE	Polytetrafluoroethylene	250	-267	YES	YES	YES	YES	YES	YES
PVC	Polyvinyl Chloride	70	-30	NO	YES	NO	YES	NO	YES
PVDF	Polyvinyldene Fluoride	110	-62	YES	YES	NO	YES	NO	YES
E-CTFE	Ethylene Chlortrifluoroethylene	150	-105	YES	YES	YES	YES	NO	YES
ETFE	EthyleneTetrafluoroethylene	150	-105	YES	YES	YES	YES	NO	YES
PFA	Perfluoroalkoxy	260	-270	YES	YES	YES	YES	NO	YES
San	Styrene	95	-20	NO	YES	NO	YES	YES	YES
PMP	Polymethylpentene (TPX)	175	-70	YES	YES	NO	YES	YES	YES
PMMA	Polymethylmetyacrylate (PMMP)	50	0	NO	YES	NO	YES	YES	YES
PS	Polystyrene	90	-20	NO	YES	NO	YES	YES	YES
PEEK	Polyetheretherketone	125	0	YES	YES	NO	YES	YES	YES
PVC	Polyvinylchloride	80	-20	YES	YES	NO	YES	NO	YES
TFE	Tetrafluoroethylene	260	-267	YES	YES	YES	YES	YES	YES

Plastic Resin Solvent Compatibility Chart

A = NO EFFECT, EXCELLENT
B = MINOR EFFECT, GOOD
C = MODERATE EFFECT, FAIR
D = SEVERE EFFECT, NOT RECOMMENDED

We have designed this chart as a general guide and not an unqualified guarantee of chemical compatibility. Because so many factors can affect the chemical resistance of a given product, we recommend that you test under your own conditions. Kimble assumes no responsibility for the use of this information in specific applications. Blank space indicates no data.

SOLVENT	ABS	Acetal	E-CTFE	ETFE	HDPE	LDPE	NYL	PC	PCTFE	PEEK	PMP (TPX)	PP	PTFE	PVC	PMMP	PS	SAN	TFE
Acetaldehyde	D	A	A	A	B	C	C	C	A	A	C	C	A	D	D	D	D	A
Acetic Anhydride	C	D	A	A	D	D	C	D	A	A	B	B	A	D	D	D	D	A
Acetone	D	D	A	B	C	C	B	D	A	A	A	A	A	D		D	D	A
Acid, Hydroflouric	C	D	A	A	A	A	D	D	A	A	A	B	A	B	D	D	C	A
Acid, Trifluoroacetic	D	C	C	C	C	D	D	D	A	A	D	D	A	D	D	D	D	A
Acid, Acetic Dilute 50%	A	C	B	B	A	A	D	B	A	A	A	A	A	B	D	B	D	A
Acid, Hydrochloric 37%	C	D	A	A	A	A	D	D	A	A	B	B	A	B	A	C	C	A
Acid, Nitric	B	D	A	A	B	C	D	B	A	A	A	B	A	B	C	C	C	A
Acid, Sulfuric	D	D	A	A	A	B	D	C	A	A	B	C	A	B	D	C	D	A
Actonitrile	D	D	A	A	A	A	A	D		A	C	C	A	D		D	C	A
Alcohol, Ethyl	A	D	A	A	A	B	D	B	A	A	B	B	A	B	B	B	C	A
Alcohol, Isobutyl	A	A	A	A	A	A	D	B	A	A	A	A	A	B	B	B		A
Alcohol, Methyl	D	B	A	A	A	A	D	B		A	A	A	A	B	D	C	C	A
Alcohol, n-Butyl	A	A	A	A	A	A	D	C	A	A	B	A	A	A	B	B	B	A
Alcohol, Propyl	B	A	A	A	A	A	D	D	A	A		A	A	A		A		A
Ammonium Hydroxide	B	A	A	A	A	A	C		A	A	B	B	A	B	C	B	D	A
Aniline	D	B	A	A	B	B	B	B	A	A	B	B	A	B	D	D	D	A
Aqua Regia	D	D	B	C	C	D	D	D	A	A	D	D	A	C		D		A
Benzaldehyde	B	A	B	B	A	B	B	C	A		B	A	A	D		D	D	A
Benzene	D	A	B	B	D	D	A	D	B	A	B	B	D	A		D	D	A
Carbon Tetrachloride	D	B	A	A	C	B	A	D	A	A	D	B	A	B	D	D	D	A
Caustic Soda (NaOH)	B	B	A	A	A	B	B	D	A	A	A	A	A	D	D	A	D	A
Chlorobenzene	D	D	B	B	C	D	B	D	A	A	C	D	A	D		D		A
Chloroform	D	B	B	B	C	C	D	D	B	A	D	B	A	C		D	D	A
Cyclohexane	A	A	B	B	C	C	A	D	A	A	D	C	A	D	D	D		A
Esters	D	D	A	A	B	B	A	D	B	A	B	B	A	C		D		A
Ether	D	A	B	B	C	D	A	C	B	A	D	D	A	D		D	D	A
Ether, Diethyl	D	D	B	B	D	A	C	D	C	A	D	D	A	D	C	D	D	A
Ether, Isopopyl	B	A	A	A	A	A	B	A	A	A	A	D	A	A	A	A	A	A
Ethtyl, Methyl	D	B	A	A	B	A	B	D	A	A	D	B	A	D	D	D	D	A
Hexane	D	B	A	A	B	D	A	C	A	A	C	B	A	C	C	D	A	A
Hydrazine	B	B	A	A			D	B	A	D	C	A	C	D	D			A
Hydrogen Peroxide	B	B	A	A	A	D	B	A	A	A	A	A	A	A	A	B		A
Methylene Chloride	D	B	A	A	C	D	A	D	A	D	C	C	A	D	C	D	D	A
Petroleum Ether	B	A	A	A	A	B	A	A		A		A	A	B	D	B		A
Phenol	D	C	A	A	D	D	D	D	A	A	D	D	A	C	D	C	D	A
Sodium Hydroxide	B	D	A	A	A	B	B	D	A	A	A	B	A	B	D	A	C	A
Tetrahydrofuran	D	A	A	A	B	C	A	D	A	D	C	B	A	D	D	D	D	A
Toluene	D	B	A	A	B	C	C	D	A	A	C	C	A	D	D	D		A
Trichloroethylene	D	B	B	B	C	D	B	D	A	A	D	D	A	D	D	D	D	A
Trimethylpentane,2,2,4	D	C	B	B	C	C	A	D		A	C	C	A	D	D	D	D	A
Water	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Xylene	D	A	A	A	C	D	A	D	A	A	C	C	A	D	D	D	D	A

Elastomer Codes

Abbreviation	Chemical Designation	Temp °C (Max)	Temp °C (Min)	Autoclavable	Microwavable	Dry Heat	Gas	Gamma	Disinfectants
FKM	Fluorelastomer	204	-23	YES	YES	YES	YES	YES	YES
FFKM	Perfluoroelastomer	343	-40	YES	YES	YES	YES	YES	YES
PF75	Perfluoroelastomer	265	-40	YES	YES	YES	YES	YES	YES
EPDM	Ethylene Propylene (EPDM, EP)	135	-50	YES	YES	NO	YES	YES	YES
CR	Neoprene	93	-40	NO	YES	NO	YES	YES	YES
Si	Silicone	230	-40	YES	YES	YES	YES	YES	YES
NBR	Buna N (NITRILE)	150	-54	YES	YES	NO	YES	YES	YES
CSPE	Hypalon	135	0	YES	YES	NO	YES	YES	YES
PCTFE	Polychlorotrifluoroethylene	150	0	YES	YES	NO	YES	YES	YES
	Natural Rubber	135	0	YES	YES	NO	YES	YES	YES
	Tygon (PVC)	100	0	NO	YES	NO	YES	YES	YES

Sterilization Reference Guide

Method	Procedure
Autoclave:	cycle is 121 °C,15 psig (1bar) 20 min
Dry Heat:	170 °C for 60 min
Gas:	Ethylene Oxide or formaldehyde
Microwave:	Transmission of microwaves
Gamma Irradiation:	High energy ionizing gamma radiation from a Cobolt 60 source
Chemical Disinfectants:	Quaternay Ammonim Compounds, Iodophors, Formalin, Benzalkonium Chloride, Ethanol, etc.

Elastomers Solvent Compatibility Chart

We have designed this chart as a general guide and not an unqualified guarantee of chemical compatibility. Because so many factors can affect the chemical resistance of a given product, we recommend that you test under your own conditions. KIMBLE® assumes no responsibility for the use of this information in specific applications. Blank space indicates no data.

A = NO EFFECT, EXCELLENT
B = MINOR EFFECT, GOOD
C = MODERATE EFFECT, FAIR
D = SEVERE EFFECT, NOT RECOMMENDED

SOLVENT	FKM	FFKM	PF75	EPDM, EP	Polychloroprene	Silcone	Buna N (nitrile)	CSPE (chlorosulfanated polyethylene)	PCTFE	Natural Rubber	Tygon® (PVC)
Acetaldehyde	D	A	A	A	D	A	D	D	A	C	D
Acetic Anhydride	D	A	A	B	A	C	D	A	A	C	D
Acetone	D	A	A	A	C	B	D	C	A	C	D
Acid, Hydroflouric	C	A	A	D	D	D	D	B	A	B	C
Acid, Trifluoroacetic	B	A	A	A					A		
Acid, Acetic Dilute 50%	B	A	A	A	C	B	C	C	A	C	D
Acid, Hydrochloric 37%	A	A	A	D	D	D	D	D	A	D	D
Acid, Nitric	A	A	A	D	D	D	D	D	A	D	D
Acid, Sulfuric	A	A	A	B	D	D	C	C	A	D	D
Actonitrile	D	A	A	A	C	B	D	C	A	C	D
Alcohol, Ethyl	A	A	A	A	A	B	C	A	A	A	C
Alcohol, Isobutyl	A	A	A	A	A	A	A	A	A	A	A
Alcohol, Methyl	C	A	A	A	A	A	A	A	A	A	A
Alcohol, n-Butyl	A	A	A	B	C	B	C	A	A	A	A
Alcohol, Propyl	A	A	A	A	A	A	A	A	A	A	A
Ammonium Hydroxide	B	A	A	A	A		A	A	A	A	A
Aniline	A	A	A	B	D	B	D	D	A	D	D
Aqua Regia	B	A	A	C	B	D	D	C	A	B	D
Benzaldehyde	D	A	A	A	D	D	D	D	A	D	D
Benzene	A	A	A	D	D	D	D	D	B	D	C
Carbon Tetrachloride	A	A	A	D	D	D	D	D	A	D	B
Caustic Soda (NaOH)	B	A	A	B	B	A	D	A	A	A	A
Chlorobenzene	A	A	A	D	D	D	D	D	A	D	A
Chloroform	A	A	A	D	D	D	D	D	B	D	B
Cyclohexane	A	A	A	D	D	D	B	D	A	D	D
Esters	D	A	A	B	D	B	D	D	A	C	D
Ether	C	A	A	C	D	D	D	D	B	D	C
Ether, Diethyl	D	A	A	D	D	D	D	D	C	D	D
Ether, Isopopyl	D	A	A	D	D	D	B	C	A	A	A
Ethtyl, Methyl Ketone	D	A	A	D	D	D	D	D	A	D	D
Hexane	A	A	A	D	B	D	A	B	A	D	D
Hydrazine	A	A	A	A	B	B	B	B		C	
Hydrogen Peroxide	A	A	A	D	D	B	D	D	A	C	B
Methylene Chloride	B	A	A	C			D		A	B	D
Petroleum Ether	A	A	A	A	A	D	A			D	
Phenol	D	A	A	B	D	D	D	D	B	A	B
Sodium Hydroxide	B	A	A	B	B	A	A	A	B	A	C
Tetrahydrofuran	D	A	A	D	D	D	D	D	A	D	
Toluene	C	A	A	D	D	D	D	D	B	D	D
Trichloroethylene	A	A	A	D	D	D	D	D	A	D	
Trimethylpentane,2,2,4	C	A	A	D	D	D	D	D	A	D	D
Water	A	A	A	A	A	A	A	A	A	A	A
Xylene	D	A	A	D	D	D	D	D	A	D	D

Rockwood, TN, USA

bsi.

Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2008

This is to certify that:

Kimble Chase Life Science
and Research Products, LLC
234 Cardiff Valley Road
Rockwood
Tennessee
37854
USA

Holds Certificate No: **FM 36329**

and operates a Quality Management System which complies with the requirements of ISO 9001:2008 for the following scope:

The manufacturing, packaging and distribution of specialty glass products utilized for the science industry and laboratories.

For and on behalf of BSI:

Pietro Foschi - Strategic Delivery Director

Originally registered: 02/27/1997 Latest Issue: 01/07/2015 Expiry Date: 07/28/2017

Page: 1 of 2

..making excellence a habit."

This certificate remains the property of BSI and shall be returned immediately upon request.
An electronic certificate can be authenticated online. Printed copies can be validated at www.bsigroup.com/ClientDirectory
To be read in conjunction with the scope above or the attached appendix.
Information and Contact: BSI, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PP. Tel: + 44 845 080 9000
BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.

Querétaro Mexico

CERTIFICATE OF REGISTRATION

This is to certify that

Kontes México, S. de R.L. de C.V.
Pirineos No. 515 Int. 33, Zona Industrial Benito Juárez, Santiago de Querétaro, Querétaro 76120 México

operates a

Quality Management System

which complies with the requirements of

ISO 9001:2008

for the following scope of registration

Manufacture and distribution of glass products for laboratories.

Certificate No.:	CERT-0068640	Original Certification Date:	February 10, 2010
File No.:	025290	Current Certification Date:	February 9, 2013
Issue Date:	February 8, 2013	Certificate Expiry Date:	February 8, 2016

Chris Jouppi
President,
QMI-SAI Canada Limited

Guillaume Gignac, ing.f
Vice President, Corporate Operations, Accreditation & Quality
QMI-SAI Canada Limited

ISO 9001

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Meiningen, DE

Certificate

Standard: ISO 9001:2008
Certificate Regist. No.: 01 100 071529

Certificate Holder: Scherf Präzision Europa GmbH
Hergfeld Str. 31
D - 98617 Meiningen

Scope: manufacturing and distribution of laboratory glassware

Proof has been furnished by means of an audit that the requirements of ISO 9001:2008 are met.

The due date for all future audits is 28.11.

Validity: The certificate is valid from 09.12.2013 until 06.12.2016.

First certification 2007

09.12.2013

TÜV Rheinland Cert GmbH
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Beijing, CN

SGS

Kimble Bomex (Beijing)
Labware Co., Ltd.

ISO 9001:2008

SGS

ACCUFORM®
ACCUFORM is the trademark identifying a series of microvials having a "V" shaped interior to enable recovery of a minute residual sample by means of a syringe needle. These vials are available with screw thread or aluminum seal finishes, in either clear or amber borosilicate glass.

AIRLESS-WARE™
AIRLESS-WARE is the trademark identifying products for the manipulation of air sensitive and moisture sensitive compounds.

BEAKERPLUS™
BeakerPlus™ is the trademark identifying a combination glass beaker and Erlenmeyer flask.

BEVEL-SEAL™
BEVEL-SEAL is the trademark identifying a vacuum tight o-ring seal against the bevelled edge of threaded glass.

CHROMAFLEX®
CHROMAFLEX is the trademark identifying chromatographic equipment.

DISPOSAFLEX®
DISPOSAFLEX is the trademark identifying Kimble's disposable column and rack system.

DUALL®
DUALL is the trademark identifying tissue grinderS with both conical and cylindrical surfaces.

FLEX-COLUMN®
is the trademark identifying economy chromatography columns.

FLOW-WATCHMAN™
FLOW-WATCHMAN is the trademark identifying a visual flow indicator.

HI-VAC®
HI-VAC is the trademark identifying high vacuum valves and vacuum products.

KEM-KIT®
KEM-KIT is the trademark identifying a selection of basic small scale glassware in a reusable storage case.

KEM-KLAMP™
KEM-KLAMP is the trademark identifying yoke type connectors for Standard Taper jointed glassware.

KIMAX®
KIMAX® is the trademark identifying all ware including tubing and rod, made of Kimble® borosilicate glass, produced and sold by Kimble Chase, LLC. When used alone, KIMAX® signifies that the glass is 33 expansion borosilicate glass. Physical properties are referenced in this catalog. KIMAX® (Class A) graduated apparatus is precision grade, including the apparatus described in ASTM E694, Standard Specification for Volumetric Ware and many other pieces of apparatus made to similar rigid requirements for accuracy and design. KIMAX® graduated glassware is intended for general use wherever highly accurate laboratory work is carried on. Tolerances are generally twice those of Class A ware.

KIMBLE®
KIMBLE is the trademark identifying scientific laboratory glassware produced and sold by Kimble Chase, LLC. The trademark KIMBLE® is also used for scientific laboratory ware manufactured from plastics such as polystyrene, polyethylene and polypropylene.

KIM-BULK™
KIM-BULK is the trademark identifying the the bulk packaging for glass and plastic vials.

KIMCOTE®
KimCote is the trademark identifying protective coated glassware.

KIMFLOW®
KIMFLOW is the trademark identifying Kimble fritted discs, etc., and glassware with fritted shapes as an integral part of the piece of apparatus.

KIM-KAP®
KIM-KAP is the trademark identifying a series of Kimble disposable polypropylene slip-on style closures used on culture tubes.

LABMUG™
LABMUG is the trademark identifying Berzelius glass beakers and pitchers with glass handles.

LABSET™
LABSET is the trademark identifying sets of apparatus intended for laboratory work in a particular field of science; for example, organic chemistry.

LUBRI-FLO®
LUBRI-FLO is the trademark identifying all stopcocks and stopcock assemblies having polytetrafluoroethylene (PTFE) material parts.

Mark-M™
Mark-M is the trademark identifying Kimble® disposable culture tubes.

MICROFLEX™
MICROFLEX is the trademark identifying microscale kits and components, vials and accessories.

MICRO-VIAL®
MICRO-VIAL is the trademark identifying vials made with extra thick glass walls for both sturdiness and magnification of contents. Fabricated from either 33 expansion borosilicate glass or amber 51 expansion borosilicate glass.

MONSTR-PETTE™
MONSTR-PETTE is the trademark identifying extra-large pipets used to transfer large volumes.

OPTICLEAR®
OPTICLEAR is the trademark identifying Kimble vials fabricated from glass tubing, and for disposable glass microscope slides and cover glasses.

PELLET PESTLE®
PELLET PESTLE is the trademark identifying disposable mixers for microtubes.

RAY-SORB®
RAY-SORB is the trademark identifying red-colored KIMAX glassware for use when contents must be protected from light of wavelengths below the 500mu (millimicron) range. 33 expansion borosilicate glass glass. Transmission characteristics: 0 percent at 300 mu, 1 percent at 400 mu and 4 percent at 500 mu.

SAFE-GARD®
SAFE-GARD is the trademark identifying the protective polyethylene bumpers packed with Kimble graduated cylinders.

SLOW-DRY®
SLOW-DRY is the trademark identifying concentrator tubes that reduce the risk of concentrating a sample to dryness.

SOLVENT SAVER®
SOLVENT SAVER is the trademark identifying scintillation vials that are dimensionally smaller than conventional scintillation vials.

TITESEAL®
TITESEAL is the trademark identifying vials designed to accommodate either one or two piece plastic plug style closures, providing excellent sealing characteristics.

ULTRA-WARE®
ULTRA-WARE is the trademark identifying filtration products for microbiology and HPLC solvent clean-up and handling.

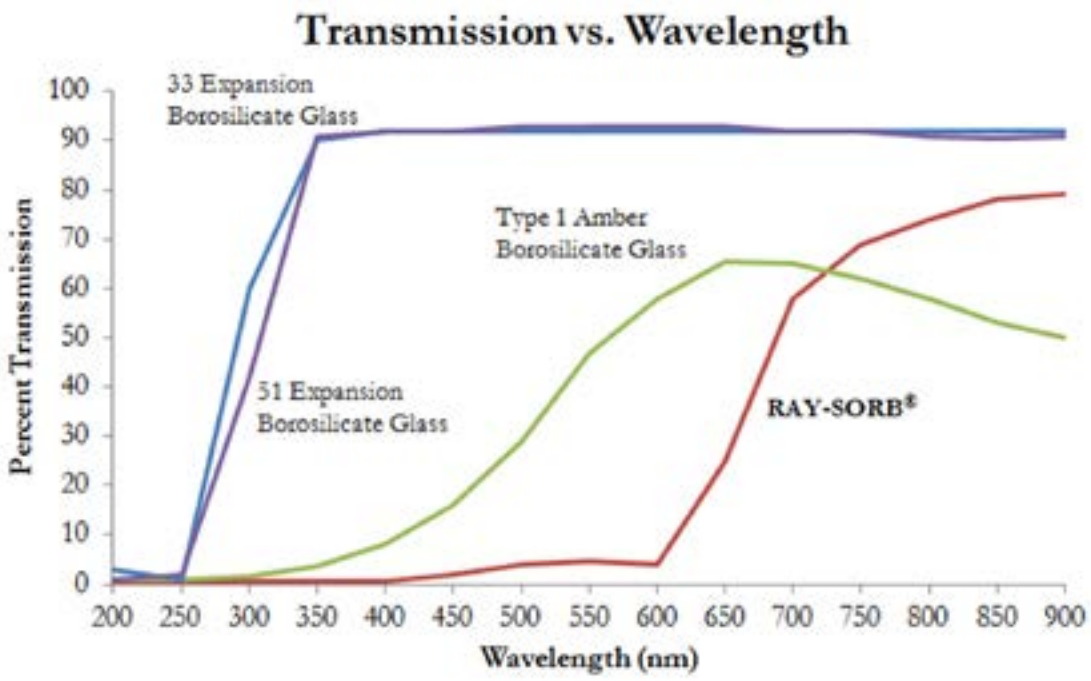
Other Trademarks
Other trademarks referred to herein are the property of their respective owners.

Other Trademarks in this Catalog

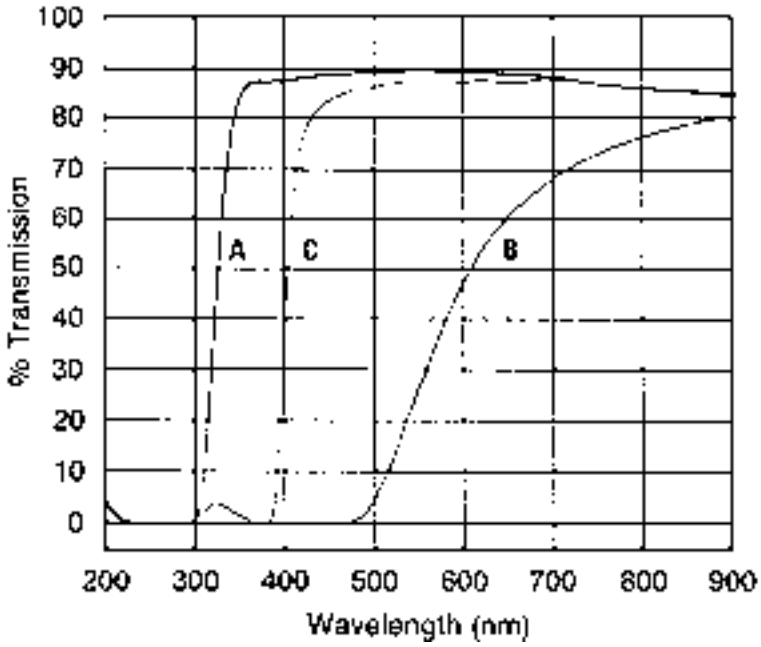
MICROCAP	Drummond Scientific Co.
MICROLINK	Loctite VSI, Inc., Canton Biomedical Division
MIDI-VAP	BSL Company
MININERT	Valco Instruments Company, L.P.
MOJONNIER	Mojonnier, LLC
RODAVISS	Societe de Soufflage Artisanal du Verre
SPINBAR	Bel-Art Products
TEKMAR	Teledyne Instruments, LLC

All trademark name representations and listed owners are believed to be accurate, but not guaranteed to be so.

Transmission Comparison Between Glass Types



UV Absorbing Performance of Plastic Coated ULTRA-WARE® and Amber Stained Borosilicate Glass



Percent transmission of UV and visible wavelengths through borosilicate glass: (A) clear borosilicate glass; (B) amber stained borosilicate glass; and (C) borosilicate glass coated with plastic that is UV absorbing and autoclavable.

Curve C represents the UV and visible transmission characteristics of the plastic coated Ultra-ware HPLC reservoirs. Notice that the plastic coated Ultra-ware HPLC reservoirs absorb all UV up to about 385 nm, whereas amber stained glass transmits up to 4% of UV in the 300-350 nm region.

Kimble® amber stain capabilities include the staining of any borosilicate product.

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