Your world of

chromatography

Thermo
SCIENTIFIC

innovation

Vials and Closures

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.

Section Contents

Featured Products

SureStop 9mm Vials

Remove any subjectivity around achieving optimal seal compression closing a vial

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New 9mm Screw Thread Closure

Featuring Advanced Vial Closure System (AVCS) technology, septa push through is virtually eliminated due to improved interior geometry

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Tools and Accessories

A comprehensive range of accessories

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Advanced Vial Closure System (AVCS) Technology

AVCS Advanced Vial Closure System

Innovative Closure Technology. Unmatched performance

Thermo Scientific National and Chromacol Wide Opening 9mm Screw Thread Closures

Features of 9mm Wide Opening, Integral Membrane and Solid Top Closures:

- Nearly eliminates septa push through due to AVCS technology
- Increased sealing capability
- Unlimited options in selecting the best septum for your instrument and applications
- Cost efficient alternative to bonded septa for resolving push through
- Optimized ergonomics, fine texturing and evenly space ribbing for handling even with poorly fitting gloves
- Rough edges have been eliminated making it easier and more comfortable to use while improving autosampler operation

Understanding what drives your laboratory helps Thermo Fisher Scientific deliver products that exceed your expectations. The Thermo Scientific™ National Target DP™ 9mm C5000 series and the Thermo Scientific™ Chromacol™ K-Series vial closure systems are innovative, flexible and performance driven products built on the Advanced Vial Closure System (AVCS) technology platform.

The new AVCS closures are designed to help chromatographers achieve more reliable and efficient sample analysis. Designed to accommodate nearly all chromatography autosamplers fitted for 12x32mm vial trays, these closures effectively eliminate septa push-through and significantly enhance productivity and flexibility in the laboratory. The AVCS closures are fully compatible with all versions of the current Thermo Scientific 9mm wide opening screw thread vials.

9mm Wide Opening Closures

A wide opening vial deserves a wide opening cap closure. Utilizing AVCS technology, the AVCS wide opening closure increases the available injection area by over 7%, providing greater area for injection needle penetration. Previously available solutions for resolving septa push through sent most laboratories to a more expensive yet less flexible choice of closure. The C5000 and K-Series delivers the flexibility to choose the septum best suited for the analysis – as well as for LC-MS and GC-MS applications.

9mm Integral Membrane Closure

With the AVCS technology design aspects of the open top cap built-in, the integral membrane closure provides a halogen and rubber-free sample handling environment for HPLC applications or applications where silicones or rubber septa are not suitable. This cap benefits from the improved septa sealing and ergonomic improvements while still delivering a value option closure system. Strict control of the membrane qualities makes this the first membrane closure with broad chemical compatibility, low background extractables, compatibility with most HPLC autosamplers, and excellent piercing characteristics.

9mm Solid Top Closure

The solid top closure also benefits from the AVCS technology by providing maximum protection of samples during long term storage. The protective top provides additional support and prevents accidental puncture of the septum and resulting sample loss. Ergonomic innovation is the key to this product, ensuring that comfort and ease of use have not been overlooked. We also understand that samples may be stored at very cold temperatures and have tested our solid-top caps down to -80°C.

View product information and application notes

Thermo Scientific National and Chromacol SureStop Vials

SureStop Vials Features:

- Provide a consistent seal independent of user, or the amount of torque applied when closing vial
- Provide optimal septum compression across the opening of the vial
- The SureStop vial's cap leveling function assures that the closure settles straight and level on every vial eliminating weak spots in sealing and autosampler stalls due to mishandled vials
- As a result of AVCS, when used with our C5000 or K-Series closure, SureStop vials become the best sealing, most dependable vial/closure on the market
- Vial designed for use with nearly every autosampler on the market
- When compared to other 2mL vials, SureStop vials yield the lowest loss to evaporation and the lowest standard deviation in evaporation studies.

"Just one more turn."

That has been the chromatographer's answer to the age-old question of how tight to seal their chromatography autosampler screw thread vial closure. Unfortunately, for a lot of chromatographers, this answer has resulted in a myriad of chromatographic problems. Truth be told, "Just one more turn" is more than likely the absolute worst thing that one can do to seal an autosampler vial.

Thermo Scientific™ National™ SureStop™ and Thermo Scientific™ Chromacol™ SureStop™ vials are designed as part of the Advanced Vial Closure System (AVCS), and remove any subjectivity around achieving the optimal compression when sealing a vial. As an integral component of AVCS technology, SureStop vials offer the sealing and performance characteristics of a crimp top vial and the versatility properties of a threaded vial. This is achieved by incorporating a definite stop point into the design of the vial finish, preventing over tightening of the closure. SureStop vials remove all doubts about the degree of tightening necessary for optimal sealing.

The SureStop vial's cap leveling function eliminates one of the major causes of random autosampler stalls by assuring that the closure settles straight and level on every vial eliminating weak spots in sealing and "dropped" vials due to poor cap alignment. Perfect alignment of the vial and cap surfaces means fewer mishandled vials leading to more completed runs.

What does SureStop technology mean for your laboratory? It means confidence that your sample is secure. Analytical consistency will improve, as a result of the elimination of evaporation differences between samples. When consistency improves, data quality improves and SureStop vials become the most trusted chromatography consumable in your lab.

For more detailed technical information please order the tech note for AVCS closures and SureStop vials.

SureStop Vial, self aligning cap

Generic Vial, cap tilt

Generic Vial, septum dislodged

Generic Vial, deformed top

Thermo Scientific 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
- High purity closures packed in air-tight re-closeable container
- Tested and certified for up to 15 critical physical characteristics affecting vial performance
- Tested and certified for low background by positive ESI LC-MS
- Tested and certified for low background by GC-MS

Low Particle Background

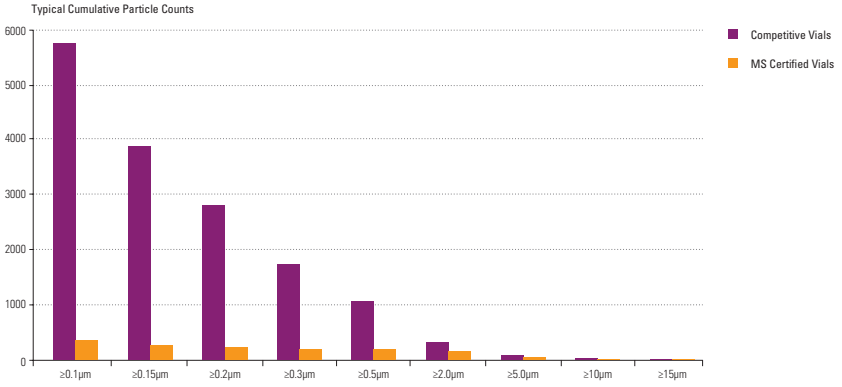
The presence of inorganic sub micron particles in all glass vials as a byproduct of the manufacturing process is a little known phenomenon that has not been extensively studied. Gas chromatographers depend on injection port liners to act as traps for particulates while the HPLC chromatographer takes extensive steps to eliminate them during sample preparation. This has been an effective strategy for routine analytical methods, but the need to work with ever 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 to the right 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 0.5µm. 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 than 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.

VIAL	≥0.1 µm	≥0.15 µm	≥0.2 µm	≥0.2 µm	≥0.5 µm	≥2.0 µm	≥5.0 µm	≥5.0 µm	≥15 µm
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



The table above 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.

Low LC-MS Background

Samples of MS Certified Vials and closures were exposed to acetonitrile at room temperature for 2 hours. Potential nonvolatile organic compounds were determined using LC-UV and LC-MS with several ionization techniques: positive electrospray, negative electrospray and positive atmospheric pressure ionization (APCI).

Additional testing was conducted on samples exposed to acetonitrile for 2 hours at a temperature of 50°C to determine the effect of severe operating conditions.

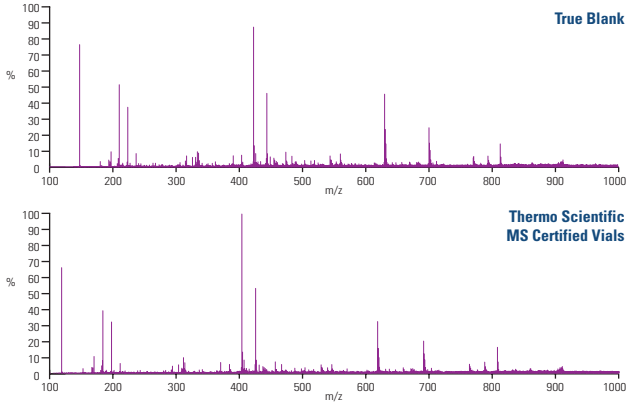
The results of the room temperature and 50°C tests were essentially the same indicating that the background contribution from the processed vials is minimal over a wide range of conditions. Typical background scans for the room temperature exposure are shown in the following figures.

The top scan in each figure is the result of injecting the pure blank extracting solvent without exposure to glassware other than the original reagent container and a pre-extracted sample vial.

The second scan for each figure represents an injection of an equal quantity of the extracting solvent after exposure to the pre-cleaned sample vial.

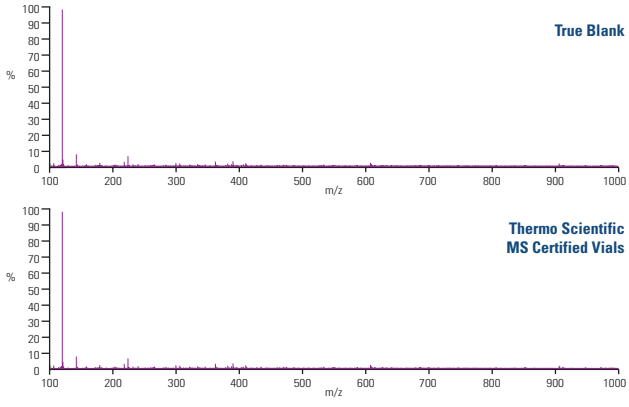
Comparison of the scans shows that the pre-cleaned MS Certified Vial does not contribute to the detectable background even at very high instrument sensitivity settings.

LC/MS Background Scan (Positive ESI)



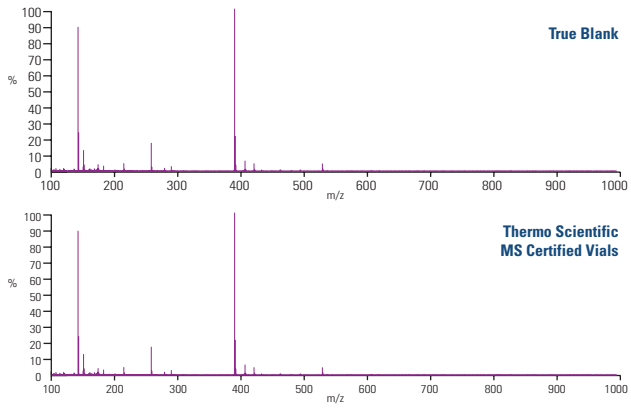
Conditions:
RT: 0.01-25.01
AV: 1211
NL: 2.31E4
T: +c ESI Full MS
[100.00-1000.00]

LC/MS Background Scan (Negative ESI)



Conditions:
RT: 0.01-25.00
AV: 1155
NL: 4.45E6
T: - c ESI Full ms
[50.00-1500.00]

LC/MS Background Scan (APCI)



Conditions:
RT: 0.00-25.01
AV: 1209
NL: 6.79E7
T: + c APCI Full ms
[50.00-1500.00]

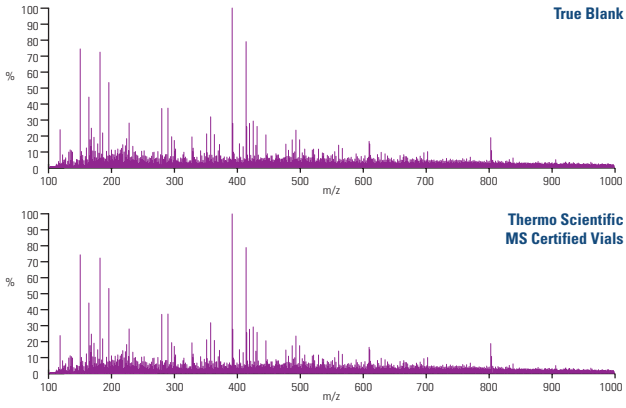
LC conditions

- Instrument: Thermo Scientific™ Accela™ 1250 HPLC with Thermo Scientific™ LCQ Deca XP™ MS
- Column: Thermo Scientific™ Hypersil GOLD™ 3µm, 50x2.1mm (Part number 25003-052130)
- Mobile phase: A – H_2O + 0.1% formic acid; B – MeOH + 0.1% formic acid (10-100% B 20 min)
- Flow rate: 0.3mL/min
- Temperature: 40°C
- Injection vol.: 10µL
- MS detection: Positive EI; Full scan 50 to 650mu

Low GC-MS Background

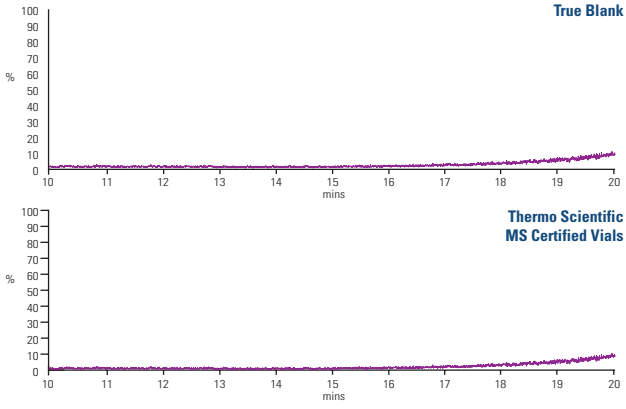
A portion of the vial extracts prepared for LC-MS analysis were taken for analysis by GC-MS. As with the LC-MS evaluation the vials were exposed at room temperature and 50°C. There was no significant difference between the room temperature and elevated temperature test results. A typical GC-MS scan is shown in the figure below with blank solvent in the upper scan and the vial extract shown in the lower scan. Monitoring of the TIC chromatogram between 10 and 20 minutes has been used to determine if any volatile organic species are present after the cleaning process.

GC-MS Background Scan (Positive ESI)



Conditions:
RT: 0.01-25.00
AV: 1167
NL: 1.50E5
T: + c Full MS
[50.00-1500.00]

GC-MS Background Scan (TIC)



Conditions:
RT: 10.0-20.00
NL: 1.00E7
TIC MS

GC conditions

- Instrument: Thermo Scientific™ TRACE™ Ultra GC-MS ISQ with Thermo Scientific™ TriPlus™ RSH autosampler
- Column: Thermo Scientific™ TraceGOLD™ TG-5MS 30m x 0.25mm x 0.25µm, (Part number 26098-1420)
- Carrier gas: Helium
- Flow rate: 1.2mL/min
- Oven program: 40°C, hold for 0.5min; 15°C /min to 150°C, hold for 1 min; 10°C /min to 290°C, hold for 5 min
- Inlet temperature: 250° C; Split flow: 50mL/min
- Injection vol.: 1µL splitless
- MS detection: Positive EI; Full scan 50 to 650m/z

Each batch of vials and caps is tested using these conditions against a blank sample

GC-MS background scan

GC-MS TIC

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	**MSCERT4000-30LVW**	100
Convenience Kit, 9mm 350µL Fused Insert Screw Vial	Clear	Yes	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-31LVW**	100
Convenience Kit, 9mm Wide Opening 1.7mL High Recovery Screw Vial with 30µL Reservoir	Clear	No	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-32**	100
Convenience Kit, 9mm Wide Opening 1.5mL Total Recovery Screw Vial with 10µL Reservoir	Clear	No	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-33TR**	100
Convenience Kit, 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-34W**	100
	Amber	Yes	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-35W**	100
Convenience Kit, 9mm 200µL Fused Insert Screw Vial	Clear	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-36LVW**	100
Convenience Kit, 9mm 350µL Fused Insert Screw Vial	Clear	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-37LVW**	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	**MSCERT4000-38**	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	**MSCERT4000-39TR**	100
Convenience Kit, 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-40W**	100
	Amber	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-41W**	100
Convenience Kit, 9mm Wide Opening Screw Vial, 2mL, silanized	Clear	Yes	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-S34W**	100
	Amber	Yes	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-S35W**	100
	Clear	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-S40W**	100
	Amber	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-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	**MSCERT4000-134W**	100
	Amber	Yes	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-135W**	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

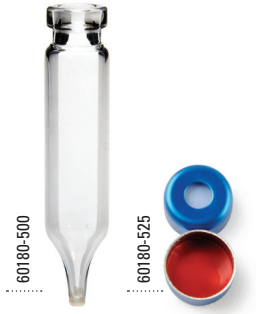
Thermo Scientific Premium Vials and Closures

Our comprehensive range of vials and closures offers you the assurance of uninterrupted productivity, separation after separation

- The first choice for Thermo Scientific Chromatography and Mass Spectrometry Instruments
- Assured quality
- Guaranteed fit
- Extensively tested on Thermo Scientific Instruments

8mm Crimp Top Vials and Closures

- Conical Thermo Scientific 8mm Crimp Vials sometimes need an adapter for certain autosampler and cannot stand alone
- Superior quality borosilicate clear (Type 1, Class A), meets all requirements of Pharm. US, EU, JPN
- Aluminum Crimp Seals with Prefitted Septa for 8mm Crimp Top Vials
- Pre-assembled caps and septa are convenient and minimize contamination from handling



8mm Crimp Top Vials

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume (µL)	Usable Volume (µL)	Residual (µL)	**Cat. No.**	Pack of
1mL Crimp Top Tapered Vial	Clear	No	8x40	Conical Base	1180	1000	<5	**60180-500**	100

8mm Crimp Top Closures

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	**Cat. No.**	Pack of
8mm Crimp Cap, 4mm center hole	Blue	Aluminum	Blue Silicone/Red PTFE	20	1.4	**60180-525**	100

For autosampler compatibility look on pages **2-109 to 2-114**

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

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

For electronic crimpers and decrimpers look on pages **2-100 to 2-101**

8mm Screw Vials and Closures

8-425 thread finish, Standard Opening, 2mL, 12x32mm

- Superior quality 33 expansion borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass, 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 look on pages **2-109 to 2-114**

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
8mm Seal Silicone/PTFE	–	–	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
	Pink	Polypropylene	Red PTFE/White Silicone, Pre-slit	55	1.0	**60180-663**	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 33 expansion borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass, 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:

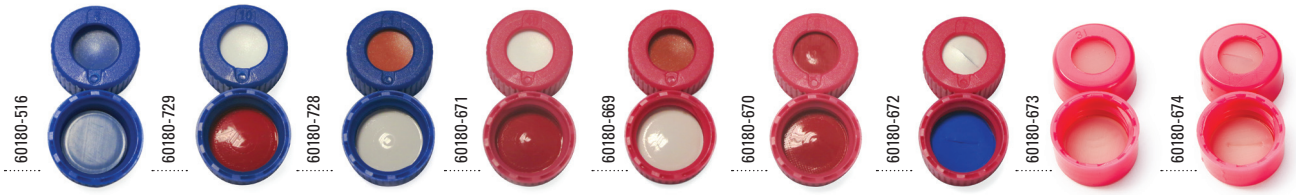
- Thermo Scientific TRACE 1300 GC
- Thermo Scientific TriPlus RSH autosampler
- Most other HPLC and GC autosamplers

For autosampler compatibility look on pages **2-109 to 2-114**

***** 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	No	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
	Pink	Polypropylene	Bonded Natural PTFE/Clear Silicone	45	1.2	**60180-673**	100
	Pink	Polypropylene	Bonded Natural PTFE/Clear Silicone, Pre-slit	45	1.2	**60180-674**	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	Ivory PTFE/Red Rubber	60180-723	60180-669	**60180-693**	100
	Clear	Yes	Pink	Red PTFE/White Silicone	60180-723	60180-671	**60180-694**	100
	Clear	Yes	Pink	Bonded Natural PTFE/White Silicone, Pre-slit	60180-723	60180-674	**60180-696**	100
	Amber	No	Pink	Ivory PTFE/Red Rubber	60180-724	60180-669	**60180-697**	100
	Amber	No	Pink	Red PTFE/White Silicone	60180-724	60180-671	**60180-698**	100
	Amber	No	Pink	Bonded Natural PTFE/White Silicone, Pre-slit	60180-724	60180-674	**60180-700**	100

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

- Superior quality 33 expansion borosilicate clear (Type 1, Class A) 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 look on pages **2-109 to 2-114**

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	Clear PTFE/Rubber	60	1.0	**60180-705**	1000
	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-inserted 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 and Decrimping tools

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

We offer electronic crimping options

Visit **PAGE 2-100**

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

- Superior quality 33 expansion borosilicate clear (Type 1, Class A) , 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 look on pages **2-109 to 2-114**

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
	Blue	Polyethylene	Red PTFE/White Silicone	45	1.3	**60180-713**	1000
	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-inserted 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 33 expansion borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass, meets all requirements of Pharm. US, EU, JPN

Images shown are 70% to scale

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 look on pages **2-109 to 2-114**

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 **2-100**

Thermo Scientific 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 (type 33 glass for clear vials), closures and septa
- 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

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 33 expansion borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass
- 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 Vial and Closure 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
Convenience Kit, Certified 9mm Wide Opening Screw Vial, 2mL	Clear	No	Blue	Ivory PTFE/Red Rubber	C4000-1	C5000-51B	**CERT5000-80**	100
	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	C4000-64B	**CERT4000-992**	100
Convenience Kit, Certified 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Black	Bonded Red PTFE/ White Silicone	C4000-1W	C4000-64B	**CERT4000-78W**	100
	Amber	Yes	Black		C4000-2W	C4000-64B	**CERT4000-75W**	100
Convenience Kit, Certified 9mm Screw Vial, 350µL Fused Insert	Clear	Yes	Black	Bonded Red PTFE/ White Silicone	C4000-LV1W	C4000-64B	**CERT4000-69LV**	100
	Amber	Yes	Black		C4000-LV2W	C4000-64B	**CERT4000-72LV**	100
Convenience Kit, Certified 10-425 Screw Vial, 2mL	Clear	No	Black	Bonded Red PTFE/ White Silicone	C4010-1	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	C4000-75C	**CERT4000-79**	100
Convenience Kit, Certified 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Gray	Bonded Clear PTFE/ Clear Silicone, Pre-slit	C4000-1W	C4000-75C	**CERT4000-93W**	100
	Amber	Yes	Gray		C4000-2W	C4000-75C	**CERT4000-76W**	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	C4000-75C	**CERT4000-993**	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
Assembled Kit, Certified 9mm Wide Opening Screw Vial, 2mL	Amber	Yes	Black	Bonded Red PTFE/White Silicone	C4000-2W	C4000-64B	**CERT4000-175W**	100
	Clear	Yes	Gray	Bonded Red PTFE/ White Silicone, Pre-slit	C4000-1W	C4000-75C	**CERT4000-193W**	100
	Amber	Yes	Gray		C4000-2W	C4000-75C	**CERT4000-176W**	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 look on pages **2-109 to 2-114**

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
	Clear	No	7x40	Conical Base	575	450	<2	**C4008-739**	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 Top Crimp 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 33 expansion borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts
- 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 look on pages **2-109 to 2-114**

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 150µL MicroVial, Clear Solid Glass	Clear	No	12x32	Conical	400µL	200µL	<2	**C4013-12**	12
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 see page **2-058**

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
	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
	Pink	Polypropylene	Red PTFE/White Silicone/Red PTFE	45	1.00	**C4013-40P**	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
	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	Phenolic Resin	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	Polypropylene	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

* Additional colors on request

National Standard Opening Screw Thread Vial Convenience Kits

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

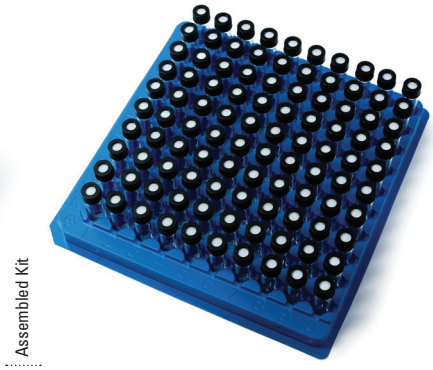
Unassembled kits

- 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


Convenience Kit


Assembled Kit


Assembled Kit, in Polybag

Items not shown to scale

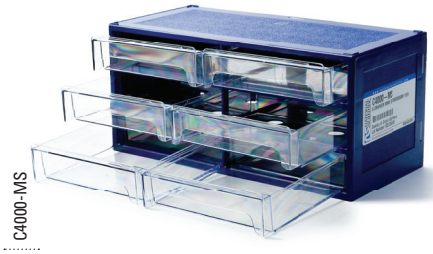
National Standard Opening Screw Thread Vial Convenience Kits

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
	Amber	No	Pink	Red PTFE/White Silicone	C4013-2	C4013-60P	**C4013-17P**	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
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

National Standard 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 Full Size Storeroom holds 2000 vials and closures


C4075-380


C4000-MS


C4075-500

Items not shown to scale

National Standard Opening Screw Thread Vial Storerooms

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat. No.	Cap/Septum Cat. No.	**Cat. No.**	Pack of
9 Drawer Storeroom, 2000 pieces Caps and Vials	Clear	No	Black, phenolic	Red PTFE/White Silicone	C4013-1	C4013-74A	**C4075-380**	1
6 Drawer Mini-Storeroom – Cabinet Only	–	–	–	–	–	–	**C4000-MS**	1
9 Drawer Storeroom, Full Size – Cabinet Only	–	–	–	–	–	–	**C4075-500**	1

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 look on pages **2-109 to 2-114**

- 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**-002 to **2**-003.
- 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 33 expansion borosilicate clear (Type 1, Class A) or 51A amber (Type 1, Class B) glass
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts
- 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 High Recovery Vial, silanized*, with 30µL Reservoir	Clear	No	12x32	Tapered Base	1.7mL	1.3mL	<4	**C4000-S9**	100
9mm Target DP 300µL Target DP 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	–	6x30	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	–	6x31	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	–	6x31	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 see page **2-058**

**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

AVCS Advanced Vial Closure System

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
	Pink	Polypropylene	–	N/A	N/A	**C5000-98P**	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
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
	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
	Pink	Polypropylene	Red PTFE/White Silicone/Red PTFE	50	1.0	**C5000-53P**	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	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
	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 Short Screw Cap, 6mm hole	Black	Polypropylene	Bonded Red PTFE/White Silicone	45	1.2	**C4000-64B**	100
	Gray	Polypropylene	Bonded Red PTFE/White Silicone, Pre-slit	45	1.2	**C4000-75C**	100
	Blue	Polypropylene	Bonded Natural PTFE/Clear Silicone	45	1.2	**C4000-62B**	100
	Pink	Polypropylene	Bonded Natural PTFE/Clear Silicone	45	1.2	**C4000-62P**	100
	Pink	Polypropylene	Bonded Natural PTFE/Clear Silicone, Pre-slit	45	1.2	**C4000-72P**	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 Screw 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 Vials Convenience Kits

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

Unassembled kits

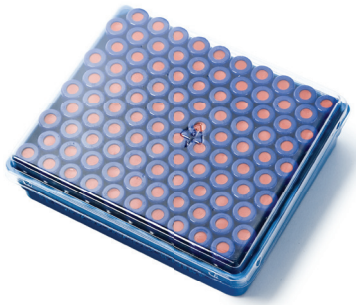
- Includes 100 vials and 100 caps with pre-assembled septa
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Clear trays make it easy to keep track of available supplies without opening containers

Assembled kits

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

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	Pink	Red PTFE/White Silicone	C4000-2W	C5000-54P	**C5000-94P**	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

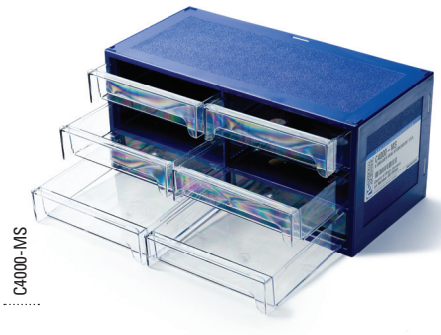
National 9mm Wide Opening Screw Thread Vials Convenience Kits (Continued)

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat. No.	Cap Cat. No.	**Cat. No.**	Pack of
Convenience Kit	Clear	Yes	Black	Bonded Red PTFE/White Silicone	C4000-1W	C4000-64B	**C4000-78W**	100
	Clear	Yes	Gray	Bonded Red PTFE/White Silicone, Pre-slit	C4000-1W	C4000-75C	**C4000-93W**	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	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


C5075-211


C4000-MS


C4075-500

Items not shown to scale

National 9mm Storeroom

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 33 expansion borosilicate clear (Type 1, Class A) or 51A amber (Type 1, Class B) glass
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts
- 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 look on pages **2-109 to 2-114**

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	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 see page **2-058**

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	–	6x31	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	–	6x30	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	–	6x31	Conical	375µL	300µL	<1	**C4010-S629**	100
300µL Polyspring Insert, silanized*	Clear	–	6x30	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 see page **2-058**

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	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

National 10mm Wide Opening Screw Thread Vials Convenience Kits

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

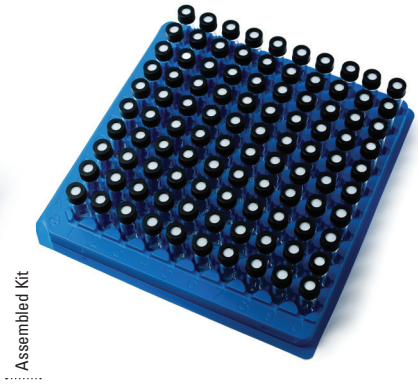
Unassembled kits

- 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


Convenience Kit


Assembled Kit


Assembled Kit, in Polybag

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
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...

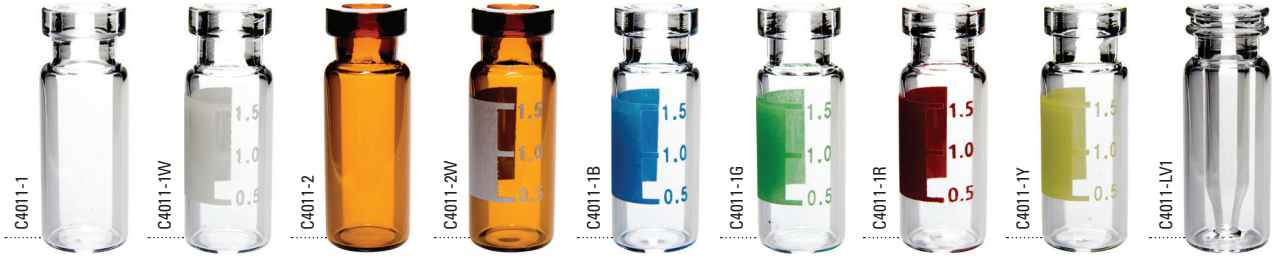
For autosampler compatibility look on pages **2-109 to 2-114**

- Superior quality 33 expansion borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass
- I-D vials feature a write-on patch with graduation for convenient sample identification
- Standard opening requires Micro-Inserts with a diameter of 5mm
- 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

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 see page **2-058**



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

* For information about silanized products see page **2-058**

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	–	6x31	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	–	6x30	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	–	6x31	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 see page **2-058**

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
	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
	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
11mm Crimp Cap, 5.5mm hole, Mixed Color, 200 each	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**	100

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

C4012-100

C4012-101

C4012-102

C4012-100SS

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 **2-100**

National 11mm Crimp Top Convenience Kits

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

Unassembled kits

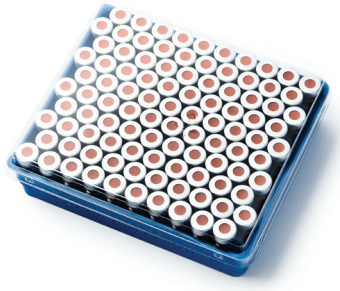
- Includes 100 vials and 100 caps with pre-assembled septa
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Clear trays make it easy to keep track of available supplies without opening containers

Assembled kits

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

Convenience Kit

Assembled Kit



Convenience Kit

Items not shown to scale

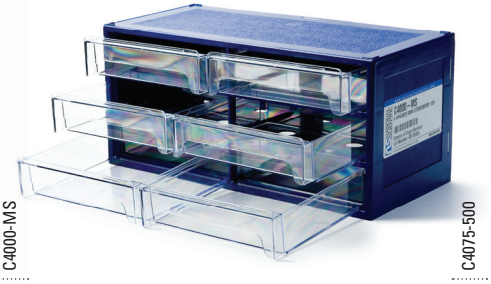
National 11mm Crimp Top Convenience Kits

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
	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
Kit includes PolySpring Tapered Insert for small sample volumes	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


C4011-688W


C4000-MS


C4075-500

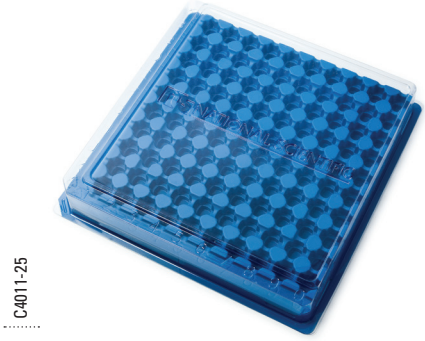
Items not shown to scale

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


C4011-25


C4012-25

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 look on pages **2-109 to 2-114**

- Superior quality 33 expansion borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass
- 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 see page **2-058**

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	–	6x31	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	–	6x30	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	–	6x31	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 see page **2-058**

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
	Pink	Polyethylene	Clear PTFE/Synthetic Red Rubber	60	1.0	**C4011-51P**	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
	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
	Clear	Polyethylene	Red PTFE/White Silicone	50	1.3	**C4011-54**	100
	Blue	Polyethylene	Red PTFE/White Silicone	50	1.3	**C4011-54B**	100
	Black	Polyethylene	Red PTFE/White Silicone	50	1.3	**C4011-54BLK**	100
	Green	Polyethylene	Red PTFE/White Silicone	50	1.3	**C4011-54G**	100
	Pink	Polyethylene	Red PTFE/White Silicone	50	1.3	**C4011-54P**	100
	Red	Polyethylene	Red PTFE/White Silicone	50	1.3	**C4011-54R**	100
	Yellow	Polyethylene	Red PTFE/White Silicone	50	1.3	**C4011-54Y**	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	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

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

National 13mm Snap/Crimp Vials

4mL, 15x45mm Snap/Crimp Cap Vials and Inserts

- Superior quality 33 expansion borosilicate clear (Type 1, Class A) Vials 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)

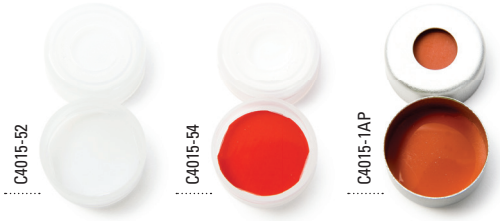
For autosampler compatibility look on pages **2-109 to 2-114**

National 13mm Snap/Crimp 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 Snap/Crimp 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 Snap/Crimp 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 Snap/Crimp 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 Snap/Crimp 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 **2-100**

National 4mL Screw Thread Vials

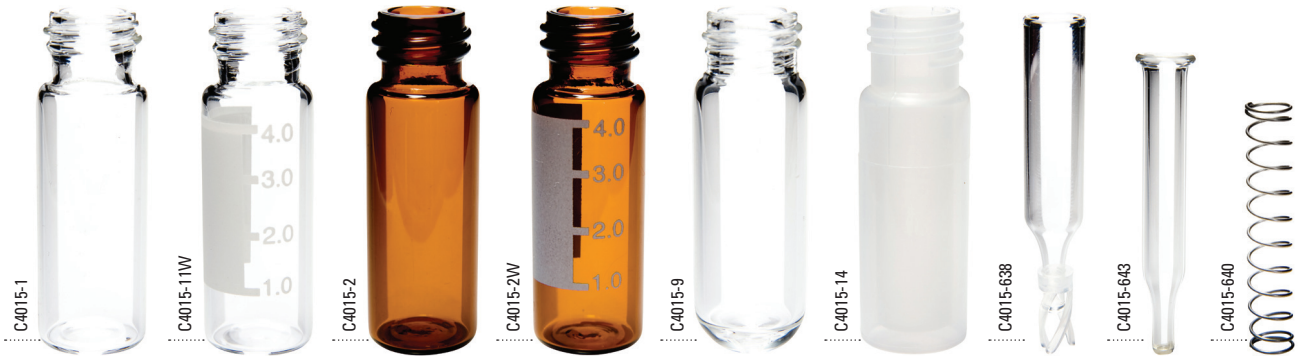
4mL, 15x45mm Screw Thread Vials and Inserts

- 13-425 thread finish
- I-D vials feature a write-on patch with graduation for convenient sample identification
- Superior quality 33 expansion borosilicate clear (Type 1, Class A) or 51A amber (Type 1, Class B) glass
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts
- 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 look on pages **2-109 to 2-114**



National 4mL 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	15x45	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 see page **2-058**

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	Phenolic	–	–	–	**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	65	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	Phenolic	Red PTFE/White Silicone	60	1.5	**C4015-66A**	100
13mm Urea Solid Top Storage Cap, 13-425 thread	White	Polypropylene	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

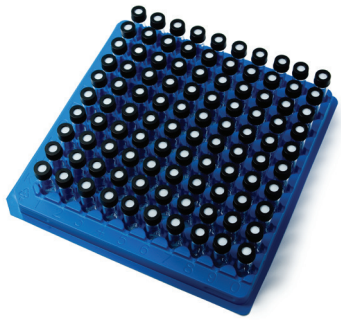
- Includes 100 vials and 100 caps with pre-assembled septa

Assembled kits

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

C4015-88

C4015-21



C4015-017

Items not shown to scale

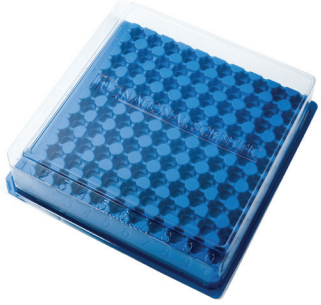
National 4mL Screw ThreadConvenience Kits

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 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

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 look on pages **2-109 to 2-114**

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 (Type 1, Class A) glass
- 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 look on pages **2-109 to 2-114**

Images shown are 90% to scale

National 20mm Crimp Top 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	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 20mm Crimp Top 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	–	–	–	**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 on **PAGE 2-056**

National 20mm Crimp Top Headspace Unassembled Convenience Kits

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

Item not shown to scale

National 20mm Crimp Top Headspace Unassembled Convenience Kits

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

C4020-100

C4020-101

C4020-102

C4020-100SS

Items not shown to scale

National 20mm Headspace Crimping and Decrimping Tools

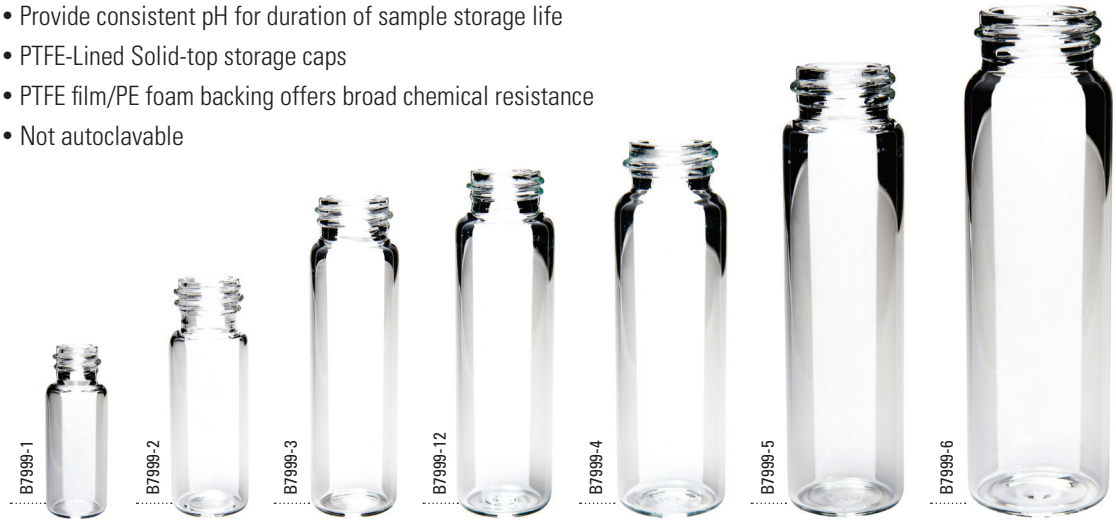
Description	Use	**Cat. No.**	Pack of
Manual Crimper	Attaches 20mm crimp seals	**C4020-100**	1
Decapping Pliers	Removes 20mm crimp seals, Protective gloves recommended	**C4020-101**	1
Manual Decrimper	Removes 20mm crimp seals	**C4020-102**	1
Manual stainless steel Cleanroom Crimper	Attaches 20mm crimp 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 **2-100**

National Sample Storage Screw Thread Vials

Sample Storage Screw Thread Vials, Caps and Septa

- Capacity ranges from 2-40mL
- Superior quality 33 expansion borosilicate clear (Type 1, Class A) or 51A amber (Type 1, Class B) glass
- 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
Septa for 8-425 Screw Cap	–	–	0.005" White PTFE/0.09" Clear Silicone	50	1.5	**B7995-8**	100
Septa for 13-425 Screw Cap	–	–	0.005" White PTFE/0.09" Clear Silicone	50	1.5	**B7995-13**	100
Septa for 15-425 Screw Cap	–	–	0.01" White PTFE/0.09" Clear Silicone	50	2.6	**B7995-15**	100
Septa for 18-400 Screw Cap	–	–	0.01" White PTFE/0.09" Clear Silicone	50	2.6	**B7995-18**	100
Septa for 20-400 Screw Cap	–	–	0.01" White PTFE/0.09" Clear Silicone	50	2.6	**B7995-20**	100
Septa for 24-400 Screw Cap	–	–	0.01" White PTFE/0.09" Clear Silicone	50	2.6	**B7995-24**	100
Septa 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	0.01" White PTFE/0.05" Clear Silicone	B7920-VO	B7815-24	**B7800-20**	100
	Amber	20	White	Polypropylene		B7921-VO	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-attached 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)	Class	Septum	Cat. No.	Pack of
EPA Screw Vial Convenience Kit	Clear	40	100	0.01" White PTFE/0.09" Clear Silicone	**B7950-B**	100
EPA Screw Vial Assembled Kit	Clear	40	100	0.01" White PTFE/0.09" Clear Silicone	**B7950**	100
	Amber	40	100	0.01" White PTFE/0.09" Clear Silicone	**B7951**	100
	Clear	20	100	0.01" White PTFE/0.09" Clear Silicone	**B7920**	100
	Amber	20	100	0.01" White PTFE/0.09" Clear Silicone	**B7921**	100

B7950-VO B7951-VO 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-VO**	100
	Amber	–	28x95	40	–	**B7951-VO**	100
24-400 EPA Screw Cap	–	White	–	–	Polypropylene	**B7950-1A**	100
Septa for 24-400 Screw Cap	–	–	–	–	0.01" White PTFE/0.09" Clear Silicone	**B7995-24**	100

Septum Selection Guide

Septa for use with general chromatography vials, liquid injection

PTFE/Natural Red Rubber

PTFE Natural Red Rubber are moderately priced seals for GC and HPLC with good chemical properties. They are ideal for multiple injections due to high resealability, but not as easy to penetrate as PTFE/RR. Natural rubber septa are offered assembled into aluminum crimp seals.

PTFE/Synthetic Red Rubber Septa: (PTFE/RR)

PTFE/ Synthetic Red Rubber septa are an economical choice for general GC and HPLC applications. Used primarily for routine analysis in gas chromatography with FID, TCD and FPD detectors or HPLC with UV/Vis or RI detectors, PTFE/Synthetic Red Rubber septa offer good resealability and excellent chemical inertness before puncture. The low durometer of red rubber allows for easy needle penetration even with thin bore GC needles. PTFE/Red Rubber septa are not recommended for multiple injections with long run times or retention of samples for further analysis after initial puncture.

PTFE/Silicone Septa: (T/S)

PTFE/Silicone is the most versatile septum material offered in various formulations to address specific applications requirements. Extractables from PTFE/Silicone septa are generally at lower levels compared to other resealable materials. PTFE/Silicone septa are formulated for different hardness (durometer) meeting requirements of various needle types. Formulations offering highly consistent performance, lowest background/blank value, and good chemical compatibility, effective sealing/resealing and low penetration force make PTFE/silicone septa suitable for all types of chromatographic applications. A thin film of PTFE is laminated to the side of the septum that faces the sample to limit exposure of the elastomer to the solvent. PTFE/Silicone septa are ideal for use in most HPLC and GC applications where resealability and purity are critical.

Pre-slit PTFE/Silicone Septa

Pre-slit septa are offered in many of the same formulations as for non-slit PTFE/silicone septa and shares most of the physical and chemical characteristics. The septum is provided with a thin 0.005" PTFE layer laminated to highly pure silicone, and slit through the center for easier needle penetration and to release the vacuum that forms when a large volume of sample is withdrawn from a vial. This septum provides chromatographic characteristics similar to that of a septum without a slit, except that the ability to withstand exposure to aggressive solvents is slightly lessened. Pre-slit septa are highly recommended for Shimadzu, Hitachi, and other autosamplers with thin gauge needles.

PTFE/Silicone/PTFE Septa: (T/S/T)

A layer of inert PTFE film is laminated to each side of high-purity, medium durometer silicone to form a septum that is resistant to coring, but still maintains good resealing characteristics. T/S/T septa are recommended for the most critical applications such as ultratrace analysis, where there is a longer time between injections. T/S/T septa provide superior performance with any autosampler employing a large diameter, blunt-tip needle. T/S/T septa can have benefits when working with solvents that tend to attack silicone by protecting both sides of the elastomer.

PTFE Disk Septa

A solid disk of 0.010" thick pure PTFE offers superior chemical inertness against the most aggressive solvents. The thin membrane allows for penetration by most normal gauge metal HPLC needles. PTFE septa are not resealable and should not be used with highly volatile solvents, short cycle times or multiple injection methods. PTFE septa are rarely used for GC applications.

Polyethylene (PE) Septa and Integral Molded Closures

Chemically resistant polyethylene septa are usually molded into single-piece caps. The surface for needle penetration is 0.01" thick, allowing for use with most HPLC autosamplers. Polyethylene septa are not resealable and are intended for single injection use with aqueous based sample mixtures.

Polypropylene (PP) Septa and Integral Molded Closures

Chemically resistant polypropylene septa are available molded into single piece caps or as 0.01" thick disks inserted into closures. The surface for needle penetration is 0.01" thick, allowing for use with most HPLC autosamplers. Polypropylene septa are not resealable and are intended for single injection use with aqueous based sample mixtures. Polypropylene septa offer better solvent compatibility compared to polyethylene, but piercing force is slightly higher.

Viton Septa

Viton septa are used in situations where a resealable septum is required for a sample matrix that aggressively attacks all other materials. Viton offers chemical resistance similar to PTFE along with limited ability to reseal after initial puncture. Viton septa have a high resistance to piercing and due to their high cost are considered to be the septum of last resort when all other materials are unsuitable.

Septum Selection Guide

20mm Headspace Septa

Gray Butyl Stopper: (C4020-30)

An economical septum for lower temperature (125°C) or low-pressure applications. Gray Butyl stoppers do not provide a PTFE film barrier and are not suitable for use with alkanes, benzene, chlorinated solvents or cyclohexane. Butyl rubber stoppers are preferred for analysis of fixed gases and where absolute resistance to moisture penetration is required.

Gray PTFE/Red Rubber Septa: (C4020-34)

Good solvent resistance, good resealing characteristics, resistant to coring. An economical choice where a PTFE barrier is desired. PTFE facing improves solvent compatibility until initial puncture.

PTFE/White Silicone PurePack Septa: (C4020-32)

Excellent choice for general volatiles analysis. Septa are packed in a glass PurePak jar to assure low background, low permeability, and the highest performance of any headspace septum. PTFE/Silicone septa provide excellent resealing characteristics and broad chemical compatibility.

Gray PTFE/Molded Black Butyl Septa (Pharmafix Style): (C4020-36)

C4020-36 is a molded septum featuring a PTFE-faced center surface that does not extend to the edges of the septum. The PTFE center area provides good resistance to a wide variety of solvents. The center puncture area is resistant to coring and will reseal after several punctures. The grey butyl outer sealing edge conforms well to the rim of the vial affecting a more positive seal against loss of fixed gases.

PTFE/Blue High Purity Silicone Septum(C4020-38A and C4020-42A)

Translucent blue silicone is specially formulated and treated to reduce background from extractables or outgassing of volatile contaminants. The silicone elastomer layer is dense but still easily pierced by most headspace sampling needles.

Black Rubber Septa: (C4020-40)

Black Rubber septa are molded from a higher density rubber compound compared to the standard red rubber. This septum has characteristics similar to the Gray Butyl stopper. The Black Rubber septum is an economical choice for applications where reduced levels of vapor penetration are desired.

Temperature Stability Chart

	min. Temp °C	max. Temp °C	min. Temp °F	max. Temp °F
PTFE/Natural Red Rubber	-10	+85	14	+185
PTFE/Synthetic Red Rubber Septa: (PTFE/RR)	-30	+110	-22	+230
PTFE/ High Perfomance Red Rubber Septa	-40	+110	-40	+230
PTFE/Silicone Septa: (T/S)	-60	+200	-76	+392
PTFE/Silicone/PTFE Septa: (T/S/T) *	-60	+200	-76	+392
PTFE Septa *	-200	+250	-328	+482
Polyethylene (PE) *	-50	+80	-58	+176
Polypropylene (PP) *	0	+121	32	+250
Butyl/Chlorobutyl/Bromobutyl Stopper or Septa	-20	+125	-4	+257
Gray PTFE/Red Rubber	-40	+120	-40	+248
PTFE/White Silicone PurePack Septa	-60	+200	-76	+392
Gray PTFE/Molded Black Butyl (Pharmafix) Septa	-20	+125	-4	+257
Black Rubber Septa	-20	+100	-4	+212

*This septum is used for liquid injection. 20mm version is not available.

Deactivated Glass Vials and Inserts

We use only the highest-quality glass to manufacture vials and inserts. Clear and Amber glass tubes have been selected for their consistent composition, dimensional stability and cleanliness. The vast majority of chemical compounds demonstrate no interaction with our standard, untreated glass products. Strongly polar compounds present at trace concentrations may exhibit lower than expected recoveries due to interactions with Si-OH active sites that are present in all borosilicate glass. The use of a deactivated sample vial is recommended for these samples.

We employ two methods of surface treatment to produce a deactivated product for those instances where a specific compound displays an undesirable interaction with the standard glass product. Most reactive compounds will give a similar improvement in results for either deactivation method.

A few compounds will give a better result in one treatment compared to the other. We recommend that compound recovery be first evaluated in our standard glass product, followed by the silanized product and finally in our Kimshield deactivated product.

The following are general descriptions of the glass deactivation treatments available.

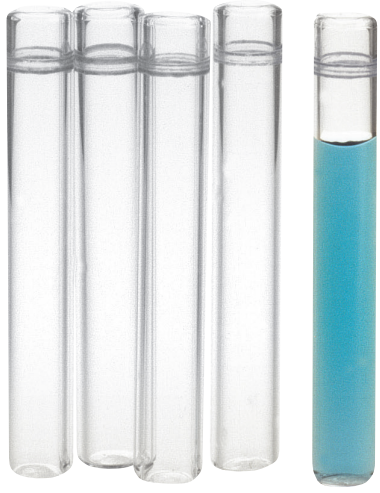
Silanized Products:

Silanized glassware is the most widely applicable and popular deactivation method in use for improving the recovery of reactive compounds from glass vials and inserts. A proprietary methylating agent is introduced by vapor phase deposition onto the surface of the glassware. Our controlled vapor phase deposition process assures complete and uniform surface coverage. Silanization lowers the surface tension of the glass and forms a hydrophobic barrier that discourages leaching of trace glass constituents into aqueous solutions and adsorption of trace sample components onto the surface of the glass. Vapor phase deposition leaves no liberated acids or other residues that are common with other treatment methods. Our automated silanization process assures that every vial will be consistently treated – leaving a minimum of unreacted silanol groups.

Kimshield Deactivation:

Kimshield Deactivation is also a vapor deposition method employing a proprietary silicone fluid to coat the surface of the glass. Kimshield deactivation lowers the surface tension of the glass and forms a hydrophobic barrier similar to silanization, but with a slightly different functionality.

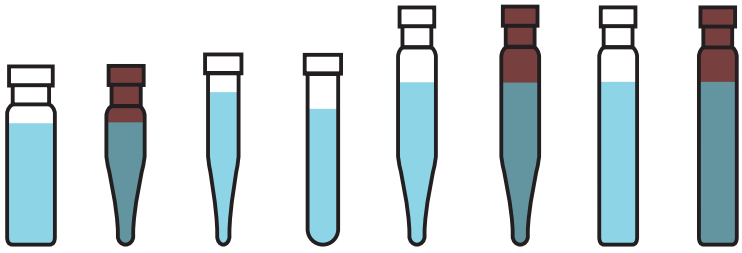
As with Silanized products, Kimshield deactivated vials and inserts do not release acids, solvents or other residues. Kimshield deactivation is slightly less durable compared to Silanization, but will withstand exposure to most solvents that are compatible with borosilicate glass.



National Vial Reference Chart

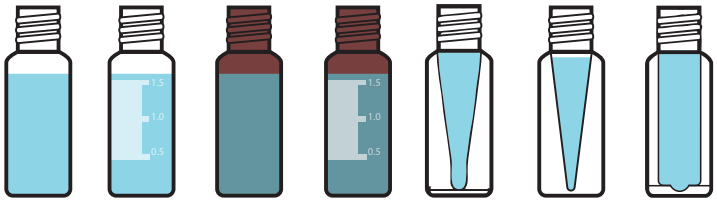
* Drawing is valid for: C4000-1B, C4000-1G, C4000-1R, C4000-1Y
Images shown are 80% to scale

8mm CrimpTop Vials



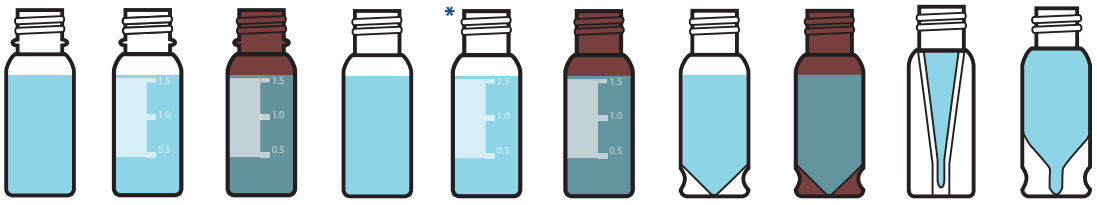
Part No.	C4008-1	C4008-730	C4008-632C	C4008-632R	C4008-739	C4008-740	C4008-741	C4008-742
Dimensions	8x30	7x30	6x32	6x32	7x40	7x40	7x40	7x40
Common Description	0.8mL	0.5mL	0.2mL	0.3mL	0.7mL	0.7mL	0.8mL	0.8mL
Approx. Total Capacity	1mL	550µL	250µL	325µL	575µL	575µL	775µL	775µL
Rec. Usable Volume	0.8mL	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



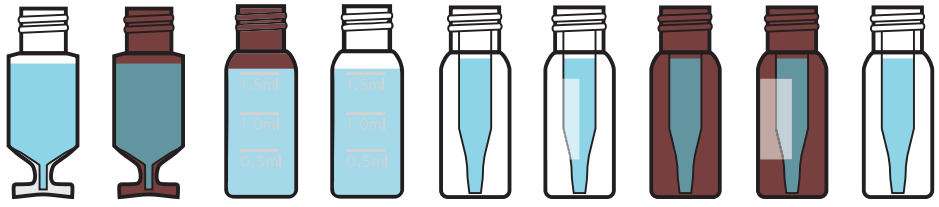
Part No.	C4013-1	C4013-1W	C4013-2	C4013-2W	C4013-11	C4013-12	C4013-13
Common Description	2mL	2mL	2mL	2mL	250µL	100µL	600µL
Approx. Total Capacity	1.9mL	1.9mL	1.9mL	1.9mL	475µL	400µL	850µL
Rec. Usable Volume	1.5mL	1.5mL	1.5mL	1.5mL	250µL	200µL	675µL
Residual Volume	<170µL	<170µL	<170µL	<170µL	<3µL	<2µL	<8µL
Composition	Glass	Glass	Amber	Amber	Polypro	Glass	Polypro

Target DP 9mm Screw Vials 12x32mm



Part No.	C5000-1	C5000-1W	C5000-2W	C4000-1	C4000-1W *	C4000-2W	C4000-9	C4000-9A	C4000-11	C4000-9TR
Common Description	2mL	2mL	2mL	2mL	2mL	2mL	1.5mL	1.5mL	450µL	1.5mL
Approx. Total Capacity	2mL	2mL	2mL	2mL	2mL	2mL	1.7mL	1.7mL	250µL	1.5mL
Rec. Usable Volume	1.5mL	1.5mL	1.5mL	1.5mL	1.5mL	1.5mL	1.3mL	1.3mL	250µL	1.2mL
Residual Volume	<170µL	<170µL	<170µL	<170µL	<170µL	<170µL	<4µL	<4µL	<1µL	<1µL
Composition	Glass	Glass	Amber	Glass	Glass	Amber	Glass	Amber	PolyPro	Glass

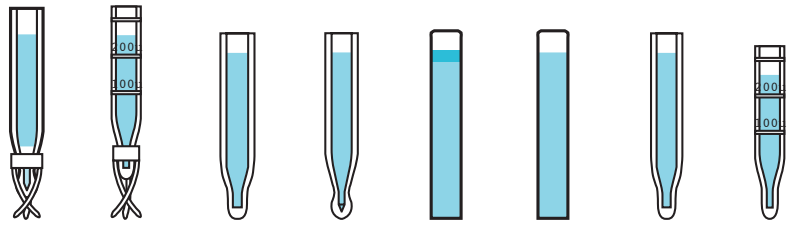
Target DP 9mm Screw Vials 12x32mm



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

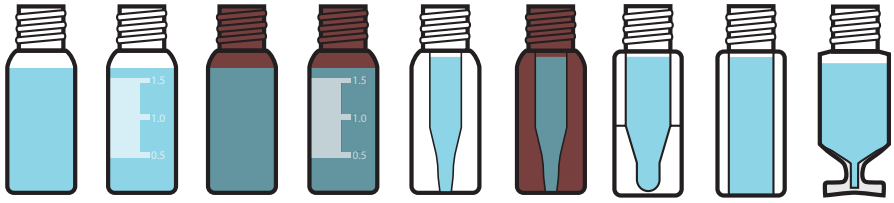
Target DP Microvolume Inserts

* Drawing is valid for: C4011-1B, C4011-1G, C4011-1R, C4011-1Y
Images shown are 80% to scale



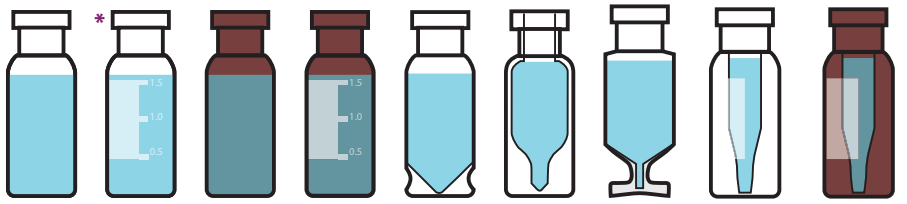
Part No.	C4010-630	C4010-630P	C4010-627L	C4010-629L	C4011-631	C4011-631P	C4010-629	C4010-629P
Dimensions	6x31mm	6x30mm	6x31mm	6x31mm	6x31mm	6x31mm	6x30mm	6x30mm
Common Description	300µL	300µL	350µL	350µL	400µL	300µL	300µL	300µL
Approx. Total Capacity	375µL	325µL	400µL	400µL	500µL	500µL	375µL	325µL
Rec. 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

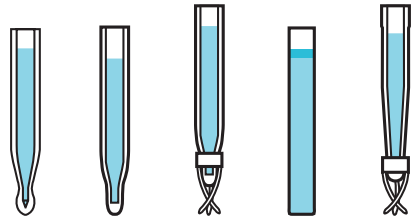


Part No.	C4011-1	C4011-1W	C4011-2	C4011-2W	C4011-9	C4011-10	C4011-V1	C4011-LV1W	C4011-LV2W
Common Description	2mL	2mL	2mL	2mL	1.5mL	400µL	1.5mL	250µL	250µL
Approx. Total Capacity	2mL	2mL	2mL	2mL	1.7mL	650µL	1.5mL	500µL	500µL
Rec. Usable Volume	1.5mL	1.5mL	1.5mL	1.5mL	1.3mL	500µL	1.1mL	350µL	350µL
Residual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

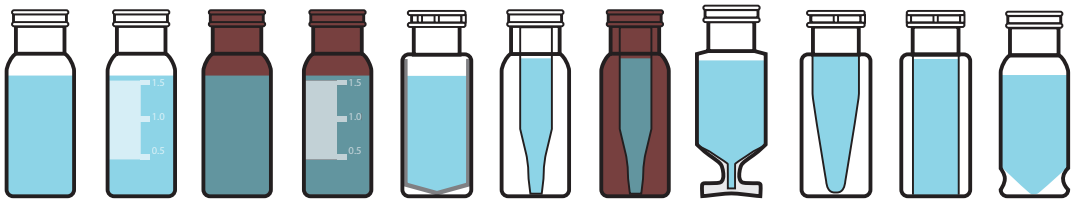
Standard Microvolume Inserts



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

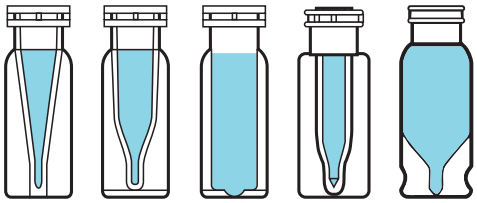
National Vials Comparison Chart

11mm Snap-It-Vials – 12x32mm



	C4011-5	C4011-5W	C4011-6	C4011-6W	C4011-24	C4011-LV1	C4011-LV2	C4011-V5	C4011-11	C4011-14	C4011-4
Common Description	2mL	2mL	2mL	2mL	700µL	350µL	350µL	1.5mL	800µL	3700µL	1.5mL
Approx. Total Capacity	2mL	2mL	2mL	2mL	1000µL	500µL	500µL	1.5mL	800µL	1000µL	1.7mL
Rec. Usable Volume	1.5mL	1.5mL	1.5mL	1.5mL	750µL	350µL	350µL	1.1mL	600µL	800µL	1.3mL
Residual Volume	<170µL	<170µL	<170µL	<170µL	<8µL	<2µL	<2µL	<4µL	<6µL	<80µL	<4µL
Composition	Glass	Glass	Amber	Amber	TPX	Glass	Amber	Glass	Polypro	Polypro	Glass

11mm Snap-It-Vials – 12x32mm

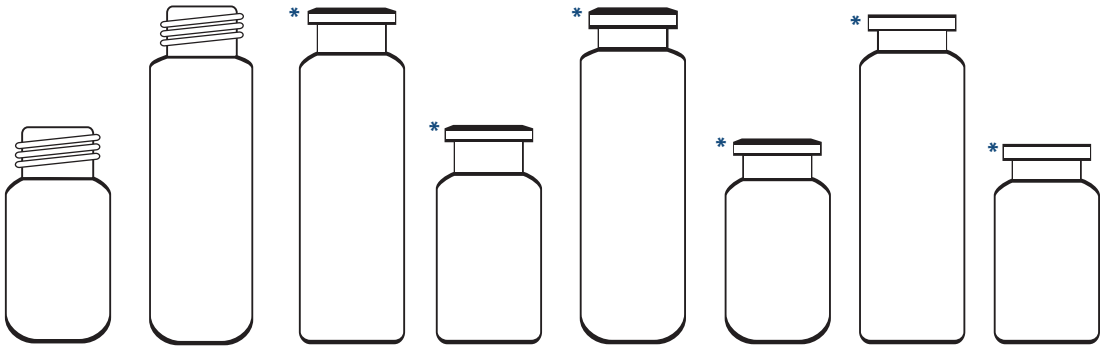


	C4011-13	C4011-16	C4011-15	C4012-15	C4011-9TR
Common Description	250µL	600µL	850µL	250µL	1.5mL
Approx. Total Capacity	475µL	600µL	825µL	475µL	1.5mL
Rec. Usable Volume	300µL	400µL	650µL	350µL	1.2mL
Residual Volume	<2µL	<4µL	<8µL	<4µL	<1µL
Composition	Polypro	Polypro	Polypro	Glastic	Glass

Headspace Vials

	C4020-6	C4020-60	C4020-27
Common Description	6mL	6mL	27mL
Approx. Total Capacity	9mL	9mL	27mL
Composition	Glass	Glass	Glass

Headspace Vials

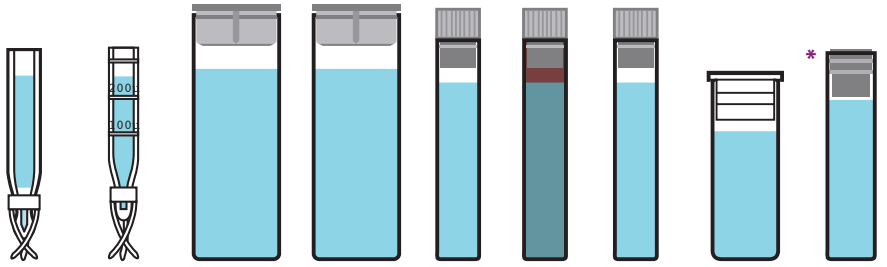


	C4020-180	C4020-18	C4020-20	C4020-10	C4020-2	C4020-210	C4020-25	C4020-410
Common Description	10mL	20mL	20mL	10mL	20mL	10mL	20mL	10mL
Approx. Total Capacity	12mL	21mL	21mL	12mL	21.5mL	12mL	21.5mL	12.5mL
Composition	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass

Images shown are 80% to scale

* 60% to scale

Shell Vials and Inserts

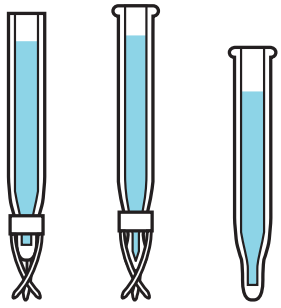


Part No.	C4015-96A	C4015-96PA	C4015-48	C4015-47P	C4015-96	C4015-99	C4015-95P	C4011-80	C4008-50
Dimensions	5x34mm	5x29mm	–	–	–	–	–	–	8x35mm
Common Description	250µL	275µL	4mL	4mL	1mL	1mL	1mL	2mL	1mL
Approx. Total Capacity	375µL	375µL	5.5mL	5.5mL	1.25mL	1.25mL	1.25mL	2.4mL	1mL
Rec. Usable Volume	210µL	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

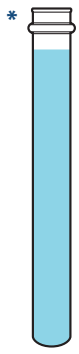
Part No.	C4015-1	C4015-11W	C4015-2	C4015-2W	C4015-9	C4015-14
Common Description	4mL	4mL	4mL	4mL	3.5mL	2.5mL
Approx. Total Capacity	5.2mL	5.2mL	5.2mL	5.2mL	4.5mL	2.5mL
Rec. Usable Volume	4mL	4mL	4mL	4mL	3.5mL	2mL
Residual Volume	<800µL	<800µL	<800µL	<800µL	<15µL	<15µL
Composition	Glass	Glass	Amber	Amber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

Microvolume Inserts for 15x45mm 4mL Vials



Part No.	C4015-638	C4015-641	C4015-643
Dimensions	6x38mm	6x41mm	6x42mm
Common Description	700µL	500µL	500µL
Approx. Total Capacity	950µL	575µL	375µL
Rec. Usable Volume	800µL	500µL	300µL
Residual Volume	<9µL	<6µL	<8µL
Composition	Glass	Glass	Glass

TOC Vials



Part No.	C4011-1296
Common Description	5mL
Approx. Total Capacity	5mL
Composition	Glass

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

Thermo Scientific 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_2O_3	Al_2O_3	CaO	MgO	Na_2O	K_2O	BaO
33 expansion Glass	80%	13%	3%	0.1%	–	4%	0.1%	<0.1%
N-51A Glass	72%	12%	7%	1%	–	6%	2%	<0.1%
Neutral Borosilicate-GOLD Grade	80.6%	13%	2.3%	–	–	4%	–	–

For autosampler compatibility look on pages **2-109** to **2-114**

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

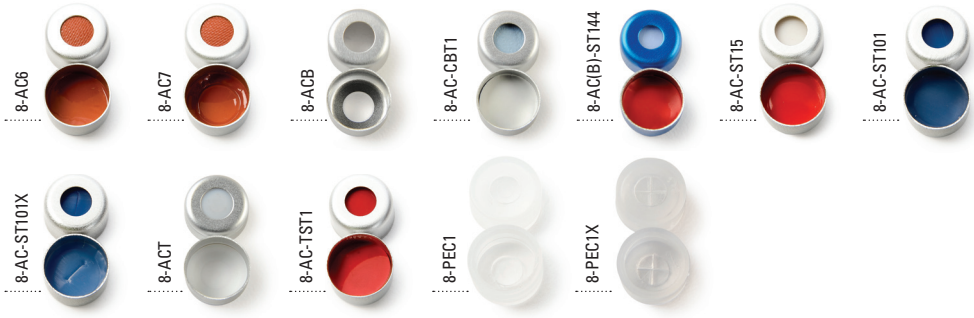
Chromacol 8mm Crimp Top Vials (Continued)

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

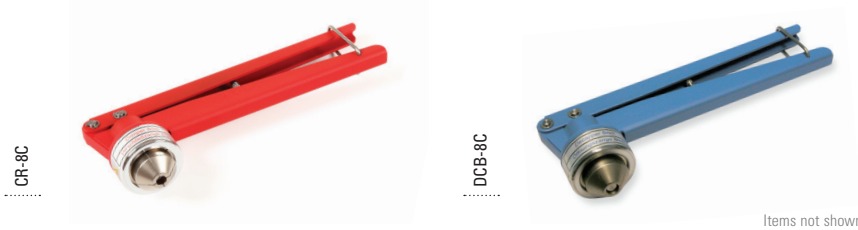


Chromacol 8mm Crimp Top Closures

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**	1000
	Clear	Polyethylene	Integral Molded In Polyethylene, Pre-cut	–	–	**8-PEC1X**	1000

Chromacol Crimping and Decrimping Tools

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



Items not shown to scale

Chromacol Crimping and Decrimping Toops

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 **2-100**

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

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

Recommended for the following instruments:

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

For autosampler compatibility look on pages **2-109 to 2-114**

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 0.6mL Vial, White	HDPE	No	12x32	Insert Vial	0.6	0.4	<3	**06-PESV**	500
200µL Insert	Clear Glass	No	5x31	Flat Bottom	250µL	200µL	<12	**02-NV**	1000
	Clear Glass	No	5x30	Conical	200µL	160µL	<4	**02-MTV**	1000
Self-centering support device for tapered glass inserts	Polyethylene	–	–	–	–	–	–	**MTS-1**	500
Support Sleeve for 1.1-STVG	PTFE	–	–	–	–	–	–	**TTS-312**	50

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

Chromacol Screw Thread Caps and Septa

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

Chromacol 8-425 Screw Thread Caps and Septa

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

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

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

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 on **PAGE 2-092–2-093**

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 **2-002 to 2-003**
- 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 clear, Type 1 Class A or amber, Type 1 Class B borosilicate glass
- Microsampling and High Recovery Vials allow maximum sample extraction without need for separate inserts

Compatible with:

Most HPLC and GC autosamplers

For autosampler compatibility look on pages **2-109 to 2-114**

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-SVWGK**	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 **2-002**

Chromacol 9mm Screw Thread Closures

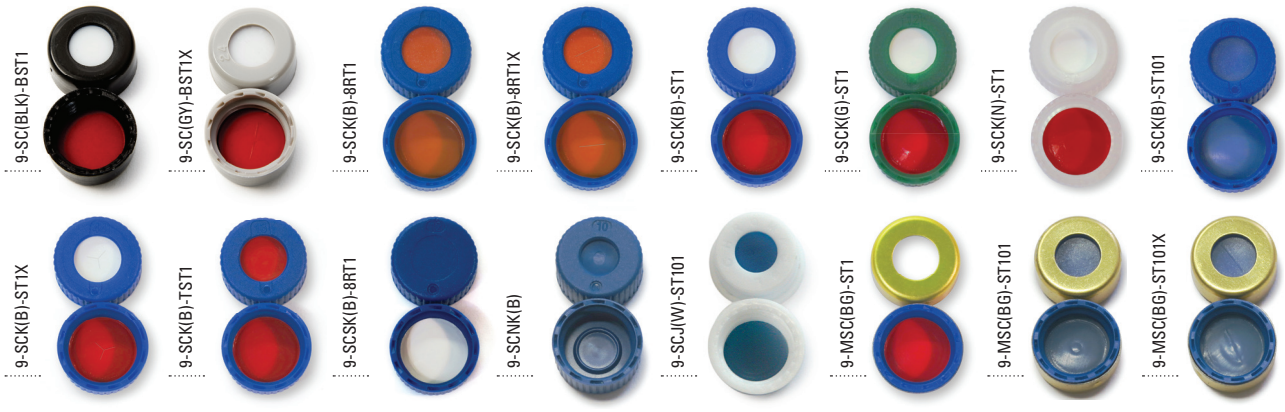
AVCS Advanced Vial Closure System

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-SC(BLK)-BST1**	500
	Gray	Polypropylene	Bonded Red PTFE/White Silicone, Pre-slit	45	1.2	**9-SC(GY)-BST1X**	500
9mm Open Top Short Screw AVCS Cap, 6mm hole	Blue	Polypropylene	Red Natural Rubber/Clear PTFE	58	1.0	**9-SCK(B)-8RT1**	500
	Blue	Polypropylene	Red Natural Rubber/Clear PTFE, Pre-slit	58	1.0	**9-SCK(B)-8RT1X**	500
	Blue	Polypropylene	White Silicone/Red PTFE	57	1.0	**9-SCK(B)-ST1**	500
	Green	Polypropylene	White Silicone/Red PTFE	57	1.0	**9-SCK(G)-ST1**	500
	Clear	Polypropylene	White Silicone/Red PTFE	57	1.0	**9-SCK(N)-ST1**	500
	Blue	Polypropylene	Blue Silicone/PTFE	30	1.0	**9-SCK(B)-ST101**	500
	Blue	Polypropylene	White Silicone/Red PTFE, Y-Pre-slit	57	1.0	**9-SCK(B)-ST1X**	500
	Blue	Polypropylene	Red PTFE/White Silicone/Red PTFE	57	1.0	**9-SCK(B)-TST1**	500
9mm Solid Top Short Screw Cap	Blue	Polypropylene	Red Natural Rubber/Beige PTFE	58	1.0	**9-SCSK(B)-8RT1**	500
9mm Short Screw 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 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
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Caps feature pre-inserted septa for added convenience during sample preparation

2-SVW8-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
IS Kit, for PerkinElmer LC Autosampler	Clear	Yes	Green	White Silicone/Red PTFE, Pre-slit	2-SVW	9-SCK(G)-ST1X	**PELK**	100
IS Kit, for Waters Alliance LC Autosampler	Clear	Yes	Black	Bonded Red PTFE/ White Silicone	2-SVW	9-SC(BLK)-BST1	**WALB**	100

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

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

Compatible with:

Most HPLC and GC autosamplers

For autosampler compatibility look on pages **2-109 to 2-114**

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

Description	Glass	Patched	Dimension (mm)	Profile	Total Volume	Usable Volume	Residual (µL)	Cat. No.	Pack of
11mm Crimp Top Vial, Wide Opening	Clear	Glass	15x46	Flat Bottom	4.0mL	3.5mL	<500	**4-CV**	500
	Clear	Glass	12x40	Flat Bottom	2.5mL	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 Wide Opening Crimp Top Vials and Inserts (Continued)

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

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

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

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

Chromacol 11mm Crimp Top Closures

- Pre-assembled caps and septa are convenient and minimize contamination from handling
- Aluminum crimp closures provide a secure leak-resistant seal
- Aluminum seals must be applied with a crimping tool
- Closures are shipped in sealed polybags to prevent contamination during transport
- 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, Sulphur free	38	1.0	**11-AC6**	500
	Blue	Aluminum		38	1.0	**11-AC6(B)**	500
	Red	Aluminum		38	1.0	**11-AC6(R)**	500
11mm Crimp Cap, 6mm 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 Alloy	White Silicone/Red PTFE	57	1.3	**11-MC-ST15**	500
11mm Crimp Cap, magnetic, Type 8 Rubber/PTFE	Silver	Steel Alloy	Red Natural Rubber/Clear PTFE	38	1.0	**11-MC-8RT1**	500
11mm Crimp Cap, magnetic	Silver	Steel Alloy	Blue Silicone/PTFE	30	1.0	**11-MC-ST101**	500
11mm Snap Cap for Crimp Vials	Clear	Polyethylene	–	–	–	**11-PEC1**	1000
11mm Snap Cap for Crimp Vials, Pre cut	Clear	Polyethylene	–	–	–	**11-PEC1X**	1000
11mm Snap Cap for Crimp Vials	Clear	Polyethylene	White Silicone/Red PTFE	57	1.0	**11-PEC-ST1**	500

Trying to decide what closure is right for you?
Use our selection guide on **PAGE 2-056**

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 prefitted septa
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Caps feature pre-inserted septa for added convenience during sample preparation

Items not shown to scale

Chromacol 11mm Crimp Top Convenience and Instrument Select (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 CTC LCPAL Autosampler	Clear	Yes	Blue	Blue Silicone/Red PTFE	2-CV	11-AC(B)-ST144	**CTCL**	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 Spark LC Autosampler	Clear	Yes	Silver	Red Natural Rubber/Clear PTFE, Type 7	2-CV	11-AC7	**SPL**	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 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

Items not shown to scale

Chromacol 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 **2-100**

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

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

Compatible with:

Most HPLC and GC autosamplers

For autosampler compatibility look on pages **2-109 to 2-114**

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 see page **2-058**

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-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 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
- Reusable two compartment trays protect vials and closure while keeping matching supplies together
- Caps feature pre-inserted septa for added convenience during sample preparation

Items not shown to scale

Chromacol 11mm Snap Cap Wide Opening Vial Convenience Kits

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

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

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

Compatible with:

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

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

For autosampler compatibility look on pages **2-109 to 2-114**

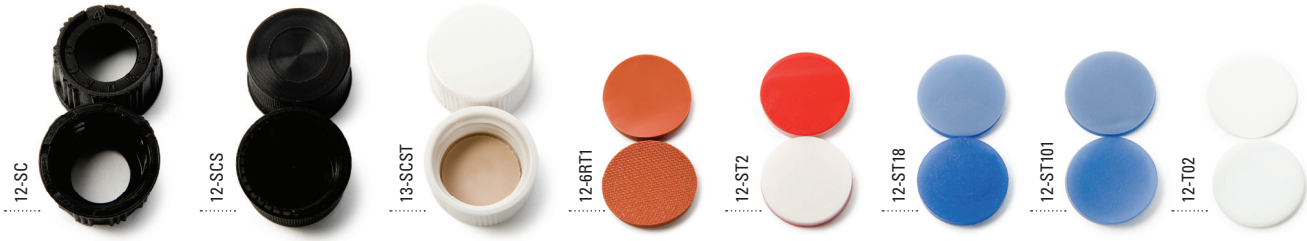
Images shown are 60% to scale
* 40% to scale

Chromacol 13mm Screw Vials

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

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

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



Chromacol 13-425 Screw Thread Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
13mm Open Top Screw Cap, 13-425 thread, 8mm hole	Black	Polypropylene	–	–	–	**12-SC**	500
	White	Polypropylene	–	–	–	**12-SC(W)**	500
	Red	Polypropylene	–	–	–	**12-SC(R)**	500
	Yellow	Polypropylene	–	–	–	**12-SC(Y)**	500
13mm Solid Top 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	Red PTFE/White Silicone	57	2.0	**12-SC-ST2**	500

Chromacol Shell/Neckless Vials

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

Recommended for the following instruments:

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

For autosampler compatibility look on pages **2-109 to 2-114**

Chromacol Shell/Neckless Vials and Kits

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

Trying to decide what glass quality is right for you?

Use our selection guide on **PAGE 2-108**

Chromacol Headspace Vials

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

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

Chromacol Headspace Vials

Description	Glass	Patched	Dimension (mm)	Finish	Profile	Total Volume (mL)	Usable Volume (mL)	**Cat. No.**	Pack of
20mm Headspace Crimp Vial	Clear	No	30x60	Beveled Edge	Flat Bottom	27	27	**27-CV**	100
	Clear	No	22x75	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 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 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 **2-100**

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, 8mm hole	Silver	Aluminum	–	–	–	**20-ACB**	500
20mm Magnetic Crimp Cap, 6mm hole	Silver	Tin-plated	–	–	–	**20-MCB**	500
20mm Composite Magnetic Crimp Cap, 8mm hole	Blue	Alu/Tinplate	–	–	–	**20-MCBC**	500
	Red	Alu/Tinplate	–	–	–	**20-MCBC(R)**	500
18mm Magnetic Screw Cap, 8mm hole	Silver	Steel	–	–	–	**18-MSC**	125
Septum for 20mm Crimp Caps	–	–	20mm Gray 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 Blue Silicone/Natural PTFE	45	3.0	**20-MCBC(R)-ST3**	500
20mm Magnetic Tin Plate Crimp Cap	Silver	Tinplate	20mm Blue Silicone/Natural PTFE	45	3.0	**20-MCB-ST3**	500
20mm Crimp Cap, 8mm hole	Silver	Aluminum	20mm Molded Gray Chlorobutyl/Gray PTFE	52	3.0	**20-AC-CBT3**	500
	Silver	Aluminum	20mm Blue Silicone/Natural PTFE	45	3.0	**20-AC-ST3**	500
18mm Magnetic Screw Cap, 8mm hole	Silver	Steel	18mm Molded Blue Chlorobutyl/Gray PTFE	52	3.0	**18-MSC-CBT3**	125
	Silver	Steel	18mm Blue Silicone/PTFE, not prefitted	30	1.0	**18-MSC-ST101**	125
	Silver	Steel	18mm Blue Silicone/Natural PTFE	45	2.0	**18-MSC-ST201**	125
20mm Plug	Neutral	Polyethylene	PE Membrane	–	–	**20-PEPC5**	250
20mm Composite Magnetic Crimp Cap, 8mm hole	Neutral	Alu/Tinplate	20mm Red Silicone/Natural PTFE, high temperature	45	3.1	**20-MCBC(N)-ST3HT**	500
20mm Magnetic Tin Plate Crimp Cap	Silver	Tinplate	20mm Red Silicone/Natural PTFE, high temperature	45	3.1	**20-MCB-ST3HT**	500
18mm Magnetic Screw Cap, 8mm hole	Silver	Steel	18mm Red Silicone/Natural PTFE, high temperature	45	3.1	**18-MSC-ST3HT**	125

Chromacol Headspace Vial Convenience Kits

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

20-HSVST201-CP

20-CVST3-CP

Items not shown to scale

Chromacol Headspace Vials 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-MSC-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 borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass
- Provide consistent pH for duration of sample storage life
- PTFE-Lined Solid-top storage caps

Caps and Septa images 50% to scale

Chromacol Sample Storage Screw Vials

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

For smaller Vials look at the previous sections

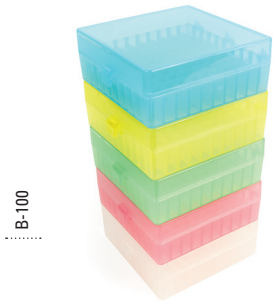
Caps and Septa images 50% to scale

Chromacol Sample Storage Screw Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	**Cat. No.**	Pack of
24-400 Screw Cap	White	Polypropylene	PTFE/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)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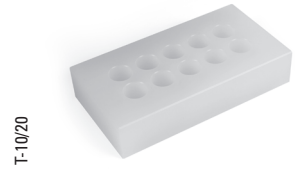
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T-105


T-200

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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

Chromacol EPA , TOC and Scintillation Screw Vials

Level 300 Cleaned and Certified

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

Level 200 Cleaned

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

Level 100

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

TOC Vials

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

Scintillation Vials

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

40-EPAVCS

40-TOCSV-10

Items not shown to scale
* 50% to scale

Chromacol EPA Screw Vial Kits

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

Chromacol TOC Vials Kits

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

Chromacol Scintillation Vials Kit

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

Notes

Seal Hardness

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

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

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

Seals in 18 and 20mm Caps

Seal Material	Hardness °shore	Thickness (mm)	max. Temp °C
CBT3B Bromobutyl/PTFE (Moulded)	52	3	120
CBT3 Bromobutyl/PTFE	52	3	120
CB3 Chlorobutyl	52	3	120
ST3 Blue silicone/PTFE	45	3	200
ST3HT Red silicone/PTFE	45	3	300
ST201 Blue silicone/PTFE	45	2	200
AS3 White silicone/aluminium	45	3	170
ASH3 Red silicone/aluminium	45	3	250

Seal properties

Rubber	Used primarily for routine analysis in gas chromatography. Offers moderate resealability and good chemical inertness.Not recommended for multiple injections or holding samples for further analysis. PTFE is protective layer that once broken exposes rubber to chemical attack.
PTFE/red rubber – AC6, 6RT1	Low durometer of rubber allows ease of needle penetration. A popular and economical septa for general GC purposes.
PTFE/rubber – AC7, 8RT1	Harder grade of rubber for use with piercing needle. Most popular and economical septa for general GC purposes in Agilent systems.
Pre-slit PTFE/red rubber – 8RT1X	Pre-slit, high quality red rubber with a thin (0.003") layer PTFE. For applications using a very thin-gauge syringe needle or in instances when a vacuum may form in the vial.
Silicone rubber	High quality, silicone rubber laminated to PTFE. Use when excellent resealing qualities are a must. Septum resists coring and is recommended when multiple injections are required. Preferred septa for use in liquid chromatography applications.
PTFE/silicone – ST1, ST15, ST18, ST2	A white medium hardness silicone with red PTFE protective layer available in a range of thickness.
PTFE/silicone – ST101, ST14	• A very pure soft silicone laminated to PTFE. Septum resists coring and is recommended for instruments with fine gauge needles. • Also recommended for LC-MS and GC-MS due to high purity.
PTFE /silicone – ST143, ST144	A very soft silicone laminated to PTFE. Use with flexible needle.
PTFE /silicone/PTFE – TST1, TST11	• A layer of PTFE on each side of medium hardness silicone. Most resistant to coring with above average resealing characteristics. • Recommended for most demanding applications such as trace analysis, longer time between injections or for internal standards. • Use with Gilson instruments and with any autosampler using large diameter, blunt-tip syringe needles.
Pre-slit PTFE/silicone – ST1X, ST101X, ST14X	Pre-slit, high quality pure white silicone faced with PTFE. For applications using a very thin-gauge syringe needle or in instances when a vacuum may form in the vial. Highly recommended for Shimadzu and Hitachi autosampler units.
PTFE and fluoropolymers	Very good chemical resistance and used as a protective layer for less resistant elastomers.
PTFE – T, T02	For single injections and short sample cycles. This type of septa is not resealable.
Viton – V1	Viton provides the best chemical resistance with limited resealability. Recommended for chlorinated solvents. Due to Viton®'s intrinsic hardness, these septa are not suitable for finer-gauge syringe needles.
Integral plastic seal	Moulded as part of the cap.
Polyethylene – PE, Polypropylene – PP	Chemically resistant but for one time use only with no resealability. Free of Fluoropolymer coating so suitable for PFOA analysis.

20mm seal selection for Headspace and Sample Preparation applications

Butyl rubber/chlorobutyl rubber	An economical choice for low temperature (< 125°C) or low-pressure applications. Not suitable for alkanes, benzene, chlorinated solvents or cyclohexane without a protective PTFE layer.
Grey bromobutyl stopper – B3P	Does not provide PTFE barrier. Use for gas sampling due to low permeability.
Black chlorobutyl – CB3	Does not provide PTFE barrier. Use for gas sampling due to low permeability.
Grey bromobutyl/black PTFE – CBT3	Has PTFE barrier that makes it suitable for work with general organic solvents with low gas permeability.
Grey PTFE/black bromobutyl molded – CBT3B	Specially molded seal with PTFE insert. Sealing surface of Butyl and PTFE affects a more positive seal than non-PTFE-faced septa. Ideal choice for temperatures below 125°C. Good sealing characteristics, excellent resistance to most solvents with reduced coring and high puncture tolerance. PTFE provides increased chemical resistance.
Silicone rubber	Excellent septa choice for volatiles with very low background peaks and low permeability. Also ideal for alcohols and aqueous samples. Good resealing characteristics and resistant to coring.
Natural PTFE/blue silicone – ST3, ST201	Best septa choice when temperatures are over 125°C.
Natural PTFE/red silicone – ST3HT	High temperature formulated seal with low bleed. Best septa choice when temperatures are up to 300°C.
Blue silicone/red PTFE – ST144	Thin 1.4mm seal with PTFE face for use with Fisons/ Carlo Erba Instruments. Resealing capability limited due to thinner silicone layer.
Aluminum/white silicone – AS3	Reflective aluminium face protects the silicone seal. The white silicone is suitable for use up to 170°C
Aluminum/red silicone – ASH3	Reflective aluminium face protects the silicone seal. The red silicone is suitable for use at temperatures up to 250°C.
Blue silicone/natural PTFE – ST101	Soft silicone with clean formulation for minimal interference. Thinner seal suitable for solvent washing, solvent extraction and SPME applications with some resealing. Not for direct headspace applications.
Freezer bungs – 2FB3	Butyl bungs for sealing of lyophilized products. Compatible with low storage temperatures and low gas permeability.
PTFE/silicone ring – LLX	Thin PTFE layer with sealing ring to give secure closure for strong solvents. For use in liquid extraction or SPME stage during sample preparation. Does not reseal. Single use only.

Solvent Compatibilty

	Sealing Material									
Solvent	AC6	AC7	B3P	CBT1	CB3	CBT3	LDPE	HDPE	PP	PTFE
Acetic Acid Aqueous	A(A)	A(B)	A(B)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Acetone	A(A)	A(C)	A(A)	A(A)	A(A)	A(A)	D(D)	B(B)	B(B)	A(A)
Acetonitrile	A(A)	A(A)	–	A(A)	A(A)	A(A)	–	–	–	A(A)
Alcohols(Aromatic)	A(B)	A(D)	–	A(B)	B(B)	A(B)	D(D)	D(D)	B(B)	A(A)
Alcohols(Aliphatic)	A(A)	A(B)	A(B)	A(A)	A(A)	A(A)	D(D)	B(B)	B(B)	A(A)
Amyl Acetate	A(A)	A(D)	A(C)	A(A)	A(A)	A(A)	D(D)	D(D)	–	A(A)
Aqueous Solutions Dilute	A(A)	A(A)	–	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Benzene	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Butyl Alcohol	A(B)	A(A)	A(B)	A(B)	B(B)	A(B)	B(B)	B(B)	B(B)	A(A)
Carbon Disulphide	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Carbon Tetrachloride	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Chloroform	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Cyclohexane	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	–	–	–	A(A)
Cyclohexanol	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	B(B)	A(A)
Diethyl Ether	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Dimethyl Sulphoxide	A(C)	A(D)	D(D)	A(C)	C(C)	A(C)	–	–	–	A(A)
Dioxane	A(B)	A(D)	A(B)	A(B)	B(B)	A(B)	–	–	–	A(A)
Esters	A(B)	A(D)	A(C)	A(B)	B(B)	A(B)	D(D)	D(D)	B(B)	A(A)
Ethyl Acetate	A(B)	A(D)	A(B)	A(B)	B(B)	A(B)	D(D)	D(D)	B(B)	A(A)
Ethyl Alcohol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	D(D)	B(B)	B(B)	A(A)
Ethylene Chloride	A(D)	A(D)	A(C)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Ethylene Glycol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Formaldehyde	A(B)	A(B)	A(A)	A(B)	B(B)	A(B)	A(A)	A(A)	A(A)	A(A)
Glycol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Halogenated Hydrocarbons	A(D)	A(C)	A(B)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Hexane	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	–	–	–	A(A)
Hydrochloric Acid Dilute	A(A)	A(C)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Iso-Octane	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	–	–	–	A(A)
Ketones	A(A)	A(C)	A(B)	A(A)	A(A)	A(A)	D(D)	B(B)	B(B)	A(A)
MeOH/H_2O/Acetonitrile	A(A)	A(–)	–	A(A)	A(A)	A(A)	–	–	–	A(A)
Methanol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	–	–	–	A(A)
Methyl Chloride	A(C)	A(D)	A(C)	A(C)	C(C)	A(C)	D(D)	D(D)	D(D)	A(A)
Methyl Acetate	A(B)	A(C)	A(A)	A(B)	B(B)	A(B)	D(D)	D(D)	B(B)	A(A)
Methyl Ethyl Ketone	A(A)	A(D)	A(B)	A(A)	A(A)	A(A)	D(D)	B(B)	B(B)	A(A)
Methylene Chloride	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Nitric Acid Dilute	A(A)	A(D)	A(B)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Pentane	A(D)	A(–)	–	A(D)	D(D)	A(D)	–	–	–	A(A)
Petroleum Ether	A(D)	A(–)	–	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Sodium Hydroxide	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Sulphuric Acid Dilute	A(D)	A(C)	A(B)	A(D)	D(D)	A(D)	A(A)	A(A)	A(A)	A(A)
Surfactants	A(A)	A(–)	–	A(A)	A(A)	A(A)	–	–	–	A(A)
Toluene	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	B(B)	A(A)
Trichloroethylene	A(D)	A(D)	D(D)	A(D)	D(D)	A(D)	D(D)	D(D)	D(D)	A(A)
Water	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)

Key: The first character indicates the characteristics of the seal prior to any injection.
The second character in ( ) indicates the potential characteristics of the seal after an injection.
A = Recommended B = Suitable for most purposes C = Use with care D = Not advisable – = Not tested

Sealing Material

Solvent	ST3/ ST201	ST2	ST18	ST15/ ST1	ST14	ST144	ST143	ST101	TST11	TST1	VITON
Acetic Acid Aqueous	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	D(D)
Acetone	A(D)	A(B)	A(A)	A(A)	A(A)	A(D)	A(B)	A(A)	A(A)	A(B)	D(D)
Acetonitrile	A(A)	A(–)	A(A)	A(A)	A(A)	A(A)	A(–)	A(A)	A(A)	A(–)	B(B)
Alcohols(Aromatic)	A(B)	A(A)	A(A)	A(A)	A(A)	A(B)	A(–)	A(A)	A(A)	A(–)	–
Alcohols(Aliphatic)	A(B)	A(–)	A(A)	A(A)	A(A)	A(B)	A(–)	A(A)	A(A)	A(–)	–
Amyl Acetate	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	D(D)
Aqueous Solutions Dilute	A(A)	A(–)	A(A)	A(A)	A(A)	A(A)	A(–)	A(A)	A(A)	A(–)	–
Benzene	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	A(A)
Butyl Alcohol	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(A)
Carbon Disulphide	A(D)	A(–)	A(A)	A(A)	A(A)	A(D)	A(–)	A(A)	A(A)	A(–)	A(A)
Carbon Tetrachloride	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	A(A)
Chloroform	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	A(A)
Cyclohexane	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	A(A)
Cyclohexanol	A(D)	A(–)	A(B)	A(B)	A(B)	A(D)	A(–)	A(B)	A(B)	A(–)	A(A)
Diethyl Ether	A(D)	A(–)	A(B)	A(B)	A(B)	A(D)	A(–)	A(B)	A(B)	A(–)	D(D)
Dimethyl Sulphoxide	A(D)	A(–)	A(A)	A(A)	A(A)	A(D)	A(–)	A(A)	A(A)	A(–)	C(C)
Dioxane	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	D(D)
Esters	A(B)	A(–)	A(B)	A(B)	A(B)	A(B)	A(–)	A(B)	A(B)	A(–)	–
Ethyl Acetate	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	A(B)	D(D)
Ethyl Alcohol	A(A)	A(B)	A(A)	A(A)	A(A)	A(A)	A(B)	A(A)	A(A)	A(B)	–
Ethylene Chloride	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	–
Ethylene Glycol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
Formaldehyde	A(B)	A(B)	A(A)	A(A)	A(A)	A(B)	A(B)	A(A)	A(A)	A(B)	D(D)
Glycol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	–
Halogenated Hydrocarbons	A(D)	A(–)	A(A)	A(A)	A(A)	A(D)	A(–)	A(A)	A(A)	A(–)	–
Hexane	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	–
Hydrochloric Acid Dilute	A(D)	A(–)	A(A)	A(A)	A(A)	A(D)	A(–)	A(A)	A(A)	A(–)	A(A)
Iso-Octane	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	–
Ketones	A(D)	A(–)	A(B)	A(B)	A(B)	A(D)	A(–)	A(B)	A(B)	A(–)	–
MeOH/H_2O/Acetonitrile	A(A)	A(A)	A(B)	A(B)	A(B)	A(A)	A(–)	A(B)	A(B)	A(–)	–
Methanol	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	D(D)
Methyl Chloride	A(D)	A(D)	A(A)	A(A)	A(A)	A(D)	A(D)	A(A)	A(A)	A(D)	A(A)
Methyl Acetate	A(D)	A(D)	A(B)	A(B)	A(B)	A(D)	A(D)	A(B)	A(B)	A(D)	D(D)
Methyl Ethyl Ketone	A(D)	A(D)	A(A)	A(A)	A(A)	A(D)	A(D)	A(A)	A(A)	A(D)	D(D)
Methylene Chloride	A(D)	A(B)	A(B)	A(B)	A(B)	A(D)	A(–)	A(B)	A(B)	A(–)	–
Nitric Acid Dilute	A(D)	A(B)	A(B)	A(B)	A(B)	A(D)	A(B)	A(B)	A(B)	A(B)	A(A)
Pentane	A(D)	A(C)	A(C)	A(C)	A(C)	A(D)	A(–)	A(C)	A(C)	A(–)	–
Petroleum Ether	A(D)	A(–)	A(C)	A(C)	A(C)	A(D)	A(–)	A(C)	A(C)	A(–)	–
Sodium Hydroxide	A(A)	A(B)	A(A)	A(A)	A(A)	A(A)	A(B)	A(A)	A(A)	A(B)	D(D)
Sulphuric Acid Dilute	A(D)	A(D)	A(B)	A(B)	A(B)	A(D)	A(D)	A(B)	A(B)	A(D)	A(A)
Surfactants	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(–)	A(A)	A(A)	A(–)	–
Toluene	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	A(A)
Trichloroethylene	A(D)	A(D)	A(C)	A(C)	A(C)	A(D)	A(D)	A(C)	A(C)	A(D)	A(A)
Water	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	B(B)

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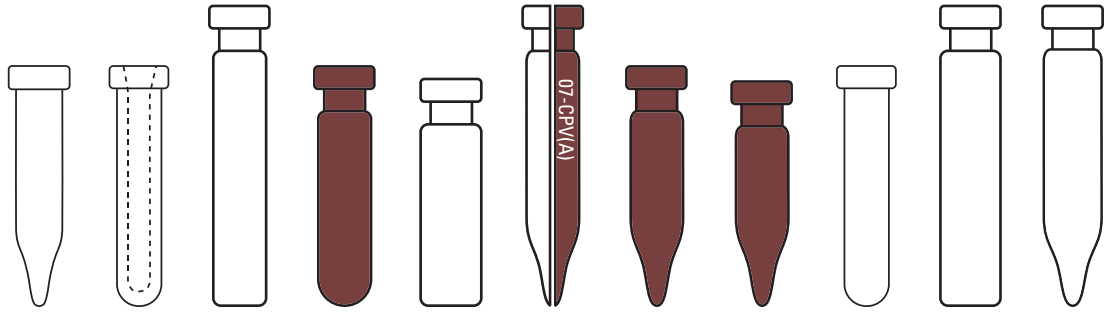
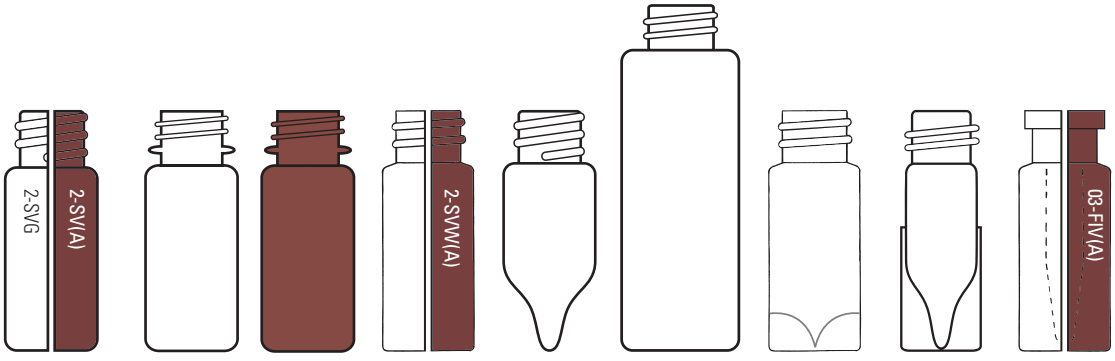
Chromacol Vials Comparison Chart

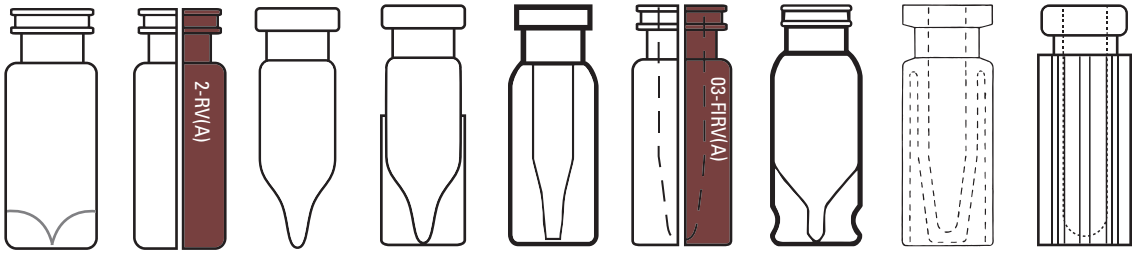


Part No.	**02-CTVG**	**01-CVG**	**08-CPV**	**08-CRV(A)**	**08-CV**	**07-CPV**	**06-CTV(A)**	**05-CTV(A)**	**03-CVG**	**1.2-CWV**	**1-CWV**
Dimensions	6x32mm	6x32mm	7x40mm	7x32mm	8x30mm	7x40mm	7x32mm	7x30mm	6x32mm	8x40mm	8x40mm

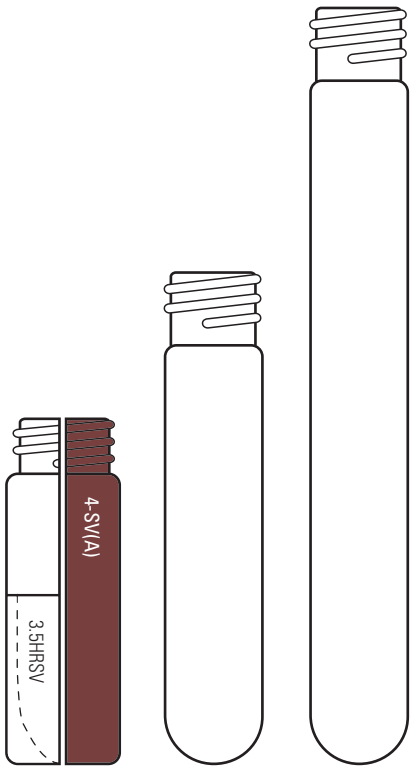


Part No.	**2-SV**	**2-SVWGK**	**2-SVWK(A)**	**2-SVW**	**1.1-STVG**	**4-SVQ**	**1.5-HRSV**	**09-FISV**	**03-FIV**
Dimensions	12x32mm	12x32mm	12x32mm	12x32mm	12x32mm	15x46mm	12x32mm	12x32mm	12x32mm

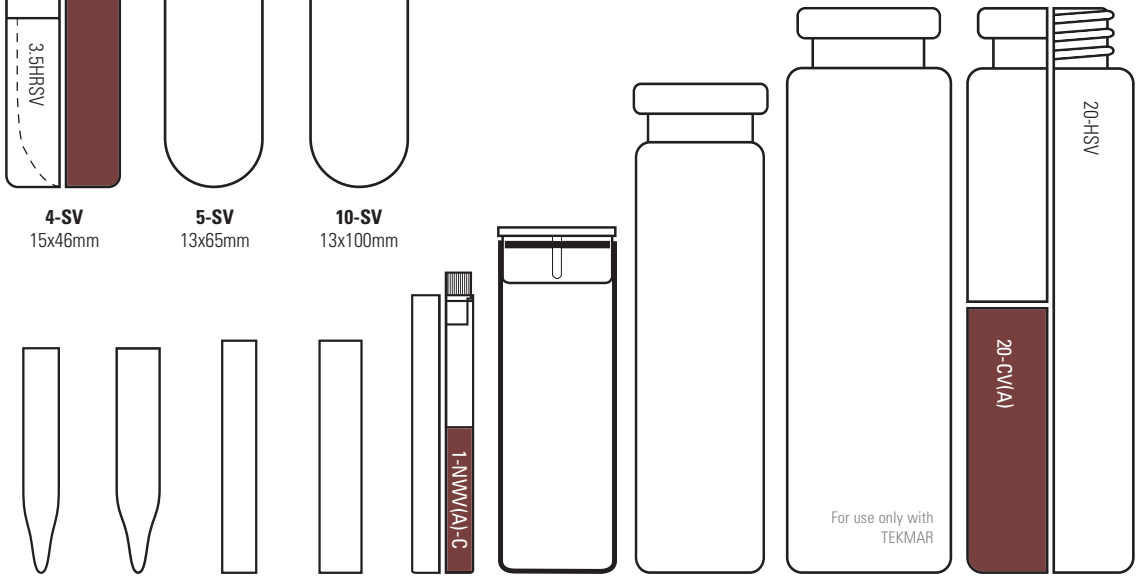
Part No.	**03-FISV**	**06-PESV**	**1.2-UHRSV**	**02-FISVG**	**2.5-CV**	**4-CV**	**2-CV**	**2-CRV**	**1.1-CTVG**
Dimensions	12x32mm	12x32mm	12x32mm	12x32mm	12x40mm	15x46mm	12x32mm	12x32mm	12x32mm



Part No.	**1.5-HRRV**	**2-RV**	**09-CTV**	**09-FIV**	**02-FIVG**	**03-FIRV**	**1.2-UHRRV**	**06-PECV**	**06-PPCV**
Dimensions	12x32mm	12x32mm	10x32mm	12x32mm	12x32mm	12x32mm	12x32mm	12x32mm	12x32mm



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



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

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

Chromacol Caps and Septa Comparison Chart

Part No.	***8-AC6**	**8-AC7**	**8-ACB**	**8-AC-CBT1**	**8-AC-ST15**	**8-AC-ST101**	**8-AC-ST101X**	**8-AC(B)-ST144**
Dimensions	8x5mm	8x5mm	8x5mm	8x5mm	8x5mm	8x5mm	8x5mm	8x5mm

Part No.	**8-ACT**	**8-AC-TST1**	**8-PEC1**	**8-PEC1X**	***8-SC**	**8-SCJ**	**8-SC-8RT1**	**8-SC-ST15**
Dimensions	8x5mm	8x5mm	8x5mm	8x5mm	8x9mm	8x9mm	8x9mm	8x9mm

Part No.	**8-ST14**	**8-ST14X**	**8-ST143**	**8-ST144**	**8-6RT1**	**8-ST101**	**8-T02**	**8-TST1**	**8-ST15**
Dimensions	8x1.4mm	8x1.4mm	8x1.5mm	8x1.4mm	8x1mm	8x1mm	8x0.25mm	8x1mm	8x1.5mm

Part No.	**9-MSC(BG)-ST1**	***9-SCK(B)-8RT1**	**9-SCK(B)ST101**	***9-SCK(B)-ST1**	**9-SCK(B)-TST1**	**9-SCSK-8RT1**	**9-SCJ(W)-ST101**	***11-AC6**	
Dimensions	9x6.5mm	9x6.5mm	9x6.5mm	9x6.5mm	9x6.5mm	9x6.5mm	12.9x7.9mm	11x6mm	

Part No.	***11-AC7**	**11-ACB**	**11-AC-CBT1**	**11-AC-ST101**	**11-AC-ST101X**	**11-AC(B)-ST144**	**11-AC-ST15**	**11-ACT**	
Dimensions	11x6mm	11x6mm	11x6mm	11x6mm	11x6mm	11x6mm	11x6mm	11x6mm	

Part No.	**11-AC-TST1**	**11-LLX**	**11-PEC1**	**11-PEC1X**	**11-PEC-ST1**	**11-MC-ST15**	**11-MC-8RT1**	**11-MC-ST101**	
Dimensions	11x6mm	11x3mm	11x6mm	11x6mm	11x7mm				

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

Alternative Colors

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

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

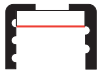
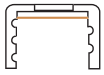
9-SCK(B)-8RT1
- 9- SCK(G)-8RT1
- 9- SCK(N)-8RT1
- 9- SCK(B)-8RT1X

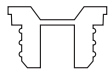
9-SCK(B)-ST1
- 9- SCK(G)-ST1
- 9- SCK(N)-ST1
- 9- SCK(B)-ST1X
- 9- SC(BLK)-BST1
- 9- SC(GY)-BST1X

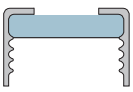
11-AC6
- 11-AC6(R)
- 11-AC6(B)

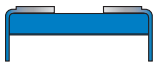
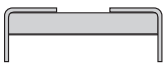
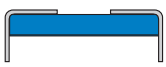
11-AC7
- 11-AC7(R)
- 11-AC7(GO)
- 11-AC7(G)
- 11-AC7(B)

							
Part No.	**11-PSN(B)**	**11-PSN(B)-ST101**	***11-PSN(B)-T02**	**11-PSN(B)-TST1**	**11-PSN(B)-8RT1**	***11-PSN(B)-ST1X**	**11-PSN(B)-ST1**
Dimensions	11x6.5mm	11x6.5mm	11x6.5mm	11x6.5mm	11x6.5mm	11x6.5mm	11x6.5mm

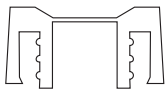
						
Part No.	***12-SC**	**12-SCS**	**12-SC-ST2**	**12-SC-8RT1**	**13-SC-ST15**	**13-SCST**
Dimensions	12x10mm	12x10mm	12x10mm	12x10mm	12x10mm	12x10mm

							
Part No.	**12-ST2**	**12-ST18**	**12-6RT1**	**12-ST101**	**12-T02**	**8-NPWP**	**12-NPEP4**
Dimensions	12x2mm	12x1.8mm	12x1mm	12x1mm	12x0.25mm	8x9mm	12x7mm

						
Part No.	**18-MSC**	**18-MSC-CBT3**	**18-MSC-ST201**	**20-ACB**	**20-MCB**	***20-MCBC**
Dimensions	18x13mm	18x13mm	18x13mm	20x7mm	20x7mm	20x7mm

						
Part No.	***20-MCBC-ST3**	**20-AC-CBT3**	**20-AC-ST3**	**20-CB3**	**20-CBT3**	**20-CBT3B**
Dimensions	20x7mm	20x7mm	20x7mm	20x3mm	20x3mm	20x3mm

						
Part No.	**20-ASH3**	**20-LLX**	**20-ST3**	**20-ST3HT**	**20-ST15**	**20-ST101**
Dimensions	20x1.5mm	20x3mm	20x3mm	20x3.1mm	20x1.5mm	20x1mm

				
Part No.	**18-ST101**	**20-B3P**	**20-2FB3**	**20-PEPC5**
Dimensions	18x1mm	20x9mm	20x13.4mm	20x10mm

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

Alternative Colors

11-PSN(B)-T02
- 11-PSN(R)-TO2

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

Thermo Scientific Crimping and Decrimping Tools

Electronic Crimpers and Decrimpers provide an adjustable crimp with reproducible results.

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

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

Thermo Scientific 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 removal 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 aluminium, 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

Ordering Information

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

Related Products

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

* Crimping jaws for other seals available on request.

Chemical Resistance Reference Chart

This chart provides a guideline for the chemical resistance of materials used for vials and closures. Because so many factors can affect chemical resistance, it may be necessary to test your product under your actual conditions of use.

Effects of Chemicals on Plastics

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

Environmental stress cracking is the failure of a plastic in the presence of certain types of chemicals, but it is not a result of a chemical attack. Simultaneous presence of three factors causes stress cracking: tensile stress in the plastic, its inherent stress-cracking susceptibility, and a stress-cracking agent. Common stress-cracking agents are detergents, surface active chemicals, lubricants, oils, ultrapure water, and plating additives such as brighteners and wetting agents. Relatively small concentrations of stress-cracking agent may be sufficient to cause cracking.

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

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

Effects of Chemicals on Glass

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

Physical Characteristics of Plastic Resin and Septa

Code	Description	Appearance	Temp MAX °C	Temp MIN °C	Autoclavable	Dry Heat	Gamma	Microwavable	Ethylene Oxide	Analytical Purity	Fragmentation*	Hardness†	Resealability‡
HDPE	High-density polyethylene	Opaque	120	-35	No	No	Yes	Yes	Yes	Method Dependent	Medium	Hard	No resealability
LDPE	Low-density polyethylene	Translucent	100	-40	No	No	Yes	Yes	Yes	Method Dependent	Low	Medium hard	No resealability
TPX	Polymethylpentene	Transparent	175	0	Yes	No	Yes	Yes	Yes	Method Dependent	Low	Very hard	N/A
PP	Polypropylene	Translucent	135	-20	Yes	No	No	Yes	Yes	Method Dependent	Low	Medium hard	No resealability
PTFE	Polytetrafluoroethylene	White	260	-200	Yes	Yes	Yes	Yes	Yes	Very high	Low	Very hard (very thin)	No resealability
RR	RedRubber/PTFE	Red/ivory	110	-30	No	No	No	No	No	Medium	Medium	Medium hard	Medium
Butyl	Gray Butyl Rubber	Opaque gray	125	-20	Yes	No	Yes	Yes	Yes	Method Dependent	Low to medium	Soft to medium	Highly resealable
T/S	Silicon/PTFE	White/red	200	-60	Yes	Yes	Yes	Yes	Yes	High	Low to medium	Soft	Highly resealable
T/S/T	PTFE/Silicon/PTFE	Red/white/red	200	-60	Yes	Yes	Yes	Yes	Yes	High	Very low	Soft	Good resealability
	Viton®	Black	230	-30	Yes	Yes	Yes	Yes	Yes	Medium	Medium	Hard	Low to medium

* Due to hardness and molecular structure (coring)
† Needle penetration
‡ In case of multiple injections

How to Use the Chemical Compatibility Chart

The following chart contains information regarding the expected effects of 7 day direct solvent exposure on materials used for production of vials, caps and septa. Materials commonly used for vials include glass, polypropylene and TPX. Materials commonly used for caps include polypropylene, low density and high density polyethylene, and urea resin. Materials commonly used for septa include PTFE, silicone, natural red rubber, butyl rubber, Viton, polypropylene and polyethylene.

PTFE is often laminated onto the sample facing side of a resealable septum to improve solvent exposure characteristics. Laminated septa will generally exhibit greater chemical resistance until the PTFE layer is punctured.

Other factors that can affect chemical compatibility are temperature, pressure, whether there is direct contact between the material and the solvent and concentration of the solvent. Solvent mixtures can both increase and decrease chemical attack.

In the chart below, the letter rating indicates the general ability of each material to resist chemical attack on direct exposure to the solvent. The number following the rating indicates the highest temperature at which this rating can be considered valid. When evaluating a laminated material, both the rating for the PTFE barrier layer and the secondary material should be examined. In general, the PTFE layer will provide effective protection but extra care is required to avoid breaking through this layer before the initial puncture for sample injection. It is always preferable to select combinations where both layers exhibit some degree of resistance to attack from a specific solvent.

This chart is provided as a general guide and to the best of our knowledge this information represents the expected performance of materials used in our products. However, Thermo Fisher Scientific assumes no liability whatsoever for the results obtained under individual circumstances. This chemical resistance chart is to be used as a guide in determining of the suitability of materials only. There is no warranty expressed or implied for a specific purpose. Testing of specific products under your actual conditions is recommended and the final determination of material suitability is the responsibility of the user.

Key to Chart on Following Pages

E – Excellent chemical resistance, low background extractables, recommended

G – Good chemical resistance, Some background extractable possible, suitable for general analysis

F – Fair chemical resistance, significant background extractables possible, for short term use

SE – Surface effects possible after short exposure, always evaluate suitability before use.

C – Conditions of exposure can affect compatibility and extractables. Solvent produces noticeable physical effects, use with extreme caution

X – Not Recommended. Immediate physical failure likely regardless of temperature, high levels of background contaminants likely

--- – Not tested, No data available

– Numerical values after the compatibility code indicate highest temperature where performance data is available

General Chemical Compatibility of Materials used in Chromatography Vials and Closures

	Vial and Cap Materials					Septum Materials					
Chemical	Glass	PP	TPX	HDPE	Urea	PTFE	LDPE	SIL	RR	BUTYL	Viton
1,4-Dioxane	E20	F20	G20	G20	---	E20	G20	---	---	---	---
2,2,4-Trimethylpentane	E20	F20	F20	F20	---	E20	F20	---	---	---	---
2-Methoxyethanol	E20	GE	E50	E50	---	E20	E20	---	---	---	---
Acetaldehyde	E20	C20	C20	G20	C20	E20	C20	G20	G20	E20	---
Acetamide, Sat.	E100	E50	E50	E50	---	E50	E50	G20	X	E20	E100
Acetic Acid, 5%	E100	E50	E50	E50	G20	E100	E50	E20	G20	G20	E50
Acetic Acid, 50%	E100	E50	E50	E20	F20	E100	G20	G20	G20	G20	X
Acetic Acid, Glacial	E20	E20	G20	G20	C20	E20	C20	G20	F20	G20	X
Acetic Anhydride	E20	G20	E20	C20	X	E20	X	G20	F20	G20	X
Acetone	E20	C20	E50	X	X	E20	X	F20	F20	E20	E20
Acetonitrile	E20	E20	F20	E50	F20	E20	E20	E20	F20	F20	F20
Acetophenone	E20	F20	C20	C20	X	E20	X	C20	C20	E20	X
Acrylonitrile	E20	E20	F20	E20	X	E20	E20	X	X	X	X
Adipic Acid	E50	E50	E50	E50	E50	E50	E20	---	E20	E50	E50
Alanine	E50	E50	E50	E50	---	E50	E50	---	---	---	---
Allyl Alcohol	E20	E20	E20	E20	---	E20	E20	---	E20	E20	E20
Aluminum Chloride	E200	E50	E50	E50	E50	E100	E50	G20	E20	E20	E100
Aluminum Hydroxide	SE100	E20	E20	E50	---	E100	E20	E20	G20	E50	C20

	Vial and Cap Materials					Septum Materials					
Chemical	Glass	PP	TPX	HDPE	Urea	PTFE	LDPE	SIL	RR	BUTYL	Viton
Amino Acids	E50	E50	E50	E50	E20	E50	E50	E50	E20	E20	E50
Ammonia (pure)	SE100	E50	E50	E50	X	E100	E50	E20	X	G20	X
Ammonia, 25%	SE100	E50	E50	E50	C20	E100	E50	E20	X	E20	C20
Ammonium Acetate, Sat.	E100	E50	E50	E50	---	E100	E50	---	---	---	X
Ammonium Chloride	E100	E50	E50	E50	E20	E100	E50	E20	E20	E20	E50
Ammonium Glycolate	E50	E20	E20	E50	---	E50	E20	---	---	---	---
Ammonium Hydroxide, 5%	SE100	E50	E50	E50	G20	E100	E50	E20	C20	E20	C20
Ammonium Oxalate	E100	E20	E20	E50	---	E100	E20	---	---	---	---
Amyl Alcohol	E20	F20	G20	E20	X	E20	E20	X	E20	E20	F20
Amyl Chloride	E100	X	C20	F20	C20	E100	X	X	X	X	E20
Aniline	E50	E20	G20	G20	X	E50	E20	X	X	G20	E20
Aqua Regia	SE100	X	X	X	X	E100	X	X	X	X	G20
Arsenic Acid	E20	E50	E50	E50	C20	E20	G20	G20	G20	E20	G20
Benzaldehyde	E20	E20	F20	C20	X	E20	E20	F20	X	E20	X
Benzenamine	E20	E20	G20	G20	F20	E20	E20	---	X	X	G20
Benzene	E20	X	X	X	X	E20	X	X	X	X	G20
Benzoic Acid, Sat.	E50	E20	E50	E50	X	E50	E50	G20	X	X	G50
Benzyl Acetate	E20	E20	E20	E20	---	E20	E20	---	X	F20	X
Benzyl Alcohol	E20	G20	G20	F20	X	E20	X	F20	X	G20	E20
Boric Acid	E200	E50	E50	E50	E20	E100	E50	E20	E20	E20	E20
Bromine	E20	X	X	F20	---	E20	X	X	X	X	G20
Bromobenzene	E20	X	X	X	X	E20	X	X	X	X	F20
Bromoform	E20	X	X	X	---	E20	X	---	---	---	---
Butadiene	E20	X	X	F20	X	E20	X	X	X	X	E20
Butyl Acetate	E20	F20	C20	G20	X	E20	G20	X	X	G20	X
Butyl Chloride	E20	X	F20	X	---	E20	X	---	X	F20	G20
Butyric Acid	E20	X	X	F20	---	E20	X	X	C20	C20	E20
Calcium Chloride	E200	E50	E50	E50	E50	E100	E50	E50	E50	E50	E50
Calcium Hydroxide, Conc.	SE100	E50	E50	E50	E50	E100	E50	E50	E50	E50	E50
Calcium Hypochlorite, Sat.	E20	E20	E20	E20	X	E20	E20	G20	C20	G20	C20
Carbazole	E20	E20	E20	E20	---	E20	E20	---	---	---	---
Carbon Disulfide	E20	X	X	X	X	E20	X	X	C20	X	E20
Carbon Tetrachloride	E20	G20	X	G20	X	E20	F20	C20	C20	X	E20
Caustic Potash	SE100	E50	E50	E50	---	E100	E50	E20	---	---	E20
Caustic Soda, 1%	SE100	E50	E50	C20	---	E100	E50	E20	E20	E20	F20
Caustic Soda	SE100	E50	E50	G20	---	E100	G20	G20	G20	E20	F20
Cedarwood Oil	E100	X	X	F20	C20	E100	X	SE20	C20	C20	---
Cellosolve Acetate	E20	F20	E20	E20	X	E20	E20	X	X	G20	X
Chlorine Water	E20	F20	X	G20	---	E20	C20	C20	X	C20	E20
Chlorine, 10% (Moist)	E20	F20	X	G20	---	E20	C20	C20	X	C20	E20
Chlorine, 10% in air	E20	F20	C20	F20	---	E20	C20	C20	X	C20	E20
Chloroacetic Acid	E50	E20	E20	E50	X	E50	E50	F20	X	G20	X
Chlorobenzene	E20	X	X	X	X	E20	X	X	X	X	E20
Chloroform	E20	X	X	F20	X	E20	F20	F20	X	X	E20
Chromic Acid, 10%	E300	E50	E50	E50	X	E100	E50	F20	X	F20	G20
Chromic Acid, 20%	E300	G20	E50	E50	X	E100	E50	C20	X	C20	F20
Chromic Acid, 50%	E300	G20	G20	E50	X	E100	E50	C20	X	C20	F20
Chromic:Sulfuric	E300	X	X	X	X	E100	E50	C20	X	C20	F20
Cinnamon Oil	E20	X	X	X	---	E20	X	---	---	---	---
Citric Acid, 10%	E50	E50	E50	E50	E50	E100	E50	E50	E50	E50	E20
Copper Sulfate	E100	E50	E50	E50	G20	E100	E50	E20	F20	E20	E50
Cresol	E20	G20	X	F20	X	E20	X	X	X	X	E20
Cyclohexane	E20	C20	X	F20	G20	E20	F20	C20	C20	X	C20
Cyclohexanone	E20	F20	G20	F20	X	E20	X	X	X	F20	X
Cyclopentane	E20	F20	F20	F20	---	E20	X	---	X	X	X
Decahydronapthtalene	E20	X	F20	E20	---	E20	G20	---	---	---	---
Decalin	E20	X	F20	E20	X	E20	G20	X	X	X	E20

	Vial and Cap Materials					Septum Materials					
Chemical	Glass	PP	TPX	HDPE	Urea	PTFE	LDPE	SIL	RR	BUTYL	Viton
Diacetone	E20	G20	C20	X	X	E20	X	C20	X	F20	X
Diacetone Alcohol	E20	G20	E20	E20	X	E20	X	F20	X	G20	X
Dibutylphthalate	E20	C20	G20	F20	X	E20	F20	G20	X	C20	G20
Diethyl Benzene	E20	X	X	F20	X	E20	X	X	X	X	E20
Diethyl Ether	E20	F20	X	F20	G20	E20	X	X	X	X	C20
Diethyl Ketone	E20	G20	G20	X	---	E20	X	---	F20	G20	X
Diethyl Malonate	E20	E20	E20	E20	---	E20	E20	---	---	---	---
Diethylamine	E20	C20	C20	F20	F20	E20	X	G20	F20	G20	X
Diethylene Dioxide	E20	X	F20	G20	---	E20	G20	---	---	---	---
Diethylene Glycol	E50	E50	E50	E50	X	E50	E50	E20	E20	E20	E20
Diethylene Glycol Ethyl Ether	E20	E20	E20	E20	---	E20	E20	---	---	---	---
Dimethyl Acetamide	E20	E20	F20	E20	---	E20	F20	---	---	---	---
Dimethyl Formamide	E20	E20	E20	E20	---	E20	E20	G20	C20	G20	X
Dimethylsulfoxide (DMSO)	E20	E20	E20	E20	---	E20	E20	G20	---	---	x
Dioxane	E20	X	F20	G20	X	E20	G20	X	X	G20	X
Dipropylene Glycol	E100	E50	E50	E50	---	E100	E50	G20	E20	E20	E50
Ethyl Acetate	E20	C20	F20	E20	X	E20	E20	G20	X	G20	X
Ethyl Alcohol (Absolute)	E20	E20	E20	E20	C20	E20	E20	E20	G20	G20	G20
Ethyl Alcohol, 40%	E20	E20	E20	E20	F20	E20	E20	E20	E20	E20	G20
Ethyl Alcohol, 96%	E20	E20	E20	E20	C20	E20	E20	E20	G20	G20	G20
Ethyl Benzene	E20	X	X	F20	X	E20	X	X	X	X	E20
Ethyl Benzoate	E20	G20	G20	G20	---	E20	C20	X	E20	E20	---
Ethyl Butyrate	E20	C20	F20	G20	---	E20	C20	---	---	---	---
Ethyl Chloride	E20	F20	F20	X	C20	E20	F20	X	X	C20	E20
Ethyl Chloride, Liquid	E20	F20	F20	C20	C20	E20	F20	X	X	C20	E20
Ethyl Cyanoacetate	E20	E20	E20	E20	---	E20	E20	---	---	---	---
Ethyl Lactate	E50	E50	E50	E50	---	E50	E50	---	---	---	---
Ethylene Chloride	E20	X	X	X	X	E20	X	X	X	C20	G20
Ethylene Glycol	E200	E50	E50	E50	E20	E100	E50	E50	E50	E50	E100
Ethylene Glycol Monomethyl Ether	E20	G20	E50	E50	---	E20	E20	---	---	---	---
Ethylene Oxide	E20	F20	F20	G20	X	E20	C20	C20	X	C20	X
Fatty Acids	E20	E20	E20	E20	C20	E20	E20	G20	C20	C20	G20
Fluorides	E20	E50	E50	E50	---	E50	E50	---	---	---	---
Fluorine	E20	X	F20	C20	X	E20	F20	X	X	C20	F20
Formaldehyde, 10%	E50	E50	E50	E50	X	E50	E50	X	G20	E20	E20
Formaldehyde, 40%	E20	E20	E20	E20	X	E20	E20	X	G20	E20	G20
Formalin, 10%	E20	E20	E20	E20	---	E20	E20	G20	G20	E20	E20
Formalin, 40%	E20	E20	E20	E20	---	E20	E20	G20	G20	E20	E20
Formic Acid, 3%	E50	E50	E50	E50	C20	E50	E20	E20	G20	E20	X
Formic Acid, 100%	E20	E20	E20	E20	X	E20	G20	G20	F20	E20	X
Formic Acid, 50%	E20	E20	E20	E20	X	E20	G20	G20	F20	E20	X
Formic Acid, 85%	E20	E20	E20	E20	X	E20	G20	G20	F20	E20	X
Freon TF	E20	E20	F20	E20	---	E20	E20	X	C20	X	G20
Fuel Oil	E20	F20	G20	G20	X	E20	F20	X	X	X	F20
Gasoline	E20	F20	G20	F20	F20	E20	X	X	X	X	E20
Glutaraldehyde	E20	E20	C20	E20	---	E20	E20	---	---	---	---
Glycerine	E50	E50	E50	E50	X	E50	E50	E20	E20	E20	C20
Glycerol	E50	E50	E50	E50	X	E50	E50	E20	E20	E20	C20
Hexane	E20	G20	F20	G20	G20	E20	X	C20	C20	X	E20
Hydrazine	E20	X	X	X	X	E20	X	C20	F20	E20	X
Hydrobromic Acid, 69%	E20	E20	E20	E20	X	E20	E20	C20	C20	F20	E20
Hydrochloric Acid, 5%	E100	E50	E50	E50	G20	E100	E50	G20	C20	F20	E50
Hydrochloric Acid, 20%	E50	E50	E50	E50	C20	E50	E50	C20	C20	F20	E50
Hydrochloric Acid, 35%	E20	E20	E20	E20	X	E20	E20	X	C20	C20	E20
Hydrofluoric Acid, 4%	SE100	E20	E20	E20	X	E100	E20	X	X	F20	E20
Hydrofluoric Acid, 48%	SE50	E20	E20	E50	X	E50	E50	X	X	F20	G20
Hydrogen Peroxide, 3%	E100	E20	E50	E50	---	E100	E50	E50	X	F20	G50

	Vial and Cap Materials					Septum Materials					
Chemical	Glass	PP	TPX	HDPE	Urea	PTFE	LDPE	SIL	RR	BUTYL	Viton
Hydrogen Peroxide, 30%	E100	F20	E20	E50	---	E100	E50	E20	X	C20	G50
Hydrogen Peroxide, 90%	E50	F20	E20	E50	---	E50	E50	G20	X	X	G20
Iodine Crystals	E20	E20	C20	X	---	E20	X	E20	C20	F20	E20
Isobutyl Alcohol	E20	E20	E20	E20	G20	E20	E20	G20	G20	E20	E20
Isooctane	---	---	---	---	E20	E20	---	X	X	X	E20
Isopropyl Acetate	E20	G20	G20	E20	X	E20	G20	X	X	F20	X
Isopropyl Alcohol, 100%	E20	E50	E20	E20	C20	E20	E20	E20	E20	E20	E20
Isopropyl Benzene	E20	F20	X	F20	---	E20	F20	---	---	---	---
Isopropyl Ether	E20	X	X	F20	G20	E20	X	X	X	X	X
Jet Fuel	E20	F20	F20	F20	---	E20	F20	X	X	X	E20
Kerosene	E20	F20	G20	F20	E20	E20	F20	X	X	X	E20
Lacquer Thinner	E20	F20	C20	F20	X	E20	X	X	X	C20	X
Lactic Acid, 3%	E50	E50	E20	E50	E20	E50	E20	E20	E20	E20	E20
Lactic Acid, 85%	E50	E20	E20	E50	E20	E50	E20	E20	G20	E20	E20
Lead Acetate	E50	E50	E50	E50	X	E50	E50	X	E20	G20	C20
Magnesium Chloride	E50	E50	E50	E50	---	E50	E50	E20	E20	E20	E20
Mercuric Chloride	E20	E20	E20	E20	---	E20	E20	E20	---	---	E20
Mercury	E20	E20	E20	E20	G20	E20	E20	E20	E20	E20	E20
Methoxyethyl Oleate	E50	E20	E20	E50	---	E50	E20	---	---	---	---
Methyl Acetate	E20	G20	E20	C20	X	E20	G20	X	X	F20	X
Methyl Alcohol 100%	E50	E50	E20	E50	C20	E50	E20	E20	E20	E20	E20
Methyl Ethyl Ketone (MEK)	E20	E20	F20	X	X	E20	X	X	X	G20	X
Methyl Isobutyl Ketone (MIBK)	E20	G20	C20	X	X	E20	X	X	X	C20	X
Methyl Isopropyl Ketone	E20	G20	C20	F20	X	E20	X	---	X	F20	X
Methyl-t-Butyl Ether (MTBE)	E20	F20	E50	F20	---	E20	X	---	---	F20	X
Methylene Chloride (DCM)	E20	F20	G20	F20	X	E20	X	C20	C20	X	G20
Mineral Oil	E100	F20	E20	F20	E20	E100	C20	E20	X	C20	E100
Mineral Spirits	E20	F20	E50	F20	---	E20	F20	---	X	X	E20
n-Amyl Acetate	E20	G20	G20	E20	X	E20	G20	X	X	G20	X
n-Butyl Alcohol	E20	E20	E20	E20	G20	E20	E20	G20	E20	E20	E20
n-Decane	E20	F20	F20	F20	X	E20	E20	C20	C20	C20	E20
n-Heptane	E20	C20	C20	C20	X	E20	E20	C20	C20	X	E20
n-Octane	E20	E20	E20	E20	X	E20	E20	C20	C20	X	E20
Nitric Acid, 10%	E20	E50	E20	E20	C20	E20	E20	G20	C20	G20	E20
Nitric Acid, 20%	E20	C20	E50	G20	---	E20	E20	---	C20	F20	E20
Nitric Acid, 50%	E20	F20	F20	F20	---	E20	G20	C20	X	X	F20
Nitric Acid, 70%	E20	X	F20	F20	---	E20	G20	X	X	X	C20
Nitrobenzene	E20	X	F20	X	X	E20	X	X	X	C20	F20
Nitromethane	E20	F20	F20	F20	X	E20	X	X	F20	F20	X
o-Dichlorobenzene	E20	F20	F20	X	X	E20	F20	X	X	X	E20
Orange Oil	E20	G20	C20	G20	---	E20	F20	---	---	---	---
Oxalic Acid, 10%	E20	E20	E20	E20	E20	E20	E20	E20	C20	E20	E20
Ozone	E20	F20	E20	C20	G20	E20	C20	E20	C20	G20	F20
p-Chloroacetophenone	E20	E20	E20	E20	---	E20	E20	---	---	---	---
p-Dichlorobenzene	E20	G20	G20	X	X	E20	F20	X	X	X	E20
Perchloric Acid, Concentrated (70%)	E20	C20	C20	C20	X	G20	C20	X	X	F20	G20
Perchloroethylene	E20	X	X	X	X	E20	X	C20	X	X	E20
Petroleum	E100	X	G20	C20	G20	E100	X	F20	C20	C20	E20
Phenol, 50%	E20	X	X	X	X	E20	X	X	X	E20	E20
Phenol, Crystals	E20	C20	FG	G20	X	E20	X	C20	X	E20	E20
Phenol, Liquid	E20	X	X	X	X	E20	X	X	X	G20	E20
Phosphoric Acid, 5%	E100	E50	E50	E50	C20	E100	E50	E20	E20	E20	E20
Phosphoric Acid, 85%	SE100	E20	E20	E50	X	E100	G20	G20	E20	E20	E20
Picric Acid	E20	X	E20	X	X	E20	X	X	G20	G20	G20
Pine Oil	E50	E20	G20	F20	C20	E50	C20	C20	X	X	E20
Potassium Chloride	E300	E50	E50	E50	E20	E100	E50	E50	E50	E50	E50

	Vial and Cap Materials					Septum Materials					
Chemical	Glass	PP	TPX	HDPE	Urea	PTFE	LDPE	SIL	RR	BUTYL	Viton
Potassium Hydroxide, 10%	SE50	E50	E50	C20	C20	E50	E50	E20	E20	E20	C20
Potassium Hydroxide, 30%	SE50	E50	E50	E50	C20	E50	E50	E20	E20	E20	X
Potassium Hydroxide, Concentrated	C100	E50	E50	E50	X	E100	E50	E20	E20	E20	X
Potassium Permanganate	E50	E20	E50	E50	---	E50	E50	E20	---	---	E20
Propane Gas	E20	X	X	E20	---	E20	X	C20	X	X	E20
Proprionic Acid	E20	E20	F20	F20	---	E20	F20	---	---	---	---
Propylene Glycol	E50	E50	E50	E50	E20	E50	E50	E20	E20	E20	E50
Propylene Oxide	E20	E20	E20	E20	E20	E20	E20	G20	E20	G20	E20
Pyridine	E20	E20	F20	X	X	E20	X	X	X	F20	X
Resorcinol, Sat.	E20	E20	E20	E20	C20	E20	E20	---	---	---	---
Salicylaldehyde	E20	E20	E20	E20	---	E20	E20	---	---	---	E20
Salicylic Acid, Powder	E50	E50	E50	E50	E20	E50	E50	E20	E20	E20	E20
Salicylic Acid, Sat.	E50	E50	E20	E50	E20	E50	E50	E20	E20	E20	E20
sec-Butyl Alcohol	E20	E20	E20	E20	---	E20	E20	---	---	---	---
Silicone Oil	E100	E50	E50	E50	---	E100	E20	G20	E20	E20	E50
Silver Acetate	E50	E50	E50	E50	---	E50	E50	---	---	---	---
Silver Nitrate	E20	E20	E20	E20	E20	E20	E20	E20	E20	E20	E20
Skydrol LD4	E100	E20	E20	E20	F20	E100	G20	C20	X	G20	C20
Sodium Acetate, Sat.	E50	E50	E50	E50	E20	E50	E50	X	G20	G20	E20
Sodium Carbonate	E100	E50	E50	E50	E20	E100	E50	E20	E20	E20	E20
Sodium Dichromate	E50	E50	E50	E50	---	E50	E50	G20	C20	E20	E20
Sodium Hydroxide, 1%	F100	E50	E50	C20	E20	E100	E50	E20	E20	E20	G20
Sodium Hydroxide, 10%	SE100	E50	E50	E50	G20	E100	E50	E20	E20	E20	C20
Sodium Hydroxide, Concentrated (50%)	SE100	E50	E50	E50	G20	E100	E50	E20	E20	E20	C20
Sodium Hypochlorite, 15%	E20	F20	E50	E20	X	E20	F20	E20	X	G20	E20
Stearic Acid	E50	E50	E50	G20	E20	E50	E50	E20	X	G20	E20
Stearic Acid, Crystals	E50	E50	E50	E50	E20	E50	E50	E20	X	G20	E20
Sulfur Dioxide, Liquid	E20	X	X	F20	---	E20	X	E20	C20	F20	C20
Sulfur Dioxide, Wet or Dry Gas	E50	E50	E50	E50	---	E100	X	E20	C20	G20	F20
Sulfuric Acid, 6%	E100	E50	E50	E50	G20	E100	E50	F20	E20	E20	E20
Sulfuric Acid, 20%	E100	E50	E50	E50	F20	E100	E50	C20	E20	E20	E20
Sulfuric Acid, 30%	G100	E50	E50	E50	C20	E100	E50	C20	G20	E20	E20
Sulfuric Acid, 60%	SE100	G20	E20	E20	X	E100	E20	X	X	X	E20
Sulfuric Acid, 98%	SE100	F20	G20	F20	X	E100	G20	X	X	X	C20
Tartaric Acid	E20	E20	E20	E20	F20	E20	E20	E20	C20	G20	E20
tert-Butyl Alcohol	E20	E20	E20	E20	X	E20	E20	G20	E20	E20	E20
Tetrahydrofuran (THF)	E20	G20	C20	F20	X	E20	F20	X	X	X	X
Thionyl Chloride	E20	X	X	X	X	E20	X	X	X	X	X
Tincture of Iodine	E50	E50	X	G20	---	E50	X	G20	C20	---	E20
Toluene	E20	X	C20	X	X	E20	F20	X	X	C20	F20
Tributyl Citrate	E20	G20	G20	E20	---	E20	G20	---	---	---	---
Trichloroacetic Acid	E20	G20	E20	F20	X	E20	F20	X	C20	F20	C20
Trichloroethane	E20	X	X	X	X	E20	X	X	X	X	G20
Trichloroethylene	E20	X	X	X	X	E20	X	X	X	X	G20
Triethylene Glycol	E50	E50	E50	E50	---	E50	E50	---	E20	E20	E20
Tripropylene Glycol	E100	E50	E50	E50	---	E100	E50	---	---	---	---
Tris Buffer, Solution	E100	E20	E20	E20	E20	E100	E20	E20	G20	E20	E20
Trisodium Phosphate	E100	E50	E50	E50	E20	E100	E50	E20	E20	E20	E20
Turpentine	E20	F20	F20	F20	E20	E20	F20	X	X	X	E20
Undecyl Alcohol	E20	E20	E20	E20	---	E20	F20	---	---	---	---
Urea	E50	E50	E20	E50	E20	E50	E50	E20	E20	E20	E20
Vinylidene Chloride	E20	X	X	F20	---	E20	X	---	---	---	---
Xylene	E20	X	X	F20	C20	E20	X	X	X	X	G20
Zinc Chloride, 10%	E100	E50	E50	E50	E20	E100	E50	E20	E20	E20	E20
Zinc Stearate	E50	E50	E50	E50	---	E50	X	---	---	---	---
Zinc Sulfate, 10%	E50	E50	E50	E50	E20	E50	E50	E20	G20	E20	E50

Properties of Glass

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

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

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

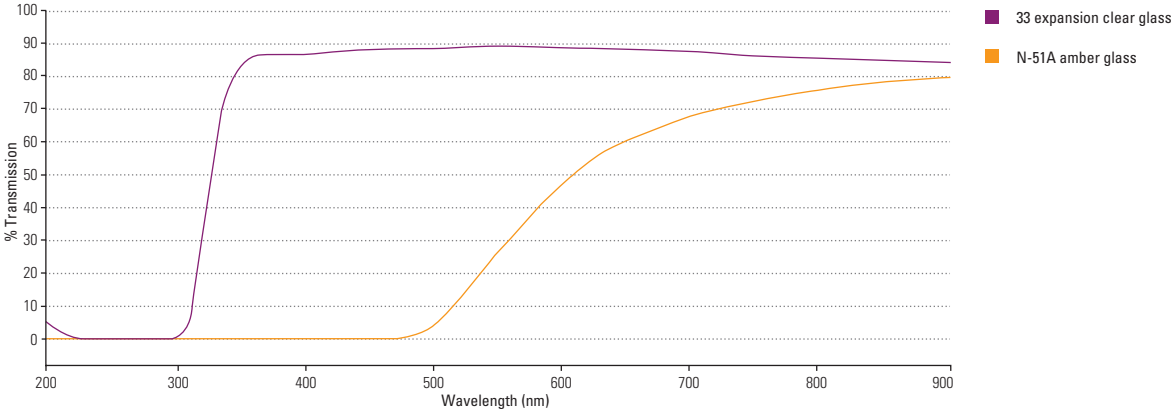
Clear and Amber glass products manufactured from N-51A borosilicate glass, have a relatively low coefficient of expansion and high chemical durability. N-51A borosilicate glass meets the requirements for Type I Class B glass of ASTM E438.

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

Approximate Chemical Composition for Borosilicate Glass

	33 expansion and Chromacol GOLD Grade Glass	N-51 Clear Glass	N-51 Amber Glass
Silicon Dioxide (SiO_2)	80%	75%	72%
Boron Oxide (B_2O_3)	13%	11%	12%
Aluminum Oxide (Al_2O_3)	3%	5%	7%
Calcium Oxide (CaO)	0.1%	2%	1%
Magnesium Oxide (MgO)	Not Detected	Not Detected	Not Detected
Sodium Oxide (Na_2O)	4%	7%	6%
Potassium Oxide (K_2O)	0.1%	Not Detected	2%
Barium Oxide (BaO)	<0.1%	1%	<0.1%

Optical Properties of Glass



Autosampler Compatibility Table

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

Manufacturer	Model	8mm Crimp	11mm Crimp and Snap	8-425 Screw	9mm Short Screw	10-425 Screw	Shell Vials	13-425 Screw and Crimp	Headspace	Plate
Agilent	1050, 1090		●		●					
	1050 (34 Pos. Tray), 1090 (34 Pos. Tray)	●								
	1100/1200		●		●					
	G1888A								●	
	7673A/7683A	●	●		●					
	7693A		●	●	●		●	●		
	HS7694							●	●	
	7697A								●	
	79855(A)		●		●					
	5880/5890		●		●					
	6850 (27 Pos. Tray)		●		●					
	6850 (22 Pos. Tray)							●		
	6890		●		●					
	CTC HTS+HTC PAL+CTC GC PAL	●	●		●					●
	CTC Combi PAL								●	
	1100 Well-Plate/1100 Nanoflow		●	●	●					●
	1200 Well-plate/1200 SL plus		●	●	●					●
	1260 Infnity		●	●	●					
	1290 Infinity		●	●	●					●
AI	42 vial tray		●	●	●					
	60 vial tray	●	●	●	●					
	CTC A200S	●	●	●	●					
	Headspace								●	
AIM	CPS-100+CPS-200		●	●	●					
Alcott	708 AL, 728						●			
	738, 719 D/ D-PCS		●	●	●	●				
	719 AL		●	●	●	●		●	●	
Alpha M.O.S.	Prometheus/Fox/Kronos								●	
Antec Leyden	AS 100, 736 Unisampler, 738		●	●	●	●				
	Alexys		●	●	●					
ATAS GL	Focus		●	●	●				●	
Beckman	501, 502/502e, 507/507e	●	●	●	●	●				
	504	●								
	508 (System Gold)				●				●	
	Marathon, Promis		●	●	●					
	Triathlon,Standard Tray		●	●	●				●	
	Triathlon, LSV Tray	●						●		
	Triathlon, Super-LSV Tray								●	
	Triathlon, Micro-Tray	●								
Bruker	LC51							●		
	Mapi1									●
Cambridge Scientific Instruments	205 Series, 300 Series		●	●	●	●		●		
Carlo Erba	AS100, A200LC, AS300	●	●	●	●		●			
	AS200, AS200S	●	●	●	●					
	AS800, 42 vial tray		●	●	●					
	AS800, 60 vial tray	●	●	●	●					
	HS250, 500, 800, 850								●	
Cecil Instruments	CE4800		●	●	●	●				
	AutoQuest		●	●	●	●				

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

Manufacturer	Model	8mm Crimp	11mm Crimp and Snap	8-425 Screw	9mm Short Screw	10-425 Screw	Shell Vials	13-425 Screw and Crimp	Headspace	Plate
CTC	A200S	●	●	●	●	●				
	A200 LC	●	●	●	●	●			●	
	HS 500								●	
CTC (LEAP)	LC PAL (216 Pos.)		●	●	●	●			●	
	HTX PAL, HTC PAL, HTS PAL (200 Pos. Tray), Combi PAL (200 Pos. Tray), GC PAL (200 Pos. Tray)	●								
	HTX PAL, HTC PAL, HTS PAL (54/98 Pos. Tray)	●	●	●	●	●			●	
	HTX PAL, HTC PAL, HTS PAL (32 Pos. Tray), Combi PAL (32 Pos. Tray), GC PAL (32 Pos. Tray), Combi PAL SPME Mode (32 Pos. Tray)								●	
	Combi PAL (98 Pos. Tray), GC PAL (98 Pos. Tray)	●	●		●					
	Combi PAL SPME Mode (98 Pos. Tray)		●		●					
DANI	ALS 39.80, ALS 86.80, ALS 1000		●		●					
	HS39.50, HS86.50								●	
	Master AS		●		●				●	
	Master DHS								●	
Dionex/ Thermo Scientific Dionex	Gina 50	●	●		●			●		
	AS 50	●	●	●	●	●				
	AS-AP (120 Pos. 1.5mL) (3 x Plates)		●	●	●					●
	Summit ASI 100, Micro-Tray (192 Pos.)	●								
	Summit ASI 100, Analytical-Tray (117 Pos.)		●	●	●					
	Summit ASI 100, Semiprep.-Tray (63 Pos.)							●		
	Famos (LC Packings/Dionex)		●	●	●	●			●	
	UltiMate Analytical, cylindrical, WPS-3000 SL, 120 Pos. Rack (2ml)		●	●	●	●			●	
	UltiMate Analytical, conical, WPS-3000 SL, 120 (3x40) Pos. Rack (1.1ml=2ml w. Inserts)		●						●	
	UltiMate Micro, conical, WPS-3000 SL, 120 (3x40) Pos. Rack (250µl), UltiMate Nano/Cap/Micro, WPS-3000 SL, 216 (3x72) Pos. Rack (1.2ml)	●							●	
	UltiMate Semipreparative, WPS-3000 SL, 66 (3x22) Pos. Rack (4ml)							●	●	
	AS 40						●	●		
	AS-HV			●						
D-Star	DAS 10		●	●						
Dynatech	42 vial tray		●	●	●					
	60 vial tray	●	●	●	●					
	LC2000	●								
	GC111, GC311	●	●	●						
	LC-241	●	●	●						
Eksigent	NanoLC-AS1		●	●						
ESA	540-MT/540		●	●	●					●
EST	LC-241plus		●	●						
EST Analytical	Cobra L/S GC Autosampler; 120 vial tray		●	●	●	●				
	Cobra L/S GC Autosampler; 60 vial tray, Markelov HS9000								●	
Finnigan	A200S	●	●	●	●					
Fisons	AS100, A200LC, AS300	●	●	●	●		●			
	AS200	●	●	●	●					
	AS200S	●	●	●	●					
	AS800, 42 vial tray		●	●	●					
	AS800, 60 vial tray	●	●	●	●					
	HS250, HS500, HS800, HS 850								●	
GBC	Avanta Ultra Z		●		●		●			
	LC 1650		●	●						
GE Healthcare	Ettan A-905		●		●	●				
GE Instruments	Sievers 900								●	
Gerstel	MPS	●	●	●	●			●	●	●

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

Manufacturer	Model	8mm Crimp	11mm Crimp and Snap	8-425 Screw	9mm Short Screw	10-425 Screw	Shell Vials	13-425 Screw and Crimp	Headspace	Plate
Gilson	201/202, 221/222, 231/401/232/402, Aspec, Aspec Xli, Aspec XL4			●	●		●			
	221XL/222XL, 223, 231XL/232XL/233XL	●								
	Nano Injektor			●	●					
	235/235P/SP 235/SP 235P	●		●	●					
Gynkotek	Gina 50	●	●		●			●		
HTA	HT200H								●	
	HT250D, HT280T, HT300L		●	●	●	●			●	
	HT300A, HT310A, HT3000A, HT3100A, HT3200A		●	●	●	●				
ICI	LC1600	●	●							
IMT GmbH	PTA3000								●	
Jasco	AS 2055/AS 2055 (i), AS 2057/AS 2057 (i), AS 2059	●	●	●	●	●				
	851/AS-950/AS-1550/AS-1555			●						
	AS-2059/AS-2059Plus			●						●
	AS-2059-SF/X-LC	●		●						●
Knauer	K-3800 (Basic Marathon), Smartline K-3950, PLATINblue AS-1		●	●	●				●	
Konik -Tech	Robokrom Static HS								●	
	Robokrom HRGC	●	●							
	Robokrom HPLC		●	●	●	●				
Kontron	MSI 660			●				●		
	360, 460	●	●	●	●					
	360/460/560/565	●	●	●	●					
LDC	713-60	●								
	Marathon, Promis		●	●	●					
Metrohm	Triathlon		●	●						
PerkinElmer	Series 200, 25 vial tray, ISS-225, 25 vial tray								●	
	Series 200, 85 vial tray, ISS-100, 85 vial tray, ISS-200, 85 vial tray, ISS-225, 85 vial tray		●			●			●	
	Series 200, 81/100 vial tray, Integral 4000, ISS-100, 100 vial tray, ISS-200, 100 vial tray		●			●				
	Series 200, 205 vial tray	●	●			●				
	Series 200, 225 vial tray	●								
	AI-1	●	●							
	AS-100/AS-100B	●	●							
	AS2000/AS2000B	●	●			●				
	AS-300, AS8300, Autosystem	●	●							
	HS 6, HS40/HS100/101								●	
	TurboMatrix HS16/HS40/HS40 XL/ HS40 Trap/HS110/ HS110 Trap								●	
	ISS-200, 145 vial tray	●								
	ISS-225, 205 vial tray	●	●			●				
	ISS-225, 100 vial tray + 80 vial tray		●			●				
	LC 600, 42 vial tray	●								
	LC 600, 60 vial tray		●			●				
	Clarus 400, 500, 600		●							
Pharmacia	LKB 2157-010		●	●	●					
	LKB 2157-020	●	●							
	Akta A-900		●	●						
Polymer Laboratories	PL-AS RT		●	●	●	●		●		
	GPC 110/210		●	●						
Quma Elektronik	QHSS-40								●	
Sedere	–		●		●					
Selerity	3100		●	●						
Sepiatech	Sepmatix									●
SGE	LS-3200	●								
Shimadzu	AOC-5000	●	●		●				●	
	AOC-14/1400, AOC-17, AOC-20/20i/20s 150 Pos. Tray		●	●	●	●		●		
	AOC-20/20i/20s 96 Pos. Tray							●		

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

Manufacturer	Model	8mm Crimp	11mm Crimp and Snap	8-425 Screw	9mm Short Screw	10-425 Screw	Shell Vials	13-425 Screw and Crimp	Headspace	Plate
Shimadzu	LC-20A		●	●	●	●		●		
	SIL-2AS, SIL-6A, SIL-10A/SIL-10AF/SIL-10AP/SIL-10Ai/SIL-10AxL/Rack S 100 Pos.	●	●	●	●	●	●	●		
	SIL-6B/SIL-7A/SIL-8A/SIL-9A		●	●	●	●	●	●		
	SIL-10A/SIL-10AF/SIL-10AP/SIL-10Ai/SIL-10AxL/Rack L 80 Pos.						●	●		
	SIL-10A/SIL-10AF/SIL-10AP/SIL-10Ai/SIL-10AxL/Rack MTP2 192 Pos., SIL-10HTA/SIL-10HTC 350 pos. Tray						●			
	SIL-10HTa/SIL-10HTc 140 Pos. Tray		●	●	●	●	●			
	SIL-10HTa/SIL-10HTc 100 Pos. Tray						●	●		
	SIL-10ADvp		●	●	●	●	●	●		
	SIL-20A (Prominence) 105 vial tray/SIL-20AC (Prominence) 70 vial tray	●	●	●	●	●				
	SIL-20A/Sil-20AC (Prominence) 175 vial tray						●			
	SIL-20A/Sil-20AC (Prominence) 50 vial tray, LC2010C + LC2010A 100 Pos. Tray						●	●		
	LC2010C + LC2010A 350 Pos. Tray						●			
	LC2010C + LC2010A 140 Pos. Tray		●	●	●	●	●			
	HSS-2B								●	
	SIL-20AXR/SIL-20ACXR (Prominence) 175 (1-mL vials), 70 (1.5-mL vials), 50 (4-mL vials)		●	●	●		●	●		●
	SIL-30AC(Nexera) 175 (1-mL vials), 105 (1.5-mL vials), 50 (4-mL vials)		●	●	●		●	●		●
Spark	Marathon Basic, Standard 96 Pos. Tray, Midas, Large Capacity 96 Pos. Tray, Promis, SPH 125		●	●	●					
	Marathon Basic Prep King Size 48 Pos. Tray, Midas, Large Volume 24 Pos. Tray								●	
	Midas, Standard 84 Pos. Tray, Alias		●	●	●				●	
	Triathlon,Standard 96 Tray		●	●	●		●			
	Triathlon, LSV 72 Pos. Tray							●		
	Triathlon, Super-LSV 32 Pos. Tray								●	
	Triathlon, Micro 160 Pos. Tray	●								
	Endurance 48 Pos. Tray, Reliance 48 Pos. Tray		●	●	●					
	Integrity 108 Pos. (2mL) 2 x Plates , IntegrityPlus 2 x 108 Pos. (2mL) 4 x Plates		●	●	●					●
	Optimas 96 Pos. (2mL) 24 Pos. (10mL)		●	●	●				●	
	Prospekt 2		●	●						
	Reliance/Symbiosis Pharma		●	●						●
	Symbiosis Pico									●
Spectra-Physics	8875, 8880		●	●	●					
	SpectraSYSTEM AS1000, AS3000, AS3500	●	●	●	●		●			
Sykam	S 5200		●		●					
Talbot	ASI		●		●					
Teledyne Tekmar	7000/7000HT/7050								●	
	HT3A								●	
Thermo Scientific	AS1000 (TRACE GC), AS200, AS2000 90 vial tray (TRACE GC)	●	●	●	●					
	AS300	●	●	●	●		●			
	AS2000 30 vial tray								●	
	AI3000 (II)/AS3000 (II) AS3500 (TRACE GC + FOCUS GC)	●	●		●				●	
	A200LC, AS 100	●	●	●	●		●			
	SpectraSYSTEM AS 1000, AS 3000, AS 3500	●	●	●	●		●			
	A200S	●	●	●	●					
	AS800, 42 vial tray		●	●	●					
	AS800, 60 vial tray	●	●	●	●					
	HS250, HS500, HS800, HS 850, HS2000								●	
	TriPlus (=GC PAL) (AS+ Duo)	●	●	●	●				●	

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

Manufacturer	Model	8mm Crimp	11mm Crimp and Snap	8-425 Screw	9mm Short Screw	10-425 Screw	Shell Vials	13-425 Screw and Crimp	Headspace	Plate
Thermo Scientific	TriPlus HS, TriPlus SPME								●	
	Surveyor (Surveyor Plus)	●	●	●	●		●		●	
	Accela High Speed LC Autosampler (200 Pos.)	●	●	●	●					
	Accela Open Autosampler (342 Pos)	●	●	●	●					●
	TriPlus RSH	●	●	●	●				●	●
	TriPlus 300								●	
Tosoh	AS 8010		●		●					
	TSK-6080		●		●			●		
Tracor	770/771/772		●	●	●					
Unicam	4247, 4710		●	●	●					
	4700 (GC)	●								
	4700 (LC)	●		●	●					
	LC-XP		●	●	●			●		
	S4/S8	●								
Varian	ProStar 400, Standard 96 Pos. Tray, ProStar 410, Large Capacity 96 Pos. Tray		●	●	●	●				
	ProStar 400, King Size 48 Pos. Tray, ProStar 410, Large Volume 24 Pos. Tray								●	
	ProStar 410, Standard 84 Pos. Tray		●	●	●	●			●	
	ProStar 420, Standard 96 Pos. Tray		●	●	●	●	●			
	ProStar 420, LSV 72 Pos. Tray	●						●		
	ProStar 420, Super-LSV 32 Pos. Tray								●	
	ProStar 420, Micro 160 Pos. Tray	●								
	ProStar 430, 48 Pos. Tray		●	●	●					
	8035			●	●					
	8000, 8100		●	●	●					
	8200		●	●	●	●				
	8400 (100 Pos.), 8410-Autoinjector (10x2ml; 6x5ml; 5x10ml)		●	●	●				●	
	CP-910, 911, 912		●	●	●					
	CP-940, 941		●							
	LC 9100/LC 9095/LC 9090		●		●					
	COMBI PAL (200 Pos. Tray) GC PAL (200 pos. Tray)	●							●	
	COMBI PAL (98 Pos. Tray) GC PAL (98 Pos. Tray)	●	●		●				●	
	COMBI PAL SPME mode (98 Pos. Tray)		●		●				●	
	COMBI PAL (32 Pos. Tray) GC PAL (32 Pos. Tray), COMBI PAL SPME mode (32 Pos. Tray)								●	
	Genesis								●	
	Marathon Basic, Standard 96 Pos. Tray		●	●	●					
	Marathon Basic, Prep, King Size 48 Pos. Tray								●	
	Vista			●	●					
	CP-9020/CP-9025, CP-9060								●	
	CP-9010		●	●	●					
	CP-8410/8034/8035/8100/8200/9095/9100		●	●						
	920-LC/940-LC		●	●						
Viscotek	GPC Autosampler			●	●	●				
VWR(Merck)/Hitachi	L2200 (LaChrom Elite)/L2200-U (LaChrom Ultra) (200 Pos. Tray), L7200 (LaChrom) (80 Pos. Tray)/L7250(LaChrom) (Pos. Tray)		●	●	●					
	L2200 (LaChrom Elite) (128 Pos. Tray)							●		
	L7250 (LaChrom) (Rack Holder for combination Racks)	●	●	●	●			●		
	655-A40 (108 Pos. Tray), L-9100, AS 2000 (50 Pos. Tray), AS 4000 (150 Pos. Tray)		●	●	●					
	AS 4000 (198 Pos. Tray)	●								
	5210 (Chromaster) 195 Pos (1mL), 120 Pos 1.5mL (Standard), 72 Pos. (4mL), 2 x MTP (96,384)		●	●	●		●	●		●
	AS 6000	●	●	●	●					

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

Manufacturer	Model	8mm Crimp	11mm Crimp and Snap	8-425 Screw	9mm Short Screw	10-425 Screw	Shell Vials	13-425 Screw and Crimp	Headspace	Plate
Waters	Acquity Sample Organizer		●		●					●
	Acquity/CapLC/Waters/Nano Acquity		●		●					●
	Alliance HTS									●
	Model 2767		●	●						●
	Model 2707		●	●						●
	Model 2777		●	●						●
	ACQUITY™ UPLC Systems				●			●		
	Wisp 48 position						●	●		
	Wisp 96 position, 717, 96 Position Carousel						●			
	717, 48 Position Carousel						●	●		
	Alliance, Alliance HT Syst.		●		●	●				
	Alliance GPC 2000							●	●	
	Alliance 2790/2795, Alliance 2690/2695		●		●	●				

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

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

Thermo Scientific Well Plates for Chromatography

The Thermo Scientific™ WebSeal™ system is a comprehensive range of PP well plates with or without glass inserts and sealing mats. This chapter of the catalog should help to decide, whether well plates are an option to glass or plastic vials as sample container for chromatography applications and if yes: which product to choose.

In order to give a qualified recommendation here, four critical questions about the application have to be answered:

1) Can the autosampler be equipped with well plates? (autosampler compatibility)
2) Is the sample compatible with the well plate material? (solvent compatibility and stability)
3) Are seals for plates available, which meet the requirements? (cross contamination, evaporation rates, piercability)
4) Which product is the right one for the application?
   a. Basic plates, economical, but limited solvent compatibility
   b. Mid range plates, CERTIFED, good solvent compatibility
   c. Premium plates, excellent solvent stability, inert, "like a glass vial" usage

1) Modern autosamplers offer racks and handling systems for well plates in order to:

- Handle more samples in less time
- Improve the handling of large number of sample sequences
- Use a compact footprint container system with less space consumption per cm2
- Provide low volume/high recovery cavity.
  – The design of our plates is compatible in terms of the base footprint with those autosamplers capable of using ANSI/SBS standards.
  The standards set the most important dimensions with tolerances for 96-well and 384-well microplates.
  ANSI: American National Standards Institute
  SBS: Society for Biomolecular Sciences
  – As the height is not controlled by these standards and autosamplers may have limitations on which plates may be used. (see Autosampler Compatibility Table on page 2-109)
  – The internal well profile allows processing of small volumes but the correct profile must be selected (flat-, U- or V-profile)
  – The wall profile does not encourage the capillary "wicking" of solvent from the well during storage and processing.

2) Are there disadvantages of today´s plastic well plates compared to glass vials, which have been the standard for decades and offer all the required inertness, freedom of blank values and solvent stability need for a reproducible HPLC and/or GC analysis?

The container of choice has to be:

– Inert to the solvent and sample
– Adds nothing to the sample due to extraction or contamination
– Can be sealed to prevent evaporation of solvent and sample

Glass inserts are resistant to all organic solvents, stable at temperatures of over 350°C, have high clarity, extremely low organic extractible profile and structural rigidity, but:

- Strong acids may extract ions from the glass by a process of hydrolytic extraction
- Although structurally rigid the glass is sensitive to shock and abrupt temperature changes, causing the glass to crack.

Polypropylene is seen as the plastic material of choice when storing liquid sample in aqueous/organic mixtures due to its wide chemical compatibility with alcohols, acetonitrile and other common HPLC solvents (see Chemical Resistance Reference Chart on page 2-103), but:

- Plastic Additives may be found in the material which aid moulding and solvents. Download Technical Notes from www.thermoscientific.com/webseal
- Moulding Technology uses releasing agents which allow products to be produced more quickly but these may contaminate samples.

3) Chromatography predominantly requires organic solvents as the eluent or solvent for the samples. Therefore the container of choice was for decades a glass vial with a closure, which provides on the sample side an inert surface (normally fluorinated) for sample integrity and on the other hand a soft, piercable rigidity for simple and reliable needle handling (often silicone). The techniques vary in requirements with the major differences in sample handling being between gas chromatography and liquid chromatography.

– Tapes and adhesive foils are an economical alternative for standard applications with a limited contamination risk from the glue formulation.
– WebSeal mats are made of chromatography proved silicone available with or without PTFE layer for an inert and safe seal of the plates. For better piercability and in order to meet most autosampler injection systems they are available pre-slit as well.
– For applications requiring a sealing mat, select the microplate product that best fits your sample size, find the diameter of the wells and select a mat with plugs of the same diameter.

4) We present a new range of well plates which exactly meets the requirements of today's chromatographer using an autosampler for plates. All the advantages of sample handling via a plate are combined with the security for reliable results and the experience of decades as market leader in autosampler vials & closures. Our plate portfolio contains products for every type of application and offers solutions from a simple standard routine analysis up to very special and challenging sample handling problems.

Why go with less than a product from the market leader in vials and closures?

We offer:

– Plates and seals for standard and routine applications, chromatography tested, made from resins which show excellent HPLC solvent resistance and low background noise, especially with polar solvents
– CERTIFIED plates and seals for reliable analysis, the new industrial standard for chromatography plates, lowest background, lowest extractable rates, proved by a certificate with our best and established sealing mats.
– Glass covered PP plates, where an inert surface is required, for minimized sample adsorption on the plastic wall and constant quantification results from cavity to cavity, independent from the type of analyte.
– Plates with glass inserts for a convenient "like a glass vial" usage, with all the benefits and quality arguments you know from your "normal autosampler vial". Here you have the choice of a well plate handling with sealing mats or - alike a normal vial - with individual closures for every glass insert – only with its own transport "rack" and ready to use.

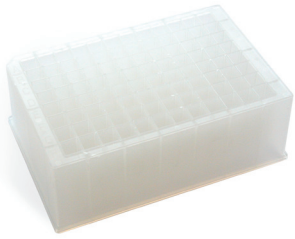
Thermo Scientific WebSeal Well Plates, Plastic, Non-coated, Non-sterile, Chromatography Tested

- 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°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

60180-P103

60180-P104

60180-P105



WebSeal Well Plates, plastic, non-coated, non-sterile, chromatography tested

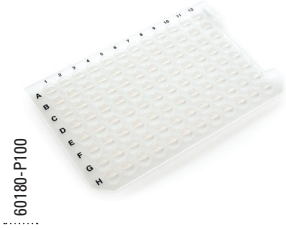
Description	Material	Total Height	Well Format	Total Volume (µL)	Working volume range µL/ well	**Cat. No.**	Pack of
96-Well MicroWell Microplate, round well	PP	14.4	V-Shape, 8mm dia	450	10-400	**60180-P100**	20
	PP	14.4	V-Shape, 8mm dia	450	10-400	**60180-P130**	120
96-Well MicroWell Microplate, round well	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
	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 Deep 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

Thermo Scientific 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

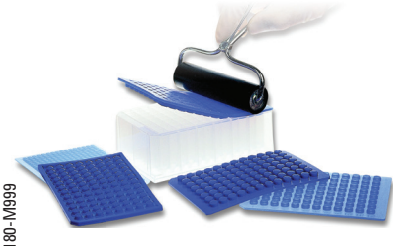
Sealing tapes minimize evaporation and protect samples from contamination and spilling.

- 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)


60180-P100


60180-M121


60180-M123


60180-M999

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 dia	Yes	**60180-M100**	10
WebSeal Mats (alcohol resistant)	Clear	EVA	96 Round Well, 8mm dia	No	**60180-M101**	5
WebSeal Mats (solvent resistant)	Clear	Silicone/PTFE	96 Round well – Dome Base, 8mm dia	No	**60180-M102**	5
WebSeal Mats (solvent resistant)	Clear	Silicone/PTFE	96 Round well – Dome Base, 8mm dia	Yes	**60180-M103**	5
Thermo Scientific™ National MicroMat™ CLR Silicone Mat	Clear	Silicone	96 Square Well	No	**60180-M121**	5
	Clear	Silicone	96 Square Well Pre-slit	Yes	**60180-M123**	5
	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
Sealing Tape with 3 layer no adhesive at cavity area	Clear	PET/Silicone/PET	N/A	No	**60180-M146**	100
Hand Held Sealing Tape Applicator	Gold	N/A	N/A	N/A	**60180-M950**	2
Hand Held Mat Applicator	Black	N/A	N/A	N/A	**60180-M999**	1

Thermo Scientific 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

60180-P201

60180-P202

60180-P204

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 Deep Well Microplate	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
	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 Microplate	PP	44.4	V-Shape, 7mm dia	2000	50-1900	**60180-P212**	5
	PP	44.4	V-Shape, 7mm dia	2000	50-1900	**60180-P202**	50
384-Well MicroWell 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

Thermo Scientific WebSeal Mats, Non-sterile

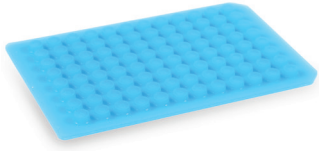
- Manufactured of pure silicone with or without PTFE coating
- The footprint permits plates to be securely stacked without robotic arm interference
- Eliminates cross contamination of samples
- Dry heat autoclavable with excellent chemical compatibility, withstand low temperature to -80°C
- Resists coring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

60180-M149

60180-M121

60180-M123

60180-M108



60180-M111

60180-M120

WebSeal Mats and Sealing Tapes, non-sterile

Description	Color	Material	Well Design	Pre-slit	Cat. No.	Pack of
MicroMat CLR Silicone Mat	Clear	Silicone	96 Round well – Dome Base, 7mm dia	No	**60180-M148**	5
	Clear	Silicone	96 Round Well – Pre-slit, 7mm dia	Yes	**60180-M116**	5
	Clear	Silicone	96 Round well – Flat Base, 7mm dia	No	**60180-M149**	5
	Clear	Silicone	96 Round Well – Pre-slit, 7mm dia	Yes	**60180-M113**	5
	Clear	Silicone	96 Square Well	No	**60180-M121**	5
	Clear	Silicone	96 Square Well	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 – Dome Base, 7mm dia	No	**60180-M108**	5
	Blue	Silicone/PTFE	96 Round well – Flat Base, 7mm dia	No	**60180-M111**	5
	Blue	Silicone/PTFE	96 Round well – Flat Base, 7mm dia	Yes	**60180-M112**	5
	Blue	Silicone/PTFE	96 Round well – Dome Base, 7mm dia	Yes	**60180-M115**	5
	Blue	Silicone/PTFE	96 Square Well	No	**60180-M120**	5
	Blue	Silicone/PTFE	96 Square Well	Yes	**60180-M122**	5
	Blue	Silicone/PTFE	384 Square Well	No	**60180-M125**	5
	Blue	Silicone/PTFE	384 Square Well	Yes	**60180-M131**	5
Hand Held Mat Applicator	Black	N/A	N/A	N/A	**60180-M999**	1

Thermo Scientific 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

Plate+ Glass Coated Microplates

Description	Material	Total Height	Well Format	Total Volume	Working Volume	**Cat. No.**	Pack of
96 Well Microplate	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 Microplate	Glass coated PP	41.5	U-Shape, 7mm dia	1.2mL	1.0mL	**60180-P306**	10
	Glass coated PP	44	Flat Bottom, 7mm dia	2.4mL	2.0mL	**60180-P308**	10
384 Well Microplate	Glass coated PP	14.4	Square-Rounded	120µL	90µL	**60180-P310**	10
	Glass coated PP	22	Square-Rounded	240µL	180µL	**60180-P312**	6

For sealing mats please look on the previous page

Thermo Scientific WebSeal Glass Inserted Plate Kits with 96-position Mats

- Convenient wellplate kits with pre-inserted 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
- Kits are packaged with vials pre-assembled
- Mats with solid plugs are used for sample storage

60180-K100

60180-K101

60180-K104

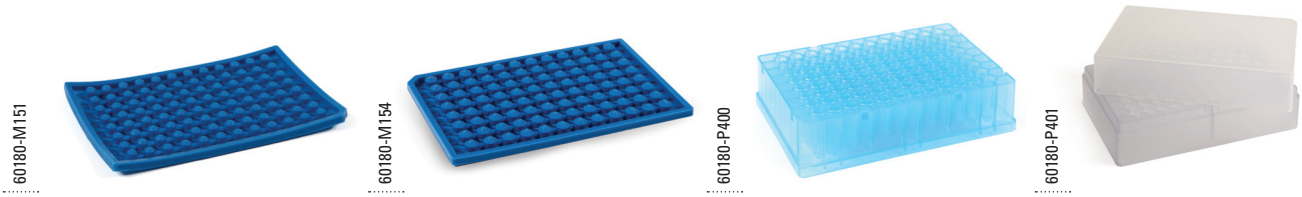
60180-K105

60180-K106

60180-K107

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

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 Well Micro Titer Plate (60180-K100)	N/A	N/A	N/A	N/A	N/A	31	N/A	**60180-P400**	5
PP 96 Well Micro Titer Plate (60180-K101, K102, K103)	N/A	N/A	N/A	N/A	N/A	41.6	N/A	**60180-P211**	5
Plastic 96 Well Micro Titer Plate (60180-K104)	N/A	N/A	N/A	N/A	N/A	31.2	N/A	**60180-P401**	5
PP 96 Well Micro Titer Plate (60180-K105)	N/A	N/A	N/A	N/A	N/A	42.4	N/A	**60180-P402**	5
PP 96 Well Square Well Plate (60180-K107/108/109)	N/A	N/A	N/A	N/A	N/A	44.4	N/A	**60180-P403**	1

Thermo Scientific 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

60180-K200

60180-K201

60180-K203

60180-K204

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	200	5.7x15.5	flat bottom	Silicone/PTFE, Pre-slit, 45°	60180-V108	60180-C100	**60180-K200**	1
96 Deep Well Plate	Clear glass	400	6x42.5	taper	Silicone/PTFE, Pre-slit, 45°	60180-V109	60180-C100	**60180-K201**	1
96 Square Well Plate	Clear glass	1200	7.6x45.9	round	Silicone/PTFE, 45°	60180-V110	60180-C102	**60180-K202**	1
	Clear glass	1200	7.6x45.9	round	Silicone/PTFE, Pre-slit, 45°	60180-V110	60180-C100	**60180-K203**	1
96 Micro-Tube-Rack-System	Clear glass	1000	7.6x40	round	PE Plug	60180-V111	60180-C101	**60180-K204**	1

60180-V108

60180-V109

60180-V110

60180-V111

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	200	5.7x15.5	flat bottom	N/A	N/A	**60180-V108**	960
Deep Well Plate Vial for 96 Wells	Clear glass	400	6x42.5	taper	N/A	N/A	**60180-V109**	960
Square Well Vial for 96 Wells	Clear glass	1200	7.6x45.9	round	N/A	N/A	**60180-V110**	960
MTRS Vial for 96 Wells	Clear glass	1000	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	N/A	N/A	N/A	N/A	14.6	**60180-P404**	10
DW-Block, PP, 96 Positions	N/A	N/A	N/A	N/A	N/A	41.6	**60180-P405**	10
SQW-Block, PP, 96 Positions	N/A	N/A	N/A	N/A	N/A	44.4	**60180-P406**	10
Micro-Tube-Rack-System, PP, 96 Positions	N/A	N/A	N/A	N/A	N/A		**60180-P407**	10

WebSeal Sample Concentrators

- Quicker dry down times than standard methods such as vacuum oven
- Designed for any SBS/ANSI 96 well plates
- Simple to install and operate
- Easy adjustments of temperature, gas flow rates and needle depth into the wells

60180-P990

60180-P900

WebSeal Sample Concentrators

Description	**Cat. No.**	Pack of
Mini Vap Sample Concentrator, Spiral Needle Design (110/240 Volt), evaporates 500µL Methanol in less than 10 minutes	**60180-P990**	1
Ultra Vap high speed Sample Concentrator, programmable, evaporates 500µL Methanol in less than 6 minutes	**60180-P900**	1
Replacement Spiral Needle Kit with fitting Tool	**60180-P901**	1

Resources
for Chromatographers

Chromatography Resource Center

Our web-based resource center provides technical support, applications, technical tips and literature to help move your separations forward.
Visit **www.thermoscientific.com/chromatography**

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