



Thermo Scientific
Chromatography Columns
and Consumables 2014-2015

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.

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Featured Products



SureStop 9mm Vials

Remove any subjectivity around achieving optimal seal compression closing a vial

>> PAGE 2-023/2-069



New 9mm Screw Thread Closure

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

>> PAGE 2-025/2-070



Tools and Accessories

A comprehensive range of accessories

>> PAGE 2-100

Advanced Vial Closure System (AVCS) Technology



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

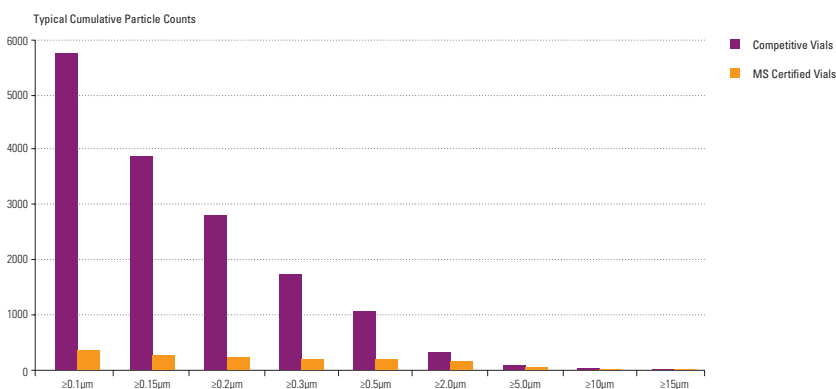
The presence of inorganic sub micron particles in all glass vials as a byproduct of the manufacturing process is a little known phenomenon that has not been extensively studied. Gas chromatographers depend on injection port liners to act as traps for particulates while the HPLC chromatographer takes 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

| 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



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.

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.

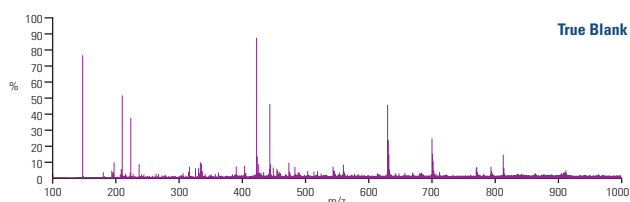
The results of the room temperature and 50°C tests were essentially the same indicating that the background contribution from the processed vials is minimal over a wide range of conditions. Typical background scans for the room temperature exposure are shown in the following figures.

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.

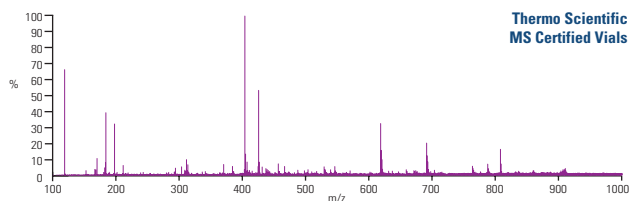
The second scan for each figure represents an injection of an equal quantity of the extracting solvent after exposure to the pre-cleaned sample vial.

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.

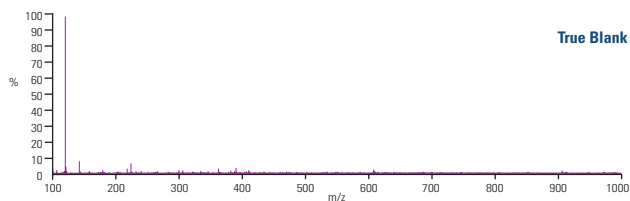
LC/MS Background Scan (Positive ESI)



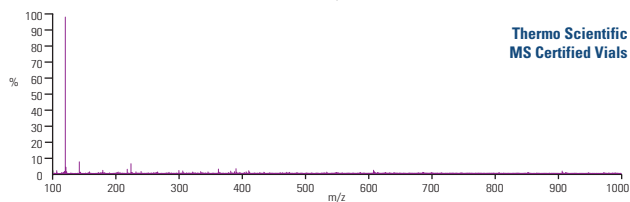
Conditions:
RT: 0.01-25.01
AV: 1211
NL: 2.31E4
T: +c ESI Full MS
[100.00-1000.00]



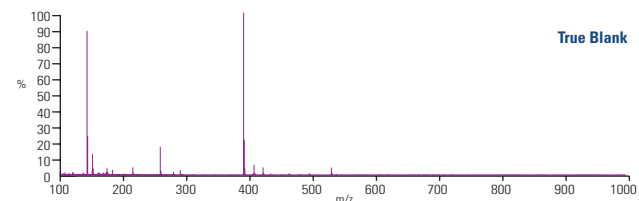
LC/MS Background Scan (Negative ESI)



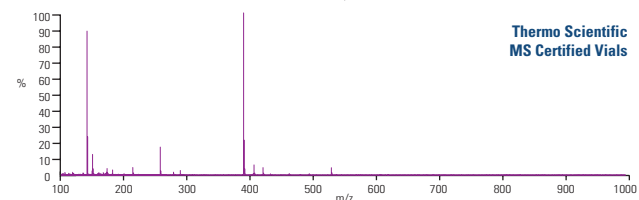
Conditions:
RT: 0.01-25.00
AV: 1155
NL: 4.45E6
T: -c ESI Full ms
[50.00-1500.00]



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]



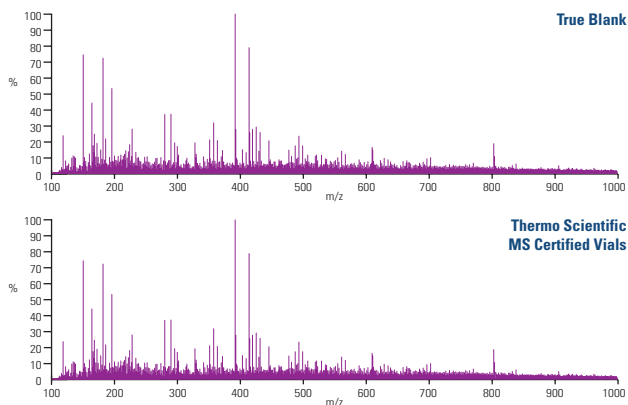
LC conditions

- 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 – H₂O + 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

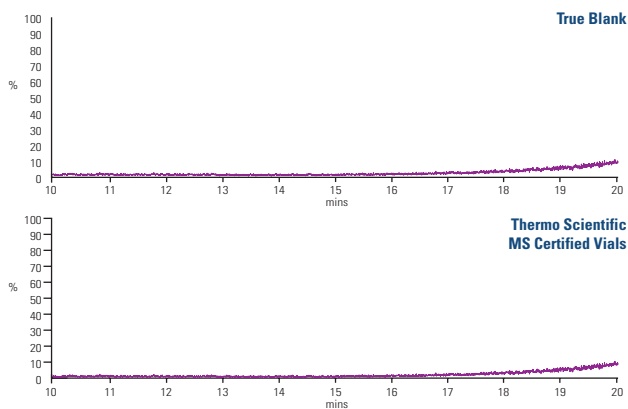
A portion of the vial extracts prepared for LC-MS analysis were taken for analysis by GC-MS. As with the LC-MS evaluation the vials were exposed at room temperature and 50°C. There was no significant difference between the room temperature and elevated temperature test results. A typical GC-MS scan is 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, sterilized | 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 | Clear | Yes | Black | Blue Silicone/PTFE | 60180-508 | 60180-514/60180-515 | 60180-596 | 1000 |
| Opening Screw Vial | 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

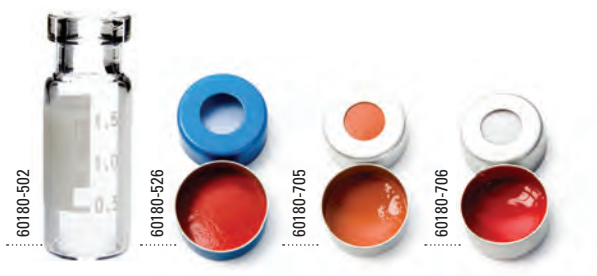
| Kit Type | Glass | Patched | Cap Color | Septum | Vial Cat. No. | Cap Cat. No. | Cat. No. | Pack of |
|---|-------|---------|-----------|--|---------------|--------------|------------------|---------|
| Convenience Kit, Wide Open Short Screw Vial | Clear | Yes | Blue | Blue Silicone/PTFE | 60180-509 | 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



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**

Images shown are 70% to scale

20mm Crimp Top Headspace Vials

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



Images shown are 70% to scale

20mm Crimp Top Vial Closures

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

20mm Crimping and Decrimping tools

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

For electronic crimpers and decrimpers look on page **2-100**

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 | Bonded Red PTFE/White Silicone | 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 | CERT4000-80LV | 100 |
| | Amber | Yes | Black | White Silicone | 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 | Bonded Clear PTFE/Clear Silicone, Pre-slit | 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 |
| | 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 | White Silicone, Pre-slit | 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 |
| 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



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 | C4013-63V | C4013-58 | 100 |
| | Clear | No | Black, phenolic | Red PTFE/White Silicone | C4013-1 | C4013-74A | C4013-492A | 100 |
| Assembled Kit, in Polybag | Amber | No | Black, phenolic | Red PTFE/White Silicone | C4013-2 | C4013-74A | C4013-494A | 100 |
| | | Clear | No | Black | White Virgin PTFE, 0.01" | C4013-1 | C4013-1A/ C4013-10 | C4013-010A |

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



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 350µL Insert | Polypropylene | No | 12x32 | Conical | 400µL | 300µL | <2 | C4000-11 | 100 |
| | 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

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

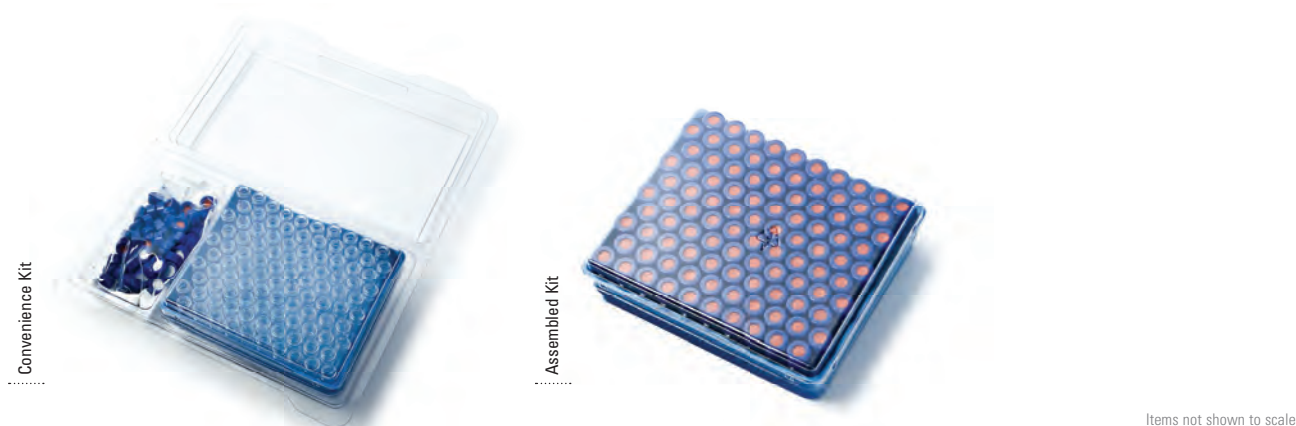
- Save time during sample preparation
- Reduce the risk of contamination

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



National 9mm Wide Opening Screw Thread Vials Convenience Kits

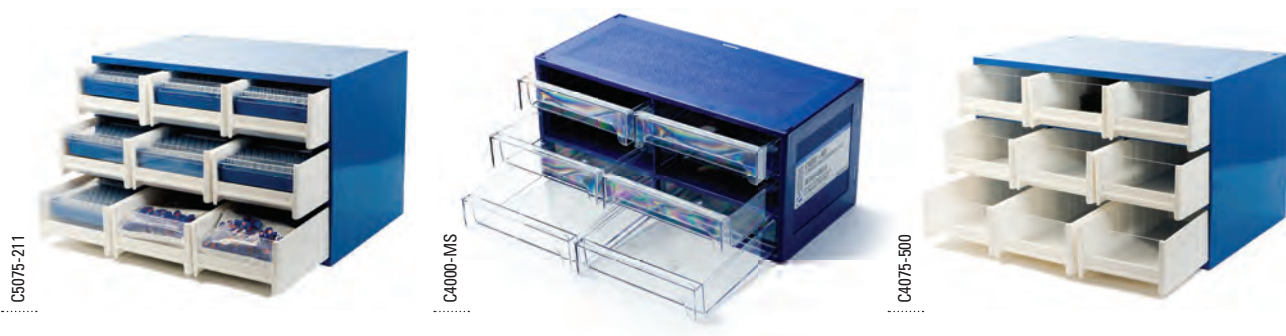
| Kit Type | Glass | Patched | Cap Color | Septum | Vial Cat. No. | Cap Cat. No. | Cat. No. | Pack of |
|--------------------------|---------------|---------|------------------------------------|------------------------------------|---------------|-------------------|-------------------|---------|
| 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



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**

Search thousands of applications at our chromatography resource center.
www.thermoscientific.com/crc

National 10-425 Wide Opening Screw Caps and Septa

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



National 10-425 Wide Opening Screw Caps and Septa

| Description | Cap Color | Cap Material | Septum | Hardness °shore | Thickness (mm) | Cat. No. | Pack of |
|----------------------------------|------------|---------------|---|--------------------|-------------------|--------------------|---------|
| 10mm Open Top Cap, 8.5mm hole | Light Blue | Polypropylene | – | – | – | C4010-1A | 100 |
| | White | Polypropylene | – | – | – | C4010-98W | 100 |
| | Black | Polypropylene | – | – | – | C4010-98BLK | 100 |
| Septum for 10-425 Screw Caps | – | – | White Virgin PTFE, 0.01" Septum | 53 | 0.25 | C4010-10 | 1000 |
| | – | – | Red PTFE/White Silicone, Soft Septum | 50 | 1.3 | C4010-35 | 100 |
| | – | – | Red PTFE/White Silicone/Red PTFE Septum | 45 | 1.3 | C4010-40 | 100 |
| | – | – | Blue PTFE/White Silicone, Pre-slit Septum | 55 | 1.5 | C4010-55 | 100 |
| | – | – | Red PTFE/White Silicone Septum | 45 | 1.3 | C4010-60 | 100 |
| 10mm Open Top Cap, 8.5mm hole | 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



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**

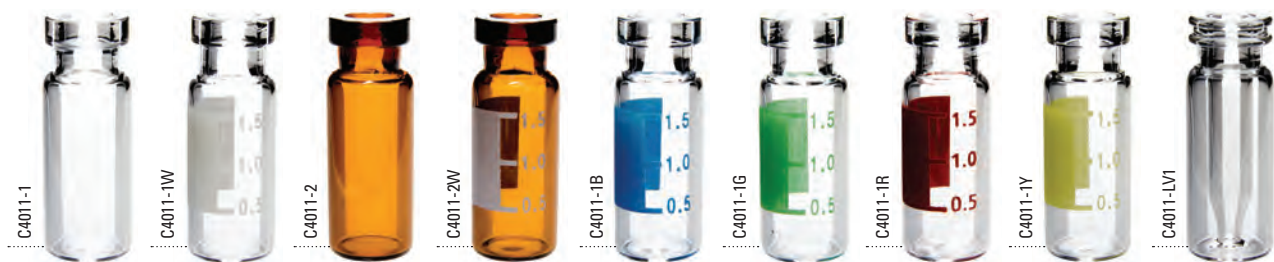
- Superior quality 33 expansion borosilicate clear (Type 1, Class A) or 51A amber (Type 1 Class B) glass
- I-D vials feature a write-on patch with graduation for convenient sample identification
- Standard opening requires Micro-Inserts with a diameter of 5mm
- Wide neck opening design, allows easy filling,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

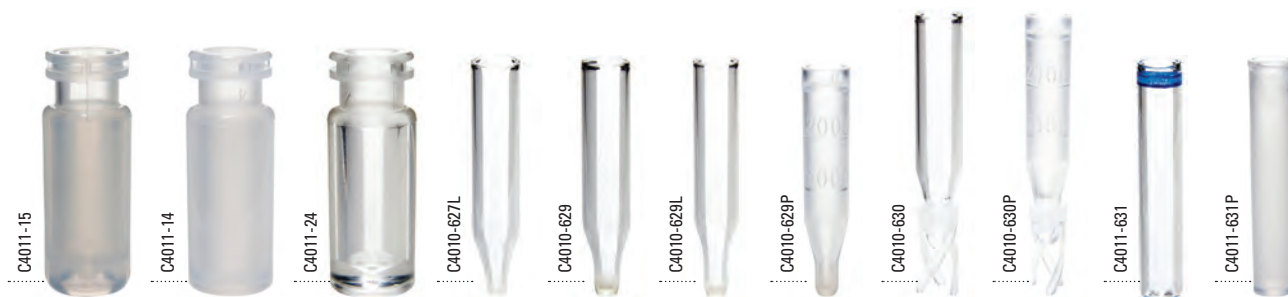
* ColorBand vials are designed to provide full sample color coding for autosamplers with optical vial detection. Use the optimum cap for your instrument without sacrificing your color coding scheme.



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**

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» Visit **PAGE 4-042**

National 11mm Crimp Top Closures

- Pre-assembled caps and septa are convenient and minimize contamination from handling
- Aluminum crimp closures provide a secure leak-resistant seal
- Aluminum seals must be applied with a crimping tool
- Closures are shipped in sealed polybags to prevent contamination during transport
- Synthetic PTFE/Red Rubber seal is specially formulated for improved background performance
- First Crimp Cap with assembled aluminum liner for analysis of Elastomers, Polymers, Phthalates, halogenated compounds and Silicones
- First Crimp Cap with tight PTFE sealing disk due to additional silicone ring



National 11mm Crimp Top Closures

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



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

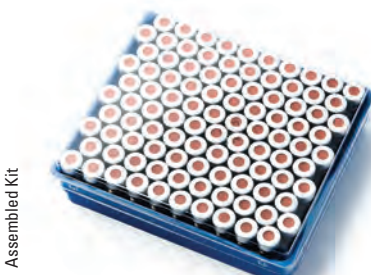
- Save time during sample preparation
- Reduce the risk of contamination

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



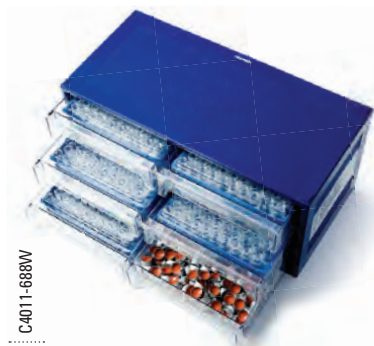
Items not shown to scale

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

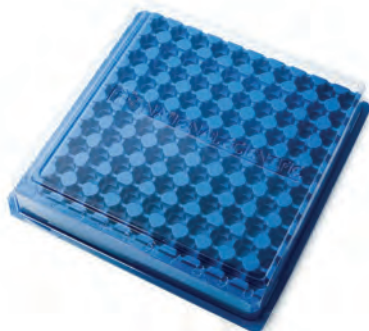
Items not shown to scale

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



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)

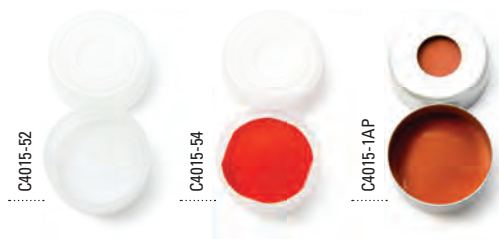
For autosampler compatibility look on pages **2-109 to 2-114**

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**



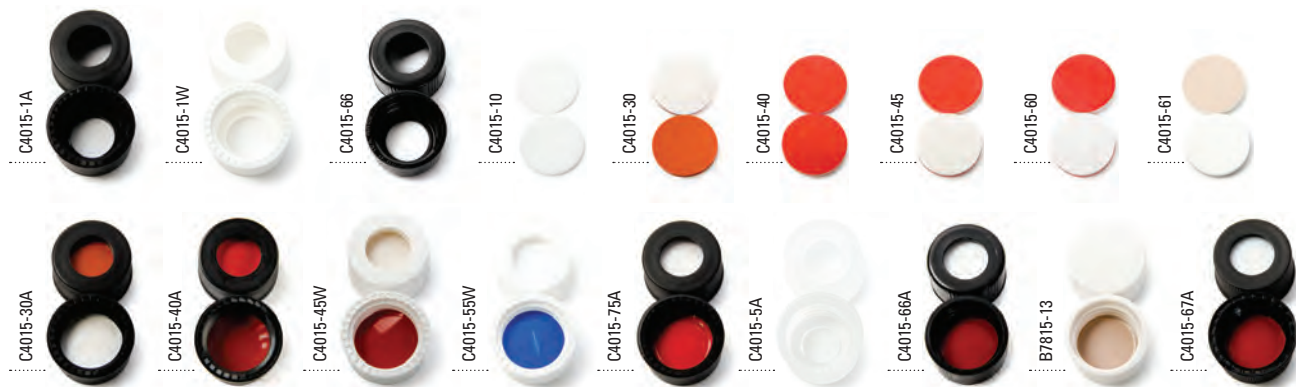
National 4mL Thread Vials and Inserts

| 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



C4015-88

Assembled kits

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



C4015-21



C4015-017

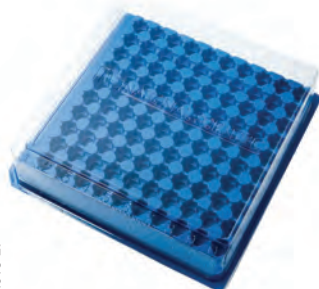
Items not shown to scale

National 4mL Screw Thread Convenience Kits

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

National 4mL Screw 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



Items 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



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 Performance 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.

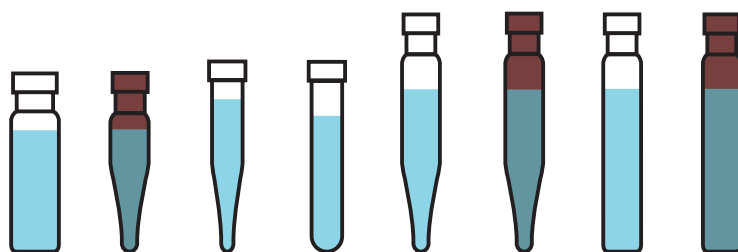


National Vial Reference Chart

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

Images shown are 80% to scale

8mm CrimpTop Vials



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

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



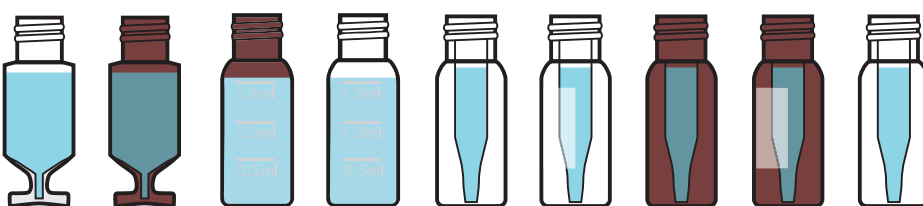
| | C4013-1 | C4013-1W | C4013-2 | C4013-2W | C4013-11 | C4013-12 | C4013-13 |
|------------------------|----------------|-----------------|----------------|-----------------|-----------------|-----------------|-----------------|
| Part No. | C4013-1 | C4013-1W | C4013-2 | C4013-2W | C4013-11 | C4013-12 | 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



| | C5000-1 | C5000-1W | C5000-2W | C4000-1 | C4000-1W | C4000-2W | C4000-9 | C4000-9A | C4000-11 | C4000-9TR |
|------------------------|----------------|-----------------|-----------------|----------------|-----------------|-----------------|----------------|-----------------|-----------------|------------------|
| 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

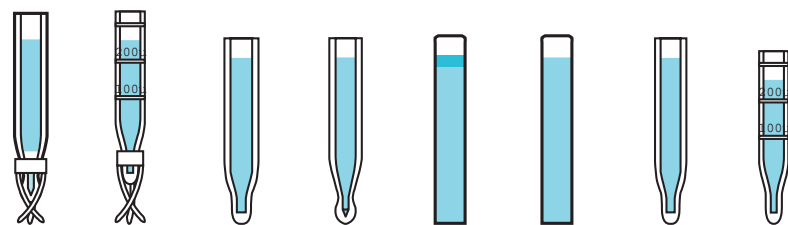


| | C4000-V1 | C4000-V2 | C4000-12 | C4000-14 | C4000-LV1 | C4000-LV1W | C4000-LV2 | C4000-LV2W | C4000-LV3W |
|------------------------|-----------------|-----------------|-----------------|-----------------|------------------|-------------------|------------------|-------------------|-------------------|
| 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

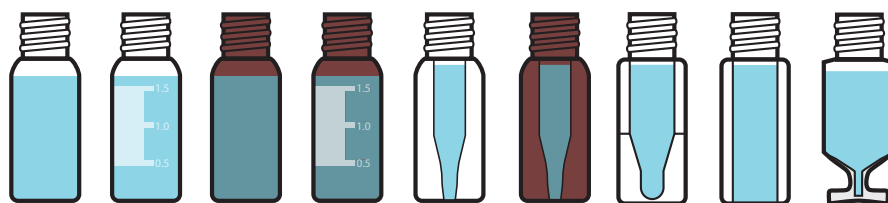
*Drawing is valid for: C4011-1B, C4011-1G, C4011-1R, C4011-1Y

Images shown are 80% to scale



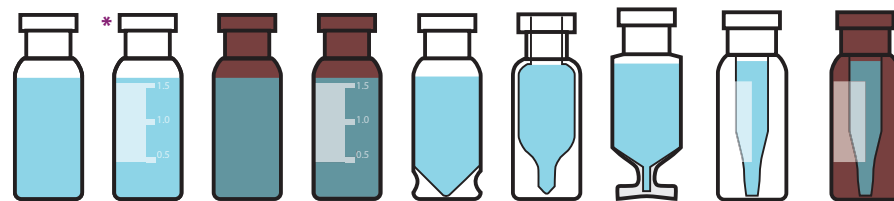
| Part No. | C4010-630 | C4010-630P | C4010-627L | C4010-629L | C4011-631 | C4011-631P | C4010-629 | C4010-629P |
|------------------------|-----------|------------|------------|------------|-----------|------------|-----------|------------|
| Dimensions | 6x31mm | 6x30mm | 6x31mm | 6x31mm | 6x31mm | 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



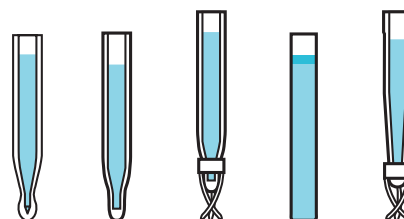
| Part No. | C4011-1 | C4011-1W* | C4011-2 | C4011-2W | C4011-9 | C4011-10 | C4011-V1 | C4011-LV1W | C4011-LV2W |
|------------------------|---------|-----------|---------|----------|---------|----------|----------|------------|------------|
| Common Description | 2mL | 2mL | 2mL | 2mL | 1.5mL | 400µL | 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 |

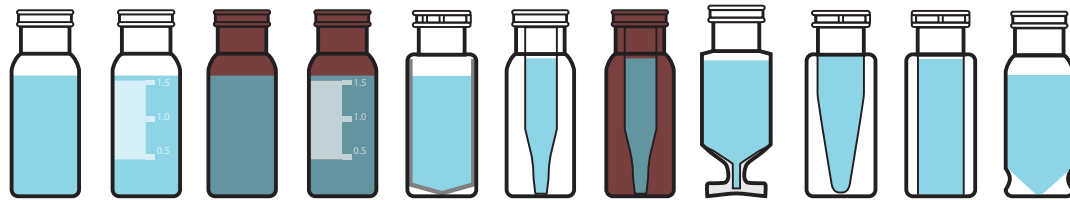
Standard Microvolume Inserts



| 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

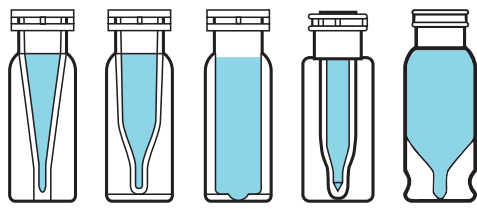
11mm Snap-It-Vials – 12x32mm



| Part No. | 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

Headspace Vials

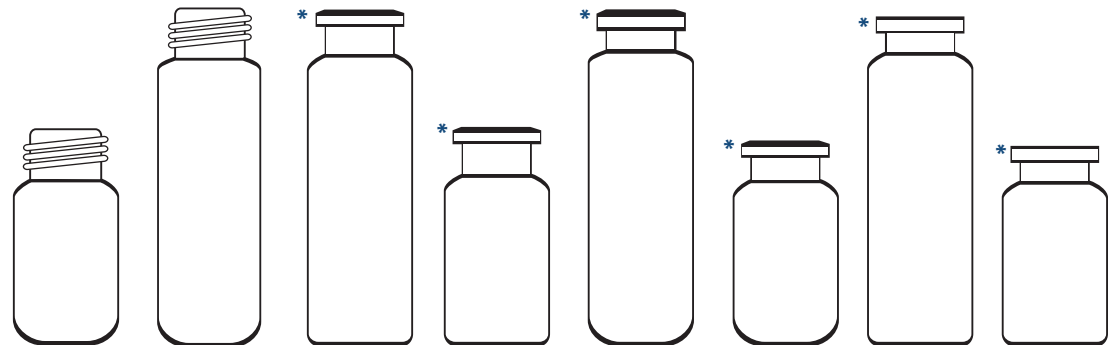


| Part No. | C4011-13 | C4011-16 | C4011-15 | C4012-15 | C4011-9TR |
|------------------------|----------|----------|----------|----------|-----------|
| Common Description | 250µL | 600µL | 850µL | 250µL | 1.5mL |
| Approx. Total Capacity | 475µL | 600µL | 825µL | 475µL | 1.5mL |
| Rec. Usable Volume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



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

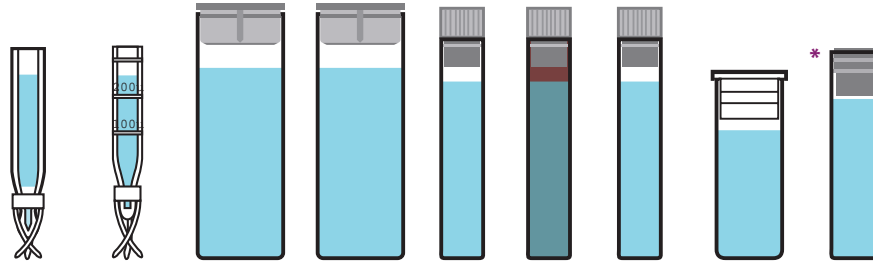
Headspace Vials



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



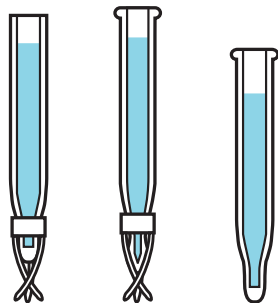
| Part No. | C4015-96A | C4015-96PA | C4015-48 | C4015-47P | C4015-96 | C4015-99 | C4015-95P | C4011-80 | C4008-50 |
|------------------------|-----------|------------|----------|-----------|----------|----------|-----------|----------|----------|
| Dimensions | 5x34mm | 5x29mm | — | — | — | — | — | — | 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 ₂ O ₃ | Al ₂ O ₃ | CaO | MgO | Na ₂ O | K ₂ O | BaO |
|---------------------------------|------------------|-------------------------------|--------------------------------|------|-----|-------------------|------------------|-------|
| 33 expansion Glass | 80% | 13% | 3% | 0.1% | – | 4% | 0.1% | <0.1% |
| N-51A Glass | 72% | 12% | 7% | 1% | – | 6% | 2% | <0.1% |
| Neutral Borosilicate-GOLD Grade | 80.6% | 13% | 2.3% | – | – | 4% | – | – |

For autosampler compatibility look on pages **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

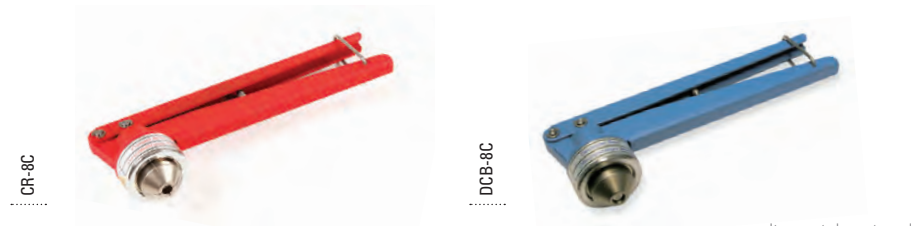


Chromacol 8mm Crimp Top Closures

| 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



Chromacol Crimping and Decrimping Tools

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

For electronic crimpers and decrimpers look on page **2-100**

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-UHSV | 100 |
| 9mm Screw Thread Vial 300µL, Fused Insert | Clear | Yes | 12x32 | Insert Vial | 0.3mL | 250µL | <3 | 03-FISV | 500 |
| | Amber | Yes | 12x32 | Insert Vial | 0.3mL | 250µL | <3 | 03-FISV(A) | 500 |
| 9mm Screw Thread Vial 200µL, Fused Insert-GOLD grade glass | Clear | Yes | 12x32 | Insert Vial | 0.2mL | 180µL | <2 | 02-FISVG | 500 |
| 300µL Insert | Clear | – | 6x31 | Flat Bottom | 300µL | 200µL | <12 | 03-NV | 1000 |
| 200µL Insert – GOLD Grade Glass | Clear | – | 6x30 | Pulled Point | 200µL | 160µL | <4 | 02-MTVWG | 1000 |
| Self-centering support device for tapered glass inserts | Polyethylene | – | – | – | – | – | – | MTS-1 | 500 |
| 9mm Screw Thread Vial | Polypropylene | No | 12x32 | Insert Vial, Mandrel | 300µL | 200µL | <4 | 03-PPSVW | 500 |

* For information about AVCS see page **2-002**

Chromacol 9mm Screw Thread Closures

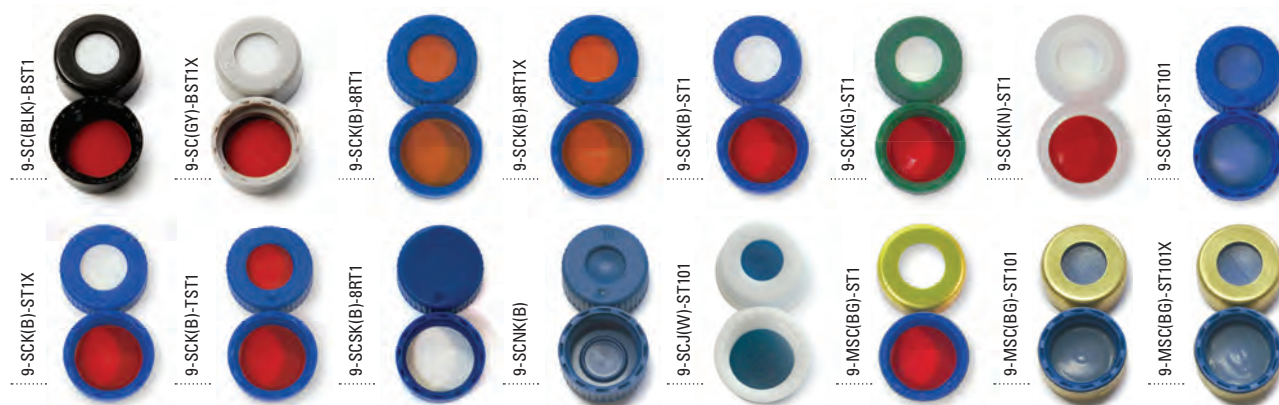


K-Series closures featuring AVCS technology (Advanced Vial Closure System)

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

Further features are:

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



Chromacol 9mm Screw Thread Closures

| Description | Cap Color | Cap Material | Septum | Hardness °shore | Thickness (mm) | Cat. No. | Pack of |
|--|-----------|---------------|---|-----------------|----------------|-------------------------|---------|
| 9mm Open Top Short Screw Cap, 6mm hole | Black | Polypropylene | Bonded Red PTFE/White Silicone | 57 | 1.0 | 9-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 |
| 11mm Crimp Top 0.6mL Vial | Clear | No | 12x32 | Insert Vial | 0.9mL | 830µL | <3 | 09-FIV | 500 |
| | HDPE | No | 12x32 | Internal Taper | 0.6mL | 0.5mL | <25 | 06-PECV | 500 |
| 11mm Crimp Top 0.3mL Vial, Fused Insert | Polypropylene | No | 12x32 | Internal Taper | 0.6mL | 0.5mL | <25 | 06-PPCV | 500 |
| | Clear | Yes | 12x32 | Insert Vial | 0.3mL | 250µL | <3 | 03-FIV | 500 |
| 11mm Crimp Top 0.2mL Vial, Fused Insert – GOLD Grade Glass | Amber | Yes | 12x32 | Insert Vial | 0.3mL | 250µL | <3 | 03-FIV(A) | 500 |
| | 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-AC-TS | 1000 |
| | Silver | Aluminum | White Virgin PTFE, 0.01" | – | 0.25 | 11-AC-T | 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



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



2-RVST-CP

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



10-SV

5-SV

4-SV

4-SV(A)

3.5-HRSV

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-MSB | 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 |
| 15-425 Screw Vial | Clear | No | 17x60 | Flat Bottom | 8 | 2 | 8-SV | 200 |
| | Amber | No | 17x60 | Flat Bottom | 8 | 2 | 8-SV(A) | 200 |

For smaller Vials look at the previous sections



Caps and Septa images 50% to scale

Chromacol Sample Storage Screw Caps and Septa

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

Chromacol Vial Racks and Storage Boxes

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



Items not shown to scale

Chromacol Vial Racks and Storage Boxes

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

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 | <ul style="list-style-type: none"> • A very pure soft silicone laminated to PTFE. Septum resists coring and is recommended for instruments with fine gauge needles. • Also recommended for LC-MS and GC-MS due to high purity. |
| PTFE /silicone – ST143, ST144 | A very soft silicone laminated to PTFE. Use with flexible needle. |
| PTFE /silicone/PTFE – TST1, TST11 | <ul style="list-style-type: none"> • A layer of PTFE on each side of medium hardness silicone. Most resistant to coring with above average resealing characteristics. • Recommended for most demanding applications such as trace analysis, longer time between injections or for internal standards. • Use with Gilson instruments and with any autosampler using large diameter, blunt-tip syringe needles. |
| Pre-slit PTFE/silicone – ST1X, ST101X, ST14X | Pre-slit, high quality pure white silicone faced with PTFE. For applications using a very thin-gauge syringe needle or in instances when a vacuum may form in the vial. Highly recommended for Shimadzu and Hitachi autosampler units. |
| PTFE and fluoropolymers | Very good chemical resistance and used as a protective layer for less resistant elastomers. |
| PTFE – T, T02 | For single injections and short sample cycles. This type of septa is not resealable. |
| Viton – V1 | Viton provides the best chemical resistance with limited resealability. Recommended for chlorinated solvents. Due to Viton®'s intrinsic hardness, these septa are not suitable for finer-gauge syringe needles. |
| Integral plastic seal | Moulded as part of the cap. |
| Polyethylene – PE, Polypropylene – PP | Chemically resistant but for one time use only with no resealability. 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 Compatibility

Sealing Material

| Solvent | AC6 | AC7 | B3P | CBT1 | CB3 | CBT3 | LDPE | HDPE | PP | PTFE |
|------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Acetic Acid Aqueous | A(A) | A(B) | A(B) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) |
| Acetone | A(A) | A(C) | A(A) | A(A) | A(A) | A(A) | D(D) | B(B) | B(B) | A(A) |
| Acetonitrile | A(A) | A(A) | – | A(A) | A(A) | A(A) | – | – | – | A(A) |
| Alcohols(Aromatic) | A(B) | A(D) | – | A(B) | B(B) | A(B) | D(D) | D(D) | B(B) | A(A) |
| Alcohols(Aliphatic) | A(A) | A(B) | A(B) | A(A) | A(A) | A(A) | D(D) | B(B) | B(B) | A(A) |
| Amyl Acetate | A(A) | A(D) | A(C) | A(A) | A(A) | A(A) | D(D) | D(D) | – | A(A) |
| Aqueous Solutions Dilute | A(A) | A(A) | – | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) |
| Benzene | A(D) | A(D) | D(D) | A(D) | D(D) | A(D) | D(D) | D(D) | D(D) | A(A) |
| Butyl Alcohol | A(B) | A(A) | A(B) | A(B) | B(B) | A(B) | B(B) | B(B) | B(B) | A(A) |
| Carbon Disulphide | A(D) | A(D) | D(D) | A(D) | D(D) | A(D) | D(D) | D(D) | D(D) | A(A) |
| Carbon Tetrachloride | A(D) | A(D) | D(D) | A(D) | D(D) | A(D) | D(D) | D(D) | D(D) | A(A) |
| Chloroform | A(D) | A(D) | D(D) | A(D) | D(D) | A(D) | D(D) | D(D) | D(D) | A(A) |
| Cyclohexane | A(D) | A(D) | D(D) | A(D) | D(D) | A(D) | – | – | – | A(A) |
| Cyclohexanol | A(D) | A(D) | D(D) | A(D) | D(D) | A(D) | D(D) | D(D) | B(B) | A(A) |
| Diethyl Ether | A(D) | A(D) | D(D) | A(D) | D(D) | A(D) | D(D) | D(D) | D(D) | A(A) |
| Dimethyl Sulphoxide | A(C) | A(D) | D(D) | A(C) | C(C) | A(C) | – | – | – | A(A) |
| Dioxane | A(B) | A(D) | A(B) | A(B) | B(B) | A(B) | – | – | – | A(A) |
| Esters | A(B) | A(D) | A(C) | A(B) | B(B) | A(B) | D(D) | D(D) | B(B) | A(A) |
| Ethyl Acetate | A(B) | A(D) | A(B) | A(B) | B(B) | A(B) | D(D) | D(D) | B(B) | A(A) |
| Ethyl Alcohol | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | D(D) | B(B) | B(B) | A(A) |
| Ethylene Chloride | A(D) | A(D) | A(C) | A(D) | D(D) | A(D) | D(D) | D(D) | D(D) | A(A) |
| Ethylene Glycol | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) |
| Formaldehyde | A(B) | A(B) | A(A) | A(B) | B(B) | A(B) | A(A) | A(A) | A(A) | A(A) |
| Glycol | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) |
| Halogenated Hydrocarbons | A(D) | A(C) | A(B) | A(D) | D(D) | A(D) | D(D) | D(D) | D(D) | A(A) |
| Hexane | A(D) | A(D) | D(D) | A(D) | D(D) | A(D) | – | – | – | A(A) |
| Hydrochloric Acid Dilute | A(A) | A(C) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) |
| Iso-Octane | A(D) | A(D) | D(D) | A(D) | D(D) | A(D) | – | – | – | A(A) |
| Ketones | A(A) | A(C) | A(B) | A(A) | A(A) | A(A) | D(D) | B(B) | B(B) | A(A) |
| MeOH/H ₂ O/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 ₂ O/Acetonitrile | A(A) | A(A) | A(B) | A(B) | A(B) | A(A) | A(-) | A(B) | A(B) | A(-) | - |
| Methanol | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | D(D) |
| Methyl Chloride | A(D) | A(D) | A(A) | A(A) | A(A) | A(D) | A(D) | A(A) | A(A) | A(D) | A(A) |
| Methyl Acetate | A(D) | A(D) | A(B) | A(B) | A(B) | A(D) | A(D) | A(B) | A(B) | A(D) | D(D) |
| Methyl Ethyl Ketone | A(D) | A(D) | A(A) | A(A) | A(A) | A(D) | A(D) | A(A) | A(A) | A(D) | D(D) |
| Methylene Chloride | A(D) | A(B) | A(B) | A(B) | A(B) | A(D) | A(-) | A(B) | A(B) | A(-) | - |
| Nitric Acid Dilute | A(D) | A(B) | A(B) | A(B) | A(B) | A(D) | A(B) | A(B) | A(B) | A(B) | A(A) |
| Pentane | A(D) | A(C) | A(C) | A(C) | A(C) | A(D) | A(-) | A(C) | A(C) | A(-) | - |
| Petroleum Ether | A(D) | A(-) | A(C) | A(C) | A(C) | A(D) | A(-) | A(C) | A(C) | A(-) | - |
| Sodium Hydroxide | A(A) | A(B) | A(A) | A(A) | A(A) | A(A) | A(B) | A(A) | A(A) | A(B) | D(D) |
| Sulphuric Acid Dilute | A(D) | A(D) | A(B) | A(B) | A(B) | A(D) | A(D) | A(B) | A(B) | A(D) | A(A) |
| Surfactants | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(-) | A(A) | A(A) | A(-) | - |
| Toluene | A(D) | A(D) | A(C) | A(C) | A(C) | A(D) | A(D) | A(C) | A(C) | A(D) | A(A) |
| Trichloroethylene | A(D) | A(D) | A(C) | A(C) | A(C) | A(D) | A(D) | A(C) | A(C) | A(D) | A(A) |
| Water | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | A(A) | B(B) |

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

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

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

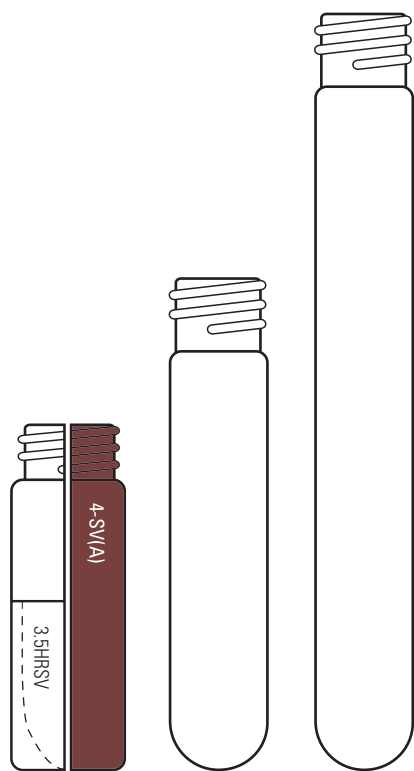
Chromacol Vials Comparison Chart

| | | | | | | | | | | | |
|------------|----------------|---------------|---------------|------------------|--------------|---------------|------------------|------------------|---------------|----------------|--------------|
| | | | | | | | | | | | |
| Part No. | 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 |

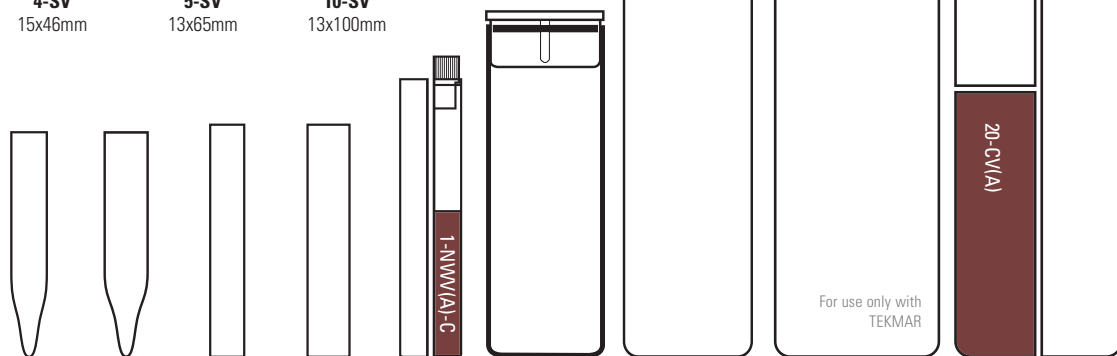
| | | | | | | | | | |
|------------|-------------|----------------|------------------|--------------|-----------------|--------------|-----------------|----------------|---------------|
| | | | | | | | | | |
| Part No. | 2-SV | 2-SVWGK | 2-SVWK(A) | 2-SVW | 1.1-STVG | 4-SVQ | 1.5-HRSV | 09-FISV | 03-FIV |
| 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 |



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



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



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

Chromacol Caps and Septa Comparison Chart

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



* 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










































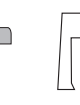
-  9- SCK(G)-ST1
-  9- SCK(N)-ST1
-  9- SCK(B)-ST1X
-  9- SC(BLK)-BST1
-  9- SC(GY)-BST1X

11-AC6

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

11-AC7

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

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

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

Alternative Colors

11-PSN(B)-T02

■ 11-PSN(R)-T02

11-PSN(B)-ST1X

■ 11-PSN(G)-ST1X

12-SC

■ 12- SC(R)

□ 12- SC(W)

■ 12- SC(Y)

20-MCBC

■ 20-MCBC(R)

20-MCBC-ST3

■ 20-MCBC(R)-ST3

□ 20-MCBC(N)-ST3

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* <i>Includes the basic high power crimper and the 12 volt DC supply with the power cord. (Accessory Base is not included)</i> | 1 | ECRH-B |
| Programmable Electronic High Power Crimper 11mm Kit* <i>Includes the basic high power crimper, the 12 volt DC supply with the power cord and a set of crimp heads: 1x11mm crimp head and 1x11mm decrimp head. (Accessory Base is not included)</i> | 1 | ECRH-11KIT |
| Programmable Electronic High Power Crimper 20mm Kit* <i>Includes the basic high power crimper, the 12 volt DC supply with the power cord and a set of crimp heads: 1x20mm crimp head and 1x20mm decrimp head. (Accessory Base is not included)</i> | 1 | ECRH-20KIT |

Related Products

| Description | Quantity | Cat. No. |
|--|----------|-------------------|
| Accessory Base for Electronic Crimpers (base plate and bar) <i>Adjustable in height, base plate is solvent resistant Dimensions: 37.6 x 25.4 x 17.7cm</i> | 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

| Chemical | Vial and Cap Materials | | | | | Septum Materials | | | | | |
|-------------------------------|------------------------|-----|-----|------|------|------------------|------|-----|-----|-------|-------|
| | 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 |

| Chemical | Vial and Cap Materials | | | | | Septum Materials | | | | | |
|-----------------------------------|------------------------|-----|-----|------|------|------------------|------|------|-----|-------|-------|
| | 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 |
| Decahydronaphthalene | E20 | X | F20 | E20 | --- | E20 | G20 | --- | --- | --- | --- |
| Decalin | E20 | X | F20 | E20 | X | E20 | G20 | X | X | X | E20 |

| Chemical | Vial and Cap Materials | | | | | Septum Materials | | | | | | |
|---|------------------------|-----|-----|------|------|------------------|------|-----|-----|-------|-------|--|
| | 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 | |

| Chemical | Vial and Cap Materials | | | | | Septum Materials | | | | | |
|-------------------------------------|------------------------|-----|-----|------|------|------------------|------|-----|-----|-------|-------|
| | 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 |

| Chemical | Vial and Cap Materials | | | | | Septum Materials | | | | | | |
|--------------------------------------|------------------------|-----|-----|------|------|------------------|------|-----|-----|-------|-------|--|
| | 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 | |
| Propionic 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.

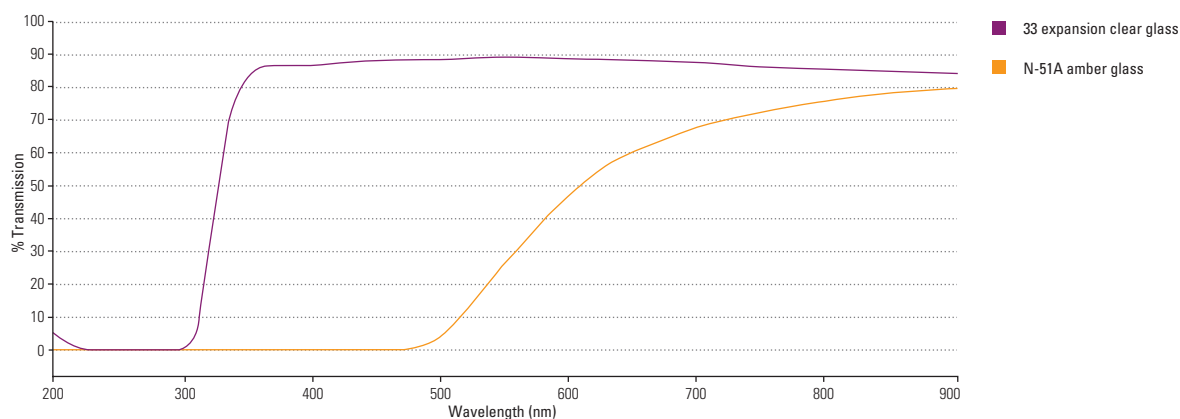
Clear and Amber glass products manufactured from N-51A borosilicate glass, have a relatively low coefficient of expansion and high chemical durability. N-51A borosilicate glass meets the requirements for Type I Class B glass of ASTM E438.

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 ₂ O ₃) | 13% | 11% | 12% |
| Aluminum Oxide (Al ₂ O ₃) | 3% | 5% | 7% |
| Calcium Oxide (CaO) | 0.1% | 2% | 1% |
| Magnesium Oxide (MgO) | Not Detected | Not Detected | Not Detected |
| Sodium Oxide (Na ₂ O) | 4% | 7% | 6% |
| Potassium Oxide (K ₂ O) | 0.1% | Not Detected | 2% |
| Barium Oxide (BaO) | <0.1% | 1% | <0.1% |

Optical Properties of Glass



Autosampler Compatibility Table

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

| Manufacturer | Model | 8mm Crimp | 11mm Crimp and Snap | 8-425 Screw | 9mm Short Screw | 10-425 Screw | Shell Vials | 13-425 Screw and Crimp | Headspace | Plate |
|----------------------------------|--|-----------|---------------------|-------------|-----------------|--------------|-------------|------------------------|-----------|-------|
| Agilent | 1050, 1090 | | • | | • | | | | | |
| | 1050 (34 Pos. Tray), 1090 (34 Pos. Tray) | • | | | | | | | | |
| | 1100/1200 | | • | | • | | | | | |
| | G1888A | | | | | | | | • | |
| | 7673A/7683A | • | • | | • | | | | | |
| | 7693A | | • | • | • | | • | • | | |
| | HS7694 | | | | | | | • | • | |
| | 7697A | | | | | | | | • | |
| | 79855(A) | | • | | • | | | | | |
| | 5880/5890 | | • | | • | | | | | |
| | 6850 (27 Pos. Tray) | | • | | • | | | | | |
| | 6850 (22 Pos. Tray) | | | | | | | | • | |
| | 6890 | | | | | • | | | | |
| | CTC HTS+HTC PAL+CTC GC PAL | • | • | | • | | | | | • |
| | CTC Combi PAL | | | | | | | | • | |
| | 1100 Well-Plate/1100 Nanoflow | | • | • | • | • | | | | • |
| | 1200 Well-plate/1200 SL plus | | • | • | • | • | | | | • |
| | 1260 Infinity | | • | • | • | • | | | | |
| 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 | • | | • | • | | | | | |
| Gynkotec | 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, CERTIFIED, 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 extractable 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 $+121^{\circ}\text{C}$
- SBS and ANSI standard footprint design for broad instrument compatibility
- Microplates are ideal for pharmaceutical applications, sample collection and storage, combinatorial chemistry and HTS applications
- U- and V- bottom wells for optimal sample recovery



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

| Description | Material | Total Height | Well Format | Total Volume (μL) | Working volume range $\mu\text{L}/\text{well}$ | Cat. No. | Pack of |
|---|---|--------------|------------------|--------------------------------|--|-------------------|-------------------|
| 96-Well 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 |
| 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)

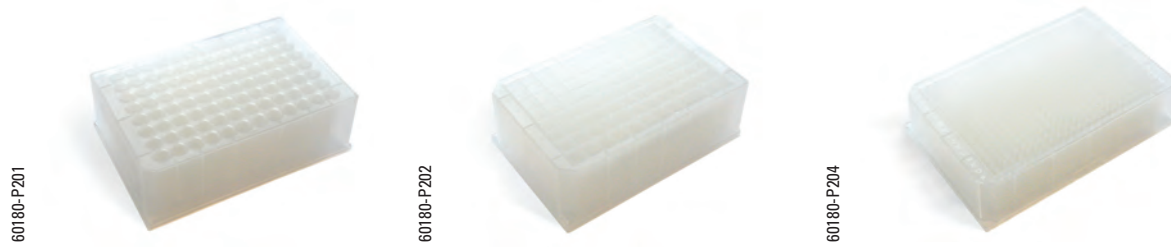


WebSeal Mats and Sealing Tapes, non-sterile

| 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

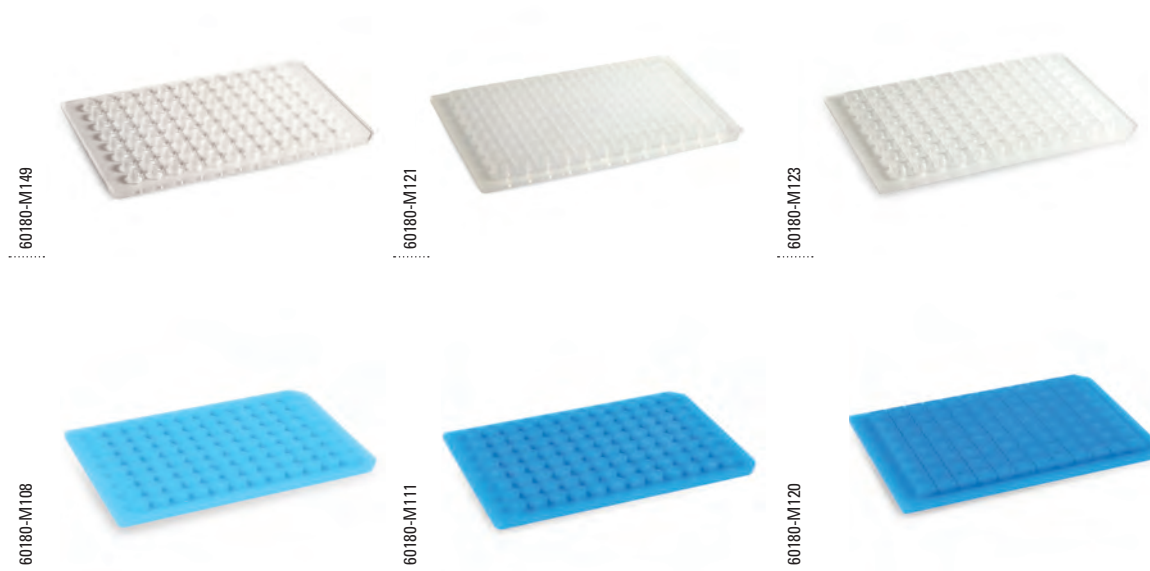


WebSeal Well Plates, plastic, non-coated, non-sterile, Certified

| 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



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



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 |

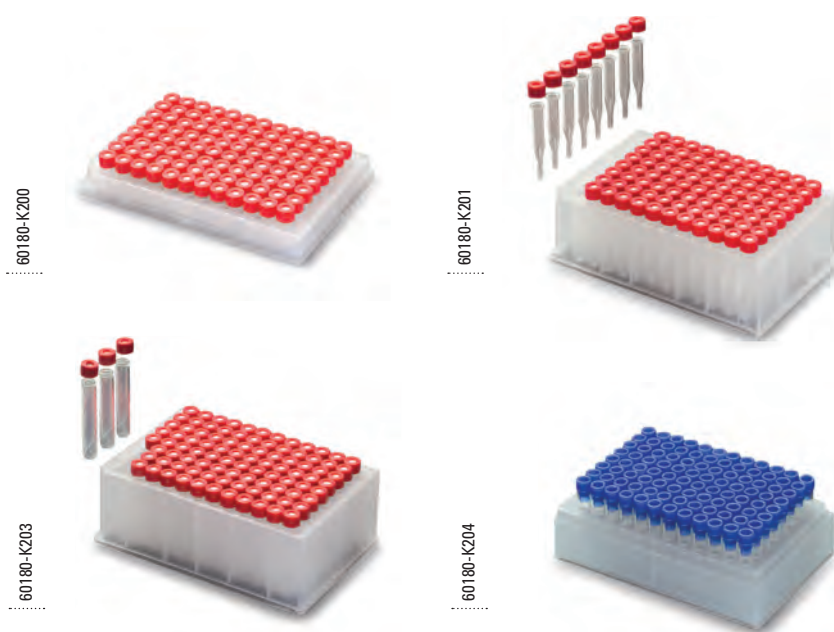


WebSeal Kit Accessories

| 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



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 |



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



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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