



Thermo Scientific
Chromatography Columns
and Consumables 2016-2017

Connected chromatography solutions

Sample Handling Products

Our portfolio includes over 850 Thermo Scientific 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.

Featured Products



SureStop 9mm Vials

Removing any subjectivity around achieving the optimal compression when sealing a vial. Analytical results are improved as a result of the elimination of evaporation differences between samples.

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Virtuoso Vial Identification System

A fast sample identity and security system that provides reliable and accurate customized sample information printed directly onto a vial.

PAGE 2-007



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Tools and Accessories

Crimpers and decrimpers (manual and electronic) providing an adjustable crimp with reproducible results

PAGE 2-092



Webseal Well Plates

A comprehensive range of well plate solutions for high density sample handling in chromatography

PAGE 2-094

Sample Handling

Technical Resources



visit www.thermoscientific.com/chromexpert
to access the following information:

- MS Certified Vials Technical Information
- Septum Selection Guide
- Deactivated Glass Vials and Inserts
- Seal Hardness
- Solvent Compatibility
- Chemical Resistance Reference Chart
- Properties of Glass
- Autosampler Compatibility Chart





Vials and Closures

Our portfolio contains the most comprehensive selection of vials and closures from microsampling to headspace to match all of your application and autosampler requirements. The portfolio focuses on improved sample security and integrity with the Thermo Scientific™ AVCS™ 9mm closures and the Thermo Scientific™ SureStop™ 9mm screw top vial range. Our portfolio of vials and closures offer you the assurance of uninterrupted productivity on every separation and analysis.

- **AVCS Closures and SureStop Vials**

AVCS Closures together with SureStop vials significantly reduce the error rate of analysis that results from evaporation of solvent in vials which are not sealed correctly.

- **Virtuoso Vial Identification System**

Bringing time savings, greater productivity and increased sample security to your laboratory by eliminating manual vial labeling.

- **National Vials and Closures**

Choose from a large selection of Thermo Scientific™ National™ vials and closures to match your application and autosampler requirements.

- **MS Certified Vials**

The first and only pre-cleaned, low particle, low background chromatography vial.

- **Chromacol Vials and Closures**

Choose from a large selection of Thermo Scientific™ Chromacol™ vials and closures to match your application and autosampler requirements.

- **Crimping and Decrimping Tools**

Speed up your workflow with our tools for opening, closing and disposing of vials.



The vials and closures web page contains the latest news, applications and downloads for the range. Visit www.thermoscientific.com/vials

AVCS Closures and SureStop Vials

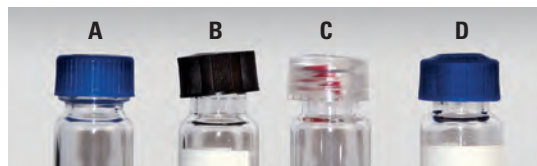
Thermo Scientific™ AVCS Closures and SureStop™ Vials – The next generation of sample handling

Top reasons why chemists should consider Advanced Vial Closure System (AVCS) closures and SureStop vials

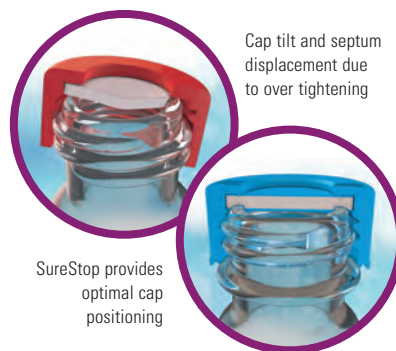
Features of 9mm wide opening, integral membrane and solid top closures:

1. AVCS closures along with SureStop vials significantly reduce the error rate of analysis that results from evaporation of solvent in improperly sealed vials
2. Re-analysis costs are reduced, sample data integrity and sample throughput increases
3. No need to use bulky crimpers – AVCS closures with SureStop vials seal as well as crimp top vials
4. The leveling feature of AVCS designed vials gives more autosampler compatibility with less autosampler interruptions, due to mishandled vials
5. AVCS design allows for consistent sealing, eliminating user-to-user variance
6. SureStop design provides a positive feedback closure that creates more consistent data, which for a researcher is almost as important as the actual result

A study of the effects of the typical operator response to evaporative sample loss and septum dislodging during the use of 9 mm screw thread and 11 mm crimp vials and closures was conducted. Sample losses were measured for both overtightened vials and for vials perceived to be optimally tightened and these were compared to losses from new vials designed to provide a definite sealing point.



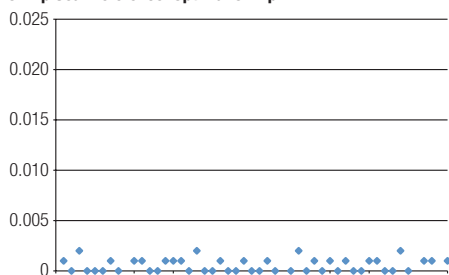
Examples of vial and closure misalignment/deformation. (A) SureStop vial self aligning cap; (B) generic vial, cap tilt; (C) generic vial, septum dislodged; and (D) generic vial, deformed top.



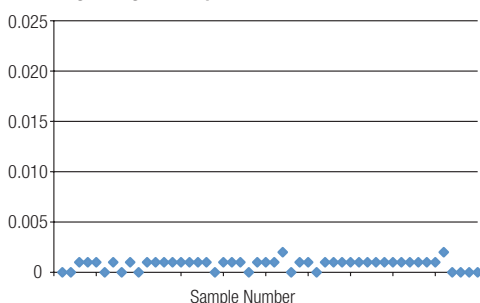
Test conditions

- 1.3 mL of pure methanol was added to each vial (always 50 in total)
- All vials were incubated at a temperature of 40 °C for 72 hours
- After 72 hours the final weight was taken and subtracted from the initial 40 °C temperature weight to yield the sample loss in grams

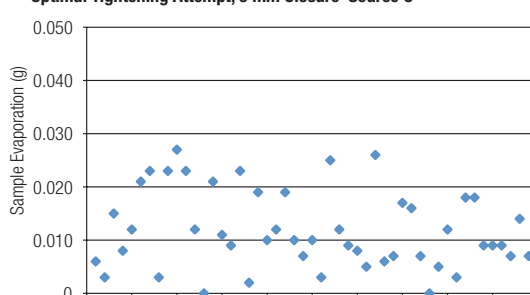
Crimp Seal Reference: Optimal Crimp



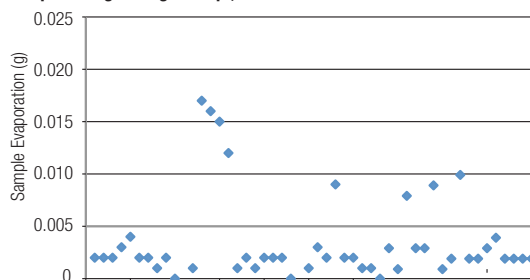
Normal Tightening, SureStop Vial/AVCS Closure

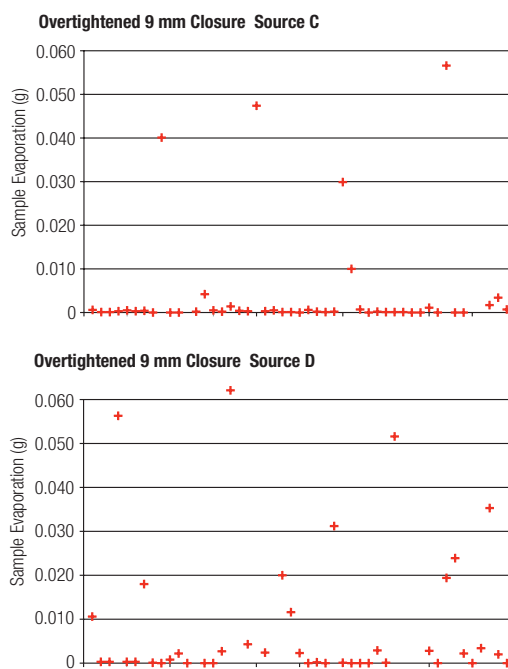
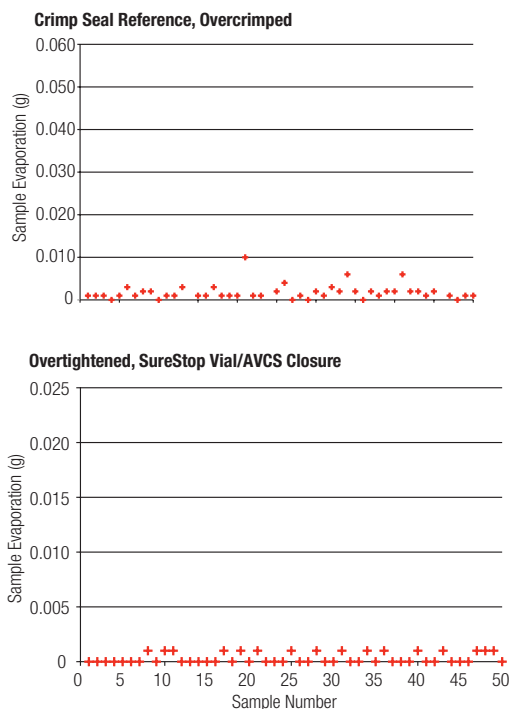


Optimal Tightening Attempt, 9 mm Closure Source C



Optimal Tightening Attempt, 9 mm Closure Source D





Are you currently using crimp caps?

Changing to AVCS closures and SureStop vials will provide the following benefits:

- The hassle of crimping is removed; crimping and de-capping tools are not required. Screw thread closures are easier to attach and remove reducing time required for sample prep. Additionally, there can be repetitive stress issues related to high volume crimping that will be alleviated with screw thread vials
- AVCS closures and SureStop vials offer identical performance to crimp caps (based on solvent loss studies), which make SureStop products a viable alternative for GC use
- AVCS and SureStop provides a “like crimped” product tightness and reliable quantification even for low boiling compounds; you remove user-to-user vial/closure sealing variability that results from user subjectivity of when they “think” the vial is properly sealed

Are you currently using snap caps?

Changing to AVCS closures and SureStop vials will provide the following benefits:

- Positive feedback makes AVCS and SureStop as convenient to use as snap cap
- Provides a fast closing alternative for volatile solvents/compounds of interest
- Eliminates variable evaporation rates that can be caused by environmental conditions

Are you currently using expensive bonded caps?

Changing to AVCS closures and SureStop vials and will provide the following benefits:

- Septum push through is eliminated with the AVCS screw-top closure and SureStop vial design. (See illustration below)
- Multiple septa qualities available (bonded caps very limited in septa offering)
- AVCS closures and SureStop vials seal more securely than bonded caps
- AVCS closures and SureStop vials are considerably less expensive than bonded caps and vials



Non-AVCS push through examples

AVCS no push through

Virtuoso Vial Identification System

Providing the next generation in sample security

From sample entry to final reports, everything an analytical lab does revolves around ensuring accurate data and reliable results. Chromatography vial sample identification can be complicated, because once the sample is in the vial, there is no easy way to identify it. Current methods, like hand written or adhesive labels, can be illegible or time consuming, and no accurate, reliable and efficient system for vial sample identification existed...until now.

The Thermo Scientific™ Virtuoso™ Vial Identification System is the most innovative device for ensuring sample identity and sample security ever developed. By providing a fast, accurate, detailed and reproducible system for producing customized sample information directly onto a vial, Virtuoso has revolutionized vial identification.



Load a single vial, or up to 10 with the included multi-vial sleeve

File management made easy

Virtuoso's network connectivity allows you to transfer label information from your files

Add text and barcodes

Virtuoso comes loaded with templates to make accurate labeling quick and easy, or easily create your own custom format

Input data instantly from the touch screen interface , or via the Pi Gateway Software interface

Start-to-finish in 5 seconds

Fully labeled vial completed in just 5 seconds

Virtuoso Vial Identification System

Virtuoso vials and accessories designed exclusively for use with the Virtuoso enabling the highest level of sample integrity available for chromatographers

Virtuoso Vial Identification System

Description	Cat. No.	Pack of
Virtuoso Vial Identification System	60180-VT100	1
Virtuoso 9mm Wide Opening SureStop Screw Thread Vial, 2mL, Clear Glass with V-Patch	60180-VT300	100
Virtuoso 9mm Wide Opening SureStop Screw Thread Vial, 2mL, Amber Glass with V-Patch	60180-VT301	100
Virtuoso 11mm Wide Opening Crimp Top Vial, 2mL, Clear Glass with V-Patch	60180-VT302	100
Virtuoso 11mm Wide Opening Crimp Top Vial, 2mL, Amber Glass with V-Patch	60180-VT302A	100
Virtuoso 11mm Wide Opening Snap-It Vial, 2mL, Clear Glass with V-Patch	60180-VT303	100
Virtuoso 11mm Wide Opening Snap-It Vial, 2mL, Amber Glass with V-Patch	60180-VT303A	100
Virtuoso 9mm SureStop Screw Thread High Recovery Vial 2mL, Clear Glass with V-Patch	60180-VT309	100
Virtuoso 9mm SureStop Screw Thread Total Recovery Vial 2mL, Clear Glass with V-Patch	60180-VT309TR	100
Virtuoso 9mm SureStop Screw Thread Fused Insert MacroVial, 350uL, Clear Glass with V-Patch	60180-VT310	100
Virtuoso 9mm SureStop Screw Thread Fused Insert MacroVial, 350uL, Amber Glass with V-Patch	60180-VT310A	100
Virtuoso 9mm Wide Opening SureStop Screw Thread Vial, Convenience Kit Kit Contains 60180-VT300 & C5000-53B	60180-VT400	100
Virtuoso 9mm Wide Opening SureStop Screw Thread Vial, Convenience Kit Kit Contains 60180-VT300 & C5000-51B	60180-VT401	100
Virtuoso 9mm Wide Opening SureStop Screw Thread Vial, Convenience Kit Kit Contains 60180-VT300 & C5000-54B	60180-VT402	100
Virtuoso 11mm Wide Opening Crimp Top Vial, Convenience Kit Kit Contains 60180-VT302 & C4011-1AP	60180-VT403	100
Virtuoso 11mm Wide Opening Snap-It Vial Convenience Kit, Kit Contains 60180-VT303A & C4011-54	60180-VT404A	100
Virtuoso 9mm Wide Opening SureStop Screw Thread Vial, Convenience Kit Kit Contains 60180-VT300 & C5000-55B	60180-VT405	100
Virtuoso Mass Spec Certified 9mm SureStop Kit, Kit Contains 60180-VT310A & C5000-64B	60180-VTMSC72LV	100
Virtuoso Mass Spec Certified 9mm SureStop Kit, Kit Contains MSCERT60180-VT301 & MSC5000-44B	60180-VTMSC402A	100
Virtuoso Replacement Tape	60180-VT500	1
Virtuoso Multi Vial Holder	60180-VT501	5
Virtuoso Vial Collection Tray	60180-VT502	3
Virtuoso Screen Protector	60180-VT503	1
Virtuoso Multi Vial Guide	60180-VT504	1

Innovative Vial Unmatched Performance



- Consistent sealing
- Optimal cap alignment
- Advanced Vial Closure System (AVCS)
- AVCS improves autosampler compatibility

SureStop™ Vials with AVCS Closures

Premium Vials and Closures

8mm Screw Vials and Closures

8-425 thread finish, standard opening, 2mL, 12x32mm

- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber, meets all requirements of Pharm. US, EU, JPN
- 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 many Japanese autosamplers
- Pre-assembled caps and septa are convenient and minimize contamination from handling



Recommended for the following instruments:

- Thermo Scientific™ Dionex™ Ultimate™ 3000 HPLC
- Thermo Scientific Accela HPLC
- Thermo Scientific™ Surveyor™ LC autosampler
- Beckman
- CTC
- Gilson
- Knauer
- Shimadzu
- Spark
- Varian
- VWR (Merck)/Hitachi

For autosampler compatibility visit www.thermoscientific.com/chromexpert

8mm, 2mL, 12x32mm Standard Opening Screw Thread Vials and Inserts

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (mL)	Usable Volume (mL)	Residual (µL)	Cat. No.	Pack of
8-425 Screw Thread Vial	Clear	Yes	12x32	Flat Bottom	2.0	1.5	<170	60180-508	100
	Amber	Yes	12x32	Flat Bottom	2.0	1.5	<170	60180-560	100

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, 5.5mm hole	Black	Polypropylene	—	—	—	60180-514	100
8mm Open Top Screw Cap, flanged, 8-425 thread, 5.5mm hole	Pink	Polypropylene	—	—	—	60180-660	100
Septum for 8-425 Screw Caps	—	—	Blue Silicone/PTFE	30	1.1	60180-515	500
	—	—	White Silicone/Red PTFE	50	1.5	60180-562	100
8mm Open Top Screw Cap with flange, 8-425 thread, 5.5mm hole	Pink	Polypropylene	Red PTFE/White Silicone	45	1.3	60180-661	100
	Pink	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	0.9	60180-662	100
8mm Open Top Screw Cap, 8-425 thread, 5.5mm hole	Pink	Polypropylene	Ivory PTFE/Red Rubber	45	1.0	60180-665	100
	Pink	Polypropylene	Red PTFE/White Silicone/Red PTFE	45	1.0	60180-666	100
	Pink	Polypropylene	Red PTFE/White Silicone	45	1.3	60180-667	100

For 8mm screw vial convenience kits look on page **2-010**

8mm Standard Opening Screw Thread Vial Convenience Kits

- Includes 100 vials and 100 caps with pre-assembled septa
- Caps feature pre-inserted septa for added convenience during sample preparation

8mm 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	Black	Blue Silicone/PTFE	60180-508	60180-514/60180-515	60180-596	1000
	Clear	Yes	Black	Red PTFE/White Silicone	60180-508	60180-514/60180-562	60180-600	100

9mm Wide Opening Screw Thread Vials and Closures

- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber, meets all requirements of Pharm. US, EU, JPN
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts
- Easy-on, easy-off convenience with just one turn
- Caps with bonded septa resist dislodging during injection when using large diameter blunt needles
- Closures have the profile of a crimp or snap closure for compatibility with robotic autosamplers

Compatible with:

- Thermo Scientific TRACE 1300 GC
- Thermo Scientific TriPlus RSH autosampler
- Most other HPLC and GC autosamplers

For autosampler compatibility visit www.thermoscientific.com/chromexpert



* This vial fits Thermo Scientific AS 3000 and TriPlus only

9mm Wide Opening Screw Thread Vials

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (mL)	Usable Volume (mL)	Residual (μL)	Cat. No.	Pack of
9mm Screw Thread Thermo Scientific™ Micro+™ Vial 300μL, Fused Insert	Clear	Yes	12x32	Insert Vial	0.3	250μL	<3	60180-507	100
9mm Screw Thread Vial	Clear	Yes	12x32	Flat Bottom	2.0	1.5	<170	60180-509	100
	Clear	No	12x32	Flat Bottom	2.0	1.5	<170	60180-723	1000
	Amber	Yes	12x32	Flat Bottom	2.0	1.5	<170	60180-561	100
	Amber	Yes	12x32	Flat Bottom	2.0	1.5	<170	60180-724	1000
	Clear	No	15x46	Flat Bottom	4.0	3.5	<500	60180-510	125



9mm Short Screw Thread Vial Closures

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
9mm Open Top Short Screw Cap, 6mm hole	Blue	Polypropylene	Clear PTFE/Blue Silicone	30	1.0	60180-516	100
	Blue	Polypropylene	Red PTFE/White Silicone	55	1.0	60180-729	1000
	Blue	Polypropylene	Ivory PTFE/Red Rubber	45	1.0	60180-728	1000
	Pink	Polypropylene	Red PTFE/White Silicone	55	1.0	60180-671	100
	Pink	Polypropylene	Ivory PTFE/Red Rubber	45	1.0	60180-669	100
	Pink	Polypropylene	Red PTFE/White Silicone/Red PTFE	45	1.0	60180-670	100
	Pink	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	60180-672	100

9mm Convenience Kits

- Includes 100 vials and 100 caps with pre-assembled septa
- Caps feature pre-inserted septa for added convenience during sample preparation



Items not shown to scale

9mm Wide Opening Screw Thread Vials 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	Blue Silicone/PTFE	60180-509	60180-516	60180-599	100
	Clear	Yes	Pink	Red PTFE/White Silicone	60180-723	60180-671	60180-694	100
	Amber	No	Pink	Red PTFE/White Silicone	60180-724	60180-671	60180-698	100

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

- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber meets all requirements of Pharm. US, EU, JPN
- Aluminum crimp seals with prefitted septa for all 11mm crimp top and snap cap vials
- Pre-assembled caps and septa are convenient and minimize contamination from handling
- Aluminum seals must be applied with a crimping tool



Compatible with:

Most HPLC and GC autosamplers
For autosampler compatibility visit
www.thermoscientific.com/chromexpert

11mm Wide Opening Crimp Top Vials, 2mL, 12x32mm

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (mL)	Usable Volume (mL)	Residual (µL)	Cat. No.	Pack of
11mm Crimp Top Vial, Wide Opening	Clear	Yes	12x32	Flat Bottom	2.0	1.5	<170	60180-502	100

11mm Crimp Top Vial Closures

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
11mm Crimp Cap, 6mm center hole	Blue	Aluminum	Blue Silicone/Red PTFE	20	1.4	60180-526	100
11mm Crimp Cap, 5.5mm center hole	Silver	Aluminum	Red PTFE/White Silicone	45	1.3	60180-706	1000

11mm Crimp Top Convenience Kits

- Includes 100 vials and 100 caps with pre-assembled septa
- Caps feature pre-assembled septa for added convenience during sample preparation

11mm Crimp Top Convenience 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	Blue	Blue Silicone/Red PTFE	60180-502	60180-526	60180-597	100
	Clear	Yes	Silver	White Silicone/Red PTFE	60180-502	60180-706	60180-598	100

11mm Crimping Tool

Description	Use	Cat. No.	Pack of
Manual Crimper	Attaches 11mm aluminum crimp seals	60180-543	1

We offer electronic crimping options

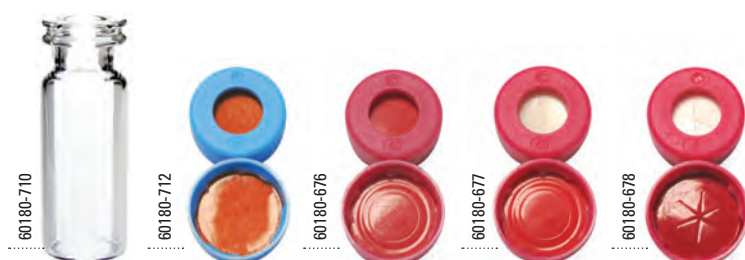
➤ Visit **PAGE 2-092**

11mm Snap Cap Vials, Wide Opening, 2mL, 12x32mm and Closures

- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber, meets all requirements of Pharm. US, EU, JPN
- Crimp/Snap vials can be used with snap caps or aluminum crimp seal closures
- Snap Caps eliminate the need for crimping or decrimping tools
- Polyethylene caps are chemically inert and suitable for most chromatography applications

Compatible with:

Most HPLC and GC autosamplers
For autosampler compatibility visit
www.thermoscientific.com/chromexpert



11mm Snap Cap Vials, Wide Opening, 2mL, 12x32mm

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (mL)	Usable Volume (mL)	Residual (μL)	Cat. No.	Pack of
11mm Crimp/Snap Vial	Clear	No	12x32	Flat Bottom	2.0	1.5	<170	60180-710	1000

11mm Snap Cap Vial Closures

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
11mm Snap Cap, 6mm hole	Blue	Polyethylene	Clear PTFE/Synthetic Red Rubber	60	1.0	60180-712	1000
	Pink	Polyethylene	Clear PTFE/Synthetic Red Rubber	60	1.0	60180-676	100
	Pink	Polyethylene	Red PTFE/White Silicone	45	1.3	60180-677	100
	Pink	Polyethylene	Red PTFE/White Silicone, Star-slit	45	1.3	60180-678	100

11mm Wide Opening Snap Cap Convenience Kits

- Includes 100 vials and 100 caps with pre-assembled septa
- Caps feature pre-assembled septa for added convenience during sample preparation

11mm Snap Cap Convenience Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat. No.	Cap Cat. No.	Cat. No.	Pack of
Convenience Kit, Wide Opening Snap Cap Vial	Clear	No	Pink	Clear PTFE/Red Rubber	60180-710	60180-676	60180-679	100
	Clear	No	Pink	Red PTFE/White Silicone	60180-710	60180-677	60180-680	100

20mm Headspace Crimp Top Vials and Closures

- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber, meets all requirements of Pharm. US, EU, JPN



Applications:

Recommended for operation of Thermo Scientific TriPlus HS Autosampler

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

For autosampler compatibility visit

www.thermoscientific.com/chromexpert

Images shown are 70% to scale

20mm Crimp Top Headspace Vials

Description	Glass	Patched	Dimension (mm)	Finish	Profile	Total Volume (mL)	Usable Volume (mL)	Cat. No.	Pack of
20mm Headspace Crimp Vial	Clear	Yes	22.5x46	Beveled Edge	Round Bottom	12	10	60180-504	125
	Amber	No	22.5x46	Beveled Edge	Round Bottom	12	10	60180-505	125
	Clear	Yes	22.5x75	Beveled Edge	Round Bottom	21	20	60180-506	125
	Clear	No	22.5x75	Beveled Edge	Round Bottom	21	20	60180-741	1000



Images shown are 70% to scale

20mm Crimp Top Vial Closures

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
20mm Crimp Cap, 9.5mm hole	Silver	Aluminum	–	–	–	60180-512	100
20mm Composite Magnetic Crimp Cap, 8mm hole	Blue	Alu/Tinplate	–	–	–	60180-519	100
Stopper for 20mm Crimp Caps	–	–	20mm Gray Butyl Stopper	37	3.0	60180-744	1000
Septum for 20mm Crimp Caps	–	–	Natural PTFE/Blue Silicone	45	3.2	60180-521	100
20mm Crimp Cap, 8mm hole	Silver	Aluminum	20mm Gray Chlorobutyl/Gray PTFE	52	3.0	60180-513	100
20mm Crimp Cap, 9.5mm hole	Silver	Aluminum	Natural PTFE/Blue Silicone	45	3.2	60180-511	100
20mm Composite Magnetic Crimp Cap, 8mm hole	Blue	Alu/Tinplate	Natural PTFE/Blue Silicone	45	3.2	60180-520	100

20mm Crimping and Decrimping Tools

Description	Use	Cat. No.	Pack of
Manual Crimper	Attaches 20mm crimp seals	60180-544	1
Manual Decrimper	Removes 20mm crimp seals without vial damage	60180-557	1

For electronic crimpers and decrimpers look on page **2-092**

National Vials and Closures

More laboratory professionals look to Thermo Scientific National products to meet their critical sampling needs than any other company

- Comprehensive instrument compatibility, "correct fit"
- The industry's widest selection of vials and closures for every application, from economical to high end products
- Innovative products for challenging applications
- Quality products in glass (1st hydrolytic class glass (Type 1) in clear and amber, meets all requirements of Pharm. US, EU, JPN)
- Certified and Mass Spec Certified Vial Kits
- The leading manufacturer of vials and closures in North America since 1986
- In-house product development team
- Leading company in convenience and assembled kits



MS Certified Vials

The first and only pre-cleaned, low particle, low background chromatography vial

When your instrumentation, sample handling and methodology is pushing the limits, a chromatography vial that can keep up is essential

- The only chromatography vials pre-cleaned to provide unmatched consistency
- The first low particle, low background chromatography vials
- Pre-cleaned vial packaging protects the product integrity
- Tested and certified for up to 15 critical physical characteristics affecting vial performance
- Positive ESI LC-MS and GC-MS chromatograms included in each pack

Low particle background

The presence of inorganic sub-micron particles in all glass vials as a byproduct of the manufacturing process is a little known phenomenon that has not been extensively studied. Gas chromatographers depend on injection port liners to act as traps for particulates while the HPLC chromatographer takes extensive steps to eliminate them during sample preparation. This has been an effective strategy for routine analytical methods, but the need to work with even lower concentrations of analytes creates the possibility of interactions with compounds of interest.

Thermo Scientific MS Certified Vials undergo a proprietary cleaning process that greatly reduces the background particulates along with their potential effect on high sensitivity chromatography. The table gives a comparison of the particle distribution obtained from an analysis of standard vials versus the Thermo Scientific MS Certified Vials. All MS Certified Vials are processed and tested for background particulates. A typical vial that has not been processed can exhibit particle counts exceeding 5000 particles per mL with the highest counts occurring in the range below 0.5 μ m. This has traditionally been of little concern when GC inlet liners or HPLC guard

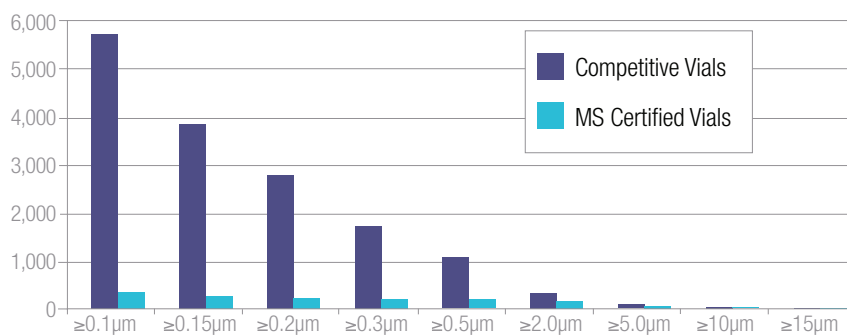
columns are used. GC techniques employing on-column injection create the need for a sample vial with minimal background particulates to prevent an accumulation of foreign material at the head of the column that might adversely affect a separation. Similarly newer techniques employing finely packed HPLC columns, capillary columns and direct connection of the analytical column to the

sample valve also require the elimination of as much particulate matter as possible from the sample stream.

The table below shows the results obtained from particulate analysis of a typical unprocessed vial compared to the Thermo Scientific MS Certified Vials. The processed vial shows a significant reduction in total particle counts.

VIAL	$\geq 0.1\mu\text{m}$	$\geq 0.15\mu\text{m}$	$\geq 0.2\mu\text{m}$	$\geq 0.2\mu\text{m}$	$\geq 0.5\mu\text{m}$	$\geq 2.0\mu\text{m}$	$\geq 5.0\mu\text{m}$	$\geq 10\mu\text{m}$	$\geq 15\mu\text{m}$
Competitive Vials	5,677	3,809	2,755	1,709	1,051	307	76	4	0
Thermo Scientific Vials	356	264	218	192	176	160	45	8	3

Typical Cumulative Particle Counts



MS Certified Vials Kits

Unassembled and Assembled Vial Kits

Kit Type	Glass	Patched	Cap Color	Septum	Cat. No.	Pack of
Convenience Kit, 9mm SureStop Screw Vial, 2mL with AVCS Closure	Clear	Yes	Blue	Blue Silicone/PTFE	MSCERT5000-34W	100
	Amber	Yes	Blue	Blue Silicone/PTFE	MSCERT5000-35W	100
	Clear	Yes	Blue	Blue Silicone/PTFE, Pre-slit	MSCERT5000-40W	100
	Amber	Yes	Blue	Blue Silicone/PTFE, Pre-slit	MSCERT5000-41W	100
Convenience Kit, 9mm 200µL Fused Insert Screw Vial	Clear	Yes	Blue	Bonded Clear PTFE/Clear Silicone	MSCERT5000-30LVW	100
Convenience Kit, 9mm 350µL Fused Insert Screw Vial	Clear	Yes	Blue	Bonded Clear PTFE/Clear Silicone	MSCERT5000-31LVW	100
Convenience Kit, 9mm Wide Opening 1.7mL High Recovery Screw Vial with 30µL Reservoir	Clear	No	Blue	Bonded Clear PTFE/Clear Silicone	MSCERT5000-32	100
Convenience Kit, 9mm Wide Opening 1.5mL Total Recovery Screw Vial with 10µL Reservoir	Clear	No	Blue	Bonded Clear PTFE/Clear Silicone	MSCERT5000-33TR	100
Convenience Kit, 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Blue	Bonded Clear PTFE/Clear Silicone	MSCERT5000-341W	100
	Amber	Yes	Blue	Bonded Clear PTFE/Clear Silicone	MSCERT5000-351W	100
Convenience Kit, 9mm 200µL Fused Insert Screw Vial	Clear	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	MSCERT5000-36LVW	100
Convenience Kit, 9mm 350µL Fused Insert Screw Vial	Clear	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	MSCERT5000-37LVW	100
Convenience Kit, 9mm Wide Opening 1.7mL High Recovery Screw Vial with 30µL Reservoir	Clear	No	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	MSCERT5000-38	100
Convenience Kit, 9mm Wide Opening 1.5mL Total Recovery Screw Vial with 10µL Reservoir	Clear	No	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	MSCERT5000-39TR	100
Convenience Kit, 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	MSCERT5000-401W	100
	Amber	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	MSCERT5000-411W	100
Convenience Kit, 9mm Wide Opening Screw Vial, 2mL, sterilized	Clear	Yes	Blue	Bonded Clear PTFE/Clear Silicone	MSCERT5000-S34W	100
	Amber	Yes	Blue	Bonded Clear PTFE/Clear Silicone	MSCERT5000-S35W	100
	Clear	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	MSCERT5000-S40W	100
	Amber	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	MSCERT5000-S41W	100
Convenience Kit, 11mm Snap Top Vial, 2mL	Clear	Yes	Red	Clear PTFE/Clear Silicone, Pre-slit	MSCERT4011-74W	100
Assembled Kit, 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Blue	Bonded Clear PTFE/Clear Silicone	MSCERT5000-134W	100
	Amber	Yes	Blue	Bonded Clear PTFE/Clear Silicone	MSCERT5000-135W	100
Assembled Kit, 13-425 Screw Vial, 4mL	Clear	Yes	Black	Bonded Clear PTFE/Clear Silicone	MSCERT4015-135W	100
	Amber	Yes	Black	Bonded Clear PTFE/Clear Silicone	MSCERT4015-136W	100



National Certified Vials and Closures Convenience Kits

- National Certified Vial Kits are fully lot-tested including HPLC and GC analysis for 15 critical parameters
- Certificate of Conformance included in every pack
- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- Fixed insert or conical base vials for limited volume sampling

Unassembled kits

- Includes 100 vials and 100 caps with pre-assembled septa
- Reusable two compartment trays protect vials and closures while keeping matching supplies together
- Clear trays make it easy to keep track of available supplies without opening containers

Assembled kits

- Include 100 vials with pre-attached caps and septa
- Packaged in convenient vial trays with clear covers



National Certified Vials and Closures Convenience Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat. No.	Cap Cat. No.	Cat. No.	Pack of
Convenience Kit, Certified 9mm Wide Opening SureStop Vial, 2mL	Clear	Yes	Blue	Ivory PTFE/Red Rubber	C5000-1W	C5000-51B	CERT5000-580W	100
	Amber	Yes	Blue	Ivory PTFE/Red Rubber	C5000-2W	C5000-51B	CERT5000-582W	100
	Clear	Yes	Blue	Red PTFE/White Silicone	C5000-1W	C5000-54B	CERT5000-578W	100
	Amber	Yes	Blue	Red PTFE/White Silicone	C5000-2W	C5000-54B	CERT5000-575W	100
	Clear	Yes	Blue	Blue PTFE/White Silicone, Pre-slit	C5000-1W	C5000-55B	CERT5000-593W	100
	Amber	Yes	Blue	Blue PTFE/White Silicone, Pre-slit	C5000-2W	C5000-55B	CERT5000-576W	100
	Clear	No	Blue	Ivory PTFE/Red Rubber	C4000-1	C5000-51B	CERT5000-80	100
Convenience Kit, Certified 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Blue	Ivory PTFE/Red Rubber	C4000-1W	C5000-51B	CERT5000-80W	100
	Amber	Yes	Blue	Ivory PTFE/Red Rubber	C4000-2W	C5000-51B	CERT5000-82W	100
	Clear	Yes	Blue	Red PTFE/White Silicone	C4000-1W	C5000-54B	CERT5000-92W	100
Convenience Kit, Certified 9mm Wide Opening High Recovery Screw Vial, 1.7mL	Clear	No	Black	Bonded Red PTFE/White Silicone	C4000-9	C5000-64B	CERT5000-992	100
Convenience Kit, Certified 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Black	Bonded Red PTFE/White Silicone	C4000-1W	C5000-64B	CERT5000-78W	100
	Amber	Yes	Black	Bonded Red PTFE/White Silicone	C4000-2W	C5000-64B	CERT5000-75W	100
Convenience Kit, Certified 9mm Screw Vial, 350µL Fused Insert	Clear	Yes	Black	Bonded Red PTFE/White Silicone	C4000-LV1W	C5000-64B	CERT5000-80LV	100
	Amber	Yes	Black	Bonded Red PTFE/White Silicone	C4000-LV2W	C5000-64B	CERT5000-72LV	100
Convenience Kit, Certified 10-425 Screw Vial, 2mL	Clear	Yes	Black	Bonded Red PTFE/White Silicone	C4015-11W	C4010-68A	CERT4010-91	100
Convenience Kit, Certified 13-425 Screw Vial, 4mL	Clear	No	Black	Bonded Red PTFE/White Silicone	C4015-1	C4015-67A	CERT4015-83	100
Convenience Kit, Certified 9mm Wide Opening High Recovery Screw Vial, 1.7mL	Clear	No	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	C4000-9	C5000-75C	CERT5000-79	100
Convenience Kit, Certified 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	C4000-1W	C5000-75C	CERT5000-93W	100
	Amber	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	C4000-2W	C5000-75C	CERT5000-76W	100
Convenience Kit, Certified 9mm Wide Opening Total Recovery Screw Vial, w/10µL Reservoir	Clear	No	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	C4000-9TR	C5000-75C	CERT5000-993	100
Convenience Kit, Certified Shell Vial 1mL with SepCap	Clear	No	Natural	Integral Molded Polyethylene	–	–	CERT4015-96	200
Convenience Kit, Certified Crimp Top Vial, 2mL	Clear	Yes	Silver	PTFE/Synthetic Red Rubber	C4011-1W	–	CERT4011-89W	100
	Amber	Yes	Silver	PTFE/Synthetic Red Rubber	C4011-2W	–	CERT4011-89W	100
Assembled Kit, Certified 9mm Wide Opening Screw Vial, 2mL	Amber	Yes	Black	Bonded Red PTFE/White Silicone	C4000-2W	C5000-64B	CERT5000-175W	100
	Clear	Yes	Gray	Bonded Red PTFE/White Silicone, Pre-slit	C4000-1W	C5000-75C	CERT5000-193W	100
	Amber	Yes	Gray	Bonded Red PTFE/White Silicone, Pre-slit	C4000-2W	C5000-75C	CERT5000-176W	100

National 8mm Crimp Top Vials

- Superior quality type 1 borosilicate clear and amber glass
- Low volume sample vials for 6mm, 7mm and 8mm autosampler trays
- 8mm crimp top seal minimizes exposure between sample solvent and septum
- A support sleeve may be required for some autosamplers



Recommended for the following instruments:

- Thermo Scientific
- Agilent
- Beckman
- Carlo Erba
- CTC
- Fisons
- PerkinElmer
- Shimadzu
- VWR (Merck)/Hitachi

For autosampler compatibility visit
www.thermoscientific.com/chromexpert

National 8mm Crimp Top Vials

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (μL)	Usable Volume (μL)	Residual (μL)	Cat. No.	Pack of
8mm Crimp Top Vial	Clear	No	6x32	Round Base	325	250	<6	C4008-632R	100
	Clear	No	6x32	Conical Base	250	200	<2	C4008-632C	100
	Amber	No	7x30	Conical Base	550	400	<3	C4008-730	100
	Amber	No	7x40	Conical Base	575	450	<2	C4008-740	100
	Clear	No	7x40	Flat Base	775	650	<70	C4008-741	100
	Amber	No	7x40	Flat Base	775	650	<70	C4008-742	100
	Clear	No	8x30	Flat Base	800	800	<80	C4008-1	200

National 8mm Crimp Top 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



National 8mm Crimp Top Closures

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
8mm Crimp Cap, 4mm center hole	Silver	Aluminum	Clear PTFE/Red Rubber	45	1.0	C4008-1A	200
	Silver	Aluminum	Red PTFE/White Silicone/Red PTFE	45	1.0	C4008-2A	200
	Silver	Aluminum	Red PTFE/White Silicone	45	1.3	C4008-4A	200

National 8mm Crimping and Decrimping Tools

- Crimping tools provide a reproducible, secure vial closure
- Easy and convenient handling
- High quality construction for durability and long life
- Painted, plated and coated for maximum corrosion resistance
- Textured handle surface provides an assured grip



Items not shown to scale

National 8mm Crimping and Decrimping Tools

Description	Use	Cat. No.	Pack of
Manual Crimper	Attaches 8mm aluminum crimp seals	C4008-100	1
Decapping Pliers	Removes 8mm aluminum crimp seals, Protective gloves recommended	C4008-101	1
Manual Decrimper	Removes 8mm aluminum crimp seals without vial damage	C4008-102	1

National Standard Opening Screw Thread Vials

2mL, 12x32mm, 8mm standard opening screw thread vials and inserts

- 8-425 screw thread finish
- I-D vials feature a write-on patch with graduation for convenient sample identification
- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- 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 OH-interacting compounds*
- Polyspring inserts are self-aligning and provide a cushion against needle contact
- Precision point insert minimizes residual sample loss
- Pulled point inserts are an economical choice for noncritical applications

Recommended for the following instruments:

- Beckman
- CTC
- Gilson
- Knauer
- Shimadzu
- Spark Holland
- Varian
- VWR (Merck)/Hitachi

For autosampler compatibility visit

www.thermoscientific.com/chromexpert



National Standard Opening Screw Thread Vials and Inserts

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
8-425 Screw Thread Vial	Clear	No	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4013-1	100
	Clear	No	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4013-1500	1000
	Clear	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4013-1W	100
	Amber	No	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4013-2	100
	Amber	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4013-2W	100
8-425 Screw Thread Vial, silanized*	Clear	No	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4013-S1	100
8-425 Screw Thread 250µL Conical MicroVial	Polypropylene	No	12x32	Conical	475µL	250µL	<4	C4013-11	100
8-425 Screw Thread 600µL Tapered MicroVial	Polypropylene	No	12x32	High Recovery	850µL	675µL	<8	C4013-13	1000
200µL MicroSert Insert	Clear	–	5x31	Flat Bottom	250µL	200µL	<12	C4012-465	500
150µL Polyspring Insert	Clear	–	5x29	Pulled point	200µL	175µL	<1	C4012-530	100
150µL Insert	Clear	–	5x29	Pulled point	200µL	175µL	<1	C4012-529	100
125µL Polyspring Insert	Polypropylene	–	5x29	Precision point	175µL	125µL	<2	C4012-530P	100
150µL Polyspring Insert, silanized*	Clear	–	5x29	Pulled point	200µL	175µL	<1	C4012-S530	100

* For information about silanized products visit www.thermoscientific.com/chromexpert

National Screw Thread Caps and Septa

- Open top caps are designed to be used with any of our 8mm septa
- Phenolic caps are suitable for autoclaving and low temperature applications
- Polypropylene caps are chemically inert and suitable for most chromatography applications
- Flanged caps are preferred for Shimadzu, Hitachi 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



National 8-425 Screw Thread Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
8mm Open Top Cap 5.5mm hole	Black	Polypropylene	–	–	–	C4013-1A	100
8mm Open Top Cap with flange, 5.5mm hole	Black	Polypropylene	–	–	–	C4013-3A	100
	Yellow	Polypropylene	–	–	–	C4013-98Y	1000
	White	Polypropylene	–	–	–	C4013-98W*	100
Septum for 8-425 Screw Caps	–	–	White Virgin PTFE, 0.01" Septum	53	0.25	C4013-10	1000
	–	–	Ivory PTFE/Red Rubber Septum	45	1.00	C4013-30	100
	–	–	Blue PTFE/White Silicone, Pre-slit Septum	55	0.90	C4013-32	100
	–	–	Red PTFE/White Silicone/ Red PTFE Septum	45	1.00	C4013-40	100
	–	–	Red PTFE/White Silicone Septum	45	1.30	C4013-60	100
	–	–	Tan PTFE/White Silicone Septum	45	1.50	C4013-61	1000
8mm Open Top Cap, 5.5mm hole	Black	Polypropylene	Ivory PTFE/Red Rubber	45	1.00	C4013-30A	100
	Black	Polypropylene	Red PTFE/White Silicone/Red PTFE	45	1.00	C4013-40A	100
	Black	Polypropylene	Red PTFE/White Silicone	45	1.30	C4013-60A	100
	Pink	Polypropylene	Red PTFE/White Silicone	45	1.30	C4013-60P	100
8mm Open Top Cap with flange, 5.5mm hole	Black	Polypropylene	Red PTFE/White Silicone	45	1.30	C4013-63A	100
	White	Polypropylene	Red PTFE/White Silicone	45	1.30	C4013-63W	100
	Yellow	Polypropylene	Red PTFE/White Silicone	50	1.30	C4013-63Y	100
	Black	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	0.90	C4013-64A	100
	White	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	0.90	C4013-64W	100
8mm Open Top Cap, 5.5mm hole	Black	Phenol	Red PTFE/White Silicone	45	1.30	C4013-74A	100
8mm Open Top Cap with flange, 5.5mm hole	Black	Polypropylene	Red PTFE/White Silicone, Pre-slit	55	1.00	C4013-77A	100
8mm Solid Top Cap, 8-425 thread	White	Urea	PTFE/PE Foam Liner	–	1.30	B7815-8	100
8mm Open Top Cap, 5.5mm hole	Black	Polypropylene	Bonded Red PTFE/White Silicone, Pre-slit	45	1.30	C4013-69A	100
8mm Open Top Cap with flange with Integral PE Membrane	Yellow	Polyethylene	Polyethylene	N/A	N/A	C4013-50Y	1000

* Additional colors on request

National Standard Opening Screw Thread Vial Convenience Kits

- Save time during sample preparation
- Reduce the risk of contamination

Unassembled kits

- Includes 100 vials and 100 caps with pre-assembled septa
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Clear trays make it easy to keep track of available supplies without opening containers

Assembled kits

- Include 100 vials with pre-attached caps and septa
- Packaged in convenient vial trays with clear covers or in economical polybags



Items not shown to scale

National 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	Clear	No	Black, flanged	Red PTFE/White Silicone	C4013-1	C4013-63A	C4013-14	100
	Clear	No	Black	Red PTFE/White Silicone	C4013-1	C4013-60A	C4013-15	100
	Clear	No	Pink	Red PTFE/White Silicone	C4013-1	C4013-60P	C4013-15P	100
	Amber	No	Black	Red PTFE/White Silicone	C4013-2	C4013-60A	C4013-17	100
	Clear	Yes	Black, flanged	Red PTFE/White Silicone, Pre-slit	C4013-1W	C4013-77A	C4013-95W	100
	Clear	No	Black, phenolic	Red PTFE/White Silicone	C4013-1	C4013-74A	C4013-492	100
	Clear	Yes	Yellow, flanged	Red PTFE/White Silicone	C4013-1W	C4013-63Y	C4013-54Y	100
	Clear	Yes	Yellow, flanged	Red PTFE/White Silicone/Red PTFE	C4013-1W	C4013-67Y	C4013-97Y	100
Assembled Kit	Clear	No	Black	White Virgin PTFE, 0.01"	C4013-1	C4013-1A/ C4013-10	C4013-10A	100
	Clear	No	Black	Red PTFE/White Silicone	C4013-1	C4013-60A	C4013-15A	100
	Amber	No	Black	Red PTFE/White Silicone	C4013-2	C4013-60A	C4013-17A	100
	Clear	No	Black, flanged	Blue PTFE/White Silicone, Pre-slit	C4013-1	C4013-3A/ C4013-32	C4013-32A	100
	Clear	Yes	Yellow, flanged	Red PTFE/White Silicone, Pre-slit	C4013-1W	C4013-98Y/ C4013-60TW	C4013-36A	100
	Clear	No	Black, flanged	Red PTFE/White Silicone	C4013-1	C4013-63A	C4013-57	100
	Clear	No	White, flanged	Red PTFE/White Silicone	C4013-1	C4013-63W	C4013-58	100
	Clear	No	Black, phenolic	Red PTFE/White Silicone	C4013-1	C4013-74A	C4013-492A	100
	Amber	No	Black, phenolic	Red PTFE/White Silicone	C4013-2	C4013-74A	C4013-494A	100
Assembled Kit, in Polybag	Clear	No	Black	White Virgin PTFE, 0.01"	C4013-1	C4013-1A/ C4013-10	C4013-010A	100
	Clear	Yes	Yellow, flanged	Red PTFE/White Silicone	C4013-1W	C4013-63Y	C4013-37Y	100

National Target DP 9mm Wide Opening Screw Thread Vials

2mL, 12x32mm, 9mm wide opening short screw thread vials and inserts

Recommended for most brands of autosamplers:

For autosampler compatibility visit
www.thermoscientific.com/chromexpert

- C5000 SureStop 9mm vials as part of the Advanced Vial Closure System (AVCS) offer the sealing and performance characteristics of a crimp top vial and remove any subjectivity achieving optimal seal compression closing a vial by incorporating a definite stop point into the design of the vial finish. They should be used with AVCS C5000 closures in order to get the best possible performance, see pages **2-005** to **2-006**.
- Some vials feature an I-D write-on patch with graduation for convenient sample identification
- Wide neck opening design, allows easy filling, requires Micro-Inserts with a diameter of 6mm
- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts
- Available silanized (deactivated) for optimal recovery of critical polar compounds
- Polyspring inserts are self-aligning and provide a cushion against needle contact
- Precision point insert minimizes residual sample loss



National 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 SureStop Vial (AVCS)	Clear	No	12x32	Flat Bottom	2.0mL	1.5mL	<170	C5000-1	100
	Clear	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	C5000-1W	100
	Amber	No	12x32	Flat Bottom	2.0mL	1.5mL	<170	C5000-2	100
	Amber	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	C5000-2W	100
9mm Target DP Vial	Clear	No	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4000-1	100
	Clear	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4000-1W	100
	Amber	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4000-2W	100
	Amber PP	Graduated	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4000-12	100
	Clear PP	Graduated	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4000-14	100
9mm Target DP ColorBand Vial	Clear	Blue**	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4000-1B	100
	Clear	Green**	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4000-1G	100
	Clear	Red**	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4000-1R	100
	Clear	Yellow**	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4000-1Y	100



National Target DP 9mm Wide Opening Screw Thread Vials and Inserts (Continued)

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
9mm Target DP Vial, High Recovery with 30µL Reservoir	Clear	No	12x32	Tapered Base	1.7mL	1.3mL	<4	C4000-9	100
	Amber	No	12x32	Tapered Base	1.7mL	1.3mL	<4	C4000-9A	100
9mm Target DP Vial, Total Recovery with 10µL Reservoir	Clear	No	12x32	Deep Well Base	1.5mL	1.2mL	<1	C4000-9TR	100
9mm Target DP MacroVial 350µL, Fused Insert	Clear	No	12x32	Insert Vial	475µL	350µL	<2	C4000-LV1	100
	Clear	Yes	12x32	Insert Vial	475µL	350µL	<2	C4000-LV1W	100
	Amber	No	12x32	Insert Vial	475µL	350µL	<2	C4000-LV2	100
	Amber	Yes	12x32	Insert Vial	475µL	350µL	<2	C4000-LV2W	100
9mm Target DP MacroVial 200µL, Fused Insert	Clear	Yes	12x32	Insert Vial	375µL	240µL	<1	C4000-LV3W	100
9mm Target DP Micro-V Tapered MicroVial with 150µL reservoir	Clear	No	12x32	Tapered Base	1.4mL	1.0mL	<4	C4000-V1	100
	Amber	No	12x32	Tapered Base	1.4mL	1.0mL	<4	C4000-V2	100
9mm Target DP Vial, silanized*	Clear	No	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4000-S1	100
	Clear	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4000-S1W	100
	Amber	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4000-S2W	100
9mm Target DP Vial, High Recovery, silanized*, with 30µL Reservoir	Clear	No	12x32	Tapered Base	1.7mL	1.3mL	<4	C4000-S9	100
9mm Target DP 300µL Vial	Polypropylene	No	12x32	Conical	400µL	300µL	<2	C4000-11	100
350µL Insert	Clear	–	6x31	Pulled Point	400µL	350µL	<4	C4010-627L	100
300µL Insert	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-629	100
350µL Insert	Clear	–	6x31	Precision Point	400µL	350µL	<2	C4010-629L	100
300µL Insert, Graduation Marks	Polypropylene	–	6x30	Conical	325µL	250µL	<2	C4010-629P	100
300µL Polyspring Insert	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-630	100
	Polypropylene	–	6x30	Conical	325µL	250µL	<2	C4010-630P	100
400µL MicroSert Insert	Clear	–	6x31	Flat Bottom	500µL	450µL	<25	C4011-631	100
	Polypropylene	–	6x31	Flat Bottom	500µL	450µL	<25	C4011-631P	500
300µL Insert, silanized*	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-S629	100
300µL Polyspring Insert, silanized*	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-S630	100
400µL MicroSert Insert, silanized*	Clear	–	6x31	Flat Bottom	500µL	450µL	<25	C4011-S631	500
300µL Polyspring Insert, Kimshield*	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-K630	100

* For information about silanized products visit www.thermoscientific.com/chromexpert

**Target DP ColorBand vials are designed to provide full sample color coding for autosamplers with optical vial detection. Use the optimum cap for your instrument without sacrificing your color coding scheme.

National 9mm Screw Caps and Septa

C5000 closures featuring AVCS technology (Advanced Vial Closure System)



- Elimination of septum “push-through”
- Increased sealing capability
- Improved autosampler compatibility
- Flexibility to select the best septum for your instrument and applications
- Cost efficient alternative to caps with bonded septa
- Optimized ergonomics, fine texturing and evenly spaced ribbing for superior handling

Further features are:

- Fully compatible with all National Target DP vials
- 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



National 9mm Screw Thread Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
9mm Open Top Screw Cap, 6mm hole	Blue	Polypropylene	–	N/A	N/A	C5000-98B	100
Septum for 9mm Screw Thread Cap	–	–	Ivory PTFE/Red Rubber	35	1.0	C4000-30	100
	–	–	Red PTFE/White Silicone/Red PTFE	45	1.0	C4000-40	100
	–	–	Blue PTFE/White Silicone, Pre-slit	55	1.0	C4000-55	100
	–	–	Red PTFE/White Silicone	50	1.0	C4000-60	100
	–	–	Yellow PTFE/White Silicone	40	1.0	C4000-60Y	100
	–	–	Yellow PTFE/White Silicone	40	1.0	C4000-61	1000
	–	–	Yellow PTFE/White Silicone/Yellow PTFE	40	1.0	C4000-40Y	100
	–	–	Yellow PTFE/White Silicone/Yellow PTFE	40	1.0	C4000-41	1000
9mm Open Top Cap, 6mm hole	Blue	Polypropylene	Soft septum, PTFE/Blue Silicone	30	1.0	C5000-44B	100
	Blue	Polypropylene	Soft septum, PTFE/Blue Silicone, Pre-slit	30	1.0	C5000-45B	100
	Black	Polypropylene	Ivory PTFE/Red Rubber	45	1.0	C5000-51A	100
	Blue	Polypropylene	Ivory PTFE/Red Rubber	45	1.0	C5000-51B	100
	Green	Polypropylene	Ivory PTFE/Red Rubber	45	1.0	C5000-51G	100
	Red	Polypropylene	Ivory PTFE/Red Rubber	45	1.0	C5000-51R	100
	Yellow	Polypropylene	Ivory PTFE/Red Rubber	45	1.0	C5000-51Y	100
	Pink	Polypropylene	Ivory PTFE/Red Rubber	45	1.0	C5000-51P	100



National 9mm Screw Thread Caps and Septa (Continued)

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
9mm Open Top Cap, 6mm hole	Black	Polypropylene	Red PTFE/White Silicone/Red PTFE	50	1.0	C5000-53A	100
	Blue	Polypropylene	Red PTFE/White Silicone/Red PTFE	50	1.0	C5000-53B	100
	Green	Polypropylene	Red PTFE/White Silicone/Red PTFE	50	1.0	C5000-53G	100
	Red	Polypropylene	Red PTFE/White Silicone/Red PTFE	50	1.0	C5000-53R	100
	Yellow	Polypropylene	Red PTFE/White Silicone/Red PTFE	50	1.0	C5000-53Y	100
	Yellow	Polypropylene	Yellow PTFE/White Silicone/Yellow PTFE	40	1.0	C5000-53YY	100
	Green	Polypropylene	Yellow PTFE/White Silicone/Yellow PTFE	40	1.0	C5000-53GY	100
	Black	Polypropylene	Red PTFE/White Silicone	55	1.0	C5000-54A	100
	Blue	Polypropylene	Red PTFE/White Silicone	55	1.0	C5000-54B	100
	Green	Polypropylene	Red PTFE/White Silicone	55	1.0	C5000-54G	100
	Red	Polypropylene	Red PTFE/White Silicone	55	1.0	C5000-54R	100
	Yellow	Polypropylene	Red PTFE/White Silicone	55	1.0	C5000-54Y	100
	Pink	Polypropylene	Red PTFE/White Silicone	55	1.0	C5000-54P	100
	Yellow	Polypropylene	Yellow PTFE/White Silicone	40	1.0	C5000-54YY	100
	Green	Polypropylene	Yellow PTFE/White Silicone	40	1.0	C5000-54GY	100
	Red	Polypropylene	Yellow PTFE/White Silicone	40	1.0	C5000-54RY	100
	Blue	Polypropylene	Yellow PTFE/White Silicone	40	1.0	C5000-54BY	100
	Black	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C5000-55A	100
	Blue	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C5000-55B	100
Green	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C5000-55G	100	
Red	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C5000-55R	100	
Yellow	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C5000-55Y	100	
Pink	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C5000-55P	100	
Blue	Polypropylene	Ivory PTFE/Red Rubber, Pre-slit	45	1.0	C5000-57B	100	
Green	Polypropylene	Ivory PTFE/Red Rubber, Pre-slit	45	1.0	C5000-57G	100	
9mm Cap with Integral PP Membrane	Clear	Polypropylene	Polypropylene	N/A	N/A	C5000-50	100
	Blue	Polypropylene	Polypropylene	N/A	N/A	C5000-50B	100
9mm Solid Top Cap	Blue	Polypropylene	Ivory PTFE/Red Rubber	45	1.0	C5000-99B	100
9mm Open Top Cap, 6mm hole	Black	Polypropylene	Bonded Red PTFE/White Silicone	45	1.0	C5000-64B	100
	Gray	Polypropylene	Bonded Red PTFE/White Silicone, Pre-slit	45	1.0	C5000-75C	100
	Blue	Polypropylene	Bonded Natural PTFE/Clear Silicone	45	1.3	C5000-62B	100
Magnetic 9mm Open Top Cap, 6mm hole	Blue	Polypropylene	Soft septum, PTFE/Blue Silicone	30	1.0	C5000-46M	100
	Blue	Polypropylene	Soft septum, PTFE/Blue Silicone, Pre-slit	30	1.0	C5000-47M	100
9mm Open Top Cap, 6mm hole	Blue	Polypropylene	Solid Aluminum Disk with Silicone sealing ring		0.06	C5000-56AL	100
	Blue	Polypropylene	Solid PTFE Disk with Silicone sealing ring	53	0.25	C5000-52AE	100

National 9mm Screw Thread Vials Convenience Kits

- Save time during sample preparation
- Reduce the risk of contamination

Unassembled kits

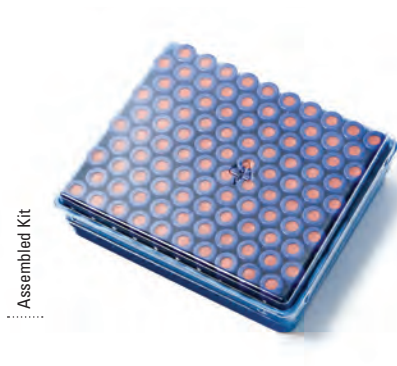
- Includes 100 vials and 100 caps with pre-assembled septa
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Clear trays make it easy to keep track of available supplies without opening containers

Assembled kits

- Include 100 vials with pre-attached caps and septa
- Packaged in convenient vial trays with clear covers



Convenience Kit



Assembled Kit

Items not shown to scale

National 9mm Wide Opening Screw Thread Vials Convenience Kits

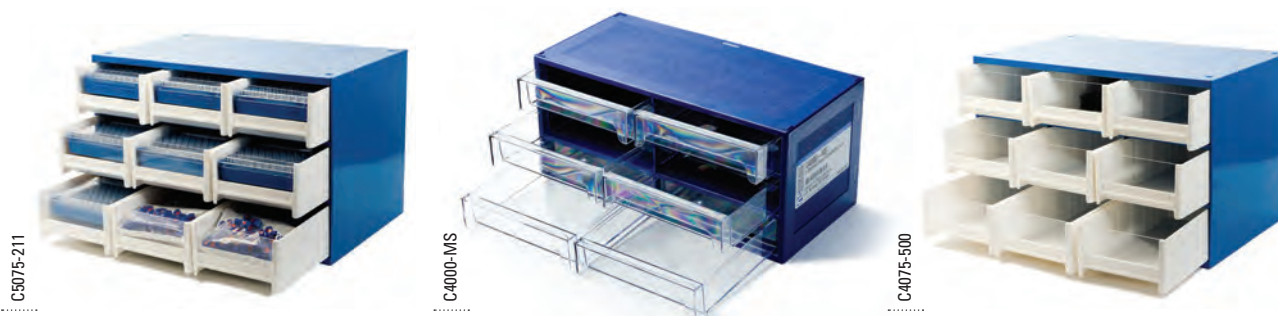
Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat. No.	Cap Cat. No.	Cat. No.	Pack of
SureStop Convenience Kit	Clear	No	Blue	Ivory PTFE/Red Rubber	C5000-1	C5000-51B	C5000-580	100
	Clear	Yes	Blue	Ivory PTFE/Red Rubber	C5000-1W	C5000-51B	C5000-580W	100
	Clear	No	Blue	Red PTFE/White Silicone	C5000-1	C5000-54B	C5000-592	100
	Clear	Yes	Blue	Red PTFE/White Silicone	C5000-1W	C5000-54B	C5000-592W	100
	Clear	Yes	Blue	Red PTFE/White Silicone/Red PTFE	C5000-1W	C5000-53B	C5000-586W	100
	Clear	Yes	Blue	Blue PTFE/White Silicone, Pre-slit	C5000-1W	C5000-55B	C5000-595W	100
AVCS Convenience Kit	Clear	No	Blue	Ivory PTFE/Red Rubber	C4000-1	C5000-51B	C5000-80	100
	Clear	Yes	Blue	Ivory PTFE/Red Rubber	C4000-1W	C5000-51B	C5000-80W	100
	Amber	Yes	Pink	Ivory PTFE/Red Rubber	C4000-2W	C5000-51P	C5000-82P	100
	Amber	Yes	Blue	Ivory PTFE/Red Rubber	C4000-2W	C5000-51B	C5000-82W	100
	Clear	Yes	Blue	Ivory PTFE/Red Rubber, Pre-slit	C4000-1W	C5000-57B	C5000-83W	100
	Clear	No	Blue	Red PTFE/White Silicone/Red PTFE	C4000-1	C5000-53B	C5000-86	100
	Clear	Yes	Blue	Red PTFE/White Silicone/Red PTFE	C4000-1W	C5000-53B	C5000-86W	100
	Amber	Yes	Blue	Red PTFE/White Silicone/Red PTFE	C4000-2W	C5000-53B	C5000-88W	100
	Polypropylene	No	Blue	Red PTFE/White Silicone	C4000-11	C5000-54B	C5000-87	100
	Clear	Yes	Black	Red PTFE/White Silicone	C4000-1W	C5000-54A	C5000-91W	100
	Clear	No	Blue	Red PTFE/White Silicone	C4000-1	C5000-54B	C5000-92	100
	Clear	No	Pink	Red PTFE/White Silicone	C4000-1	C5000-54P	C5000-92P	100
	Clear	Yes	Blue	Red PTFE/White Silicone	C4000-1W	C5000-54B	C5000-92W	100
	Amber	Yes	Blue	Red PTFE/White Silicone	C4000-2W	C5000-54B	C5000-94W	100
	Clear	No	Blue	Blue PTFE/White Silicone, Pre-slit	C4000-1	C5000-55B	C5000-95	100
Clear	Yes	Blue	Blue PTFE/White Silicone, Pre-slit	C4000-1W	C5000-55B	C5000-95W	100	
Clear	No	Blue	Blue PTFE/White Silicone, Pre-slit	C4000-LV1	C5000-55B	C5000-LV95	100	
Polypropylene	No	Blue	Blue PTFE/White Silicone, Pre-slit	C4000-11	C5000-55B	C5000-97	100	
Convenience Kit	Clear	Yes	Black	Bonded Red PTFE/White Silicone	C4000-1W	C5000-64B	C5000-78W	100
	Clear	Yes	Gray	Bonded Red PTFE/White Silicone, Pre-slit	C4000-1W	C5000-75C	C5000-93W	100

National 9mm Wide Opening Screw Thread Vials Convenience Kits (Continued)

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat. No.	Cap Cat. No.	Cat. No.	Pack of
Convenience Kit	Clear	Yes	Yellow	Ivory PTFE/Red Rubber	C4000-1W	C5000-51Y	C5000-80WY	100
	Clear	Yes	Yellow	Yellow PTFE/White Silicone	C4000-1W	C5000-54YY	C5000-92WY	100
	Clear	Yes	Yellow	Yellow PTFE/White Silicone/ Yellow PTFE	C4000-1W	C5000-53YY	C5000-86WY	100
	Amber	Yes	Yellow	Yellow PTFE/White Silicone	C4000-2W	C5000-54YY	C5000-94WY	100
Assembled AVCS Kit	Clear	No	Blue	Ivory PTFE/Red Rubber	C4000-1	C5000-51B	C5000-180	100
	Clear	Yes	Blue	Ivory PTFE/Red Rubber	C4000-1W	C5000-51B	C5000-180W	100
	Amber	Yes	Blue	Ivory PTFE/Red Rubber	C4000-2W	C5000-51B	C5000-182W	100
	Clear	Yes	Blue	Ivory PTFE/Red Rubber, Pre-slit	C4000-1W	C5000-57B	C5000-183W	100
	Amber	Yes	Blue	Ivory PTFE/Red Rubber, Pre-slit	C4000-2W	C5000-57B	C5000-184W	100
	Clear	No	Blue	Red PTFE/White Silicone/Red PTFE	C4000-1	C5000-53B	C5000-186	100
	Clear	Yes	Blue	Red PTFE/White Silicone/Red PTFE	C4000-1W	C5000-53B	C5000-186W	100
	Clear	Yes	Red	Red PTFE/White Silicone/Red PTFE	C4000-1W	C5000-53R	C5000-186WR	100
	Amber	Yes	Blue	Red PTFE/White Silicone/Red PTFE	C4000-2W	C5000-53B	C5000-188W	100
	Clear	Yes	Yellow	Yellow PTFE/White Silicone/ Yellow PTFE	C4000-1W	C5000-53YY	C5000-186WY	100
	Clear	No	Blue	Red PTFE/White Silicone	C4000-1	C5000-54B	C5000-192	100
	Clear	Yes	Blue	Red PTFE/White Silicone	C4000-1W	C5000-54B	C5000-192W	100
	Amber	Yes	Blue	Red PTFE/White Silicone	C4000-2W	C5000-54B	C5000-194W	100
	Clear	Yes	Blue	Blue PTFE/White Silicone, Pre-slit	C4000-1W	C5000-55B	C5000-195W	100
	Amber	Yes	Blue	Blue PTFE/White Silicone, Pre-slit	C4000-2W	C5000-55B	C5000-196W	100

National 9mm Wide Opening Screw Thread Vial Storerooms

- Storerooms organize supplies and save valuable bench space
- Some storerooms are shipped fully stocked.
- 6 Drawer Mini-Storeroom holds 500 vials and closures
- 9 Drawer Storeroom holds 2000 vials and closures



Items not shown to scale

National 9mm Wide Opening Screw Thread Vial Storerooms

Description	Glass	Patched	Cap Color	Septum	Vial Cat. No.	Cap/Septum Cat. No.	Cat. No.	Pack of
SureStop 9 Drawer Storeroom , 2000 pieces Caps and Vials	Clear	No	Blue	Red PTFE/White Silicone/Red PTFE	C5000-1	C5000-53B	C5075-211	1
	Clear	Yes	Blue	Red PTFE/White Silicone/Red PTFE	C5000-1W	C5000-53B	C5075-213	1
	Clear	No	Blue	Red PTFE/White Silicone	C5000-1	C5000-54B	C5075-219	1
6 Drawer Mini-Storeroom – Cabinet Only	–	–	–	–	–	–	C4000-MS	1
9 Drawer Storeroom, Full Size – Cabinet Only	–	–	–	–	–	–	C4075-500	1

National 10mm Wide Opening Screw Thread Vials

2mL, 12x32mm 10mm wide opening screw thread vials and inserts

- 10-425 thread finish
- I-D vials feature a write-on patch with graduation for convenient sample identification
- Wide neck opening design, allows easy filling, requires Micro-Inserts with a diameter of 6mm
- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts
- Optional silanized (deactivated) glass provides optimal recovery of critical polar, labile or OH-interacting compounds*
- Polyspring inserts are self-aligning and provide a cushion against needle contact
- Precision point insert minimizes residual sample loss

Recommended for the following instruments:

- Jasco
- PerkinElmer
- Shimadzu
- Varian
- Waters

For autosampler compatibility visit

www.thermoscientific.com/chromexpert



National 10mm Wide Opening Screw Thread Vials and Inserts

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
10-425 Screw Thread Vial	Clear	No	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4010-1	100
	Clear	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4010-1W	100
	Amber	No	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4010-2	100
	Amber	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4010-2W	100
10-425 Screw Thread MacroVial 350µL, Fused Insert	Clear	No	12x32	Insert Vial	450µL	350µL	<2	C4010-LV1	100
	Amber	No	12x32	Insert Vial	450µL	350µL	<2	C4010-LV2	100
10-425 Screw Thread Micro-V 1.5mL Tapered MicroVial with 150µL reservoir	Clear	No	12x32	Tapered Base	1.5mL	1.1mL	<4	C4010-V1	100
10-425 Screw Thread Vial, silanized*	Clear	No	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4010-S1	100
	Clear	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4010-S1W	100
	Amber	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	C4010-S2W	100
10-425 Screw Thread Vial	Polypropylene	No	12x32	Conical	600µL	400µL	<6	C4010-11	100
	Polypropylene	No	12x32	Reservoir Base	750µL	550µL	<70	C4010-14	100

* For information about silanized products visit www.thermoscientific.com/chromexpert



National 10mm Wide Opening Screw Thread Vials and Inserts (Continued)

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
350µL Insert	Clear	–	6x31	Pulled Point	400µL	350µL	<4	C4010-627L	100
300µL Insert	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-629	100
350µL Insert	Clear	–	6x31	Precision Point	400µL	350µL	<2	C4010-629L	100
300µL Insert, Graduation Marks	Polypropylene	–	6x30	Conical	325µL	250µL	<2	C4010-629P	100
300µL Polyspring Insert	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-630	100
	Polypropylene	–	6x30	Conical	325µL	250µL	<2	C4010-630P	100
400µL MicroSert Insert	Clear	–	6x31	Flat Bottom	500µL	450µL	<25	C4011-631	500
	Polypropylene	–	6x31	Flat Bottom	500µL	450µL	<25	C4011-631P	500
300µL Insert, silanized*	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-S629	100
300µL Polyspring Insert, silanized*	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-S630	100
400µL MicroSert Insert, silanized*	Clear	–	6x31	Flat Bottom	500µL	450µL	<25	C4011-S631	500
300µL Polyspring Insert, Kimshield*	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-K630	100

* For information about silanized products visit www.thermoscientific.com/chromexpert

Search thousands of applications at our chromatography resource center.

www.thermoscientific.com/crc

National 10-425 Wide Opening Screw Caps and Septa

- Open top caps are designed to be used with any of our 10mm septa
- Polypropylene caps are chemically inert and suitable for most chromatography applications
- Pre-assembled caps and septa are convenient and minimize contamination from handling
- Closures are shipped in sealed polybags to prevent contamination during transport



National 10-425 Wide Opening Screw Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
10mm Open Top Cap, 8.5mm hole	Light Blue	Polypropylene	–	–	–	C4010-1A	100
	White	Polypropylene	–	–	–	C4010-98W	100
	Black	Polypropylene	–	–	–	C4010-98BLK	100
Septum for 10-425 Screw Caps	–	–	White Virgin PTFE, 0.01" Septum	53	0.25	C4010-10	1000
	–	–	Red PTFE/White Silicone, Soft Septum	50	1.3	C4010-35	100
	–	–	Red PTFE/White Silicone/Red PTFE Septum	45	1.3	C4010-40	100
	–	–	Blue PTFE/White Silicone, Pre-slit Septum	55	1.5	C4010-55	100
	–	–	Red PTFE/White Silicone Septum	45	1.3	C4010-60	100
10mm Open Top Cap, 8.5mm hole	Black	Polypropylene	Tan PTFE/White Silicone	40	1.5	C4010-62BLK	100
	Black	Polypropylene	Tan PTFE/White Silicone, Pre-slit	40	1.5	C4010-63BLK	100
	Light Blue	Polypropylene	Ivory PTFE/Red Rubber	45	1.0	C4010-30A	100
	Black	Polypropylene	Red PTFE/White Silicone, Soft	45	1.3	C4010-35BLK	100
	White	Polypropylene	Red PTFE/White Silicone, Soft	45	1.3	C4010-35W	100
	Light Blue	Polypropylene	Red PTFE/White Silicone/Red PTFE	45	1.0	C4010-40A	100
	Light Blue	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.5	C4010-55A	100
	Black	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.5	C4010-55BLK	100
	Light Blue	Polypropylene	Red PTFE/White Silicone	50	1.3	C4010-60A	100
	Red	Polypropylene	Red PTFE/White Silicone	50	1.3	C4010-60AR	1000
	White	Polypropylene	Red PTFE/White Silicone	50	1.3	C4010-60AW	1000
	Black	Polypropylene	Red PTFE/White Silicone	50	1.3	C4010-60BLK	100
	Light Blue	Polypropylene	Red PTFE/White Silicone, Star-slit	50	1.5	C4010-65A	100
10mm Solid Top Cap	White	Polyurethane	PTFE/PE Foam Liner	–	1.3	C4010-99	100
10mm Cap with integral PP Membrane	Clear	Polypropylene	Polypropylene	N/A	N/A	C4010-5A	100

National 10mm Wide Opening Screw Thread Vials Convenience Kits

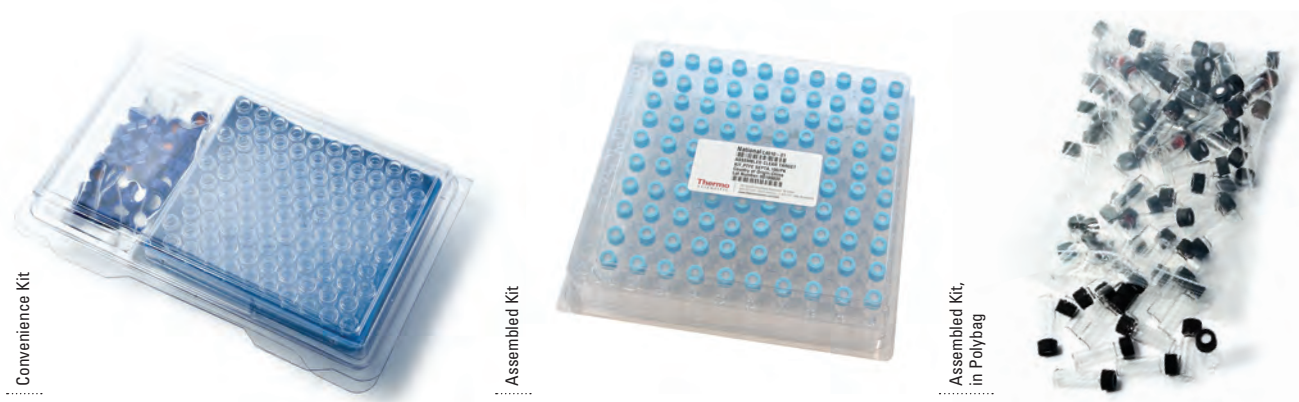
- Save time during sample preparation
- Reduce the risk of contamination

Unassembled kits

- Includes 100 vials and 100 caps with pre-assembled septa
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Clear trays make it easy to keep track of available supplies without opening containers

Assembled kits

- Include 100 vials with pre-attached caps and septa
- Packaged in convenient vial trays with clear covers or in economical polybags



Items not shown to scale

National 10mm Wide Opening Screw Thread Vials Convenience Kits

Description	Glass	Patched	Cap Color	Septum	Vial Cat. No.	Cap Cat. No.	Cat. No.	Pack of
Convenience Kit	Clear	No	Light Blue	Red PTFE/White Silicone	C4010-1	C4010-60A	C4010-88	100
	Amber	Yes	Light Blue	Red PTFE/White Silicone	C4010-2W	C4010-60A	C4010-88AW	100
	Clear	Yes	Light Blue	Red PTFE/White Silicone	C4010-1W	C4010-60A	C4010-88W	100
	Clear	No	White	Red PTFE/White Silicone, Soft	C4010-1	C4010-35W	C4010-95	100
	Clear	Yes	White	Red PTFE/White Silicone, Soft	C4010-1W	C4010-35W	C4010-95W	100
	Clear	Yes	Black	Blue PTFE/White Silicone, Pre-slit	C4010-1W	C4010-55BLK	C4010-97W	100
Assembled Kit	Clear	No	Light Blue	Red PTFE/White Silicone	C4010-1	C4010-60A	C4010-17	100
	Clear	Yes	Light Blue	Red PTFE/White Silicone	C4010-1W	C4010-60A	C4010-17W	100
	Clear	No	Light Blue	White Virgin PTFE, 0.01"	C4010-1	C4010-1A/C4010-10	C4010-21	100
	Clear	No	White	Red PTFE/White Silicone, Soft	C4010-1	C4010-35W	C4010-57	100
	Amber	No	White	Red PTFE/White Silicone, Soft	C4010-2	C4010-35W	C4010-57A	100
	Amber	Yes	White	Red PTFE/White Silicone, Soft	C4010-2W	C4010-35W	C4010-57AW	100
	Clear	Yes	White	Red PTFE/White Silicone, Soft	C4010-1W	C4010-35W	C4010-57W	100
	Clear	No	Black	Red PTFE/White Silicone, Soft	C4010-1	C4010-35BLK	C4010-67	100
	Amber	No	Black	Red PTFE/White Silicone, Soft	C4010-2	C4010-35BLK	C4010-67A	100
	Amber	Yes	Black	Red PTFE/White Silicone, Soft	C4010-2W	C4010-35BLK	C4010-67AW	100
	Clear	Yes	Black	Red PTFE/White Silicone, Soft	C4010-1W	C4010-35BLK	C4010-67W	100
	Clear	No	Black	Tan PTFE/White Silicone, Pre-slit	C4010-1	C4010-63BKL	C4010-59	100
Assembled Kit, in Polybag	Amber	Yes	Light Blue	Red PTFE/White Silicone	C4010-2W	C4010-60A	C4010-017AW	100
	Clear	Yes	Light Blue	Red PTFE/White Silicone	C4010-1W	C4010-60A	C4010-017W	100
	Clear	No	Light Blue	Red PTFE/White Silicone/Red PTFE	C4010-1	C4010-40A	C4010-019	100

National 11mm Crimp Top Vials

2mL, 12x32, crimp top vials and inserts

**Recommended
for most brands...**

For autosampler compatibility visit
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- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- I-D vials feature a write-on patch with graduation for convenient sample identification
- Standard opening vials require Micro-Inserts with a diameter of 5mm
- Wide opening vials, allow easy filling, require Micro-Inserts with a diameter of 6mm
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts
- Optional silanized (deactivated) glass provides optimal recovery of critical polar, labile or OH-interacting compounds*
- Polyspring inserts are self-aligning and provide a cushion against needle contact
- Precision point insert minimizes residual sample loss
- Pulled point inserts are an economical choice for noncritical applications
- Glastic vial features a glass insert pre-inserted inside of a clear TPX vial



National 11mm Standard Opening Crimp Top Vials and Inserts

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
11mm Standard Opening Crimp Top Vial	Clear	No	12x32	Flat Bottom	2mL	1.5mL	<170	C4012-1	100
	Clear	Yes	12x32	Flat Bottom	2mL	1.5mL	<170	C4012-1W	100
	Amber	No	12x32	Flat Bottom	2mL	1.5mL	<170	C4012-2	100
	Amber	Yes	12x32	Flat Bottom	2mL	1.5mL	<170	C4012-2W	100
11mm Standard Opening Crimp /Snap Top Vial 150µL Clear Solid Glass Microvial	Clear	No	12x32	Narrow Conical	425µL	200µL	<2	C4012-10	12
11mm – Crimp/Snap Glastic Glass Insert/TPX Vial	Clear	No	12x32	Insert Vial	475µL	350µL	<4	C4012-15	100
200µL MicroSert Insert	Clear	–	5x31	Flat Bottom	250µL	200µL	<12	C4012-465	500
150µL Polyspring Insert	Clear	–	5x29	Pulled point	200µL	175µL	<1	C4012-530	100
150µL Insert	Clear	–	5x29	Pulled point	200µL	175µL	<3	C4012-529	100
200µL Insert	Clear	–	5x31	Pulled point	200µL	170µL	<2	C4012-529L	100
125µL Polyspring Insert	Polypropylene	–	5x29	Precision point	175µL	125µL	<2	C4012-530P	100
150µL Polyspring Insert, silanized*	Clear	–	5x29	Pulled point	200µL	175µL	<1	C4012-S530	100

* For information about silanized products visit www.thermoscientific.com/chromexpert



National 11mm 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	No	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-1	100
	Clear	Yes	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-1W	100
	Amber	No	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-2	100
	Amber	Yes	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-2W	100
11mm Crimp Top ColorBand Vial, Wide Opening	Clear	Blue*	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-1B	100
	Clear	Green*	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-1G	100
	Clear	Red*	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-1R	100
	Clear	Yellow*	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-1Y	100
11mm Crimp/Snap MacroVial 250µL, Fused Insert	Clear	No	12x32	Fused Conical	500µL	350µL	<2	C4011-LV1	100

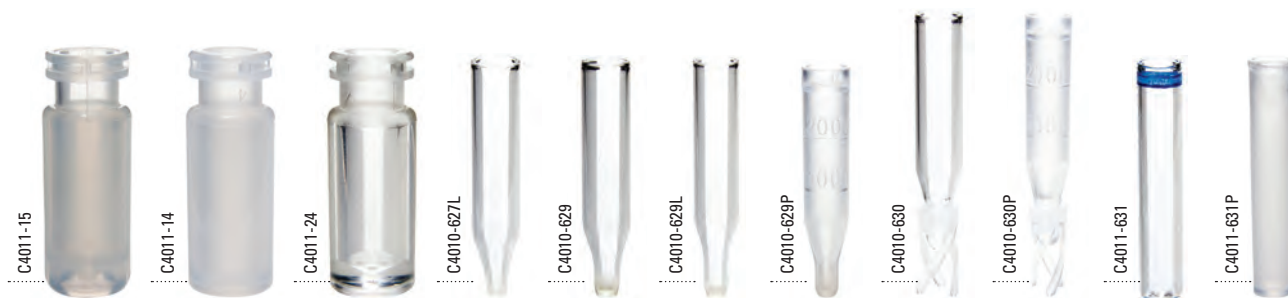
* ColorBand vials are designed to provide full sample color coding for autosamplers with optical vial detection. Use the optimum cap for your instrument without sacrificing your color coding scheme.



National 11mm 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 MacroVial 250µL, Fused Insert	Clear	Yes	12x32	Fused Conical	500µL	350µL	<2	C4011-LV1W	100
11mm Crimp/Snap MacroVial 250µL, Fused Insert	Amber	No	12x32	Fused Conical	500µL	350µL	<2	C4011-LV2	100
11mm Crimp Top MacroVial 250µL, Fused Insert	Amber	Yes	12x32	Fused Conical	500µL	350µL	<2	C4011-LV2W	100
11mm Crimp Top Solid Glass MicroVials	Clear	No	12x32	Conical Base	650µL	500µL	<5	C4011-10	12
11mm Crimp Top Micro-V Microsampling Vial, 15µL Reservoir	Clear	No	12x32	High Recovery	1.5mL	1.1mL	<4	C4011-V1	100
11mm Crimp Top 1.5mL High Recovery MicroVial	Clear	No	12x32	High Recovery	1.7mL	1.3mL	<4	C4011-9	100
11mm Crimp Top, Wide Opening, silanized*	Clear	No	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-S1	100
	Clear	Yes	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-S1W	100
	Amber	Yes	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-S2W	100
11mm Crimp/Snap 250µL MicroVial	Polypropylene	No	12x32	Conical Base	475µL	300µL	<2	C4011-13	100
11mm Crimp/Snap 600µL MicroVial	Polypropylene	No	12x32	Conical Base	600µL	400µL	<4	C4011-16	100
11mm Crimp/Snap 800µL MicroVial	Polypropylene	No	12x32	Conical Base	800µL	600µL	<6	C4011-11	100

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National 11mm Crimp Top Vials and Inserts (Continued)

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
11mm Crimp/Snap 850µL AP-2000 MaxVial	Polypropylene	No	12x32	High Recovery	825µL	650µL	<8	C4011-15	1000
11mm Crimp/Snap 1mL Vial	Polypropylene	No	12x32	Flat Bottom	1000µL	800µL	<80	C4011-14	100
11mm Crimp/Snap 1mL TPX High Recovery Vial	TPX	No	12x32	High Recovery	1000µL	750µL	<8	C4011-24	100
350µL Insert	Clear	–	6x31	Pulled Point	400µL	350µL	<4	C4010-627L	100
300µL Insert	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-629	100
350µL Insert	Clear	–	6x31	Precision Point	400µL	350µL	<2	C4010-629L	100
300µL Insert, Graduation Marks	Polypropylene	–	6x30	Conical	325µL	250µL	<2	C4010-629P	100
300µL Polyspring Insert	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-630	100
	Polypropylene	–	6x30	Conical	325µL	250µL	<2	C4010-630P	100
400µL MicroSert Insert	Clear	–	6x31	Flat Bottom	500µL	450µL	<25	C4011-631	500
	Polypropylene	–	6x31	Flat Bottom	500µL	450µL	<25	C4011-631P	500
300µL Insert, silanized*	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-S629	100
300µL Polyspring Insert, silanized*	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-S630	100
400µL MicroSert Insert, silanized*	Clear	–	6x31	Flat Bottom	500µL	450µL	<25	C4011-S631	500
300µL Polyspring Insert, Kimshield*	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-K630	100

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National 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
- Synthetic PTFE/Red Rubber seal is specially formulated for improved background performance
- First crimp cap with assembled aluminum liner for analysis of elastomers, polymers, phthalates, halogenated compounds and silicones
- First crimp cap with tight PTFE sealing disk due to additional silicone ring



National 11mm Crimp Top Closures

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
11mm Crimp Cap, 5.5mm hole	Silver	Aluminum	Clear PTFE/Natural Red Rubber	60	1.0	C4011-1AP	100
	Silver	Aluminum	Clear PTFE/Natural Red Rubber	60	1.0	C4011-1A	1000
	Blue	Aluminum	Clear PTFE/Natural Red Rubber	60	1.0	C4011-98B	100
	Green	Aluminum	Clear PTFE/Natural Red Rubber	60	1.0	C4011-98G	100
	Red	Aluminum	Clear PTFE/Natural Red Rubber	60	1.0	C4011-98R	100
	Yellow	Aluminum	Clear PTFE/Natural Red Rubber	60	1.0	C4011-98Y	100
	Silver	Aluminum	Red PTFE/White Silicone/Red PTFE	45	1.0	C4011-2A	100
11mm Crimp Cap, 5.5mm hole	Silver	Aluminum	Red PTFE/White Silicone	45	1.3	C4011-4A	100
	Blue	Aluminum	Red PTFE/White Silicone	45	1.3	C4011-4B	100
	Green	Aluminum	Red PTFE/White Silicone	45	1.3	C4011-4G	100
	Red	Aluminum	Red PTFE/White Silicone	45	1.3	C4011-4R	100
	Silver	Aluminum	Solid PTFE Disk with Silicone sealing ring	53	0.25	C4011-6AE	100
	Silver	Aluminum	Solid PTFE Disk	53	0.25	C4011-6A	1000
	Silver	Aluminum	PTFE/Synthetic Red Rubber	35	1.0	C4011-7A	100
11mm Crimp Cap, 5.5mm hole, Mixed Color, 200 each	Blue	Aluminum	PTFE/Synthetic Red Rubber	35	1.0	C4011-7B	1000
	Green	Aluminum	PTFE/Synthetic Red Rubber	35	1.0	C4011-7G	1000
	Red	Aluminum	PTFE/Synthetic Red Rubber	35	1.0	C4011-7R	1000
	Yellow	Aluminum	PTFE/Synthetic Red Rubber	35	1.0	C4011-7Y	1000
	Silver, Blue, Green, Red, Yellow	Aluminum	PTFE/Synthetic Red Rubber	35	1.0	C4011-7K	1000
	11mm Crimp Cap, 5.5mm hole	Silver	Aluminum	Solid Aluminum Disk with Silicone sealing ring		0.06	C4011-3AL

National 11mm Crimping and Decrimping Tools

- Crimping tools provide a reproducible, secure vial closure
- Manual decrimping tools allow easy removal of aluminum seals without breakage
- Decapping pliers are an economical choice for small quantities of vials
- Clean room crimpers and decrimpers can be autoclaved



Items not shown to scale

National 11mm Crimping and Decrimping Tools

Description	Use	Cat. No.	Pack of
Manual Crimper	Attaches 11mm aluminum crimp seals	C4012-100	1
Decapping Pliers	Removes 11mm aluminum crimp seals; protective gloves recommended	C4012-101	1
Manual Decrimper	Removes 11mm aluminum crimp seals	C4012-102	1
Manual stainless steel Cleanroom Crimper	Attaches 11mm crimp seals	C4012-100SS	1
Manual stainless steel Cleanroom Decrimper	Removes 11mm crimp seals without vial damage	C4012-102SS	1

For electronic crimpers and decrimpers look on page **2-092**

National 11mm Crimp Top Convenience Kits

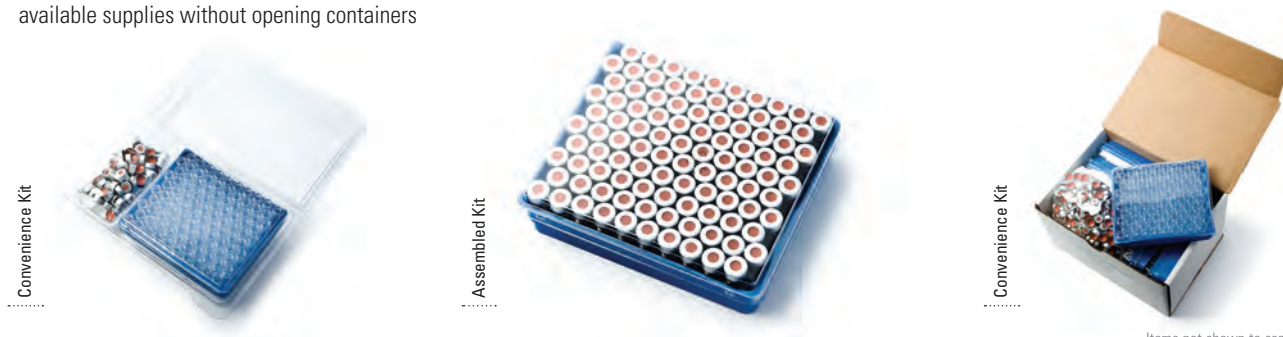
- Save time during sample preparation
- Reduce the risk of contamination

Unassembled kits

- Includes 100 vials and 100 caps with pre-assembled septa
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Clear trays make it easy to keep track of available supplies without opening containers

Assembled kits

- Include 100 vials with pre-attached caps and septa
- Packaged in convenient vial trays with clear covers or in economical polybags



Items not shown to scale

National 11mm Crimp Top Convenience Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat.No.	Cap Cat.No.	Cat. No.	Pack of
Convenience Kit, Standard Opening Crimp Top Vial	Clear	No	Silver	Clear PTFE/Red Rubber	C4012-1	C4011-1AHP	C4012-88	500
	Amber	No	Silver	Clear PTFE/Red Rubber	C4012-2	C4011-1AHP	C4012-88A	500
Convenience Kit, Wide Opening Crimp Top Vial	Clear	No	Silver	Clear PTFE/Red Rubber	C4011-1	C4011-1AP	C4011-87	100
	Clear	Yes	Silver	Clear PTFE/Red Rubber	C4011-1W	C4011-1AP	C4011-87W	100
	Amber	Yes	Silver	Clear PTFE/Red Rubber	C4011-2W	C4011-1AP	C4011-87AW	100
	Clear	No	Silver	Clear PTFE/Red Rubber	C4011-1	C4011-1AP	C4011-88	500
Kit includes Polyspring Tapered Insert for small sample volumes	Clear	Yes	Silver	Clear PTFE/Red Rubber	C4011-1W	C4011-1AP	C4011-88W	500
	Clear	No	Silver	PTFE/Synthetic Red Rubber	C4011-1	C4011-7A	C4011-89W	100
	Clear	No	Silver	Clear PTFE/Red Rubber	C4011-1/ C4010-630	C4011-1AP	C4011-95	100
Assembled Kit, Wide Opening Crimp Top Vial, Nitrogen purged	Clear	No	Silver	Clear PTFE/Red Rubber	C4011-1	C4011-1AP	C4011-1CV	100
	Amber	Yes	Silver	Clear PTFE/Red Rubber	C4011-2W	C4011-1AP	C4011-2WCV	100

National 11mm Crimp Top Vial Storerooms

- Storerooms organize supplies and save valuable bench space
- 6 Drawer Mini-Storeroom holds 500 vials and closures
- 9 Drawer Storeroom holds 2000 vials and closures



Items not shown to scale

National 11mm Crimp Top Vial Storerooms

Description	Glass	Patched	Cap Color	Septum	Vial Cat. No.	Cap Cat. No.	Cat. No.	Pack of
6 Drawer Mini-Storeroom, 500 pieces Caps and Vials	Clear	Yes	Silver	Clear PTFE/Red Rubber	C4011-1W	C4011-1AP	C4011-688W	1
6 Drawer Mini-Storeroom – Cabinet Only	–	–	–	–	–	–	C4000-MS	1
9 Drawer Storeroom – Cabinet Only	–	–	–	–	–	–	C4075-500	1

National 11mm Crimp Top Vial Racks

- Polypropylene vial racks are resistant to most solvents
- Racks feature alphanumeric indexing for easier vial identification
- Racks can be stacked for efficient storage



Items not shown to scale

National 11mm Crimp Top Vial Racks

Description	Capacity	Cat. No.	Pack of
PVC storage rack for 12x32mm vials with clear lid	100 vials, 10x10	C4011-25	1
Polypropylene storage rack for 12x32mm vials, no lid, reusable	50 vials, 5x10	C4012-25	1

National 11mm Wide Opening Snap-It Vials

2mL, 12x32mm wide opening Snap-It vials and inserts

Recommended for most brands of instruments:

For autosampler compatibility visit
www.thermoscientific.com/chromexpert

- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- I-D vials feature a write-on patch with graduation 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
- Optional silanized (deactivated) glass provides optimal recovery of critical polar, labile or OH-interacting compounds*
- Polyspring inserts are self-aligning and provide a cushion against needle contact
- Precision point insert minimizes residual sample loss
- Pulled point inserts are an economical choice for noncritical applications
- Glastic vial features a glass insert pre-inserted inside of a clear TPX vial
- Snap-It vials can be used with snap caps or aluminum crimp seal closures



National 11mm Wide Opening Snap-It Vials and Inserts

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
11mm Snap-It Vial	Clear	No	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-5	100
	Clear	Yes	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-5W	100
	Amber	No	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-6	100
	Amber	Yes	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-6W	100
11mm Snap-It MacroVial 250µL, Fused Insert	Clear	No	12x32	Fused Conical	500µL	350µL	<2	C4011-LV1	100
	Amber	No	12x32	Fused Conical	500µL	350µL	<2	C4011-LV2	100
11mm Snap-It High Recovery MicroVial, 1.5mL	Clear	No	12x32	High Recovery	1.7mL	1.3mL	<4	C4011-4	100
11mm Snap-It Vial, silanized*	Clear	No	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-S5	100
	Clear	Yes	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-S5W	100
	Amber	Yes	12x32	Flat Bottom	2mL	1.5mL	<170	C4011-S6W	100
	Clear	No	12x32	High Recovery	1.5mL	1.1mL	<4	C4011-S4	100
11mm Snap-It Vial, Total Recovery with 10µL Reservoir	Clear	No	12x32	Deep Well Base	1.5mL	1.2mL	<1	C4011-9TR	100
11mm Snap-It 250µL MicroVial	Polypropylene	No	12x32	Conical Base	475µL	300µL	<2	C4011-13	100

* For information about silanized products visit www.thermoscientific.com/chromexpert



National 11mm Wide Opening Snap-It Vials and Inserts (Continued)

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
11mm Snap-It 600µL MicroVial	Polypropylene	No	12x32	Conical Base	600µL	400µL	<4	C4011-16	100
11mm Snap-It 800µL MicroVial	Polypropylene	No	12x32	Conical Base	800µL	600µL	<6	C4011-11	100
11mm Snap-It 850µL AP-2000 MaxVial	Polypropylene	No	12x32	High Recovery	825µL	650µL	<8	C4011-15	1000
11mm Snap-It 1mL Vial	Polypropylene	No	12x32	Flat Bottom	1000µL	800µL	<80	C4011-14	100
11mm Snap-It 1mL TPX High Recovery Vial	TPX	No	12x32	High Recovery	1000µL	750µL	<8	C4011-24	100
11mm Snap-It Glastic Glass Insert/TPX Vial	Clear	No	12x32	Insert Vial	475µL	350µL	<4	C4012-15	100



National 11mm Wide Opening Snap-It Vials and Inserts (Continued)

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
350µL Insert	Clear	–	6x31	Pulled Point	400µL	350µL	<4	C4010-627L	100
300µL Insert	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-629	100
350µL Insert	Clear	–	6x31	Precision Point	400µL	350µL	<2	C4010-629L	100
300µL Insert, Graduation Marks	Polypropylene	–	6x30	Conical	325µL	250µL	<2	C4010-629P	100
300µL Polyspring Insert	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-630	100
	Polypropylene	–	6x30	Conical	325µL	250µL	<2	C4010-630P	100
400µL MicroSert Insert	Clear	–	6x31	Flat Bottom	500µL	450µL	<25	C4011-631	500
	Polypropylene	–	6x31	Flat Bottom	500µL	450µL	<25	C4011-631P	500
300µL Insert, silanized*	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-S629	100
300µL Polyspring Insert, silanized*	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-S630	100
400µL MicroSert Insert, silanized*	Clear	–	6x31	Flat Bottom	500µL	450µL	<25	C4011-S631	500
300µL Polyspring Insert, Kimshield*	Clear	–	6x29	Conical	375µL	300µL	<1	C4010-K630	100

* For information about silanized products visit www.thermoscientific.com/chromexpert

National 11mm Wide Opening Snap-It Caps and Septa

- Redesign of locking tabs provides easier application and removal of caps
- Enlarged open area allows for needle penetration across the entire vial opening
- Textured outer surface for easier gripping and improved detection by autosamplers with optical vial sensors
- Fully compatible with all Snap-It vials
- Snap-It caps are easy to apply and easy to remove
- Pre-assembled caps and septa are convenient and minimize contamination from handling
- Snap-It 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
- Integral Molded Polyethylene cap is an economical choice for routine HPLC applications, but with low sealing property and zero resealing capacity



National 11mm Snap-It Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
11mm Snap-It Cap, thinned penetration area	Clear	Polyethylene	Integral Molded In Polyethylene	–	–	C4011-50	100
	Blue	Polyethylene	Integral Molded In Polyethylene	–	–	C4011-50B	100
	Green	Polyethylene	Integral Molded In Polyethylene	–	–	C4011-50G	100
	Red	Polyethylene	Integral Molded In Polyethylene	–	–	C4011-50R	100
11mm Snap-It Cap, 6mm hole	Clear	Polyethylene	Clear PTFE/Synthetic Red Rubber	60	1.0	C4011-51	100
	Blue	Polyethylene	Clear PTFE/Synthetic Red Rubber	60	1.0	C4011-51B	100
	Black	Polyethylene	Clear PTFE/Synthetic Red Rubber	60	1.0	C4011-51BLK	100
	Green	Polyethylene	Clear PTFE/Synthetic Red Rubber	60	1.0	C4011-51G	100
	Red	Polyethylene	Clear PTFE/Synthetic Red Rubber	60	1.0	C4011-51R	100
	Clear	Polyethylene	White Virgin PTFE, 0.01"	53	0.25	C4011-52	100
	Blue	Polyethylene	White Virgin PTFE, 0.01"	53	0.25	C4011-52B	100
	Green	Polyethylene	White Virgin PTFE, 0.01"	53	0.25	C4011-52G	100
	Red	Polyethylene	White Virgin PTFE, 0.01"	53	0.25	C4011-52R	100
	Yellow	Polyethylene	White Virgin PTFE, 0.01"	53	0.25	C4011-52Y	100
	Orange	Polyethylene	White Virgin PTFE, 0.01"	53	0.25	C4011-52OR	1000
	Orange	Polyethylene	Ivory PTFE/Red Rubber	45	1.0	C4011-51OR	100
	Orange	Polyethylene	Ivory PTFE/Red Rubber	45	1.0	C4011-510OR	1000
	Clear	Polyethylene	Red PTFE/White Silicone/Red PTFE	45	1.0	C4011-53	100
	Blue	Polyethylene	Red PTFE/White Silicone/Red PTFE	45	1.0	C4011-53B	100
	Red	Polyethylene	Red PTFE/White Silicone/Red PTFE	45	1.0	C4011-53R	100
	Yellow	Polyethylene	Red PTFE/White Silicone/Red PTFE	45	1.0	C4011-53Y	100
	Orange	Polyethylene	Red PTFE/White Silicone/Red PTFE	45	1.0	C4011-53OR	100
	Orange	Polyethylene	Red PTFE/White Silicone/Red PTFE	45	1.0	C4011-530OR	1000
	Clear	Polyethylene	Red PTFE/White Silicone	50	1.0	C4011-54	100
	Blue	Polyethylene	Red PTFE/White Silicone	50	1.0	C4011-54B	100
	Black	Polyethylene	Red PTFE/White Silicone	50	1.0	C4011-54BLK	100
	Green	Polyethylene	Red PTFE/White Silicone	50	1.0	C4011-54G	100

National 11mm Snap-It Caps and Septa (Continued)

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
11mm Snap-It Cap, 6mm hole	Red	Polyethylene	Red PTFE/White Silicone	50	1.0	C4011-54R	100
	Yellow	Polyethylene	Red PTFE/White Silicone	50	1.0	C4011-54Y	100
	Orange	Polyethylene	Red PTFE/White Silicone	55	1.0	C4011-54OR	100
	Orange	Polyethylene	Red PTFE/White Silicone	55	1.0	C4011-5400R	1000
	Clear	Polyethylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C4011-55	100
	Blue	Polyethylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C4011-55B	100
	Black	Polyethylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C4011-55BLK	100
	Green	Polyethylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C4011-55G	100
	Red	Polyethylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C4011-55R	100
	Yellow	Polyethylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C4011-55Y	100
	Clear	Polyethylene	Red PTFE/White Silicone, Star-slit	45	1.3	C4011-59	100
	Pink	Polyethylene	Red PTFE/White Silicone, Y-cut	45	1.3	C4011-67P	100
	Orange	Polyethylene	Red PTFE/White Silicone, Star-slit	55	1.0	C4011-59OR	100
	Orange	Polyethylene	Red PTFE/White Silicone, Star-slit	55	1.0	C4011-5900R	1000

National 11mm Wide Opening Snap-It Cap Convenience Kits

- Save time during sample preparation
- Reduce the risk of contamination

Unassembled kits

- Includes 100 vials and 100 caps with pre-assembled septa
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Clear trays make it easy to keep track of available supplies without opening containers



Convenience Kit

Items not shown to scale

National 11mm Wide Opening Snap-It Cap Convenience Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat. No.	Cap Cat. No.	Cat. No.	Pack of
Convenience Kit, Wide Opening Snap Cap Vial	Clear	No	Clear	Clear PTFE/Red Rubber	C4011-5	C4011-51	C4011-72	100
	Amber	Yes	Clear	Clear PTFE/Red Rubber	C4011-6W	C4011-51	C4011-72AW	100
	Clear	No	Clear	Red PTFE/White Silicone	C4011-5	C4011-54	C4011-73	100
	Clear	Yes	Clear	Red PTFE/White Silicone	C4011-5W	C4011-54	C4011-73W	100
	Clear	No	Pink	Red PTFE/White Silicone	C4011-5	C4011-54P	C4011-73P	100
	Clear	Yes	Orange	Red PTFE/White Silicone	C4011-5W	C4011-54OR	C4011-73ORW	100
	Clear	Yes	Orange	Ivory PTFE/Red Rubber	C4011-5W	C4011-51OR	C4011-72ORW	100

National 13mm Crimp/Snap Vials

4mL, 15x45mm crimp/snap cap vials and inserts

- Superior quality 1st hydrolytic class glass (Type 1) in clear feature a 13mm crimp/snap-ring finish – use with 13mm aluminum Seals or Kim-Snap closures
- Polyspring inserts are self-aligning and provide a cushion against needle contact



Recommended for the following instruments:

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

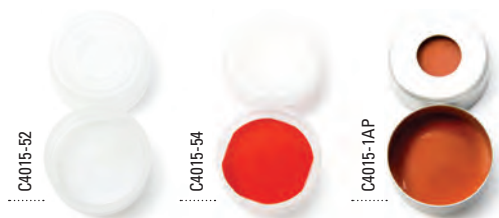
For autosampler compatibility visit
www.thermoscientific.com/chromexpert

National 13mm Crimp/Snap Cap Vials and Inserts

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
13mm Crimp/Snap Vial	Clear	No	15x45	Flat Bottom	4.8mL	4.25mL	<800µL	C4015-4	100
800µL Polyspring Conical Insert	Clear	–	8x38	Pulled Point	950µL	800µL	<9µL	C4015-638	100
350µL Conical Insert	Clear	–	6x40	Pulled Point	375µL	300µL	<8µL	C4015-643	100
Metal spring for glass inserts in 4mL vials	–	–	–	–	–	–	–	C4015-640	100

National 13mm Crimp/Snap Caps and Septa

- 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
- Synthetic PTFE/red rubber seal is specially formulated for improved background performance
- Kim-Snap closures provide a tight seal without the need of a crimper



National 13mm Crimp/Snap Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
13mm Kim-Snap Closure	Clear	Polypropylene	White Virgin PTFE, 0.01"	53	0.25	C4015-52	100
	Clear	Polypropylene	Red PTFE/White Silicone	45	1.3	C4015-54	100
13mm Crimp Cap, 6mm hole	Silver	Aluminum	Clear PTFE/Synthetic Red Rubber	65	1.3	C4015-1AP	144

National 13mm Crimp/Snap Crimping and Decrimping Tools

- Crimping tools provide a reproducible, secure vial closure
- Manual decrimping tools allow easy removal of aluminum seals without breakage
- Decapping pliers are an economical choice for small quantities of vials
- Clean room crimpers and decrimpers can be autoclaved



Items not shown to scale

National 13mm Crimp/Snap Crimping and Decrimping Tools

Description	Use	Cat. No.	Pack of
Manual Crimper	Attaches 13mm aluminum crimp seals	C4013-100	1
Decapping Pliers	Removes 13mm aluminum crimp seals, Protective gloves recommended	C4013-101	1
Manual Decrimper	Removes 13mm aluminum crimp seals	C4013-102	1
Manual stainless steel Cleanroom Crimper	Attaches 13mm crimp seals	C4013-100SS	1
Manual stainless steel Cleanroom Decrimper	Removes 13mm crimp seals without vial damage	C4013-102SS	1

For electronic crimpers and decrimpers look on page **2-092**

National 4mL Screw Thread Vials

4mL, 15x45mm screw thread vials and inserts

- 13-425 thread finish
- I-D vials feature a write-on patch with graduation for convenient sample identification
- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts
- Optional silanized (deactivated) glass provides optimal recovery of critical polar, labile or OH-interacting compounds*
- Polyspring inserts are self-aligning and provide a cushion against needle contact

Recommended for the following instruments:

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

For autosampler compatibility visit

www.thermoscientific.com/chromexpert



National 4mL Screw Thread Vials and Inserts

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
13-425 Screw Thread Vial	Clear	No	15x45	Flat Bottom	4mL	4mL	<800	C4015-1	100
	Clear	Yes	15x45	Flat Bottom	4mL	4mL	<800	C4015-11W	100
	Amber	No	15x45	Flat Bottom	4mL	4mL	<800	C4015-2	100
	Amber	Yes	15x45	Flat Bottom	4mL	4mL	<800	C4015-2W	100
13-425 Screw Thread AP2000 High Recovery Vial	Clear	No	15.25x45	Tapered Base	3.5mL	3.5mL	<15	C4015-9	100
	Polypropylene	No	15x45	Tapered Base	2.5mL	2mL	<15	C4015-14	100
13-425 Screw Thread Vial, silanized*	Clear	No	15x45	Flat Bottom	4mL	4mL	<800	C4015-S1	100
800µL Polyspring Conical Insert	Clear	–	8x38	Pulled Point	950µL	800µL	<9	C4015-638	100
350µL Conical Insert	Clear	–	6x40	Pulled Point	375µL	300µL	<8	C4015-643	100
Metal spring for glass inserts in 4mL vials	–	–	–	–	–	–	–	C4015-640	100

* For information about silanized products visit www.thermoscientific.com/chromexpert

National 13-425 Screw Thread Caps and Septa

- Polypropylene caps are chemically inert and suitable for most chromatography applications
- Phenolic resin caps perform well at high temperatures and are compatible with exposure to corrosives
- Open top caps are designed to be used with any of our 13mm septa
- Pre-assembled caps and septa are convenient and minimize contamination from handling
- Caps with bonded septa resist dislodging during injection when using large diameter blunt needles
- Integral Molded Polypropylene cap is an economical choice when septum resealing is not required



Images shown are 70% to scale

National 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, 8.5mm hole	Black	Polypropylene	—	—	—	C4015-1A	100
	White	Polypropylene	—	—	—	C4015-1W	100
	Black	Phenol	—	—	—	C4015-66	1000
Septum for 13-425 Screw Caps	—	—	White Virgin PTFE, 0.01"	53	0.25	C4015-10	1000
	—	—	Ivory PTFE/Red Rubber	35	1.5	C4015-30	100
	—	—	Red PTFE/White Silicone/Red PTFE	55	1.25	C4015-40	100
	—	—	Red PTFE/White Silicone, Soft	45	1.5	C4015-45	100
	—	—	Red PTFE/White Silicone	50	1.5	C4015-60	100
	—	—	Ivory PTFE/White Silicone	45	1.5	C4015-61	1000
13mm Open Top Screw Cap, 13-425 thread, 8.5mm hole	Black	Polypropylene	Ivory PTFE/Red Rubber	35	1.5	C4015-30A	100
	Black	Polypropylene	Red PTFE/White Silicone/Red PTFE	55	1.25	C4015-40A	100
	White	Polypropylene	Red PTFE/White Silicone, Soft	40	1.5	C4015-45W	100
	Black	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.5	C4015-55BLK	100
	White	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.5	C4015-55W	100
	Black	Polypropylene	Red PTFE/White Silicone	60	1.5	C4015-75A	100
	White	Polypropylene	Red PTFE/White Silicone	60	1.5	C4015-75W	100
13mm Single Piece Screw Cap, 13-425 thread	Natural	Polypropylene	Integral Molded Polypropylene	—	0.25	C4015-5A	100
13mm Open Top Screw Cap, 13-425 thread, 8.5mm hole	Black	Phenol	Red PTFE/White Silicone	60	1.5	C4015-66A	100
13mm Solid Top Storage Cap, 13-425 thread	White	Urea	PTFE/PE Foam Liner	—	1.25	B7815-13	100
13mm Open Top Screw Cap, 13-425 thread, 8.5mm hole	Black	Polypropylene	Bonded Red PTFE/White Silicone	45	1.5	C4015-67A	100

National 4mL Screw Thread Convenience Kits

- Save time during sample preparation
- Reduce the risk of contamination

Unassembled kits

- Includes 100 vials and 100 caps with pre-assembled septa



C4015-88

Assembled kits

- Include 100 vials with pre-attached caps and septa
- Packaged in convenient vial trays with clear covers or in economical polybags



C4015-21



C4015-017

Items not shown to scale

National 4mL Screw Thread Convenience Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat. No.	Cap/Septum Cat. No.	Cat. No.	Pack of
Convenience Kit	Clear	No	Black	Red PTFE/White Silicone	C4015-1	C4015-75A	C4015-88	100
	Amber	Yes	Black	Red PTFE/White Silicone	C4015-2W	C4015-75A	C4015-88AW	100
Assembled Kit	Clear	No	Black	White Virgin PTFE, 0.01"	C4015-1	C4015-1A/C4015-10	C4015-21	100
	Clear	No	Black	Red PTFE/White Silicone	C4015-1	C4015-75A	C4015-17	100
	Amber	No	Black	Red PTFE/White Silicone	C4015-2	C4015-75A	C4015-17A	100
	Amber	Yes	Black	Red PTFE/White Silicone	C4015-2W	C4015-75A	C4015-17AW	100
	Clear	Yes	Black	Red PTFE/White Silicone	C4015-11W	C4015-75A	C4015-17W	100
	Clear	No	Black	PTFE/Red Rubber	C4015-1	C4015-66/73816T-13P	C4015-482A	100
Assembled Kit, in Polybag	Clear	No	Black	Red PTFE/White Silicone	C4015-1	C4015-75A	C4015-017	100
	Amber	No	Black	Red PTFE/White Silicone	C4015-2	C4015-75A	C4015-017A	100

National 4mL Screw Thread Vial Racks

- Polypropylene vial racks are resistant to most solvents
- Racks feature alphanumeric indexing for easier vial identification
- Racks can be stacked for efficient storage



C4015-27



C4015-25

Items not shown to scale

National 4mL Screw Thread Vial Racks

Description	Capacity	Cat. No.	Pack of
PVC storage rack for 15x45mm vials with clear lid	100 vials, 10x10	C4015-27	1
Polypropylene storage rack for 15x45mm vials, no lid, reusable	50 vials, 5x10	C4015-25	1

National Shell Vials and Inserts

- Superior quality type 1 borosilicate and amber glass
- Polyethylene SepCap with starburst center design eases syringe needle penetration
- Convenient vial kits include equal quantities of vials and caps
- Polyspring inserts are self-aligning and provide a cushion against needle contact
- Microsampling vials allow maximum sample extraction without need for separate inserts

Recommended for the following instruments:

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

For autosampler compatibility visit www.thermoscientific.com/chromexpert



National Shell Vials and Inserts

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
1mL Shell Vial with SepCap	Clear	No	8x40	Flat Bottom	1.25mL	1mL	<80	C4015-96	200
	Amber	No	8x40	Flat Bottom	1.25mL	1mL	<80	C4015-99	200
	Polypropylene	No	8x40	Flat Bottom	1.25mL	1mL	<80	C4015-95P	250
250µL Polyspring Conical Insert	Clear	–	5x34	Pulled Point	250µL	210µL	<3	C4015-96A	100
300µL Polyspring Conical Insert	Polypropylene	–	5x29	Precision Point	275µL	250µL	<3	C4015-96PA	100
0.7mL Accuform Shell Vial with SepCap	Polypropylene	No	8x40	Tapered Base	0.90mL	0.7mL	<8	C4015-94	1000
2mL Shell Vial with SepCap	Clear	No	12x32	Flat Bottom	2.4mL	1.8mL	<200	C4011-80	200
	Polypropylene	No	12x32	Flat Bottom	2.4mL	1.8mL	<200	C4011-77P	1000
4mL Shell Vial with SepCap	Clear	No	15x45	Flat Bottom	5.5mL	4mL	<800	C4015-48	100
	Polypropylene	No	15x45	Flat Bottom	5.5mL	4mL	<800	C4015-47P	100
800µL Polyspring Conical Insert	Clear	–	6x38	Pulled Point	950µL	800µL	<9	C4015-638	100
3mL Accuform Shell Vial with SepCap	Polypropylene	No	15x45	Tapered Base	3.75mL	2.9mL	<8	C4015-46P	1000
Positive Displacement Vial for Alcott with PE Plug Cap	Clear	No	8x35	Flat Bottom	1mL	900µL	–	C4008-50	1000

National Headspace Vials

- Superior quality 1st hydrolytic class glass (Type 1)
- Headspace vials are available with either a round or flat base
- Round bottom vials are compatible with most autosamplers and more easily handled by robotic arms that lift the vial from the tray
- Flat bottom vials maximize heating efficiency in manual headspace sampling and are required for use in some instrument models
- Vials feature beveled or square edge finish
- The bevel edge on the lip of the vial provides additional sealing power for greater leak resistance under high pressure

Recommended for most brands of instruments.

For autosampler compatibility visit
www.thermoscientific.com/chromexpert



Images shown are 90% to scale

National Headspace Vials

Description	Glass	Dimension (mm)	Finish	Profile	Total Volume (mL)	Usable Volume (mL)	Cat. No.	Pack of
20mm Headspace Crimp Vial	Clear	22x38	Beveled Edge	Flat Bottom	9	6	C4020-60	1000
	Clear	22x38	Square Rim	Flat Bottom	9	6	C4020-6	1000
	Clear	23x46	Beveled Edge	Flat Bottom	12.5	10	C4020-10	100
	Clear	23x46	Beveled Edge	Round Bottom	12.5	10	C4020-210	100
	Clear	23x46	Square Rim	Flat Bottom	12.5	10	C4020-410	1000
	Clear	23x75	Beveled Edge	Flat Bottom	21.5	20	C4020-20	100
	Clear	23x75	Beveled Edge	Round Bottom	21.5	20	C4020-2	100
	Clear	23x75	Square Rim	Flat Bottom	21.5	20	C4020-25	1000
	Clear	30x60	Beveled Edge	Flat Bottom	27	25	C4020-27	1000
18mm Screw Top Headspace Vial	Clear	22.5x46	Screw Thread	Round Bottom	12	10	C4020-180	125
	Clear	22.5x76	Screw Thread	Round Bottom	21	20	C4020-18	125

National Headspace Caps and Septa

- Aluminum seals are available in standard center hole and pressure release versions
- Pressure release seals (Aluminum-PR) are designed to open when internal pressure exceeds 3.0±0.5bar
- Use magnetic tinplate seals with CTC/Leap Technologies, Gerstel and other magnetic transport autosamplers
- Pre-assembled caps and septa are convenient and minimize contamination from handling



Images shown are 50% to scale

National Headspace Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
20mm Crimp Cap, 9.5mm hole	Silver	Aluminum	–	–	–	C4020-3A	1000
20mm Tear-off Crimp Cap	Silver	Aluminum	–	–	–	C4020-5A	1000
20mm Pressure Release Crimp Cap, 7.5mm hole	Silver	Aluminum-PR	–	–	–	C4020-6A	1000
Septum for 20mm Crimp Caps	–	–	20mm Gray Bromobutyl Stopper	37	–	C4020-30	1000
	–	–	20mm Tan PTFE/White Silicone	45	3.2	C4020-32	100
	–	–	20mm Gray PTFE/Red Rubber	50	3.0	C4020-34	100
	–	–	20mm Gray PTFE/Black Butyl Molded	50	3.0	C4020-36	100
	–	–	Unfaced Black Rubber	55	3.0	C4020-40	100
20mm Crimp Cap, 9.5mm hole	Silver	Aluminum	Gray PTFE/Red Rubber	50	3.0	C4020-34A	100
20mm Pressure Release Crimp Cap, 8mm hole	Silver	Aluminum-PR	Gray PTFE/Red Rubber	50	3.0	C4020-34AP	100
20mm Crimp Cap, 9.5mm hole	Silver	Aluminum	Clear PTFE/Gray Butyl Rubber	50	3.0	C4020-39A	100
20mm Pressure Release Crimp Cap, 8mm hole	Silver	Aluminum-PR	Clear PTFE/Gray Butyl Rubber	50	3.0	C4020-43AP	100
20mm Crimp Cap, 9.5mm hole	Silver	Aluminum	Gray PTFE/Gray Butyl Rubber, Pharmafix	50	3.0	C4020-36A	100
20mm Pressure Release Crimp Cap, 8mm hole	Silver	Aluminum-PR	Gray PTFE/Gray Butyl Rubber, Pharmafix	50	3.0	C4020-36AP	100
20mm Crimp Cap, 9.5mm hole	Silver	Aluminum	Tan PTFE/White Silicone	45	3.2	C4020-32A	100
20mm Pressure Release Crimp Cap, 8mm hole	Silver	Aluminum-PR	Tan PTFE/White Silicone	45	3.2	C4020-32AP	100
20mm Magnetic Crimp Cap, 5mm hole	Gold	Tin-plated	Clear PTFE/Translucent Blue Silicone	45	3.0	C4020-38A	100
20mm Magnetic Crimp Cap, 8mm hole	Gold	Tin-plated	Clear PTFE/Translucent Blue Silicone	45	3.0	C4020-42A	100
20mm Pressure Release Crimp Cap, 7.5mm hole	Silver	Aluminum-PR	Clear PTFE/Translucent Blue Silicone	45	3.0	C4020-42AP	100
18mm Magnetic Screw Cap, 8mm hole	Silver	Steel	18mm Blue Silicone/Natural PTFE	45	2.0	C4020-47	125
18mm Magnetic Screw Cap, 8mm hole, SPME	Silver	Steel	18mm Blue Silicone/PTFE, not prefitted	30	1.0	C4020-48	125

Trying to decide what septum is right for you?



Use our selection guide visit www.thermoscientific.com/chromexpert

National 20mm Crimp Top Headspace Unassembled Convenience Kits

- Include matched quantities of vials and silver aluminum seals with pre-assembled septa
- Convenience kits save time during sample preparation



National 20mm Crimp Top Headspace Unassembled Convenience Kits

Item not shown to scale

Kit Type	Glass	Cap Color	Septum	Vial Cat. No.	Cap Cat. No.	Cat. No.	Pack of
Convenience Kit, 20mm Headspace Crimp Vial, Beveled Edge, Round Bottom, Pressure Release Crimp Cap, 7.5mm hole	Clear	Silver	Gray PTFE/Black Butyl Rubber, Pharmafix	C4020-2	C4020-36AP	C4020-139	100
	Clear	Silver	Tan PTFE/White Silicone	C4020-2	C4020-32AP	C4020-320	1000

National 20mm Headspace Crimping and Decrimping Tools

- Crimping tools provide a reproducible, secure vial closure
- Manual decrimping tools allow easy removal of aluminum seals without breakage
- Decapping pliers are an economical choice for small quantities of vials
- Clean room crimpers and decrimpers can be autoclaved



National 20mm Headspace Crimping and Decrimping Tools

Items not shown to scale

Description	Use	Cat. No.	Pack of
Manual Crimper	Attaches 20mm crimp seals	C4020-100	1
Decapping Pliers	Removes 20mm crimp seals, Protective gloves recommended	C4020-101	1
Manual Decrimper	Removes 20mm crimp seals	C4020-102	1
Manual stainless steel Cleanroom Crimper	Attaches 20mm crimp seals	C4020-100SS	1
Manual stainless steel Cleanroom Decrimper	Removes 20mm crimp seals without vial damage	C4020-102SS	1

For electronic crimpers and decrimpers look on page **2-092**

National Sample Storage Screw Thread Vials

Sample storage screw thread vials, caps and septa

- Capacity ranges from 2-40mL
- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- Eliminate leaching of ions
- Provide consistent pH for duration of sample storage life
- PTFE-Lined Solid-top storage caps
- PTFE film/PE foam backing offers broad chemical resistance
- Not autoclavable



Images shown are 70% to scale

National Sample Storage Screw Thread Vials

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (mL)	Capacity (DRAMS)	Cat. No.	Pack of
8-425 Screw Vial	Clear	No	12x32	Flat Bottom	2	0.5	B7999-1	100
13-425 Screw Vial	Clear	No	15x45	Flat Bottom	4	1	B7999-2	100
15-425 Screw Vial	Clear	No	17x60	Flat Bottom	8	2	B7999-3	200
15-425 Screw Vial	Clear	No	19x65	Flat Bottom	12	3	B7999-12	200
18-400 Screw Vial	Clear	No	21x70	Flat Bottom	16	4	B7999-4	200
20-400 Screw Vial	Clear	No	23x85	Flat Bottom	22	6	B7999-5	200
24-400 Screw Vial	Clear	No	28x95	Flat Bottom	40	8	B7999-6	100
8-425 Screw Vial	Amber	No	12x32	Flat Bottom	2	0.5	B7999-1A	100
13-425 Screw Vial	Amber	No	15x45	Flat Bottom	4	1	B7999-2A	100
15-425 Screw Vial	Amber	No	17x60	Flat Bottom	8	2	B7999-3A	200
15-425 Screw Vial	Amber	No	19x65	Flat Bottom	12	3	B7999-12A	200
18-400 Screw Vial	Amber	No	21x70	Flat Bottom	16	4	B7999-4A	200
24-400 Screw Vial	Amber	No	28x95	Flat Bottom	40	8	B7999-6A	100



Images shown are 70% to scale

National Sample Storage Screw Thread Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
8-425 Screw Cap	White	Urethane	PTFE/PE Foam Liner	75	1.3	B7815-8	100
13-425 Screw Cap	White	Urethane	PTFE/PE Foam Liner	75	1.3	B7815-13	100
15-425 Screw Cap	White	Polypropylene	PTFE/PE Foam Liner	75	1.3	B7815-15	100
18-400 Screw Cap	White	Polypropylene	PTFE/PE Foam Liner	75	1.3	B7815-18	100
20-400 Screw Cap	White	Polypropylene	PTFE/PE Foam Liner	75	1.3	B7815-20	100
24-400 Screw Cap	White	Polypropylene	PTFE/PE Foam Liner	75	1.3	B7815-24	100
Septum for 8-425 Screw Cap	—	—	0.01" White PTFE/0.05" Clear Silicone	50	1.5	B7995-8	100
Septum for 13-425 Screw Cap	—	—	0.01" White PTFE/0.05" Clear Silicone	50	1.5	B7995-13	100
Septum for 15-425 Screw Cap	—	—	0.01" White PTFE/0.09" Clear Silicone	50	2.6	B7995-15	100
Septum for 18-400 Screw Cap	—	—	0.01" White PTFE/0.05" Clear Silicone	50	1.5	B7995-18	100
Septum for 20-400 Screw Cap	—	—	0.01" White PTFE/0.05" Clear Silicone	50	1.5	B7995-20	100
Septum for 24-400 Screw Cap	—	—	0.01" White PTFE/0.09" Clear Silicone	50	2.6	B7995-24	100
Septum for 24-400 Screw Cap	—	—	0.013" White PTFE/0.120" Clear Silicone	50	3.3	B7995-26	100
Open top 8-425 Screw Cap	Black	Polypropylene	—	—	—	B7807-8	100
Open top 13-425 Screw Cap	Black	Polypropylene	—	—	—	B7807-13	100
Open top 15-425 Screw Cap	Black	Polypropylene	—	—	—	B7807-15	100
Open top 18-400 Screw Cap	Black	Polypropylene	—	—	—	B7807-18	100
Open top 20-400 Screw Cap	Black	Polypropylene	—	—	—	B7807-20	100
Open top 24-400 Screw Cap	White	Polypropylene	—	—	—	B7807-24	100

National Sample Storage Convenience Kits

- Convenience kits save time during sample preparation
- Solid top convenience kits include matched quantities of vials and screw caps with pre-assembled septa
- Open top convenience kits contain shrink-wrapped vials and separately packaged caps and septa in polybags



B7990-2



B7800-20

Items not shown to scale

National Sample Storage Convenience Kits

Kit Type	Glass	Total Volume (mL)	Cap Color	Cap Material	Septum	Vial Cat. No.	Cap/Septum Cat. No.	Cat. No.	Pack of
Screw Vial Convenience Kit, Solid-top Cap	Clear	2	White	Urethane	PTFE/Polyethylene Foam Liner	B7999-1	B7815-8	B7800-1	100
	Clear	4	White	Urethane		B7999-2	B7815-13	B7800-2	100
	Clear	8	White	Polypropylene	B7999-3	B7815-15	B7800-3	200	
	Clear	12	White	Polypropylene	B7999-12	B7815-15	B7800-12	200	
	Clear	16	White	Polypropylene	B7999-4	B7815-18	B7800-4	200	
	Clear	22	White	Polypropylene	B7999-5	B7815-20	B7800-5	200	
	Clear	40	White	Polypropylene	B7999-6	B7815-24	B7800-6	100	
	Amber	2	White	Urethane	B7999-1A	B7815-8	B7800-1A	100	
	Amber	4	White	Urethane	B7999-2A	B7815-13	B7800-2A	100	
	Amber	8	White	Polypropylene	B7999-3A	B7815-15	B7800-3A	200	
	Amber	12	White	Polypropylene	B7999-12A	B7815-15	B7800-12A	200	
	Amber	16	White	Polypropylene	B7999-4A	B7815-18	B7800-4A	200	
	Amber	40	White	Polypropylene	B7999-6A	B7815-24	B7800-6A	100	
	Screw Vial Assembled Kit, Solid-top Cap	Clear	20	White	Polypropylene	PTFE/Polyethylene Foam Liner	B7920-V0	B7815-24	B7800-20
Amber		20	White	Polypropylene	B7921-V0		B7815-24	B7800-20A	100
Screw Vial Convenience Kit, Open top Cap	Clear	2	Black	Polypropylene	0.01" White PTFE/ 0.05" Clear Silicone	B7999-1	B7807-8/B7995-8	B7990-1	100
	Clear	4	Black	Polypropylene		B7999-2	B7807-13/B7995-13	B7990-2	100
	Clear	8	Black	Polypropylene		B7999-3	B7807-15/B7995-15	B7990-3	200
	Clear	12	Black	Polypropylene		B7999-12	B7807-15/B7995-15	B7990-12	200
	Clear	16	Black	Polypropylene		B7999-4	B7807-18/B7995-18	B7990-4	200
	Clear	22	Black	Polypropylene		B7999-5	B7807-20/B7995-20	B7990-5	200
	Clear	40	White	Polypropylene		B7999-6	B7807-24/B7995-24	B7990-6	100
	Amber	2	Black	Polypropylene		B7999-1A	B7807-8/B7995-8	B7990-1A	100
	Amber	4	Black	Polypropylene		B7999-2A	B7807-13/B7995-13	B7990-2A	100
	Amber	12	Black	Polypropylene		B7999-12A	B7807-15/B7995-15	B7990-12A	200
	Amber	40	White	Polypropylene		B7999-6A	B7807-24/B7995-24	B7990-6A	100

National EPA Screw Vials

EPA screw vial convenience kits

- Convenience kits save time during sample preparation
- Unassembled convenience kits include shrink-wrapped vials and separately packaged caps and septa in polybags
- Assembled kits include vials with pre-assembled caps and septa
- Recommended for discrete water sampling under EPA 40 CFR 136 "Guidelines for Establishing Test Procedures for the Analysis of Pollutants" and EPA 40 CFR 141 "National Interim Primary Drinking Water Regulations: Control of Trihalomethanes in Drinking Water"



B7920

Items not shown to scale

National EPA Screw Vial Convenience Kits

Kit Type	Glass	Total Volume (mL)	Dimension (mm)	Septum	Cat. No.	Pack of
EPA Screw Vial Convenience Kit	Clear	40	28x95	0.01" White PTFE/0.09" Clear Silicone	B7950-B	100
EPA Screw Vial Assembled Kit	Clear	40	28x95	0.01" White PTFE/0.09" Clear Silicone	B7950	100
	Amber	40	28x95	0.01" White PTFE/0.09" Clear Silicone	B7951	100
	Clear	20	28x57	0.01" White PTFE/0.09" Clear Silicone	B7920	100
	Amber	20	28x57	0.01" White PTFE/0.09" Clear Silicone	B7921	100



B7950-V0



B7951-V0



B7950-1A



B7995-24

* 60% to scale

National EPA Screw Vials, Caps and Septa

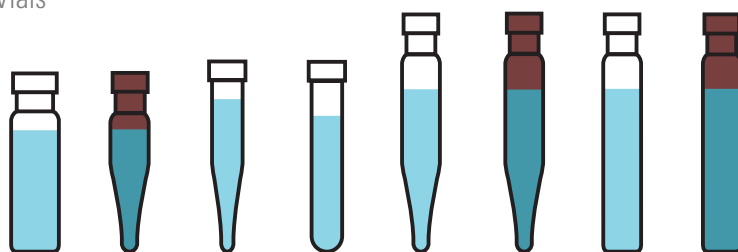
Description	Glass	Cap Color	Dimension (mm)	Total Volume (mL)	Material	Cat. No.	Pack of
24-400 EPA Screw Vial	Clear	—	28x95	40	—	B7950-V0	100
	Amber	—	28x95	40	—	B7951-V0	100
24-400 EPA Screw Cap	—	White	—	—	Polypropylene	B7950-1A	100
Septum for 24-400 Screw Cap	—	—	—	—	0.01" White PTFE/0.09" Clear Silicone	B7995-24	100

National Vial Reference Chart

* Drawing is valid for: C4000-1B, C4000-1G, C4000-1R, C4000-1Y

Images shown are 80% to scale

8mm Crimp Top Vials



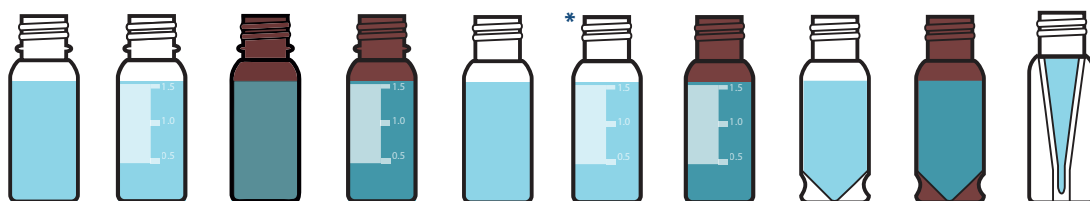
	C4008-1	C4008-730	C4008-632C	C4008-632R	C4008-739	C4008-740	C4008-741	C4008-742
Part No.	C4008-1	C4008-730	C4008-632C	C4008-632R	C4008-739	C4008-740	C4008-741	C4008-742
Dimensions	8x30	7x30	6x32	6x32	7x40	7x40	7x40	7x40
Common Description	0.8mL	0.5mL	0.2mL	0.3mL	0.7mL	0.7mL	0.8mL	0.8mL
Approx. Total Capacity	1mL	550µL	250µL	325µL	575µL	575µL	775µL	775µL
Rec. Usable Volume	0.8mL	400µL	200µL	250µL	450µL	450µL	650µL	650µL
Residual Volume	<80µL	<3µL	<3µL	<6µL	<2µL	<2µL	<70µL	<70µL
Composition	Glass	Amber	Glass	Glass	Glass	Amber	Glass	Amber

Standard-Opening 8-425 Screw Thread Vials – 12x32mm



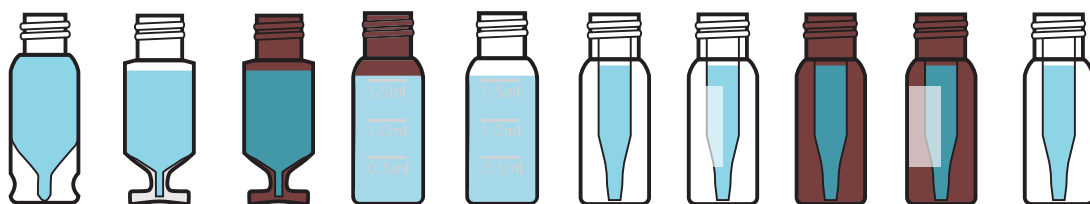
	C4013-1	C4013-1W	C4013-2	C4013-2W	C4013-11	C4013-13
Part No.	C4013-1	C4013-1W	C4013-2	C4013-2W	C4013-11	C4013-13
Common Description	2mL	2mL	2mL	2mL	250µL	600µL
Approx. Total Capacity	1.9mL	1.9mL	1.9mL	1.9mL	475µL	850µL
Rec. Usable Volume	1.5mL	1.5mL	1.5mL	1.5mL	250µL	675µL
Residual Volume	<170µL	<170µL	<170µL	<170µL	<3µL	<8µL
Composition	Glass	Glass	Amber	Amber	Polypro	Polypro

Target DP 9mm Screw Vials 12x32mm



	C5000-1	C5000-1W	C5000-2	C5000-2W	C4000-1	C4000-1W	C4000-2W	C4000-9	C4000-9A	C4000-11
Part No.	C5000-1	C5000-1W	C5000-2	C5000-2W	C4000-1	C4000-1W	C4000-2W	C4000-9	C4000-9A	C4000-11
Common Description	2mL	2mL	2mL	2mL	2mL	2mL	2mL	1.5mL	1.5mL	450µL
Approx. Total Capacity	2mL	2mL	2mL	2mL	2mL	2mL	2mL	1.7mL	1.7mL	250µL
Rec. Usable Volume	1.5mL	1.5mL	1.5mL	1.5mL	1.5mL	1.5mL	1.5mL	1.3mL	1.3mL	250µL
Residual Volume	<170µL	<170µL	<170µL	<170µL	<170µL	<170µL	<170µL	<4µL	<4µL	<1µL
Composition	Glass	Glass	Amber	Amber	Glass	Glass	Amber	Glass	Amber	PolyPro

Target DP 9mm Screw Vials 12x32mm

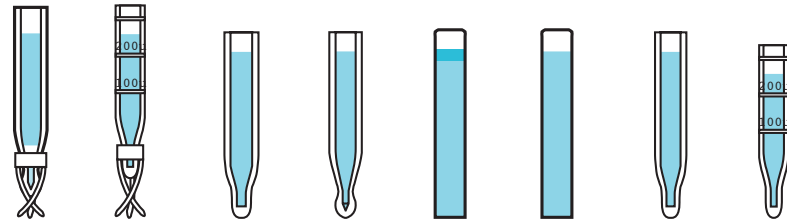


	C4000-9TR	C4000-V1	C4000-V2	C4000-12	C4000-14	C4000-LV1	C4000-LV1W	C4000-LV2	C4000-LV2W	C4000-LV3W
Part No.	C4000-9TR	C4000-V1	C4000-V2	C4000-12	C4000-14	C4000-LV1	C4000-LV1W	C4000-LV2	C4000-LV2W	C4000-LV3W
Common Description	1.5mL	1.5mL	1.5mL	2mL	2mL	350µL	350µL	350µL	350µL	200µL
Approx. Total Capacity	1.5mL	1.4mL	1.4mL	2mL	2mL	475µL	475µL	475µL	475µL	375µL
Rec. Usable Volume	1.2mL	1.0mL	1.0mL	1.5mL	1.5mL	350µL	350µL	350µL	350µL	240µL
Residual Volume	<1µL	<4µL	<4µL	<180µL	<180µL	<2µL	<2µL	<2µL	<2µL	<1µL
Composition	Glass	Glass	Amber	Amber PP	Clear PP	Glass	Glass	Amber	Amber	Glass

Target DP Microvolume Inserts

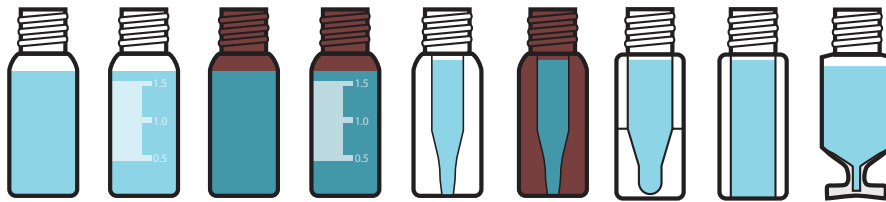
*Drawing is valid for: C4011-1B, C4011-1G, C4011-1R, C4011-1Y

Images shown are 80% to scale



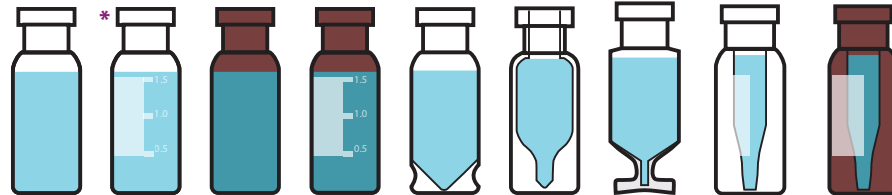
Part No.	C4010-630	C4010-630P	C4010-627L	C4010-629L	C4011-631	C4011-631P	C4010-629	C4010-629P
Dimensions	6x29mm	6x30mm	6x31mm	6x31mm	6x31mm	6x31mm	6x29mm	6x30mm
Common Description	300µL	300µL	350µL	350µL	400µL	300µL	300µL	300µL
Approx. Total Capacity	375µL	325µL	400µL	400µL	500µL	500µL	375µL	325µL
Rec. Usable Volume	300µL	250µL	350µL	350µL	400µL	400µL	300µL	250µL
Residual Volume	<1µL	<2µL	<4µL	<2µL	<25µL	<25µL	<4µL	<2µL
Composition	Glass	Polypro	Glass	Glass	Glass	Polypro	Glass	Polypro

10mm Wide Opening Screw Thread Vials – 12x32mm



Part No.	C4010-1	C4010-1W	C4010-2	C4010-2W	C4010-LV1	C4010-LV2	C4010-11	C4010-14	C4010-V1
Common Description	2mL	2mL	2mL	2mL	350µL	350µL	250µL	700µL	1.5mL
Approx. Total Capacity	2mL	2mL	2mL	2mL	450µL	450µL	600µL	750µL	1.5mL
Rec. Usable Volume	1.5mL	1.5mL	1.5mL	1.5mL	350µL	350µL	400µL	550µL	1.1mL
Residual Volume	<170µL	<170µL	<170µL	<170µL	<2µL	<2µL	<4µL	<70µL	<4mL
Composition	Glass	Glass	Amber	Amber	Glass	Amber	Polypro	Polypro	Glass

11mm Wide Opening Crimp Top Vials



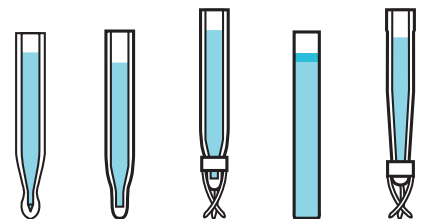
Part No.	C4011-1	C4011-1W	C4011-2	C4011-2W	C4011-9	C4011-10	C4011-V1	C4011-LV1W	C4011-LV2W
Common Description	2mL	2mL	2mL	2mL	1.5mL	400µL	1.5mL	250µL	250µL
Approx. Total Capacity	2mL	2mL	2mL	2mL	1.7mL	650µL	1.5mL	500µL	500µL
Rec. Usable Volume	1.5mL	1.5mL	1.5mL	1.5mL	1.3mL	500µL	1.1mL	350µL	350µL
Residual Volume	<170µL	<170µL	<170µL	<170µL	<4µL	<5µL	<4µL	<2µL	<2µL
Composition	Glass	Glass	Amber	Amber	Glass	Glass	Glass	Glass	Amber

11mm Standard-Opening Crimp Vials 12x32mm



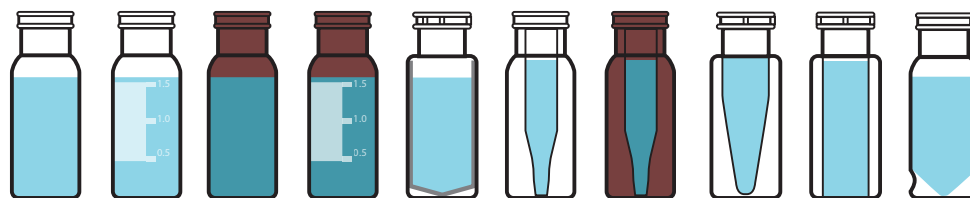
Part No.	C4012-1	C4012-1W	C4012-2	C4012-2W	C4012-10
Common Description	2mL	2mL	2mL	2mL	100µL
Approx. Total Capacity	2mL	2mL	2mL	2mL	425µL
Rec. Usable Volume	1.5mL	1.5mL	1.5mL	1.5mL	200µL
Residual Volume	<170µL	<170µL	<170µL	<170µL	<2µL
Composition	Glass	Glass	Amber	Amber	Glass

Standard Microvolume Inserts



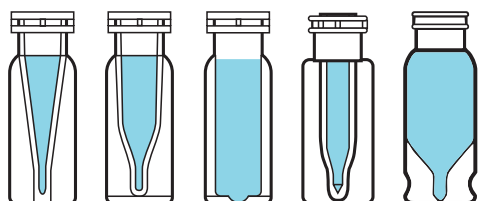
Part No.	C4012-529	C4012-529L	C4012-530	C4012-465	C4012-530P
Dimensions	5x29mm	5x31mm	5x29mm	5x31mm	5x30mm
Common Description	150µL	150µL	150µL	200µL	125µL
Approx. Total Capacity	200µL	200µL	200µL	250µL	175µL
Rec. Usable Volume	175µL	170µL	170µL	200µL	150µL
Residual Volume	<3µL	<2µL	<1µL	<12µL	<2µL
Composition	Glass	Glass	Glass	Glass	Polypro

11mm Snap-It-Vials – 12x32mm



	C4011-5	C4011-5W	C4011-6	C4011-6W	C4011-24	C4011-LV1	C4011-LV2	C4011-11	C4011-14	C4011-4
Part No.	C4011-5	C4011-5W	C4011-6	C4011-6W	C4011-24	C4011-LV1	C4011-LV2	C4011-11	C4011-14	C4011-4
Common Description	2mL	2mL	2mL	2mL	700µL	350µL	350µL	800µL	3700µL	1.5mL
Approx. Total Capacity	2mL	2mL	2mL	2mL	1000µL	500µL	500µL	800µL	1000µL	1.7mL
Rec. Usable Volume	1.5mL	1.5mL	1.5mL	1.5mL	750µL	350µL	350µL	600µL	800µL	1.3mL
Residual Volume	<170µL	<170µL	<170µL	<170µL	<8µL	<2µL	<2µL	<6µL	<80µL	<4µL
Composition	Glass	Glass	Amber	Amber	TPX	Glass	Amber	Polypro	Polypro	Glass

11mm Snap-It-Vials – 12x32mm



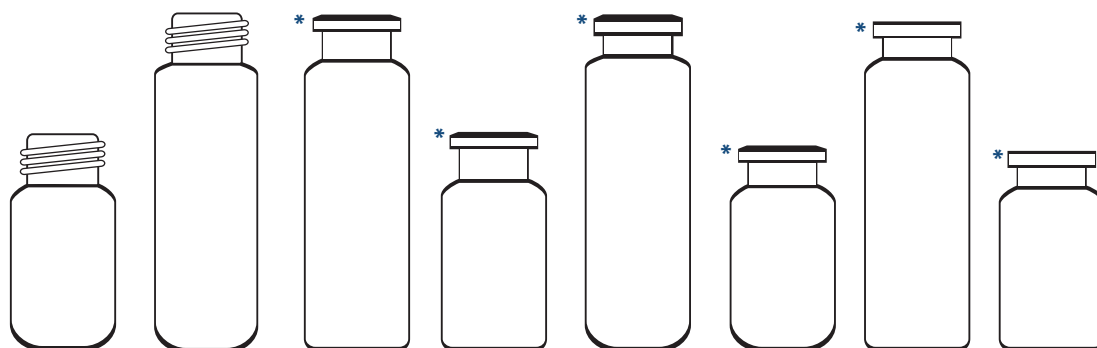
	C4011-13	C4011-16	C4011-15	C4012-15	C4011-9TR
Part No.	C4011-13	C4011-16	C4011-15	C4012-15	C4011-9TR
Common Description	250µL	600µL	850µL	250µL	1.5mL
Approx. Total Capacity	475µL	600µL	825µL	475µL	1.5mL
Rec. Usable Volume	300µL	400µL	650µL	350µL	1.2mL
Residual Volume	<2µL	<4µL	<8µL	<4µL	<1µL
Composition	Polypro	Polypro	Polypro	Glastic	Glass

Headspace Vials



	C4020-6	C4020-60	C4020-27
Part No.	C4020-6	C4020-60	C4020-27
Common Description	6mL	6mL	27mL
Approx. Total Capacity	9mL	9mL	27mL
Composition	Glass	Glass	Glass

Headspace Vials

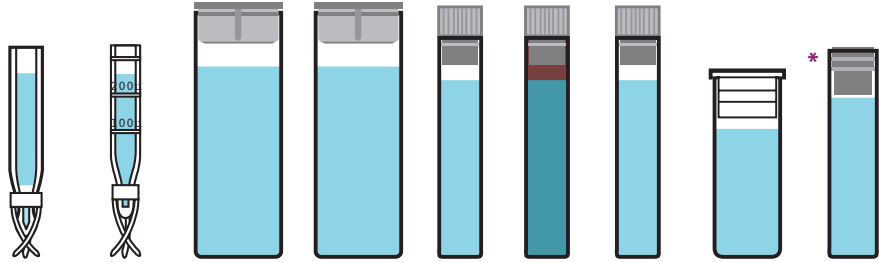


	C4020-180	C4020-18	C4020-20	C4020-10	C4020-2	C4020-210	C4020-25	C4020-410
Part No.	C4020-180	C4020-18	C4020-20	C4020-10	C4020-2	C4020-210	C4020-25	C4020-410
Common Description	10mL	20mL	20mL	10mL	20mL	10mL	20mL	10mL
Approx. Total Capacity	12mL	21mL	21.5mL	12.5mL	21.5mL	12.5mL	21.5mL	12.5mL
Composition	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass

Images shown are 80% to scale

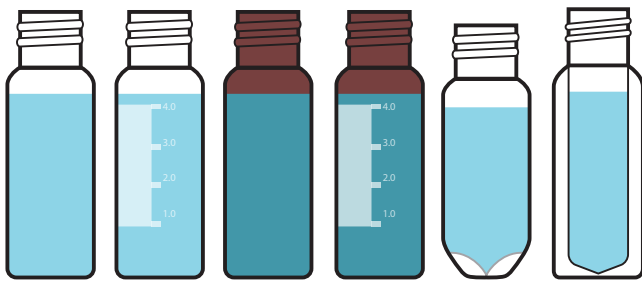
* 60% to scale

Shell Vials and Inserts



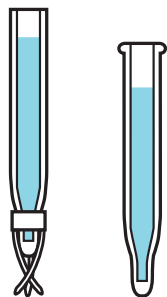
Part No.	C4015-96A	C4015-96PA	C4015-48	C4015-47P	C4015-96	C4015-99	C4015-95P	C4011-80	C4008-50
Dimensions	5x34mm	5x29mm	—	—	—	—	—	—	8x35mm
Common Description	250µL	275µL	4mL	4mL	1mL	1mL	1mL	2mL	1mL
Approx. Total Capacity	375µL	375µL	5.5mL	5.5mL	1.25mL	1.25mL	1.25mL	2.4mL	1mL
Rec. Usable Volume	210µL	250µL	4mL	4mL	1mL	1mL	1mL	1.8mL	850µL
Residual Volume	<3µL	<3µL	<800µL	<800µL	<80µL	<80µL	<80µL	<200µL	—
Composition	Glass	PolyPro	Glass	Polypro	Glass	Amber	PolyPro	Glass	Glass

15x45mm Screw Thread Vials



Part No.	C4015-1	C4015-11W	C4015-2	C4015-2W	C4015-9	C4015-14
Common Description	4mL	4mL	4mL	4mL	3.5mL	2.5mL
Approx. Total Capacity	5.2mL	5.2mL	5.2mL	5.2mL	4.5mL	2.5mL
Rec. Usable Volume	4mL	4mL	4mL	4mL	3.5mL	2mL
Residual Volume	<800µL	<800µL	<800µL	<800µL	<15µL	<15µL
Composition	Glass	Glass	Amber	Amber	Glass	Polypro

Microvolume Inserts for 15x45mm 4mL Vials



Part No.	C4015-638	C4015-643
Dimensions	6x38mm	6x42mm
Common Description	700µL	500µL
Approx. Total Capacity	950µL	375µL
Rec. Usable Volume	800µL	300µL
Residual Volume	<9µL	<8µL
Composition	Glass	Glass

Images shown are 80% to scale
 * 50% to scale
 * Positive Displacement Vial for Alcott 708

Chromacol Vials and Closures

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

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%
Clear Borosilicate-GOLD Grade	80.6%	13%	2.3%	–	–	4%	–	–

For autosampler compatibility visit www.thermoscientific.com/chromexpert



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 reusable 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
- Thermo Scientific™ Chromacol 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 8mm crimp and snap caps



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	1.2-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

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
PTFE Vial Support Sleeve for 7x32mm vials, fits most autosamplers	PTFE	No	12x32	Flat Bottom	–	–	–	WS-5	40

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. Use WS-5 for 06-CTV(A) and 08-CRV(A).

Chromacol 8mm Crimp Top 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

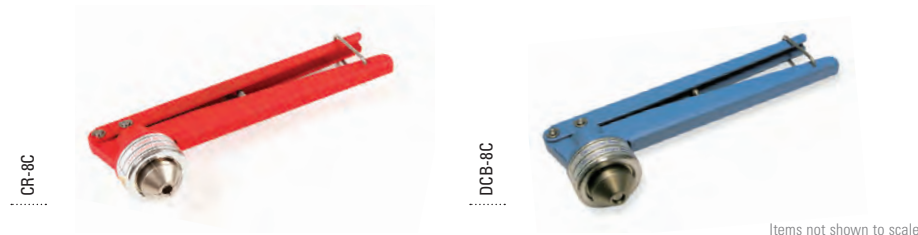


Chromacol 8mm Crimp Top Closures

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
	8mm Snap Cap, Thinned penetration area	Clear	Polyethylene	Integral Molded In Polyethylene	–	–	8-PEC1
Clear		Polyethylene	Integral Molded In Polyethylene, Pre-cut	–	–	8-PEC1X	1000

Chromacol 8mm Crimping and Decrimping Tools

- Crimping tools provide a reproducible secure closure
- High quality construction for durability and long life
- Fine textured surface (powder coated) for a better grip and corrosion resistance



Chromacol 8mm Crimping and Decrimping Tools

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

For electronic crimpers and decrimpers look on page **2-092**

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 superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- 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 visit

www.thermoscientific.com/chromexpert



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

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (mL)	Usable Volume (mL)	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 0.3mL Vial	Polypropylene	No	12x32	Insert Vial	0.3	250µL	<3	03-PPSV	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

Chromacol 8-425 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	45	1.3	8-ST15	500
	–	–	Blue Silicone/PTFE	50	1.2	8-ST14	500
	–	–	Blue Silicone/PTFE, Pre-slitted	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	45	1.3	8-SC-ST15	500

Chromacol Standard Opening Screw Thread Vial Convenience and Instrument Select (IS) Kits

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



Convenience Kits

Items not shown to scale

Chromacol Standard Opening Screw Thread Vial Convenience and Instrument Select (IS) 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
IS 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
IS Kit, Standard Opening Screw Vial for Thermo Scientific LC Autosamplers	Clear	Yes	Black	White Silicone/Red PTFE	2-SV	8-SC-ST15	TSL	100

Trying to decide what septum is right for you?



Use our selection guide at www.thermoscientific.com/chromexpert

Chromacol 9mm Wide Opening Screw Thread Vials and Inserts

- SureStop 9mm vials as part of the Advanced Vial Closure System (AVCS)* offer the sealing and performance characteristics of a crimp top vial and remove any subjectivity in achieving optimal seal compression closing a vial by incorporating a definite stop point into the design of the vial finish. See pages **2-005** to **2-006**
- SureStop 9mm vials should be used with AVCS 9-SCK closures in order to get the best possible performance
- 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 superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts

Compatible with:

Most HPLC and GC autosamplers
For autosampler compatibility visit
www.thermoscientific.com/chromexpert



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 SureStop Screw Thread Vial (AVCS) – GOLD Grade Glass	Clear	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	2-SVWVGK	100
9mm SureStop Screw Thread Vial (AVCS)	Amber	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	2-SVWK(A)	100
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-UHRSV	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

* For information about AVCS see page **2-005**

Chromacol 9mm Screw Thread Closures

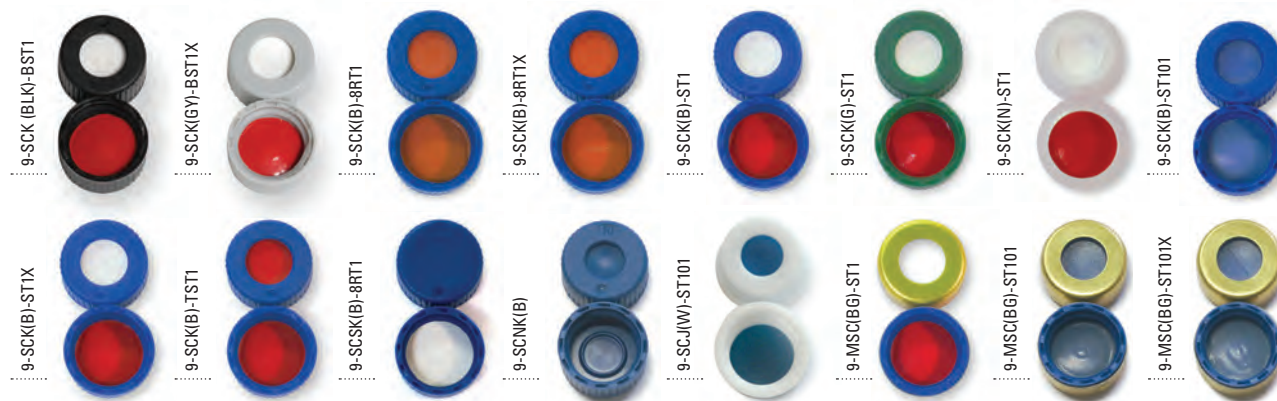


K-Series closures featuring AVCS technology (Advanced Vial Closure System)

- Septa push through virtually eliminated due to improved interior geometry
- Improved sealing capability
- Improved autosampler compatibility
- AVCS provides the freedom to select the best septum for your instrument and applications
- Cost efficient alternative to caps with bonded septa
- Optimized ergonomics, fine texturing and evenly spaced ribbing for superior handling

Further features are:

- 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
- Special caps for magnetic transport autosamplers
- Flanged caps suitable for Shimadzu, Hitachi and Tosoh instruments



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-SCK (BLK)-BST1	500
	Gray	Polypropylene	Bonded Red PTFE/White Silicone, Pre-slit	45	1.2	9-SCK (GY)-BST1X	500
9mm Open Top Short Screw AVCS Cap, 6mm hole	Blue	Polypropylene	Red Rubber/Clear PTFE	58	1.0	9-SCK (B)-8RT1	500
	Blue	Polypropylene	Red 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 AVCS Cap	Blue	Polypropylene	Red Natural Rubber/Beige PTFE	58	1.0	9-SCSK (B)-8RT1	500
9mm Short Screw AVCS Cap with Integral PP-Membrane	Blue	Polypropylene				9-SCNK (B)	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 AVCS Cap, 6mm hole, magnetic	Blue/Gold	PP/Steel	White Silicone/Red PTFE	57	1.0	9-MSC (BG)-ST1	100
	Blue/Gold	PP/Steel	Soft septum, Blue Silicone/PTFE	30	1.0	9-MSC (BG)-ST101	100
	Blue/Gold	PP/Steel	Soft septum, Blue Silicone/PTFE, Pre-slit	30	1.0	9-MSC (BG)-ST101X	100

Chromacol 9mm Wide Opening Convenience and Instrument Select (IS) Kits

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



2-SVWGK8-CPK

Chromacol 9mm Wide Opening Screw Thread Vial Convenience and Instrument Select (IS) Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat. No.	Cap Cat. No.	Cat. No.	Pack of
SureStop Convenience Kit, GOLD Grade	Clear	Yes	Blue	Red Natural Rubber/Clear PTFE	2-SVWGK	9-SCK(B)-8RT1	2-SVWGK8-CPK	100
	Clear	Yes	Blue	White Silicone/Red PTFE	2-SVWGK	9-SCK(B)-ST1	2-SVWGKST-CPK	100
SureStop Convenience Kit	Amber	Yes	Blue	Red Natural Rubber/Clear PTFE	2-SVWK(A)	9-SCK(B)-8RT1	2-SVWK(A)8-CPK	100
	Amber	Yes	Blue	White Silicone/Red PTFE	2-SVWK(A)	9-SCK(B)-ST1	2-SVWK(A)ST-CPK	100
SureStop IS Kit, GOLD Grade, for Thermo GC Autosampler	Clear	Yes	Blue	Blue Silicone/PTFE	2-SVWGK	9-SCK(B)-ST101	TTRGKK	100
AVCS Convenience Kit	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
AVCS IS Kit, for Agilent LC Autosampler	Clear	Yes	Blue	Red Natural Rubber/Clear PTFE	2-SVW	9-SCK(B)-8RT1	HPLSK	100
AVCS IS Kit, for Thermo GC Autosampler	Clear	Yes	Blue	Blue Silicone/PTFE	2-SVW	9-SCK(B)-ST101	TTRK	100
AVCS Convenience Kit, for Varian GC Autosampler	Clear	Yes	Blue	White Silicone/Red PTFE	2-SVW	9-SCK(B)-ST1	VAGK	100
AVCS IS Kit, for Varian LC Autosampler	Clear	Yes	Blue	White Silicone/Red PTFE	2-SVW	9-SCK(B)-ST1	VALK	100
AVCS IS Kit, for Waters Alliance® LC Autosampler	Clear	Yes	Blue	White Silicone/Red PTFE	2-SVW	9-SCK(B)-ST1	WALK	100
AVCS IS Kit, for PerkinElmer LC Autosampler	Clear	Yes	Green	White Silicone/Red PTFE, Pre-slit	2-SVW	9-SCK(G)-ST1X	PELK	100
AVCS IS Kit, for Waters Alliance LC Autosampler	Clear	Yes	Black	Bonded Red PTFE/White Silicone	2-SVW	9-SCK(BLK)-BST1	WALBK	100
Convenience Kit	Clear	Yes	Gray	Bonded Red PTFE/White Silicone, Pre-slit	2-SVW	9-SCK(GY)-BST1X	2-SVWBSTX-CPK	100
	Amber	Yes	Gray	Bonded Red PTFE/White Silicone, Pre-slit	2-SVW(A)	9-SCK(GY)-BST1X	2-SVW(A)BSTX-CPK	100

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

- Thermo Scientific Chromacol GOLD glass quality, a low expansion high purity glass with an extremely low concentration of active sites
- Manufactured from superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- 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

Compatible with:

Most HPLC and GC autosamplers
For autosampler compatibility visit
www.thermoscientific.com/chromexpert



Chromacol 2mL, 12x32mm, 11mm 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	2.0mL	<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, 11mm 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
	Clear	No	12x32	Insert Vial	0.9mL	830µL	<3	09-FIV	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, 11mm 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
- First crimp cap with assembled aluminum liner for interference free analysis of Elastomers, Polymers, Phthalates, Halogenated compounds and Silicones
- First crimp cap with tight PTFE sealing disk due to additional silicone ring



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 hole	Silver	Aluminum	Solid Aluminum Disk with Silicone sealing ring		0.06	11-AC-AL	100
11mm Crimp Cap, 6mm center hole	Silver	Aluminum	–	–	–	11-ACB	500
11mm Crimp Cap, 6mm center hole, Type 6 Rubber/PTFE	Silver	Aluminum	Red Chlorobutyl Rubber/Clear PTFE,	40	1.0	11-AC6	500
	Red	Aluminum	Sulphur free	40	1.0	11-AC6(R)	500
11mm Crimp Cap, 6mm center 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 center 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" with clear Silicone sealing ring	53	0.25	11-ACTS	1000
	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	White Silicone/Red PTFE	57	1.3	11-MC-ST15	500
11mm Crimp Cap, magnetic, Type 8 Rubber/PTFE	Silver	Steel	Red Natural Rubber/Clear PTFE	38	1.0	11-MC-8RT1	500
11mm Crimp Cap, magnetic	Silver	Steel	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 (IS) Kits

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



Items not shown to scale

Chromacol 11mm Crimp Top Convenience and Instrument Select (IS) 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
IS 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
IS 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
IS 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
IS 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
IS Kit, Wide Opening Crimp Top Vial for Shimadzu LC Autosampler	Clear	Yes	Silver	Blue Silicone/PTFE	2-CV	11-AC-ST101	SHG	100
IS Kit, Wide Opening Crimp Top Vial for Thermo Scientific GC Autosamplers	Clear	Yes	Silver	Blue Silicone/Red PTFE	2-CV	11-AC(N)-ST144	TQG	100
IS 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 11mm Crimping and Decrimping Tools

- 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
- Fine textured surface (powder coated) for a better grip and corrosion resistance



Chromacol 11mm Crimpers and Decrimpers

Description	Use	Cat. No.	Pack of
Manual Crimper	Attaches 11mm aluminum crimp seals	CR-11C	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-11C	1

For electronic crimpers and decrimpers look on page **2-092**

Chromacol 2mL, 12x32mm, 11mm Snap Cap Vials

- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- Available with a graduated, write-on patch for convenient sample identification
- Wide neck opening design, allows easy filling; requires Micro-Inserts with 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 visit
www.thermoscientific.com/chromexpert



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

* For information about silanized products visit www.thermoscientific.com/chromexpert

Chromacol 11mm Snap Closures

- New design of locking tabs provides easier application and removal of caps
- Enlarged open area allows for needle penetration across the entire vial opening
- Textured outer surface for easier gripping and improved detection by autosamplers with optical vial sensors
- Easy to apply and easy to remove from Snap vials without tools
- Pre-assembled caps and septa are convenient and minimize contamination from handling
- Snap caps eliminate the need for crimping or de-crimping tools
- Polyethylene caps are chemically inert and suitable for most chromatography applications
- Closures are shipped in sealed polybags to prevent contamination during transport
- Integral Molded Polyethylene cap is an economical choice for routine HPLC applications, but with low sealing properties and zero resealing capacity



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
	Blue	Polyethylene	White Virgin PTFE, 0.01"	53	0.3	11-PSN(B)-T02	500

Chromacol 11mm Snap Cap Wide Opening Vial Convenience Kits

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



Chromacol 11mm Snap Cap Wide Opening Vial Convenience 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

- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- 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:

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

For autosampler compatibility visit www.thermoscientific.com/chromexpert

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

Chromacol 13mm Screw Vials, 13-425 Thread Finish

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	15.25x46	High Recovery	3.5	3.0	<12	3.5-HRSV	250

Chromacol 13-425 Thread Caps and Septa

- 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 Cap, 13-425 thread	Black	Polypropylene	–	–	–	12-SCS	500
PTFE Lined Solid Top Storage Cap for 13-425 Thread	White	Urea	PTFE/PE Foam 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	White Silicone/Red PTFE	57	2.0	12-SC-ST2	500

Chromacol Shell/Neckless Vials

- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber
- Polyethylene cap with starburst center design eases syringe needle penetration
- Convenience kits include equal quantities of vials and caps

Recommended for the following instruments:

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

For autosampler compatibility visit www.thermoscientific.com/chromexpert



Chromacol Shell/Neckless Vials

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

Trying to decide what glass quality is right for you?

Use our selection guide at www.thermoscientific.com/chromexpert

Chromacol Headspace Vials

Glass vials with 20mm crimp seal or 18mm screw thread finish are designed to fit most headspace autosamplers

- Superior quality 1st hydrolytic class glass (Type 1) in clear and amber, 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	23x75	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	22.5x46	Beveled Edge	Round Bottom	12	10	10-CV	125
	Amber	No	22.5x46	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 20mm 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
- Fine textured surface (powder coated) for a better grip and corrosion resistance



Items not shown to scale

Chromacol 20mm Crimping and Decrimping Tools

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

For electronic crimpers and decrimpers look on page **2-092**

Chromacol Headspace Caps and Septa

- Use magnetic seals with PAL/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
- Extended temperature range products for high-temperature headspace applications



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, 9mm hole	Silver	Aluminum	–	–	–	20-ACB	500
20mm Magnetic Crimp Cap, 6mm hole	Silver	Tinplate	–	–	–	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 Bromobutyl Stopper	55	3.0	20-B3P	500
	–	–	20mm Gray Butyl Freezer Bung	55	3.0	20-2FB3	2000
	–	–	20mm Molded Gray Chlorobutyl	52	3.0	20-CB3	1000
	–	–	20mm Molded Gray Bromobutyl/Gray PTFE	52	3.0	20-CBT3	1000
	–	–	20mm Molded Black Bromobutyl/Gray PTFE, Bellows Type	52	3.0	20-CBT3B	1000
	–	–	20mm Red Silicone/Aluminum Face Seal 3mm Thick, for >170°C.	45	3.0	20-ASH3	100
	–	–	20mm White Silicone/Aluminum Face Seal 3mm Thick, for <170°C.	45	3.0	20-AS3	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	3.1	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



Chromacol Headspace Caps and Septa (Continued)

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
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 Molded Gray Chlorobutyl	52	3.0	20-MCBC(R)-CBT3	500
	Red	Alu/Tinplate	20mm Blue Silicone/Natural PTFE	45	3.0	20-MCBC(R)-ST3	500
20mm Magnetic Tinplate Crimp Cap	Silver	Tinplate	20mm Blue Silicone/Natural PTFE	45	3.0	20-MCB-ST3	500
20mm Crimp Cap, 9mm hole	Silver	Aluminum	20mm Molded Gray/Bromobutyl/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	2.0	18-MSC-ST201	125
20mm Plug	Natural	Polyethylene	PE Membrane	–	–	20-PEPC5	250
20mm Composite Magnetic Crimp Cap, 8mm hole	Natural	Alu/Tinplate	20mm Red Silicone/Natural PTFE, high temperature (250°C)	45	3.1	20-MCBC(N)-ST3HT	500
20mm Magnetic Tinplate Crimp Cap	Silver	Tinplate	20mm Red Silicone/Natural PTFE, high temperature (300°C)	45	3.1	20-MCB-ST3HT	500
18mm Magnetic Screw Cap, 8mm hole	Silver	Steel	18mm Red Silicone/Natural PTFE, high temperature (250°C)	45	3.1	18-MSC-ST3HT	125

Chromacol Headspace Vial Convenience Kits

- Include matched quantities of vials and seals with pre-assembled septa for added convenience during sample preparation
- Convenience kits save time during sample preparation



Items not shown to scale

Chromacol Headspace Vial Convenience 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-MS- ST201	20-HSVST201-CP	125
Convenience Kit, 20mL Headspace Crimp Vial, Beveled Edge, Round Bottom, Al 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, Al 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 1st hydrolytic class glass (Type 1) in clear and amber
- 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 Thread 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
15-425 Screw Vial	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



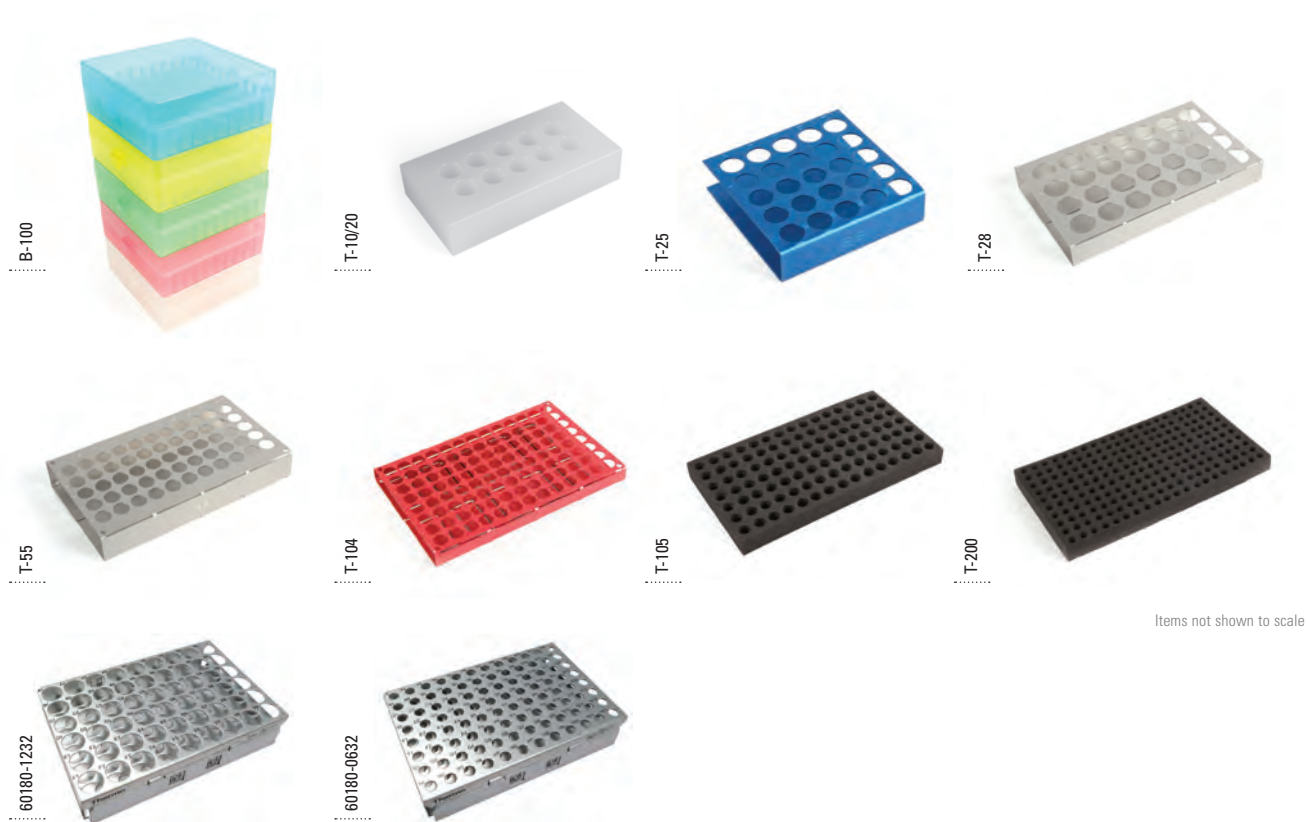
Caps and Septa images 50% to scale

Chromacol Sample Storage Screw Thread Caps and Septa

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

Chromacol Vial Racks and Storage Boxes

- For a safe working position on the lab bench and during transport
- Ideal for space-saving storage in fridges
- Temperature resistant from -90°C to 121°C (except Foam)
- Chemically resistant and fairly robust; autoclavable (except Foam)



Items not shown to scale

Chromacol Vial Racks and Storage Boxes

Description	Color	Material	Dimension (mm)	No of Vials	OD of Vials (mm)	Stackable	Cat. No.	Pack of
Autoclavable freezer and storage box with lid, alphanumeric grid, -90°C to 121°C	5 assorted colors (red, yellow, blue, green, natural)	Polypropylene	155x140x5.5	100	12	Yes	B-100	5
Vial Tray	White	Polypropylene	195x103	10	22	No	T-10/20	1
Sci-Rack	Blue	Anodised Aluminum	85x85	25	12	No	T-25	1
	Silver	Anodised Aluminum	210x134	28	22	No	T-28	5
	Silver	Anodised Aluminum	210x134	55	15	Yes	T-55	5
	Red	Anodised Aluminum	210x134	104	12	Yes	T-104	5
Vial Tray	Black	Foam	210x134	105	12	No	T-105	5
	Black	Foam	210x134	200	8	No	T-200	5
SBS/ANSI standard footprint Vial Rack	Silver	Anodised Aluminum	127,8x85,5	54	12	No	60180-1232	1
	Silver	Anodised Aluminum	127,8x85,5	96	6	No	60180-0632	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"
- 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

- 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

Chromacol EPA Screw Vial Kits

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

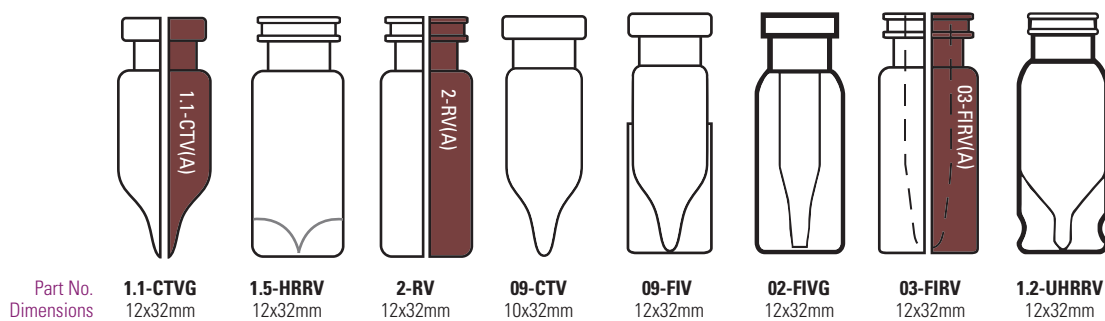
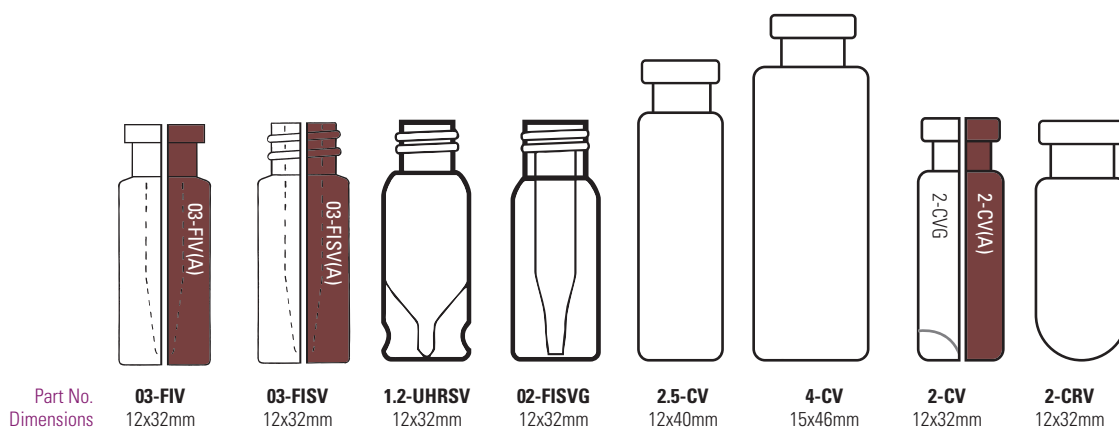
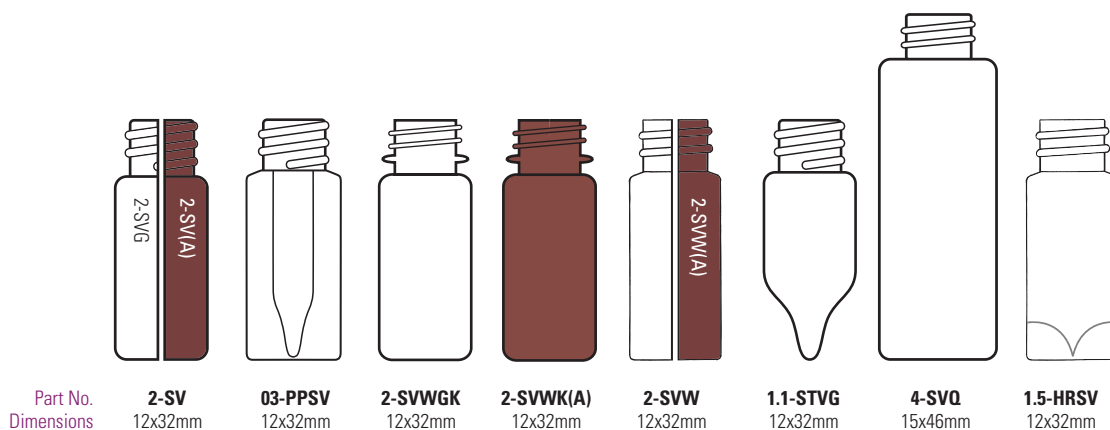
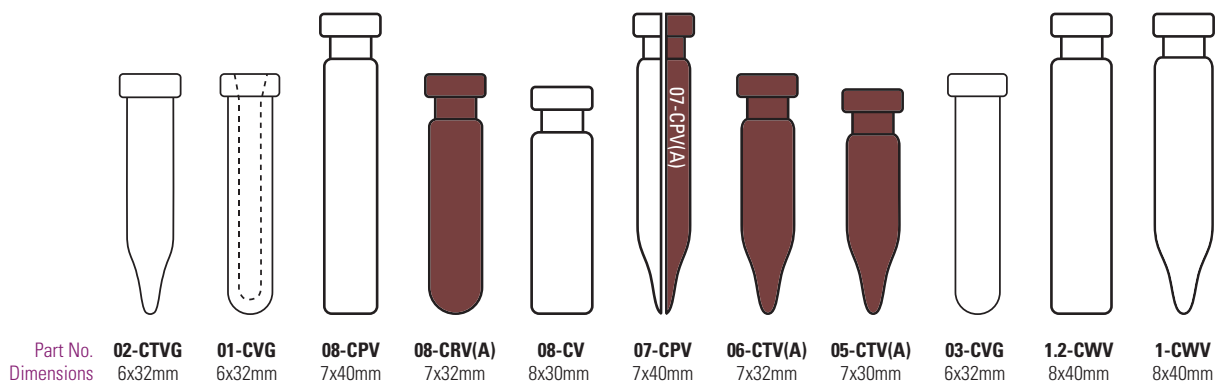
Chromacol TOC Vial Kits (Assembled)

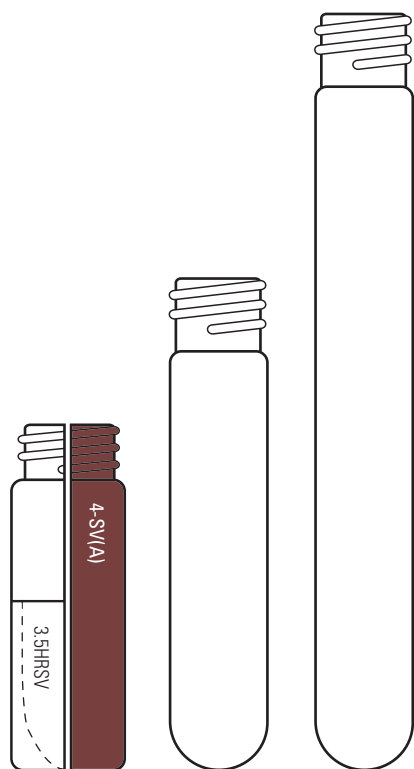
Description	Glass	Dimension (mm)	Total Volume (mL)	Cap Color	Cap Material	Septum	Cat. No.	Pack of
TOC clear vial with bonded cap cover, open top cap TOC 10ppb	Clear	28x96	40	White	Polypropylene	Beige PTFE/ White Silicone	40-TOCSV-10	72
TOC clear vial with cap bonded cover, open top cap TOC 20ppb	Clear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

Chromacol Scintillation Vial Kit

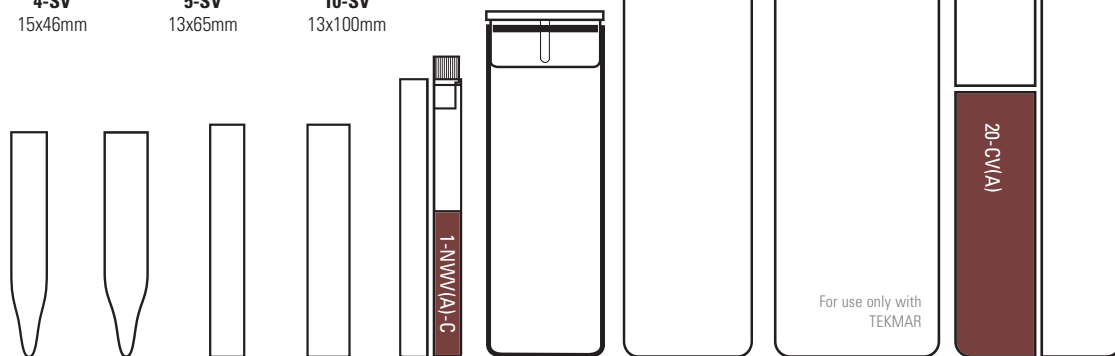
Description	Glass	Dimension (mm)	Total Volume (mL)	Noise	Background Count	Quenching Index Factor	Cat. No.	Pack of
20mL vial with foil lined caps	Clear	27x57	20	2.28	13 CPM	349	20-EPSVCA	500

Chromacol Vial Comparison Chart





Part No. Dimensions
4-SV 15x46mm
5-SV 13x65mm
10-SV 13x100mm



Part No. Dimensions
02-MTV 5x30mm
02-MTVWG 6x30mm
02-NV 5x31mm
03-NV 6x31mm
1-NWV 8x40mm
4-NWV-C 15x46mm
12-CV 18x65mm
22-CV 22x75mm
20-CV/20-HSV 22x75mm



Part No. Dimensions
9-CV 18x50mm
6-CV 22x38mm
20-EPSVCA 27x57mm
27-CV 30x60mm
10-CV/10-HSV 22x45mm

Chromacol Caps and Septa Comparison Chart

Part No. Dimensions	 *8-AC6 8x5mm	 8-AC7 8x5mm	 8-ACB 8x5mm	 8-AC-CBT1 8x5mm	 8-AC-ST15 8x5mm	 8-AC-ST101 8x5mm	 8-AC-ST101X 8x5mm	 8-AC(B)-ST144 8x5mm	
Part No. Dimensions	 8-ACT 8x5mm	 8-AC-TST1 8x5mm	 8-PEC1 8x5mm	 8-PEC1X 8x5mm	 *8-SC 8x9mm	 *8-SCJ 8x9mm	 8-SC-8RT1 8x9mm	 8-SC-ST15 8x9mm	
Part No. Dimensions	 8-ST14 8x1.4mm	 8-ST14X 8x1.4mm	 8-ST143 8x1.5mm	 8-ST144 8x1.4mm	 8-6RT1 8x1mm	 8-ST101 8x1mm	 8-T02 8x0.25mm	 8-TST1 8x1mm	 8-ST15 8x1.5mm
Part No. Dimensions	 9-MS(BG)-ST1 9x6.5mm	 *9-SCK(B)-8RT1 9x6.5mm	 9-SCK(B)-ST101 9x6.5mm	 *9-SCK(B)-ST1 9x6.5mm	 9-SCK(B)-TST1 9x6.5mm	 9-SCSK-8RT1 9x6.5mm	 9-SCJ(W)-ST101 12.9x7.9mm	 *11-AC6 11x6mm	
Part No. Dimensions	 *11-AC7 11x6mm	 11-ACB 11x6mm	 11-AC-CBT1 11x6mm	 11-AC-ST101 11x6mm	 11-AC-ST101X 11x6mm	 11-AC(B)-ST144 11x6mm	 11-AC-ST15 11x6mm	 11-ACT 11x6mm	
Part No. Dimensions	 11-AC-TST1 11x6mm	 11-LLX 11x3mm	 11-PEC1 11x6mm	 11-PEC1X 11x6mm	 11-PEC-ST1 11x7mm	 11-MC-ST15	 11-MC-8RT1	 11-MC-ST101	

* 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)






8-SCJ

-  8-SCJ(W)


9-SCK(B)-8RT1

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


9-SCK(B)-ST1












































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

11-AC6

-  11-AC6(R)

11-AC7

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

Part No. Dimensions	 11-PSN(B) 11x6.5mm	 11-PSN(B)-ST101 11x6.5mm	 *11-PSN(B)-T02 11x6.5mm	 11-PSN(B)-TST1 11x6.5mm	 11-PSN(B)-8RT1 11x6.5mm	 *11-PSN(B)-ST1X 11x6.5mm	 11-PSN(B)-ST1 11x6.5mm
Part No. Dimensions	 *12-SC 12x10mm	 12-SCS 12x10mm	 12-SC-ST2 12x10mm	 12-SC-8RT1 12x10mm	 13-SC-ST15 12x10mm	 13-SCST 12x10mm	
Part No. Dimensions	 12-ST2 12x2mm	 12-ST18 12x1.8mm	 12-6RT1 12x1mm	 12-ST101 12x1mm	 12-T02 12x0.25mm	 8-NPWP 8x9mm	 12-NPEP4 12x7mm
Part No. Dimensions	 18-MSC 18x13mm	 18-MSC-CBT3 18x13mm	 18-MSC-ST201 18x13mm	 20-ACB 20x7mm	 20-MCB 20x7mm	 *20-MCBC 20x7mm	
Part No. Dimensions	 20-MCBC(R)-CBT3	 *20-MCBC-ST3 20x7mm	 20-AC-CBT3 20x7mm	 20-AC-ST3 20x7mm	 20-CB3 20x3mm	 20-CBT3 20x3mm	
Part No. Dimensions	 20-CBT3B 20x3mm	 20-ASH3 20x1.5mm	 20-LLX 20x3mm	 20-ST3 20x3mm	 20-ST3HT 20x3.1mm	 20-ST15 20x1.5mm	
Part No. Dimensions	 20-ST101 20x1mm	 18-ST101 18x1mm	 20-B3P 20x9mm	 20-2FB3 20x13.4mm	 20-PEPC5 20x10mm		

* 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)

20-MCBC

■ 20-MCBC(R)

20-MCBC-ST3

■ 20-MCBC(R)-ST3

□ 20-MCBC(N)-ST3

Crimping and Decrimping Tools

Electronic crimpers and decrimpers provide an adjustable crimp with reproducible results.

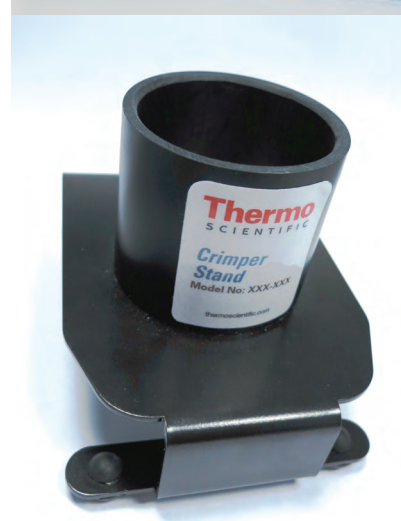
We offer electronic crimpers for crimping or removal of aluminum seals on 8, 11, 13 and 20mm vials. The crimper is a hand held device, which allows aluminum seals to be firmly attached to the vial while it remains in most sample trays with the touch of a button. A separate decrimper allows the removal 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 Decrimpers

- 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 Crimpers and Decrimpers

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 Decrimper for 11mm Crimp Caps, Generation 3	EDCB-11C	1
Electronic Hand-held Decrimper for 13mm Crimp Caps, Generation 3	EDCB-13C	1
Electronic Hand-held Decrimper for 20mm Crimp Caps, Generation 3	EDCB-20C	1
Replacement Battery, 6.4V Lithium Ion, For Generation 3 Electronic Crimpers and Decrimper	ECR-CBATT	1
Table/Wall Holder for Electronic Hand-held Crimper	ECR-HOLDER	1



Programmable Electronic High Power Crimp Station

Fully programmable with quick exchange crimp and decrimp heads

We now offer a new fully programmable electronic Thermo Scientific High Power Crimper (HPC) station with adjustable accessory base, external power supply and exchangeable jaw sets for crimping or decrimping of aluminum and stainless steel seals on 8, 11, 13 and 20mm diameter vials. The crimper is a bench top tool, including a versatile height adjustable stand which frees both hands for faster crimping operations. The crimper can be used on the stand or as a hand-held device. For each set of crimping or decrimping jaws up to 10 individual programs can be easily saved, in order to automatically preset the correct head-adjustment for different cap/septum/vial combinations. Special jaws are available for 13mm and 20mm flip-off seals. The crimping force is higher than on battery powered units and is not limited by battery life or charge state. Power is supplied by the included 12 volt power supply (110 – 240V) for unlimited, consistent operation, superior compared to every similar hand held device.



Product features and benefits

- Adjustable crimp settings for compatibility with most vial/septum/seal combinations including aluminum, steel and bi-metal seals
- Crimp-force sensing automatically determines when a proper seal has been formed and opens the jaws to release the vial
- Higher power, perfect for steel caps
- Exchangeable crimp and decrimp heads can be removed or installed in seconds
- For each head, a set of up to 10 adjustment programs are available and can be saved
- Fully electric operation eliminates the need for pressurized air supplies at the operation location

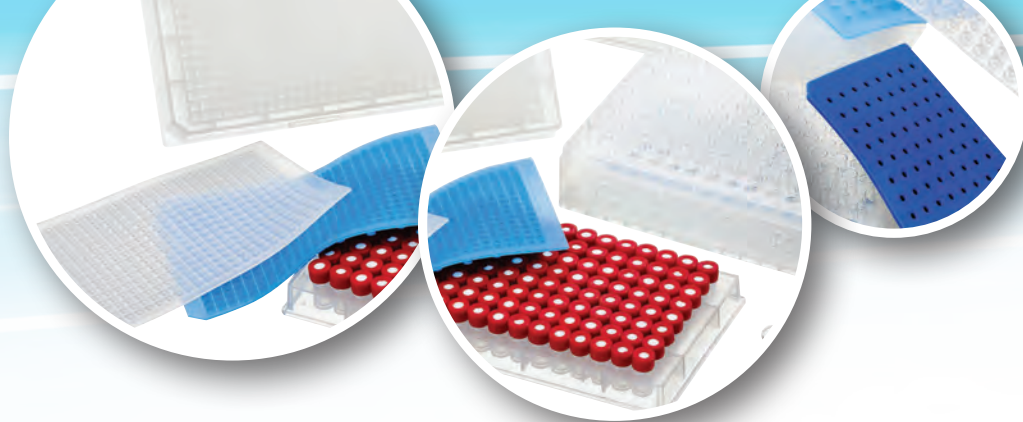
Programmable Electronic High Power Crimp Station

Description	Cat. No.	Pack of
Programmable Electronic High Power Crimper* <i>Includes the basic high power crimper and the 12 volt DC supply with the power cord. (Accessory Base is not included)</i>	ECRH-B	1
Programmable Electronic High Power Crimper 11mm Kit* <i>Includes the basic high power crimper, the 12 volt DC supply with the power cord and a set of crimp heads: 1x11mm crimp head and 1x11mm decrimp head. (Accessory Base is not included)</i>	ECRH-11KIT	1
Programmable Electronic High Power Crimper 20mm Kit* <i>Includes the basic high power crimper, the 12 volt DC supply with the power cord and a set of crimp heads: 1x20mm crimp head and 1x20mm decrimp head. (Accessory Base is not included)</i>	ECRH-20KIT	1

Replacement and Optional Parts

Description	Cat. No.	Pack of
Accessory Base for Electronic Crimpers (base plate and bar) <i>Adjustable in height, base plate is solvent resistant Dimensions: 37.6 × 25.4 × 17.7cm</i>	ECRH-STAND	1
8mm Crimper Jaw Set	ECMJ-8	1
11mm Crimper Jaw Set	ECMJ-11	1
11mm Decrimper Jaw Set	ECDJ-11	1
13mm Crimper Jaw Set	ECMJ-13	1
13mm Decrimper Jaw Set	ECDJ-13	1
13mm Flip-Off Crimper Jaw Set (for circular rim flip caps)	ECMJ-13FO	1
20mm Crimper Jaw Set	ECMJ-20	1
20mm Decrimper Jaw Set	ECDJ-20	1
20mm Flip-Off Crimper Jaw Set (for circular rim flip caps)	ECMJ-20FO	1

* Crimping jaws for other seals available on request.



Well Plates for Chromatography

A comprehensive range of PP well plates

Our plate portfolio contains well plates which meets the requirements of today's chromatographer using autosampler for plates. Compatible with a broad range of instruments, our well plate range offers solutions from simple routine analyses to specific and challenging sample handling problems.

- **Handle More Samples in Less Time**
Low volume and high recovery cavity
- **Solutions for all Applications**
Chromatography tested for solvent compatibility and inertness
- **Autosampler Compatible**
Using ANSI/SBS standards



The WebSeal web page contains the latest news, applications and downloads for the range. Visit www.thermoscientific.com/webseal

WebSeal Well Plates, Plastic, Non-Coated, Non-Sterile, Chromatography Tested

- Thermo Scientific™ WebSeal™ well plates are manufactured from a GC tested polypropylene material
- Microplates are chemically and thermally resistant and will tolerate temperatures from -80°C to $+121^{\circ}\text{C}$
- SBS and ANSI standard footprint design for broad instrument compatibility
- Microplates are ideal for pharmaceutical applications, sample collection and storage, combinatorial chemistry and HTS applications
- U- and V- bottom wells for optimal sample recovery
- Low binding PP for homogenous assays and storage



WebSeal Well Plates, Plastic, Non-Coated, Non-Sterile, Chromatography Tested

Description	Material	Total Height	Well Format	Total Volume (μL)	Working volume range $\mu\text{L}/\text{well}$	Cat. No.	Pack of
96-Well Microplate, round well	PP	14.4	V-Shape, 8mm dia	450	10-400	60180-P100	20
	PP	14.4	V-Shape, 8mm dia	450	10-400	60180-P130	120
	PP	14.5	U-Shape, 8mm dia	500	20-450	60180-P102	10
	PP	14.5	U-Shape, 8mm dia	500	20-450	60180-P132	120
96 Well Plates, round well	PP	31.6	U-Shape, 8mm dia	1300	50-1000	60180-P103	5
	PP	31.6	U-Shape, 8mm dia	1300	50-1000	60180-P133	50
	PP	44.0	U-Shape, 8mm dia	2000	50-1900	60180-P104	5
	PP	44.0	U-Shape, 8mm dia	2000	50-1900	60180-P134	60
96-Well Square Well Microplate (-196°C to +121°C)	PP	44.0	V-Shape, square	2000	50-1900	60180-P105	5
	PP	44.0	V-Shape, square	2000	50-1900	60180-P135	50
384-Shallow Well Standard Height Microplate	PP	14.4	U-Shape, square	58	2-35	60180-P106	25
	PP	14.4	U-Shape, square	58	2-35	60180-P136	100
384-Well Microplate	PP	22.0	U-Shape, square	252	5-240	60180-P107	5
	PP	22.0	U-Shape, square	252	5-240	60180-P137	60
	PP	14.4	U-Shape, square	120	10-100	60180-P108	20
	PP	14.4	U-Shape, square	120	10-100	60180-P138	120
	PP	14.4	V-Shape, square	145	4-120	60180-P109	10
	PP	14.4	V-Shape, square	145	4-120	60180-P139	80

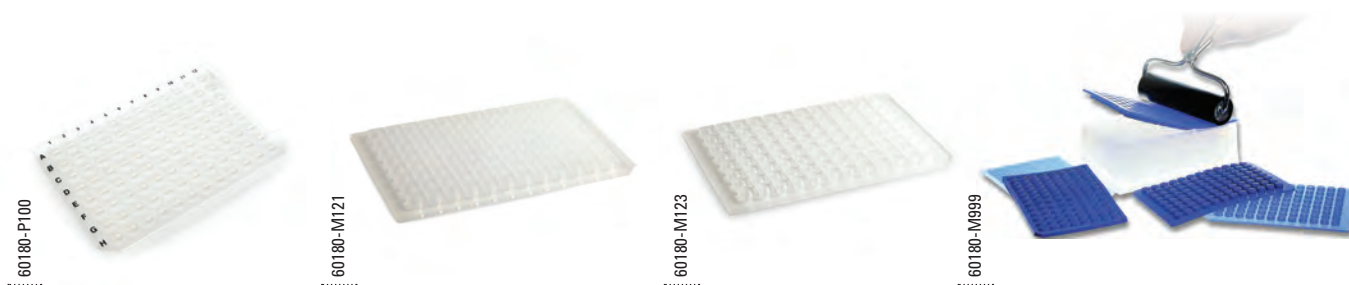
Mats and sealing tapes for these well plates can be found on the next two pages

WebSeal Mats and Sealing Tapes, Non-Sterile

- Mats manufactured of EVA (Ethylene-vinyl acetate) or pure silicone with or without PTFE coating
- The footprint permits plates to be securely stacked without robotic arm interference
- Eliminates cross contamination of samples
- Dry heat autoclavable (only Silicone mats) with excellent chemical compatibility, withstand low temperature to -80°C
- Resists coring and tearing
- Superior resealability after multiple injections
- Available pre-slit for easy penetration and reduced vacuum formation

Sealing tapes minimize evaporation and protect samples from contamination and spilling.

- Adhesive seals effectively seal all microplate formats
- Wide range of adhesive seals for every assay
- Thin, lightweight tapes seal onto the plate with a convenient, handheld applicator (available separately, Cat. No. 60180-M950)



WebSeal Mats and Sealing Tapes, Non-Sterile

Description	Color	Material	Well Design	Pre-slit	Cat. No.	Pack of
WebSeal Mats (Solvent Resistant)	Clear	Silicone	96 Round Well, 8mm Diameter	Yes	60180-M100	10
WebSeal Mats (Alcohol Resistant)	Clear	EVA	96 Round Well, 8mm Diameter	No	60180-M101	5
	Clear	EVA	96 Round Well, 8mm Diameter	No	60180-M171	50
WebSeal CLR Silicone Mat	Clear	Silicone	96 Round Well – Flat Base, 8mm Diameter, Large Penetration Area	No	60180-M134	5
	Clear	Silicone	96 Round Well – Flat Base, 8mm Diameter, Large Penetration Area	Yes	60180-M183	5
WebSeal Mats (Solvent Resistant)	Blue	Silicone/PTFE	96 Round Well – Flat Base, 8mm Diameter, Large Penetration Area	No	60180-M102	5
	Blue	Silicone/PTFE	96 Round Well – Flat Base, 8mm Diameter, Large Penetration Area	Yes	60180-M103	5
WebSeal CLR Silicone Mat	Clear	Silicone	96 Square Well – Flat Base, 8mm Diameter, Large Penetration Area	No	60180-M121	5
	Clear	Silicone	96 Square Well – Flat Base, 8mm Diameter, Large Penetration Area	Yes	60180-M123	5
WebSeal CLR Silicone Mat	Clear	Silicone	384 Square Well	No	60180-M126	5
	Clear	Silicone	384 Square Well	Yes	60180-M150	5
Sealing Tape, -40°C - 90°C	Clear	PE/Silicone	N/A	No	60180-M142	100
Sealing Tape, -70°C - 100°C	Clear	PES/Silicone	N/A	No	60180-M143	100
Sealing Tape, -80°C - 120°C	Silver	Aluminum/Silicone	N/A	No	60180-M144	100
Sealing Tape with SRA (Synthetic Rubber Adhesive)	Clear	Polyolefin/Rubber	N/A	No	60180-M145	100

Well plates for these mats and sealing tapes can be found on the previous page

WebSeal Mats and Sealing Tapes, Non-Sterile (Continued)

Description	Color	Material	Well Design	Pre-slit	Cat. No.	Quantity
Re-sealing Tape with 3 Layer No Adhesive at Cavity Area	Clear	PET/Silicone/PET	N/A	Yes	60180-M146	100 Pack
	Clear	PET/Silicone/PET	N/A	Yes	60180-M176	25 Pack
WebSeal Mats (Alcohol Resistant)	Clear	EVA	96 Square Well - Flat Base	No	60180-M177	5 Pack
	Clear	EVA	96 Square Well - Flat Base	No	60180-M178	50 Pack
Hand held Sealing Tape Applicator	Gold	N/A	N/A	N/A	60180-M950	2 Pack
Hand Held Mat Applicator	Black	N/A	N/A	N/A	60180-M999	1 Each
WebSeal Cutter for Vial Removal	Silver	N/A	N/A	N/A	60180-M975	1 Each

Well plates for these mats and sealing tapes can be found 2 pages prior to this

WebSeal Well Plates, Plastic, Non-Coated, Non-Sterile, Certified

- Polypropylene microplates are manufactured from ultra low bleed high purity basis resin
- Plates are fully LOT tested by GC-MS for organic extractables
- Microplates are chemically and thermally resistant and will tolerate temperatures from -80°C to +121°C
- SBS and ANSI standard footprint design for broad instrument compatibility
- Microplates are ideal for pharmaceutical applications, sample collection and storage, combinatorial chemistry and HTS applications
- U- and V- bottom wells for optimal sample recovery



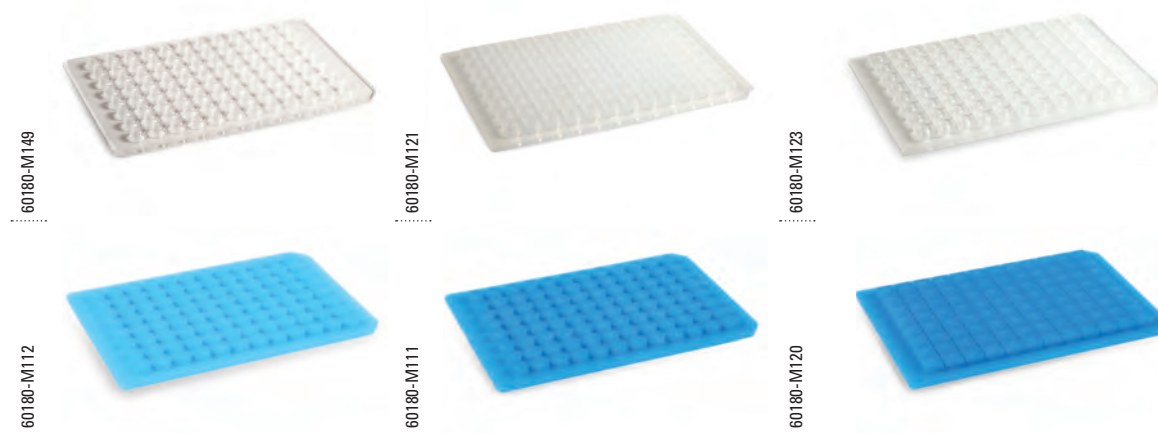
WebSeal Well Plates, Plastic, Non-Coated, Non-Sterile, Certified

Description	Material	Total Height	Well Format	Total Volume (µL)	Working Volume range µL/well	Cat. No.	Pack of
96-Well Microplate, round well	PP	14.7	Flat bottom, 7mm dia	350	10-300	60180-P215	10
	PP	14.7	Flat bottom, 7mm dia	350	10-300	60180-P205	100
	PP	14.7	U-Shape, 7mm dia	270	10-250	60180-P216	10
	PP	14.7	U-Shape, 7mm dia	270	10-250	60180-P206	100
	PP	14.7	V-Shape, 7mm dia	220	10-190	60180-P217	10
	PP	14.7	V-Shape, 7mm dia	220	10-190	60180-P207	100
96 Well Plates, round well	PP	41.6	U-Shape, 7mm dia	1000	50-900	60180-P211	5
	PP	41.6	U-Shape, 7mm dia	1000	50-900	60180-P201	50
96-Well Square Well Plate	PP	44.4	V-Shape, 8mm dia	2000	50-1900	60180-P212	5
	PP	44.4	V-Shape, 8mm dia	2000	50-1900	60180-P202	50
384-Well Microplate	PP	14.4	U-Shape, square	58	2-35	60180-P213	10
	PP	14.4	U-Shape, square	58	2-35	60180-P203	60
	PP	30.2	V-Shape, square	300	5-240	60180-P214	6
	PP	30.2	V-Shape, square	300	5-240	60180-P204	48

Mats and sealing tapes for these well plates can be found on the next page

WebSeal Mats, Non-Sterile

- Manufactured of pure silicone with or without PTFE coating
- The footprint permits plates to be securely stacked without robotic arm interference
- Eliminates cross contamination of samples
- Dry heat autoclavable with excellent chemical compatibility, withstand low temperature to -80°C
- Resists coring and tearing
- Superior resealability after multiple injections
- Available pre-slit for easy penetration and reduced vacuum formation



WebSeal Mats, Non-Sterile

Description	Color	Material	Well Design	Pre-slit	Cat. No.	Pack of
WebSeal Mats (alcohol resistant)	Clear	EVA	96 Round Well, 7mm Diameter	No	60180-M179	100
WebSeal CLR Silicone Mat	Clear	Silicone	96 Round Well – Flat Base, 7mm Diameter, Large Penetration Area	No	60180-M105	5
	Clear	Silicone	96 Round Well – Flat Base, 7mm Diameter, Large Penetration Area	Yes	60180-M116	5
	Clear	Silicone	96 Round Well – 7mm, Step, Small Penetration Area	No	60180-M149	5
	Clear	Silicone	96 Round Well – 7mm, Step, Small Penetration Area	Yes	60180-M113	5
	Clear	Silicone	96 Square Well – Flat Base - 8mm, Large Penetration Area	No	60180-M121	5
	Clear	Silicone	96 Square well – Flat Base - 8mm, Large Penetration Area	Yes	60180-M123	5
	Clear	Silicone	384 Square Well	No	60180-M126	5
	Clear	Silicone	384 Square Well	Yes	60180-M150	5
WebSeal Mat	Blue	Silicone/PTFE	96 Round Well – Flat Base, Step, 7mm Diameter	No	60180-M111	5
	Blue	Silicone/PTFE	96 Round Well – Flat Base, Step, 7mm Diameter	Yes	60180-M112	5
	Blue	Silicone/PTFE	96 Square Well – Flat Base - 8mm, Large Penetration Area	No	60180-M120	5
	Blue	Silicone/PTFE	96 Square Well – Flat Base - 8mm, Large Penetration Area	Yes	60180-M122	5
	Blue	Silicone/PTFE	384 Square Well	No	60180-M125	5
	Blue	Silicone/PTFE	384 Square Well	Yes	60180-M131	5
WebSeal Mat for Plate+	Blue	Silicone/PTFE	96 Round well – Dome Base, 7.2mm Diameter	No	60180-M108	5
	Blue	Silicone/PTFE	96 Round well – Dome Base, 7.2mm Diameter	Yes	60180-M115	5

Well plates for these mats can be found on the previous page (except for Plate+ which are on the next page)

WebSeal Plate+ Glass Coated Microplates

- High quality polypropylene microplates coated with 200nm thick layer of silicone dioxide
- Plate+ provides microplates with a chemical resistance similar to glass while retaining the advantages of polypropylene
- Eliminates the need to use glass limited volume inserts
- Excellent for applications where plastic microplates are not applicable
- Plate+ is chemically and thermally resistant and will tolerate temperatures from -80°C to +80°C
- Lightweight, precision molded, cost-effective alternative to solid glass plates



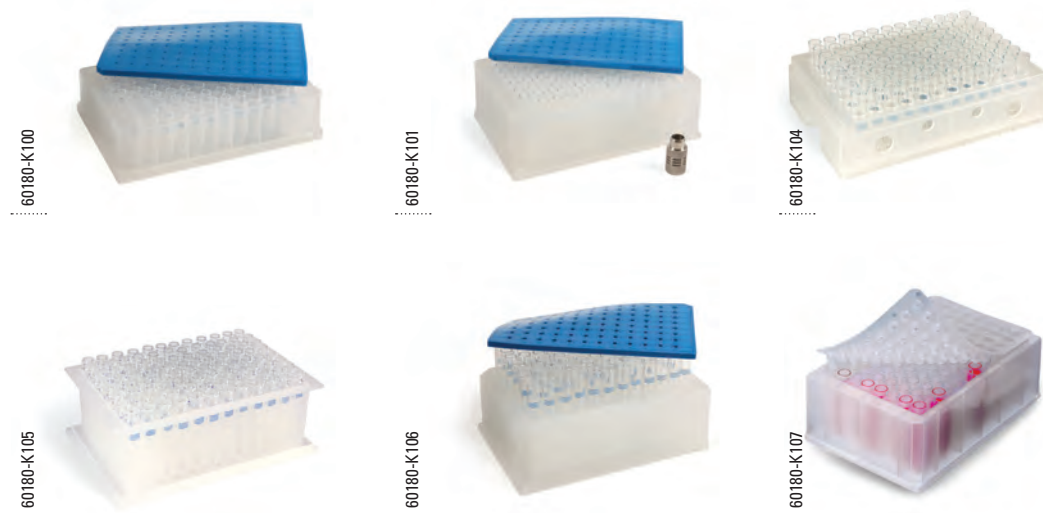
WebSeal Plate+ Glass Coated Microplates

Description	Material	Total Height	Well Format	Total Volume	Working Volume	Cat. No.	Pack of
96 Well Microplate, round well	Glass coated PP	14.6	U-Shape, 7mm dia	300µL	250µL	60180-P300	10
	Glass coated PP	14.6	V-Shape, 7mm dia	220µL	190µL	60180-P302	10
	Glass coated PP	14.6	Flat Bottom, 7mm dia	370µL	300µL	60180-P304	10
96 Deep Well Plate, round well	Glass coated PP	41.5	U-Shape, 7mm dia	1.2mL	1.0mL	60180-P306	10
96-Well Square Well Plate	Glass coated PP	44	V-Shape, 8mm dia	2.4mL	2.0mL	60180-P308	10
384 Well Microplate	Glass coated PP	14.4	Square-Rounded, flat	120µL	90µL	60180-P310	10
	Glass coated PP	22	Square-Rounded, U-Shape	240µL	180µL	60180-P312	6

For sealing mats, please refer to the previous page.

WebSeal Glass Inserted Plate Kits with 96-Position Mats

- Convenient wellplate kits with pre-assembled glass or PTFE vials
- Replacement parts for kits available separately
- Unique cutting tool allows removal of individual samples with the seal in place, eliminating cross contamination
- Mats with solid plugs are used for sample storage



WebSeal Glass Inserted Plate Kits with 96-Position Mats

Kit Type	Vial Material	Total Volume (µL)	Vial Dimension (mm)	Profile	Mat material	Total Height (mm)	Vial Cat. No.	Mat Cat. No.	Kit Cat. No.	Pack of
96 Well Small Volume Microplate with Sealing Mat	Clear glass	500	6.5 x 31	taper	Silicone/PTFE	32	60180-V100	60180-M151	60180-K100	5
96 Well Small Volume Microplate with Sealing Mat and Cutting Tool	Clear glass	700	6.5 x 41.4	taper	Silicone/PTFE	44	60180-V101	60180-M151	60180-K101	5
96 Well Small Volume Microplate with Sealing Mat and Cutting Tool	PTFE	700	6.5 x 41.4	round	Silicone/PTFE	44	60180-V103	60180-M151	60180-K103	1
96 Well Microplate with Sealing Mat and Cutting Tool	Clear glass	1100	7.45 x 38.5	round	Silicone/PTFE	41.5	60180-V104	60180-M153	60180-K104	5
96 Well Microplate with Crimp Top Vials, pre-inserted	Clear glass	1100	7.45 x 45	round	N/A	47	60180-V105	N/A	60180-K105	5
96 Deep Well Plate with Sealing Mat	Clear glass	1500	7.25 x 60.5	round	Silicone/PTFE	64.5	60180-V106	60180-M153	60180-K106	5
96 Square Well Plate with Sealing Mat	Clear glass	1000	7.6 x 45	constricted	Silicone/PTFE	47.3	60180-V107	60180-M155	60180-K107	1
96 Square Well Plate with Sealing Mat - Precut	Clear glass	1000	7.6 x 45	constricted	Silicone/PTFE	47.3	60180-V107	60180-M156	60180-K108	1
96 Square Well Plate with Sealing Mat - solid plug	Clear glass	1000	7.6 x 45	constricted	Silicone/PTFE	47.3	60180-V107	60180-M157	60180-K109	1

WebSeal Kit Accessories

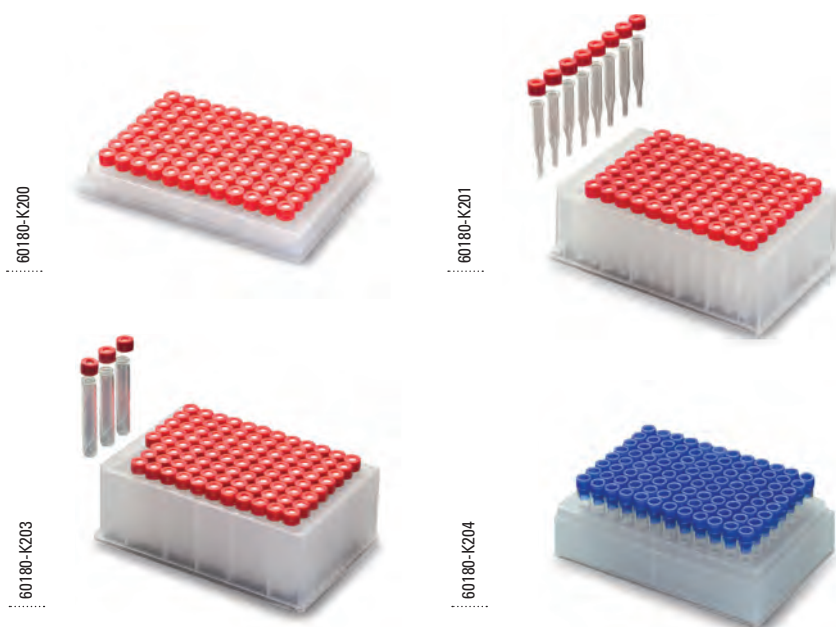


WebSeal Kit Accessories

Kit Type	Vial Material	Total Volume (µL)	Vial Dimension (mm)	Profile	Mat material	Total Height (mm)	Pre-slit	Cat. No.	Pack of
Micro Titer Plate Vial for 96 Wells	Clear glass	500	6.5x31	taper	N/A	N/A	N/A	60180-V100	500
	Clear glass	700	6.5x41.4	taper	N/A	N/A	N/A	60180-V101	500
	PTFE	700	6.5x41.4	round	N/A	N/A	N/A	60180-V103	100
	Clear glass	1100	7.45x38.5	round	N/A	N/A	N/A	60180-V104	500
Square/Deep Well Plate Crimp Top Vial for 96 Wells	Clear glass	1100	7.45x45	round	N/A	N/A	N/A	60180-V105	500
Deep Well Plate Vial for 96 Wells	Clear glass	1500	7.25x60.5	round	N/A	N/A	N/A	60180-V106	500
Square Well Plate Vial for 96 Wells	Clear glass	1000	7.6x45	constricted	N/A	N/A	N/A	60180-V107	960
96 Well WebSeal Mat (60180-K100, 101, 103)	N/A	N/A	N/A	N/A	Silicone/PTFE	N/A	No	60180-M151	5
96 Well WebSeal Mat (60180-K100, 101, 103)	N/A	N/A	N/A	N/A	Silicone/PTFE	N/A	Yes	60180-M152	5
96 Well WebSeal Mat (60180-K104, 106)	N/A	N/A	N/A	N/A	Silicone/PTFE	N/A	No	60180-M153	5
96 Well WebSeal Mat (60180-K104, 106)	N/A	N/A	N/A	N/A	Silicone/PTFE	N/A	Yes	60180-M154	5
96 Well WebSeal Mat, welled plugs (60180-K107)	N/A	N/A	N/A	N/A	Silicone/PTFE	N/A	No	60180-M155	1
96 Well WebSeal Mat, welled plugs (60180-K108)	N/A	N/A	N/A	N/A	Silicone/PTFE	N/A	Yes	60180-M156	1
96 Well WebSeal Mat, solid plugs for sample storage (60180-K109)	N/A	N/A	N/A	N/A	Silicone/PTFE	N/A	No	60180-M157	1
Plastic 96 Round Well Micro Titer Plate (60180-K100)	N/A	800	N/A	V-Shape, 7mm dia	N/A	31.5	N/A	60180-P400	5
PP 96 Round Well Micro Rack (60180-K101, K102)	N/A	N/A	N/A	U-Shape, 7mm dia	N/A	41.6	N/A	60180-P211	5
Plastic 96 Well Micro Titer Rack (60180-K104)	N/A	N/A	N/A	Rack	N/A	31.2	N/A	60180-P401	5
PP 96 Well Micro Titer Plate (60180-K105)	N/A	2200	N/A	U-Shape	N/A	42.5	N/A	60180-P402	5
PP 96 Well Square Well Plate (60180-K107/108/109)	N/A	2000	N/A	U-shape, square	N/A	44.0	N/A	60180-P403	1
PP 96 Well Square Well Plate (60180-K106)	PP	2000	N/A	V-shape, Square	N/A	44	N/A	60180-P212	5
WebSeal Cutter for Vial Removal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	60180-M975	1

WebSeal Glass Inserted Plate Kits with Individual Closures

- 96 Position Block Systems with Glass Inserts are used when the pure PP Block is not inert enough
- Inserts manufactured from clear, Type 1 Class A or amber, Type 1 Class B borosilicate glass
- Inserts are sealed individually with a PE Cap Seal and can be easily removed and used externally without risk of losing sample
- The products can be obtained as individual components or as completely assembled, ready-to-use convenience blocks
- Assembled kits include 96 vials with pre-attached caps and septa
- Pre-assembled kits reduce the risk of vial contamination before use
- Snap Caps offer the same functionality as for screw or crimp caps: PTFE layered Silicone septa for excellent solvent stability
- Polyethylene caps are chemically inert and suitable for most chromatography applications



WebSeal Glass Inserted Plate Kits with Individual Closures

Kit Type	Vial Material	Total Volume (µL)	Vial Dimension (mm)	Profile	Septum	Vial Cat. No.	Cap Cat. No.	Kit Cat. No.	Pack of
96 Well Microplate	Clear glass	100	5.7x15.5	flat bottom	Silicone/PTFE, Pre-slit, 45°	60180-V108	60180-C100	60180-K200	1
96 Deep Well Plate	Clear glass	350	6x42.5	taper	Silicone/PTFE, Pre-slit, 45°	60180-V109	60180-C100	60180-K201	1
96 Square Well Plate	Clear glass	1000	7.6x45.9	round	Silicone/PTFE, 45°	60180-V110	60180-C102	60180-K202	1
	Clear glass	1000	7.6x45.9	round	Silicone/PTFE, Pre-slit, 45°	60180-V110	60180-C100	60180-K203	1
96 Micro-Tube-Rack-System	Clear glass	800	7.6x40	round	PE Plug	60180-V111	60180-C101	60180-K204	1

WebSeal Kit Accessories



WebSeal Kit Accessories

Kit Type	Vial Material	Total Volume (µL)	Vial Dimension (mm)	Profile	Septum	Total Height (mm)	Cat. No.	Pack of
Micro Titer Plate Vial for 96 Wells	Clear glass	100	5.7x15.5	flat bottom	N/A	N/A	60180-V108	960
Deep Well Plate Vial for 96 Wells	Clear glass	350	6x42.5	taper	N/A	N/A	60180-V109	960
Square Well Vial for 96 Wells	Clear glass	1000	7.6x45.9	round	N/A	N/A	60180-V110	960
MTRS Vial for 96 Wells	Clear glass	800	7.6x40	round	N/A	N/A	60180-V111	960
PE Cap, red, center hole, for 96 Well Plate Inserts	N/A	N/A	N/A	N/A	Silicone/PTFE, Pre-slit, 45°	N/A	60180-C100	96
8mm PE Plug, blue, for 60180-K204	N/A	N/A	N/A	N/A	PE Plug	N/A	60180-C101	96
MT-Plate, PP, 96 Positions	N/A	350	N/A	Flat Bottom, 7mm dia	N/A	14.3	60180-P404	10
DW-Block, PP, 96 Positions	N/A	1200	N/A	U-Shape	N/A	40.0	60180-P405	10
SQW-Block, PP, 96 Positions	N/A	2000	N/A	U-Shape	N/A	44.3	60180-P406	10
Micro-Tube-Rack-System, PP, 96 Positions	N/A	N/A	N/A	N/A	N/A		60180-P407	10

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3. **TAXES AND OTHER CHARGES.** Prices for the Products exclude all sales, value added and other taxes and duties imposed with respect to the sale, delivery, or use of any Products covered hereby, all of which taxes and duties must be paid by Buyer. If Buyer claims any exemption, Buyer must provide a valid, signed certificate or letter of exemption for each respective jurisdiction.

4. **TERMS OF PAYMENT.** Seller may invoice Buyer upon shipment for the price and all other charges payable by Buyer in accordance with the terms on the face hereof. If no payment terms are stated on the face hereof, payment shall be net thirty (30) days from the date of invoice. If Buyer fails to pay any amounts when due, Buyer shall pay Seller interest thereon at a periodic rate of one and one-half percent (1.5%) per month (or, if lower, the highest rate permitted by law), together with all costs and expenses (including without limitation reasonable attorneys' fees and disbursements and court costs) incurred by Seller in collecting such overdue amounts or otherwise enforcing Seller's rights hereunder. Seller reserves the right to require from Buyer full or partial payment in advance, or other security that is satisfactory to Seller, at any time that Seller believes in good faith that Buyer's financial condition does not justify the terms of payment specified. All payments shall be made in U.S. Dollars.

5. **DELIVERY; CANCELLATION OR CHANGES BY BUYER.** The Products will be shipped to the destination specified by Buyer, F.O.B. Seller's shipping point. Seller will have the right, at its election, to make partial shipments of the Products and to invoice each shipment separately. Seller reserves the right to stop delivery of Products in transit and to withhold shipments in whole or in part if Buyer fails to make any payment to Seller when due or otherwise fails to perform its obligations hereunder. All shipping dates are approximate only, and Seller will not be liable for any loss or damage resulting from any delay in delivery or failure to deliver which is due to any cause beyond Seller's reasonable control. In the event of a delay due to any cause beyond Seller's reasonable control, Seller reserves the right to terminate the order or to reschedule the shipment within a reasonable period of time, and Buyer will not be entitled to refuse delivery or otherwise be relieved of any obligations as the result of such delay. Products as to which delivery is delayed due to any cause within Buyer's control may be placed in storage by Seller at Buyer's risk and expense and for Buyer's account. Orders in process may be canceled only with Seller's written consent and upon payment of Seller's cancellation charges. Orders in process may not be changed except with Seller's written consent and upon agreement by the parties as to an appropriate adjustment in the purchase price therefor. Credit will not be allowed for Products returned without the prior written consent of Seller.

6. **TITLE AND RISK OF LOSS.** Notwithstanding the trade terms indicated above and subject to Seller's right to stop delivery of Products in transit, title to and risk of loss of the Products will pass to Buyer upon delivery of possession of the Products by Seller to the carrier; provided, however, that title to any software incorporated within or forming a part of the Products shall at all times remain with Seller or the licensor(s) thereof, as the case may be.

7. **WARRANTY.** Seller warrants that the Products will operate or perform substantially in conformance with Seller's published specifications and be free from defects in material and workmanship, when subjected to normal, proper and intended usage by properly trained personnel, for the period of time set forth in the product documentation, published specifications or package inserts. If a period of time is not specified in Seller's product documentation, published specifications or package inserts, the warranty period shall be one (1) year from the date of shipment to Buyer for equipment and ninety (90) days for all other products (the "Warranty Period"). Seller agrees during the Warranty Period, to repair or replace, at Seller's option, defective Products so as to cause the same to operate in substantial conformance with said published specifications; provided that Buyer shall (a) promptly notify Seller in writing upon the discovery of any defect, which notice shall include the product model and serial number (if applicable) and details of the warranty claim; and (b) after Seller's review, Seller will provide Buyer with service data and/or a Return Material Authorization ("RMA"), which may include biohazard decontamination procedures and other product-specific handling instructions, then, if applicable, Buyer may return the defective Products to Seller with all costs prepaid by Buyer. Replacement parts may be new or refurbished, at the election of Seller. All replaced parts shall become the property of Seller. Shipment to Buyer of repaired or replacement Products shall be made in accordance with the Delivery provisions of the Seller's Terms and Conditions of Sale. Consumables are expressly excluded from this warranty.

Notwithstanding the foregoing, Products supplied by Seller that are obtained by Seller from an original manufacturer or third party supplier are not warranted by Seller, but Seller agrees to assign to Buyer any warranty rights in such Product that Seller may have from the original manufacturer or third party supplier, to the extent such assignment is allowed by such original manufacturer or third party supplier.

In no event shall Seller have any obligation to make repairs, replacements or corrections required, in whole or in part, as the result of (i) normal wear and tear, (ii) accident, disaster or event of force majeure, (iii) misuse, fault or negligence of or by Buyer, (iv) use of the Products in a manner for which they were not designed, (v) causes external to the Products such as, but not limited to, power failure or electrical power surges, (vi) improper storage and handling of the Products or (vii) use of the Products in combination with equipment or software not supplied by Seller. If Seller determines that Products for which Buyer has requested warranty services are not covered by the warranty hereunder, Buyer shall pay or reimburse Seller for all costs of investigating and responding to such request at Seller's then prevailing time and materials rates. If Seller provides repair services or replacement parts that are not covered by this warranty, Buyer shall pay Seller therefor at Seller's then prevailing time and materials rates. ANY INSTALLATION, MAINTENANCE, REPAIR, SERVICE, RELOCATION OR ALTERATION TO OR OF, OR OTHER TAMPERING WITH, THE PRODUCTS PERFORMED BY ANY PERSON OR ENTITY OTHER THAN SELLER WITHOUT SELLER'S PRIOR WRITTEN APPROVAL, OR ANY USE OF REPLACEMENT PARTS NOT SUPPLIED BY SELLER, SHALL IMMEDIATELY VOID AND CANCEL ALL WARRANTIES WITH RESPECT TO THE AFFECTED PRODUCTS.

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8. **INDEMNIFICATION.**

8.1 By Seller. Seller agrees to indemnify, defend and save Buyer, its officer, directors, and employees from and against any and all damages, liabilities, actions, causes of action, suits, claims, demands, losses, costs and expenses (including without limitation reasonable attorney's fees) ("Indemnified Items") for (i) injury to or death of persons or damage to property to the extent caused by the negligence or willful misconduct of Seller, its employees, agents or representatives or contractors in connection with the performance of services at Buyer's

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Notwithstanding the above, Seller's infringement related indemnification obligations shall be extinguished and relieved if Seller, at its discretion and at its own expense (a) procures for Buyer the right, at no additional expense to Buyer, to continue using the Product; (b) replaces or modifies the Product so that it becomes non-infringing, provided the modification or replacement does not adversely affect the specifications of the Product; or (c) in the event (a) and (b) are not practical, refund to Buyer the amortized amounts paid by Buyer with respect thereto, based on a five (5) year amortization schedule. THE FOREGOING INDEMNIFICATION PROVISION STATES SELLER'S ENTIRE LIABILITY TO BUYER FOR THE CLAIMS DESCRIBED HEREIN.

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