2012-2013

Thermo Scientific
National Vials and Closures

Trusted solutions
uncompromised analysis

Our portfolio includes over 600 Thermo Scientific National 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.

Thermo
SCIENTIFIC

Featured Products

Electronic Crimpers and De-Cappers

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

Clean room Crimpers

- Crimping tools provide a reproducible, secure vial closure
- The crimping/decapping mechanism is corrosion and heat resistant while the stainless steel construction removes the need for any protective coating on the handle or crimp head.
- Can withstand repeated sterilization for cleanroom use without the risk of damaging the tool.

Total Recovery & Fixed Insert Microsampling Vials

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

Plastic Vials

- High clarity plastic vials for easy sample viewing
- Low extractables polypropylene provides the broadest compatibility and low non-specific binding
- Variety of closure options available

Magnetic Closure Headspace Vials

- Superior quality (Type 1, Class A) glass
- Headspace vials are available with either a round or flat base
- Aluminum seals are available in standard center hole, pressure release and tear-off versions
- Pre-assembled caps and septa are convenient and minimize contamination from handling

Snap-It Caps

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

Table of Contents

MS Certified Vials

Unmatched consistency for the most sensitive applications

Micro Sampling Vials

World's broadest portfolio of reduced volume sampling options

Tools and Accessories

A comprehensive range of accessories

MS Certified Vials

Pre-cleaned, low particle, low background chromatography vial
for every high sensitivity application

- Testing process ensures integrity of 15 critical physical characteristics
- Unique pre-cleaned vials packaging and airtight, re-sealable closure containers
- Background scans by LC/MS, GC/MS and particle counts provided
- Unmatched consistency for sample protection, testing efficiency and reliable results
- Certificate of Conformance included in every pack
- Bonded caps to prevent septa push-through
- 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

Low Particle Background

Thermo Scientific MS Certified Vials undergo a proprietary cleaning process that greatly reduces the background particulates and their potential affect on high sensitivity chromatography.

A typical vial that has not been processed can exhibit particle counts exceeding 5000 particles permL with the highest counts occurring in the range below 0.5 μm.

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

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

The scheme below gives a comparison of the particle distribution obtained from an analysis of standard vials versus the Thermo Scientific MS Certified Vials. All vials are processed and tested for background particulates.
The processed vial shows a significant reduction in total particle counts.

Typical Cumulative Particle Counts
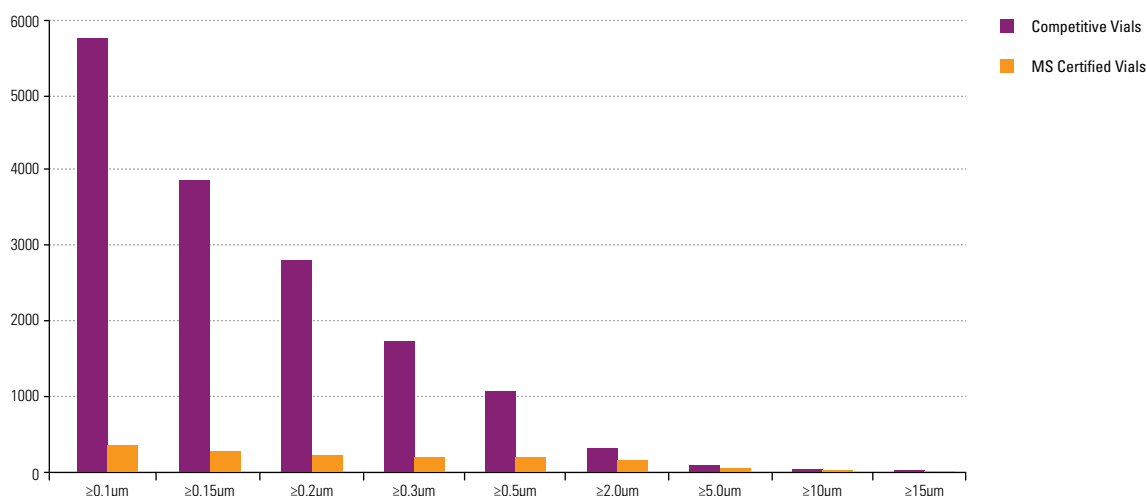
Search thousands of applications at our chromatography resource center.
www.thermoscientific.com/crc

Low GC/MS Background

A portion of the vial extracts prepared for LC/MS analysis were taken for analysis by GC/MS. A typical GC/MS scan is shown in Figure 1 below with bank solvent in the upper scan and the vial extract shown in the lower scan.

**Figure 1 GC/MS chromatograms and spectra**
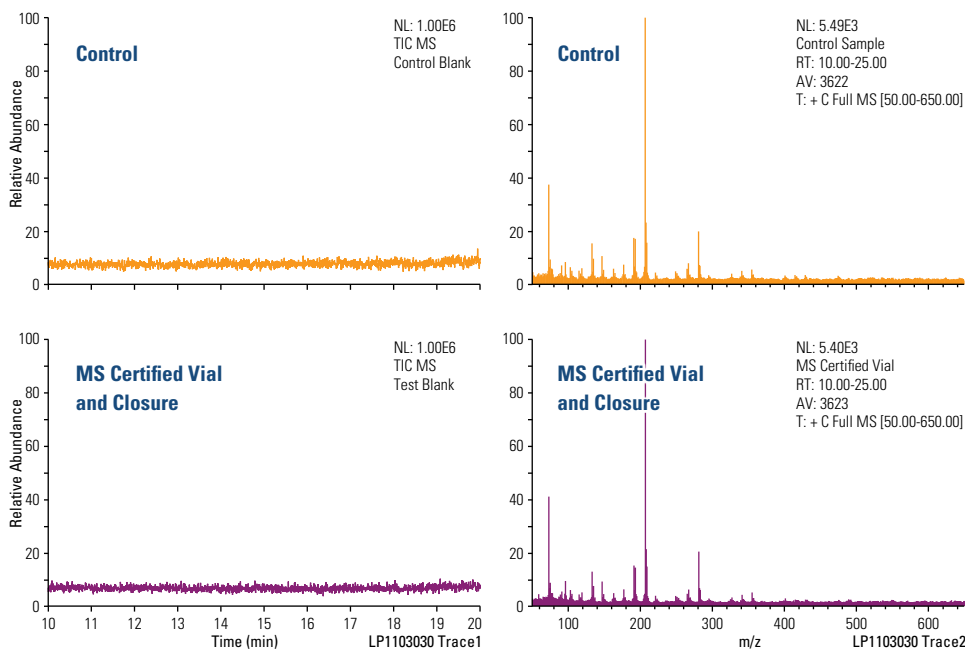
GC conditions

- Instrument: Thermo Scientific DSQII GC/MS with Triplus AS autosampler
- Software: Xcalibur 2.0.7
- Column: TRACEGOLD TG-5MS, 30m x 0.25mm x 0.25µm
- Carrier gas: Helium
- Flow rate: 1.2mL/min
- Oven program: 40 °C, hold for 0.5min; 15°C to 150°C, hold for 1 min; 10°C to 290°C, hold for 5min
- Inlet temperature: 250°C; Split flow: 50mL/min
- Injection vol.: 1µL splitless
- MS transfer line: 290°C
- MS ion source: 230°C
- MS detection: Positive EI; Full scan 50 to 650m/z

Low LC/MS Background

Figure 2 shows the LC/MS analysis of a control, a competitor vial + closure and a MS Certified vial + closure. The LC/MS chromatograms for the control and the MS Certified Vials are very similar, suggesting that there is minimal interference from the vial + closure. However, the Total Ion Chromatogram (TIC) obtained for the competitor vial shows a substantial amount of contamination.

Figure 2
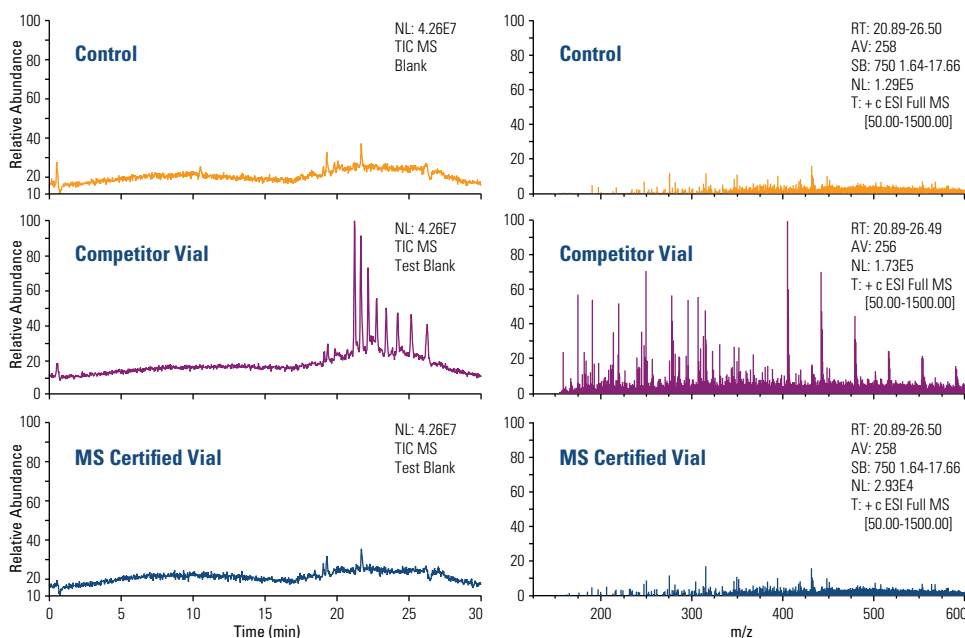
Methods:

Vials and closures were exposed to acetonitrile for 2 hours and subsequently analysed by LC/UV, LC/MS and GC/MS to characterize the interferences. Comparisons were made between pre-cleaned MS Certified vials and closures, a control and a competitor vial and closure set.

MS Certified Vials Kits

Unassembled and Assembled Vial Kits

Kit Type	Glass	Patched	Cap Color	Septum	Cat. No.	Pack of
Convenience Kit, 9mm 200µL Fused Insert Screw Vial	Clear	Yes	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-30LVW**	100
Convenience Kit, 9mm 350µL Fused Insert Screw Vial	Clear	Yes	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-31LVW**	100
Convenience Kit, 9mm Wide Opening 1.7mL High Recovery Screw Vial with 30µL Reservoir	Clear	No	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-32**	100
Convenience Kit, 9mm Wide Opening 1.5mL Total Recovery Screw Vial with 10µL Reservoir	Clear	No	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-33TR**	100
Convenience Kit, 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-34W**	100
	Amber	Yes	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-35W**	100
Convenience Kit, 9mm 200µL Fused Insert Screw Vial	Clear	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-36LVW**	100
Convenience Kit, 9mm 350µL Fused Insert Screw Vial	Clear	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-37LVW**	100
Convenience Kit, 9mm Wide Opening 1.7mL High Recovery Screw Vial with 30µL Reservoir	Clear	No	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-38**	100
Convenience Kit, 9mm Wide Opening 1.5mL Total Recovery Screw Vial with 10µL Reservoir	Clear	No	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-39TR**	100
Convenience Kit, 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-40W**	100
	Amber	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-41W**	100
Convenience Kit, 9mm Wide Opening Screw Vial, 2mL, silanized	Clear	Yes	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-S34W**	100
	Amber	Yes	Blue	Bonded Clear PTFE/Clear Silicone	**MSCERT4000-S35W**	100
	Clear	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-S40W**	100
	Amber	Yes	Gray	Bonded Clear PTFE/Clear Silicone, Pre-slit	**MSCERT4000-S41W**	100
Convenience Kit, 11mm Snap Top Vial, 2mL	Clear	Yes	Black	Clear PTFE/Clear Silicone	**MSCERT4011-73W**	100
	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 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 Screw Vial, 2mL	Clear	No	Blue	Ivory PTFE/Red Rubber	C4000-1	C4000-51B	**CERT4000-80**	100
	Clear	Yes	Blue	Ivory PTFE/Red Rubber	C4000-1W	C4000-51B	**CERT4000-80W**	100
	Amber	Yes	Blue	Ivory PTFE/Red Rubber	C4000-2W	C4000-51B	**CERT4000-82W**	100
	Clear	Yes	Blue	Red PTFE/White Silicone	C4000-1W	C4000-54B	**CERT4000-92W**	100
Convenience Kit, Certified 9mm Wide Opening High Recovery Screw Vial, 1.7mL	Clear	No	Black	Bonded Red PTFE/ White Silicone	C4000-9	C4000-64B	**CERT4000-992**	100
Convenience Kit, Certified 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Black	Bonded Red PTFE/ White Silicone	C4000-1W	C4000-64B	**CERT4000-78W**	100
	Amber	Yes	Black		C4000-2W	C4000-64B	**CERT4000-75W**	100
Convenience Kit, Certified 9mm Wide Opening Precision Taper Screw Vial, 1mL	Clear	No	Black	Bonded Red PTFE/ White Silicone	C4000-1PT	C4000-64B	**CERT4000-98PT**	100
Convenience Kit, Certified 9mm Screw Vial, 350µL Fused Insert	Clear	Yes	Black	Bonded Red PTFE/ White Silicone	C4000-LV1W	C4000-64B	**CERT4000-69LV**	100
	Amber	Yes	Black		C4000-LV2W	C4000-64B	**CERT4000-72LV**	100
Convenience Kit, Certified 10-425 Screw Vial, 2mL	Clear	No	Black	Bonded Red PTFE/ White Silicone	C4010-1	C4010-68A	**CERT4010-91**	100
Convenience Kit, Certified 13-425 Screw Vial, 4mL	Clear	No	Black	Bonded Red PTFE/ White Silicone	C4015-1	C4015-67A	**CERT4015-83**	100
Convenience Kit, Certified 9mm Wide Opening High Recovery Screw Vial, 1.7mL	Clear	No	Gray	Bonded Clear PTFE/ Clear Silicone, Pre-slit	C4000-9	C4000-75C	**CERT4000-79**	100
Convenience Kit, Certified 9mm Wide Opening Screw Vial, 2mL	Clear	Yes	Gray	Bonded Clear PTFE/ Clear Silicone, Pre-slit	C4000-1W	C4000-75C	**CERT4000-93W**	100
	Amber	Yes	Gray		C4000-2W	C4000-75C	**CERT4000-76W**	100
Convenience Kit, Certified 9mm Wide Opening Total Recovery Screw Vial, w/10µL Reservoir	Clear	No	Gray	Bonded Clear PTFE/ Clear Silicone, Pre-slit	C4000-9TR	C4000-75C	**CERT4000-993**	100
Convenience Kit, Certified Shell Vial 1mL with SepCap	Clear	No	Natural	Integral Molded Polyethylene	–	–	**CERT4015-96**	200
Assembled Kit, Certified Crimp Top Vial, 2mL	Clear	Yes	Silver	PTFE/Synthetic Red Rubber	C4011-1W	–	**CERT4011-89W**	100
Assembled Kit, Certified 9mm Wide Opening Screw Vial, 2mL	Amber	Yes	Black	Bonded Red PTFE/White Silicone	C4000-2W	C4000-64B	**CERT4000-175W**	100
	Clear	Yes	Gray	Bonded Red PTFE/ White Silicone, Pre-slit	C4000-1W	C4000-75C	**CERT4000-193W**	100
	Amber	Yes	Gray		C4000-2W	C4000-75C	**CERT4000-176W**	100

National 8mm Crimp Top Vials

- Superior quality type 1 borosilicate and amber glass. Conical and Round Bottom 8mm Crimp Vials sometimes need an adapter for certain autosampler and cannot stand alone.

Recommended for the following instruments:

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

For autosampler compatibility look on pages **59-63**

C4008-632R C4008-632C C4008-730 C4008-739 C4008-740 C4008-741 C4008-742 C4008-1

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

C4008-1A C4008-2A C4008-4A

National 8mm Crimp Top Closures

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
8mm Crimp Cap, 4mm centre 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

C4008-100 C4008-101 C4008-102

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

We offer electronic crimping options

Visit **PAGE 49**

National Standard Opening Screw Thread Vials

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

- 8-425 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
- 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 **59-63**

C4013-1 C4013-1W C4013-2 C4013-2W C4013-12 C4013-11 C4013-13 C4012-465 C4012-530 C4012-529 C4012-530P

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	<3	**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 **48**

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 and Tosoh autosamplers
- 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
- Closures are shipped in sealed polybags to prevent contamination during transport

C4013-1A C4013-3A C4013-98W C4013-1P C4013-10 C4013-30 C4013-32 C4013-40 C4013-60 C4013-61

C4013-30A C4013-40P C4013-60A C4013-63A C4013-64A C4013-74A C4013-77P B7815-8 C4013-69A

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
8mm Open Top Cap, 5.5mm hole	Pink	Polypropylene	–	–	–	C4013-1P	100
Septum for 8-425 Screw Caps	–	–	White Virgin PTFE, 0.01" Septum	53	0.25	C4013-10	1000
	–	–	Ivory PTFE/Red Rubber Septum	45	1.00	C4013-30	100
	–	–	Blue PTFE/White Silicone, Pre-slit Septum	55	0.90	C4013-32	100
	–	–	Red PTFE/White Silicone/ Red PTFE Septum	45	1.00	C4013-40	100
	–	–	Red PTFE/White Silicone Septum	45	1.30	C4013-60	100
	–	–	Tan PTFE/White Silicone Septum	45	1.50	C4013-61	1000
8mm Open Top Cap, 5.5mm hole	Black	Polypropylene	Ivory PTFE/Red Rubber	45	1.00	C4013-30A	100
	Pink	Polypropylene	Ivory PTFE/Red Rubber	45	1.00	C4013-30P	100
	Black	Polypropylene	Red PTFE/White Silicone/Red PTFE	45	1.00	C4013-40A	100
	Pink	Polypropylene	Red PTFE/White Silicone/Red PTFE	45	1.00	C4013-40P	100
	Black	Polypropylene	Red PTFE/White Silicone	45	1.30	C4013-60A	100
	Pink	Polypropylene	Red PTFE/White Silicone	45	1.30	C4013-60P	100
8mm Open Top Cap with flange, 5.5mm hole	Black	Polypropylene	Red PTFE/White Silicone	45	1.30	C4013-63A	100
	White	Polypropylene	Red PTFE/White Silicone	45	1.30	C4013-63W	100
	Pink	Polypropylene	Red PTFE/White Silicone	45	1.30	C4013-63P	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
	Pink	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	0.90	C4013-64P	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
	Pink	Polypropylene	Red PTFE/White Silicone, Pre-slit	55	1.00	C4013-77P	100
8mm Solid Top Cap, 8-425 thread	White	Polypropylene	PTFE/Foam Urethane Liner	–	1.30	B7815-8	100
8mm Open Top Cap, 5.5mm hole	Black	Polypropylene	Bonded Red PTFE/White Silicone, Pre-slit	45	1.30	C4013-69A	100

* Additional colors on request

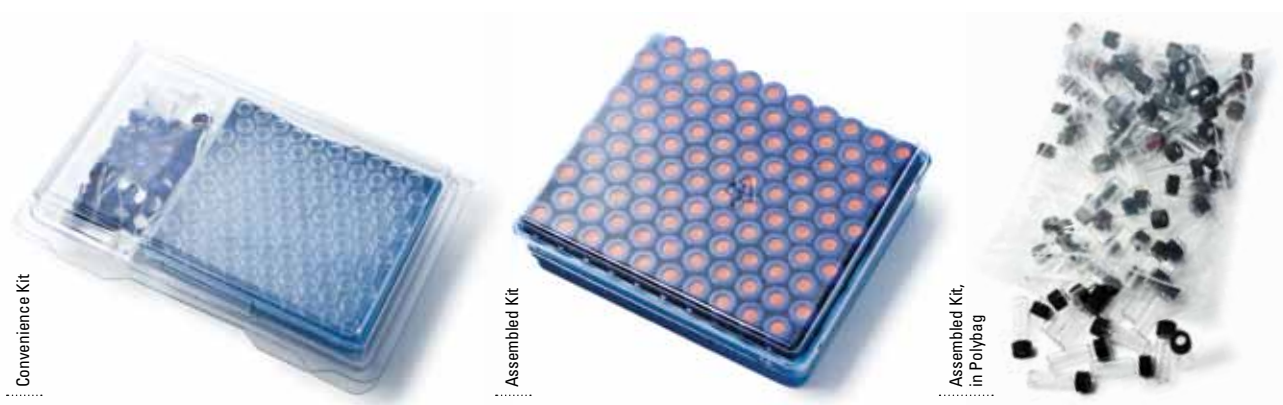# National Standard Opening Screw Thread Vial Convenience Kits

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

Unassembled kits

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

Assembled kits

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

Convenience Kit

Assembled Kit

Assembled Kit, in Polybag

Items not shown to scale

National Standard Opening Screw Thread Vial Convenience Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat.No.	Cap/Septum Cat.No.	Cat. No.	Pack of
Convenience Kit	Clear	No	Black, flanged	Red PTFE/White Silicone	C4013-1	C4013-63A	C4013-14	100
	Clear	No	Black	Red PTFE/White Silicone	C4013-1	C4013-60A	C4013-15	100
	Clear	No	Pink	Red PTFE/White Silicone	C4013-1	C4013-60P	C4013-15P	100
	Amber	No	Black	Red PTFE/White Silicone	C4013-2	C4013-60A	C4013-17	100
	Amber	No	Pink	Red PTFE/White Silicone	C4013-2	C4013-60P	C4013-17P	100
	Clear	Yes	Black, flanged	Red PTFE/White Silicone, Pre-slit	C4013-1W	C4013-77A	C4013-95W	100
	Clear	No	Black, phenolic	Red PTFE/White Silicone	C4013-1	C4013-74A	C4013-492	100
Assembled Kit	Clear	No	Black	White Virgin PTFE, 0.01"	C4013-1	C4013-1A/C4013-10	C4013-10A	100
	Clear	No	Black	Red PTFE/White Silicone	C4013-1	C4013-60A	C4013-15A	100
	Amber	No	Black	Red PTFE/White Silicone	C4013-2	C4013-60A	C4013-17A	100
	Clear	No	Black, flanged	Blue PTFE/White Silicone, Pre-slit	C4013-1	C4013-3A/C4013-32	C4013-32A	100
	Clear	Yes	Yellow, flanged	Red PTFE/White Silicone, Pre-slit	C4013-1W	C4013-98Y/C4013-60TW	C4013-36A	100
	Clear	No	Black, flanged	Red PTFE/White Silicone	C4013-1	C4013-63A	C4013-57	100
	Clear	No	White, flanged	Red PTFE/White Silicone	C4013-1	C4013-63W	C4013-58	100
	Clear	No	Black, phenolic	Red PTFE/White Silicone	C4013-1	C4013-74A	C4013-492A	100
	Amber	No	Black, phenolic	Red PTFE/White Silicone	C4013-2	C4013-74A	C4013-494A	100
Assembled Kit, in Polybag	Clear	No	Black	White Virgin PTFE, 0.01"	C4013-1	C4013-1A/C4013-10	C4013-010A	100

National Standard Opening Screw Thread Vial Storerooms

• Storerooms organize supplies and save valuable bench space

• Storerooms are shipped fully stocked

• 6 drawer mini-storeroom holds 500 vials and closures

• 9 drawer full size storeroom holds 2000 vials and closures

C4075-380

C4000-MS

C4075-500

Items not shown to scale

National Standard Opening Screw Thread Vial Storerooms

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

- 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, labile or OH-interacting compounds
- Polyspring inserts are self-aligning and provide a cushion against needle contact
- Precision point insert minimizes residual sample loss

C4000-1 | C4000-1W | C4000-2W | C4000-12 | C4000-1B | C4000-1G | C4000-1R | C4000-1Y | C4000-9

C4000-9A | C4000-9TR | C4000-LV1 | C4000-LV1W | C4000-LV2 | C4000-LV2W | C4000-LV3W | C4000-V1 | C4000-V2

C4000-11 | C4010-627L | C4010-629 | C4010-629L | C4010-629P | C4010-630 | C4010-630P | C4011-631 | C4011-631P

National Target DP 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 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
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
9mm Target DP Vial, High Recovery with 30µL Reservoir	Clear	No	12x32	Tapered Base	1.7mL	1.3mL	<4	**C4000-9**	100
	Amber	No	12x32	Tapered Base	1.7mL	1.3mL	<4	**C4000-9A**	100
9mm Target DP Vial, Total Recovery with 10µL Reservoir	Clear	No	12x32	Deep Well Base	1.5mL	1.2mL	<1	**C4000-9TR**	100
9mm Target DP MacroVial 350µL, Fused Insert	Clear	No	12x32	Insert Vial	475µL	350µL	<2	**C4000-LV1**	100
	Clear	Yes	12x32	Insert Vial	475µL	350µL	<2	**C4000-LV1W**	100
	Amber	No	12x32	Insert Vial	475µL	350µL	<2	**C4000-LV2**	100
	Amber	Yes	12x32	Insert Vial	475µL	350µL	<2	**C4000-LV2W**	100
9mm Target DP MacroVial 200µL, Fused Insert	Clear	Yes	12x32	Insert Vial	375µL	240µL	<1	**C4000-LV3W**	100
9mm Target DP Micro-V Tapered MicroVial with 150µL reservoir	Clear	No	12x32	Tapered Base	1.4mL	1.0mL	<4	**C4000-V1**	100
	Amber	No	12x32	Tapered Base	1.4mL	1.0mL	<4	**C4000-V2**	100
9mm Target DP Vial, silanized*	Clear	No	12x32	Flat Bottom	2.0mL	1.5mL	<170	**C4000-S1**	100
	Clear	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	**C4000-S1W**	100
	Amber	Yes	12x32	Flat Bottom	2.0mL	1.5mL	<170	**C4000-S2W**	100
9mm Target DP High Recovery Vial, silanized*, with 30µL Reservoir	Clear	No	12x32	Tapered Base	1.7mL	1.3mL	<4	**C4000-S9**	100
9mm Target DP 300µL Target DP Vial	Polypropylene	No	12x32	Conical	400µL	300µL	<2	**C4000-11**	100
350µL Insert	Clear	–	6x31	Pulled Point	400µL	350µL	<4	**C4010-627L**	100
300µL Insert	Clear	–	6x30	Pulled Point	375µL	300µL	<4	**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	Pulled Point	375µL	300µL	<4	**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 **48**

**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

- 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

C4000-98B C4000-98P C4000-30 C4000-40 C4000-55 C4000-60 C4000-51P C4000-53A C4000-54Y

C4000-55R C4000-57G C4000-64B C4000-75C C4000-62P C4000-72P C4000-78A C4000-99

National 9mm Screw Thread Caps and Septa

Description	Cap Color	Cap Material	Septum	Hardness °shore	Thickness (mm)	Cat. No.	Pack of
9mm Open Top Cap, 6 mm hole	Blue	Polypropylene	–	N/A	N/A	**C4000-98B**	100
	Pink	Polypropylene	–	N/A	N/A	**C4000-98P**	100
Septum for 9mm 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

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	Ivory PTFE/Red Rubber	35	1.0	**C4000-51A**	100
	Blue	Polypropylene	Ivory PTFE/Red Rubber	35	1.0	**C4000-51B**	100
	Green	Polypropylene	Ivory PTFE/Red Rubber	35	1.0	**C4000-51G**	100
	Red	Polypropylene	Ivory PTFE/Red Rubber	35	1.0	**C4000-51R**	100
	Yellow	Polypropylene	Ivory PTFE/Red Rubber	35	1.0	**C4000-51Y**	100
	Pink	Polypropylene	Ivory PTFE/Red Rubber	35	1.0	**C4000-51P**	100
	Black	Polypropylene	Red PTFE/White Silicone/Red PTFE	45	1.0	**C4000-53A**	100
	Blue	Polypropylene	Red PTFE/White Silicone/Red PTFE	45	1.0	**C4000-53B**	100
	Green	Polypropylene	Red PTFE/White Silicone/Red PTFE	45	1.0	**C4000-53G**	100
	Red	Polypropylene	Red PTFE/White Silicone/Red PTFE	45	1.0	**C4000-53R**	100
	Yellow	Polypropylene	Red PTFE/White Silicone/Red PTFE	45	1.0	**C4000-53Y**	100
	Pink	Polypropylene	Red PTFE/White Silicone/Red PTFE	45	1.0	**C4000-53P**	100
	Black	Polypropylene	Red PTFE/White Silicone	50	1.0	**C4000-54A**	100
	Blue	Polypropylene	Red PTFE/White Silicone	50	1.0	**C4000-54B**	100
	Green	Polypropylene	Red PTFE/White Silicone	50	1.0	**C4000-54G**	100
	Red	Polypropylene	Red PTFE/White Silicone	50	1.0	**C4000-54R**	100
	Yellow	Polypropylene	Red PTFE/White Silicone	50	1.0	**C4000-54Y**	100
	Pink	Polypropylene	Red PTFE/White Silicone	50	1.0	**C4000-54P**	100
	Black	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	**C4000-55A**	100
	Blue	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	**C4000-55B**	100
	Green	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	**C4000-55G**	100
	Red	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	**C4000-55R**	100
	Yellow	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	**C4000-55Y**	100
	Pink	Polypropylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	**C4000-55P**	100
	Blue	Polypropylene	Ivory PTFE/Red Rubber, Pre-slit	45	1.0	**C4000-57B**	100
	Green	Polypropylene	Ivory PTFE/Red Rubber, Pre-slit	45	1.0	**C4000-57G**	100
	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
9mm Solid Top Cap	Blue	Polypropylene	Ivory PTFE/Red Rubber	35	1.0	**C4000-99**	100

Trying to decide what closure is right for you?

⟫ Use our selection guide on **PAGES 46-47**

National 9mm Screw Vials Convenience Kits

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

Unassembled kits

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

Assembled kits

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

Convenience Kit

Assembled Kit

Items not shown to scale

National 9mm Wide Opening Screw Thread Vials Convenience Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat.No.	Cap Cat.No.	Cat . No.	Pack of
Convenience Kit	Clear	No	Blue	Ivory PTFE/Red Rubber	C4000-1	C4000-51B	**C4000-80**	100
	Clear	No	Pink	Ivory PTFE/Red Rubber	C4000-1	C4000-51P	**C4000-80P**	100
	Clear	Yes	Blue	Ivory PTFE/Red Rubber	C4000-1W	C4000-51B	**C4000-80W**	100
	Amber	Yes	Blue	Ivory PTFE/Red Rubber	C4000-2W	C4000-51B	**C4000-82W**	100
	Amber	Yes	Blue	Ivory PTFE/Red Rubber	C4000-2W	C4000-51P	**C4000-82P**	100
	Clear	Yes	Blue	Ivory PTFE/Red Rubber, Pre-slit	C4000-1W	C4000-57B	**C4000-83W**	100
	Clear	No	Blue	Red PTFE/White Silicone/Red PTFE	C4000-1	C4000-53B	**C4000-86**	100
	Clear	Yes	Blue	Red PTFE/White Silicone/Red PTFE	C4000-1W	C4000-53B	**C4000-86W**	100
	Amber	Yes	Blue	Red PTFE/White Silicone/Red PTFE	C4000-2W	C4000-53B	**C4000-88W**	100
	Clear	Yes	Black	Red PTFE/White Silicone	C4000-1W	C4000-54A	**C4000-91W**	100
	Clear	No	Blue	Red PTFE/White Silicone	C4000-1	C4000-54B	**C4000-92**	100
	Clear	No	Pink	Red PTFE/White Silicone	C4000-1	C4000-54P	**C4000-92P**	100
	Clear	Yes	Blue	Red PTFE/White Silicone	C4000-1W	C4000-54B	**C4000-92W**	100
	Amber	Yes	Blue	Red PTFE/White Silicone	C4000-2W	C4000-54B	**C4000-94W**	100
	Amber	Yes	Pink	Red PTFE/White Silicone	C4000-2W	C4000-54P	**C4000-94P**	100
	Polypropylene	No	Blue	Red PTFE/White Silicone	C4000-11	C4000-54B	**C4000-87**	100
	Clear	No	Blue	Blue PTFE/White Silicone, Pre-slit	C4000-1	C4000-55B	**C4000-95**	100
	Clear	Yes	Blue	Blue PTFE/White Silicone, Pre-slit	C4000-1W	C4000-55B	**C4000-95W**	100
	Clear	No	Blue	Blue PTFE/White Silicone, Pre-slit	C4000-LV1	C4000-55B	**C4000-LV95**	100
	Polypropylene	No	Blue	Blue PTFE/White Silicone, Pre-slit	C4000-11	C4000-55B	**C4000-97**	100
	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
	Clear	No	Pink	Bonded Natural PTFE/Clear silicone, Pre-slit	C4000-1	C4000-72P	**C4000-93P**	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
Assembled Kit	Clear	No	Blue	Ivory PTFE/Red Rubber	C4000-1	C4000-51B	**C4000-180**	100
	Clear	Yes	Blue	Ivory PTFE/Red Rubber	C4000-1W	C4000-51B	**C4000-180W**	100
	Amber	Yes	Blue	Ivory PTFE/Red Rubber	C4000-2W	C4000-51B	**C4000-182W**	100
	Clear	Yes	Blue	Ivory PTFE/Red Rubber, Pre-slit	C4000-1W	C4000-57B	**C4000-183W**	100
	Amber	Yes	Blue	Ivory PTFE/Red Rubber, Pre-slit	C4000-2W	C4000-57B	**C4000-184W**	100
	Clear	No	Blue	Red PTFE/White Silicone/Red PTFE	C4000-1	C4000-53B	**C4000-186**	100
	Clear	Yes	Blue	Red PTFE/White Silicone/Red PTFE	C4000-1W	C4000-53B	**C4000-186W**	100
	Clear	Yes	Red	Red PTFE/White Silicone/Red PTFE	C4000-1W	C4000-53R	**C4000-186WR**	100
	Amber	Yes	Blue	Red PTFE/White Silicone/Red PTFE	C4000-2W	C4000-53B	**C4000-188W**	100
	Clear	No	Blue	Red PTFE/White Silicone	C4000-1	C4000-54B	**C4000-192**	100
	Clear	Yes	Blue	Red PTFE/White Silicone	C4000-1W	C4000-54B	**C4000-192W**	100
	Amber	Yes	Blue	Red PTFE/White Silicone	C4000-2W	C4000-54B	**C4000-194W**	100
	Clear	Yes	Blue	Blue PTFE/White Silicone, Pre-slit	C4000-1W	C4000-55B	**C4000-195W**	100
	Amber	Yes	Blue	Blue PTFE/White Silicone, Pre-slit	C4000-2W	C4000-55B	**C4000-196W**	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

C4075-211

C4000-MS

C4075-500

Items not shown to scale

National 9mm Storeroom

Description	Glass	Patched	Cap Color	Septum	Vial Cat.No.	Cap/Septum Cat.No.	Cat. No.	Pack of
9 Drawer Storeroom , 2000 pieces Caps and Vials	Clear	No	Blue	Red PTFE/White Silicone/Red PTFE	C4000-1	C4000-53B	**C4075-211**	1
	Clear	Yes	Blue	Red PTFE/White Silicone/Red PTFE	C4000-1W	C4000-53B	**C4075-213**	1
	Clear	No	Blue	Red PTFE/White Silicone	C4000-1	C4000-54B	**C4075-219**	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 **59-63**

C4010-1   C4010-1W   C4010-2   C4010-2W   C4010-LV1   C4010-LV2   C4010-V1   C4010-11   C4010-14

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 **48**

C4010-627L

C4010-629

C4010-629L

C4010-629P

C4010-630

C4010-630P

C4011-631

C4011-631P

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	Pulled Point	375µL	300µL	<4	**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	Pulled Point	375µL	300µL	<4	**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

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

Trying to decide what closure is right for you?

>> Use our selection guide on **PAGES 46-47**

National 10mm Wide Opening Screw Thread Vials Convenience Kits

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

Unassembled kits

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

Assembled kits

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

Convenience Kit

Assembled Kit

Assembled Kit, in Polybag
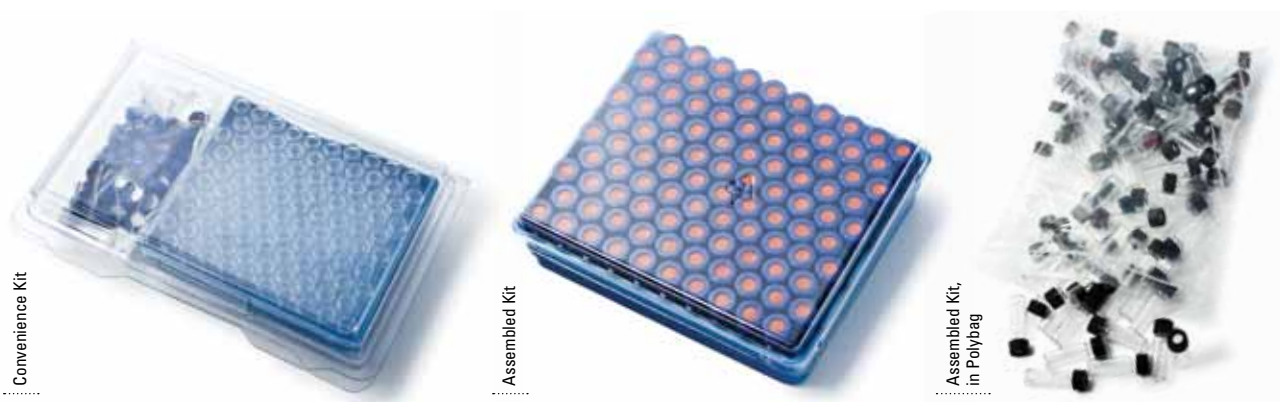
Items not shown to scale

National 10mm Wide Opening Screw Thread Vials Convenience Kits

Description	Glass	Patched	Cap Color	Septum	Vial Cat.No.	Cap Cat.No.	Cat. No.	Pack of
Convenience Kit	Clear	No	Light Blue	Red PTFE/White Silicone	C4010-1	C4010-60A	**C4010-88**	100
	Amber	Yes	Light Blue	Red PTFE/White Silicone	C4010-2W	C4010-60A	**C4010-88AW**	100
	Clear	Yes	Light Blue	Red PTFE/White Silicone	C4010-1W	C4010-60A	**C4010-88W**	100
	Clear	Yes	Light Blue	Red PTFE/White Silicone, Star-slit	C4010-1W	C4010-65A	**C4010-93W**	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
	Clear	No	White	Red PTFE/White Silicone, Soft	C4010-1	C4010-35W	**C4010-057**	100
	Amber	Yes	White	Red PTFE/White Silicone, Soft	C4010-2W	C4010-35W	**C4010-057AW**	100

National 11mm Crimp Top Vials

2mL, 12x32, Crimp Top Vials and Inserts

Recommended for most brands...

For autosampler compatibility look on pages **59-63**

- 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

C4012-1 | C4012-1W | C4012-2 | C4012-2W | C4012-10 | C4012-15 | C4012-465 | C4012-530 | C4012-529 | C4012-529L | C4012-530P

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 **48**

C4011-1 | C4011-1W | C4011-2 | C4011-2W | C4011-1B | C4011-1G | C4011-1R | C4011-1Y | C4011-LV1

National 11mm 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 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.

C4011-LV1W | C4011-LV2 | C4011-LV2W | C4011-10 | C4011-V1 | C4011-9 | C4011-13 | C4011-16 | C4011-11

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 **48**
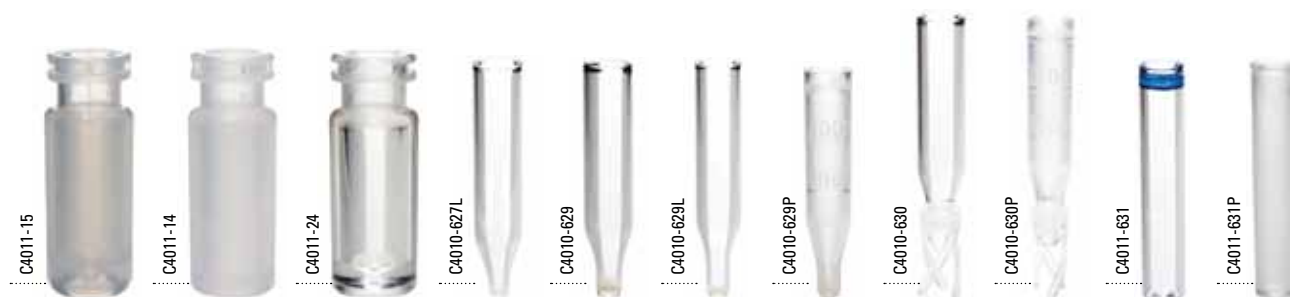
C4011-15 | C4011-14 | C4011-24 | C4010-627L | C4010-629 | C4010-629L | C4010-629P | C4010-630 | C4010-630P | C4011-631 | C4011-631P

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	Pulled Point	375µL	300µL	<4	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	Pulled Point	375µL	300µL	<4	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 **48**

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

C4011-1AP   C4011-98B   C4011-98G   C4011-98R   C4011-98Y   C4011-2A   C4011-4A   C4011-6A   C4011-7A

National 11mm Crimp Top Closures

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

Trying to decide what closure is right for you?

Use our selection guide on **PAGES 46-47**

National 11mm Crimp Top Crimping and Decrimping Tools

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

C4012-100

C4012-101

C4012-102

Items not shown to scale

National 11mm Crimp Top 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

National 11mm Crimp Top Convenience Kits

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

Unassembled kits

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

Assembled kits

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

Convenience Kit

Assembled Kit

Convenience Kit

Items not shown to scale

National 11mm Crimp Top Convenience Kits

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

National 11mm Crimp Top Vial Storerooms

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

C4011-688W

C4000-MS

C4075-500

Items not shown to scale

National 11mm Crimp Top Vial Storerooms

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

National 11mm Crimp Top Vial Racks

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

C4011-25

C4012-25
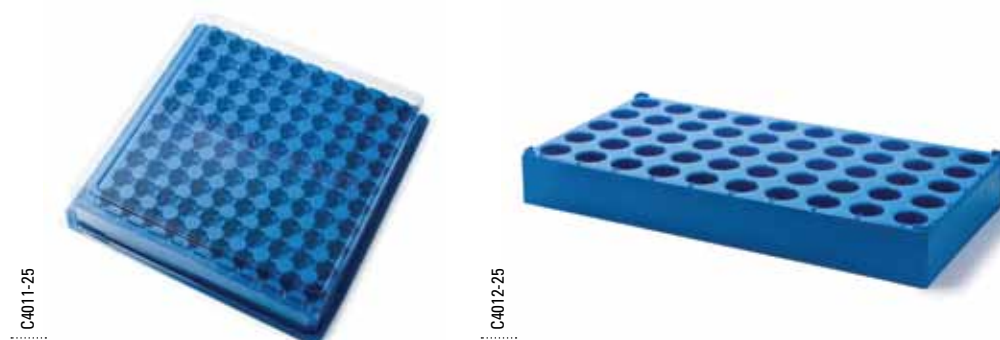
Items not shown to scale

National 11mm Crimp Top Vial Racks

Description	Capacity	Cat. No.	Pack of
Polystyrene storage rack for 12x32mm vials with clear lid	100 vials, 10x10	**C4011-25**	1
Polypropylene storage rack for 12 x 32mm vials, no lid	50 vials, 5x10	**C4012-25**	1

National 11mm Wide Opening Snap-It Vials

2mL, 12x32mm Wide Opening Snap-It Vials and Inserts

- 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 **48**

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	Pullet Point	375µL	300µL	<4	**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	Pulled Point	375µL	300µL	<4	**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 **48**

National 11mm Wide Opening Snap-It Caps and Septa

- 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

C4011-50 · C4011-51BLK · C4011-52Y · C4011-53R · C4011-54B · C4011-55G · C4011-59 · C4011-67P

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
	Clear	Polyethylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C4011-55	100
	Blue	Polyethylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C4011-55B	100
	Black	Polyethylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C4011-55BLK	100
	Green	Polyethylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C4011-55G	100
	Red	Polyethylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C4011-55R	100
	Yellow	Polyethylene	Blue PTFE/White Silicone, Pre-slit	55	1.0	C4011-55Y	100
	Clear	Polyethylene	Red PTFE/White Silicone, Star-slit	45	1.3	C4011-59	100
	Pink	Polyethylene	Red PTFE/White Silicone, Y-cut	45	1.3	C4011-67P	100

National 11mm Wide Opening Snap-It Cap Convenience Kits

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

Unassembled kits

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

Convenience Kit

Items not shown to scale

National 11mm Wide Opening Snap-It Cap Convenience Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat.No.	Cap Cat.No.	Cat. No.	Pack of
Convenience Kit, Wide Opening Snap Cap Vial	Clear	No	Clear	Clear PTFE/Red Rubber	C4011-5	C4011-51	**C4011-72**	100
	Clear	No	Pink	Clear PTFE/Red Rubber	C4011-5	C4011-51P/60180-676	**C4011-72P**	100
	Amber	Yes	Clear	Clear PTFE/Red Rubber	C4011-6W	C4011-51	**C4011-72AW**	100
	Clear	No	Clear	Red PTFE/White Silicone	C4011-5	C4011-54	**C4011-73**	100
	Clear	Yes	Clear	Red PTFE/White Silicone	C4011-5W	C4011-54	**C4011-73W**	100
	Clear	No	Pink	Red PTFE/White Silicone	C4011-5	C4011-54P	**C4011-73P**	100
	Clear	No	Pink	Red PTFE/White Silicone/ Red PTFE, Y-cut	C4011-5	C4011-67P	**C4011-78P**	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

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

C4015-52　　C4015-54　　C4015-1AP
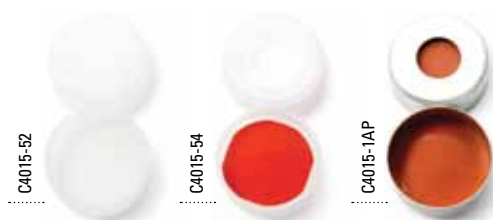
National 13mm Snap/Crimp Caps and Septa

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 de-crimping 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

C4013-100　　C4013-101　　C4013-102

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

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:

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

For autosampler compatibility look on pages **59-63**

C4015-1 C4015-11W C4015-2 C4015-2W C4015-9 C4015-14 C4015-638 C4015-643 C4015-640

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 **48**

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

C4015-1A C4015-1W C4015-66 C4015-10 C4015-30 C4015-40 C4015-45 C4015-60 C4015-61

C4015-30A C4015-40A C4015-45W C4015-55W C4015-75A C4015-5A C4015-66A B7815-13 C4015-67A

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/Foam Urethane Liner	–	1.25	**B7815-13**	100
13mm Open Top Screw Cap, 13-425 thread, 8.5mm hole	Black	Polypropylene	Bonded Red PTFE/White Silicone	45	1.5	**C4015-67A**	100

National 4mL Screw Thread Convenience Kits

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

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

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

C4015-88

C4015-21

C4015-017

Items not shown to scale

National 4mL Screw ThreadConvenience Kits

Kit Type	Glass	Patched	Cap Color	Septum	Vial Cat.No.	Cap/Septum Cat.No.	Cat. No.	Pack of
Convenience Kit	Clear	No	Black	Red PTFE/White Silicone	C4015-1	C4015-75A	**C4015-88**	100
	Amber	Yes	Black	Red PTFE/White Silicone	C4015-2W	C4015-75A	**C4015-88AW**	100
Assembled Kit	Clear	No	Black	White Virgin PTFE, 0.01"	C4015-1	C4015-1A/C4015-10	**C4015-21**	100
	Clear	No	Black	Red PTFE/White Silicone	C4015-1	C4015-75A	**C4015-17**	100
	Amber	No	Black	Red PTFE/White Silicone	C4015-2	C4015-75A	**C4015-17A**	100
	Amber	Yes	Black	Red PTFE/White Silicone	C4015-2W	C4015-75A	**C4015-17AW**	100
	Clear	Yes	Black	Red PTFE/White Silicone	C4015-11W	C4015-75A	**C4015-17W**	100
	Clear	No	Black	PTFE/Red Rubber	C4015-1	C4015-66/73816T-13P	**C4015-482A**	100
Assembled Kit, in Polybag	Clear	No	Black	Red PTFE/White Silicone	C4015-1	C4015-75A	**C4015-017**	100
	Amber	No	Black	Red PTFE/White Silicone	C4015-2	C4015-75A	**C4015-017A**	100
	Clear	Yes	Black	Red PTFE/White Silicone	C4015-11W	C4015-75A	**C4015-017W**	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
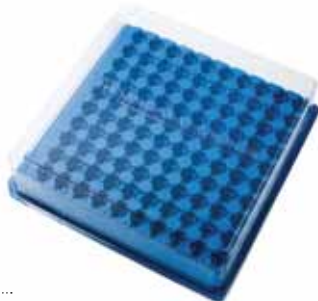
C4015-27

C4015-25

Items not shown to scale

National 4mL Screw Thread Vial Racks

Description	Capacity	Cat. No.	Pack of
Polystyrene storage rack for 15x45mm vials with clear lid	100 vials, 10x10	**C4015-27**	1
Polypropylene storage rack for 15x45mm vials, no lid	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

C4015-96 C4015-99 C4015-95P C4015-96A C4015-96PA C4015-94 C4011-80

C4011-77P C4015-48 C4015-47P C4015-638 C4015-46P C4008-50

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 **59-63**

C4020-60 C4020-6 C4020-10 C4020-210 C4020-410

C4020-20 C4020-2 C4020-25 C4020-27 C4020-180 C4020-18

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, pressure release and tear-off
- Pressure release seals 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

C4020-3A   C4020-5A   C4020-6A   C4020-30   C4020-32   C4020-34   C4020-36   C4020-40   C4020-34A   C4020-34AP

C4020-39A   C4020-43AP   C4020-36A   C4020-36AP   C4020-32A   C4020-32AP   C4020-38A   C4020-42A   C4020-42AP   C4020-46

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 Butyl 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	3.0	**C4020-46**	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 **PAGES 46-47**

National 20mm Crimp Top Headspace Unassembled Convenience Kits

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

Item not shown to scale

National 20mm Crimp Top Headspace Unassembled Convenience Kits

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

National 20mm Crimp Top Headspace Crimping and Decrimping Tools

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

C4020-100   C4020-101   C4020-102   C4020-100SS

Items not shown to scale

National 20mm Crimp Top 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

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 on film/foam backing offers broad chemical resistance
- Not autoclavable

B7999-1 B7999-2 B7999-3 B7999-12 B7999-4 B7999-5 B7999-6

B7999-2A B7999-3A B7999-12A B7999-4A B7999-6A

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	12x45	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
13-425 Screw Vial	Amber	No	12x45	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

B7815-8   B7815-13   B7815-15   B7815-18   B7815-20   B7815-24

B7995-8   B7995-13   B7995-15   B7995-18   B7995-20   B7995-24   B7995-26

B7807-8   B7807-13   B7807-15   B7807-18   B7807-20   B7807-24

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/Foam Urethane Liner	75	1.3	**B7815-8**	100
13-425 Screw Cap	White	Urethane	PTFE/Foam Urethane Liner	75	1.3	**B7815-13**	100
15-425 Screw Cap	White	Polypropylene	PTFE/Foam Urethane Liner	75	1.3	**B7815-15**	100
18-400 Screw Cap	White	Polypropylene	PTFE/Foam Urethane Liner	75	1.3	**B7815-18**	100
20-400 Screw Cap	White	Polypropylene	PTFE/Foam Urethane Liner	75	1.3	**B7815-20**	100
24-400 Screw Cap	White	Polypropylene	PTFE/Foam Urethane Liner	75	1.3	**B7815-24**	100
Septa for 8-425 Screw Cap	–	–	0.01" White PTFE/0.09" Clear Silicone	50	1.5	**B7995-8**	100
Septa for 13-425 Screw Cap	–	–	0.01" 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	–	–	0.005" 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 Unassembled 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 Unassembled 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-V0	B7815-24	**B7800-20**	100
	Amber	20	White	Polypropylene		B7921-V0	B7815-24	**B7800-20A**	100
Screw Vial Convenience Kit, Open top Cap	Clear	2	Black	Polypropylene	0.01" White PTFE/0.05" Clear Silicone	B7999-1	B7807-8/B7995-8	**B7990-1**	100
	Clear	4	Black	Polypropylene		B7999-2	B7807-13/B7995-13	**B7990-2**	100
	Clear	8	Black	Polypropylene		B7999-3	B7807-15/B7995-15	**B7990-3**	200
	Clear	12	Black	Polypropylene		B7999-12	B7807-15/B7995-15	**B7990-12**	200
	Clear	16	Black	Polypropylene		B7999-4	B7807-18/B7995-18	**B7990-4**	200
	Clear	22	Black	Polypropylene		B7999-5	B7807-20/B7995-20	**B7990-5**	200
	Clear	40	White	Polypropylene		B7999-6	B7807-24/B7995-24	**B7990-6**	100
	Amber	2	Black	Polypropylene		B7999-1A	B7807-8/B7995-8	**B7990-1A**	100
	Amber	4	Black	Polypropylene		B7999-2A	B7807-13/B7995-13	**B7990-2A**	100
	Amber	12	Black	Polypropylene		B7999-12A	B7807-15/B7995-15	**B7990-12A**	200
	Amber	40	White	Polypropylene		B7999-6A	B7807-24/B7995-24	**B7990-6A**	100

National EPA Screw Vials

EPA Screw Vial Convenience Kits

- Convenience kits save time during sample preparation
- Unassembled convenience kits include shrink-wrapped vials and separately packaged caps and septa in polybags
- Assembled kits include vials with pre-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 DrinkingWater Regulations: Control of Trihalomethanes in DrinkingWater"

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
EPA Screw Vial Assembled Kit	Clear	40	200	0.01" White PTFE/0.09" Clear Silicone	**B7950-C**	72

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

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.

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

PTFE/Red Rubber septa are the most popular and economical choice for general GC and HPLC applications. Used primarily for routine analysis in gas chromatography with FID, TCD and FPD detectors, PTFE/Red Rubber septa offer moderate 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 or retention of samples for further analysis.

Note: C4000-30 and C4000-51 Series feature high-quality red rubber with a thin 0.003" layer of PTFE. C4011-1A, C4011-98 Series, C4011-51 Series, C4008-1A Series, and C4008-98 Series feature high-quality medium durometer red rubber with a thin (0.015") layer of PTFE.

PTFE/High Performance Red Rubber

PTFE Red Rubber is a highly pure synthetic red rubber septum that provides a reduced background level for specific GC applications, employing sensitive detectors such as ECD or NPD. PTFE Red Rubber has resealing characteristics similar to PTFE/Red Rubber and is pre-inserted into an aluminum seal.

PTFE/Silicone Septa: (T/S)

High-quality, lowest background/blank value, 100% synthetic pure silicone septa, for all types of chromatographic applications. Laminated to 0.005" thick PTFE for a pure, highly inert septum with excellent resealing characteristics even after repeated punctures. PTFE/Silicone septa are ideal for use in most HPLC and GC applications where resealability and purity are critical. Cleaner than Natural Rubber or Red Rubber. Available with different hardnesses (durometers) meeting requirements of various needle types.

Pre-slit PTFE/Silicone Septa

A PTFE/Silicone 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. Bonded caps: feature a PTFE/Silicone septum electrolytically bonded into the cap.

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

A layer of 0.003" thick PTFE 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, or for internal standard methods. T/S/T septa provide superior performance with Agilent 1050, 1090, 1100, or any autosampler employing a large diameter, blunt-tip needle.

PTFE Septa

A solid disk of 0.010" thick PTFE offers superior chemical inertness against the most aggressive solvents. The thin membrane allows for easy penetration by most needles. PTFE septa are not resealable and should be used with relatively short cycle times or single injection methods.

Polyethylene (PE) Septa/Integral Molded Closures/Caps/Stoppers:

Chemically resistant polyethylene septa are usually molded into single-piece caps. The surface for needle penetration is 0.01" thick, allowing for use with thin gauge needles. Polyethylene septa are not resealable and are intended for single injection use.

Polypropylene (PP) Septa: /Integral Molded Closures/Caps/Stoppers:

Chemically resistant polypropylene septa are available molded into single piece caps or as 0.01" thick disks. The surface for needle penetration is 0.01" thick, allowing for use with thin gauge needles. Polypropylene septa are not resealable and are intended for single injection use.

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 barrier and are not suitable for use with alkanes, benzene, chlorinated solvents or cyclohexane.

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/White Silicone PurePack Septa: (C4020-32)

Excellent choice for volatiles. 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 black butyl outer sealing edge conforms well to the rim of the vial affecting a more positive seal.

Black Rubber Septa: (C4020-40)

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

Temperature Stability Chart

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

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, un-treated 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 methy lating 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.

Thermo Scientific Crimpers and De-Crimpers

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

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

Electronic Crimpers and De-Crimpers

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

Electronic Hand-held Crimper and De-Crimper

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

National Vial Reference Chart

8mm CrimpTop Vials
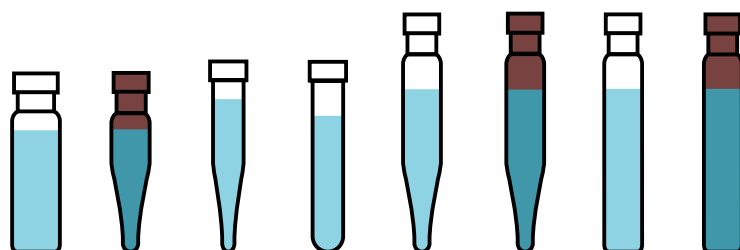
Part No.	C4008-1	C4008-730	C4008-632C	C4008-632R	C4008-739	C4008-740	C4008-741	C4008-742
Dimensions	8 x 30	7 x 30	6 x 32	6 x 32	7 x 40	7 x 40	7 x 40	7 x 40
Common Description	0.8mL	0.5mL	0.2mL	0.3mL	0.7mL	0.7mL	0.8mL	0.8mL
Approx. Total Capcity	1mL	550µL	250µL	325µL	575µL	575µL	775µL	775µL
Rec. Usable 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 Screw Thread Vials - 12 x 32mm

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 Capcity	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 12 x 32mm
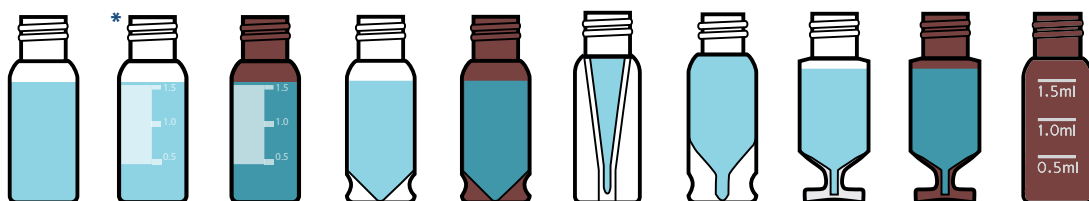
Part No.	C4000-1	C4000-1W	C4000-2W	C4000-9	C4000-9A	C4000-11	C4000-9TR	C4000-V1	C4000-V2	C4000-12
Common Description	2mL	2mL	2mL	1.5mL	1.5mL	450µL	1.5mL	1.5mL	1.5mL	2mL
Approx. Total Capcity	2mL	2mL	2mL	1.7mL	1.7mL	250µL	1.5mL	1.4mL	1.4mL	2mL
Rec. Usable Volume	1.5mL	1.5mL	1.5mL	1.3mL	1.3mL	250µL	1.2mL	1.0mL	1.0mL	1.5mL
Residual Volume	<170 µL	<170µL	<170µL	<4µL	<4µL	<1µL	<1µL	<4µL	<4µL	<180 µL
Composition	Glass	Glass	Amber	Glass	Amber	PolyPro	Glass	Glass	Amber	Amber PP

Target DP 9mm Screw Vials 12 x 32mm
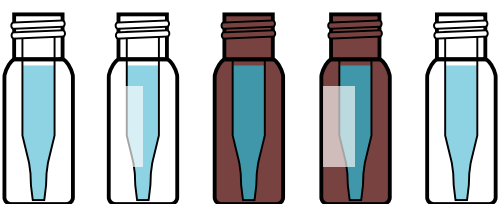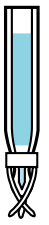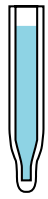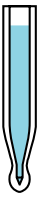
Part No.	C4000-LV1	C4000-LV1W	C4000-LV2	C4000-LV2W	C4000-LV3W
Common Description	350µL	350µL	350µL	350µL	200µL
Approx. Total Capcity	475µL	475µL	475µL	475µL	375µL
Rec. Usable Volume	350µL	350µL	350µL	350µL	240µL
Residual Volume	<2µL	<2µL	<2µL	<2µL	<1µL
Composition	Glass	Glass	Amber	Amber	Glass
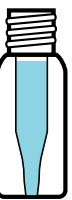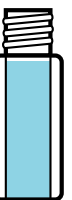
Target DP Microvolume Inserts

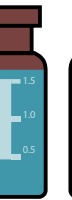| Part No.	C4010-630	C4010-630P	C4010-627L	C4010-629L	C4011-631	C4011-631P	C4010-630TS	C4010-629	C4010-629P
Dimensions	6 x 31mm	6 x 30mm	6 x 31mm	6 x 31mm	6 x 31mm	6 x 31mm	6 x 29mm	6 x 30mm	6 x 30mm
Common Description	300µL	300µL	350µL	350µL	400µL	300µL	150µL	300 µL	300 µL
Approx. Total Capcity	375µL	325µL	400µL	400µL	500µL	500µL	450µL	375 µL	325 µL
Rec. Usable Volume	300µL	250µL	350µL	350µL	400µL	400µL	325µL	300 µL	250 µL
Residual Volume	<1µL	<2µL	<4µL	<2µL	<25µL	<25µL	<3µL	<4 µL	<2 µL
Composition	Glass	Polypro	Glass	Glass	Glass	Polypro	Glass	Glass	Polypro

10mm Wide Opening Screw Thread Vials - 12 x 32mm

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 Capcity	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
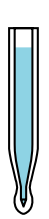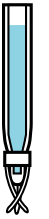
11mm Wide Opening Crimp Top Vials

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 Capcity	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 12 x 32mm

Part No.	C4012-1	C4012-1W	C4012-2	C4012-2W	C4012-10
Common Description	2mL	2mL	2mL	2mL	100µL
Approx. Total Capcity	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	5 x 29mm	5 x 31mm	5 x 29mm	5 x 31mm	5 x 30mm
Common Description	150µL	150µL	150µL	200µL	125µL
Approx. Total Capcity	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 - 12 x 32mm
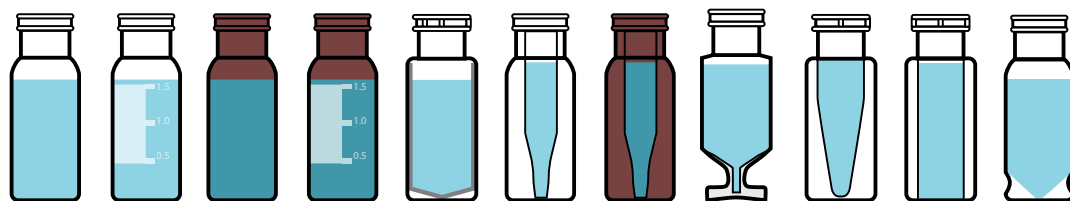
Part No.	C4011-5	C4011-5W	C4011-6	C4011-6W	C4011-24	C4011-LV1	C4011-LV2	C4011-V5	C4011-11	C4011-14	C4011-4
Common Description	2mL	2mL	2mL	2mL	700µL	350µL	350µL	1.5mL	450µL	3700µL	1.5mL
Approx. Total Capcity	2mL	2mL	2mL	2mL	1000µL	500µL	500µL	1.5mL	800µL	1000µL	1.7mL
Rec. Usable Volume	1.5mL	1.5mL	1.5mL	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 - 12 x 32mm
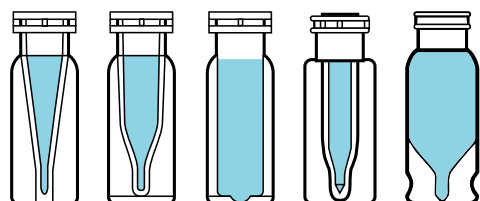
Part No.	C4011-13	C4011-16	C4011-15	C4012-15	C4011-9TR
Common Description	250µL	600µL	850µL	250µL	1.5mL
Approx. Total Capcity	475µL	600µL	825µL	475µL	1.5mL
Rec. Usable Volume	300µL	400µL	650µL	350µL	1.2mL
Residual Volume	<2µL	<4µL	<8µL	<4µL	<1µL
Composition	Polypro	Polypro	Polypro	Glastic	Glass

Headspace Vials

Part No.	C4020-6	C4020-60	C4020-27
Common Description	6mL	6mL	27mL
Approx. Total Capcity	9mL	9mL	27mL
Composition	Glass	Glass	Glass
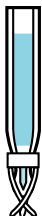
Headspace Vials
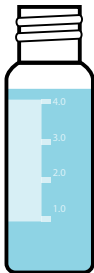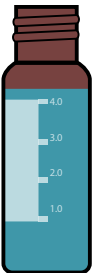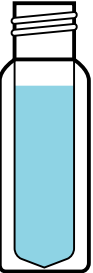
Part No.	C4020-20	C4020-10	C4020-2	C4020-210	C4020-25	C4020-410
Common Description	20mL	10mL	20mL	10mL	20mL	10mL
Approx. Total Capcity	21mL	12mL	21.5mL	12mL	21.5mL	12.5mL
Composition	Glass	Glass	Glass	Glass	Glass	Glass

Images shown are 80% to scale
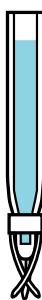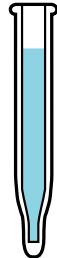
Shell Vials and Inserts

Part No.	C4015-96A	C4015-96PA	C4015-48	C4015-47P	C4015-96	C4015-99	C4015-95P	C4011-80	C4008-50
Dimensions	5 x 34mm	5 x 29mm	–	–	–	–	–	–	8 x 35mm
Common Description	250 µL	275 µL	4mL	4mL	1mL	1mL	1mL	2mL	1mL
Approx. Total Capcity	375 µL	375 µL	5.5mL	5.5mL	1.25mL	1.25mL	1.25mL	2.4mL	1mL
Rec. Usable Volume	210 µL	250 µL	4mL	4mL	1mL	1mL	1mL	1.8mL	850µL
Residual Volume	<3 µL	<3 µL	<800µL	<800 µL	<80µL	<80µL	<80µL	<200µL	–
Composition	Glass	PolyPro	Glass	Polypro	Glass	Amber	PolyPro	Glass	Glass
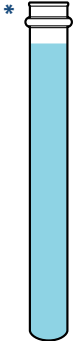
15 x 45mm Screw Thread Vials

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 Capcity	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 15 x 45mm 4mL Vials

Part No.	C4015-638	C4015-641	C4015-643
Dimensions	6 x 38mm	6 x 41mm	6 x 42mm
Common Description	700µL	500µL	500µL
Approx. Total Capcity	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 Capcity	5mL
Composition	Glass

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

Chemical Resistance Reference Chart

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

Effects of Chemicals on Plastics

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

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

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

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

Effects of Chemicals on Glass

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

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

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

Key to Chart on Following Pages

E – No damage after 30 days of constant exposure

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

F – Some effect after seven days of constant exposure

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

S – Surface etching possible

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

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

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

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

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

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

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

Properties of Glass

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

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

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

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

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

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

Approximate Chemical Composition for Borosilicate Glass

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

Optical Properties of Glass

■ 33 expansion clear glass
■ N-51A amber glass
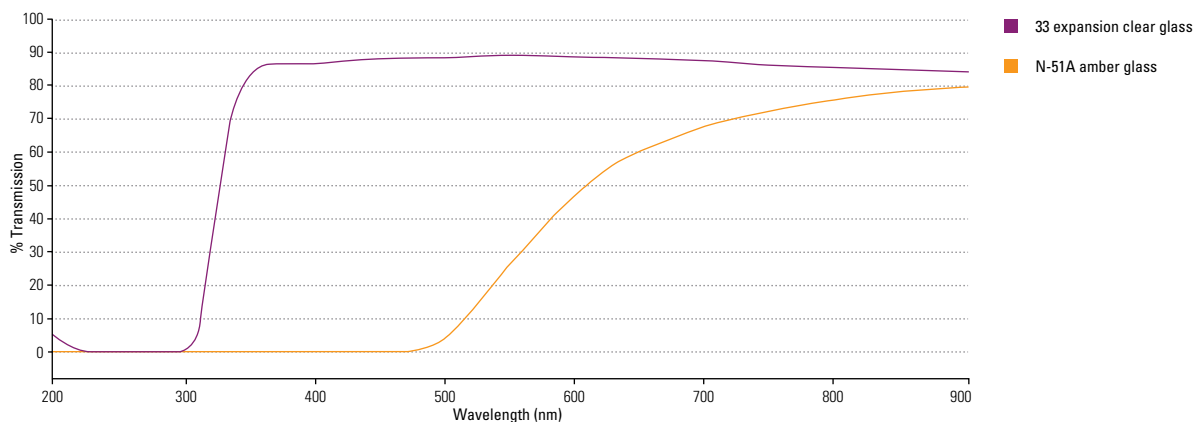
Autosampler Compatibility Table

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

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

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

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

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

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

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

● indicates that a cap having an outer flange is required for the vial to operate properly with the autosampler.

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

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

Manufacturer	Model	8mm Crimp	11mm Crimp and Snap	8-425 Screw	Target DP Short Screw	10-425 Screw	Shell Vials	13-425 Screw and Crimp	Headspace	Plate
Shimadzu	SIL-10A/SIL-10AF/SIL-10AP/SIL-10Ai/SIL-10AxL/Rack MTP2 192 Pos., SIL-10HTA/SIL-10HTC 350 pos. Tray						•			
	SIL-10HTA/SIL-10HTC 140 Pos. Tray		•	•	•	•	•			
	SIL-10HTA/SIL-10HTC 100 Pos. Tray						•	•		
	SIL-10ADvp		•	•	•	•	•	•		
	HTA 200 H								•	
	SIL-20A (Prominence) 105 vial tray/SIL-20AC (Prominence) 70 vial tray	•	•	•	•		•			
	SIL-20A/Sil-20AC (Prominence) 175 vial tray						•			
	SIL-20A/Sil-20AC (Prominence) 50 vial tray, LC2010C + LC2010A 100 Pos. Tray						•	•		
	LC2010C + LC2010A 350 Pos. Tray						•			
	LC2010C + LC2010A 140 Pos. Tray		•	•	•	•	•			
	HSS-2B								•	
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		•	•	•					•
	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								• (orange)	
	TriPlus (=GC PAL) (AS+ Duo)	•	•	•	•				• (orange)	
	TriPlus HS, TriPlus SPME								• (orange)	
	Surveyor (Surveyor Plus)	•	•	•	•		•		•	
	Accela High Speed LC Autosampler (200 Pos.)	•	•	•	•					
	Accela Open Autosampler (342 Pos)	•	•	•	•					•
Tosoh	AS 8010		•		•					
	TSK-6080		•		•				•	
Tracor	770/771/772		•	•	•					
Unicam	4247, 4710		•	•	•					
	4700 (GC)	•								
	4700 (LC)	•		•	•					
	LC-XP		•	•	•				•	
	S4/S8	•								

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

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

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

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

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

Notes

Terms and Conditions of Sale

UNLESS OTHERWISE EXPRESSLY AGREED IN WRITING, ALL SALES ARE SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

1. GENERAL. Thermo Fisher Chromatography Consumables and Specialty Products Division, a part of Thermo Fisher Scientific ("Seller") hereby offers for sale to the buyer named on the face hereof ("Buyer") the products listed on the face hereof (the "Products") on the express condition that Buyer agrees to accept and be bound by the terms and conditions set forth herein. Any provisions contained in any document issued by Buyer are expressly rejected and if the terms and conditions in this Agreement differ from the terms of Buyer's offer, this document shall be construed as a counter offer and shall not be effective as an acceptance of Buyer's document. Buyer's receipt of Products or Seller's commencement of the services provided hereunder will constitute Buyer's acceptance of this Agreement. This is the complete and exclusive statement of the contract between Seller and Buyer with respect to Buyer's purchase of the Products. No waiver, consent, modification, amendment or change of the terms contained herein shall be binding unless in writing and signed by Seller and Buyer. Seller's failure to object to terms contained in any subsequent communication from Buyer will not be a waiver or modification of the terms set forth herein. All orders are subject to acceptance in writing by an authorized representative of Seller.

2. PRICE. All prices published by Seller or quoted by Seller's representatives may be changed at any time without notice. All prices quoted by Seller or Seller's representatives are valid for thirty (30) days, unless otherwise stated in writing. All prices for the Products will be as specified by Seller or, if no price has been specified or quoted, will be Seller's price in effect at the time of shipment. All prices are subject to adjustment on account of specifications, quantities, raw materials, cost of production, shipment arrangements or other terms or conditions which are not part of Seller's original price quotation.

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

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

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

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

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

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

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

THE OBLIGATIONS CREATED BY THIS WARRANTY STATEMENT TO REPAIR OR REPLACE A DEFECTIVE PRODUCT SHALL BE THE SOLE REMEDY OF BUYER IN THE EVENT OF A DEFECTIVE PRODUCT. EXCEPT AS EXPRESSLY PROVIDED IN THIS WARRANTY STATEMENT, SELLER DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, ORAL OR WRITTEN, WITH RESPECT TO THE PRODUCTS, INCLUDING WITHOUT LIMITATION ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE PRODUCTS ARE ERROR-FREE OR WILL ACCOMPLISH ANY PARTICULAR RESULT.

8. INDEMNIFICATION.

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

employees, agents or representatives or contractors in connection with the performance of services at Buyer's premises under this Agreement and (ii) claims that a Product infringes any valid United States patent, copyright or trade secret; provided, however, Seller shall have no liability under this Section to the extent any such Indemnified Items are caused by either (i) the negligence or willful misconduct of Buyer, its employees, agents or representatives or contractors, (ii) by any third party, (iii) use of a Product in combination with equipment or software not supplied by Seller where the Product would not itself be infringing, (iv) compliance with Buyer's designs, specifications or instructions, (v) use of the Product in an application or environment for which it was not designed or (vi) modifications of the Product by anyone other than Seller without Seller's prior written approval. Buyer shall provide Seller prompt written notice of any third party claim covered by Seller's indemnification obligations hereunder. Seller shall have the right to assume exclusive control of the defense of such claim or, at the option of the Seller, to settle the same. Buyer agrees to cooperate reasonably with Seller in connection with the performance by Seller of its obligations in this Section.

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

8.2 By Buyer. Buyer shall indemnify, defend with competent and experienced counsel and hold harmless Seller, its parent, subsidiaries, affiliates and divisions, and their respective officers, directors, shareholders and employees, from and against any and all damages, liabilities, actions, causes of action, suits, claims, demands, losses, costs and expenses (including without limitation reasonable attorneys' fees and disbursements and court costs) to the extent arising from or in connection with (i) the negligence or willful misconduct of Buyer, its agents, employees, representatives or contractors; (ii) use of a Product in combination with equipment or software not supplied by Seller where the Product itself would not be infringing; (iii) Seller's compliance with designs, specifications or instructions supplied to Seller by Buyer; (iv) use of a Product in an application or environment for which it was not designed; or (v) modifications of a Product by anyone other than Seller without Seller's prior written approval.

9. SOFTWARE. With respect to any software products incorporated in or forming a part of the Products hereunder, Seller and Buyer intend and agree that such software products are being licensed and not sold, and that the words "purchase", "sell" or similar or derivative words are understood and agreed to mean "license", and that the word "Buyer" or similar or derivative words are understood and agreed to mean "licensee". Notwithstanding anything to the contrary contained herein, Seller or its licensor, as the case may be, retains all rights and interest in software products provided hereunder.

Seller hereby grants to Buyer a royalty-free, non-exclusive, nontransferable license, without power to sublicense, to use software provided hereunder solely for Buyer's own internal business purposes on the hardware products provided hereunder and to use the related documentation solely for Buyer's own internal business purposes. This license terminates when Buyer's lawful possession of the hardware products provided hereunder ceases, unless earlier terminated as provided herein. Buyer agrees to hold in confidence and not to sell, transfer, license, loan or otherwise make available in any form to third parties the software products and related documentation provided hereunder. Buyer may not disassemble, decompile or reverse engineer, copy, modify, enhance or otherwise change or supplement the software products provided hereunder without Seller's prior written consent. Seller will be entitled to terminate this license if Buyer fails to comply with any term or condition herein. Buyer agrees, upon termination of this license, immediately to return to Seller all software products and related documentation provided hereunder and all copies and portions thereof.

Certain of the software products provided by Seller may be owned by one or more third parties and licensed to Seller. Accordingly, Seller and Buyer agree that such third parties retain ownership of and title to such software products. The warranty and indemnification provisions set forth herein shall not apply to software products owned by third parties and provided hereunder.

10. LIMITATION OF LIABILITY. NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED HEREIN, THE LIABILITY OF SELLER UNDER THESE TERMS AND CONDITIONS (WHETHER BY REASON OF BREACH OF CONTRACT, TORT, INDEMNIFICATION, OR OTHERWISE, BUT EXCLUDING LIABILITY OF SELLER FOR BREACH OF WARRANTY (THE SOLE REMEDY FOR WHICH SHALL BE AS PROVIDED UNDER SECTION 7 ABOVE)) SHALL NOT EXCEED AN AMOUNT EQUAL TO THE LESSER OF (A) THE TOTAL PURCHASE PRICE THERETOFORE PAID BY BUYER TO SELLER WITH RESPECT TO THE PRODUCT(S) GIVING RISE TO SUCH LIABILITY OR (B) ONE MILLION DOLLARS ($1,000,000). NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED HEREIN, IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES (INCLUDING WITHOUT LIMITATION DAMAGES FOR LOSS OF USE OF FACILITIES OR EQUIPMENT, LOSS OF REVENUE, LOSS OF DATA, LOSS OF PROFITS OR LOSS OF GOODWILL), REGARDLESS OF WHETHER SELLER (a) HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES OR (b) IS NEGLIGENT.

11. EXPORT RESTRICTIONS Buyer acknowledges that each Product and any related software and technology, including technical information supplied by Seller or contained in documents (collectively "Items"), is subject to export controls of the U.S. government. The export controls may include, but are not limited to, those of the Export Administration Regulations of the U.S. Department of Commerce (the "EAR"), which may restrict or require licenses for the export of Items from the United States and their re-export from other countries. Buyer shall comply with the EAR and all other applicable laws, regulations, laws, treaties, and agreements relating to the export, re-export, and import of any Item. Buyer shall not, without first obtaining the required license to do so from the appropriate U.S. government agency; (i) export or re-export any Item, or (ii) export, re-export, distribute or supply any Item to any restricted or embargoed country or to a person or entity whose privilege to participate in exports has been denied or restricted by the U.S. government. Buyer shall, if requested by Seller, provide information on the end user and end use of any Item exported by the Buyer or to be exported by the Buyer. Buyer shall cooperate fully with Seller in any official or unofficial audit or inspection related to applicable export or import control laws or regulations, and shall indemnify and hold Seller harmless from, or in connection with, any violation of this Section by Buyer or its employees, consultants, or agents.

12. MISCELLANEOUS. (a) Buyer may not delegate any duties nor assign any rights or claims hereunder without Seller's prior written consent, and any such attempted delegation or assignment shall be void. (b) The rights and obligations of the parties hereunder shall be governed by and construed in accordance with the laws of the State of Seller's manufacturing location, without reference to its choice of law provisions. Each party hereby irrevocably consents to the exclusive jurisdiction of the state and federal courts located in the county and state of Seller's manufacturing location, in any action arising out of or relating to this Agreement and waives any other venue to which it may be entitled by domicile or otherwise. (c) In the event of any legal proceeding between the Seller and Buyer relating to this Agreement, neither party may claim the right to a trial by jury, and both parties waive any right they may have under applicable law or otherwise to a right to a trial by jury. Any action arising under this Agreement must be brought within one (1) year from the date that the cause of action arose. (d) The application to this Agreement of the U.N. Convention on Contracts for the International Sale of Goods is hereby expressly excluded. (e) In the event that any one or more provisions contained herein shall be held by a court of competent jurisdiction to be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein shall remain in full force and effect, unless the revision materially changes the bargain. (f) Seller's failure to enforce, or Seller's waiver of a breach of, any provision contained herein shall not constitute a waiver of any other breach or of such provision. (g) Unless otherwise expressly stated on the Product or in the documentation accompanying the Product, the Product is intended for research only and is not to be used for any other purpose, including without limitation, unauthorized commercial uses, in vitro diagnostic uses, ex vivo or in vivo therapeutic uses, or any type of consumption by or application to humans or animals. (h) Buyer agrees that all pricing, discounts and technical information that Seller provides to Buyer are the confidential and proprietary information of Seller. Buyer agrees to (1) keep such information confidential and not disclose such information to any third party, and (2) use such information solely for Buyer's internal purposes and in connection with the Products supplied hereunder. Nothing herein shall restrict the use of information available to the general public. (i) Any notice or communication required or permitted hereunder shall be in writing and shall be deemed received when personally delivered or three (3) business days after being sent by certified mail, postage prepaid, to a party at the address specified herein or at such other address as either party may from time to time designate to the other.

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/crc**

How to order

USA and Canada
800 332 3331
865 354 4616 fax
chromatography@thermofisher.com

France
+33 (0)1 60 92 48 34
+33 (0)1 60 92 49 00 fax
FRLESconsommableslcgcfr@thermofisher.com

Germany
+49 (0) 2423 9431 452
+49 (0) 2423 9431 34 fax
lcgc.consumables.DE@thermofisher.com

United Kingdom
+44 1928 534110
+44 1928 534001 fax
lcgc.consumables@thermofisher.com

China
800-810-5118
Shanghai: +86-21-68654588
Bejing: +86-10-84193588
Guangzhou: +86-20-83145199
analyze.cn@thermofisher.com

India
+91-22-6742 9494
+91-22-6742 9495 fax
analyze.in@thermofisher.com

Japan
+81 3 5826 1615
+81 3 5826 1611 fax
analyze.jp@thermofisher.com

Thermo Fisher Scientific Australia Pty Ltd
1300 735 292 (free call domestic)
1800 067 639 fax
AUinfo@thermofisher.com

Thermo Fisher Scientific New Zealand Ltd
0800 933 966 (free call domestic)
0800 329 246 fax
NZinfo@thermofisher.com

All Other Enquiries
+44 (0) 1928 534 050
+44 (0) 1928 534 049 fax
salesorders.columns.uk@thermofisher.com

Technical Support

North America
800 332 3331
techsupport.ccs@thermofisher.com

Outside North America
+44 (0) 1928 534 440
techsupport.ccs@thermofisher.com

For more information please visit our website: **www.thermoscientific.com/chromatography**

Thermo
S C I E N T I F I C

Part of Thermo Fisher Scientific