



2012-2013

Thermo Scientific
Chromacol Vials and Closures



Trusted solutions

uncompromised analysis

Our portfolio includes over 250 Thermo Scientific Chromacol vials and closures products designed for any instrument and any application. Our pages have been arranged by product line and vial size, allowing you to quickly find the most appropriate products for your lab.

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Featured Products

Electronic Crimpers and De-Cappers

- One hand, secure, reproducible crimps of 8, 11, 13 and 20mm vials with the push of a button
- Reduces hand strain compared to manual crimper operation
- Quick and easy removal of aluminum seals with the push of a button



Ultra High Recovery & Fixed Insert Microsampling Vials

- Residual sample volumes as low as 1µL
- Working volumes up to 1.2mL
- Stable base profiles prevent tipping
- Variety of closure options available



Magnetic Closure Headspace Vials

- Superior quality (Type 1, Class A) glass
- Crimp seals are available in aluminum standard center hole version and magnetic tin plate versions
- Pre-assembled caps and septa are convenient and minimize contamination from handling



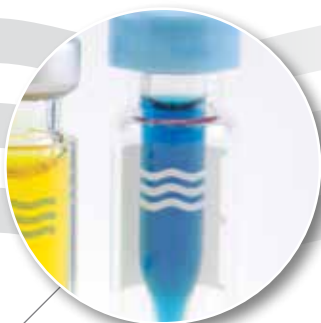
Snap Caps

- Inexpensive single use closure for snap cap vials
- New double snap feature provides improved resistance to sample evaporation and a positive indication of proper cap fit
- Secondary sealing bead under the cap rim improves cap roundness for improved pickup by robotic autosamplers

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Featured Products



Micro Sampling Vials

World's broadest portfolio of reduced volume sampling options



Tools and Accessories

A comprehensive range of accessories

Thermo Scientific Chromacol Vials and Closures

- Innovative products in micro- and precision sampling
- High quality, stringent manufacturing tolerances, has been tested extensively for comprehensive autosampler compatibility
- Products developed in close technical cooperation with the instrument manufacturers
- Detailed information regarding material specifications and compatibility
- Custom manufactured capabilities
- Competent and experienced worldwide distributor network



Chromacol 8mm Crimp Top Vials

- The SCI-VI system gives the chromatography user the ability to inject reproducibly from glass vials with residual volumes as low as 1µL to 5µL in a full range of autosampler instruments.
- Precision-machined sleeves that allow the vials to be used in the vast majority of commercial autosamplers.
- Sleeves are re-usable and support the crimped, sealed vials in the correct position within both the autosampler carousel or racks
- Allow movement of the vials as a unit to injection positions in both GC and HPLC autosamplers.
- GOLD glass quality, a low expansion high purity glass with an extremely low concentration of active sites.
- Available in both clear and amber glass these vials can be used with crimp and snap caps

Approximate Chemical Composition for Borosilicate Glass

Description	SiO ₂	B ₂ O ₃	Al ₂ O ₃	CaO	MgO	Na ₂ O	K ₂ O	BaO
33 expansion Glass	80%	13%	3%	0.1%	—	4%	0.1%	<0.1%
N-51A Glass	72%	12%	7%	1%	—	6%	2%	<0.1%
Neutral Borosilicate-GOLD Grade	80.6%	13%	2.3%	—	—	4%	—	—

For autosampler compatibility look on pages **41-45**



Chromacol 8mm Crimp Top Vials

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (μL)	Usable Volume (μL)	Residual (μL)	Cat. No.	Pack of
0.3mL Sci-Vi Crimp Top Vial - GOLD Grade Glass	Clear	No	6x32	Round Bottom	325	250	<5	03-CVG	500
0.2mL Sci-Vi Crimp Top Vial - GOLD Grade Glass	Clear	No	6x32	Conical	250	200	<5	02-CTVG	500
0.2mL Sci-Vi Crimp Top Vial	Amber	No	6x32	Conical	250	200	<5	02-CTV(A)	500
0.1mL Sci-Vi Crimp Top Vial - GOLD Grade Glass	Clear	No	6x32	Round Bottom	125	80	<1	01-CVG	500
1.2mL Crimp Top Vial	Clear	No	8x40	Flat Bottom	1300	1200	<75	12-CWV	500
1mL Crimp Top Tapered Vial	Clear	No	8x40	Conical	1180	1000	<5	1-CWV	500
0.8mL Crimp Top Vial	Clear	No	8x30	Flat Bottom	1000	800	<80	08-CV	500
	Clear	No	7x40	Flat Bottom	775	650	<70	08-CPV	500
	Amber	No	7x32	Round Bottom	700	600	<30	08-CRV(A)	500
0.7mL Crimp Top Tapered Vial	Clear	No	7x40	Conical	575	450	<5	07-CPV	500
	Amber	No	7x40	Conical	575	450	<5	07-CPV(A)	500



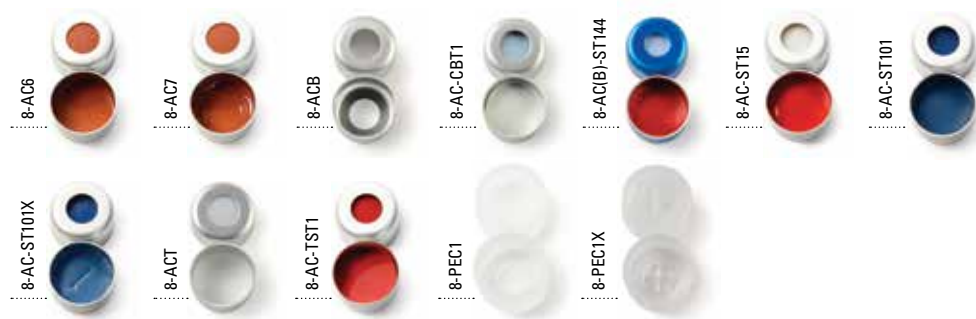
Chromacol 8mm Crimp Top Vials (Continued)

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (μL)	Usable Volume (μL)	Residual (μL)	Cat. No.	Pack of
0.6mL Crimp Top Tapered Vial	Amber	No	7x32	Conical	600	550	<5	06-CTV(A)	500
0.5mL Crimp Top Tapered Vial	Amber	No	7x30	Conical	500	450	<5	05-CTV(A)	500
PTFE Vial Support Sleeve for 6x32mm vials, fits most autosamplers	PTFE	No	12x31	Flat Bottom	—	—	—	SV-S1	50
PTFE Vial Support Sleeve for 6x32mm vials, fits robotic autosamplers	PTFE	No	12x32	Flat Bottom	—	—	—	SV-S11A	25
Glass Vial Support Sleeve for 6x32mm vials, fits robotic autosamplers	Clear	Yes	12x32	Flat Bottom	—	—	—	SV-S11G	25

Sleeves adapt 6x32mm vials for use in autosamplers designed for 12x32mm vials. Use sleeve SV-S1 for autosamplers that do not lift the vial from the tray. Use SV-S11A or SV-S11G for autosamplers that move the vial during sampling.

Chromacol 8mm Closures

- Aluminum crimp seals with prefitted septa
- Provide a secure leak-resistant seal
- Pre-assembled caps and septa are convenient and minimize contamination from handling

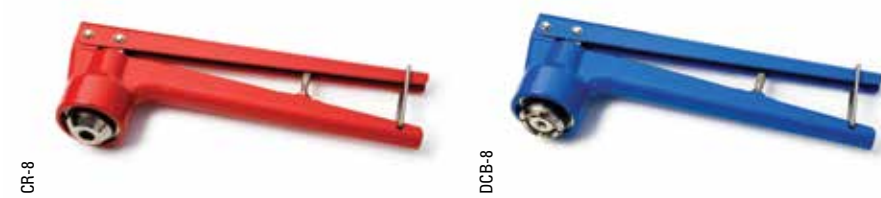


Chromacol 8mm Crimp Top Closures

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
8mm Crimp Cap, 4mm hole, Type 6 Rubber/PTFE Liner	Silver	Aluminum	Red Natural Rubber/Clear PTFE	38	1.0	8-AC6	1000
	Blue	Aluminum	Red Natural Rubber/Clear PTFE	38	1.0	8-AC6(B)	1000
	Red	Aluminum	Red Natural Rubber/Clear PTFE	38	1.0	8-AC6(R)	1000
8mm Crimp Cap, 4mm hole, Type 7 Rubber/PTFE Liner	Silver	Aluminum	Red Natural Rubber/Clear PTFE	60	1.0	8-AC7	1000
8mm Crimp Cap, 4mm hole	Silver	Aluminum	—	—	—	8-ACB	1000
	Silver	Aluminum	Gray Chlorobutyl Rubber/Clear PTFE	52	1.0	8-AC-CBT1	500
	Blue	Aluminum	Blue Silicone/Red PTFE	20	1.4	8-AC(B)-ST144	500
	Silver	Aluminum	White Silicone/Red PTFE	50	1.3	8-AC-ST15	500
	Silver	Aluminum	Blue Silicone/PTFE	30	1.0	8-AC-ST101	500
	Silver	Aluminum	Blue Silicone/PTFE, Pre-slit	30	1.0	8-AC-ST101X	500
	Silver	Aluminum	White Virgin PTFE, 0.01"	53	0.2	8-ACT	1000
	Silver	Aluminum	Red PTFE/White Silicone/Red PTFE	57	1.0	8-AC-TST1	500
	Clear	Polyethylene	Integral Molded In Polyethylene	—	—	8-PEC1	1000
8mm Snap Cap, Thinned penetration area	Clear	Polyethylene	Integral Molded In Polyethylene, Pre-cut	—	—	8-PEC1X	1000

Chromacol Crimping and Decrimping Tools

- Crimping tools provide a reproducible, secure closure
- High quality construction for durability and long life
- Painted, plated and coated for maximum corrosion resistance



Items not shown to scale

Chromacol Crimping and Decrimping Tools

Description	Use	Cat. No.	Pack of
Manual Crimper	Attaches 8mm aluminum crimp seals	CR-8	1
Manual Decrimper/De-capper	Removes 8mm aluminum crimp seals without vial damage	DCB-8	1

For electronic crimpers and decappers look on page 25

Chromacol 2mL, 12x32mm Standard Opening Screw Thread Vials and Inserts

- 8-425 thread finish vials are best suited for most instruments where the vial remains in the sample tray during injection
- Manufactured from clear, Type 1 Class A or amber, Type 1 Class B borosilicate glass
- GOLD grade glass quality is a low expansion high purity glass with an extremely low concentration of active sites.
- Available with a graduated, write-on patch for convenient sample identification
- Small opening requires Micro-Inserts with a diameter of 5mm
- While maintaining the standard outer dimensions the internal volumes of these vials range from below 300µL to 2mL
- Where levels of inorganic ions have to be kept to an absolute minimum the use of plastics may be preferred to the more conventional glass vials

Recommended for the following instruments:

- Beckman
 - CTC
 - Gilson
 - Knauer
 - Shimadzu
 - Spark Holland
 - Varian
 - VWR (Merck)/Hitachi
- For autosampler compatibility look on pages **41-45**



Chromacol 2mL, 12x32 Standard Opening Screw Thread Vials and Inserts

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (µL)	Usable Volume (µL)	Residual (µL)	Cat. No.	Pack of
8-425 Screw Thread Vial	Clear	Yes	12x32	Flat Bottom	2.0	1.5	<170	2-SV	500
	Amber	Yes	12x32	Flat Bottom	2.0	1.5	<170	2-SV(A)	500
8-425 Screw Thread Vial - GOLD Grade Glass	Clear	No	12x32	Flat Bottom	2.0	1.5	<170	2-SVG	500
8-425 Screw Thread 1.1mL Vial - GOLD Grade Glass	Clear	No	12x32	Conical	1.2	1.1	<5	1.1-STVG	500
8-425 Screw Thread 0.6mL Vial, White	HDPE	No	12x32	Insert Vial	0.6	0.4	<3	06-PESV	500
200µL Insert	Clear Glass	No	5x31	Flat Bottom	250µL	200µL	<12	02-NV	1000
	Clear Glass	No	5x30	Conical	200µL	160µL	<4	02-MTV	1000
Self-centering support device for tapered glass inserts	Polyethylene	—	—	—	—	—	—	MTS-1	500
Support Sleeve for 1.1-STVG	PTFE	—	—	—	—	—	—	TTS-312	50

Support sleeve allows conical tip vial to be used in standard 12x32mm autosampler trays

We offer electronic crimping options

>> Visit **PAGE 25**

Chromacol Screw Thread Caps and Septa

- Open top caps are designed to be used with any of our 8mm septa
- Polypropylene caps are chemically inert and suitable for most chromatography applications
- Flanged caps are particularly suitable for Shimadzu and Tosoh autosamplers
- Pre-assembled caps and septa are convenient and minimize contamination from handling
- Closures are shipped in sealed polybags to prevent contamination during transport



Chromacol 8-425 Screw Thread Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
8mm Open Top Screw Cap, 8-425 thread, 5mm hole	Black	Polypropylene	—	—	—	8-SC	500
	Red	Polypropylene	—	—	—	8-SC(R)	500
	White	Polypropylene	—	—	—	8-SC(W)	500
8mm Open Top Screw Cap with flange, 8-425 thread, 5mm hole	Black	Polypropylene	—	—	—	8-SCJ	500
	White	Polypropylene	—	—	—	8-SCJ(W)	500
Septum for 8-425 Screw Caps	—	—	Red Natural Rubber/Clear PTFE	38	1.0	8-6RT1	1000
	—	—	White Silicone/Red PTFE	50	1.3	8-ST15	500
	—	—	Blue Silicone/PTFE	50	1.2	8-ST14	500
	—	—	Blue Silicone/PTFE, Pre-slit	50	1.2	8-ST14X	500
	—	—	White Silicone/PTFE	20	1.4	8-ST143	500
	—	—	Blue Silicone/PTFE	30	1.0	8-ST101	500
	—	—	Red PTFE/White Silicone/Red PTFE	57	1.0	8-TST1	500
	—	—	White Virgin PTFE, 0.01"	53	0.3	8-T02	1000
	—	—	Blue Silicone/Red PTFE	20	1.4	8-ST144	500
	—	—	—	—	—	—	—
8mm Open Top Screw Cap, 8-425 thread, 5mm hole, Type 8 Rubber/PTFE Liner	Black	Polypropylene	Red Natural Rubber/Clear PTFE	50	1.3	8-SC-8RT1	500
8mm Open Top Screw Cap, 8-425 thread, 5mm hole	Black	Polypropylene	White Silicone/Red PTFE	57	1.3	8-SC-ST15	500

Chromacol Standard Opening Screw Thread Vial Convenience Kits

- Convenience kits save time during sample preparation
- Includes 100 vials and 100 caps with pre-assembled septa
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Caps feature pre-inserted septa for added convenience during sample preparation



Items not shown to scale

Chromacol Standard Opening Screw Thread Vial Convenience Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat. No.	Cap/Septum Cat.No.	Cat. No.	Pack of
Convenience Kit, Standard Opening Screw Vial	Clear	Yes	White, flanged	Blue Silicone/PTFE	2-SV	8-SCJ(W) + 8-ST101	2-SVJ(W)101-CP	100
Convenience Kit, Standard Opening Screw Vial for Shimadzu LC Autosamplers	Clear	Yes	White, flanged	Blue Silicone/PTFE	2-SV	8-SCJ(W) + 8-ST101	SHL	100
Convenience Kit, Standard Opening Screw Vial for Thermo Scientific LC Autosamplers	Clear	Yes	Black	White Silicone/Red PTFE	2-SV	8-SC-ST15	TSL	100

Chromacol 9mm Wide Opening Screw Thread Vials and Inserts

- Available with a graduated, write-on patch for convenient sample identification
- Wide neck opening design, allows easy filling, requires Micro-Inserts with a diameter of 6mm
- Manufactured from clear, Type 1 Class A or amber, Type 1 Class B borosilicate glass
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts

Compatible with:

Most HPLC and GC autosamplers
For autosampler compatibility look on pages **41-45**



Chromacol 9mm Wide Opening Screw Thread Vials and Inserts

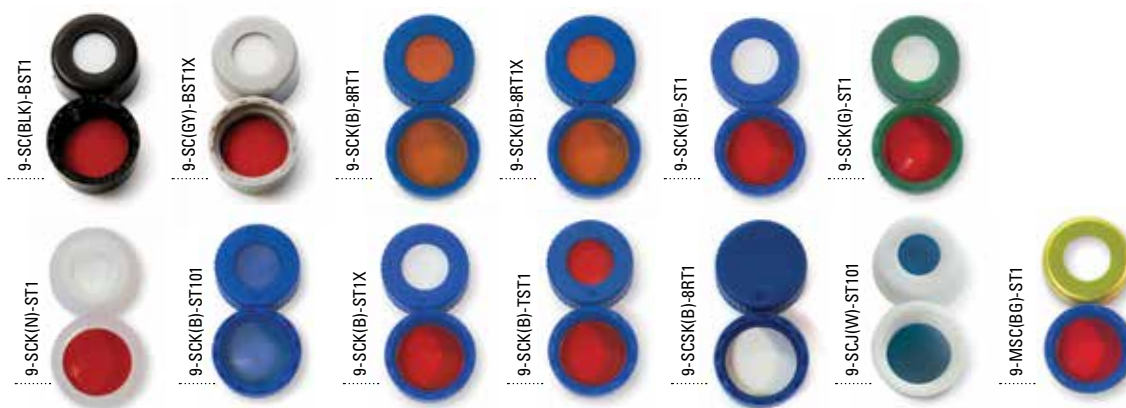
Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
9mm Screw Thread Vial	Clear	No	15x46	Flat Bottom	4.0mL	3.5mL	<500	4-SVQ	500
	Clear	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	2-SVW	500
	Amber	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	2-SVW(A)	500
9mm Screw Thread Vial, High Recovery with 30µL Reservoir	Clear	No	12x32	Tapered Base	1.5mL	1.3mL	<4	1.5-HRSV	100
9mm Screw Thread Vial, Ultra High Recovery with 10µL Reservoir	Clear	No	12x32	Mandrel Base	1.2mL	1.0mL	<2	1.2-UHSV	100
9mm Screw Thread Vial 300µL, Fused Insert	Clear	Yes	12x32	Insert Vial	0.3mL	250µL	<3	03-FISV	500
	Amber	Yes	12x32	Insert Vial	0.3mL	250µL	<3	03-FISV(A)	500
9mm Screw Thread Vial 200µL, Fused Insert-GOLD grade glass	Clear	Yes	12x32	Insert Vial	0.2mL	180µL	<2	02-FISVG	500
300µL Insert	Clear	—	6x31	Flat Bottom	300µL	200µL	<12	03-NV	1000
200µL Insert - GOLD Grade Glass	Clear	—	6x30	Pulled Point	200µL	160µL	<4	02-MTVWG	1000
Self-centering support device for tapered glass inserts	Polyethylene	—	—	—	—	—	—	MTS-1	500
9mm Screw Thread Vial	Polypropylene	No	12x32	Insert Vial, Mandrel	300µL	200µL	<4	03-PPSVW	500

Chromacol 9mm Screw Thread Closures

- Easy-on, easy-off convenience with just one turn
- Pre-assembled caps and septa are convenient and minimize contamination from handling
- Polypropylene caps are chemically inert and suitable for most chromatography applications
- Closures have the profile of a crimp or snap closure for compatibility with robotic autosamplers
- Closures are shipped in sealed polybags to prevent contamination during transport

For the new K-Series closures:

- Septa push through virtually eliminated due to improved interior geometry
- Improved sealing capability
- AVCS (Advanced Vial Closure System) provides the freedom to select the best septum for your instrument and applications
- Cost effective alternative to the use of bonded septa.
- Optimized ergonomics, fine texturing and evenly spaced ribbing for superior handling



Chromacol 9mm Screw Thread Closures

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
9mm Open Top Short Screw Cap, 6mm hole	Black	Polypropylene	Bonded Red PTFE/White Silicone	57	1.0	9-SC(BLK)-BST1	500
	Gray	Polypropylene	Bonded Red PTFE/White Silicone, Pre-slit	45	1.2	9-SC(GY)-BST1X	500
	Blue	Polypropylene	Red Natural Rubber/Clear PTFE	58	1.0	9-SCK(B)-8RT1	500
	Blue	Polypropylene	Red Natural Rubber/Clear PTFE, Pre-slit	58	1.0	9-SCK(B)-8RT1X	500
	Blue	Polypropylene	White Silicone/Red PTFE	57	1.0	9-SCK(B)-ST1	500
	Green	Polypropylene	White Silicone/Red PTFE	57	1.0	9-SCK(G)-ST1	500
	Clear	Polypropylene	White Silicone/Red PTFE	57	1.0	9-SCK(N)-ST1	500
	Blue	Polypropylene	Blue Silicone/PTFE	30	1.0	9-SCK(B)-ST101	500
	Blue	Polypropylene	White Silicone/Red PTFE, Y-Pre-slit	57	1.0	9-SCK(B)-ST1X	500
	Blue	Polypropylene	Red PTFE/White Silicone/Red PTFE	57	1.0	9-SCK(B)-TST1	500
9mm Solid Top Short Screw Cap	Blue	Polypropylene	Red Natural Rubber/Beige PTFE	58	1.0	9-SCK(B)-8RT1	500
9mm Open Top Short Screw Cap with flange, 6mm hole	White	HDPE	Blue Silicone/PTFE	30	1.0	9-SCJ(W)-ST101	500
9mm Open Top Short Screw Cap, 6mm hole, magnetic	Blue/ Gold	PP/Steel	White Silicone/Red PTFE	57	1.0	9-MSK(BG)-ST1	100

The old 9-SC style closures are still available

Chromacol 9mm Wide Opening Convenience and Instrument Select Kits

- Convenience kits save time during sample preparation
- Includes 100 vials and 100 caps with pre-assembled septa
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Caps feature pre-inserted septa for added convenience during sample preparation



2-SVW8-CP

Items not shown to scale

Chromacol 9mm Wide Opening Screw Thread Vial Convenience Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat.No.	Cap Cat.No.	Cat. No.	Pack of
Convenience Kit, Wide Open Short Screw Vial	Clear	Yes	Blue	Red Natural Rubber/ Clear PTFE	2-SVW	9-SCK(B)-8RT1	2-SVW8-CPK	100
	Clear	Yes	Blue	White Silicone/Red PTFE	2-SVW	9-SCK(B)-ST1	2-SVWST-CPK	100
	Amber	Yes	Blue	Red Natural Rubber/ Clear PTFE	2-SVW(A)	9-SCK(B)-8RT1	2-SVW(A)8-CPK	100
	Amber	Yes	Blue	White Silicone/Red PTFE	2-SVW(A)	9-SCK(B)-ST1	2-SVW(A)ST-CPK	100
Convenience Kit, Wide Open Short Screw Vial for Agilent LC Autosampler	Clear	Yes	Blue	Red Natural Rubber/ Clear PTFE	2-SVW	9-SCK(B)-8RT1	HPLSK	100
Convenience Kit, Wide Open Short Screw Vial for PerkinElmer LC Autosampler	Clear	Yes	Green	White Silicone/ Red PTFE, Pre-slit	2-SVW	9-SC(G)-ST1X	PEL	100
Convenience Kit, Wide Open Short Screw Vial for Thermo GC Autosampler	Clear	Yes	Blue	Blue Silicone/PTFE	2-SVW	9-SCK(B)-ST101	TTRK	100
Convenience Kit, Wide Open Short Screw Vial for Varian GC Autosampler	Clear	Yes	Blue	White Silicone/Red PTFE	2-SVW	9-SCK(B)-ST1	VAGK	100
Convenience Kit, Wide Open Short Screw Vial for Varian LC Autosampler	Clear	Yes	Blue	White Silicone/Red PTFE	2-SVW	9-SCK(B)-ST1	VALK	100
Convenience Kit, Wide Open Short Screw Vial for Waters Alliance LC Autosampler	Clear	Yes	Blue	White Silicone/Red PTFE	2-SVW	9-SCK(B)-ST1	WALK	100
	Clear	Yes	Black	Bonded Red PTFE/ White Silicone	2-SVW	9-SC(BLK)-BST1	WALB	100
Convenience Kit, Wide Open Short Screw Vial for Waters ACQUITY LC Autosampler	Clear	Yes	Gray	Bonded Red PTFE/ White Silicone, Pre-slit	2-SVW	9-SC(GY)-BST1X	WAQ	100

The Kits with the old 9-SC style closures are still available

Chromacol 2mL, 12x32mm, 11mm Crimp Top Vials and Closures

Compatible with:

Most HPLC and GC autosamplers
For autosampler compatibility look on pages **41-45**

- Chromacol GOLD™ glass quality, a low expansion high purity glass with an extremely low concentration of active sites.
- Manufactured from clear, Type 1 Class A or amber, Type 1 Class B borosilicate glass
- Available with a graduated, write-on patch for convenient sample identification
- Wide neck opening design, allows easy filling, requires Micro-Inserts with a diameter of 6mm
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts
- Where levels of inorganic ions have to be kept to an absolute minimum the use of plastics may be preferred to the more conventional glass vials



Chromacol 2mL 12x32mm Wide Opening Crimp Top Vials and Inserts

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
11mm Crimp Top Vial, Wide Opening	Clear	Glass	15x46	Flat Bottom	4.0mL	3.5mL	<500	4-CV	500
	Clear	Glass	12x40	Flat Bottom	2.5mL	2mL	<170	2.5-CV	500
	Clear	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	2-CV	500
	Amber	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	2-CV(A)	500
11mm Crimp Top Vial, Wide Opening - GOLD Grade Glass	Clear	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	2-CVG	500
11mm Crimp Top Vial, Wide Opening	Clear	Yes	12x32	Round Bottom	2.0mL	1.5mL	<170	2-CRV	500
11mm Crimp Top 1.5mL High Recovery Vial	Clear	No	12x32	High Recovery	1.5mL	1.3mL	<4µL	1.5-HRCV	100



Chromacol 2mL 12x32mm Wide Opening Crimp Top Vials and Inserts (Continued)

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (μL)	Cat. No.	Pack of
11mm Crimp Top 1.1mL Vial, Wide Opening - GOLD Grade Glass	Clear	No	12x32	Conical	1.4mL	1.1mL	<5	1.1-CTVG	500
11mm Crimp Top 1.1mL Vial, Wide Opening	Amber	No	12x32	Conical	1.4mL	1.1mL	<5	1.1-CTV(A)	500
11mm Crimp Top 0.9mL Vial, Wide Opening	Clear	No	10x32	Conical	1.0mL	850μL	<5	09-CTV	500
11mm Crimp Top 0.6mL Vial	Clear	No	12x32	Insert Vial	0.9mL	830μL	<3	09-FIV	500
	HDPE	No	12x32	Internal Taper	0.6mL	0.5mL	<25	06-PECV	500
	Polypropylene	No	12x32	Internal Taper	0.6mL	0.5mL	<25	06-PPCV	500
11mm Crimp Top 0.3mL Vial, Fused Insert	Clear	Yes	12x32	Insert Vial	0.3mL	250μL	<3	03-FIV	500
	Amber	Yes	12x32	Insert Vial	0.3mL	250μL	<3	03-FIV(A)	500
11mm Crimp Top 0.2mL Vial, Fused Insert - GOLD Grade Glass	Clear	Yes	12x32	Insert Vial	0.2mL	180μL	<2	02-FIVG	500



Chromacol 2mL 12x32mm Wide Opening Crimp Top Vials and Inserts (Continued)

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (μL)	Cat. No.	Pack of
300μL Insert	Clear	—	6x31	Flat Bottom	300μL	200μL	<12	03-NV	1000
200μL Insert - GOLD Grade Glass	Clear	—	6x30	Pulled Point	200μL	160μL	<4	02-MTVWG	1000
Self-centering vial support device for tapered glass inserts	Polyethylene	—	—	—	—	—	—	MTS-1	500
PTFE Vial Support 1.1-CTVG	PTFE	—	—	—	—	—	—	TTS-312	50
Plastic Vial Support Sleeve for 09-CTV Only	Polyethylene	—	—	—	—	—	—	WS-6	100

Support sleeves allow conical tip vials to be used in standard 12x32mm autosampler trays

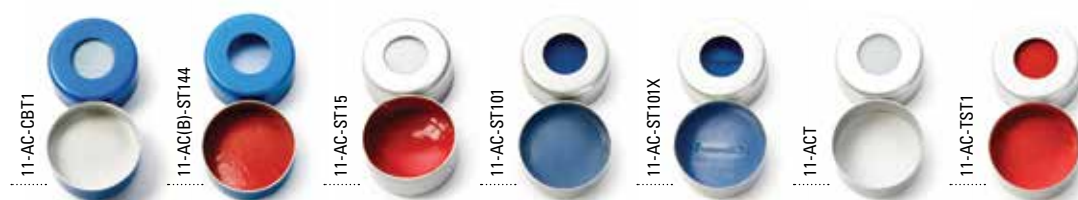
Chromacol 11mm Crimp Top Closures

- Pre-assembled caps and septa are convenient and minimize contamination from handling
- Aluminum crimp closures provide a secure leak-resistant seal
- Aluminum seals must be applied with a crimping tool
- Closures are shipped in sealed polybags to prevent contamination during transport



Chromacol 11mm Crimp Top Closures

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
Septum for 11mm Crimp Caps	—	—	Silicone/PTFE for liquid - liquid extraction	—	0.2	11-LLX	100
11mm Crimp Cap, 6mm centre hole	Silver	Aluminum	—	—	—	11-ACB	500
11mm Crimp Cap, 6mm centre hole, Type 6 Rubber/PTFE	Silver	Aluminum	Red Chloro Butyl Rubber/Clear PTFE, Sulphur free	38	1.0	11-AC6	500
	Blue	Aluminum		38	1.0	11-AC6(B)	500
	Red	Aluminum		38	1.0	11-AC6(R)	500
11mm Crimp Cap, 6mm centre hole, Type 7 Rubber/PTFE	Silver	Aluminum	Red Natural Rubber/Clear PTFE	60	1.0	11-AC7	500
	Blue	Aluminum		60	1.0	11-AC7(B)	500
	Red	Aluminum		60	1.0	11-AC7(R)	500
	Green	Aluminum		60	1.0	11-AC7(G)	500
	Gold	Aluminum		60	1.0	11-AC7(GO)	500



Chromacol 11mm Crimp Top Closures (Continued)

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
11mm Crimp Cap, 6mm centre hole	Blue	Aluminum	Gray Chlorobutyl/PTFE	52	1.0	11-AC-CBT1	500
	Blue	Aluminum	Blue Silicone/Red PTFE	20	1.4	11-AC(B)-ST144	500
	Silver	Aluminum	White Silicone/Red PTFE	50	1.3	11-AC-ST15	500
	Silver	Aluminum	Blue Silicone/PTFE	30	1.0	11-AC-ST101	500
	Silver	Aluminum	Blue Silicone/PTFE, Pre-slit	30	1.0	11-AC-ST101X	500
	Silver	Aluminum	White Virgin PTFE, 0.01"	—	0.25	11-ACT	1000
	Silver	Aluminum	Red PTFE/White Silicone/Red PTFE	57	1.0	11-AC-TST1	500



Chromacol 11mm Crimp Top Closures (Continued)

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
11mm Crimp Cap, magnetic	Silver	Steel Alloy	White Silicone/Red PTFE	57	1.3	11-MC-ST15	500
11mm Crimp Cap, magnetic, Type 8 Rubber/PTFE	Silver	Steel Alloy	Red Natural Rubber/Clear PTFE	38	1.0	11-MC-8RT1	500
11mm Crimp Cap, magnetic	Silver	Steel Alloy	Blue Silicone/PTFE	30	1.0	11-MC-ST101	500
11mm Snap Cap for Crimp Vials	Clear	Polyethylene	—	—	—	11-PEC1	1000
11mm Snap Cap for Crimp Vials, Pre cut	Clear	Polyethylene	—	—	—	11-PEC1X	1000
11mm Snap Cap for Crimp Vials	Clear	Polyethylene	White Silicone/Red PTFE	57	1.0	11-PEC-ST1	500

Chromacol 11mm Crimp Top Convenience and Instrument Select Kits

- Convenience kits save time during sample preparation
- Include matched quantities of vials and aluminum seals with prefitted septa
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Caps feature pre-inserted septa for added convenience during sample preparation



Items not shown to scale

Chromacol 11mm Crimp Top Convenience and Instrument Select Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat.No.	Cap Cat.No.	Cat. No.	Pack of
Convenience Kit, Wide Opening Crimp Top Vial	Clear	Yes	Silver	Red Natural Rubber/Clear PTFE, Type 7	2-CV	11-AC7	2-CV7-CP	100
	Clear	Yes	Silver	White Silicone/Red PTFE	2-CV	11-AC-ST15	2-CVST-CP	100
	Amber	Yes	Silver	Red Natural Rubber/Clear PTFE, Type 7	2-CV(A)	11-AC7	2-CV(A)7-CP	100
	Amber	Yes	Silver	White Silicone/Red PTFE	2-CV(A)	11-AC-ST15	2-CV(A)ST-CP	100
Convenience Kit, Wide Opening Crimp Top Vial for CTC LCPAL Autosampler	Clear	Yes	Blue	Blue Silicone/Red PTFE	2-CV	11-AC(B)-ST144	CTCL	100
Convenience Kit, Wide Opening Crimp Top Vial for Agilent GC Autosampler	Clear	Yes	Silver	Red Natural Rubber/Clear PTFE, Type 7	2-CV	11-AC7	HPG	100
Convenience Kit, Wide Opening Crimp Top Vial for Agilent LC Autosampler	Clear	Yes	Silver	Red Natural Rubber/Clear PTFE, Type 7	2-CV	11-AC7	HPL	100
Convenience Kit, Wide Opening Crimp Top Vial for VWR(Merck)-Hitachi LC Autosampler	Clear	Yes	Silver	Blue Silicone/PTFE-Pre-Cut	2-CV	11-AC-ST101X	MEL	100
Convenience Kit, Wide Opening Crimp Top Vial for PerkinElmer GC Autosampler	Clear	Yes	Silver	Red Natural Rubber/Clear PTFE, Sulphur free, Type 6	2-CV	11-AC6	PEG	100
Convenience Kit, Wide Opening Crimp Top Vial for Shimadzu LC Autosampler	Clear	Yes	Silver	Blue Silicone/PTFE	2-CV	11-AC-ST101	SHG	100
Convenience Kit, Wide Opening Crimp Top Vial for Spark LC Autosampler	Clear	Yes	Silver	Red Natural Rubber/Clear PTFE, Type 7	2-CV	11-AC7	SPL	100
Convenience Kit, Wide Opening Crimp Top Vial for Thermo Scientific AS2000 GC Autosampler	Clear	Yes	Silver	Blue Silicone/Red PTFE	2-CV	11-AC(N)-ST144	TQG	100
Convenience Kit, Wide Opening Crimp Top Vial for Thermo LC Autosampler	Clear	Yes	Silver	White Silicone/Red PTFE	2-CV	11-AC-ST15	TQL	100

Chromacol Crimpers and Decappers

- Crimping tools provide a reproducible, secure vial closure for all 11mm vial and seal combinations
- Easy and convenient handling
- High quality construction for durability and long life
- Painted, plated and coated for maximum corrosion resistance



Items not shown to scale

Chromacol Crimpers and Decappers

Description	Use	Cat. No.	Pack of
Manual Crimper	Attaches 11mm aluminum crimp seals	CR-11	1
Decapping Pliers	Removes 11mm aluminum crimp seals, Protective gloves recommended	DCR-11	1
Manual Decrimper	Removes 11mm aluminum crimp seals without vial damage	DCB-11	1

For electronic crimpers and decappers look on page **25**

Chromacol 2mL, 32x12mm, 11mm Snap Cap Vials

- Superior quality borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass
- Available with a graduated, write-on patch for convenient sample identification
- Wide neck opening design, allows easy filling, requires Micro-Inserts with a diameter of 6mm
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts
- Available silanized (deactivated) for optimal recovery of critical polar, labile or chelating compounds
- Snap-Cap vials can be used with snap caps or aluminum crimp seal closures

Compatible with:

Most HPLC and GC autosamplers

For autosampler compatibility
look on pages **41-45**



Chromacol 2mL, 12x32mm 11mm Snap Vials and Inserts

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (μL)	Cat. No.	Pack of
11mm Snap Cap Vial	Clear	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	2-RV	500
	Amber	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	2-RV(A)	500
11mm Snap Cap 1.5mL Vial	Clear	No	12x32	High Recovery	1.5mL	1.3mL	<4	1.5-HRRV	100
11mm Snap Cap 1.5mL Vial, silanized	Clear	No	12x32	High Recovery	1.5mL	1.3mL	<4	1.5-HRRV(S)	100
11mm Snap Cap Vial, Ultra High Recovery with 10μL Reservoir	Clear	No	12x32	Mandrel Base	1.2mL	1mL	<2	1.2-UHRRV	100
11mm Snap Cap 300μL Vial, Fused Insert	Clear	Yes	12x32	Fused Conical	300μL	250μL	<3	03-FIRV	500
	Amber	Yes	12x32	Fused Conical	300μL	250μL	<3	03-FIRV(A)	500
11mm Snap Cap 200μL Vial, Fused Insert – GOLD grade glass	Clear	Yes	12x32	Fused Conical	200μL	180μL	<2	02-FIRVG	500
300μL Insert	Clear	–	6x31	Flat Bottom	300μL	200μL	<12	03-NV	1000
200μL Insert - GOLD Grade Glass	Clear	–	6x30	Pulled Point	200μL	160μL	<4	02-MTVWG	1000
Self-centering support device for tapered glass inserts	Polyethylene	–	–	–	–	–	–	MTS-1	500

Chromacol 11mm Snap Closures

- Easy to apply and easy to remove from Snap vials
- Pre-assembled caps and septa are convenient and minimize contamination from handling
- Snap caps eliminate the need for crimping or de-capping tools
- Polyethylene caps are chemically inert and suitable for most chromatography applications
- Closures are shipped in sealed polybags to prevent contamination during transport



Chromacol 11mm Snap Closures

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
11mm Snap Cap, thinned penetration area	Blue	Polyethylene	Integral Molded In Polyethylene	—	—	11-PSN(B)	500
11mm Snap Cap, 6mm hole	Blue	Polyethylene	Red Natural Rubber/Clear PTFE	58	1.0	11-PSN(B)-8RT1	500
	Blue	Polyethylene	White Silicone/Red PTFE	57	1.0	11-PSN(B)-ST1	500
	Blue	Polyethylene	Blue Silicone/PTFE	30	1.0	11-PSN(B)-ST101	500
	Blue	Polyethylene	White Silicone/Blue PTFE, Pre-slit	57	1.0	11-PSN(B)-ST1X	500
	Blue	Polyethylene	Red PTFE/White Silicone/Red PTFE	57	1.0	11-PSN(B)-TST1	500
	Red	Polyethylene	White Virgin PTFE, 0.01"	53	0.3	11-PSN(R)-T02	500

Chromacol 11mm Snap Cap Wide Opening Vial Convenience and Instrument Select Kits

- Convenience kits save time during sample preparation
- Includes 100 vials and 100 caps with pre-assembled septa
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Caps feature pre-inserted septa for added convenience during sample preparation



Items not shown to scale

Chromacol 11mm Snap Cap Wide Opening Vial Convenience and Instrument Select Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat.No.	Cap Cat.No.	Cat. No.	Pack of
Convenience Kit, Wide Opening Snap Vial	Clear	Yes	Blue	White Silicone/Red PTFE	2-RV	11-PSN(B)-ST1	2-RVST-CP	100
	Clear	Yes	Blue	Red Natural Rubber/Clear PTFE	2-RV	11-PSN(B)-8RT1	2-RV8-CP	100

Chromacol 13mm Screw Vials, 13-425 Thread Finish Vials

- Superior quality borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts



Compatible with:

The 4mL vials are preferentially used on instruments of the following manufacturers:

- Dionex
- Shimadzu
- Spark Holland, Varian
- VWR (Merck)/Hitachi
- Waters (Wisp 48 Position Carousel)

For autosampler compatibility look on pages **41-45**

Images shown are 60% to scale
* 40% to scale

Chromacol 13mm Screw Vials

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (mL)	Usable Volume (mL)	Residual (μL)	Cat. No.	Pack of
13-425 Screw Thread Vial	Clear	No	13x100	Round Bottom	10.0	8.5	<500	10-SV	125
	Clear	No	13x65	Round Bottom	5.0	4.5	<500	5-SV	125
	Clear	No	15x46	Flat Bottom	4.0	4.0	<800	4-SV	500
	Amber	No	15x46	Flat Bottom	4.0	4.0	<800	4-SV(A)	500
13-425 Screw Thread 3.5mL High Recovery Vial	Clear	No	15x46	High Recovery	3.5	3.0	<12	3.5-HRSV	250

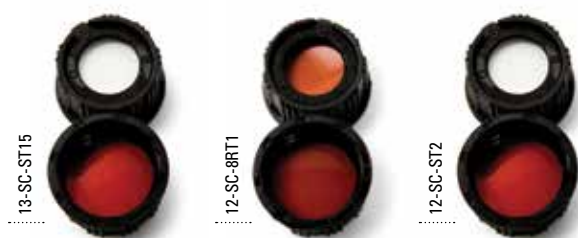
Chromacol 13mm Screw Vials, 13-425 Thread Finish Closures

- Open top caps are designed to be used with any of our 12mm septa
- Polypropylene caps are chemically inert and suitable for most chromatography applications
- Pre-assembled caps and septa are convenient and minimize contamination from handling



Chromacol 13-425 Screw Thread Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
13mm Open Top Screw Cap, 13-425 thread, 8mm hole	Black	Polypropylene	—	—	—	12-SC	500
	White	Polypropylene	—	—	—	12-SC(W)	500
	Red	Polypropylene	—	—	—	12-SC(R)	500
	Yellow	Polypropylene	—	—	—	12-SC(Y)	500
13mm Solid Top Storage Cap, 13-425 thread	Black	Polypropylene	—	—	—	12-SCS	500
PTFE Lined Solid Top Cap for 13-425 Thread	White	Urea	PTFE/Foam Urethane Liner	—	—	13-SCST	100
Septum for 13-425 Screw Caps	—	—	Red Natural Rubber/Clear PTFE	38	1.0	12-6RT1	500
	—	—	White Silicone/Red PTFE	57	2.0	12-ST2	500
	—	—	Blue Silicone/PTFE	57	1.8	12-ST18	500
	—	—	Blue Silicone/PTFE	30	1.0	12-ST101	500
	—	—	White Virgin PTFE, 0.01"	53	0.25	12-T02	1000



Chromacol 13-425 Screw Thread Caps and Septa (Continued)

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
13mm Open Top Screw Cap, 13-425 thread, 8mm hole	Black	Polypropylene	White Silicone/Red PTFE	57	1.3	13-SC-ST15	500
	Black	Polypropylene	Red Natural Rubber/Clear PTFE	58	1.0	12-SC-8RT1	500
	Black	Polypropylene	Red PTFE/White Silicone	57	2.0	12-SC-ST2	500

Chromacol Shell/Neckless Vials

- Superior quality borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass
- Polyethylene Cap with starburst center design eases syringe needle penetration
- Convenient vial kits include equal quantities of vials and caps

Recommended for the following instruments:

- Alcott
- Gilson
- Shimadzu
- Waters (Wisp 96 respectively 48 Position Carousel)

For autosampler compatibility
look on pages **41-45**



Chromacol Shell/Neckless Vials and Kits

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (mL)	Usable Volume (mL)	Residual (μL)	Cat. No.	Pack of
1mL Neckless/Shell Vial	Clear	No	8x40	Flat Bottom	1.25	1.0	<80	1-NWV	500
1mL Neckless/Shell Vial with PE-Cap	Clear	No	8x40	Flat Bottom	1.25	1.0	<80	1-NWV-C	200
1mL Neckless/Shell Vial with PE-Cap	Amber	No	8x40	Flat Bottom	1.25	1.0	<81	1-NWV(A)-C	200
2mL Neckless/Shell Vial	Clear	No	12x32	Flat Bottom	2.5	2.0	<175	2.5-NV	500
4mL Neckless/Shell Vial with PE-Cap	Clear	No	15x46	Flat Bottom	5.5	4.0	<350	4-NWV-C	100
8mm PE-Cap/Plug for 1mL Shell-Vial	Polyethylene	—	—	—	—	—	—	8-NPWP	1000
12mm Polyethylene Plug for 2mL Shell-Vial	Polyethylene	—	—	—	—	—	—	12-NPEP4	1000

Chromacol Headspace Vials

Clear glass vials with 20mm crimp seal or Screw Thread finish are designed to fit most headspace autosamplers

- Superior quality borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass, meets all requirements of Pharm. US, EU, JPN
- Round bottom vials are compatible with most autosamplers and more easily handled by robotic arms that lift the vial from the tray
- Vials feature beveled edge 20mm crimp finish
- The bevel edge on the lip of the vial provides additional sealing power for greater leak resistance under high pressure
- Screw thread headspace vials are convenient and do not require tools
- Multiple turn threading maintains a tight seal through extreme heating cycles



Chromacol Headspace Vials

Description	Glass	Patched	Dimension (mm)	Finish	Profile	Total Volume (mL)	Usable Volume (mL)	Cat. No.	Pack of
20mm Headspace Crimp Vial	Clear	No	30x60	Beveled Edge	Flat Bottom	27	27	27-CV	100
	Clear	No	22 x75	Beveled Edge	Round Bottom	22	20	22-CV	125
	Clear	No	22.5x75	Beveled Edge	Round Bottom	21	20	20-CV	125
	Amber	No	22.5x75	Beveled Edge	Round Bottom	21	20	20-CV(A)	125
	Clear	No	18x65	Beveled Edge	Round Bottom	12	10	12-CV	100



Chromacol Headspace Vials (Continued)

Description	Glass	Patched	Dimension (mm)	Finish	Profile	Total Volume (mL)	Usable Volume (mL)	Cat. No.	Pack of
20mm Headspace Crimp Vial	Clear	No	22.5x45	Beveled Edge	Round Bottom	12	10	10-CV	125
	Amber	No	22.5x45	Beveled Edge	Round Bottom	12	10	10-CV(A)	125
	Clear	No	18x50	Beveled Edge	Round Bottom	10	9	9-CV	100
	Clear	No	22x38	Beveled Edge	Round Bottom	8	6	6-CV	125
18mm Screw Top Headspace Vial	Clear	No	22.5x76	Screw Thread	Round Bottom	21	20	20-HSV	125
	Clear	No	22.5x46	Screw Thread	Round Bottom	12	10	10-HSV	125

Chromacol Crimping and Decrimping Tools

- Crimping tools provide a reproducible, secure vial closure for all 20mm vial and seal combinations
- Easy and convenient handling
- High quality construction for durability and long life
- Painted, plated and coated for maximum corrosion resistance



Items not shown to scale

Chromacol Crimping and Decrimping Tools

Description	Use	Cat. No.	Pack of
Manual Crimper	Attaches 20mm crimp seals	CR-20	1
Decapping Pliers	Removes 20mm crimp seals, Protective gloves recommended	DCR-20	1
Manual Decrimper	Removes 20mm crimp seals without vial damage	DCB-20	1

For electronic crimpers and decappers look on page **25**

Chromacol Headspace Caps and Septa

- Use magnetic seals with CTC/Leap Technologies, Gerstel and other magnetic transport autosamplers
- 20mm Crimp seals must be applied with a crimping tool
- Pre-assembled caps and septa are convenient and minimize contamination from handling



Images shown are 50% to scale

Chromacol Headspace Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
20mm Crimp Cap, 8mm hole	Silver	Aluminum	—	—	—	20-ACB	500
20mm Magnetic Crimp Cap, 6mm hole	Silver	Tin-plated	—	—	—	20-MCB	500
20mm Composite Magnetic Crimp Cap, 8mm hole	Blue	Alu/Tinplate	—	—	—	20-MCBC	500
	Red	Alu/Tinplate	—	—	—	20-MCBC(R)	500
18mm Magnetic Screw Cap, 8mm hole	Silver	Steel	—	—	—	18-MSC	125
Septum for 20mm Crimp Caps	—	—	20mm Gray Butyl Stopper	55	3.0	20-B3P	500
	—	—	20mm Molded Gray Chlorobutyl	52	3.0	20-CB3	1000
	—	—	20mm Molded Gray Chlorobutyl/Gray PTFE	52	3.0	20-CBT3	1000
	—	—	20mm Molded Blue Chlorobutyl/Gray PTFE, Bellows Type	52	3.0	20-CBT3B	1000
	—	—	20mm Red Silicone/Aluminium Face Seal 3mm Thick, for >170°C.	45	3.0	20-ASH3	100
	—	—	20mm Silicone/PTFE for liquid - liquid extraction	—	0.25	20-LLX	100
	—	—	20mm Blue Silicone/Natural PTFE	45	3.0	20-ST3	500
	—	—	20mm Red Silicone/Natural PTFE, high temperature	45	3.0	20-ST3HT	100
	—	—	20mm Blue Silicone/Red PTFE Seal 1.5mm Thick	20	1.5	20-ST15	500
	—	—	20mm Blue Silicone/PTFE	30	1.0	20-ST101	500
	—	—	18mm Blue Silicone/PTFE	30	1.0	18-ST101	125
	—	—	—	—	—	—	—
Septum for 18mm Screw Caps	—	—	18mm Blue Silicone/PTFE	30	1.0	18-ST101	125
	—	—	—	—	—	—	—
20mm Composite Magnetic Crimp Cap, 8mm hole	Blue	Alu/Tinplate	20mm Blue Silicone/Natural PTFE	45	3.0	20-MCBC-ST3	500
	Red	Alu/Tinplate	20mm Blue Silicone/Natural PTFE	45	3.0	20-MCBC(R)-ST3	500
20mm Magnetic Tin Plate Crimp Cap	Silver	Tinplate	20mm Blue Silicone/Natural PTFE	45	3.0	20-MCB-ST3	500
20mm Crimp Cap, 8mm hole	Silver	Aluminum	20mm Molded Gray Chlorobutyl/Gray PTFE	52	3.0	20-AC-CBT3	500
	Silver	Aluminum	20mm Blue Silicone/Natural PTFE	45	3.0	20-AC-ST3	500
18mm Magnetic Screw Cap, 8mm hole	Silver	Steel	18mm Molded Blue Chlorobutyl/Gray PTFE	52	3.0	18-MSC-CBT3	125
	Silver	Steel	18mm Blue Silicone/PTFE, not prefitted	30	1.0	18-MSC-ST101	125
	Silver	Steel	18mm Blue Silicone/Natural PTFE	45	3.0	18-MSC-ST3	125
20mm Plug	Neutral	Polyethylene	PE Membrane	—	—	20-PEPC5	250

Chromacol Headspace Vial Combination Kits

- Include matched quantities of vials and silver aluminum seals with prefitted septa
- Caps feature pre-inserted septa for added convenience during sample preparation
- Convenience kits save time during sample preparation



Items not shown to scale

Chromacol Headspace Vials Combination Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat.No.	Cap Cat.No.	Cat. No.	Pack of
Convenience Kit, 20mL Headspace Screw Vial, Round Bottom, Steel Screw Cap, 8mm hole	Clear	No	Silver	18mm Blue Silicone/ Natural PTFE	20-HSV	18-MSC-ST3	20-HSVST3-CP	125
Convenience Kit, 20mL Headspace Crimp Vial, Beveled Edge, Round Bottom, Alu Crimp Cap, 8mm hole	Clear	No	Silver	20mm Molded Blue Chlorobutyl/Gray PTFE	20-CV	20-AC-CBT3	20-CVCBT3-CP	125
Convenience Kit, 20mL Headspace Crimp Vial, Beveled Edge, Round Bottom, Alu Crimp Cap, 8mm hole	Clear	No	Silver	20mm Blue Silicone/ Natural PTFE	20-CV	20-AC-ST3	20-CVST3-CP	125

Chromacol Sample Storage Screw Thread Vials

- Capacity range up to 40mL
- Superior quality borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass
- Provide consistent pH for duration of sample storage life
- PTFE-Lined Solid-top storage caps



Caps and Septa images 50% to scale

Chromacol Sample Storage Screw Vials

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (mL)	Capacity (DRAMS)	Cat. No.	Pack of
24-400 Screw Vial	Clear	No	28x95	Flat Bottom	40	8	40-SV	100
	Amber	No	28x95	Flat Bottom	40	8	40-SV(A)	100
20-400 Screw Vial	Clear	No	23x85	Flat Bottom	22	6	22-SV	200
18-400 Screw Vial	Clear	No	21x70	Flat Bottom	16	4	16-SV	200
	Amber	No	21x70	Flat Bottom	16	4	16-SV(A)	200
15-425 Screw Vial	Clear	No	19x65	Flat Bottom	12	3	12-SV	200
	Amber	No	19x65	Flat Bottom	12	3	12-SV(A)	200
	Clear	No	17x60	Flat Bottom	8	2	8-SV	200
	Amber	No	17x60	Flat Bottom	8	2	8-SV(A)	200

For smaller Vials look at the previous sections



Caps and Septa images 50% to scale

Chromacol Sample Storage Screw Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
24-400 Screw Cap	White	Polypropylene	PTFE/Foam Urethane Liner	—	1.0	24-SCST	100
20-400 Screw Cap	White	Urea	PTFE/Foam Urethane Liner	—	1.0	20-SCST	100
18-400 Screw Cap	White	Urea	PTFE/Foam Urethane Liner	—	1.0	18-SCST	100
15-425 Screw Cap	White	Urea	PTFE/Foam Urethane Liner	—	1.0	15-SCST	100
13-425 Screw Cap	White	Urea	PTFE/Foam Urethane Liner	—	1.0	13-SCST	100

Thermo Scientific Crimpers and De-Crimpers

Electronic Crimpers and De-Crimpers provide an adjustable crimp with reproducible results.

Thermo Scientific offers hand held electronic crimpers for crimping or removal of aluminum seals on 8, 11, 13 and 20mm vials. The crimper is a hand held device, which allows aluminum seals to be firmly attached to the vial while it remains in most sample trays with the touch of a button. A separate de-crimper allows the removal of the seal just as easily. The instruments have an adjustment for septa of varying thicknesses. Power is supplied by rechargeable Lithium Ion Cells. The 7.5 volt DC power supply comes with a set of plug adaptors to fit power outlets for most countries.

Electronic Crimpers and De-Crimpers

- One hand secure, reproducible crimps of 8, 11, 13 and 20mm vials with the push of a button
- Reduces hand strain compared to manual crimper operation
- Quick and easy removal of aluminum seals with the push of a button
- Ergonomic design eliminates wrist strain
- Vials can be crimped while they remain in most standard removable sample trays
- Adjustable crimp settings for compatibility with most vial/septum/seal combinations
- Fully rechargeable Lithium Ion Battery
- Provided with universal power supply/recharger and international plug adaptors

Electronic Hand-held Crimper and De-Crimper

Description	Cat. No.	Pack of
Electronic Hand-held Crimper for 8mm Crimp Caps, Generation 3	ECR-8C	1
Electronic Hand-held Crimper for 11mm Crimp Caps, Generation 3	ECR-11C	1
Electronic Hand-held Crimper for 13mm Crimp Caps, Generation 3	ECR-13C	1
Electronic Hand-held Crimper for 20mm Crimp Caps, Generation 3	ECR-20C	1
Electronic Hand-held De-Crimper for 11mm Crimp Caps, Generation 3	EDCB-11C	1
Electronic Hand-held De-Crimper for 13mm Crimp Caps, Generation 3	EDCB-13C	1
Electronic Hand-held De-Crimper for 20mm Crimp Caps, Generation 3	EDCB-20C	1
Replacement Battery, 6.4V Lithium Ion, For Generation 3 Electronic Crimpers and De-Crimpers	ECR-CBATT	1



Chromacol EPA, TOC and Scintillation Screw Vials

Level 300 Cleaned and Certified

- Processed and packaged under a registered ISO Quality Management System.
- Laboratory certified to meet U.S. EPA Super Fund Standards in accordance with the latest edition of EPA's "Specifications and Guidance for Contaminant Free Sample Containers."
- The Level 300 Certificate of Analysis is backed by third party generated validatable laboratory data, and provides complete traceability through the production process.
- Every case of Level 300 product contains a Certificate of Analysis and is custody sealed to ensure reliable chain-of-custody.

Level 200 Cleaned

- Processed and packaged under a strict registered ISO Quality Management System in the same manner as Level 300 products.
- Level 200 products are not certified.
- Every case of product is labeled with its production number and is custody sealed to ensure reliable chain-of-custody.

Level 100

- These processed and packaged under a strict registered ISO Quality Management System in the same manner as Level 300 products.
- Level 100 products are not certified or pre-cleaned.
- Every case of product is labeled with its production number and is custody sealed to ensure reliable chain-of-custody.

TOC Vials

- The only low-level certified vials in the market for Total Organic Carbon testing and sampling.
- Major TOC instrument manufacturers recommend these vials when analysis of low levels of TOC requires low background level assurance.
- Each lot of vials is tested and certified to contribute less than 10ppb TOC as background or for less stringent applications the 20ppb TOC version.
- Certificate of Analysis is included with lot production numbers.

Scintillation Vials

- Provide the very lowest background count and benefit from very high optical clarity.
- Typical background count of 13CPM or lower, compared to an average 16-65CPM from competitive products.
- Noise level of 2.28 and a quenching index factor of 349.

40-EPAVCS



40-TOCSV-10



Items not shown to scale
* 50% to scale

Chromacol EPA Screw Vial Kits

Kit Type	Glass	Dimension (mm)	Total Volume (mL)	Class	Septum	Cat. No.	Pack of
EPA Screw Vial Assembled Kit Vials/Septa/Caps	Clear	28x95	40	Class 100	0.01" White PTFE/ 0.09" Clear Silicone	40-EPAVCS	100
	Clear	28x95	40	Class 200 Pre-cleaned		40-EPAVCS-PC	72
	Clear	28x95	40	Class 300 Pre-cleaned		40-EPAVCS-PC3	72
	Amber	28x95	40	Class 100		40-EPAVCS(A)	100
	Amber	28x95	40	Class 200 Pre-cleaned		40-EPAVCS(A)-PC	72
	Amber	27x57	40	Class 300 Pre-cleaned		40-EPAVCS(A)-PC3	72
	Clear	28x57	20	Class 100		20-EPAVCS	100
	Amber	28x57	20	Class 100		20-EPAVCS(A)	100
	Clear	28x140	60	Class 100		60-EPAVCS	72

Chromacol TOC Vials Kits

Description	Glass	Dimension (mm)	Total Volume (mL)	Cap Color	Cap Material	Septum	Cat. No.	Pack of
TOC clear vial with cap cover, open top cap TOC 10ppb	Clear	28x96	40	White	Polypropylene	Beige PTFE/ White Silicone	40-TOCSV-10	72
TOC clear vial with cap cover, open top cap TOC 20ppb	Clear	28x96	40	White	Polypropylene	Beige PTFE/ White Silicone	40-TOCSV-20	72

Chromacol Scintillation Vials Kit

Description	Glass	Dimension (mm)	Total Volume (mL)	Noise	Background Count	Quenching Index Factor	Cat. No.	Pack of
20mL vial with foil lined caps	Clear	27x57	10	2.28	13 CPM	349	20-EPSVCA	500

Seal Hardness

The hardness testing of plastics is most commonly measured by the Shore (Durometer) test. This method measures the resistance of plastics toward indentation and provides an empirical hardness value. Shore Hardness, is the preferred method for rubbers/elastomers and is also commonly used for 'softer' plastics such as fluoropolymers. Most septa hardness values are stated in Shore A. The results obtained from this test are a useful measure of relative resistance to piercing of various grades of polymers. This gives guidance on the type of needle that will penetrate the seal and whether thinner gauge needles may be used.

Seals in 8mm, 9mm, 11mm, 12mm Caps

Seal Material	Hardness °shore	Thickness (mm)
TST1 Red PTFE/white silicone/red PTFE	57	1.0
CBT1 Gray Chlorobutyl/PTFE	52	1.0
ST14 Blue silicone/PTFE	50	1.2
6RT1/AC6 Synthetic rubber/PTFE	38	1.0
ST101 Blue silicone/PTFE	30	1.0
ST143 White silicone/PTFE	20	1.4
ST144 Blue silicone/red PTFE	20	1.4
V1 Viton	62	1.0
AC7 Natural rubber/PTFE	60	1.0
8RT1 Synthetic rubber/PTFE	58	1.0
ST2 White silicone/red PTFE	57	2.0
ST18 White silicone/red PTFE	57	1.8
ST15 White silicone/red PTFE	57	1.5
ST1 White silicone/red PTFE	57	1.0

Seals in 20mm Caps

Seal Material	Hardness °shore	Thickness (mm)	max. Temp °C
CBT3B Chlorobutyl/PTFE	52	3	120
CBT3 Chlorobutyl/PTFE	52	3	120
CB3 Chlorobutyl	52	3	120
ST3 Blue silicone/PTFE	45	3	200
ST3HT Red silicone/PTFE	45	3	250
AS3 White silicone/aluminium	45	3	<170
ASH3 Red silicone/aluminium	45	3	>170

Seal properties

Rubber	Used primarily for routine analysis in gas chromatography. Offers moderate resealability and good chemical inertness. Not recommended for multiple injections or holding samples for further analysis. PTFE is protective layer that once broken exposes rubber to chemical attack.
PTFE/Red rubber – AC6, 8RT1	Low durometer of rubber allows ease of needle penetration. A popular and economical septa for general GC purposes.
PTFE/Rubber – AC7, 8RT1	Harder grade of rubber for use with piercing needle. Most popular and economical septa for general GC purposes in Agilent systems.
Pre-slit PTFE/red rubber – 8RT1X	Pre-slit, high quality red rubber with a thin (0.003") layer PTFE. For applications using a very thin-gauge syringe needle or in instances when a vacuum may form in the vial.
Silicone rubber	High quality, silicone rubber laminated to PTFE. Use when excellent resealing qualities are a must. Septum resists coring and is recommended when multiple injections are required. Preferred septa for use in liquid chromatography applications.
PTFE/silicone – ST1, ST15, ST18, ST2	A white medium hardness silicone with red PTFE protective layer available in a range of thickness.
PTFE/silicone – ST101, ST14	<ul style="list-style-type: none"> A very pure soft silicone laminated to PTFE. Septum resists coring and is recommended for instruments with fine gauge needles. Also recommended for LC-MS and GC-MS due to high purity.
PTFE/silicone – ST143, ST144	A very soft silicone laminated to PTFE. Use with flexible needle.
PTFE/silicone/PTFE – TST1, TST11	<ul style="list-style-type: none"> A layer of PTFE on each side of medium hardness silicone. Most resistant to coring with above average resealing characteristics. Recommended for most demanding applications such as trace analysis, longer time between injections or for internal standards. Use with Gilson instruments and with any autosampler using large diameter, blunt-tip syringe needles.
Pre-slit PTFE/Silicone – ST1X, ST101X, ST14X	Pre-slit, high quality pure white silicone faced with PTFE. For applications using a very thin-gauge syringe needle or in instances when a vacuum may form in the vial. Highly recommended for Shimadzu and Hitachi autosampler units.
PTFE and fluoropolymers	Very good chemical resistance and used as a protective layer for less resistant elastomers.
PTFE – T, T02	For single injections and short sample cycles. This type of septa is not resealable.
Viton – V1	Viton provides the best chemical resistance with limited resealability. Recommended for chlorinated solvents. Due to Viton®'s intrinsic hardness, these septa are not suitable for finer-gauge syringe needles.
Integral plastic seal	Moulded as part of the cap.
Polyethylene – PE, Polypropylene – PP	Chemically resistant but for one time use only with no resealability.

20mm seal selection for Headspace and Sample Preparation applications

Butyl rubber/chlorobutyl rubber	An economical choice for low temperature (< 125°C) or low-pressure applications. Not suitable for alkanes, benzene, chlorinated solvents or cyclohexane without a protective PTFE layer.
Grey butyl stopper – B3P	Does not provide PTFE barrier. Use for gas sampling due to low permeability.
Blue chlorobutyl – CB3	Does not provide PTFE barrier. Use for gas sampling due to low permeability.
Blue chlorobutyl/natural PTFE – CBT3	Has PTFE barrier that makes it suitable for work with general organic solvents with low gas permeability.
Grey PTFE/chlorobutyl molded – CBT3B	Specially molded seal with PTFE insert. Sealing surface of Butyl and PTFE affects a more positive seal than non-PTFE-faced septa. Ideal choice for temperatures below 125°C. Good sealing characteristics, excellent resistance to most solvents and coring, and high puncture tolerance. PTFE provides increased chemical resistance.
Silicone rubber	Excellent septa choice for volatiles with very low background peaks and low permeability. Also ideal for alcohols and aqueous samples. Good resealing characteristics and resistant to coring.
Natural PTFE/blue silicone – ST3	Best septa choice when temperatures are over 125°C.
Natural PTFE/red silicone – ST3HT	High temperature formulated seal with low bleed. Best septa choice when temperatures are up to 250°C.
Blue Silicone/red PTFE – ST144	Thin 1.4mm seal with PTFE face for use with Fisons/ Carlo Erba Instruments. Resealing capability limited due to thinner silicone layer.
Aluminium/white silicone – AS3	Reflective aluminium face protects the silicone seal. The white silicone is suitable for use up to 170°C.
Aluminium/red silicone – ASH3	Reflective aluminium face protects the silicone seal. The red silicone is suitable for use at temperatures of >170°C.
Blue silicone/natural PTFE – ST101	Soft silicone with clean formulation for minimal interference. Thinner seal suitable for solvent washing, solvent extraction and SPME applications with some resealing. Not for direct headspace applications.
Freezer bungs – 2FB3	Butyl bungs for sealing of lyophilized products. Compatible with low storage temperatures and low gas permeability.
PTFE/silicone ring – LLX	Thin PTFE layer with sealing ring to give secure closure for strong solvents. For use in liquid extraction or SPME stage during sample preparation. Does not reseal.

Solvent Compatibility

Sealing Material

Solvent	AC6	AC7	B3P	CBT1	CB3	CBT3	LDPE	HDPE	PP	PTFE
Acetic Acid Aqueous	A(A)	A(B)	A(B)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Acetone	A(A)	A(C)	A(A)	A(A)	A(A)	A(A)	D(D)	B(B)	B(B)	A(A)
Acetonitrile	A(A)	A(A)	–	A(A)	A(A)	A(A)	–	–	–	A(A)
Alcohols(Aromatic)	A(B)	A(D)	–	A(B)	B(B)	A(B)	D(D)	D(D)	B(B)	A(A)
Alcohols(Aliphatic)	A(A)	A(B)	A(B)	A(A)	A(A)	A(A)	D(D)	B(B)	B(B)	A(A)
Amyl Acetate	A(A)	A(D)	A(C)	A(A)	A(A)	A(A)	D(D)	D(D)	–	A(A)
Aqueous Solutions Dilute	A(A)	A(A)	–	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Benzene	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Butyl Alcohol	A(B)	A(A)	A(B)	A(B)	B(B)	A(B)	B(B)	B(B)	B(B)	A(A)
Carbon Disulphide	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Carbon Tetrachloride	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Chloroform	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Cyclohexane	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	–	–	–	A(A)
Cyclohexanol	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	B(B)	A(A)
Diethyl Ether	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Dimethyl Sulphoxide	A(C)	A(D)	D(D)	A(C)	C(C)	A(C)	–	–	–	A(A)
Dioxane	A(B)	A(D)	A(B)	A(B)	B(B)	A(B)	–	–	–	A(A)
Esters	A(B)	A(D)	A(C)	A(B)	B(B)	A(B)	D(D)	D(D)	B(B)	A(A)
Ethyl Acetate	A(B)	A(D)	A(B)	A(B)	B(B)	A(B)	D(D)	D(D)	B(B)	A(A)
Ethyl Alcohol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	D(D)	B(B)	B(B)	A(A)
Ethylene Chloride	A(D)	A(D)	A(C)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Ethylene Glycol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Formaldehyde	A(B)	A(B)	A(A)	A(B)	B(B)	A(B)	A(A)	A(A)	A(A)	A(A)
Glycol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Halogenated Hydrocarbons	A(D)	A(C)	A(B)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Hexane	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	–	–	–	A(A)
Hydrochloric Acid Dilute	A(A)	A(C)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Iso-Octane	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	–	–	–	A(A)
Ketones	A(A)	A(C)	A(B)	A(A)	A(A)	A(A)	D(D)	B(B)	B(B)	A(A)
MeOH/H2O/Acetonitrile	A(A)	A(–)	–	A(A)	A(A)	A(A)	–	–	–	A(A)
Methanol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	–	–	–	A(A)
Methyl Chloride	A(C)	A(D)	A(C)	A(C)	C(C)	A(C)	D(D)	D(D)	D(D)	A(A)
Methyl Acetate	A(B)	A(C)	A(A)	A(B)	B(B)	A(B)	D(D)	D(D)	B(B)	A(A)
Methyl Ethyl Ketone	A(A)	A(D)	A(B)	A(A)	A(A)	A(A)	D(D)	B(B)	B(B)	A(A)
Methylene Chloride	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Nitric Acid Dilute	A(A)	A(D)	A(B)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Pentane	A(D)	A(–)	–	A(D)	D(D)	A(D)	–	–	–	A(A)
Petroleum Ether	A(D)	A(–)	–	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Sodium Hydroxide	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Sulphuric Acid Dilute	A(D)	A(C)	A(B)	A(D)	D(D)	A(D)	A(A)	A(A)	A(A)	A(A)
Surfactants	A(A)	A(–)	–	A(A)	A(A)	A(A)	–	–	–	A(A)
Toluene	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	B(B)	A(A)
Trichloroethylene	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Water	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)

Key: The first character indicates the characteristics of the seal prior to any injection.

The second character in () indicates the potential characteristics of the seal after an injection.

A = Recommended B = Suitable for most purposes C = Use with care D = Not advisable – = Not tested

Sealing Material

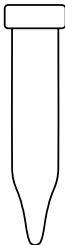
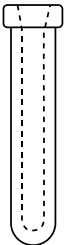
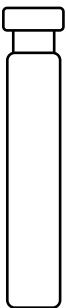

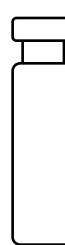




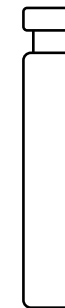
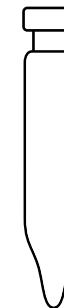
Solvent	ST3	ST2	ST18	ST15 and ST1	ST14	ST144	ST143	ST101	TST11	TST1	VITON
Acetic Acid Aqueous	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	D(D)
Acetone	A(D)	A(B)	A(A)	A(A)	A(A)	A(D)	A(B)	A(A)	A(A)	A(B)	D(D)
Acetonitrile	A(A)	A(-)	A(A)	A(A)	A(A)	A(A)	A(-)	A(A)	A(A)	A(-)	B(B)
Alcohols(Aromatic)	A(B)	A(A)	A(A)	A(A)	A(A)	A(B)	A(-)	A(A)	A(A)	A(-)	-
Alcohols(Aliphatic)	A(B)	A(-)	A(A)	A(A)	A(A)	A(B)	A(-)	A(A)	A(A)	A(-)	-
Amyl Acetate	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	D(D)
Aqueous Solutions Dilute	A(A)	A(-)	A(A)	A(A)	A(A)	A(A)	A(-)	A(A)	A(A)	A(-)	-
Benzene	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	A(A)
Butyl Alcohol	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(A)
Carbon Disulphide	A(D)	A(-)	A(A)	A(A)	A(A)	A(D)	A(-)	A(A)	A(A)	A(-)	A(A)
Carbon Tetrachloride	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	A(A)
Chloroform	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	A(A)
Cyclohexane	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	A(A)
Cyclohexanol	A(D)	A(-)	A(B)	A(B)	A(B)	A(D)	A(-)	A(B)	A(B)	A(-)	A(A)
Diethyl Ether	A(D)	A(-)	A(B)	A(B)	A(B)	A(D)	A(-)	A(B)	A(B)	A(-)	D(D)
Dimethyl Sulphoxide	A(D)	A(-)	A(A)	A(A)	A(A)	A(D)	A(-)	A(A)	A(A)	A(-)	C(C)
Dioxane	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	D(D)
Esters	A(B)	A(-)	A(B)	A(B)	A(B)	A(B)	A(-)	A(B)	A(B)	A(-)	-
Ethyl Acetate	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	D(D)
Ethyl Alcohol	A(A)	A(B)	A(A)	A(A)	A(A)	A(A)	A(B)	A(A)	A(A)	A(B)	-
Ethylene Chloride	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	-
Ethylene Glycol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Formaldehyde	A(B)	A(B)	A(A)	A(A)	A(A)	A(B)	A(B)	A(A)	A(A)	A(B)	D(D)
Glycol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	-
Halogenated Hydrocarbons	A(D)	A(-)	A(A)	A(A)	A(A)	A(D)	A(-)	A(A)	A(A)	A(-)	-
Hexane	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	-
Hydrochloric Acid Dilute	A(D)	A(-)	A(A)	A(A)	A(A)	A(D)	A(-)	A(A)	A(A)	A(-)	A(A)
Iso-Octane	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	-
Ketones	A(D)	A(-)	A(B)	A(B)	A(B)	A(D)	A(-)	A(B)	A(B)	A(-)	-
MeOH/H2O/Acetonitrile	A(A)	A(A)	A(B)	A(B)	A(B)	A(A)	A(-)	A(B)	A(B)	A(-)	-
Methanol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	D(D)
Methyl Chloride	A(D)	A(D)	A(A)	A(A)	A(A)	A(D)	A(D)	A(A)	A(A)	A(D)	A(A)
Methyl Acetate	A(D)	A(D)	A(B)	A(B)	A(B)	A(D)	A(D)	A(B)	A(B)	A(D)	D(D)
Methyl Ethyl Ketone	A(D)	A(D)	A(A)	A(A)	A(A)	A(D)	A(D)	A(A)	A(A)	A(D)	D(D)
Methylene Chloride	A(D)	A(B)	A(B)	A(B)	A(B)	A(D)	A(-)	A(B)	A(B)	A(-)	-
Nitric Acid Dilute	A(D)	A(B)	A(B)	A(B)	A(B)	A(D)	A(B)	A(B)	A(B)	A(B)	A(A)
Pentane	A(D)	A(C)	A(C)	A(C)	A(C)	A(D)	A(-)	A(C)	A(C)	A(-)	-
Petroleum Ether	A(D)	A(-)	A(C)	A(C)	A(C)	A(D)	A(-)	A(C)	A(C)	A(-)	-
Sodium Hydroxide	A(A)	A(B)	A(A)	A(A)	A(A)	A(A)	A(B)	A(A)	A(A)	A(B)	D(D)
Sulphuric Acid Dilute	A(D)	A(D)	A(B)	A(B)	A(B)	A(D)	A(D)	A(B)	A(B)	A(D)	A(A)
Surfactants	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(-)	A(A)	A(A)	A(-)	-
Toluene	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	A(A)
Trichloroethylene	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	A(A)
Water	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	B(B)


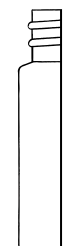
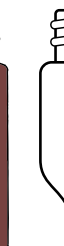
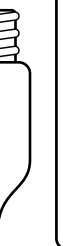








Key: The first character indicates the characteristics of the seal prior to any injection.


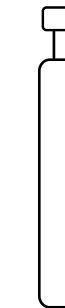


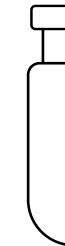
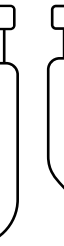

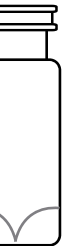

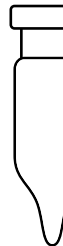


The second character in () indicates the potential characteristics of the seal after an injection.

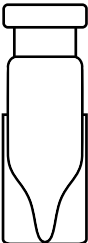
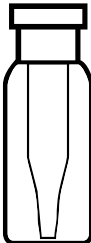
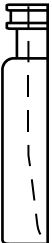


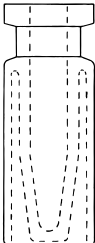
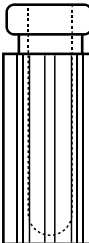
A = Recommended B = Suitable for most purposes C = Use with care D = Not advisable - = Not tested

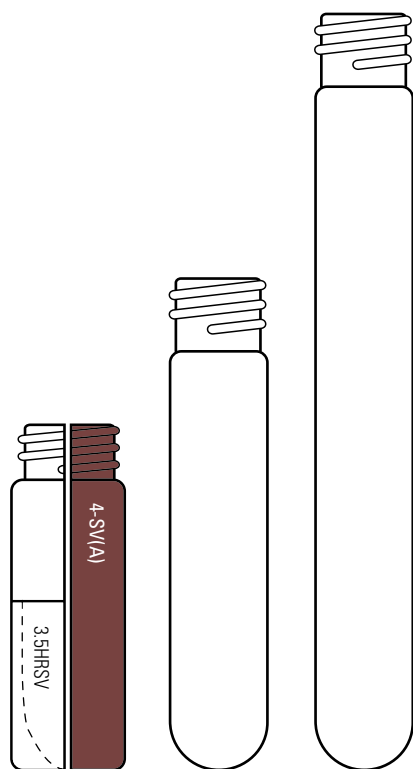
Chromacol Vials Comparison Chart

											
Part No. Dimensions	02-CTVG 6 x 32mm	01-CVG 6 x 32mm	08-CPV 7 x 40mm	08-CRV(A) 7 x 32mm	08-CV 8 x 30mm	07-CPV 7 x 40mm	06-CTV(A) 7 x 32mm	05-CTV(A) 7 x 30mm	03-CVG 6 x 32mm	1.2-CWV 8 x 40mm	1-CWV 8 x 40mm

											
Part No. Dimensions	2-SV 12 x 32mm	2-SV(A) 12 x 32mm	2-SVW 12 x 32mm	2-SVW(A) 12 x 32mm	1.1-STVG 12 x 32mm	4-SVQ 15 x 46mm	1.5-HRSV 12 x 32mm	03-FIV 12 x 32mm	03-FISV 12 x 32mm	06-PESV 12 x 32mm	1.2-UHRSV 12 x 32mm

											
Part No. Dimensions	02-FISVG 12 x 32mm	2.5-CV 12 x 40mm	4-CV 15 x 46mm	2-CV 12 x 32mm	2-CV(A) 12 x 32mm	1.5-HRCV 12 x 32mm	2-CRV 12 x 32mm	1.1-CTVG 12 x 32mm	1.5-HRRV 12 x 32mm	2-RV 12 x 32mm	09-CTV 10 x 32mm

						
Part No. Dimensions	09-FIV 12 x 32mm	02-FIVG 12 x 32mm	03-FIRV 12 x 32mm	1.2-UHRRV 12 x 32mm	06-PECV 12 x 32mm	06-PPCV 12 x 32mm

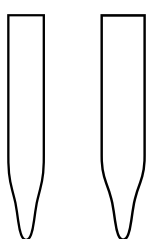


Part No.
Dimensions

4-SV
15 x 46mm

5-SV
13 x 65mm

10-SV
13 x 100mm



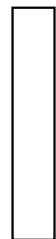
Part No.
Dimensions

02-MTV
5 x 30mm

02-MTVWG
6 x 30mm



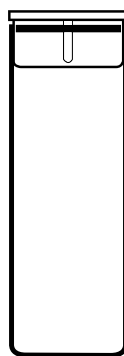
02-NV
5 x 31mm



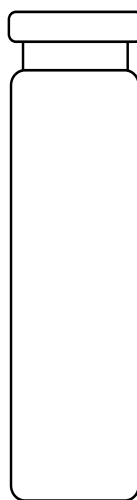
03-NV
6 x 31mm



1-NWV
8 x 40mm



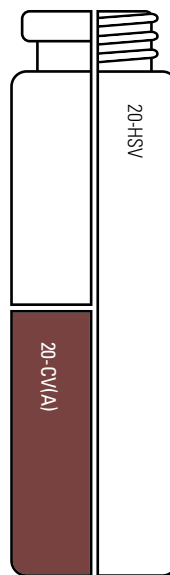
4-NWV-C
15 x 46mm



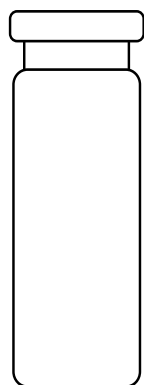
12-CV
18 x 65mm



22-CV
22 x 75mm

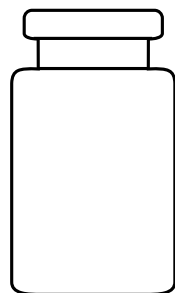


20-CV
22 x 75mm

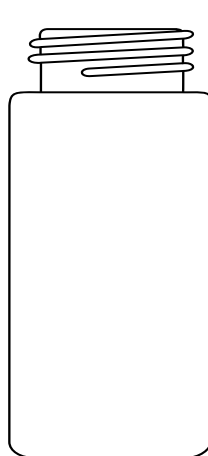


Part No.
Dimensions

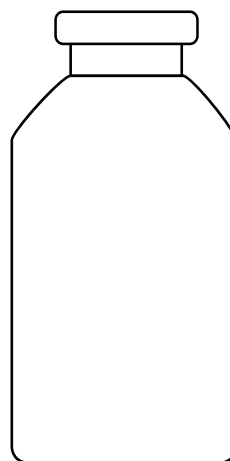
9-CV
18 x 50mm



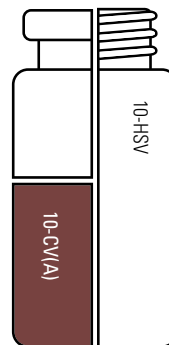
6-CV
22 x 38mm



20-EPSVCA
27 x 57mm



27-CV
30 x 60mm



10-CV
22 x 45mm

Chromacol Caps and Septa Comparison Chart

Part No. Dimensions	 *8-AC6 8 x 5mm	 8-AC7 8 x 5mm	 8-ACB 8 x 5mm	 8-AC-CBT1 8 x 5mm	 8-AC-ST15 8 x 5mm	 8-AC-ST101 8 x 5mm	 8-AC-ST101X 8 x 5mm	 8-AC(B)-ST144 8 x 5mm	
Part No. Dimensions	 8-ACT 8 x 5mm	 8-AC-TST1 8 x 5mm	 8-PEC1 8 x 5mm	 8-PEC1X 8 x 5mm	 *8-SC 8 x 9mm	 8-SCJ 8 x 9mm	 8-SC-8RT1 8 x 9mm	 8-SC-ST15 8 x 9mm	
Part No. Dimensions	 8-ST14 8 x 1.4mm	 8-ST14X 8 x 1.4mm	 8-ST143 8 x 1.5mm	 8-ST144 8 x 1.4mm	 8-6RT1 8 x 1mm	 8-ST101 8 x 1mm	 8-T02 8 x 0.25mm	 8-TST1 8 x 1mm	 8-ST15 8 x 1.5mm
Part No. Dimensions	 *9-SCK(B)-8RT1 9 x 6.5mm	 9-SCK(B)-ST101 9 x 6.5mm	 *9-SCK(B)-ST1 9 x 6.5mm	 9-SCK(B)-TST1 9 x 6.5mm	 9-SCSK(B)-8RT1 9 x 6.5mm	 9-MSK(BG)-ST1 9 x 6.5mm	 *11-AC6 11 x 6mm	 *11-AC7 11 x 6mm	 11-ACB 11 x 6mm
Part No. Dimensions	 11-AC-CBT1 11 x 6mm	 11-AC-ST101 11 x 6mm	 11-AC-ST101X 11 x 6mm	 11-AC(B)-ST144 11 x 6mm	 11-AC-ST15 11 x 6mm	 11-ACT 11 x 6mm	 11-AC-TST1 11 x 6mm	 11-LLX 11 x 3mm	
Part No. Dimensions	 11-PEC1 11 x 6mm	 11-PEC1X 11 x 6mm	 11-PEC-ST1 11 x 7mm						

* Cap available in alternative colors. See below for more details

Alternative Colors

8-AC6

- 8-AC6(R)
- 8-AC6(B)

8-SC

- 8-SC(R)
- 8-SC(W)

9-SC(B)-8RT1

- 9-SC(G)-8RT1
- 9-SC(N)-8RT1
- 9-SC(B)-8RT1X

9-SC(B)-ST1








































- 9-SC(G)-ST1
- 9-SC(N)-ST1
- 9-SC(B)-ST1X
- 9-SC(BLK)-BST1
- 9-SC(GY)-BST1X

11-AC6

- 11-AC6(R)
- 11-AC6(B)

11-AC7

- 11-AC7(R)
- 11-AC7(GO)
- 11-AC7(G)
- 11-AC7(B)

Part No. Dimensions	 11-PSN(B) 11 x 6.5mm	 11-PSN(B)-ST101 11 x 6.5mm	 *11-PSN(B)-T02 11 x 6.5mm	 11-PSN(B)-TST1 11 x 6.5mm	 11-PSN(B)-8RT1 11 x 6.5mm	 *11-PSN(B)-ST1X 11 x 6.5mm	 11-PSN(B)-ST1 11 x 6.5mm
Part No. Dimensions	 *12-SC 12 x 10mm	 12-SCS 12 x 10mm	 12-SC-ST2 12 x 10mm	 12-SC-8RT1 12 x 10mm	 13-SC-ST15 12 x 10mm	 13-SCST 12 x 10mm	
Part No. Dimensions	 12-ST2 12 x 2mm	 12-ST18 12 x 1.8mm	 12-6RT1 12 x 1mm	 12-ST101 12 x 1mm	 12-T02 12 x 0.25mm	 8-NPWP 8 x 9mm	 12-NPEP4 12 x 7mm
Part No. Dimensions	 18-MS C 18 x 13mm	 *18-MS C-ST3 18 x 13mm	 20-ACB 20 x 7mm	 20-MCB 20 x 7mm	 *20-MCBC 20 x 7mm	 *20-MCBC-ST3 20 x 7mm	
Part No. Dimensions	 20-AC-CBT3 20 x 7mm	 20-AC-ST3 20 x 7mm	 20-CB3 20 x 3mm	 20-CBT3 20 x 3mm	 20-CBT3B 20 x 3mm	 20-LLX 20 x 3mm	
Part No. Dimensions	 20-ST3 20 x 3mm	 20-ST3HT 20 x 3mm	 20-ST101 20 x 1mm	 18-ST101 18 x 1mm	 20-ST15 20 x 10mm	 20-B3P 20 x 9mm	 20-PEPC5 20 x 10mm

* Cap available in alternative colors. See below for more details

Alternative Colors

11-PSN(B)-T02

■ 11-PSN(R)-T02

11-PSN(B)-ST1X

■ 11-PSN(G)-ST1X

12-SC

■ 12- SC(R)

□ 12- SC(W)

■ 12- SC(Y)

18-MS C-ST3

■ 18-MS C-ST101

■ 18-MS C-CBT3

20-MCBC

■ 20-MCBC(R)

20-MCBC-ST3

■ 20-MCBC(R)-ST3

□ 20-MCBC(N)-ST3

Chemical Resistance Reference Chart

This chart provides a guideline for the chemical resistance of the glass and plastic materials. Because so many factors can affect chemical resistance, test your product under your actual conditions of use.

Effects of Chemicals on Plastics

Chemicals can affect the strength, flexibility, surface appearance, color, dimensions, and weight of a plastic. These changes are caused by (1) an attack on the polymer chain resulting in oxidation, reaction of functional groups, and depolymerization; (2) dissolution in a solvent and solvent absorption or permeation that causes softening and swelling; and (3) stress cracking from a "stress-cracking agent."

Environmental stress cracking is the failure of a plastic in the presence of certain types of chemicals, but it is not a result of a chemical attack. Simultaneous presence of three factors causes stress cracking: tensile stress in the plastic, its inherent stress-cracking susceptibility, and a stress-cracking agent. Common stress-cracking agents are detergents, surface active chemicals, lubricants, oils, ultrapure water, and

plating additives such as brighteners and wetting agents. Relatively small concentrations of stress-cracking agent may be sufficient to cause cracking.

Mixing and/or diluting certain chemicals in plastic labware can be potentially dangerous. The combining of different chemicals or two or more compounds of classes may produce a synergistic or undesirable chemical effect, resulting in an increased temperature that can affect chemical resistance (as temperature increases, resistance to attack decreases), causing product failure. Other factors that also affect chemical resistance include pressure, internal or external stresses (e.g., centrifugation), length of exposure, and concentration of the chemical. Always pre-test your specific usage and follow correct lab safety procedures.

Attention: Please be aware that, although several polymers may have excellent resistance to various flammable organic chemicals and solvents, OSHA H CFR 29 1910.106 for flammable and combustible materials or other local regulations may restrict the volume of solvents that may legally be stored in an enclosed area.

Effects of Chemicals on Glass

Clear borosilicate and amber 51 expansion glass exhibit a high degree of chemical resistance with a few exceptions: Some chemicals can etch the surface of glass. Surface etching does not usually affect the dimensional characteristics of glass, but it can release chemical components into the sample solution.

Plastic Resin Code	Description	Appearance	Temp MAX °C	Temp MIN °C	Autoclavable	Dry Heat	Gamma	Microwavable	Ethylene Oxide	Analytical Purity	Fragmentation*	Hardness†	Resealability‡
HDPE	High-density polyethylene	Opaque	120	-35	No	No	Yes	Yes	Yes			Very hard (very thin)	No resealability
LDPE	Low-density polyethylene	Translucent	100	-40	No	No	Yes	Yes	Yes			Very hard (very thin)	No resealability
TPX	polyethylene	Transparent	175	0	Yes	No	Yes	Yes	Yes				
PP	Polypropylene	Translucent	135	-20	Yes	No	No	Yes	Yes				
PTFE	polytetrafluoroethylene	white	260	-200	Yes	Yes	Yes	Yes	Yes	Very high		Very hard (very thin)	No resealability
	RedRubber/PTFE	red/ivory	110	-30	No	No	No	No	No	Medium	Medium	Medium hard	Medium
	Silicon/PTFE	white/red	200	-60	Yes	Yes	Yes	Yes	Yes	High	Low to medium	Soft	Low to medium
	PTFE/Silicon/PTFE	red/white/red	200	-60	Yes	Yes	Yes	Yes	Yes	High	Very low	Soft	Very low
	Viton®	black	230	-30	Yes	Yes	Yes	Yes	Yes	Medium	Medium	Hard	Medium

* Due to hardness and molecular structure (coring)

† Needle penetration

‡ In case of multiple injections



Key to Chart on Following Pages

E – No damage after 30 days of constant exposure

G – Little or no damage after 30 days of constant exposure

F – Some effect after seven days of constant exposure

N – Immediate damage may occur. Not recommended for continuous use

S – Surface etching possible

The first letter of each pair applies to minimum temperature conditions; the second to maximum temperature conditions.

Chemical	LDPE	HDPE	PP	TPX	Glass	PTFE
1,4-Dioxane	GF	GG	FN	GF	EE	EE
2,2,4-Trimethylpentane	FN	FN	FN	FN	EE	EE
2-Methoxyethanol	EG	EE	GE	EE	EE	EE
2-Propanol	EE	EE	EE	EE	EE	EE
Acetaldehyde	GN	GF	GN	GN	EE	EE
Acetamide, Sat.	EE	EE	EE	EE	EE	EE
Acetic Acid, 5%	EE	EE	EE	EE	EE	EE
Acetic Acid, 50%	GF	EG	EE	EE	EE	EE
Acetic Acid, Glacial	GN	GG	EG	GG	EE	EE
Acetic Anhydride	NN	FF	GF	EG	EE	EE
Acetone	NN	NN	GN	EE	EE	EE
Acetonitrile	EE	EE	EG	FN	EE	EE
Acetophenone	NN	FF	FN	GN	EE	EE
Acrylonitrile	EE	EE	EG	FN	EE	EE
Adipic Acid	EG	EE	EE	EE	EE	EE
Alanine	EE	EE	EE	EE	EE	EE
Allyl Alcohol	EE	EE	EE	EG	EE	EE
Aluminum Chloride	EE	EE	EE	EE	EE	EE
Aluminum Hydroxide	EG	EE	EG	EG	SS	EE
Aluminum Salts	EE	EE	EE	EE	EE	EE
Amino Acids	EE	EE	EE	EE	EE	EE
Ammonia (pure)	EE	EE	EE	EE	SS	EE
Ammonia, 25%	EE	EE	EE	EE	SS	EE
Ammonium Acetate, Sat.	EE	EE	EE	EE	EE	EE
Ammonium Chloride	EE	EE	EE	EE	EE	EE
Ammonium Glycolate	EG	EE	EG	EG	EE	EE
Ammonium Hydroxide, 5%	EE	EE	EE	EE	SS	EE
Ammonium Hydroxide, 30%	EG	EE	EG	EG	SS	EE
Ammonium Oxalate	EG	EE	EG	EG	EE	EE
Ammonium Salts	EE	EE	EE	EE	EE	EE
Amyl Alcohol	EE	EE	EF	GF	EE	EE
Amyl Chloride	NN	FN	NN	FF	EE	EE
Aniline	EG	GF	EG	GF	EE	EE
Aqua Regia	NN	NN	NN	NN	SS	EE
Arsenic Acid	GF	EE	EE	EE	EE	EE
Benzaldehyde	EG	GN	EG	EF	EE	EE
Benzenamine	EG	GF	EG	GF	EE	EE
Benzene	NN	NN	NN	NN	EE	EE
Benzoic Acid, Sat.	EE	EE	EG	EE	EE	EE
Benzyl Acetate	EG	EE	EG	EG	EE	EE
Benzyl Alcohol	NN	FN	GG	GG	EE	EE
Boric Acid	EE	EE	EE	EE	EE	EE
Bromine	NN	FN	NN	NN	EE	EE
Bromobenzene	NN	NN	NN	NN	EE	EE
Bromoform	NN	NN	NN	NN	EE	EE
Butadiene	NN	FN	NN	NN	EE	EE
Butyl Acetate	GF	GF	FN	FF	EE	EE
Butyl Chloride	NN	NN	NN	FN	EE	EE
Butyric Acid	NN	FN	NN	NN	EE	EE
Calcium Chloride	EE	EE	EE	EE	EE	EE
Calcium Hydroxide, Conc.	EE	EE	EE	EE	SS	EE
Calcium Hypochlorite, Sat.	EE	EE	EE	EG	EE	EE
Carbazole	EE	EE	EE	EE	EE	EE
Carbon Disulfide	NN	NN	NN	NN	EE	EE
Carbon Tetrachloride	FN	GF	GF	NN	EE	EE
Caustic Potash	EE	EE	EE	EE	SS	EE
Caustic Soda, 1%	EE	FF	EE	EE	SS	EE
Caustic Soda	GG	GF	EE	EE	SS	EE

Chemical	LDPE	HDPE	PP	TPX	Glass	PTFE
Cedarwood Oil	NN	FN	NN	NN	EE	EE
Cellosolve Acetate	EG	EE	FN	EG	EE	EE
Chlorine Water	GN	GF	FN	NN	EE	EE
Chlorine, 10% (Moist)	GN	GF	FN	NN	EE	EE
Chlorine, 10% in air	GN	EF	FN	GN	EE	EE
Chlorine, wet gas	GN	GF	FN	NN	EE	EE
Chloroacetic Acid	EE	EE	EG	EG	EE	EE
Chlorobenzene	NN	NN	NN	NN	EE	EE
Chloroform	FN	FN	NN	NN	EE	EE
Chromic Acid, 10%	EE	EE	EE	EE	EE	EE
Chromic Acid, 20%	EE	EE	GG	EE	EE	EE
Chromic Acid, 50%	EE	EE	GF	GG	EE	EE
Chromic:Sulfuric	NN	NN	NN	NN	EE	EE
Cinnamon Oil	NN	NN	NN	NN	EE	EE
Citric Acid, 10%	EE	EE	EE	EE	EE	EE
Copper Sulfate	EE	EE	EE	EE	EE	EE
Cresol	NN	FN	GF	NN	EE	EE
Cyclohexane	FN	FN	GN	NN	EE	EE
Cyclohexanone	NN	FN	FN	GF	EE	EE
Cyclopentane	NN	FN	FN	FN	EE	EE
Decahydronaphtalene	GF	EG	NN	FN	EE	EE
Decalin	GF	EG	NN	FN	EE	EE
Diacetone	NN	NN	GF	FF	EE	EE
Diacetone Alcohol	FN	EE	GF	EE	EE	EE
Dibutylphthalate	FN	FN	GN	GG	EE	EE
Diethyl Benzene	NN	FN	NN	NN	EE	EE
Diethyl Ether	NN	FN	FN	NN	EE	EE
Diethyl Ketone	NN	NN	GG	GF	EE	EE
Diethyl Malonate	EE	EE	EE	EG	EE	EE
Diethylamine	NN	FN	GN	FF	EE	EE
Diethylene Dioxide	GF	GG	NN	FN	EE	EE
Diethylene Glycol	EE	EE	EE	EE	EE	EE
Diethylene Glycol Ethyl Ether	EE	EE	EE	EE	EE	EE
Dimethyl Acetamide	FN	EE	EE	FG	EE	EE
Dimethyl Formamide	EE	EE	EE	EE	EE	EE
Dimethylsulfoxide	EE	EE	EE	EE	EE	EE
Dioxane	GF	GG	NN	FN	EE	EE
Dipropylene Glycol	EE	EE	EE	EE	EE	EE
DMSO	EE	EE	EE	EE	EE	EE
Ethanol, 40%	EG	EE	EE	EG	EE	EE
Ether	NN	FN	NN	FN	EE	EE
Ethyl Acetate	EE	EE	GN	FN	EE	EE
Ethyl Alcohol (Absolute)	EG	EE	EE	EG	EE	EE
Ethyl Alcohol, 40%	EG	EE	EE	EG	EE	EE
Ethyl Alcohol, 96%	EG	EG	EE	EG	EE	EE
Ethyl Benzene	NN	FN	NN	NN	EE	EE
Ethyl Benzoate	FF	GG	GF	GF	EE	EE
Ethyl Butyrate	GN	GF	GN	FN	EE	EE
Ethyl Chloride	FN	NN	FN	FN	EE	EE
Ethyl Chloride, Liquid	FN	FF	FN	FN	EE	EE
Ethyl Cyanoacetate	EE	EE	EE	EE	EE	EE
Ethyl Lactate	EE	EE	EE	EE	EE	EE
Ethylene Chloride	NN	NN	NN	NN	EE	EE
Ethylene Glycol	EE	EE	EE	EE	EE	EE
Ethylene Glycol Monomethyl Ether	EG	EE	GF	EE	EE	EE
Ethylene Oxide	FF	GF	FN	FN	EE	EE
Ethylene Oxide Gas	FF	GF	FN	FN	EE	EE

Chemical	LDPE	HDPE	PP	TPX	Glass	PTFE
Ethylene Oxide, 100%	FF	GF	FN	FN	EE	EE
EtO Gas	FF	GF	FN	FN	EE	EE
EtO	FF	GF	FN	FN	EE	EE
Fatty Acids	EG	EE	EG	EG	EE	EE
Fluorides	EE	EE	EE	EE	EE	EE
Fluorine	FN	GN	NN	FN	EE	EG
Formaldehyde, 10%	EE	EE	EE	EE	EE	EE
Formaldehyde, 40%	EG	EG	EE	EE	EE	EE
Formalin, 10%	EE	EE	EE	EE	EE	EE
Formalin, 40%	EG	EG	EE	EE	EE	EE
Formic Acid	GG	EE	EG	EE	EE	EE
Formic Acid, 3%	EG	EE	EE	EE	EE	EE
Formic Acid, 100%	GG	EE	EG	EE	EE	EE
Formic Acid, 50%	GG	EE	EG	EE	EE	EE
Formic Acid, 85%	GG	EE	EG	EE	EE	EE
Freon TF	EG	EG	EG	FN	EE	EE
Fuel Oil	FN	GF	EF	GF	EE	EE
Gasoline	NN	FN	FN	GF	EE	EE
Glutaraldehyde	EG	EE	EE	FF	EE	EE
Glutaraldehyde Disinfectant	EG	EE	EE	FF	EE	EE
Glycerine	EE	EE	EE	EE	EE	EE
Glycerol	EE	EE	EE	EE	EE	EE
Hexane	NN	GF	GF	FN	EE	EE
Hydrazine	NN	NN	NN	NN	EE	EE
Hydrobromic Acid, 69%	EE	EG	EG	EE	EE	EE
Hydrochloric Acid, 5%	EE	EE	EE	EE	EE	EE
Hydrochloric Acid, 20%	EE	EE	EE	EE	EE	EE
Hydrochloric Acid, 35%	EE	EE	EG	EG	EE	EE
Hydrofluoric Acid, 4%	EE	EE	EE	EE	SS	EE
Hydrofluoric Acid, 48%	EE	EE	EG	EG	SS	EE
Hydrogen Peroxide, 3%	EE	EE	EG	EE	EE	EE
Hydrogen Peroxide, 30%	EG	EE	EF	EG	EE	EE
Hydrogen Peroxide, 90%	EN	EE	EF	EG	EE	EE
Iodine Crystals	NN	NN	EE	GN	EE	EE
Iso-Propanol, 100%	EE	EE	EE	EG	EE	EE
Isobutanol	EE	EE	EE	EG	EE	EE
Isobutyl Alcohol	EE	EE	EE	EG	EE	EE
Isopropanol	EE	EE	EE	EG	EE	EE
Isopropanol, 100%	EE	EE	EE	EE	EE	EE
Isopropyl Acetate	GF	EG	GF	GF	EE	EE
Isopropyl Alcohol	EE	EE	EE	EG	EE	EE
Isopropyl Alcohol, 100%	EE	EE	EE	EG	EE	EE
Isopropyl Benzene	FN	FN	FN	NN	EE	EE
Isopropyl Ether	NN	FN	NN	NN	EE	EE
Jet Fuel	FN	FN	FN	FN	EE	EE
Kerosene	FN	FN	FN	GF	EE	EE
Lacquer Thinner	NN	FN	FN	FF	EE	EE
Lactic Acid, 3%	EG	EE	EE	EG	EE	EE
Lactic Acid, 85%	EG	EE	EG	EG	EE	EE
Lead Acetate	EE	EE	EE	EE	EE	EE
Magnesium Chloride	EE	EE	EE	EE	EE	EE
MEK	NN	NN	EG	FN	EE	EE
Mercuric Chloride	EE	EE	EE	EE	EE	EE
Methanol	EG	EE	EE	EG	EE	EE
Mercury	EE	EE	EE	EE	EE	EE
Methanol, 100%	EG	EE	EE	EG	EE	EE
Methoxyethyl Oleate	EG	EE	EG	EG	EE	EE
Methyl Acetate	EN	FF	GF	EE	EE	EE

Chemical	LDPE	HDPE	PP	TPX	Glass	PTFE
Methyl Alcohol	EG	—	EE	EG	EE	EE
Methyl Alcohol, 100%	EG	EE	EE	EG	EE	EE
Methyl Ethyl Ketone	NN	NN	EG	FN	EE	EE
Methyl Isobutyl Ketone	NN	NN	GF	FF	EE	EE
Methyl Propyl Ketone	NN	FN	GF	FF	EE	EE
Methyl-t-Butyl Ether	NN	FN	FN	EE	EE	EE
Methylene Chloride	NN	FN	FN	EN	EE	EE
MIBK	NN	NN	GF	FF	EE	EE
Mineral Oil	GN	EF	EF	EG	EE	EE
Mineral Spirits	FN	FN	FN	EE	EE	EE
n-Amyl Acetate	GF	EG	GF	GF	EE	EE
n-Butanol	EE	EE	EE	EG	EE	EE
n-Butyl Acetate	GF	GF	GF	GF	EE	EE
n-Butyl Alcohol	EE	EE	EE	EG	EE	EE
n-Decane	FN	FN	FN	FN	EE	EE
n-Heptane	NN	FF	FF	FF	EE	EE
n-Octane	EE	EE	EE	EE	EE	EE
Nitric Acid, 10%	EE	EE	EE	EE	EE	EE
Nitric Acid, 20%	EE	GG	FF	EE	EE	EE
Nitric Acid, 50%	GF	FN	FN	FN	EE	EE
Nitric Acid, 70%	EN	FN	NN	FN	EE	E
Nitrobenzene	NN	NN	NN	FN	EE	E
Nitromethane	NN	FN	FN	EF	EE	EE
o-Dichlorobenzene	FN	NN	FN	FN	EE	EE
Oil, Cedarwood	NN	FN	NN	NN	EE	EE
Oil, Cinnamon	NN	FN	NN	NN	EE	EE
Oil, Mineral	GN	EE	EE	EG	EE	EE
Oil, Pine	GN	FN	EG	GF	EE	EE
Orange Oil	FN	GF	GF	FF	EE	EE
Oxalic Acid, 10%	EE	EE	EE	EE	EE	EE
Ozone	GN	GN	FN	EE	EE	EE
p-Chloroacetophenone	EE	EE	EE	EE	EE	EE
p-Dichlorobenzene	FN	NN	GF	GF	EE	EE
Perchloric Acid	GN	GN	GN	GN	EE	GF
Perchloric Acid, Concentrated (70%)	GN	GN	GN	GN	EE	GF
Perchloroethylene	NN	NN	NN	NN	EE	EE
Petroleum	NN	GN	NN	GF	EE	EE
Phenol, 100%	NN	NN	NN	NN	EE	EE
Phenol, 50%	NN	NN	NN	NN	EE	EE
Phenol, Crystals	FN	GF	GN	FG	EE	EE
Phenol, Liquid	NN	NN	NN	NN	EE	EE
Phosphoric Acid, 5%	EE	EE	EE	EE	EE	EE
Phosphoric Acid, 85%	EN	EE	EG	EG	EE	EE
Picric Acid	NN	NN	NN	EE	EE	EE
Pine Oil	GN	FN	EG	GF	EE	EE
Potassium Chloride	EE	EE	EE	EE	EE	EE
Potassium Hydroxide, 10%	EE	FF	EE	EE	SS	EE
Potassium Hydroxide, 30%	EE	EE	EE	EE	SS	EE
Potassium Hydroxide, Concentrated	EE	EE	EE	EE	SS	EE
Potassium Permanganate	EE	EE	EG	EE	EE	EE
Propane Gas	NN	EE	NN	NN	EE	EE
Propionic Acid	FN	EF	EG	EF	EE	EE
Propylene Glycol	EE	EE	EE	EE	EE	EE
Propylene Oxide	EG	EE	EG	EG	EE	EE
Pyridine	NN	NN	EE	FN	EE	EE
Resorcinol, 5%	EE	EE	EE	EE	EE	EE

Chemical	LDPE	HDPE	PP	TPX	Glass	PTFE
Resorcinol, Sat.	EE	EE	EE	EE	EE	EE
Salicylaldehyde	EG	EE	EG	EG	EE	EE
Salicylic Acid, Powder	EE	EE	EE	EE	EE	EE
Salicylic Acid, Sat.	EE	EE	EE	EG	EE	EE
Salt Solutions, Metallic	EE	EE	EE	EE	SS	EE
sec-Butanol	EE	EE	EE	EG	EE	EE
sec-Butyl Alcohol	EE	EE	EE	EG	EE	EE
Silicone Oil	EG	EE	EE	EE	EE	EE
Silver Acetate	EE	EE	EE	EE	EE	EE
Silver Nitrate	EG	EE	EE	EE	EE	EE
Skydrol LD4	GF	EG	EG	EG	EE	EE
Sodium Acetate, Sat.	EE	EE	EE	EE	EE	EE
Sodium Carbonate	EE	EE	EE	EE	EE	EE
Sodium Dichromate	EE	EE	EE	EE	EE	EE
Sodium Hydroxide, 1%	EE	FF	EE	EE	SS	EE
Sodium Hydroxide, 10%	EE	EE	EE	EE	SS	EE
Sodium Hydroxide, Concentrated (50%)	GG	EE	EE	EE	SS	EE
Sodium Hypochlorite, 15%	EF	EG	FN	EE	EE	EE
Stearic Acid	EE	GG	EE	EE	EE	EE
Stearic Acid, Crystals	EE	EE	EE	EE	EE	EE
Sulfur Dioxide	NN	EN	EE	NN	EE	EE
Sulfur Dioxide, Liquid	NN	FN	NN	NN	EE	EE
Sulfur Dioxide, Wet or Dry Gas	EE	EE	EE	EE	EE	EE
Sulfur Salts	FN	GF	FN	FN	EE	EE
Sulfuric Acid, 6%	EE	EE	EE	EE	EE	EE
Sulfuric Acid, 20%	EE	EE	EE	EE	EE	EE
Sulfuric Acid, 30%	EE	EE	EE	EE	EE	EE

Chemical	LDPE	HDPE	PP	TPX	Glass	PTFE
Sulfuric Acid, 60%	EG	EG	GF	EG	EE	EE
Sulfuric Acid, 98%	GG	FN	FN	GF	EE	EE
Sulfuric Acid, Concentrated (96%)	GG	FN	FN	GF	EE	EE
Tartaric Acid	EE	EE	EE	EE	EE	EE
TCA	FN	FN	GF	EE	EE	EE
tert-Butanol	EG	EE	EG	EG	EE	EE
tert-Butyl Alcohol	EG	EE	EG	EG	EE	EE
Tetrahydrofuran	FN	FN	GF	FF	EE	EE
THF	FN	FN	GF	FF	EE	EE
Thionyl Chloride	NN	NN	NN	NN	EE	EE
Tincture of Iodine	EG	GF	EE	NN	EE	EE
Toluene	FN	NN	NN	FF	EE	EE
Tributyl Citrate	GF	EG	GF	GF	EE	EE
Trichloroacetic Acid	FN	FN	GF	EE	EE	EE
Trichloroethane	NN	NN	NN	NN	EE	EG
Trichloroethylene	NN	NN	NN	NN	EE	EE
Triethylene Glycol	EE	EE	EE	EE	EE	EE
Tripropylene Glycol	EE	EE	EE	EE	EE	EE
Tris Buffer, Solution	EG	EG	EG	EG	EE	EE
Trisodium Phosphate	EE	EE	EE	EE	EE	EE
Turpentine	FN	FN	FN	FN	EE	EE
Undecyl Alcohol	EF	EG	EG	EG	EE	EE
Urea	EE	EE	EE	EG	EE	EE
Vinylidene Chloride	NN	FN	NN	NN	EE	EE
Xylene	NN	FN	NN	NN	EE	EE
Zinc Chloride, 10%	EE	EE	EE	EE	EE	EE
Zinc Stearate	EE	EE	EE	EE	EE	EE
Zinc Sulfate, 10%	EE	EE	EE	EE	EE	EE



Properties of Glass

Vials and inserts are manufactured from the highest-quality borosilicate glass, selected for its purity and dimensional stability

Clear glass type 33 expansion products are manufactured from 33 expansion borosilicate glass, have a low coefficient of expansion and very high resistance to chemical attack. It has low alkali content and is free of elements from the calcium, magnesium, and zinc group of heavy metals. The total of combined oxides of arsenic and antimony is less than 0.005%. 33 expansion borosilicate glass meets the requirements for Type I Class A glass of ASTM E438.

Chromacol GOLD™ glass quality, a low expansion high purity glass with an extremely low concentration of active sites. This gives a low activity surface with high recovery of basic and polar samples that may show adsorption on more typical glass surfaces.

Clear and Amber glass products manufactured from N-51A borosilicate glass, have a relatively low coefficient of expansion and high chemical durability. N-51A

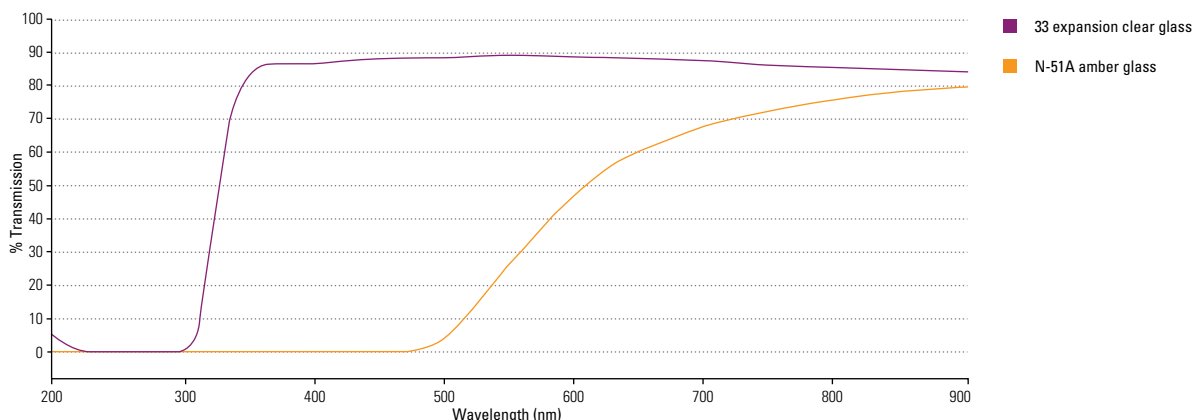
borosilicate glass meets the requirements for Type I Class B glass of ASTM E438.

Unless otherwise stated, all autosampler vials offered through this catalog (clear and amber glass) are classified as Type I in accordance with the U.S.Ph. 33th ed. and the European Ph. 7th ed, as well as other Pharmacopoeias or E.P. definitions of type 1 Hydrolytic Class Glass including e.g. the Japanese, Italian and DAB Pharmacopoeias.

Approximate Chemical Composition for Borosilicate Glass

	33 expansion and Chromacol GOLD Grade Glass	N-51Clear Glass	N-51Amber Glass
Silicon Dioxide (SiO ₂)	80%	75%	72%
Boron Oxide (B ₂ O ₃)	13%	11%	12%
Aluminum Oxide (Al ₂ O ₃)	3%	5%	7%
Calcium Oxide (CaO)	0.1%	2%	1%
Magnesium Oxide (MgO)	Not Detected	Not Detected	Not Detected
Sodium Oxide (Na ₂ O)	4%	7%	6%
Potassium Oxide (K ₂ O)	0.1%	Not Detected	2%
Barium Oxide (BaO)	<0.1%	1%	<0.1%

Optical Properties of Glass



Autosampler Compatibility Table

This table indicates the categories of vials that are compatible with various models of autosamplers. Certain autosamplers require the purchase of optional vial trays and, in few cases, programming upgrades to use all of the vials listed.

Manufacturer	Model	8mm Crimp	11mm Crimp and Snap	8-425 Screw	9mm Short Screw	10-425 Screw	Shell Vials	13-425 Screw and Crimp	Headspace	Plate
Agilent	1050, 1090		•		•					
	1050 (34 Pos. Tray), 1090 (34 Pos. Tray)	•								
	1100/1200		•		•					
	G1888A								•	
	7673A/7683A	•	•		•					
	7693A		•	•	•		•	•		
	HS7694							•	•	
	7697A								•	
	79855(A)		•		•					
	5880/5890		•		•					
	6850 (27 Pos. Tray)		•		•					
	6850 (22 Pos. Tray)							•		
	6890		•		•					
	CTC HTS+HTC PAL+CTC GC PAL	•	•		•					•
	CTC Combi PAL								•	
	1100 Well-Plate/1100 Nanoflow		•	•	•					•
	1200 Well-plate/1200 SL plus		•	•	•					•
AI	42 vial tray		•	•	•					
	60 vial tray	•	•	•	•					
	CTC A200S	•	•	•	•					
	Headspace								•	
AIM	CPS-100+CPS-200		•	•	•					
Alcott	708 AL, 728						•			
	738, 719 D/ D-PCS		•	•	•	•				
	719 AL		•	•	•	•		•	•	
Alpha M.O.S.	Prometheus/Fox/Kronos								•	
Antec Leyden	AS 100, 736 Unisampler, 738		•	•	•	•				
	Alexys		•	•	•					
ATAS GL	Focus		•	•	•				•	
Beckman	501, 502/502e, 507/507e	•	•	•	•	•				
	504	•								
	508 (System Gold)				•				•	
	Marathon, Promis		•	•	•					
	Triathlon, Standard Tray		•	•	•				•	
	Triathlon, LSV Tray	•						•		
	Triathlon, Super-LSV Tray								•	
	Triathlon, Micro-Tray	•								
Bruker	LC51							•		
	Mapi1									•
Cambridge Scientific Instruments	205 Series, 300 Series		•	•	•	•		•		
Carlo Erba	AS100, A200LC, AS300	•	•	•	•		•			
	AS200, AS200S	•	•	•	•					
	AS800, 42 vial tray		•	•	•					
	AS800, 60 vial tray	•	•	•	•					
	HS250, 500, 800, 850								•	
Cecil Instruments	CE4800		•	•	•	•				
	AutoQuest		•	•	•	•				
CTC	A200S	•	•	•	•	•				
	A200 LC	•	•	•	•	•			•	
	HS 500								•	

- indicates that the vials from this category are compatible with the autosampler in most configurations.
- indicates that a magnetic seal is required for use with the autosampler.

Manufacturer	Model	8mm Crimp	11mm Crimp and Snap	8-425 Screw	9mm Short Screw	10-425 Screw	Shell Vials	13-425 Screw and Crimp	Headspace	Plate
CTC (LEAP)	LC PAL (216 Pos.)		•	•	•	•			•	
	HTX PAL, HTC PAL, HTS PAL (200 Pos. Tray), Combi PAL (200 Pos. Tray), GC PAL (200 Pos. Tray)	•								
	HTX PAL, HTC PAL, HTS PAL (54/98 Pos. Tray)	•	•	•	•	•			•	
	HTX PAL, HTC PAL, HTS PAL (32 Pos. Tray), Combi PAL (32 Pos. Tray), GC PAL (32 Pos. Tray), Combi PAL SPME Mode (32 Pos. Tray)								•	
	Combi PAL (98 Pos. Tray), GC PAL (98 Pos. Tray)	•	•		•					
	Combi PAL SPME Mode (98 Pos. Tray)		•		•					
DANI	ALS 39.80, ALS 86.80, ALS 1000		•		•					
	HS39.50, HS86.50								•	
	Master AS		•		•				•	
	Master DHS								•	
Dionex	Gina 50	•	•		•			•		
	AS 50	•	•	•	•	•				
	Summit ASI 100, Micro-Tray (192 Pos.)	•								
	Summit ASI 100, Analytical-Tray (117 Pos.)		•	•	•					
	Summit ASI 100, Semiprep.-Tray (63 Pos.)							•		
	Famos (LC Packings/Dionex)		•	•	•	•			•	
	UltiMate Analytical, cylindrical, WPS-3000 SL, 120 Pos. Rack (2ml)		•	•	•	•			•	
	UltiMate Analytical, conical, WPS-3000 SL, 120 (3x40) Pos. Rack (1.1ml=2ml w. Inserts)		•						•	
	UltiMate Micro, conical, WPS-3000 SL, 120 (3x40) Pos. Rack (250µl), UltiMate Nano/Cap/Micro, WPS-3000 SL, 216 (3x72) Pos. Rack (1.2ml)	•							•	
	UltiMate Semipreparative, WPS-3000 SL, 66 (3x22) Pos. Rack (4ml)							•	•	
	AS 40						•	•		
	AS-HV			•						
D-Star	DAS 10		•	•						
Dynatech	42 vial tray		•	•	•					
	60 vial tray	•	•	•	•					
	LC2000	•								
	GC111, GC311	•	•	•						
	LC-241	•	•	•						
Eksigent	NanoLC-AS1		•	•						
ESA	540-MT/540		•	•	•					•
EST	LC-241plus		•	•						
EST Analytical	Cobra L/S GC Autosampler; 120 vial tray		•	•	•	•				
	Cobra L/S GC Autosampler; 60 vial tray, Markelov HS9000								•	
Finnigan	A200S	•	•	•	•					
Fisons	AS100, A200LC, AS300	•	•	•	•		•			
	AS200	•	•	•	•					
	AS200S	•	•	•	•					
	AS800, 42 vial tray		•	•	•					
	AS800, 60 vial tray	•	•	•	•					
	HS250, HS500, HS800, HS 850								•	
GBC	Avanta Ultra Z		•		•		•			
	LC 1650		•	•						
GE Healthcare	Ettan A-905		•		•	•				
GE Instruments	Sievers 900								•	
Gerstel	MPS	•	•	•	•			•	•	•
Gilson	201/202, 221/222, 231/401/232/402, Aspec, Aspec Xli, Aspec XL4			•	•		•			
	221XL/222XL, 223, 231XL/232XL/233XL	•								
	Nano Injektor			•	•					
Gynkotek	235/235P/SP 235/SP 235P	•		•	•					
	Gina 50	•	•		•			•		

• indicates that the vials from this category are compatible with the autosampler in most configurations.

• indicates that a magnetic seal is required for use with the autosampler.

Manufacturer	Model	8mm Crimp	11mm Crimp and Snap	8-425 Screw	9mm Short Screw	10-425 Screw	Shell Vials	13-425 Screw and Crimp	Headspace	Plate
HTA	HT200H								•	
	HT250D, HT280T, HT300L		•	•	•	•			•	
	HT300A, HT310A		•	•	•	•				
ICI	LC1600	•	•							
IMT GmbH	PTA3000								•	
Jasco	AS 2055/AS 2055 (i), AS 2057/AS 2057 (i), AS 2059	•	•	•	•	•				
	851/AS-950/AS-1550/AS-1555			•						
	AS-2059/AS-2059Plus			•						•
	AS-2059-SF/X-LC	•		•						•
Knauer	K-3800 (Basic Marathon), Smartline K-3950, PLATINblue AS-1		•	•	•				•	
Konik -Tech	Robokrom Static HS								•	
	Robokrom HRGC	•	•							
	Robokrom HPLC		•	•	•	•				
Kontron	MSI 660			•				•		
	360, 460	•	•	•	•					
	360/460/560/565	•	•	•	•					
LDC	713-60	•								
	Marathon, Promis		•	•	•					
Metrohm	Triathlon		•	•						
PerkinElmer	Series 200, 25 vial tray, ISS-225, 25 vial tray								•	
	Series 200, 85 vial tray, ISS-100, 85 vial tray, ISS-200, 85 vial tray, ISS-225, 85 vial tray		•			•			•	
	Series 200, 81/100 vial tray, Integral 4000, ISS-100, 100 vial tray, ISS-200, 100 vial tray		•			•				
	Series 200, 205 vial tray	•	•			•				
	Series 200, 225 vial tray	•								
	AI-1	•	•							
	AS-100/AS-100B	•	•							
	AS2000/AS2000B	•	•			•				
	AS-300, AS8300, Autosystem	•	•							
	HS 6, HS40/HS100/101								•	
	TurboMatrix HS16/HS40/HS40 XL/HS40 Trap/HS110/HS110 Trap								•	
	ISS-200, 145 vial tray	•								
	ISS-225, 205 vial tray	•	•			•				
	ISS-225, 100 vial tray + 80 vial tray		•			•				
	LC 600, 42 vial tray	•								
	LC 600, 60 vial tray		•			•				
	Clarus 400, 500, 600		•							
Pharmacia	LKB 2157-010		•	•	•					
	LKB 2157-020	•	•							
	Akta A-900		•	•						
Polymer Laboratories	PL-AS RT		•	•	•	•		•		
	GPC 110/210		•	•						
Quma Elektronik	QHSS-40								•	
Sedere	—		•		•					
Selerity	3100		•	•						
Sepiatech	Sepmatix									•
SGE	LS-3200	•								
Shimadzu	AOC-5000	•	•		•				•	
	AOC-14/1400, AOC-17, AOC-20/20i/20s 150 Pos. Tray		•	•	•	•		•		
	AOC-20/20i/20s 96 Pos. Tray							•		
	LC-20A		•	•	•	•		•		
	SIL-2AS, SIL-6A, SIL-10A/SIL-10AF/SIL-10AP/SIL-10Ai/SIL-10AxL/Rack S 100 Pos.	•	•	•	•	•	•	•		
	SIL-6B/SIL-7A/SIL-8A/SIL-9A		•	•	•	•	•	•		
	SIL-10A/SIL-10AF/SIL-10AP/SIL-10Ai/SIL-10AxL/Rack L 80 Pos.						•	•		

- indicates that a cap having an outer flange is required for the vial to operate properly with the autosampler.
- indicates that the vials from this category are compatible with the autosampler in most configurations.
- indicates that a magnetic seal is required for use with the autosampler.

Manufacturer	Model	8mm Crimp	11mm Crimp and Snap	8-425 Screw	9mm Short Screw	10-425 Screw	Shell Vials	13-425 Screw and Crimp	Headspace	Plate
Shimadzu	SIL-10A/SIL-10AF/SIL-10AP/SIL-10Ai/SIL-10AxL/Rack MTP2 192 Pos., SIL-10HTA/SIL-10HTC 350 pos. Tray						•			
	SIL-10HTA/SIL-10HTC 140 Pos. Tray		•	•	•	•	•			
	SIL-10HTA/SIL-10HTC 100 Pos. Tray						•	•		
	SIL-10ADvp		•	•	•	•	•	•		
	HTA 200 H								•	
	SIL-20A (Prominence) 105 vial tray/SIL-20AC (Prominence) 70 vial tray	•	•	•	•	•				
	SIL-20A/Sil-20AC (Prominence) 175 vial tray						•			
	SIL-20A/Sil-20AC (Prominence) 50 vial tray, LC2010C + LC2010A 100 Pos. Tray						•	•		
	LC2010C + LC2010A 350 Pos. Tray						•			
	LC2010C + LC2010A 140 Pos. Tray		•	•	•	•	•			
Spark	HSS-2B								•	
	Marathon Basic, Standard 96 Pos. Tray, Midas, Large Capacity 96 Pos. Tray, Promis, SPH 125		•	•	•					
	Marathon Basic Prep King Size 48 Pos. Tray, Midas, Large Volume 24 Pos. Tray								•	
	Midas, Standard 84 Pos. Tray, Alias		•	•	•				•	
	Triathlon, Standard 96 Tray		•	•	•		•			
	Triathlon, LSV 72 Pos. Tray							•		
	Triathlon, Super-LSV 32 Pos. Tray								•	
	Triathlon, Micro 160 Pos. Tray	•								
	Endurance 48 Pos. Tray, Reliance 48 Pos. Tray		•	•	•					
	Integrity		•	•	•					•
Spectra-Physics	Prospekt 2		•	•						
	Reliance/Symbiosis Pharma		•	•						•
Spectra-Physics	Symbiosis Pico									•
	8875, 8880		•	•	•					
Sykam	SpectraSYSTEM AS1000, AS3000, AS3500	•	•	•	•		•			
	S 5200		•		•					
Talbot	ASI		•		•					
Teledyne Tekmar	7000/7000HT/7050								•	
	HT3A								•	
Thermo Scientific	AS1000 (Trace GC), AS200, AS2000 90 vial tray (Trace GC)	•	•	•	•					
	AS300	•	•	•	•		•			
	AS2000 30 vial tray								•	
	AI3000 (II)/AS3000 (II) AS3500 (Trace GC + Focus GC)	•	•		•				•	
	A200LC, AS 100	•	•	•	•		•			
	SpectraSYSTEM AS 1000, AS 3000, AS 3500	•	•	•	•		•			
	A200S	•	•	•	•					
	AS800, 42 vial tray	•	•	•	•					
	AS800, 60 vial tray	•	•	•	•					
	HS250, HS500, HS800, HS 850, HS2000								•	
	TriPlus (=GC PAL) (AS+ Duo)	•	•	•	•				•	
	TriPlus HS, TriPlus SPME								•	
	Surveyor (Surveyor Plus)	•	•	•	•		•		•	
	Accela High Speed LC Autosampler (200 Pos.)	•	•	•	•					
	Accela Open Autosampler (342 Pos)	•	•	•	•					•
Tosoh	AS 8010		•		•					
	TSK-6080		•		•			•		
Tracor	770/771/772		•	•	•					
Unicam	4247, 4710		•	•	•					
	4700 (GC)	•								
	4700 (LC)	•		•	•					
	LC-XP		•	•	•			•		
	S4/S8	•								

- indicates that the vials from this category are compatible with the autosampler in most configurations.
- indicates that a magnetic seal is required for use with the autosampler.

Manufacturer	Model	8mm Crimp	11mm Crimp and Snap	8-425 Screw	9mm Short Screw	10-425 Screw	Shell Vials	13-425 Screw and Crimp	Headspace	Plate
Varian	ProStar 400, Standard 96 Pos. Tray, ProStar 410, Large Capacity 96 Pos. Tray		•	•	•	•				
	ProStar 400, King Size 48 Pos. Tray, ProStar 410, Large Volume 24 Pos. Tray								•	
	ProStar 410, Standard 84 Pos. Tray		•	•	•	•			•	
	ProStar 420, Standard 96 Pos. Tray		•	•	•	•	•			
	ProStar 420, LSV 72 Pos. Tray	•						•		
	ProStar 420, Super-LSV 32 Pos. Tray								•	
	ProStar 420, Micro 160 Pos. Tray	•								
	ProStar 430, 48 Pos. Tray		•	•	•					
	8035			•	•					
	8000, 8100		•	•	•					
	8200		•	•	•	•				
	8400 (100 Pos.), 8410-Autoinjector (10 x 2ml; 6 x 5ml; 5 x 10ml)		•	•	•				•	
	CP-910, 911, 912		•	•	•					
	CP-940, 941		•							
	LC 9100/LC 9095/LC 9090		•		•					
	COMBI PAL (200 Pos. Tray) GC PAL (200 pos. Tray)	•								•
	COMBI PAL (98 Pos. Tray) GC PAL (98 Pos. Tray)	•			•					•
	COMBI PAL SPME mode (98 Pos. Tray)		•		•					•
	COMBI PAL (32 Pos. Tray) GC PAL (32 Pos. Tray), COMBI PAL SPME mode (32 Pos. Tray)									•
	Genesis								•	
	Marathon Basic, Standard 96 Pos. Tray		•	•	•					
	Marathon Basic, Prep, King Size 48 Pos. Tray								•	
	Vista			•	•					
	CP-9020/CP-9025, CP-9060								•	
	CP-9010		•	•	•					
	CP-8410/8034/8035/8100/8200/9095/9100		•	•						
	920-LC/940-LC		•	•						
Viscotek	GPC Autosampler			•	•	•				
VWR(Merck)/Hitachi	L2200 (LaChrom Elite)/L2200-U (LaChrom Ultra) (200 Pos. Tray), L7200 (LaChrom) (80 Pos. Tray)/L7250(LaChrom) (Pos. Tray)		•	•	•					
	L2200 (LaChrom Elite) (128 Pos. Tray)							•		
	L7250 (LaChrom) (Rack Holder for combination Racks)	•	•	•	•			•		
	655-A40 (108 Pos. Tray), L-9100, AS 2000 (50 Pos. Tray), AS 4000 (150 Pos. Tray)		•	•	•					
	AS 4000 (198 Pos. Tray)	•								
	AS 6000	•	•	•	•					
Waters	Acquity Sample Organizer		•		•					•
	Acquity/CapLC/Waters/Nano Acquity		•		•					•
	Alliance HTS									•
	Model 2767		•	•						•
	Model 2707		•	•						•
	Model 2777		•	•						•
	ACQUITY™ UPLC Systems				•			•		
	Wisp 48 position						•	•		
	Wisp 96 position, 717, 96 Position Carousel						•			
	717, 48 Position Carousel						•	•		
	Alliance®, Alliance HT Syst.		•		•	•				
	Alliance® GPC 2000							•	•	
	Alliance® 2790/2795, Alliance 2690/2695		•		•	•				

- indicates that the vials from this category are compatible with the autosampler in most configurations.
- indicates that a magnetic seal is required for use with the autosampler.



In this Section:

WebSeal, GC Septa, Syringe Filters

Our sample preparation products were developed for rapid, effective and economical sample preparation. The high performance GC Septa provide longer operating life, while our innovative WebSeal system offers sample storage solutions, preventing cross contamination and sample loss. We also offer a syringe filters that provide consistent and reliable experimental results.

Thermo Scientific WebSeal

The WebSeal system is a comprehensive range of 96 well titer plates with glass inserts and a silicone/PTFE coated sealing mat. This system provides the analyst with 96 completely inert chambers and reduces the risk of cross-contamination from well to well when removing the cover. The products are ideal for High Throughput Screening, Combinatorial Chemistry, Life Science applications and HPLC.

WebSeal Product Selection

- WebSeal mats are typically blue or clear silicone rubber in nature. The clear mats have no PTFE coating, making them ideal for use with aqueous mobile phases
- Blue mats have a thin protective film of sprayed PTFE, making them ideal for use with organic solvents
- Mats are available in standard and pre-cut versions for delicate autosampler needles
- The addition of vials to the 96 well plates allows the use of aggressive solvents in the WebSeal system
- Products are available in volumes from 500µL to 1.5mL

Product Selection According to Manufacturer Type

Manufacturer	96 Round Silicone	96 Round Silicone/PTFE	96 Square Silicone	96 Square Silicone/PTFE	384 Square	384 Square Silicone/PTFE
Abgene	WSM-2E	WSM-2				
CoStar	WSM-2FBE	WSM-2FB WSM-2			WSM-5E	WSM-5
Greiner	WSM-2FBE WSM-2E	WSM-2FB WSM-2	WSM-3SXE	WSM-3S	WSM-5E	WSM-5
Matrix	WSM-2FBE WSM-2E	WSM-2FB WSM-2	WSM-3SXE	WSM-3S		
NUNC	WSM-7E		WSM-3SXE	WSM-3S	WSM-5E	WSM-5
Porvair	WSM-2FBE WSM-2E	WSM-2FB WSM-2	WSM-3SXE	WSM-3S	WSM-5E	WSM-5
Whatman	WSM-2FBE WSM-2E	WSM-2	WSM-3SXE	WSM-3S		



WebSeal Technical Information

The following section provides properties of the WebSeal product range:

Physical Properties and Resistance

	Low	High
Operating Temperature	-80°C	260°C
Specific Gravity	1.15	
Shore Hardness	57	
Tear Strength	Fair	

Sterilization

WebSeal may be sterilized but is produced in a chromatographically clean form and is suitable for use straight from the packet.

Property	Method	Comment
Sterilization methods	Autoclave recommended	160°C
	Chemical	All common disinfectants may be suitable
	Radiation	Gamma

Evaporation Study

An evaporation study was performed using water, acetonitrile and DMSO at two different volumes (100µL and 200µL) at three different temperatures (28°C, 4°C and -20°C for 24 hours). Plates were filled with solvent, weighed, then sealed with MicroMats. The sealed plates were incubated at their respective temperatures for 24 hours. Mats were removed and the plates were reweighed to determine evaporation of sample content.

Results

Temperature	Solvent	% loss after 24 hours
-20°C	Water	0.15%
	Acetonitrile	12.0%
	DMSO	-1.1%
4°C	Water	0.4%
	Acetonitrile	19.2%
	DMSO	0.8%
20°C	Water	1.0%
	Acetonitrile	34.3%
	DMSO	-1.2%

WebSeal Sealing Mat Properties

Material	Properties
Blue Silicone/PTFE Mat	Soft silicone with sprayed clear PTFE layer to give resistance against a wide range of organic solvents. Suitable for injection with a wide range of autosampler and sample processing units. Pre-slit versions allow use of blunt probes and pipette tips.
Clear Silicone Mat	Soft silicone without protective spray. Cannot be used for extended periods with strong solvents. May be used under aqueous conditions for storage.

WebSeal Chemical Resistance

The chemical resistance has been tested with long-term exposure of mats to filled plates with measurement of solvent integrity and observation of mat sealing performance over periods of 2-3 months.

Resistance to attack and application suitability	PTFE coated for glass vials	PTFE coated for square or round well plates	Pre-Slit PTFE coated for square or round well plates	Solvents
No permeation of mat elastomer or mat coating. Suitable for long-term storage, sample transfer and autosampler use.	Excellent	Excellent	Excellent	Water & Inorganic Buffers Methanol/Water IPA Acetonitrile/Water Hexane Heptane Cyclohexane
No permeation of mat elastomer by solvent with intact PTFE surface. Suitable for sample transfer and autosampler use. Suitable for elevated temperature use.	Excellent under most conditions	Excellent under most conditions	Excellent under most conditions	Acetone Acetonitrile Dichloromethane (DCM) Dimethylformamide (DMF) Trifluoroacetic Acid
Permeation of the elastomer after 3-5 days may lead to solvent collection on upper face of mat. Suitable for short-term sample transfer and autosampler use only.	Fair but alternative may be preferred	Not recommended for this application	Not recommended for this application	Dimethylsulphoxide (DMSO)

WebSeal 500 μ L Kit and Accessories

Mid-depth polypropylene 96 well microtiter plate, pre-inserted 500 μ L glass vials and WebSeal silicone/PTFE mats

WebSeal 500 μ L Kit

Description	Cat. No.	Quantity
96 well microtiter plate with 500 μ L glass vials and sealing mats	05-MTPVC-96	5 Pack
Accessories		
96 well mid-depth polypropylene plate for 500 μ L vials	05-MTP-96	5 Pack
500 μ L clear glass replacement vials for kit	05-MTV-96	500 Pack
96 round well silicone/PTFE sealing mat	WSM-1	5 Pack
96 round well silicone/PTFE sealing mat, pre-slit	WSM-1X	5 Pack

WebSeal 700 μ L Kit and Accessories

700 μ L kits available with clear glass, amber glass and PTFE vials pre-inserted into 96 well polypropylene microtiter plates

WebSeal 700 μ L Kit

Description	Cat. No.	Quantity
96 well plate, 700 μ L clear glass vials, sealing mat and cutting tool	MTPVC-96	5 Pack
96 well plate, 700 μ L PTFE vials, sealing mat and cutting tool	MTPVC-96	1 Each
Accessories		
700 μ L clear glass vials for kit	1-MTV-96	500 Pack
700 μ L PTFE vials for kit	1-MTTV-96	100 Pack
96 well polypropylene plate for 700 μ L vials	MTP-96	5 Pack
96 round well silicone/PTFE sealing mat	WSM-1	5 Pack
96 round well silicone/PTFE sealing mat, pre-slit	WSM-1X	5 Pack
Cutting tool	MTPC-1	1 Each

WebSeal 1.1mL Kit and Accessories

1.1mL kits available as 8mm crimp top standard vials or with WebSeal silicone/PTFE sealing mats

WebSeal 1.1mL Kit and Accessories

Description	Cat. No.	Quantity
96 well PP plate with 1.1mL glass vials, sealing mats	1.1-MTPVC-96	5 Pack
96 well PP plate with 1.1mL, 8mm crimp top vials	1.1-CMTPVC-96	5 Pack
Accessories		
1.1mL clear glass vials for kit	1.1-MTV-96	500 Pack
1.1mL clear glass crimp top vials for kit	1.1-CRV	500 Pack
96 deep well PP plate for 1.1mL shell vial	1.1-MTP-96	5 Pack
96 square deep well PP plate for 1.1mL crimp top vials	1.1-MTPS-96	5 Pack
Silicone/PTFE sealing mat	WSM-6	5 Pack
Silicone/PTFE sealing mat pre-slit	WSM-6X	5 Pack

WebSeal 1.5mL Kit and Accessories

1.5mL kit available in 96 well polypropylene microtiter plate pre-inserted with 1.5mL clear glass vials and WebSeal silicone/PTFE sealing mats

WebSeal 1.5mL Kit and Accessories

Description	Cat. No.	Quantity
96 well polypropylene plate, 1.5mL glass vials, sealing mat	1.5-MTPVC-96	5 Pack
Accessories		
1.5mL clear glass vials for kit	1.5-MTV-96	500 Pack
96 well polypropylene plate for 1.5mL glass vials	1.5-MTP-96	5 Pack
Silicone/PTFE sealing mat	WSM-6	5 Pack
Silicone/PTFE sealing mat pre-slit	WSM-6X	5 Pack

MicroMat CLR Sealing Mats

Designed to fit 96 well plates to eliminate cross-contamination from well to well

MicroMat CLR Sealing Mats

Description	Cat. No.	Quantity
96 round well; 7mm domed base	WSM-2E	5 Pack
96 round well sealing mat, 7mm domed base, silicone only pre-slit	WSM-2XE	5 Pack
384 square well sealing mat; silicone only	WSM-5E	5 Pack
384 square well sealing mat; silicone only pre-slit	WSM-5XE	5 Pack
96 square well sealing mat; silicone only	WSM-3SE	5 Pack
96 square well sealing mat; silicone only pre-slit	WSM-3SXE	5 Pack
96 round well sealing mat; 8mm flat base, silicone	WSM-2FBE	5 Pack
96 round well sealing mat; 8mm flat base, silicone pre-slit	WSM-2FBXE	5 Pack

WebSeal MicroMat CLR Sealing Strips

Use where only partial plate capacity is required

WebSeal MicroMat CLR Sealing Strips

Description	Cat. No.	Quantity
96 round well sealing strips; 8mm strips; silicone pre-slit	WSMS-2XE	12 Pack

WebSeal Mats

Superior resealability after multiple injections

WebSeal Mats – For use with WebSeal Glass and PTFE 96-position inserted vials

Description	Cat. No.	Quantity
96 round well silicone/PTFE sealing mat for use with 0.5-MTV-96 or 1-MTV-96	WSM-1	5 Pack
96 round well silicone/PTFE sealing mat, pre-slit	WSM-1X	5 Pack
Silicone/PTFE sealing mat for use with 1.5-MTV-96 or 1.1-MTV-96	WSM-6	5 Pack
Silicone/PTFE sealing mat pre-slit	WSM-6X	5 Pack

WebSeal Mat Applicator

Handheld applicator for easy sealing of WebSeal mats

WebSeal Mat Applicator

Description	Cat. No.	Quantity
Handheld mat applicator	WSA-1	1 Each

WebSeal Silicone/PTFE Mats

Manufactured from silicone with PTFE coating on underside

WebSeal Silicone/PTFE Mats

Description	Cat. No.	Quantity
96 round well; 7mm dome base; Dark Blue	WSM-2	5 Pack
96 round well; 7mm flat base; Light Blue	WSM-2FB	5 Pack
96 round well; 7mm flat base; Light Blue, pre-slit	WSM-2FBX	5 Pack
96 square well; 8mm square well; Light Blue	WSM-3S	5 Pack
96 square well; 8mm square well; Light Blue, pre-slit	WSM-3SX	5 Pack
96 square well; 8mm square well; Yellow, pre-slit	WSM-3SXY	5 Pack
384 round well; 4mm square well; Red	WSM-5	5 Pack
384 square well; 4mm square well; Light Blue, pre-slit	WSM-5RX	5 Pack

WebSeal Glass-Coated Microplates

Lightweight, precision molded, cost-effective alternative to solid glass plates

- Polypropylene microplates coated with 200nm thick layer of silicon dioxide
- Chemically resistant with the qualities of glass and advantages of polypropylene
- Operating temperatures of -80° to +80°C

WebSeal Glass-coated Microplates

Description	Cat. No.	Quantity
96 Well PP Plate 350µL Volume V-Bottom	CLS-210003	100 Pack
96 U deep-well design; 1mL glass-coated PP plate	CLS-400042	10 Pack
96 flat well design; 2mL glass-coated PP plate	CLS-400046	10 Pack
96 V-design 190µL; Glass coated PP plate	CLS-400058	10 Pack
384 square-rounded; 180µL glass-coated PP plate	CLS-400156	10 Pack
96 U-well design; 250µL glass-coated PP plate	CLS-400054	10 Pack
96 well flat bottom; 300µL glass-coated PP plate	CLS-400062	10 Pack
384 square/rounded well design; 90µL glass-coated PP plate	CLS-400150	10 Pack

Thermo Scientific Chromacol GC Septa

CHROMSEAL 9001

High Performance GC Septa

These GC septa have been developed by Chromacol to:

- Operate at true operating temperatures up to 306°C
- Provide better, cleaner chromatography
- Offer a longer operating life
- Be packed in a chromatographically clean container



The CHROMSEAL 9001 Range

HT - High Performance GC Septa

This red septum has been designed to provide clean chromatography at a true operating temperature of 306°C.

LL - Long Life

This blue septum has been designed for use with an autosampler where it is likely to be penetrated many times. This septum has been designed to have a maximum operating temperature of 290°C. Note this is a true operating temperature not an indicated temperature.

ECO - Economy

This green septum was designed to provide low operating costs without sacrificing cleanliness or operating life.

All Chromseal septa are available in a variety of sizes and as Shimadzu plug type septa.

Quality Control and Packing

All Chromseal 9001 septa are carefully packed immediately after production to protect them from laboratory contaminants and from contamination during their shelf life. They are all packed in glass bottles, since glass has been shown to contribute nothing to the contents during extended period of storage.

Manufacturer	Model	Septa size		Chromseal References		
		mm	ins.			
A I Cambridge	All models	9	11/32	HT-9	LL-9	ECO-9
Antek	All models	9.5	3/8	HT-9.5	LL-9.5	ECO-9.5
Carlo Erba	FV2000 and FV 4000	12		HT-12	LL-12	ECO-12
	Mega and Vega series					
	CE 8000					
Thermo Scientific TRACE	All models	17	21/32	HT-17	LL-17	ECO-17
	TRACE 1300/1310	11	7/16	HT-11	LL-11	ECO-11
Chrompak	All models	9	1/32	HT-9	LL-9	ECO-9
Gow Mac	All models	9	11/32	HT-9	LL-9	ECO-9
Agilent/Hewlett-Packard	5700	9.5	3/8	HT-9.5	LL-9.5	ECO-9.5
	5880, 5890, 6890	11	7/16	HT-11	LL-11	ECO-11
PerkinElmer	All models	11	7/16	HT-11	LL-11	ECO-11
Shimadzu	All models	plug type		HT-SP	LL-SP	ECO-SP
Tracor	All models	9.5	3/8	HT-9.5	LL-9.5	ECO-9.5
Varian	All packed column models	9.5	3/8	HT-9.5	LL-9.5	ECO-9.5
	3300, 3400, 3500, 3600,	11	7/16	HT-11	LL-11	ECO-11
	3700, Vista	11	7/16	HT-11	LL-11	ECO-11
Unicam	4600	9.5	3/8	HT-9.5	LL-9.5	ECO-9.5

Thermo Scientific Chromacol Syringe Filters

Sample preparation has always been one of the most important steps in successful chromatography. It has also been one of the most time consuming.

Chromacol's 30mm and 17mm syringe filter formats provide superior throughput and sample loading over standard, competitive 25mm and 13mm filters. Now you can process up to 50% more sample before reaching maximum sample loading for our 30mm filters.

The new sample distribution rings promote uniform application of the sample across the membrane area. This feature maximizes the available filtration area, speed and reduces backpressure when filtering. Inclusion of a glass micro fibre (GMF) pre-filter further enhance performance especially when dealing with heavy particulate solutions.

	Outside diameter	Pore size (um)	PreFilter	Cat.No.	Quantity
Nylon syringe filters	4	0.2	No	4-SF-02(N)	100
		0.45	No	4-SF-45(N)	100
	17	0.2	No	17-SF-02(N)	100
		0.45	No	17-SF-45(N)	100
	30	0.2	No	30-SF-02(N)	100
		0.2	Yes	30-SF-02(N)P	100
		0.45	No	30-SF-45(N)	100
		0.45	Yes	30-SF-45(N)P	100
		1.5	No	30-SF-15(N)	100
PTFE syringe filters	4	0.2	No	4-SF-02(T)	100
		0.45	No	4-SF-45(T)	100
	17	0.2	No	17-SF-02(T)	100
		0.45	No	17-SF-45(T)	100
	30	0.2	No	30-SF-02(T)	100
		0.45	No	30-SF-45(T)	100
		0.45	Yes	30-SF-45(T)P	100
		1	No	30-SF-10(T)	100
		5	No	30-SF-50(T)	100
PVDF syringe filters	4	0.2	No	4-SF-02(PV)	100
		0.45	No	4-SF-45(PV)	100
	17	0.2	No	17-SF-02(PV)	100
		0.45	No	17-SF-45(PV)	100
	30	0.2	No	30-SF-02(PV)	100
		0.45	No	30-SF-45(PV)	100

	Outside diameter	Pore size (um)	PreFilter	Cat.No.	Quantitiy
Polypropylene (PP) syringe filters	4	0.2	No	4-SF-02(PP)	100
		0.45	No	4-SF-45(PP)	100
	17	0.2	No	17-SF-02(PP)	100
		0.45	No	17-SF-45(PP)	100
	30	0.2	No	30-SF-02(PP)	100
		0.45	No	30-SF-45(PP)	100
		0.45	Yes	30-SF-45(PP)P	100
Polyether Sulphone (PES) syringe filters	17	0.2	No	17-SF-02(PES)	100
		0.45	No	17-SF-45(PES)	100
	30	0.2	No	30-SF-02(PES)	100
		0.45	No	30-SF-45(PES)	100
Regenerated Cellulose (RC) syringe filters	4	0.2	No	4-SF-02(RC)	100
		0.45	No	4-SF-45(RC)	100
	17	0.2	No	17-SF-02(RC)	100
		0.45	No	17-SF-45(RC)	100
	30	0.2	No	30-SF-02(RC)	100
		0.45	No	30-SF-45(RC)	100
Cellulose Acetate (CA) syringe filters	4	0.2	No	4-SF-02(CA)	100
		0.45	No	4-SF-45(CA)	100
	17	0.2	No	17-SF-02(CA)	100
		0.45	No	17-SF-45(CA)	100
	30	0.2	No	30-SF-02(CA)	100
		0.45	No	30-SF-45(CA)	100
Glass Fibre (GMF) syringe filters	30	0.7	No	30-SF-07(GMF)	100
		1.2	No	30-SF-12(GMF)	100
		3.1	No	30-SF-31(GMF)	100



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