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Analytical Chromatography

Product Guide

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Analytical Chromatography

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Vials and Caps

Vials and caps ensure contamination-free sample handling and trouble-free autosampler operation, with the maximum recovery that is needed for small-sample applications. We offer micro and fused inserts, standard 2 mL autosampler and larger sample storage, headspace, and EPA vials.

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TELOS Sample Prep

TELOS Sample Preparation Products include solid-phase extraction (columns and 96-well plates), supported liquid extraction, protein precipitation, and filtration products. Options support pharmaceutical, environmental, agrochemical, food and clinical applications.

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We have developed a range of TELOS liquid chromatography columns. Expertise in high purity silica selection, surface modification, high density bonding technology and column packing technology has enabled us to produce high quality materials which encompass a vast range in selectivities. TELOS liquid chromatography columns provide superior reliability, reproducibility and performance, with excellent selectivity.

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D2 Lamps

Deuterium Lamps are pre-aligned, ISO 9001 certified, traceable, and are ideal for pharma and CRO applications. All lamps are OEM equivalent lamps for >90% of all leading instruments. We offer lamps at prices 30% below instrument manufacturers' lamps, with the same warranty.

▶ Read more

VapLock Solvent Containment

VapLock™ safety solution for scientists, lab safety personnel, and researchers worldwide, is designed to prevent hazardous vapors from escaping into the laboratory, whilst maintaining the cleanliness and purity of valuable HPLC mobile phases.

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▶ Headspace Vials

▶ EPA & Storage Vials

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▶ Cross References

Vials and Caps

Our vials are ISO 9001:2015 certified, made from first hydrolytic class 51 expansion glass, are silanized to minimize adsorption, are batch tested and 100% traceable, and manufactured with cleanliness in mind. These attributes lend themselves to cutting-edge mass spectrometry applications, where detection limits can be reached and ion suppression issues minimized. All designs ensure full automation compatibility for vial handling and needle positioning.

Autosampler Vials

We have a full line of high-quality autosampler vials and related parts for GC, GC/MS, LC, and LC/MS that can be used in laboratories around the world. We offer a range of precision-made vials, seals, caps, septa, and micro-inserts that are available in a variety of formats to meet the needs of your exact requirements. The format of our vials include crimp neck, screw neck, short thread, snap ring, and shell, and are constructed from high-quality amber and clear glass or plastic. Our micro-inserts offer an excellent solution to handling small volumes, while eliminating dead space, and are made from silanized or standard glass. All seals, caps and septa are designed to meet autosampler needs.

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Universal Vials and Caps

The following vial and cap combinations are suitable for the vast majority of autosamplers.

STV12-02L

STV12-02LA

9 amm Short Thread Vials					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Clear glass, wide opening, label + filling lines	1.5	32 x 11.6	10 x 100	STV12-02L	98702-67
Amber glass, wide opening, label + filling lines	1.5	32 x 11.6	10 x 100	STV12-02LA	98702-68

9 mm Polypropylene Short Thread Seals, center hole, with septa					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Blue cap, Silicone white/PTFE red septa	1.0	55° shore	10 x 100	SCC09-04B	98703-48
Blue cap, Silicone white/PTFE blue, slitted septa	1.0	55° shore	10 x 100	SCC09-04BS	98703-53

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Crimp Neck Vials and Seals

Glass chromatography crimp neck vials in a variety of shapes and sizes with aluminum crimp seals for 8 mm vials or micro-inserts, aluminum crimp seals, and magnetic crimp seals for 11 mm vials. Pre-crimped vials are also available. Ask about our smart packs of vials and caps.

8 mm Crimp Neck Vials

- Glass chromatography vials in a variety of volumes and dimensions
- Clear or amber, available as flat, rounded or conical bottom
- Aluminum crimp holes are designed to meet autosampler needs
- Silicone/PTFE, PTFE, and natural rubber septa with defined hardness and cleanliness
- UltraClean silicone/PTFE septa are available for optimized GC and headspace analysis

CRV08-03 CRV08-03A CRV08-05 CRV08-06 CRV08-04 CRV08-08 CRV08-08A CRV08-02 CRV08-01A CRV08-04A

8 mm Crimp Neck Vials					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Clear glass, flat bottom	0.7	40 x 7	10 x 100	CRV08-03	98705-43
Amber glass, flat bottom	0.7	40 x 7	10 x 100	CRV08-03A	98705-44
Clear glass, rounded bottom	0.3	31.5 x 5.5	10 x 100	CRV08-05	98705-47
Clear glass, conical bottom	0.3	31.5 x 5.5	10 x 100	CRV08-06	98705-48
Clear glass, conical bottom	0.7	40 x 7	10 x 100	CRV08-04	98705-45
Amber glass, conical bottom	0.7	40 x 7	10 x 100	CRV08-04A	98705-46
Amber glass, conical bottom	0.4	30 x 7	10 x 100	CRV08-01A	98705-41
Clear glass, flat bottom	0.8	30 x 8	10 x 100	CRV08-02	98705-42
Clear glass, flat bottom	1.2	40 x 8	10 x 100	CRV08-08	98705-50
Amber glass, flat bottom	1.2	40 x 8	10 x 100	CRV08-08A	98705-51

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8 mm Aluminum Crimp Seals , clear lacquered, center hole, with septa					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
PTFE	0.25	53° shore D	10 x 100	CRC08-01	98704-23
Natural Rubber red-orange/TEF transparent	1.0	60° shore A	10 x 100	CRC08-02	98704-24
Silicone dark blue/PTFE white	1.3	45° shore A	10 x 100	CRC08-07	98704-30
Silicone white/PTFE red	1.3	45° shore A	10 x 100	CRC08-04	98704-27
PTFE red/Silicone white/PTFE red	1.0	45° shore A	10 x 100	CRC08-03	98704-26
Silicone white/PTFE red, with slit	1.3	45° shore A	10 x 100	CRC08-04S	98704-28
8 mm PE Push-on Cap, blue, with thinned penetration area (only for non-critical analysis, no septa)	—	—	10 x 100	SNC08-06	98706-30

8 mm Vial Racks for Crimp Neck Vials			
Description	Pack Size	Mfg Part #	Item #
Vial Rack Acrylic, 173 x 95 x 20 mm, 50 hole with 8.5 mm diameter	Each	VR08A-50	98702-51

Further 8 mm Crimp Seals are available on request

Crimp Neck Vials 11mm, Micro-Inserts and Seals

- Clear or amber with label and filling lines - silanized glass for minimized adsorption
- Available with or without fused glass micro-inserts for handling small volumes
- For use with aluminum or magnetic crimp seals
- PTFE, natural rubber/butyl/TEF, silicone/PTFE septa with defined hardness and cleanliness


CRV12-02


CRV12-02L


CRV12-02LA


CRV12-07


CRV12-06


CRV12-09


INWC-01
INWC-01Z


INWC-02


INWC-01SP
INWC-01SPZ


INWF-01

11 mm Crimp Neck Vials					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Clear glass, wide opening	1.5	32 x 11.6	10 x 100	CRV12-02	98705-53
Clear glass, wide opening, label + filling lines	1.5	32 x 11.6	10 x 100	CRV12-02L	98705-57
Amber glass, wide opening, label + filling lines	1.5	32 x 11.6	10 x 100	CRV12-02LA	98705-58
Microliter-Vial, with 15 µL inner cone	1.1	32 x 11.6	10 x 100	CRV12-07	98705-67
Crimp Neck Micro-Vial, clear glass, conical bottom	1.1	32 x 11.6	10 x 100	CRV12-06	98705-65
Micro-Vial, clear glass, conical bottom	0.9	32 x 10	10 x 100	CRV12-11	98705-72

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11 mm Crimp Neck Vials (continued)					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Clear glass, wide opening	2.5	41 x 11.6	10 x 100	CRV12-10	98705-71

Micro-Inserts for 11 mm Vials					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Clear glass, conical bottom, 15 mm taper	0.1	31 x 6	10 x 100	INWC-01	98700-93
Clear glass, conical bottom, 15 mm taper (silanized)	0.1	31 x 6	10 x 100	INWC-01Z	98700-96
Clear glass, conical bottom, 12 mm taper	0.1	31 x 6	10 x 100	INWC-02	98700-97
Clear glass, with polymer spring	0.1	29 x 6	10 x 100	INWC-01SP	98700-94
Clear glass, with polymer spring (silanized)	0.1	29 x 6	10 x 100	INWC-01SPZ	98700-95
Clear glass, flat bottom	0.2	31 x 6	10 x 100	INWF-01	98700-98

11 mm Vial Racks for Crimp Neck Vials			
Description	Pack Size	Mfg Part #	Item #
Vial Rack Acrylic, 173 x 95 x 20 mm, 50 hole with 12 mm diameter*	Each	VR12-50	98702-52

*also suitable for conical bottom vials

11 mm Aluminum Crimp Seals, clear lacquered, center hole, with septa					
Septa Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Natural Rubber/Butyl/TEF	1.0	60° shore A	10 x 100	CRC11-02	98704-34
Natural Rubber/Butyl/TEF, blue cap	1.0	45° shore A	10 x 100	CRC11-02B	98704-37
Natural Rubber/Butyl/TEF, green cap	1.0	45° shore A	10 x 100	CRC11-02G	98704-40
Natural Rubber/Butyl/TEF, red cap	1.0	45° shore A	10 x 100	CRC11-02R	98704-43
Natural Rubber/Butyl/TEF, golden cap	1.0	45° shore A	10 x 100	CRC11-02Y	98704-45
Silicone dark blue/PTFE white	1.3	45° shore A	10 x 100	CRC11-04B	98704-49
Silicone white/PTFE red	1.3	45° shore A	10 x 100	CRC11-04	98704-48
PTFE red/Silicone white/PTFE red	1.0	45° shore A	10 x 100	CRC11-03	98704-46
Silicone white/PTFE blue, cross-slitted	1.5	45° shore A	10 x 100	CRC11-04BS	98704-50
PE push-on cap, blue, with thinned penetration area (only for non-critical analysis, no septa)	—	55° shore A	10 x 100	SNC11-06B	98706-54

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Further Vial Racks are available on request

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11 mm Magnetic Crimp Seals, gold, center hole with septa for CTC GC PAL, Shimadzu® AOC-5000 and Thermo Scientific TriPlus					
Description	**Thickness (mm)**	**Hardness**	**Pack Size**	**Mfg Part #**	**Item #**
Silicone white/PTFE red	1.3	45° shore A	10 x 100	CRC11-04M	98704-51
PTFE red/Silicone white/PTFE red	1.0	45° shore A	10 x 100	CRC11-03M	98704-47

Smart Packs (Vials & Caps)			
Description	**Pack Size**	**Mfg Part #**	**Item #**
Crimp Neck Vial 2 mL Clear + Rubber/PTFE Cap (CRV12-02 + CRC11-02)	10 x 100	KSP-CRV-02	98701-03
Crimp Neck Vial 2 mL Clear + PTFE/Silicone/PTFE Cap (CRV12-02 + CRC11-03)	10 x 100	KSP-CRV-03	98701-04
Crimp Neck Vial 2 mL Clear + Silicone/PTFE Cap (CRV12-02 + CRC11-04)	10 x 100	KSP-CRV-04	98701-05
Crimp Neck Vial 2 mL Clear + Silicone/PTFE Cap Slit (CRV12-02 + CRC11-04BS)	10 x 100	KSP-CRV-04S	98701-06
Crimp Neck Vial 2 mL Clear, with Label + Rubber/PTFE Cap (CRV12-02L + CRC11-02)	10 x 100	KSP-CRVL-02	98701-08
Crimp Neck Vial 2 mL Clear, with Label + Silicone/PTFE Cap (CRV12-02L + CRC11-04)	10 x 100	KSP-CRVL-04	98701-10
Crimp Neck Vial 2 mL Clear, with Label + Silicone/PTFE Cap Slit (CRV12-02L + CRC11-04BS)	10 x 100	KSP-CRVL-04S	98701-12
Crimp Neck Vial 2 ml, Amber, Label + Rubber/PTFE Cap (CRV12-02LA + CRC11-02)	10 x 100	KSP-CRVLA-02	98701-13
Crimp Neck Vial 2 mL, Amber, Label + PTFE/Silicone/PTFE Cap (CRV12-02LA + CRC11-03)	10 x 100	KSP-CRVLA-03	98701-14
Crimp Neck Vial 2 mL, Amber, Label + Silicone/PTFE Cap (CRV12-02LA + CRC11-04)	10 x 100	KSP-CRVLA-04	98701-15
Crimp Neck Vial 2 mL, Amber, Label + Silicone/PTFE Cap Slit (CRV12-02LA + CRC11-04BS)	10 x 100	KSP-CRVLA-04S	98701-16

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Further Vial Racks are available on request

Smart Packs (Vials & Caps)

Smart Packs are consumer friendly packaging units containing 1,000 vials and caps. The advantages of the individual components, like the cleanroom packaging of the vials or the tamper-evident packaging of the vials and the caps, remain unaffected. The handy box is resealable, in order to avoid contamination during use. Further combinations are available on request.

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Screw Neck Vials

8 mm, 9 mm, 10 mm, and 13 mm glass chromatography screw neck vials in a variety of shapes and sizes with PP screw seals/caps, and septa, and micro-inserts for handling small volumes with ease. Each screw neck vial is designed to ensure a tight seal and to suit autosampler requirements.

8 mm Screw Neck Vials and Seals

- Clear or amber with label and filling lines, available as 32 x 11.6 at 1.1–1.5 mL volume
- Clear glass micro-inserts with tapered, flat, or conical bottoms eliminate dead volumes
- Conical bottom micro-inserts with spring or separate metal spring is available to minimize damage to the autosampler needle
- PP screw seals and caps are available with the choice of a central hole or closed top
- UltraClean high-purity septa are optimized for GC and headspace analysis

SCV12-01 SCV12-01L SCV12-01A SCV12-01LA SCV12-04 INSC-01 INSF-01 INSC-01SP INSC-005 SPR08-01

8 mm Screw Neck Vials					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Clear glass	1.5	32 x 11.6	10 x 100	SCV12-01	98704-98
Clear glass, label + filling lines	1.5	32 x 11.6	10 x 100	SCV12-01L	98705-00
Amber glass	1.5	32 x 11.6	10 x 100	SCV12-01A	98704-99
Amber glass, label + filling lines	1.5	32 x 11.6	10 x 100	SCV12-01LA	98705-01
Micro-Vial, clear glass, conical bottom	1.1	32 x 11.6	10 x 100	SCV12-04	98705-06

Micro-Inserts for 8 mm Vials					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Clear glass, conical, 15 mm taper	0.1	31 x 5	10 x 100	INSC-01	98700-87
Clear glass, conical, 9 mm taper	0.1	31 x 5	10 x 100	INSC-02	98700-89
Clear glass, flat bottom	0.1	31 x 5	10 x 100	INSF-01	98700-90
Clear glass, with polymer spring	0.1	29 x 5	10 x 100	INSC-01SP	98700-88
Clear glass, conical bottom	0.05	27.5 x 4	10 x 100	INSC-005	98700-86
Metal spring	—	36 x 5	10 x 100	SPR08-01	98701-01

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8 mm PP Screw Seals, black, center hole, with septa					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Natural Rubber/TEF	1.3	60° shore A	10 x 100	SCCSEP08-02	98703-88
Natural Rubber/TEF, closed top	1.3	60° shore A	10 x 100	SCC08-02C	98703-23
PTFE red/Silicone white/PTFE red	1.0	45° shore A	10 x 100	SCCSEP08-03	98703-89
Silicone white/PTFE red, slitted	1.3	45° shore A	10 x 100	SCCSEP08-04S	98703-95

8 mm PP Screw Caps, without septa					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Black, with center hole	—	—	10 x 100	SCC08-B	98703-26
Black, without center hole	—	—	10 x 100	SCC08-BC	98703-27

8 mm Septa for Screw Caps					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
PTFE (only unassembled)	0.25	53° shore D	10 x 100	SEP08-01	98705-78
Natural Rubber/PTFE	1.0	60° shore A	10 x 100	SEP08-02	98705-79
Silicone white/PTFE blue, slitted	0.9	55° shore A	10 x 100	SEP08-04S	98705-83
Silicone white/PTFE red	1.3	45° shore A	10 x 100	SEP08-04	98705-81
PTFE red/Silicone white/PTFE red	1.0	45° shore A	10 x 100	SEP08-03	98705-80
Silicone blue transparent/PTFE white	1.3	45° shore A	10 x 100	SEP08-04B	98705-82

Further 8 mm Screw Seals, also with white caps, are available on request

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Short Thread Vials and Seals

The short thread vials have a wide opening with a unique thread design that allows you to screw on the caps, while maintaining compatibility with robotic autosamplers. The thread sits much higher on the vial allowing space between the bottom of the thread and the shoulder of the vial. Enquire about our smart packs of vials and caps.

9 mm Short Thread Vials, Micro-Inserts and Seals

- Clear and amber vials in a variety of volumes and dimensions, and available in a salinised form
- Silanized and non-silanized clear glass micro-inserts are conical, tapered, or flat bottomed, with or without a spring
- PP short thread screw seals with center hole and septa are available in a variety of colors and materials
- UltraBond Seals (cap and septa are bonded) yield contamination-free results
- Also available are magnetic short thread caps for CTC, GC, PAL, and Thermo Scientific TriPlus Autosamplers

STV12-02
STV12-02S

STV12-02L

STV12-02LA
STV12-02LAS

STV12-10

STV12-11

STV12-03

STV12-03TS
SRV12-03TSZ

STV12-03TSA
SRV12-03TSAZ

STV12-03P
STV12-03T

STV12-03PA

STV12-02P

INWC-01
INWC-01Z

INWC-02

INWC-01SP
INWC-01SPZ

INWF-01

Short Thread Vials 9 mm					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Clear glass, wide opening	1.5	32 x 11.6	10 x 100	STV12-02	98702-65
Clear glass, wide opening (silanized)	1.5	32 x 11.6	10 x 100	STV12-02S	98702-77
Clear glass, wide opening, label and filling lines	1.5	32 x 11.6	10 x 100	STV12-02L	98702-67
Amber glass, wide opening, label and filling lines	1.5	32 x 11.6	10 x 100	STV12-02LA	98702-68
Amber glass, wide opening, label and filling lines (silanized)	1.5	32 x 11.6	10 x 100	STV12-02LAS	98702-70
Microliter-Vial, with 15 µL inner cone	1.1	32 x 11.6	10 x 100	STV12-10	98702-97
Total Microliter Short Thread Vial	0.9	32 x 11.6	10 x 100	STV12-11	98702-99
Short Thread Vial with integrated Micro-Insert	0.2	32 x 11.6	10 x 100	STV12-03	98702-79
TopSert TPX Vial transparent, with integrated glass Micro-Insert	0.2	32 x 11.6	10 x 100	STV12-03TS	98702-87
TopSert TPX Vial transparent, with integrated glass Micro-Insert (silanized)	0.2	32 x 11.6	10 x 100	STV12-03TSZ	98702-90
TopSert TPX Vial amber, with integrated glass	0.2	32 x 11.6	10 x 100	STV12-03TSA	98702-88
TopSert TPX Vial amber, with integrated glass (silanized)	0.2	32 x 11.6	10 x 100	STV12-03TSAZ	98702-89
PP Short Thread Micro-Vial, transparent	0.3	32 x 11.6	10 x 100	STV12-03P	98702-84
TPX PP Short Thread Micro-Vial, transparent	0.3	32 x 11.6	10 x 100	STV12-03T	98702-86

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9 mm Short Thread Vials (continued)					
Description	**Volume (mL)**	**Dimensions (mm)**	**Pack Size**	**Mfg Part #**	**Item #**
PP Short Thread Micro-Vial, transparent	0.7	32 x 11.6	10 x 100	STV12-04P	98702-91
PP Short Thread Micro-Vial, amber	0.3	32 x 11.6	10 x 100	STV12-03PA	98702-85
PP Short Thread Vial, transparent, with label and filling lines, slightly concave shaped inner bottom	1.5	32 x 11.6	10 x 100	STV12-02P	98702-76

Micro-Inserts for 9 mm Vials					
Description	**Volume (mL)**	**Dimensions (mm)**	**Pack Size**	**Mfg Part #**	**Item #**
Clear glass, conical bottom, 15 mm taper	0.1	31 x 6	10 x 100	INWC-01	98700-93
Clear glass, conical bottom, 15 mm taper (silanized)	0.1	31 x 6	10 x 100	INWC-01Z	98700-96
Clear glass, conical bottom, 12 mm taper	0.1	31 x 6	10 x 100	INWC-02	98700-97
Clear glass, with polymer spring	0.1	29 x 6	10 x 100	INWC-01SP	98700-94
Clear glass, with polymer spring (silanized)	0.1	29 x 6	10 x 100	INWC-01SPZ	98700-95
Clear glass, flat bottom	0.2	31 x 6	10 x 100	INWF-01	98700-98

9 mm PP Short Thread Screw Seals, center hole, with septa					
Description	**Thickness (mm)**	**Hardness**	**Pack Size**	**Mfg Part #**	**Item #**
With transparent cap:					
PTFE	0.2	53° shore D	10 x 100	SCC09-01	98703-30
Natural Rubber/TEF	1.0	60° shore A	10 x 100	SCC09-02	98703-33
Silicone white/PTFE red	1.0	55° shore A	10 x 100	SCC09-04	98703-47
PTFE red/Silicone white/PTFE red	1.0	45° shore A	10 x 100	SCC09-03	98703-41
Silicone white/PTFE blue, slitted	1.0	55° shore A	10 x 100	SCC09-04S	98703-61
Silicone white/PTFE red, pre-cut (Y)	1.0	55° shore A	10 x 100	SCC09-04S(Y)	98703-62
With blue cap:					
PTFE	0.2	53° shore D	10 x 100	SCC09-01B	98703-31
Natural Rubber/TEF	1.0	60° shore A	10 x 100	SCC09-02B	98703-35
Red Rubber/PTFE beige (Agilent Quality)	1.0	45° shore A	10 x 100	SCC09-02BA	98703-36
Silicone white/PTFE red	1.0	55° shore A	10 x 100	SCC09-04B	98703-48
Silicone white/PTFE red, blue, closed top cap	1.0	55° shore A	10 x 100	SCC09-04BC	98703-50
PTFE red/Silicone white/PTFE red	1.0	45° shore A	10 x 100	SCC09-03B	98703-42
Silicone white/PTFE blue, slitted	1.0	55° shore A	10 x 100	SCC09-04BS	98703-53
Silicone white/PTFE red, pre-cut (Y)	1.0	55° shore A	10 x 100	SCC09-04S(Y)	98703-54

** available on request

9 mm Screw Seals, black or yellow caps available on request

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9 mm PP Short Thread Screw Seals, center hole, with septa (continued)					
Description	**Thickness (mm)**	**Hardness**	**Pack Size**	**Mfg Part #**	**Item #**
With red cap:					
Natural Rubber/TEF	1.0	60° shore A	10 x 100	SCC09-02R	98703-40
Silicone white/PTFE red	1.0	55° shore A	10 x 100	SCC09-04R	98703-59
PTFE red/Silicone white/PTFE red	1.0	45° shore A	10 x 100	SCC09-03R	98703-45
With green cap:					
Natural Rubber/TEF	1.0	60° shore A	10 x 100	SCC09-02G	98703-39
Silicone white/PTFE red	1.0	55° shore A	10 x 100	SCC09-04G	98703-57

9 mm UltraBond™ Seals, PP Short Thread Seals (cap + septa are bonded together)					
Description	**Thickness (mm)**	**Hardness**	**Pack Size**	**Mfg Part #**	**Item #**
Silicone white/PTFE red, black cap	1.3	45° shore A	10 x 100	SCC09-04U	98703-63
Silicone white/PTFE beige, blue cap	1.3	45° shore A	10 x 100	SCC09-04W	98703-64
Silicone white/PTFE beige, slitted, blue cap	1.3	45° shore A	10 x 100	SCC09-04WS	98703-65

Vial Racks for 1.5 mL Vials			
Description	**Pack Size**	**Mfg Part #**	**Item #**
Vial Rack Acrylic, 173 x 95 x 20mm, 50 hole with 12 mm diameter*	EACH	VR12-50	98702-52

*also suitable for conical vials

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Further Vial Racks are available on request

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9 mm Short Thread MS Cap			
Description	**Pack Size**	**Mfg Part #**	**Item #**
9 mm Short Thread MS Cap, one component closure	10 x 100	SCC09-06MS	98703-67

Short thread polypropylene caps fit short thread vials. Cap and septum form a one-piece unit using a bonding process without adhesives for contamination-free results. Pre-slit septa prevent vacuum forming inside the vial.

All MS applications require extremely clean vials and closures, as this method of analysis is very sensitive to any kind of contamination. Therefore it is common to only use silicone/PTFE septa in this field of chromatography as the purest available liner material. However, most end users still experience problems with even the highest grades of silicone/PTFE septa due to ghost peaks arising from volatile siloxanes. Various treatments of the septa can reduce the level of these volatiles, but not eliminate the basic problem. The MS cap was therefore developed as a one component 9 mm short thread cap that doesn't require a septa. This cap is inert and shows a similar chemical resistance to PTFE. Thus it can be used for sealing vials with all kinds of samples without loosing inertness. Furthermore the cap is made out of a special material that is pierceable with all common types of HPLC and GC needles, as it has a thinned penetration area with a diaphragm. Although it has no septa, evaporation tests have shown that it is liquid- and gas-tight. Each manufactured batch is LC/MS and GC/MS controlled and supplied with an appropriate certificate. The certificate states instrument, column and other method conditions being used for the test. Supplied with a certificate of cleanliness including batch.

Short Thread Smart Packs (Vials & Caps)			
Description	**Pack Size**	**Mfg Part #**	**Item #**
Screw Neck Vial 2 mL Clear + Natural Rubber/TEF Cap (STV12-02 + SCC09-02B)	10 x 100	KSP-STV-02	98701-24
Screw Neck Vial 2 mL Clear + Silicone/PTFE Cap (STV12-02 + SCC09-04B)	10 x 100	KSP-STV-04	98701-27
Screw Neck Vial 2 mL Clear + PTFE/Silicone/PTFE Cap (STV12-02 + SCC09-03B)	10 x 100	KSP-STV-03	98701-25
Screw Neck Vial 2 mL Clear + Silicone/PTFE Cap, slitted (STV12-02 + SCC09-04BS)	10 x 100	KSP-STV-04S	98701-29
Screw Neck Vial 2 mL Clear, Label + Natural Rubber/TEF Cap (STV12-02L + SCC09-02B)	10 x 100	KSP-STVL-02	98701-31
Screw Neck Vial 2 mL Clear, Label + Silicone/PTFE Cap (STV12-02L + SCC09-04B)	10 x 100	KSP-STVL-04	98701-34
Screw Neck Vial 2 mL Clear, Label + PTFE/Silicone/PTFE Cap (STV12-02L + SCC09-03B)	10 x 100	KSP-STVL-03	98701-33
Screw Neck Vial 2 mL Label + Silicone/PTFE Cap (STV12-02L + SCC09-04BS)	10 x 100	KSP-STVL-04S	98701-35
Screw Neck Vial 2 mL Amber Label + Natural Rubber/TEF Cap (STV12-02LA + SCC09-02B)	10 x 100	KSP-STVLA-02	98701-36
Screw Neck Vial 2 mL Amber Label + Silicone/PTFE Cap (STV12-02LA + SCC09-04B)	10 x 100	KSP-STVLA-04	98701-38
Screw Neck Vial 2 mL Amber Label + PTFE/Silicone/PTFE Cap (STV12-02LA + SCC09-03B)	10 x 100	KSP-STVLA-03	98701-37
Screw Neck Vial 2 mL Amber Label + Silicone/PTFE Cap, slitted (STV12-02LA + SCC09-04BS)	10 x 100	KSP-STVLA-04S	98701-40

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Any combination of 1.5 mL vials with a cap of choice can be supplied as a Smart Pack.

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10 mm Screw Neck Vials, Micro-Inserts and Seals

- Clear or amber with label and filling lines, available as 32 x 11.6 mm at a 1.5 mL volume
- Clear glass micro-inserts with tapered or flat bottoms eliminate dead volumes
- Conical bottom micro-insert with spring is available to minimize damage to the autosampler needle
- PP screw seals with a center hole and septa and PP screw caps without septa are available
- Septa are made from PTFE, rubber/PTFE and silicone/PTFE at defined thicknesses and hardnesses


SCV12-02


SCV12-02L


SCV12-02LA


INWC-01
INWC-01Z


INWC-02


INWC-01SP
INWC-01SPZ


INWF-01

10 mm Screw Neck Vials					
Description	**Volume (mL)**	**Dimensions (mm)**	**Pack Size**	**Mfg Part #**	**Item #**
Clear glass, wide opening	1.5	32 x 11.6	10 x 100	SCV12-02	98705-02
Clear glass, wide opening, label + filling lines	1.5	32 x 11.6	10 x 100	SCV12-02L	98705-03
Amber glass, wide opening, label + filling lines	1.5	32 x 11.6	10 x 100	SCV12-02LA	98705-04

Micro-Inserts for 10 mm Vials					
Description	**Volume (mL)**	**Dimensions (mm)**	**Pack Size**	**Mfg Part #**	**Item #**
Clear glass, conical bottom, 15 mm taper	0.1	31 x 6	10 x 100	INWC-01	98700-93
Clear glass, conical bottom, 15 mm taper (silanized)	0.1	31 x 6	10 x 100	INWC-01Z	98700-96
Clear glass, conical, 12 mm taper	0.1	31 x 6	10 x 100	INWC-02	98700-97
Clear glass, with polymer spring	0.1	31 x 6	10 x 100	INWC-01SP	98700-94
Clear glass, with polymer spring (silanized)	0.1	31 x 6	10 x 100	INWC-01SPZ	98700-95
Clear glass, flat bottom	0.2	31 x 6	10 x 100	INWF-01	98700-98

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10 mm PP Screw Seals, black, center hole, with septa					
Description	**Thickness (mm)**	**Hardness**	**Pack Size**	**Mfg Part #**	**Item #**
Natural Rubber/TEF	1.3	60° shore D	10 x 100	SCCSEP10-02	98704-02
Silicone white/PTFE red	1.3	45° shore A	10 x 100	SCCSEP10-04	98704-05
PTFE red/Silicone white/PTFE red	1.0	45° shore A	10 x 100	SCCSEP10-03	98704-04
Silicone white/PTFE blue, slitted	1.5	55° shore A	10 x 100	SCCSEP10-04S	98704-06

10 mm PP Screw Caps, without septa					
Description	**Thickness (mm)**	**Material**	**Pack Size**	**Mfg Part #**	**Item #**
Black, with center hole	-	PP	10 x 100	SCC10-B	98703-73
Black, without center hole	-	PP	10 x 100	SCC10-BC	98703-74

10 mm Septa for Screw Caps					
Description	**Thickness (mm)**	**Hardness**	**Pack Size**	**Mfg Part #**	**Item #**
PTFE (only unassembled)	0.25	53° shore D	10 x 100	SEP10-01	98705-89
Natural Rubber/PTFE	1.3	60° shore A	10 x 100	SEP10-02	98705-90

Vial Racks for 1.5 mL Vials			
Description	**Pack Size**	**Mfg Part #**	**Item #**
Vial Rack Acrylic, 173 x 95 x 20 mm, 50 hole with 12 mm diameter*	EACH	VR12-50	98702-52

*also suitable for conical vials

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13 mm Screw Neck Vials, Micro-Inserts and Seals

- Clear or amber with label and filling lines, available as 45 x 14.75 mm, at a 4.0 mL volume
- Clear glass conical bottom micro-insert and compatible metal spring design to minimize needle damage
- PP screw seals with a center hole and septa and PP screw caps without septa are available
- Septa are made from PTFE, rubber/TEF, silicone/PTFE at defined thicknesses and hardnesses

SCV15-01 | SCV15-01L | SCV15-01A | SCV15-01LA | INC48-01+ SPR13-01

13 mm Screw Neck Vials					
Description	**Volume (mL)**	**Dimensions (mm)**	**Pack Size**	**Mfg Part #**	**Item #**
Clear glass	4.0	45 x 14.75	10 x 100	SCV15-01	98705-09
Clear glass, label and filling lines	4.0	45 x 14.75	10 x 100	SCV15-01L	98705-13
Amber glass	4.0	45 x 14.75	10 x 100	SCV15-01A	98705-10
Amber glass, label and filling lines	4.0	45 x 14.75	10 x 100	SCV15-01LA	98705-14

Micro-Insert for 13 mm Vials					
Description	**Volume (mL)**	**Dimensions (mm)**	**Pack Size**	**Mfg Part #**	**Item #**
Clear glass, conical bottom (spring required)	0.3	40 x 6.0	10 x 100	INC48-01	98700-83
Metal spring for Micro-Insert INC48-01	-	50 x 7.5	10 x 100	SPR13-01	98701-02

13 mm PP Screw Caps, black, center hole, with septa					
Description	**Thickness (mm)**	**Hardness**	**Pack Size**	**Mfg Part #**	**Item #**
Natural Rubber/TEF	1.3	60° shore A	10 x 100	SCCSEP13-02	98704-09
Silicone cream/PTFE red	1.5	55° shore A	10 x 100	SCCSEP13-04	98704-11
Silicone white/PTFE blue, cross-slitted	1.5	55° shore A	10 x 100	SCCSEP13-07	98704-14

Any combination of 1.5 mL vials with a cap of choice can be supplied as a Smart Pack.

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13 mm Screw Caps, without septa					
Description	**Thickness (mm)**	**Material**	**Pack Size**	**Mfg Part #**	**Item #**
Black, center hole	-	PP	10 x 100	SCC13-B	98703-78
Black, closed top	-	PP	10 x 100	SCC13-BC	98703-79

13 mm Septa for Screw Caps					
Description	**Thickness (mm)**	**Hardness**	**Pack Size**	**Mfg Part #**	**Item #**
PTFE (only unassembled)	0.25	53° shore A	10 x 100	SEP13-01	98705-98
Natural Rubber/TEF	1.3	60° shore A	10 x 100	SEP13-02	98705-99
Silicone cream/PTFE red	1.5	55° shore A	10 x 100	SEP13-04	98706-01
Silicone white/PTFE blue, cross-slitted	1.5	55° shore A	10 x 100	SEP12-04S	98705-97
PTFE red/Silicone white/PTFE red	1.0	45° shore A	10 x 100	SEP13-03	98706-00

Vial Rack for 4mL Vials			
Description	**Pack Size**	**Mfg Part #**	**Item #**
Vial Rack Acrylic, 175.8 x 115.5 x 20 mm, 40 hole with 15.1 mm diameter	EACH	VR15-40	98702-54

Further Screw Seals 13 mm with either open top or closed top screw cap are available on request

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Snap Ring Vials

Snap ring vials have two glass rings at the neck of the vial that allow the use of a plastic snap cap or aluminum seal. They are an ideal vial/closure system for HPLC applications, and are compatible with most autosamplers, including those with robotic handling.

11 mm Snap Ring Vials, Micro-Inserts and Seals

- 11 mm clear and amber glass snap ring vials with a flat bottom. Also available is a limited volume glass vial for total recovery. Vials are either silanized or standard.
- 11 mm transparent and amber vials and micro-vials. TPX vials with a glass micro-insert with a 12–15 mm taper or flat-bottom are offered to enable handling of small volumes, while eliminating dead volume.
- Snap ring seals with center hole and septa are offered in a variety of colors, thicknesses, hardnesses, and materials. PE push-on caps are also supplied for non-critical analysis.

SNV12-02

SNV12-02L

SNV12-02LA

SNV12-11

SNV12-03TS
SNV12-03TSZ

SNV12-03TSA
SNV12-03TSAZ

CRV12-03P
SNV12-03T

CRV12-03PA

SNV12-04P

INWC-01
INWC-01Z

INWC-02

INWC-01SP
INWC-01PZ

INWF-01

11 mm Snap Ring Vials					
Description	**Volume (mL)**	**Dimensions (mm)**	**Pack Size**	**Mfg Part #**	**Item #**
Clear glass, wide opening	1.5	32 x 11.6	10 x 100	SNV12-02	98705-16
Clear glass, wide opening, label and filling lines	1.5	32 x 11.6	10 x 100	SNV12-02L	98705-17
Amber glass, wide opening, label and filling lines	1.5	32 x 11.6	10 x 100	SNV12-02LA	98705-18
Total Microliter Snap Ring Vial	0.9	32 x 11.6	10 x 100	SNV12-11	98705-34
TopSert TPX Vial transparent, with integrated glass Micro-Insert	0.2	32 x 11.6	10 x 100	SNV12-03TS	98705-25
TopSert TPX Vial transparent, with integrated glass Micro-Insert (silanized)	0.2	32 x 11.6	10 x 100	SNV12-03TSZ	98705-28
TopSert TPX Vial, amber, with integrated glass Micro-Insert	0.2	32 x 11.6	10 x 100	SNV12-03TSA	98705-26
TopSert TPX Vial, amber, with integrated glass Micro-Insert (silanized)	0.2	32 x 11.6	10 x 100	SNV12-03TSAZ	98705-27
PP Snap Ring Micro-Vial, transparent	0.3	32 x 11.6	10 x 100	CRV12-03P	98706-64
TPX PP Snap Ring Micro-Vial, transparent	0.3	32 x 11.6	10 x 100	SNV12-03T	98705-24
PP Snap Ring Micro-Vial, amber	0.3	32 x 11.6	10 x 100	CRV12-03PA	98706-65
PP Snap Ring Micro-Vial, transparent	0.7	32 x 11.6	10 x 100	SNV12-04P	98705-29

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Micro-Inserts for 11 mm Vials					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Clear glass, conical bottom, 15 mm taper	0.1	31 x 6	10 x 100	INWC-01	98700-93
Clear glass, conical bottom, 15 mm taper (silanized)	0.1	31 x 6	10 x 100	INWC-01Z	98700-96
Clear glass, conical bottom, 12 mm taper	0.1	31 x 6	10 x 100	INWC-02	98700-97
Clear glass with polymer spring	0.1	29 x 6	10 x 100	INWC-01SP	98700-94
Clear glass with polymer spring (silanized)	0.1	29 x 6	10 x 100	INWC-01SPZ	98700-95
Clear glass, flat bottom	0.2	31 x 6	10 x 100	INWF-01	98700-98

Vial Racks for 1.5 mL Vials			
Description	Pack Size	Mfg Part #	Item #
Vial Rack Acrylic, 173 x 95 x 20 mm, 50 hole with 12 mm diameter*	EACH	VR12-50	98702-52

*also suitable for conical vials

11 mm PE Snap Ring Seals, center hole, with septa							
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part # (Hard Cap)	Item # (Hard Cap)	Mfg Part # (Soft PE Cap)	Item # (Soft PE Cap)
With transparent cap:							
Natural Rubber/TEF	1.0	60° shore A	10 x 100	SNC11-02	98706-34	—	—
Silicone white/PTFE red	1.3	45° shore A	10 x 100	SNC11-04	98706-43	SNC11-04S	98706-48
Silicone white/PTFE blue, cross-slitted	1.0	55° shore A	10 x 100	SNC11-07	98706-57	SNC11-07S	98706-59
With blue cap:							
Natural Rubber/TEF	1.0	60° shore A	10 x 100	SNC11-02B	98706-36	SNC11-02BS	98706-37
Red Rubber/PTFE beige (Agilent Quality)	1.0	45° shore A	10 x 100	—	—	SNC11-02BSA	98706-38
Silicone white/PTFE red	1.3	45° shore A	10 x 100	SNC11-04B	98706-45	SNC11-04BS	98706-46
PTFE red/Silicone white/PTFE red	1.0	45° shore A	10 x 100	SNC11-03B	98706-41	—	—
Silicone white/PTFE blue, cross-slitted	1.0	55° shore A	10 x 100	SNC11-07B	98706-58	SNC11-07BS	98706-58
With red cap:							
Natural Rubber/TEF	1.0	60° shore A	10 x 100	SNC11-02R	98706-39	—	—
Silicone white/PTFE red	1.3	45° shore A	10 x 100	SNC11-04R	98706-47	—	—
PTFE red/Silicone white/PTFE red	1.0	45° shore A	10 x 100	SNC11-03R	98706-42	—	—
Silicone white/PTFE blue, cross-slitted	1.0	55° shore A	10 x 100	SNC11-07R	—	—	—

11mm PE Snap Ring Seals, black or yellow caps available on request

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Smart Packs (Vials & Caps)			
Description	Pack Size	Mfg Part #	Item #
Snap Ring Vial 2 mL Clear + Natural Rubber/TEF Cap (SNV12-02 + SNC11-02)	10 x 100	KSP-SNV-02	98701-43
Snap Ring Vial 2 mL Clear + PTFE/Silicone/PTFE Cap (SNV12-02 + SNC11-03)	10 x 100	KSP-SNV-03	98701-44
Snap Ring Vial 2 mL Clear + Silicone/PTFE Cap (SNV12-02 + SNC11-04)	10 x 100	KSP-SNV-04	98701-45
Snap Ring Vial 2 mL Clear + Silicone/PTFE Cap, slitted (SNV12-02 + SNC11-07)	10 x 100	KSP-SNV-04S	98701-46
Snap Ring Vial 2 mL Clear, Label + Natural Rubber/TEF Cap (SNV12-02L + SNC11-02)	10 x 100	KSP-SNVL-02	98701-47
Snap Ring Vial 2 mL Clear, Label + PTFE/Silicone/PTFE Cap (SNV12-02L + SNC11-03)	10 x 100	KSP-SNVL-03	98701-48
Snap Ring Vial 2 mL Clear, Label + Silicone/PTFE Cap, slitted (SNV12-02L + SNC11-07)	10 x 100	KSP-SNVL-04S	98701-50
Snap Ring Vial 2ml, Amber, Label + Natural Rubber/TEF Cap (SNV12-02LA + SNC11-02)	10 x 100	KSP-SNVLA-02	98701-51
Snap Ring Vial 2ml, Amber, Label + PTFE/Silicone/PTFE Cap (SNV12-02LA + SNC11-03)	10 x 100	KSP-SNVLA-03	98701-52
Snap Ring Vial 2ml, Amber, Label + Silicone/PTFE Cap (SNV12-02LA + SNC11-04)	10 x 100	KSP-SNVLA-04	98701-53
Snap Ring Vial 2ml, Amber, Label + Silicone/PTFE Cap, slitted (SNV12-02LA + SNC11-07)	10 x 100	KSP-SNVLA-04S	98701-54

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Shell Vials

Shell vials are economical, neckless vials with inserts to handle small volumes and eliminate dead volume, and PE plugs that give a tight seal, yet are easy to insert or remove. These vials are ideal for routine HPLC applications while being designed for safe handling and for convenience of use in mind.

1.2 mL, 2 mL and 4 mL Shell Vials, Micro-Inserts and Seals

- Clear and amber glass shell vials with soft and hard PE plugs, in a variety of volumes and sizes
- Clear glass, conical bottom micro-inserts for use with specified glass 1 mL, 2 mL and 4 mL shell vials
- Clear PP shell vials with PE plugs
- Micro-insert options are available for PP shell vials if a filling line, assembled plastic spring, or a flat bottom is required

SV1PC08-02 | SV1PC08-03 SV1PC08-01* | SV1PC08-03A SV1PC08-01A* | SV2PC12-01 | SV4PC15-01 | SV4PC15-01A

SV1PC08-01P | SV3PC15-01P | SV4PC15-01P | INC-01P | INC-01PS | INF-01P

Shell Vials with PE Plugs

Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Clear glass, with PE Plug, transparent	1.0	35 x 7.8	10 x 100	SV1PC08-02	98702-41
Clear glass, with PE Plug soft, transparent	1.0	40 x 8	10 x 100	SV1PC08-03	98702-42
Amber glass, with PE Plug, transparent	1.0	40 x 8	10 x 100	SV1PC08-03A	98702-43
Clear glass, with PE Plug hard, transparent*	1.0	40 x 8	10 x 100	SV1PC08-01	98702-38
Amber glass, with PE Plug hard, transparent*	1.0	40 x 8	10 x 100	SV1PC08-01A	98702-39
Clear glass with PE Plug, transparent	2.0	31.5 x 11.6	10 x 100	SV2PC12-01	98702-45
Clear glass with PE Plug, transparent	4.0	44.6 x 14.65	10 x 100	SV4PC15-01	98702-48
Amber glass with PE Plug, transparent	4.0	44.6 x 14.65	10 x 100	SV4PC15-01A	98702-49

* only to be used in conjunction with micro-insert INC96-01

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Micro-Inserts for Shell Vials					
Description	**Volume (mL)**	**Dimensions (mm)**	**Pack Size**	**Mfg Part #**	**Item #**
Clear glass, conical bottom (for 1 mL Shell Vial SV1PC08-01 + SV1PC08-01A)	0.1	34 x 5	10 x 100	INC96-01	98700-84
Clear glass, conical bottom (for 2 mL Shell Vial SV2PC12-01 + SV2PC12-01A)	0.1	31 x 6	10 x 100	INWC-01	98700-93

Shell Vials PP with PE Plugs					
Description	**Volume (mL)**	**Dimensions (mm)**	**Pack Size**	**Mfg Part #**	**Item #**
PP Shell Vial, clear 8 mm PE Plug, transparent	1.0	40 x 8	10 x 100	SV1PC08-01P	98702-40
PP Shell Vial, clear, with inner cone 15 mm PE Plug, transparent	3.0	44.6 x 14.65	10 x 100	SV3PC15-01P	98702-46
PP Shell Vial, clear 15 mm PE Plug, transparent	4.0	44.6 x 14.65	10 x 100	SV4PC15-01P	98702-50
PP Micro-Insert, clear, 10 mm top, with filling line	0.1	29 x 6	10 x 100	INC-01P	98700-81
PP Micro-Insert, clear, 10 mm top, with filling line and assembled plastic spring	0.1	29 x 6	10 x 100	INC-01PS	98700-82
PP Micro-Insert, clear, flat bottom	0.2	31 x 6	10 x 100	INF-01P	98700-85

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Plastic Vials

Polypropylene (PP) vials and micro-vials are available as a good alternative for samples where glass is not appropriate; as with samples that adhere to glass. These limited volume vials are excellent for handling small volumes while delivering low residual volume.

9 mm Plastic Vials, 9 mm and 11 mm Plastic Micro-Vials

- 9 mm vials are available in transparent or amber plastic with filling lines and a slightly concave shaped inner bottom
- 9 mm and 11 mm TopSert TPX or standard short thread and snap ring micro-vials are available in transparent, crystal clear or amber plastic
- Micro-vials come with a fused insert to eliminate dead volumes
- TPX polymethylpentane vials are compatible with many solvents and are an excellent choice when working with proteins

STV12-04P | SNV12-02P | STV12-02P | STV12-03P, STV12-03PA | CRV12-03P, CRV12-03PA | STV12-03T | SNV12-03T

Plastic Vials 9 mm and Plastic Micro-Vials 9 and 11 mm					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
PP Short Thread Vial, transparent, with filling lines, slightly concave shaped inner bottom	1.5	32 x 11.6	10 x 100	STV12-02P	98702-76
PP Short Thread Micro-Vial, transparent	0.7	32 x 11.6	10 x 100	STV12-04P	98702-91
PP Snap Ring Micro-Vial, transparent	0.7	32 x 11.6	10 x 100	SNV12-04P	98705-29
PP Short Thread Micro-Vial, transparent	0.3	32 x 11.6	10 x 100	STV12-03P	98702-84
PP Short Thread Micro-Vial, amber	0.3	32 x 11.6	10 x 100	STV12-03PA	98702-85
PP Snap Ring Micro-Vial, transparent	0.3	32 x 11.6	10 x 100	CRV12-03P	98706-64
PP Snap Ring Micro-Vial, amber	0.3	32 x 11.6	10 x 100	CRV12-03PA	98706-65
TopSert TPX Short Thread Micro-Vial, crystal clear	0.3	32 x 11.6	10 x 100	STV12-03T	98702-86
TopSert TPX Snap Ring Micro-Vial, crystal clear	0.3	32 x 11.6	10 x 100	SNV12-03T	98705-24

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Headspace Vials

We offer a range of high-quality headspace vials, seals, caps, and septa which are designed to be compatible with automated headspace analyzers. They are constructed from clear and amber glass and suit a variety of volume needs. Septa are available in a range of materials which allows needle life to be maximized, while caps ensure a tight seal.

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Headspace Vials & Seals

Our headspace vials are designed to ensure full automation compatibility for headspace analyzers, for both handling and needle positioning. Crimp and screw caps are available with various septa materials.

- Clear and amber glass, crimp neck and precision thread headspace vials to suit a range of volume needs, with rounded or flat bottoms.
- Aluminum crimp seals, headspace crimp seals, magnetic crimp caps, magnetic bimetal caps, PE caps, and PP caps, with a variety of septa, are available.
- Septa and stoppers are offered in a mixture of materials, including Butyl, Butyl/PTFE, and silicone/PTFE, at hardnesses and thicknesses that suit a range of applications.
- SPME vials with a special crimp neck and complementary magnetic crimp seals are also available. The neck helps to maintain a tighter seal, while the thin septa allows the life of the needle to be extended.

20 mm Headspace Vials					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Clear glass, crimp neck, flat bottom (Varian)	5.0	38 x 20	10 x 100	CRV05-02	98700-23
Clear glass, crimp neck, flat bottom (Varian)	10	54.5 x 20	10 x 100	CRV10-03	98700-27
Clear glass, crimp neck, flat bottom	50	101 x 31	10 x 100	CRV50-01	98700-35
Clear glass, rounded bottom screw 18 mm (Perkin Elmer)	20	75.5 x 23	10 x 100	SCV20-01	98700-36
Amber glass, DIN crimp neck, rounded bottom (Carlo Erba, CTC, Fisons, Varian (CP))	10	46 x 22.5	10 x 100	CRV10-02A	98700-26
Clear glass, DIN crimp neck, flat bottom, long neck (Carlo Erba, Dani, Fisons and Agilent)	10	46 x 22.5	10 x 100	CRV10-01	98700-24
Clear glass, crimp neck, rounded bottom (Perkin Elmer and Tekmar®)	20	75.5 x 23	10 x 100	CRV20-01	98700-28
Amber glass, crimp neck, rounded bottom (Perkin Elmer and Tekmar)	20	75.5 x 23	10 x 100	CRV20-01A	98700-29
Clear glass, crimp neck, rounded bottom, with label and filling lines (Perkin Elmer and Tekmar)	20	75.5 x 23	10 x 100	CRV20-01L	98700-34
Clear glass, DIN crimp neck, flat bottom, long neck (Carlo Erba, Dani, Fisons and Agilent)	20	75.5 x 22.5	10 x 100	CRV20-01H	98700-33

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20 mm Headspace Vials (continued)					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Clear glass, DIN crimp neck, rounded bottom, (CTC PAL Varian, Gerstel, Atas, Shimadzu and TriPlusHS™)	20	75.5 x 22.5	10 x 100	CRV20-01C	98700-30
Amber glass, DIN crimp neck, rounded bottom (CTC PAL Varian, Gerstel, Atas, Shimadzu and TriPlusHS)	20	75.5 x 22.5	10 x 100	CRV20-01CA	98700-31

20 mm Aluminum Headspace Crimp Caps, center hole, with septa					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Moulded Septa Butyl, dark grey	3.0	55° shore A	10 x 100	CRC20-08	98704-84
Butyl/PTFE grey	3.0	50° shore A	10 x 100	CRC20-09P	98704-92
Pharma-Fix Septa Butyl/PTFE	3.0	50° shore A	10 x 100	CRC20-02PH	98704-65
Silicone blue transparent/PTFE white	3.0	45° shore A	10 x 100	CRC20-04B	98704-69
Silicone white/PTFE beige	3.25	45° shore A	10 x 100	CRC20-04	98704-67
Silicone white/PTFE beige (Agilent HT Quality)	3.25	45° shore A	10 x 100	CRC20-04A	98704-68
Silicone white/Aluminum foil silver	3.0	50° shore A	10 x 100	CRC20-11P	98704-94

20 mm Aluminum Headspace Crimp Caps (pressure release caps), with septa					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Butyl/PTFE grey	3.0	50° shore A	10 x 100	CRC20-09	98700-20
Pharma-Fix Septa Butyl/PTFE	3.0	50° shore A	10 x 100	CRC20-02HPH	98700-15
Silicone blue transparent/PTFE white	3.0	45° shore A	10 x 100	CRC20-04BH	98700-18
Silicone white/PTFE beige (Agilent HT Quality)	3.25	45° shore A	10 x 100	CRC20-04AH	98700-16
Silicone white/Aluminum foil silver	3.0	50° shore A	10 x 100	CRC20-11	98700-21

Crimp Seal and Stopper					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Aluminum Crimp Cap, 20 mm, center hole and Butyl Stopper, grey	-	-	10 x 100 + 10 x 100	CRC20-0P + SEP20-02IS	98704-93 + 98706-13

Further seals with center tear off caps, complete tear off caps and colored caps are also available on request

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20 mm Magnetic Crimp Caps, 8 mm hole, with Septa for CTC PAL, Agilent Combi PAL, Varian, Gerstel, Atas and Shimadzu AOC5000					
Description	**Thickness (mm)**	**Hardness**	**Pack Size**	**Mfg Part #**	**Item #**
Butyl/PTFE grey	3.0	50° shore A	10 x 100	CRC20-09MW	98704-90
Pharma-Fix Septa Butyl/PTFE	3.0	50° shore A	10 x 100	CRC20-09MWP	98704-91
Silicone blue transparent/PTFE transparent	3.0	45° shore A	10 x 100	CRC20-04MW	98704-81

20 mm Magnetic Bimetal Cap, 8 mm hole, with Septa for CTC PAL, Agilent Combi PAL, Varian, Gerstel, Atas and Shimadzu AOC5000					
Description	**Thickness (mm)**	**Hardness**	**Pack Size**	**Mfg Part #**	**Item #**
Silicone blue transparent/PTFE transparent	3.0	45° shore A	10 x 100	CRC20-04BMW	98704-71
Butyl/PTFE grey	3.0	50° shore A	10 x 100	CRC20-09BM	98704-86

22 x 9.2 mm PE Caps, with septa for DIN Crimp Neck					
Description	**Thickness (mm)**	**Hardness**	**Pack Size**	**Mfg Part #**	**Item #**
Silicone blue transparent/PTFE white	1.3	45° shore A	10 x 100	SNC22-04B	98706-61
Cap with 6 mm center hole, Silicone blue transparent/PTFE white, Y-slitted	1.3	45° shore A	10 x 100	SNC22-04BS	98706-62

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20 mm Septa and Stoppers for Crimp Caps						
	Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
	Moulded Septa Butyl, dark grey	3.0	55° shore A	10 x 100	SEP20-08	98706-18
	Moulded Septa Butyl/PTFE, grey	3.0	50° shore A	10 x 100	SEP20-09	98706-19
	Pharma-Fix Septa Butyl/PTFE, grey	3.0	50° shore A	10 x 100	SEP20-02PH	98706-15
	Silicone Septa blue transparent/PTFE white	3.0	45° shore A	10 x 100	SEP20-04T	98706-17
	Silicone Septa white/PTFE beige, 45° shore A, 3.25 mm (Agilent HT Quality)	3.25	45° shore A	10 x 100	SEP20-04	98706-16
	20 mm Butyl Injection Stopper, grey (recommended by Perkin Elmer)	-	-	10 x 100	SEP20-02IS	98706-13

18 mm PP Screw Seals, with septa for Headspace Vial (SCV20-01)					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Butyl red/PTFE grey, 12 mm hole	1.6	55° shore A	10 x 100	SCCSEP18-02	98706-71
Silicone blue transparent/PTFE white, 12 mm hole	1.7	45° shore A	10 x 100	SCCSEP18-04	98706-72
Silicone blue transparent/PTFE white, closed top	1.7	45° shore A	10 x 100	SCCSEP18-04C	98706-73

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Precision Thread Headspace Vials & Seals

for CTC Combi PAL, Agilent, Gerstel, Varian, Shimadzu AOC-5000 and Perkin Elmer TurboMatrix™ 40 & 110

As magnetic caps are fairly hard to crimp, screw neck vials (10 and 20 mL) and magnetic screw seals have been developed for the CTC instruments. Each vial features a precision thread with multiple screw turns which forces the septa against the vial to form a gas-tight seal. The screw thread guarantees the cap fits with a flat surface every time which ensures that the vial does not drop off the system magnet. Old methods of crimping the vials can result in transportation problems caused by deformed cap surfaces.

- The center hole is designed to be suitable for both SPME as well as for standard headspace analysis, while still offering enough surface for the magnet to transport a completely filled vial
- The thinner septa allows the needle to penetrate easily and safely with less particulates being generated than with the 3 mm thick headspace septa
- Once the analysis is complete, screw caps offer a more convenient method of separating the vial and seal for waste disposal purposes. A closed top screw cap is also available for sample storage
- As crimping always involves the risk of incorrectly or inconsistently sealed vials, precision thread headspace vials are the prefered method for a more reliable and reproducible seal.

SCV10-01
SCV10-01A

SCV20-02
SCV20-02A

18 mm Precision Thread Headspace Vials					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Precision Thread Headspace Vials, clear glass	10	46 x 22.5	10 x 100	SCV10-01	98704-96
Precision Thread Headspace Vials, amber glass	10	46 x 22.5	10 x 100	SCV10-01A	98704-97
Precision Thread Headspace Vials, clear glass	20	75.5 x 22.5	10 x 100	SCV20-02	98700-37
Precision Thread Headspace Vials, amber glass	20	75.5 x 22.5	10 x 100	SCV20-02A	98700-38

18 mm Magnetic Universal Screw Seals, with septa					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Silicone blue/PTFE white	1.5	55° shore A	10 x 100	SCCSEP18-04BM	98706-74
Silicone blue transparent/PTFE white	1.3	45° shore A	10 x 100	SCCSEP18-04TBM	98706-78
Silicone white/PTFE red	1.3	45° shore A	10 x 100	SCCSEP18-04M	98706-75
Silicone white/PTFE red (closed top screw cap)	1.3	45° shore A	10 x 100	SCCSEP18-04MC	98706-76
Butyl red/PTFE grey*	1.6	55° shore A	10 x 100	SCCSEP18-09M	98706-80

*Not recommended by CTC

18 mm Septa for Magnetic Universal Screw Seals					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Silicone blue/PTFE white	1.5	55° shore A	10 x 100	SEP18-04B	98706-72
Silicone blue transparent/PTFE white	1.3	45° shore A	10 x 100	SEP18-04TB	98706-78

Headspace Crimp Neck Vials and Seals

for CTC Combi PAL, Agilent Combi PAL, Gerstel, Varian and Shimadzu AOC-5000

CRV10-02
CRV10-02A

CRV20-01C
CRV20-01CA

CRV20-01S
(for SPME)

20 mm Headspace Vials Crimp Neck					
Description	**Volume (mL)**	**Dimensions (mm)**	**Pack Size**	**Mfg Part #**	**Item #**
Clear glass, DIN crimp neck, rounded bottom	10	46 x 22.5	10 x 100	CRV10-02	98700-25
Amber glass, DIN crimp neck, rounded bottom	10	46 x 22.5	10 x 100	CRV10-02A	98700-26
Clear glass, DIN crimp neck, rounded bottom	20	75.5 x 22.5	10 x 100	CRV20-01C	98700-30
Amber glass, DIN crimp neck, rounded bottom	20	75.5 x 22.5	10 x 100	CRV20-01CA	98700-31

20 mm Magnetic Crimp Seals, 8 mm center hole, with septa					
Description	**Thickness (mm)**	**Hardness**	**Pack Size**	**Mfg Part #**	**Item #**
Butyl/PTFE, grey	3.0	50° shore A	10 x 100	CRC20-09MW	98704-90
Pharma-Fix Septa Butyl/PTFE	3.0	50° shore A	10 x 100	CRC20-09MWP	98704-91
Silicone blue transparent/PTFE transparent	3.0	45° shore A	10 x 100	CRC20-04MW	98704-81

20 mm Bimetal Crimp Seals, red lacquered, center hole, with septa					
Description	**Thickness (mm)**	**Hardness**	**Pack Size**	**Mfg Part #**	**Item #**
Silicone blue transparent/PTFE transparent	3.0	45° shore A	10 x 100	CRC20-04BMW	98704-71
Butyl/PTFE, grey	3.0	50° shore A	10 x 100	CRC20-09BM	98704-86

20 mm SPME Vial with special Crimp Neck					
Description	**Volume (mL)**	**Dimensions (mm)**	**Pack Size**	**Mfg Part #**	**Item #**
Clear glass, especially thick crimp neck, rounded bottom	20	75.5 x 22.5	10 x 100	CRV20-01S	98705-74

5 mm center hole available for Vial Crimp Neck on request

Further Vial Racks are available on request

20 mm Magnetic Crimp Seals for SPME Vial (CRV20-01S), with septa					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Silicone white/PTFE blue	1.5	55° shore A	10 x 100	CRC20-04BMS	98704-70
Viton, black	1.0	70° shore A	10 x 100	CRC20-07M	98704-83

Crimper and Decapper for 20mm Crimp Caps			
Description	Pack Size	Mfg Part #	Item #
Crimper for 20 mm Crimp Caps	EACH	CRT-20	98706-81
Decapper for 20 mm Crimp Caps	EACH	DCT-20	98706-82

22 x9.2 mm PE Caps, with septa for Headspace Vials with DIN Crimp Neck					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Silicone blue transparent/PTFE white	1.3	45° shore A	10 x 100	SNC22-04B	98706-61
Cap with 6 mm center hole, Silicone blue transparent/PTFE white, Y-slitted	1.3	45° shore A	10 x 100	SNC22-04BS	98706-62

98702-55

Vial Racks for Headspace Vials			
Description	Pack Size	Mfg Part #	Item #
Vial Rack Acrylic, 160 x 160 x 30mm, 25 hole with 24 mm diameter	EACH	VR24-25	98702-55

5 mm center hole available for Magnetic Crimp Seals on request

Any combination of 20 mL vial with a cap of choice can be supplied as a Smart Pack.

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EPA & Storage Vials

We offer a range of EPA and storage vials. Our pre-assembled and pre-cleaned EPA screw neck vials meet EPA requirements for environmental testing due to their inert construction and cleanliness. We also provide storage vials and seals that are ideal for environmental, food, and pharma applications, as well as high-quality glass snap cap vials with tight fitting plastic caps that can be snapped on and off by hand.

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EPA Screw Neck Vials

These vials meet EPA requirements for testing environmental contaminants, by being made of chemically inert glass, and being free of substances that might influence sample analysis. Select from standard EPA vials, vials with a certificate of cleanliness, pre-assembled vials with caps, or pre-cleaned and pre-assembled vials with caps.

24 mm EPA Screw Neck Vials and Seals

- 24 mm clear and amber EPA screw neck vials, capable of handling 20–60 mL samples
- UltraBond Screw Seals are constructed as a one-peice cap and septa unit, which offers contamination-free results
- PP screw seals and caps are also available, assembled with septa or without septa
- Septa are silicone/PTFE and Butyl/PTFE and come in various thicknesses and hardnesses
- Pre-assembled vial and closure combinations can also be supplied to further reduce contamination risk for sensitive analysis (e.g trace analysis, TOC/VOC)
- Pre-sealing is undertaken in strict hygienic conditions

EPA30A

EPA60A

EPA Screw Neck Vials 24 mm					
Description	Volume (mL)	Dimensions (mm)	Pack Size	Mfg Part #	Item #
Amber glass	30	72.5 x 27.5	10 x 100	EPA30A	98700-50
Amber glass	50	140 x 27.5	10 x 100	EPA60A	98700-63

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24 mm UltraBond Screw Seals (cap + septa bonded together)					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Silicone white/PTFE beige, center hole	3.2	45° shore A	10 x 100	SCCSEP24-04EPAO	98700-74
Silicone white/PTFE beige, with closed cap	3.2	45° shore A	10 x 100	SCCSEP24-04EPAC	98700-73

24 mm PP Screw Seals, white, with septa (assembled)					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Silicone white/PTFE beige, center hole cap	3.2	45° shore A	10 x 100	SCCSEP24-04	98700-71
Silicone white/PTFE beige, closed top cap	3.2	45° shore A	10 x 100	SCCSEP24-04C	98704-21
Butyl red/PTFE grey, center hole cap	2.5	55° shore A	10 x 100	SCCSEP24-02	98704-19
Butyl red/PTFE grey, closed top cap	2.5	55° shore A	10 x 100	SCCSEP24-02C	98704-20

24 mm PP Screw Caps, without septa					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
White, center hole	-	PP	10 x 100	SCC24-0	98703-86
White, closed top	-	PP	10 x 100	SCC24-C	98703-87

24 mm Septa for Screw Caps					
Description	Thickness (mm)	Hardness	Pack Size	Mfg Part #	Item #
Silicone natural/PTFE beige (EPA Quality)	3.2	45° shore A	1000	SEP22-04EPA	98700-75
Silicone white/PTFE blue, cross-slitted	1.5	55° shore A	1000	SEP22-04S	98706-20

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Storage Vials & Seals

Our storage vials and seals are ideal for maintaining the pH of your samples throughout its life in storage, while eliminating the incidence of ions leaching. These vials and seals can be used in environmental, food, and pharmaceutical applications.

Storage Vials & Seals

- A range of sample storage and collection vials and natural rubber, butyl, PTFE and silicone seals to meet a range of applications
- Vials are composed of high quality 1st hydrolytic class glass, and are either clear or amber in color to protect light sensitive samples
- Ultrabond caps are availble (septa and cap are fused) to prevent sample evaporation and contamination
- Seals ensure that septa are not deformed due to overtightening and have the added benefit of extending needle life

Screw Neck Vials and Seals for Sample Storage					
Vials/Closed Top Screw Caps	Volume (mL) / Thickness (mm)	Dimension (mm) / Hardness	Pack Size	Mfg Part #	Item #
Clear glass	2.0 mL	32 x 11.6	10 x 100	SCV12-01	98704-98
Amber glass	2.0 mL	32 x 11.6	10 x 100	SCV12-01A	98704-99
Natural Rubber red orange/TEF, in closed top (8 mm), black	1.3 mm	60° shore A	10 x 100	SCC08-02C	98703-23
As above (Silicone white/PTFE red)	1.3 mm	45° shore A	10 x 100	SCC08-04C	98703-25
Clear glass	4.0 mL	45 x 14.7	10 x 100	SCV15-01	98705-09
Amber glass	4.0 mL	45 x 14.7	10 x 100	SCV15-01A	98705-10
Butyl red/PTFE grey, in closed top cap (13 mm), black	1.3 mm	55° shore A	10 x 100	SCC13425-02	98703-75
As above (Natural Rubber red-orange/TEF, transparent)	1.3 mm	60° shore A	10 x 100	SCC13425-09	98703-77
As above (Silicone white/PTFE red)	1.5 mm	55° shore A	10 x 100	SCC13425-04	98703-76
Clear glass	8.0 mL	61 x 16.6	10 x 100	SAV08-01	98702-22
Amber glass	8.0 mL	61 x 16.6	10 x 100	SAV08-01A	98702-23
Clear glass	12 mL	66 x 18.5	10 x 100	SAV12-01	98702-25
Amber glass	12 mL	66 x 18.5	10 x 100	SAV12-01A	98702-26
Butyl red/PTFE grey, in closed top cap (15 mm), black	1.6 mm	55° shore A	10 x 100	SCC15425-01	98703-80
As above (Natural Rubber red-orange/TEF, transparent)	1.3 mm	60° shore A	10 x 100	SCC15425-02	98703-81
As above (Silicone white/PTFE red)	1.3 mm	45° shore A	10 x 100	SCC15425-04	98703-82
Clear glass	16 mL	71 x 20.6	10 x 100	SAV16-01	98702-28
Butyl red/PTFE grey, in closed top cap (18 mm), black	1.3 mm	55° shore A	10 x 100	SCCSEP18-09C	98706-79
As above (Silicone blue transparent/PTFE white)	1.7 mm	45° shore A	10 x 100	SCCSEP18-04BC	98706-73
Butyl red/PTFE grey, in closed top cap (18 mm), black	1.3 mm	55° shore A	10 x 100	SCC20400-09C	98703-84
Amber glass	30 mL	72.5 x 27.5	10 x 100	EPA30A	98700-50

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Screw Neck Vials and Seals for Sample Storage (continued)					
Vials/Closed Top Screw Caps	**Volume (mL) / Thickness (mm)**	**Dimension (mm) / ° Shore A**	**Pack Size**	**Mfg Part #**	**Item #**
Amber glass	60 mL	140 x 27.5	10 x 100	EPA60A	98700-63
Butyl red/PTFE grey, in closed top cap (24 mm), white	2.5 mm	55° shore A	10 x 100	SCCSEP24-02C	98704-20
Butyl red/PTFE grey, in closed top cap (24 mm), white(Silicone natural/PTFE beige)	3.2 mm	45° shore A	10 x 100	SCCSEP24-04C	98704-21

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Snap Cap Vials

A perfect storage solution, these snap cap vials are composed of high-quality glass containers with tight fitting plastic caps. The caps are designed to be snapped on and off by hand, eliminating the need for metal crimping and decapping tools.

18 mm and 22 mm Snap Cap Vials

- Snap cap vials are an inexpensive storage solution for powder samples
- The vials are composed of 3rd hydrolytic class glass in volumes of 5 mL, 10 mL, 15 mL, and 25 mL
- Caps are easy to snap on and off, have a closed top, and are available in a variety of sizes
- Caps and vials can be purchased separately giving further flexibility

SNV18-05 | 98705-35

5 mL Snap Cap Vial, 18 mm, 40 x 20 mm, clear glass, 3rd hydrolytic class

SNV18-10 | 98705-36

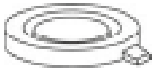
10 mL Snap Cap Vial, 18 mm, 50 x 22 mm, clear glass, 3rd hydrolytic class

SNV22-15 | 98705-37

15 mL Snap Cap Vial, 22 mm, 48 x 26 mm, clear glass, 3rd hydrolytic class

SNV22-25 | 98705-38

25 mL Snap Cap Vial, 22 mm, 65 x 26 mm, clear glass, 3rd hydrolytic class



SNC18-06 | 98706-60

18 mm PE Snap Cap, 19.8 x 5.2mm, transparent, closed top

10 x 100 pieces

SNC22-06 | 98706-63

22 mm PE Snap Cap, 23.5 x 5.5mm, transparent, closed top

10 x 100 pieces

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Vial & Cap Accessories

We offer a lot more when it comes to vial and cap accessories. Get in touch with one of our technical representatives to find the right solution for your application.

Crimping & Decapper Tools

Crimping tools that offer adjustable crimping pressure and height are available to suit a variety of crimp neck designs and septa thickness. All crimping tools are manufactured with a chemical resistant surface finish and alloy crimping jaws.

Crimping & Decapper Tool

- Perfect for chromatography and general crimping and decapping applications.
- Crimpers and decappers are available for 8 mm, 11 mm, 13 mm, 20 mm, and 32 mm crimp caps, providing a consistent seal, and offering quick and easy seal removal.
- Crimping tools come complete with a hexagon key which enables adjustment of the pressure block in the crimping head. Crimping can be adjusted via a screw in the handle.

Manual Crimping Tools			
Description	Pack Size	Mfg Part #	Item #
Crimper for 8 mm Crimp Caps	EACH	CRT-08	98706-83
Crimper for 11 mm Crimp Caps	EACH	CRT-11	98706-85
Crimper for 13 mm Crimp Caps	EACH	CRT-13	98706-87
Crimper for 20 mm Crimp Caps	EACH	CRT-20	98706-81
Crimper for 32 mm Crimp Caps	EACH	CRT-32	98706-89
Decapper for 8 mm Crimp Caps	EACH	DCT-08	98706-84
Decapper for 11 mm Crimp Caps	EACH	DCT-11	98706-86
Decapper for 13 mm Crimp Caps	EACH	DCT-13	98706-88
Decapper for 20 mm Crimp Caps	EACH	DCT-20	98706-82
Decapper for 32 mm Crimp Caps	EACH	DCT-32	98706-90

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Cross References

Both the Agilent and Waters brands are renowned in life sciences, diagnostics and applied chemical markets for providing consistently accurate results. We have carefully curated solutions that can be used across food safety, environmental health, forensics, pharma, chemical, energy production, analytical sciences, and more.

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Cross Reference - Agilent

Please make use of our Agilent cross references to ensure that you choose the correct product that is compatible with your Agilent-based applications.

Agilent No.	Mfg Part #	Item #
5061-3349 (alt.)	VR08-50	—
5061-3370 (alt)/500	CRC11-02A	98704-35
5065-4402	DWB96-02	—
5180-0806	CRV08-01A	98705-41
5180-0841/500	CRV08-05	98705-47
5180-0844/500	CRV08-06	98705-48
5181-1210 (alt.)/100	CRC11-02	98704-34
5183-4498 (alt./1000	CRC11-02	98704-34
5061-3370 (alt)/500	CRC11-02	98704-34
5181-1211 (100)	CRC11-03	98704-46
5183-4499 (1000)	CRC11-03	98704-46
5181-1213	DCT-11	98706-86
5181-1214	DCT-20	98706-82
5181-1215 (alt.)/100	CRC11-02B	98704-37
5181-1216 (alt.)/100	CRC11-02G	98704-40
5181-1217 (alt.)/100	CRC11-02R	98704-43
5181-1270/100	INWC-01SP	98700-94
5181-3375 (100)	CRV12-02	98705-53
5183-4491 (1000)	CRV12-02	98705-53
5181-3376 (100)	CRV12-02LA	98705-58
5183-4493 (1000)	CRV12-02LA	98705-58
5181-3377/500	INWF-01	98700-98
5181-3400 (alt.)/500	KSP-CRV-02	98701-03
5181-8801 (alt.)/500	KSP-CRVLA-02	98701-13
5181-8827	DCT-08	98706-84
5181-8872/100	INWC-01SPZ	98700-95
5182-0541/100	SNC11-04BS	98706-46
5182-0542 (alt.)/100	SNC11-06B	98706-54

Agilent No.	Mfg Part #	Item #
5182-0540 (alt.)/100	SNC11-06B	98706-54
5181-1507 (alt.)/100	SNC11-06B	98706-54
5181-1513 (alt.)/500	SNC11-06B	98706-54
5182-0543 (100)	CRV12-02L	98705-57
5183-4492 (1000)	CRV12-02L	98705-57
5182-0544 (100)	SNV12-02	98705-16
5183-4504 (1000)	SNV12-02	98705-16
5182-0545 (100)	SNV12-02LA	98705-18
5183-4506 (1000)	SNV12-02LA	98705-18
5182-0546 (100)	SNV12-02L	98705-17
5183-4505 (1000)	SNV12-02L	98705-17
5182-0547 (alt.)/500	KSP-SNV-02	98701-43
5182-0548 (alt.)/500	KSP-SNVLA-02	98701-51
5182-0550 (alt.)/100	SNC11-02	98706-34
5182-0564 (alt.)/500	SNC11-02	98706-34
5182-0550 (alt.)/100	SNC11-02	98706-34
5182-0564 (alt.)/500	SNC11-02	98706-34
5182-3458/100	SNC11-02	98706-34
5182-0552 (100)	CRC11-04	98704-48
5183-4500 (1000)	CRC11-04	98704-48
5182-0553/100	CRC11-04	98704-48
5182-0566/100	SNC11-03S	—
5182-0567 (alt.)	SNV12-04P	98705-29
5182-0714 (100)	STV12-02	98702-65
5183-2067 (1000)	STV12-02	98702-65
5182-0715 (100)	STV12-02L	98702-67
5183-2068 (1000)	STV12-02L	98702-67
5182-0716 (100)	STV12-02LA	98702-68

Agilent No.	Mfg Part #	Item #
5183-2069 (1000)	STV12-02LA	98702-68
5182-0717	SCC09-02BA	98703-36
5182-0719 (alt.)	SCC09-02R	98703-40
5182-0720/100	SCC09-04B	98703-48
5185-5863/500	SCC09-04B	98703-48
5182-0721/100	SCC09-04G	98703-57
5182-0722	SCC09-04R	98703-59
5182-0723/100	SCC09-03B	98703-42
5185-5862/500	SCC09-03B	98703-42
5182-0724/100	SCC09-03G	98984-32
5185-5861/500	SCC09-03G	98984-32
5182-0725	SCC09-03R	98703-45
5182-0732 (alt.)/500	KSP-STV-02	98701-24
5182-0734 (alt.)/500	KSP-STV-04	98701-27
5182-0736 (alt.)/500	KSP-STV-03	98701-25
5182-0837 (alt.)	CRV20-01H	98700-33
5182-0838 (alt.)	CRV10-01	98700-24
5182-0867 (alt.)/500	KSP-STVL-02	98701-31
5182-0868 (alt.)/500	KSP-STVL-04	98701-34
5182-0869 (alt.)/500	KSP-STVL-03	98701-33
5182-0871/100	CRC11-01	98704-32
5182-0876 (alt.)	CRV05-01	98893-99
5182-3454 (alt.)	CRV12-07	98705-67
5185-5821	CRV12-07	98705-67
5182-3458 (alt.)/100	SNC11-02BSA	98706-38
5182-3459 (alt.)/100	SNC11-02R	98706-39
5183-2030	STV12-10	98702-97
5183-2070	STV12-02S	98702-77

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Cross Reference - Agilent (continued)

Agilent No.	Mfg Part #	Item #
5183-2071 (alt.)	STV12-02S	98702-77
5183-2072	STV12-02LAS	98702-70
5183-2075	STV12-02LAS	98702-70
5183-2076/100	SCC09-04BS	98703-53
5185-5865/500	SCC09-04BS	98703-53
5183-2077	SCC09-04GS	98703-58
5183-2077	SCC09-04S	98703-61
5183-2078	SCC09-04S	98703-61
5183-2079 (alt.)/500	KSP-STV-04S	98701-29
5183-2080 (alt.)/500	KSP-STVL-04S	98701-35
5183-2085 (alt.)/100	INWC-01	98700-93
5183-2085/100	INWC-02	98700-97
5183-2088/100	INSC-01SP	98700-88
5183-2089/100	INSC-01	98700-87
5183-2090/100	INSF-01	98700-90
9301-1387/500	INSF-01	98700-90
5183-2094	INC48-01	98700-83
5183-2095	SPR13-01	98701-02
5183-4412	SEP10-04	98986-52
5183-4428 (100)	SCV12-01	98704-98
5183-4430 (1000)	SCV12-01	98704-98
5183-4429 (100)	SCV12-01A	98704-99
5183-4431 (1000)	SCV12-01A	98704-99
5183-4434	SEP08-01	98705-78
5183-4435	SEP08-04S	98705-83
5183-4436/100	SEP08-03	98705-80
5183-4437/100	SEP08-04	98705-81
5183-4438/100	SCC08-B	98703-26

Agilent No.	Mfg Part #	Item #
5183-4442/100	SCCSEP08-04	98703-91
5183-4448 (100)	SCV15-01	98705-09
5183-4452 (500)	SCV15-01	98705-09
5183-4450 (100)	SCV15-01A	98705-10
5183-4453 (500)	SCV15-01A	98705-10
5183-4458	SV4PC15-01	98702-48
5183-4459/1000	SEP13-01	98705-98
5183-4460/100	SEP13-04	98706-01
5183-4461/100	SCC13-B	98703-78
5183-4464/100	SCCSEP13-04	98704-11
5183-4471	SV1PC08-03	98702-42
5183-4471**	SV1PC08-01	98702-38
5183-4472	SV1PC08-03A	98702-43
5183-4472**	SV1PC08-01A	98702-39
5183-4474	CRV20-01	98700-28
5183-4474 (alt.)	CRV20-01C	98700-30
5183-4475	CRV10-02	98700-25
5183-4476	SEP20-02IS	98706-13
5183-4477	CRC20-04A	98704-68
5183-4478	CRC20-04AH	98700-16
5183-4479	CRC20-02PH	98704-65
5183-4480	CRC20-02HPH	98700-15
5183-4481	CRV08-02	98705-42
5183-4484	CRV08-04	98705-45
5183-4485	CRV08-04A	98705-46
5183-4486	CRV08-03	98705-43
5183-4487	CRV08-03A	98705-44
5183-4489	CRC08-02	98704-24

Agilent No.	Mfg Part #	Item #
5183-4490	CRC08-03	98704-26
5183-4511/100	SNC11-07S	98706-59
5183-4524	EPA40C	98700-57
5183-4743 (alt.)/72	SEP22-04EPA	98700-75
5183-4744/24	SCC24-0	98703-86
5185-5823	SCC09-04W	98703-64
5185-5824	SCC09-04WS	98703-65
5188-2753	SCV20-02	98700-37
5188-2759	SCCSEP18-04BM	98706-74
5188-5386/100	CRC11-04M	98704-51
5188-5390/100	STV12-03TS	98702-87
5188-5392	SCV10-01	98704-96
8710-0979	CRT-11	98706-85
8710-1643	CRT-08	98706-83
9301-0719	SEP20-04	98706-16
9301-0720	CRT-20	98706-81
9301-0721/100	CRC20-0P	-
9301-0722 (alt.)	VR12-50	98702-52
9301-0976	SEP20-02PH	98706-15
9301-0977/100	SNV12-03TS	98705-25
9301-0978/1000	CRV12-03P	98706-64
5188-2788/100	CRV12-03P	98706-64
5184-3557/1000	CRV12-03P	98706-64
9301-1031/144	SEP13-02	98705-99
9301-1130 (alt.)/500	SEP08-02	98705-79
9301-1388	CRV12-09	98894-48

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Cross Reference - Waters

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Waters No.	Mfg Part #	Item #
22861	SEP13-04	98706-01
186000273	STV12-02L	98702-67
186000274	SCC09-04W	98703-64
186000303	SNC11-04B	98706-45
186000304	SNC11-04S	98706-48
186000305	SCC09-04WS	98703-65
186000848	STV12-02LA	98702-68
186002626	STV12-03P	98702-84
186002627	SNV12-04P	98705-29
186002628	CRV12-03P	98706-64
186002634	STV12-04P	98702-91
186002650	SNC11-04R	98706-47
186002802	STV12-10	98702-97
186002804	STV12-03	98702-79
600000138	CRC20-04	98704-67
186000273DV (alt.)	STV12-02S	98702-77
186000274 (alt.)	SCC09-04B	98703-48
186000305 (alt.)	SCC09-04BS	98703-53
186000328 (alt.)	SNC11-06B	98706-54
186002645 (alt.)	SNC11-06B	98706-54
186002646 (alt.)	SNC11-06B	98706-54
186000841/100 (alt.)	SCCSEP13-04	98704-11
186000965/1000 (alt.)	SCCSEP13-04	98704-11
186000842/100 (alt.)	SCCSEP13-07	98704-14
186001919/1000 (alt.)	SCCSEP13-07	98704-14
186000848DV	STV12-02LAS	98702-70
186001135	SCV15-01A	98705-10

Waters No.	Mfg Part #	Item #
PSL407499	SCV15-01A	98705-10
186002127 (alt.)	SCC09-04GS	98703-58
186002129 (alt.)	SCC09-04R	98703-59
186002130 (alt.)	SCC09-04G	98703-57
186002456 (alt.)	SCC09-04	98703-47
186002457 (alt.)	SCC09-04S	98703-61
186002803 (alt.)	STV12-03TSA	98702-88
186002804 (alt.)	STV12-03TS	98702-87
405000562 (48 pos.)	VR12-50	98702-52
200000114 (24 pos.)	VR12-50	98702-52
600000668CV	KSP-STVL-04S	98701-35
600000669CV	KSP-STVLA-04S	98701-40
600000751C	KSP-STVL-04	98701-34
600000752C	KSP-STVLA-04	98701-38
PSL400123	CRV50-01	98700-35
PSL403682	CRV50-01	98700-35
PSL403803	CRV08-06	98705-48
PSL403805	INSC-005	98700-86
PSL403810 (alt.)	INSC-01	98700-87
PSL403814 (alt.) (with spring)	INSC-01	98700-87
PSL403810 (alt.)	INSC-02	98700-89
PSL403814 (alt.) (with spring)	INSC-02	98700-89
PSL404218	CRC08-04	98704-27
PSL404219	CRC11-04	98704-48
PSL404231	CRC11-03	98704-46
PSL407167	CRV12-06	98705-65
PSL407500	SCC13-BC	98703-79

Waters No.	Mfg Part #	Item #
PSL408004	CRV08-03A	98705-44
PSL408008	CRC08-02	98704-24
PSL408027	CRC11-01	98704-32
PSL408028	CRV08-04	98705-45
PSL408067	CRV20-01	98700-28
PSL408068	CRV05-01	98893-99
PSL408137	SPR08-01	98701-01
PSL408213	SCV12-01	98704-98
PSL408225	CRV08-05	98705-47
PSL408234	CRC20-02PH	98704-65
PSL410208	SCCSEP13-02	98704-09
PSL410408	SCC13425-09	98703-77
PSL412109	CRC08-01	98704-23
PSL412115	CRC11-02	98704-34
PSL414168	SEP20-02PH	98706-15
PSL904301	CRT-11	98706-85
PSL904303	CRT-20	98706-81
WAT015199/144	INC48-01	98700-83
WAT0210685	SEP08-04	98705-81
WAT025050 (alt.)	SV4PC15-01A	98702-49
WAT025051 (alt.)	SV4PC15-01	98702-48
WAT025053C/250	SV1PC08-03A	98702-43
WAT025053C/250**	SV1PC08-01A	98702-39
WAT025054C/250	SV1PC08-03	98702-42
WAT025054C/250**	SV1PC08-01	98702-38
WAT058874	SEP10-04	98986-52
WAT058874	SCCSEP10-04	98704-05

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Cross Reference - Waters (continued)

Waters No.	Mfg Part #	Item #
WAT058875	SCC10-B	98703-73
WAT058876	SEP08-04S	98705-83
WAT058886	SEP08-01	98705-78
WAT063300	SCV12-02	98705-02
WAT072294 (alt.)	INC96-01	98700-84
WAT072708	SPR13-01	98701-02
WAT072710	SCV15-01	98705-09
186000840	SCV15-01	98705-09
PSL407498	SCV15-01	98705-09
WAT072711/144 (alt.)	SCC13-B	98703-78
600000162	SCC13-B	98703-78
WAT072714 (144)	SEP13-01	98705-98
WAT073005 (1440)	SEP13-01	98705-98
WAT094170	INWC-01SP	98700-94
WAT094171 (alt.)	INWC-01SP	98700-94
WAT094170DV	INWC-01SPZ	98700-95
WAT094171DV (alt.)	INWC-01SPZ	98700-95
WAT094174	SCCSEP08-04	98703-91
WAT094219	SNV12-02L	98705-17
WAT094220	SNV12-02LA	98705-18
WAT094222	CRV12-02	98705-53
WAT094223	CRV12-02LA	98705-58
WAT210684	SCC08-B	98703-26
WAT210685 (alt.)	SEP08-04	98705-81
WAT223176	CRV10-02	98700-25

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TELOS® Sample Preparation

TELOS sample preparation products include solid-phase extraction (SPE) (columns and 96-well plates), supported liquid extraction (SLE), protein precipitation, and filtration products. Options support pharmaceutical, environmental, agrochemical, food, and clinical applications.

TELOS SPE Columns

An ideal solution for the extraction of water-soluble organic compounds from aqueous matrices. A combination of optimized chemistry and excellent flow characteristics means TELOS ENV SPE columns provide reliable extraction of a wide range of analytes from a variety of aqueous samples.

TELOS SPE Plates

Optimized for the sample processing and extraction of small volume biological fluids. The internal diameter, frit design and sorbent allow biological fluid samples to be processed.

TELOS SLE Plates

Supported Liquid Extraction (SLE) is a common bioanalytical sample preparation technique, supporting high throughput assays. The technique mimics the characteristics of traditional Liquid-Liquid Extraction (LLE), but unlike LLE, lends itself to high throughput and automation. Packed with a diatomaceous earth, each well provides support to absorb the aqueous sample, with the analytes subsequently eluted with a water immiscible organic solvent.

TELOS® SPE Columns

Solid Phase Extraction (SPE) is one of the most used sample preparation techniques in laboratories throughout the world. Safer and less time consuming than liquid-liquid extraction, SPE is a digital version of liquid chromatography. Utilizing mechanisms including normal phase, reversed phase, ion-exchange, and affinity chromatography and can be combined for mixed-mode chromatography applications.

TELOS ENV SPE Columns

TELOS® ENV SPE columns provide an ideal solution for the extraction of water soluble organic compounds from aqueous matrices. A combination of optimized chemistry and excellent flow characteristics means TELOS ENV SPE columns provide reliable extraction of a wide range of analytes from a variety of aqueous samples.

TELOS *neo*-based Polymeric SPE Columns

TELOS *neo* Polymeric SPE columns and 96-well plates are a range of sample preparation products for the extraction of compounds from aqueous sample matrices.

TELOS Silica-based SPE Columns

The individual components of TELOS silica-based SPE columns are tested at each stage of manufacture to provide a high purity product. Each batch of sorbent is cleaned post-synthesis to ensure removal of reagents and impurities, so there is no leaching of impurities from the finished SPE column. Tubes and frits are cleaned to levels that meet today's analytical challenges and detection limits and the assembled SPE column is tested for purity before being packaged. The columns are packaged in sealed foil bags to protect them from moisture and environmental contaminants.

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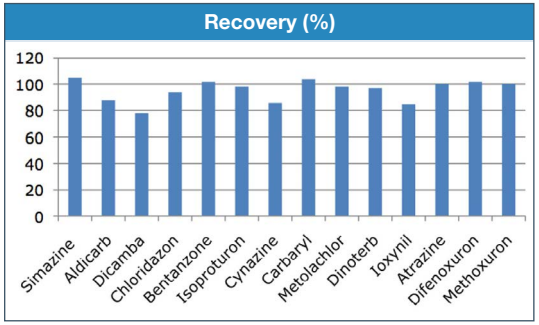
TELOS ENV SPE Columns

High Reproducible Recoveries

The surface of the DVB polymeric sorbent has been optimized to provide the required levels of non-polar interactions, water-wettable characters and surface area to extract a range of water soluble compounds from aqueous samples.

This high surface area (~900 m2/g) provides excellent retention of very polar analytes including phenols and phenoxyacid herbicides from environmental samples, and drug metabolites from biological fluids.



Extraction of Polar Analytes from Water.
Data taken from TELOS ENV Application Note ENV601.

Excellent Flow Characteristics

Whatever the sample type or volume, consistent flow characteristics from column-to-column can be pivotal to obtaining reliable results. The surface chemistry, particle size distribution and packing technique are carefully controlled to provide optimum SPE column performance, whether dealing with large volume or viscous sample matrices.

No Extract Contamination

The individual components of the TELOS ENV SPE columns are tested at each stage of manufacture to provide a high quality product. Each batch of sorbent is cleaned post-synthesis to ensure removal of reagents and impurities, so there is no leaching from the finished SPE column. Tubes and frits are cleaned to a high standard and the assembled SPE column is tested for purity before being packaged. The columns are packaged in sealed foil bags to protect them from moisture and other environmental contaminants.

Environmental Samples

For large volume environmental water samples (> 500 mL), the TELOS ENV 200 mg configurations are recommended. They provide the capacity that some large volume samples demand, and flexibility in choosing the correct column dimensions for your sample flow requirements. For smaller sample volumes, choose the 100 mg column.

Biological Fluids

TELOS ENV 100 mg/3 mL columns are the ideal configuration for biological fluids applications, including the extraction of polar drug metabolites from biological fluids such as urine and plasma. For larger sample volumes, the 200 mg/3 mL columns provide additional capacity. The 200 mg/6 mL configuration may also be useful for particularly viscous samples where additional sample dilution is necessary to provide adequate sample flow.

We have a range of application notes detailing the use of TELOS ENV SPE columns. Visit your local website and follow the Resources link.

TELOS ENV SPE Columns				
Description	Volume	Pack Size	Mfg Part #	Item #
TELOS ENV SPE Columns	100 mg/3 mL	50	690-100M-003T	06477-91
	200 mg/3 mL	50	690-200M-003T	06477-92
	200 mg/6 mL	30	690-200M-006T	06477-93

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TELOS *neo* Polymeric Solid Phase Extraction Columns

TELOS *neo* sorbents support the five common retention mechanisms used in today's analytical laboratory:

- Non-polar (TELOS *neo* PRP (Polar-modified Reversed Phase))
- Mixed-mode cation exchange (TELOS *neo* PCX)
- Mixed-mode weak cation exchange (TELOS *neo* WCX)
- Mixed-mode anion exchange (TELOS *neo* PAX)
- Mixed-mode weak anion exchange (TELOS *neo* WAX)

Efficient Method Development

Polymeric SPE sorbents are commonly chosen for their ease of use and robust nature, due to the absence of surface silanol interactions, excellent flow characteristics and pH stability. Each TELOS *neo* chemistry is accompanied by a generic method to further ensure method development time is minimized.

High Reproducible Recoveries

TELOS *neo* SPE Products provide high and reproducible recoveries for a wide range of analytes, including acidic, neutral, basic and multi-charged analytes. If simultaneous extraction of acidic, basic and neutral analytes, or selective extraction of a particular analyte class is required, the relevant sorbent can be chosen, providing the optimum results for the given application.

High Capacity Sorbent

The high surface area and capacity of TELOS *neo* SPE Sorbents provides more reliable retention characteristics compared to silica-based sorbents. This higher capacity encourages the use of smaller sorbent masses, therefore reducing elution volumes and evaporation/reconstitution steps.

Excellent Flow Characteristics

Consistent flow characteristics from column-to-column and well-to-well are important in obtaining reliable results, irrespective of the sample type or volume. The surface chemistry, particle size distribution and packing technique are carefully controlled to provide optimum SPE performance, whether processing large volume water samples or smaller more viscous sample matrices. TELOS *neo* polymeric SPE sorbents do not dry out during routine sample processing.

No Extract Contamination

The individual components of TELOS *neo* polymeric SPE products are tested at each stage of manufacture to provide a high purity product. Each batch of sorbent is cleaned post-synthesis to ensure removal of reagents and impurities, so there is no leaching from the finished SPE column or 96-well plate. Tubes, plates and frits are cleaned to levels that meet today's detection limits and the assembled SPE product is tested for purity. The products are supplied in hermetically sealed foil bags to protect them from moisture and environmental contaminants.

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TELOS *neo* PRP

Reversed phase (non-polar) SPE remains a popular SPE approach due to its applicability to a wide range of compounds. Provided the analytes have sufficient non-polar (hydrophobic) character, extraction of single compounds or multiple analyte suites is achieved.

TELOS *neo* PRP is a water-wettable, non-polar SPE column utilizing a proprietary polymeric backbone. The surface chemistry has been optimized to provide the necessary balance of non-polar interactions for retaining compounds of varying polarity, from polar metabolites to higher molecular weight analytes.

Generic Method

Sample Pre-treatment	High pH for retention of acids
Column Conditioning	Methanol
Column Equilibration	Water
Sample Loading	Load basic sample
Interference Elution Wash 1	5% v/v ammonium hydroxide/water
Interference Wash 2/ Analyte Elution	Methanol
Analyte Elution	2% v/v formic acid/methanol

TELOS *neo* PRP				
Description	**Volume**	**Pack Size**	**Mfg Part #**	**Item #**
SPE Columns	30 mg/1 mL	100	600-030M-001T	06474-44
	100 mg/3 mL	50	600-100M-003T	06474-24
	200 mg/6 mL	30	600-200M-006T	06474-59
96-well Plates	10 mg Plate	1	600-010M-096P	06474-57
	30 mg Plate	1	600-030M-096P	06474-45

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Mixed-mode SPE: Dual Retention Mechanism for Cleaner Extracts

The TELOS *neo* mixed-mode SPE sorbents exhibit a dual retention mechanism that significantly reduces the matrix components in the final extract (compared to non-polar or ion exchange as a single retention mechanism). A rigorous interference elution profile removes matrix components such as salts, proteins, phospholipids, and others. The analytes are eluted from the column with an organic solvent containing a basic or acidic modifier (depending on the SPE sorbent), which can be easily evaporated prior to reconstitution and analysis.

TELOS *neo* mixed-mode sorbents are available in the four popular chemistries; strong and weak cation exchange for the extraction of basic analytes, and strong and weak anion exchange for acidic analytes.

TELOS *neo* PCX

Mixed-mode Strong Cation Exchange SPE for Basic Analyte Extraction

For selective extraction of ionisable basic analytes, choose mixed-mode cation exchange SPE. The combination of hydrophobic and strong cation exchange functional groups is optimized to ensure TELOS *neo* PCX provides a robust and reliable sample preparation approach for the extraction of a wide range of basic analytes from aqueous sample matrices including plasma, urine and hair.

Generic Method

Sample Pre-treatment	Acidify sample
Column Conditioning	Methanol
Column Equilibration	Water
Sample Loading	Load acidified sample
Interference Elution Wash 1	2% v/v formic acid/methanol
Interference Elution Wash 2	Methanol
Analyte Elution	2–5% v/v NH_3/methanol

TELOS *neo* PCX				
Description	**Volume**	**Pack Size**	**Mfg Part #**	**Item #**
SPE Columns	30 mg/1 mL	100	620-030M-001T	06474-22
	60mg/3 mL	50	620-060M-003T	06474-53
	100 mg/3 mL	50	620-100M-003T	06474-25
	200 mg/6 mL	30	620-200M-006T	06474-49
	500 mg/6 mL	30	620-500M-006T	06474-27
96-well Plates	10 mg Plate	1	620-010M-096P	06474-47
	30 mg Plate	1	620-030M-096P	06474-48

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TELOS *neo* WCX

Mixed-mode SPE for Extraction of Strongly Basic Analytes

Elution of strongly basic analytes and quaternary amines from a strong cation exchange SPE sorbent is difficult due to the strong ionic interaction between sorbent and analyte. TELOS *neo* WCX is a mixed-mode weak cation exchange sorbent containing non-polar and weak acid functional groups. This dual retention mechanism provides the ideal environment for successful retention and elution of all basic compounds, including strong bases and quaternary amines.

Generic Method

Sample Pre-treatment	Adjust sample to low pH
Column Conditioning	Methanol
Column Equilibration	Water
Sample Loading	Load acidified sample
Interference Elution Wash 1	5% v/v ammonium hydroxide/water
Interference Elution Wash 2	Methanol
Analyte Elution	2% v/v formic acid/methanol

TELOS *neo* WCX				
Description	**Volume**	**Pack Size**	**Mfg Part #**	**Item #**
SPE Columns	30 mg/1 mL	100	640-030M-001T	06474-34
	60 mg/3 mL	50	640-060M-003T	06474-36
	100 mg/3 mL	50	640-100M-003T	06474-50
	200 mg/6 mL	30	640-200M-006T	06474-37
96-well Plates	10 mg Plate	1	640-010M-096P	06474-42
	30 mg Plate	1	640-030M-096P	06474-28

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TELOS *neo* PAX

Mixed-mode Strong Anion Exchange Columns for Acidic Analyte Extraction

For selective extraction of ionisable acidic analytes, choose mixed-mode anion exchange SPE. The combination of hydrophobic and strong anion exchange functional groups is optimized to ensure TELOS *neo* PAX provides a robust and reliable sample preparation approach for the extraction of a wide range of acidic analytes from aqueous sample matrices including plasma, urine and hair.

Generic Method

Sample Pre-treatment	High pH for retention of acids
Column Conditioning	Methanol
Column Equilibration	Water
Sample Loading	Load basic sample
Interference Elution Wash 1	5% v/v ammonium hydroxide/water
Interference Elution Wash 2	Methanol
Analyte Elution	2% v/v formic acid/methanol

TELOS *neo* PAX				
Description	**Volume**	**Pack Size**	**Mfg Part #**	**Item #**
SPE Columns	30 mg/1 mL	100	660-030M-001T	06474-23
	60 mg/3 mL	50	660-060M-003T	06474-51
	100 mg/3 mL	50	660-100M-003T	06474-29
	200 mg/6 mL	30	660-200M-006T	06474-31
96-well Plates	10 mg Plate	1	660-010M-096P	06474-54
	30 mg Plate	1	660-030M-096P	06474-39

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TELOS *neo* WAX

Mixed-mode Strong Anion Exchange Columns for Acidic Analyte Extraction

Elution of strongly acidic compounds from a strong anion exchange SPE sorbent is not usually possible, due to the strong ionic interaction between sorbent and analyte. TELOS *neo* WAX is a mixed-mode weak anion exchange sorbent containing non-polar and weak base functional groups. This dual retention mechanism provides the ideal environment for successful retention and elution of all acidic compounds, including strong acids.

Generic Method

Sample Pre-treatment	High pH for retention of acids
Column Conditioning	Methanol
Column Equilibration	Water
Sample Loading	Load basic sample
Interference Elution Wash 1	5% v/v ammonium hydroxide/water
Interference Elution Wash 2	Methanol
Analyte Elution	2% v/v formic acid/methanol

TELOS *neo* WAX				
Description	**Volume**	**Pack Size**	**Mfg Part #**	**Item #**
SPE Columns	30 mg/1 mL	100	680-030M-001T	06474-55
	100 mg/3 mL	50	680-100M-003T	06474-56
	200 mg/6 mL	30	680-200M-006T	06474-43
96-well Plates	30 mg Plate	1	680-030M-096P	06474-33

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Method Development for *neo* Polymeric SPE

Sorbent and Method Selection

TELOS *neo* SPE Products are designed with simple and effective sample preparation in mind. Rather than screening a wide range of sorbents as is often necessary with silica-based sorbents, the most appropriate TELOS *neo* SPE column can be selected based on three simple criteria:

1. Application requirements
   a. simultaneous extraction of multiple analytes from one sample, or
   b. selective extraction of a particular analyte or analyte class
2. Analyte functional group(s)
3. Analyte pK_a

Once these parameters are known, the appropriate column can be selected and the associated generic method followed.

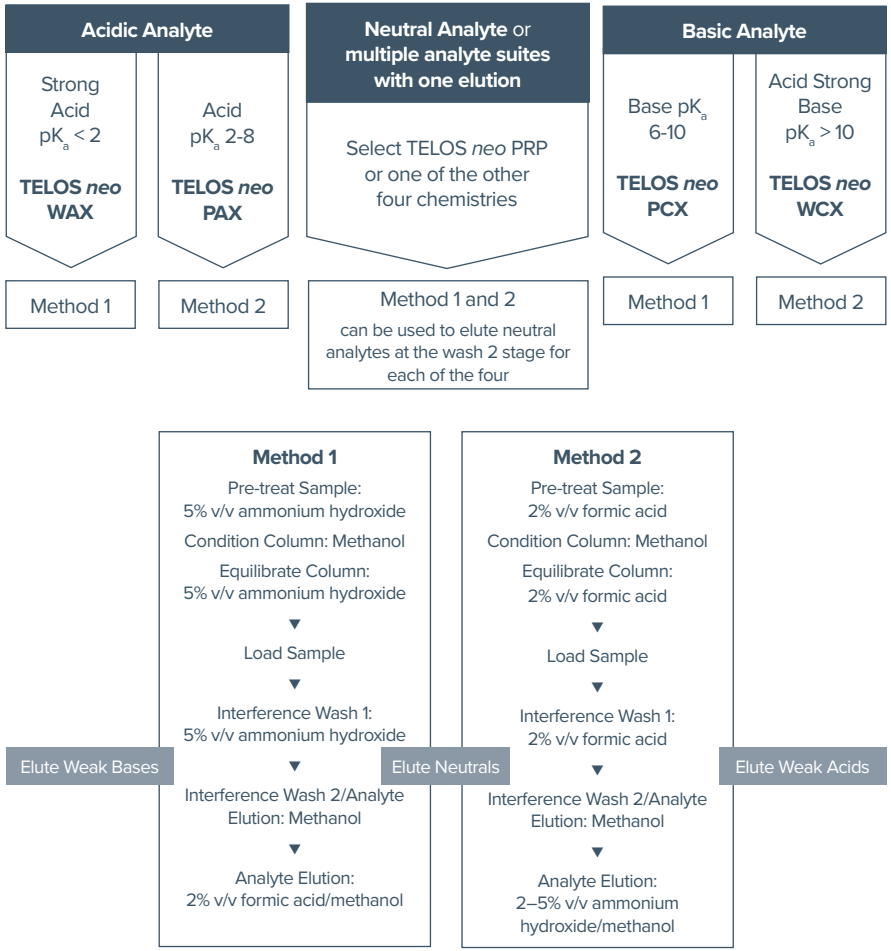
While each chemistry is selective towards a given analyte class, it is possible to elute analytes of a different functional group from the sorbent (useful if fractionation of different analyte classes is required). For example, neutral compounds can be eluted from each of the mixed-mode sorbents at the interference Wash 2 step.

For the extraction of a sample containing unknown or zwitterionic analytes, or a mixture of analytes with a range of retention/elution characteristics, evaluate all five chemistries to determine the ideal sorbent and method.

Selection of the Appropriate Sorbent Based on Application Needs

Application	TELOS *neo* PRP	TELOS *neo* PCX	TELOS *neo* WCX	TELOS *neo* PAX	TELOS *neo* WAX
Simultaneous Extraction of Acidic, Neutral and Basic Analytes	●				
Basic Ionisable Analytes		●			
Quaternary Amine or Analytes with Multiple Basic Groups			●		
Acidic Ionisable Analytes				●	
Strong Acid or Analytes with Multiple Acidic Groups					●
Fractionation of Acidic, Neutral and Basic Analytes		●	●	●	●
Zwitterionic Analytes	●	●	●	●	●

Method Development Flowchart



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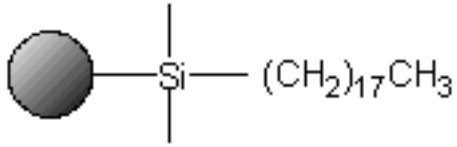
TELOS Silica-based SPE Columns

TELOS Non-Polar Silca-based SPE Columns

Non-polar (reversed phase) SPE remains the most popular SPE approach in today's analytical laboratories due to its applicability to a wide range of compounds. Provided the analytes have sufficient non-polar (hydrophobic) character, extraction of single compounds or multiple analyte suites is achieved.

The TELOS range covers the most popular non-polar SPE sorbents. The surface chemistry is optimized to provide the correct balance of non-polar and silanol interactions, with endcapped sorbents available for those applications requiring minimal secondary silanol interactions to enhance compound retention and elution.

TELOS C18 (Octadecyl)				
	Functional Group	Octadecyl (C18)		
	Average Particle Size	50 µm		
	Pore Diameter	70 Å		
	Endcapped	No		
	Carbon Loading %	17.5%		
Analytes	Wide Ranging Non-polar Character			
Matrix	Aqueous			
Retention Mechanism	Primary: Non-polar (Reversed Phase) Secondary: Polar/Weak Cation Exchange			
Description	**Volume**	**Pack Size**	**Mfg Part #**	**Item #**
TELOS C18 SPE Columns	100 mg/1 mL	100	200-100M-001T	06476-60
	100 mg/3 mL	50	200-100M-003T	06476-62
	200 mg/3 mL	50	200-200M-003T	06476-65
	500 mg/3 mL	50	200-500M-003T	06476-68
	500 mg/6 mL	30	200-500M-006T	06476-69
	1 g/6 mL	30	200-001G-006T	06476-48
	2 g/15 mL	20	200-002G-015T	06476-49

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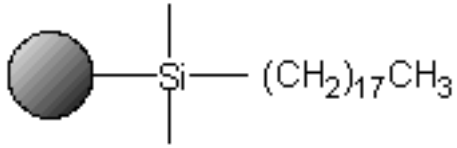
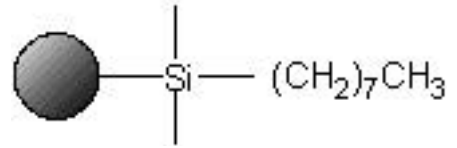
TELOS C18(EC) (Octadecyl, Endcapped)



Functional Group	Octadecyl (C18) endcapped
Average Particle Size	50 µm
Pore Diameter	70 Å
Endcapped	Yes
Carbon Loading %	18%
Analytes	Wide Ranging Non-polar Character
Matrix	Aqueous
Retention Mechanism	Primary: Non-polar (Reversed Phase) Secondary: Endcapped to reduce Polar/Weak Cation Exchange Secondary Interactions

Description	Volume	Pack Size	Mfg Part #	Item #
TELOS C18(EC) SPE Columns	50 mg/1 mL	100	210-050M-001T	06476-79
	100 mg/1 mL	100	210-100M-001T	06476-81
	200 mg/3 mL	50	210-200M-003T	06476-85
	500 mg/3 mL	50	210-500M-003T	06476-88
	500 mg/6 mL	30	210-500M-006T	06476-89
	1 g/6 mL	30	210-001G-006T	06476-72
	2 g/15 mL	20	210-002G-015T	06476-74

TELOS C8(EC) (Octyl, Endcapped)



Functional Group	Octyl (C8)
Average Particle Size	50 µm
Pore Diameter	70 Å
Endcapped	Yes
Carbon Loading %	9%
Analytes	Wide Ranging Non-polar Character
Matrix	Aqueous
Retention Mechanism	Primary: Non-polar (Reversed Phase) Secondary: Endcapped to reduce Polar/Weak Cation Exchange Secondary Interactions

Description	Volume	Pack Size	Mfg Part #	Item #
TELOS C8(EC) SPE Columns	100 mg/1 mL	100	230-100M-001T	06476-99
	500 mg/3 mL	50	230-500M-003T	06477-21

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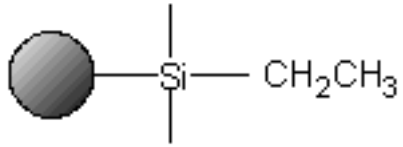
TELOS C2(EC) (Ethyl, Endcapped)		
	Functional Group	Ethyl (C2)
	Average Particle Size	50 µm
	Pore Diameter	70 Å
	Endcapped	Yes
	Carbon Loading %	6%
Analytes	Wide ranging Non-polar character	
Matrix	Aqueous	
Retention Mechanism	Primary: Non-polar (Reversed Phase) Secondary: Endcapped to reduce Polar/Weak Cation Exchange Secondary Interactions	

Description	Volume	Pack Size	Mfg Part #	Item #
TELOS C2(EC) SPE Columns	100 mg/1 mL	100	250-100M-001T	06477-28

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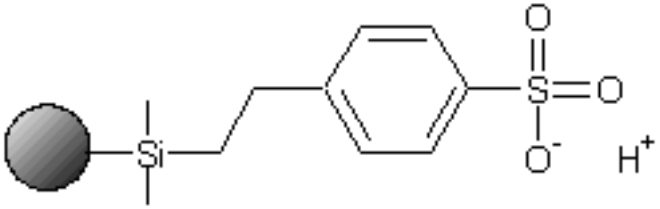
TELOS Ion Exchange Silca-based SPE Columns

A series of TELOS ion exchange sorbents are available for selective extraction of ionisable analytes from aqueous and non-aqueous samples. The TELOS SPE column range includes strong and weak cation exchange sorbents for extraction of basic compounds and strong and weak anion exchange sorbents for acidic compounds.

TELOS Cation Exchange Silica-based SPE Columns

TELOS cation exchange sorbents are used to extract basic analytes with a positive charge (depending on pH conditions) from aqueous samples. These sorbents can also be used with non-polar solvent extracts.

TELOS SCX (Ethylbenzene Sulfonic Acid)



Functional Group	Ethylbenzene Sulfonic Acid (Free Acid)
Average Particle Size	50 µm
Pore Diameter	70 Å
pK_a	N/A
Exchance Capacity	0.6meq/g

Analytes	Ionisable basic analytes with pK range 8–12
Matrix	Aqueous generally, can also be used with non-polar solvents for polar interactions
Retention Mechanism	Primary: Strong Cation Exchange Secondary: Polar/Weak Cation Exchange

Description	Volume	Pack Size	Mfg Part #	Item #
TELOS SCX SPE Columns	50 mg/1 mL	100	310-050M-001T	06477-52
	100 mg/1 mL	100	310-100M-001T	06477-53
	100 mg/3 mL	50	310-100M-003T	06477-54
	200 mg/3 mL	50	310-200M-003T	06477-55
	500 mg/3 mL	50	310-500M-003T	06477-56
	500 mg/6 mL	30	310-500M-006T	06477-57
	1 g/6 mL	30	310-001G-006T	06477-51

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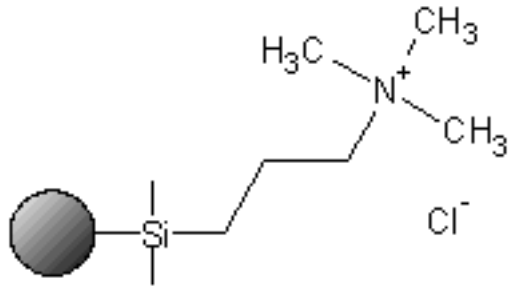
TELOS Anion Exchange Silica-based SPE Columns

TELOS anion exchange sorbents are used to extract acidic analytes with a negative charge (depending on pH conditions) from aqueous fluid samples. These sorbents can also be used with non-polar solvents.

TELOS SAX (Quaternary Amine)		
	Functional Group	Quaternary Amine (Chloride Counter Ion)
	Average Particle Size	50 µm
	Pore Diameter	70 Å
	pK_a	N/A
	Exchance Capacity	0.4 meq/g

Analytes	Ionisable acidic analytes with pK range 2–6
Matrix	Aqueous generally, can also be used with non-polar solvents for polar interactions
Retention Mechanism	Primary: Strong Anion Exchange Secondary: Polar/Weak Cation Exchange

Description	Volume	Pack Size	Mfg Part #	Item #
TELOS SAX SPE Columns	50 mg/1 mL	100	400-050M-001T	06477-65
	100 mg/1 mL	100	400-100M-001T	06477-69
	100 mg/3 mL	50	400-100M-003T	06477-77
	200 mg/3 mL	50	400-200M-003T	06477-79
	500 mg/3 mL	50	400-500M-003T	06477-80
	500 mg/6 mL	30	400-500M-006T	06477-81
	1 g/6 mL	30	400-001G-006T	06477-61

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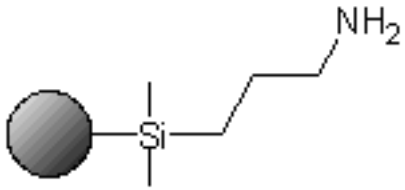
TELOS NH2 (Aminopropyl)

This sorbent can be used with aqueous sample matrices for the weak anion exchange of strongly acidic analytes or those with multiple acidic groups. The surface charge of the sorbent can be controlled by modifying the pH of the matrix, therefore allowing retention and elution of strongly acidic analytes that would otherwise be difficult to elute from a strong anion exchange sorbent.

TELOS NH2 (Aminopropyl)				
	Functional Group	Aminopropyl		
	Average Particle Size	50 µm		
	Pore Diameter	70 Å		
	pK_a	N/A		
	Exchance Capacity	0.4 meq/g		
Analytes	Strong acidic analytes and those with multiple acidic groups			
Matrix	Aqueous generally, can also be used with non-polar solvents for polar SPE extractions			
Retention Mechanism	Primary: Weak Anion Exchange Secondary: Polar/Weak Cation Exchange			
Description	**Volume**	**Pack Size**	**Mfg Part #**	**Item #**
TELOS NH2 SPE Columns	100 mg/1 mL	100	130-100M-001T	06476-18
	200 mg/3 mL	50	130-200M-003T	06476-21
	500 mg/3 mL	50	130-500M-003T	06476-23
	500 mg/6 mL	30	130-500M-006T	06476-24

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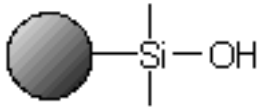
TELOS Normal Phase (Polar) Silica-based SPE Columns

Clean-up of matrices based on non-polar solvents is achieved using normal phase (polar) SPE columns, such as silica and amino sorbents. They can either be used to retain the analytes of interest, or to remove polar interferences from the sample. Speciality sorbents like FLORISIL® (PR grade) are popular choices when a different selectivity to that provided by silica-based sorbents is required.

TELOS Silica (Unmodified)



Functional Group	Unmodified Silica
Average Particle Size	50 µm
Pore Diameter	70 Å

Analytes	Analytes with polar character
Matrix	Aqueous generally, can also be used with non-polar solvents for polar interactions
Retention Mechanism	Primary: Strong Cation Exchange Secondary: Polar / Weak Cation Exchange

Description	Volume	Pack Size	Mfg Part #	Item #
TELOS Silica SPE Columns	100 mg/1 mL	100	100-100M-001T	06476-04
	100 mg/3 mL	50	100-100M-003T	06476-05
	200 mg/3 mL	50	100-200M-003T	06476-08
	500 mg/3 mL	50	100-500M-003T	06476-13
	500 mg/6 mL	30	100-500M-006T	06476-14
	1 g/6 mL	30	100-001G-006T	06476-01
	2 g/15 mL	20	100-002G-015T	06476-02

TELOS Florisil® PR Grade (Magnesium Silicate)

$Mg_3Si_4O_{10}(OH)_2$

Functional Group	Magnesium Silicate
Average Particle Size	125–150µm
Pore Diameter	70 Å

Analytes	Analytes with polar character
Matrix	Non-aqueous / Non-polar solvents
Retention Mechanism	Primary: Polar (Normal Phase)

Description	Volume	Pack Size	Mfg Part #	Item #
TELOS Florisil SPE Columns	500 mg/3 mL	50	150-500M-003T	06476-33
	1 g/6 mL	30	150-001G-006T	06476-28

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TELOS® SPE Plates

TELOS® MicroPlate™

The Versatile 96-well Plate for Small Volume Biological Fluid Samples

- Optimized SPE well geometry promoting good analyte retention
- 50 µL elution volume for minimal sample dilution and reduced evaporation time
- Inlet and outlet well designs prevent sample cross contamination
- Populated plates and loose wells support high and low sample numbers
- Compatible with vacuum manifold, positive pressure manifolds and automation

Developments in LC-MS/MS detection levels have seen biological fluid sample volumes reduced to an extent where conventional SPE formats are not always suitable, or provide considerable analyte dilution and extended evaporation times. When extracting from sample volumes of less than 100 µL, it is important that the elution volumes and the sample preparation format are fully compatible with the original sample volumes being processed.

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TELOS MicroPlate

The TELOS MicroPlate is optimized for the sample processing and extraction of small volume biological fluids. The internal diameter, frit design and sorbent allow biological fluid samples to be processed. The TELOS MicroPlate is a modular design, allowing for flexibility in sample numbers. Full or partially populated plates can be processed using vacuum or positive pressure. In addition, the well outlet design ensures good collection plate penetration, removing any possibility of sample cross contamination.

Sorbents

The TELOS MicroPlate is available in 5 mg and 10 mg sorbent masses, packed with one of five TELOS *neo* SPE sorbents - PRP, PCX, WCX, PAX, and WAX.

Well Design

The individual well of the TELOS MicroPlate is designed to both allow maximum interaction between the analyte and sorbent and to ensure elution volumes are kept to a minimum. This is particularly important for sample volumes of 100 µL and less, and ensures minimal evaporation times prior to analysis by LC-MS/MS. The optimized well and frit design (Figure 1) of the TELOS MicroPlate provides an overall bed volume of 10–15 µL. A well packed with 5mg sorbent allows analytes to be eluted in as little as 50 µL (Table 1).

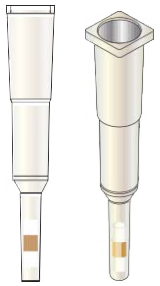

Figure 1: TELOS microplate well design.

Table 1: Recoveries for Metoprolol and Propranolol using 50 µL elution.

Analyte	Concentration	Mean Recovery (%)	RSD (%)
Metoprolol	0.5 ng/mL	86.8	3.93
	2.5 ng/mL	92.6	3.12
	10 ng/mL	93.9	2.21
Propranolol	1 ng/mL	88.1	3.54
	5 ng/mL	90.2	2.03
	20 ng/mL	95.6	3.17

Collection Plate Compatibility

The outlets from the TELOS microplate are designed in such a way as to give good collection plate penetration (Figure 2). This prevents any well to well cross contamination.

Populated Plates and Loose Wells

The TELOS microplate is available as either populated plates or loose wells. This allows the product to be used for both high throughput assays (populated plate) and assays where the sample numbers vary, populating the base plate with the required number of wells. When using vacuum, the unrequired ports on the base plate can be sealed.

The individual wells can be removed or added very easily, with a secure “click” when the wells are added to the base plate. A well removing tool facilitates the easy removal of individual wells.

Vacuum and Positive Pressure

The TELOS microplate is compatible with both vacuum and positive pressure manifolds. The well outlets extend beyond the plate “shelf” and ensure they fully penetrate the collection plate.

Recovery and Elution Volumes

The TELOS microplate 5 mg plate allows elution volumes of 50 µL. The following recovery data and elution volumes are for two β-blockers, metoprolol and propranolol, when extracted from human plasma (50 µL) using a TELOS *neo* PRP 5 mg microplate.

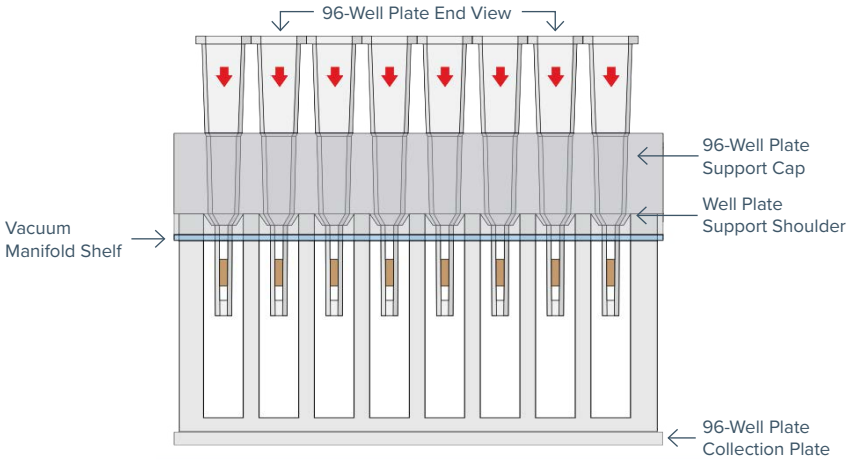

Figure 2: Optimized well outlet design prevents well to well cross contamination.

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Populated Plates				
Description	**Volume**	**Pack Size**	**Mfg Part #**	**Item #**
TELOS *neo* PRP MicroPlate	5 mg	Each	600-005M-096MP	06474-21
	10 mg	Each	600-010M-096MP	06474-13
TELOS *neo* PCX MicroPlate	5 mg	Each	620-005M-096MP	06474-15
	10 mg	Each	620-010M-096MP	06474-09
TELOS *neo* WCX MicroPlate	5 mg	Each	640-005M-096MP	06474-15
	10 mg	Each	640-010M-096MP	06474-06

Loose Wells				
Description	**Volume**	**Pack Size**	**Mfg Part #**	**Item #**
TELOS *neo* PCX MicroPlate	10 mg	100	620-010M-096LW	06474-04

Method Development Kit				
Description	**Volume**	**Pack Size**	**Mfg Part #**	**Item #**
TELOS MicroPlate Method Development Kit Kit Contains: 20 x 10 mg wells of TELOS *neo* PRP, PCX, WCX, PAX, and WAX, a base plate, base plate sealing strips, and well removing tool	10 mg (loose wells)	100	000-010M-096LW	06474-19

Accessories			
Description	**Pack Size**	**Mfg Part #**	**Item #**
TELOS MicroPlate Base Plate	5	000-0000-096BP	06474-60
TELOS MicroPlate Base Plate Sealing Strips	24	000-0000-096SS	06474-11
Well Removing Tool	1	000-0000-096WT	06474-61

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TELOS SLE Plates

Highlights

- Hydrophilic frit improves sample loading
- Improved capacity 600 mg plate extends sample load range
- Increase sample throughput using Supported Liquid Extraction (SLE)
- No emulsion formation
- Cost effective modular plate for small and variable sample numbers

96-well plate supported liquid extraction with increased capacity and enhanced sample loading

Supported Liquid Extraction (SLE) is a common bioanalytical sample preparation technique, supporting high throughput assays. The technique mimics the characteristics of traditional Liquid-Liquid Extraction (LLE), but unlike LLE lends itself to high throughput and automation. Packed with a diatomaceous earth, each well provides a support to absorb the aqueous sample, with the analytes subsequently eluted with a water immiscible organic solvent.

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TELOS SLE Plates

TELOS SLE Plates are manufactured with a diatomaceous earth optimized for high throughput sample preparation. The moisture content, pH and particle size distribution for each batch of TELOS SLE are specifically controlled to ensure sample loading and analyte recovery meets the demands of today's bioanalytical methods.

Improved Sample Loading

TELOS SLE plates use a hydrophilic top frit to aid sample loading. Unlike other SLE products, TELOS SLE plates use a "water friendly" frit that encourages the sample to pass through the frit onto the diatomaceous earth. This minimizes any blocking that might result from the use of a more hydrophobic frit.

Increased Capacity

TELOS SLE plates are available in three sizes, 200 mg and 400 mg (fixed-well plates) and a new, higher capacity, 600 mg option. The new 600 mg plate allows 300 µL plasma* to be applied to each well.

Modular Design

The TELOS SLE 600 mg Plate is a modular design and optimized for assays with small or variable sample numbers. As well as offering a capacity of ~300 µL*, the plate ensures no well waste with each plate set to the exact number of samples to be extracted.

No Emulsion Formation

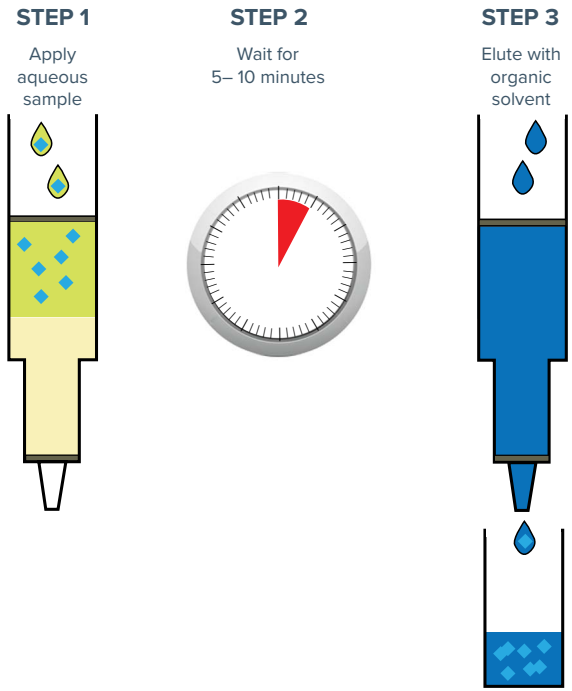
The SLE process ensures all aqueous sample is absorbed, ensuring the water immiscible elution solvent does not come into direct contact with the original aqueous sample. When the analytes are eluted, the chosen solvent is free of the original sample, providing an emulsion free single solvent for evaporation, reconstitution and analysis.

Transferring Liquid-Liquid Extraction Methods

Existing liquid-liquid extraction methods can be rapidly transferred to SLE. With solubility being the main "extraction mechanism", the water immiscible solvent used for LLE is also an ideal elution solvent when using TELOS SLE plates.

The Supported Liquid Extraction Process

The use of a diatomaceous earth provides a support or surface to mimic the liquid-liquid extraction process. The diatomaceous earth acts as a sponge, absorbing the aqueous sample that is initially applied to each well. The analytes remain on the surface of the support (there is no chemical interaction between the analytes and the support). Once the aqueous sample is fully absorbed, a water immiscible solvent is used to elute the analytes. The solvent is passed through each well, readily dissolving the analytes and allowing collection in the collection plate (placed beneath the TELOS SLE plate).



*a 300 µL plasma sample load assumes a 1:1, v/v dilution with the appropriate buffer. The plasma sample volume can be increased further but will require a smaller volume of buffer; this can impact flow rate consistency from well to well.

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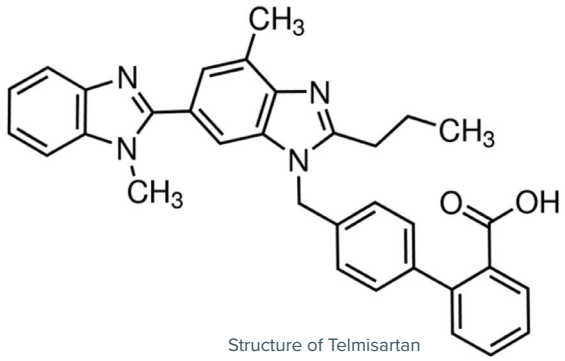
Application

Extraction of telmisartan from human plasma using an improved capacity SLE 96-well plate describes the extraction of the angiotensin receptor blocker, telmisartan, from plasma.

TELOS Methodology	
SLE Plate	TELOS SLE 400 mg Plate
Sample Pre-treatment	Dilute plasma, 1:1, v/v with buffer
Sample Application	Apply sample, 300 µL, to the TELOS SLE plate
Pause	Allow sample to be absorbed (5 mins)
Elution	Elute with MTBE (2 x 700 µL) using gravity flow
Post Extraction	Evaporate and reconstitute in solvent/mobile phase

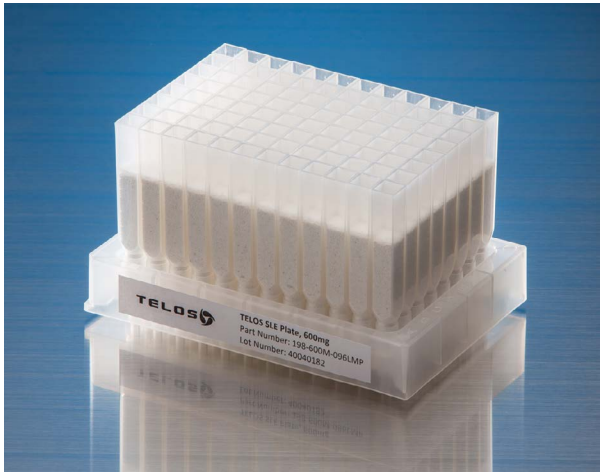
Concentration (ng/mL)	Recovery (%)	RSD
2	86.8	3.9
1000	88.1	3.5

*a 300 µL plasma sample load assumes a 1:1, v/v dilution with the appropriate buffer. The plasma sample volume can be increased further but will require a smaller volume of buffer; this can impact flow rate consistency from well to well.



Structure of Telmisartan

TELOS SLE Plate				
Description	Volume	Pack Size	Mfg Part #	Item #
TELOS SLE Plate	100 mg	Each	198-100M-096P	06482-07
	200 mg	Each	198-200M-096P	06482-08
	400mg	Each	198-400M-096P	06482-35
	600mg	Each	198-600M-096LMP	06482-17



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Syringe Filters

KX Syringe Filters i
range of non-sterile
filters for reliable
Reproducible membrane quality and
automated manufacturing
ensures particulates are removed from
each and every , extending
analytical column lifeti
injection port or .

- Comprehensive
- Color coded for easy identification
- Solvent resistant housing with minimal extractables
- Leak-free Luer-lok and Luer connections
- User-friendly storage options
- Available with integral pre-filter
- Bulk pack options available

Utilizing the standard Luer-lok/Luer connections, KX syringe filters are available in 0.22 µm and 0.45µm porosities and 4 mm, 13 mm, 25 mm, and 30mm diameters. KX syringe filters are available in a wide selection of membranes, including Nylon, PTFE and PVDF, supporting all common sample preparation applications.

The use of a retainer ring seals the polypropylene housing, preventing leaking and sample loss.

All KX syringe filters are color coded, allowing easy identification of an individual filter, ensuring the correct filter is selected for each sample.

KX syringe filters are supplied in resealable containers allowing easy storage and preventing contamination during multiple opening/closing.

For particulate laden samples, KX syringe filters are also available with an integral depth filter.

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Nylon

- Hydrophilic surface, good solvent resistance and medium protein binding
- Filtration of all aqueous samples and most organic solvents
- Strong mechanical stability
- Excellent chemical compatibility (esters, bases, phenols, and alcohols)

Nylon without pre-filter				
Description	**Pore Size**	**Pack Size**	**Mfg Part #**	**SKU #**
Nylon 4 mm	0.22 µm	100	ESF-NY-04-022	12915-77
	0.45 µm	100	ESF-NY-04-045	12915-78
Nylon 13 mm	0.22 µm	100	ESF-NY-13-022	12915-80
	0.45 µm	100	ESF-NY-13-045	12915-83
Nylon 25 mm	0.22 µm	100	ESF-NY-25-022	12915-87
	0.45 µm	100	ESF-NY-25-045	12915-90
Nylon 30 mm	0.22 µm	100	ESF-NY-30-022	12915-99
	0.45 µm	100	ESF-NY-30-045	12916-02

Nylon with integral pre-filter				
Description	**Pore Size**	**Pack Size**	**Mfg Part #**	**SKU #**
Nylon 13 mm	0.22 µm	100	ESF-NY-13-022-PF	12915-82

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PTFE

- Highest solvent resistance and high protein binding
- Filtration of non-aqueous or solvent based samples
- Condition with methanol or ethanol prior to aqueous sample filtration
- Extremely broad chemical and thermal compatibility
- Recommended for strong acids and bases

PTFE without pre-filter				
Description	**Pore Size**	**Pack Size**	**Mfg Part #**	**SKU #**
PTFE 4 mm	0.22 µm	100	ESF-PT-04-022	12916-56
	0.45 µm	100	ESF-PT-04-045	12916-58
PTFE 13 mm	0.22 µm	100	ESF-PT-13-022	12916-60
	0.45 µm	100	ESF-PT-13-045	12916-63
PTFE 25 mm	0.22 µm	100	ESF-PT-25-022	12916-66
	0.45 µm	100	ESF-PT-25-045	12916-69
PTFE 30 mm	0.22 µm	100	ESF-PT-30-022	12916-74
	0.45 µm	100	ESF-PT-30-045	12916-77

PTFE with integral pre-filter				
Description	**Pore Size**	**Pack Size**	**Mfg Part #**	**SKU #**
PTFE 25 mm	0.22 µm	100	ESF-PT-25-022-PF	12916-68
	0.45 µm	100	ESF-PT-25-045-PF	12916-71
PTFE 30 mm	0.22 µm	100	ESF-PT-30-022-PF	—
	0.45 µm	100	ESF-PT-30-045-PF	—

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Hydrophilic PTFE

- Low protein binding
- Particulate removal from aqueous and organic solutions
- High flow rates with minimal aqueous extractables
- Wide range of working temperature
- Recommended for filtering HPLC samples and mobile phases
- Compatible with organic solvents and strong alkaline solutions

Hydrophilic PTFE without pre-filter				
Description	**Pore Size**	**Pack Size**	**Mfg Part #**	**SKU #**
Hydrophilic PTFE 13 mm	0.22 µm	100	ESF-PTH-13-022	12916-80
	0.45 µm	100	ESF-PTH-13-045	12916-83
Hydrophilic PTFE 25 mm	0.22 µm	100	ESF-PTH-25-022	12916-86
	0.45 µm	100	ESF-PTH-25-045	12916-89

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PES
PVDF
HYDROPHILIC PVDF
MIXED CELLULOSE ESTER
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PES

- Naturally hydrophilic and low protein binding
- Ideal for aqueous based samples
- Fast flow rate and high throughout
- General filtration of biological samples

PES without pre-filter				
Description	**Pore Size**	**Pack Size**	**Mfg Part #**	**SKU #**
PES 4 mm	0.22 µm	100	ESF-PES-04-022	12916-06
	0.45 µm	100	ESF-PES-04-045	12916-08
PES 13 mm	0.22 µm	100	ESF-PES-13-022	12916-10
	0.45 µm	100	ESF-PES-13-045	12916-13
PES 25 mm	0.22 µm	100	ESF-PES-25-022	12916-16
	0.45 µm	100	ESF-PES-25-045	12916-19
PES 30 mm	0.22 µm	100	ESF-PES-30-022	12916-22
	0.45 µm	100	ESF-PES-30-045	12916-25

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PVDF

- Broad chemical compatibility and low UV absorbing extractables
- Highly resistant to most solvents and low protein binding
- General filtration of biological samples
- Filtration of all aqueous and most solvent based samples
- Filtration of proteins and tissue cultures

PVDF without pre-filter				
Description	Pore Size	Pack Size	Mfg Part #	SKU #
PVDF 4 mm	0.22 µm	100	ESF-PV-04-022	12916-98
	0.45 µm	100	ESF-PV-04-045	12917-00
PVDF 13 mm	0.22 µm	100	ESF-PV-13-022	12917-02
	0.45 µm	100	ESF-PV-13-045	12917-05
PVDF 25 mm	0.22 µm	100	ESF-PV-25-022	12917-08
	0.45 µm	100	ESF-PV-25-045	12917-11
PVDF 30 mm	0.22 µm	100	ESF-PV-30-022	12917-17
	0.45 µm	100	ESF-PV-30-045	12917-20

PVDF with integral pre-filter				
Description	Pore Size	Pack Size	Mfg Part #	SKU #
PVDF 13 mm	0.22 µm	100	ESF-PV-13-022-PF	12917-04
	0.45 µm	100	ESF-PV-13-045-PF	12917-07

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Hydrophilic PVDF

- Modified PVDF membrane for inherent water wettability
- Extremely low protein and preservative binding
- Compatible with a wide range of solvents, acids and chemicals
- Extremely low extractables
- Filtration of antibiotics, vaccines, diagnostics, serum, tissue culture media, and media additives
- Clarification and purification of deionised water, aqueous solvents, acids, bases, and plating solutions

Hydrophilic PVDF without pre-filter				
Description	Pore Size	Pack Size	Mfg Part #	SKU #
Hydrophilic PVDF 25 mm	0.45 µm	100	ESF-PVH-25-045	12917-32
Hydrophilic PVDF 30 mm	0.45 µm	100	ESF-PVH-30-045	12917-38

Mixed Cellulose Esters (MCE)

- Improved hydrophilic character and very low protein binding
- Improved aqueous sample flow and molecular weight cut off
- Ideal for aqueous based samples, tissue cultures and sensitive biological samples
- Lower chemical resistance

MCE without pre-filter				
Description	Pore Size	Pack Size	Mfg Part #	SKU #
MCE 4 mm	0.22 µm	100	ESF-MC-04-022	12915-53
	0.45 µm	100	ESF-MC-04-045	12915-55
MCE 13 mm	0.22 µm	100	ESF-MC-13-022	12915-57
	0.45 µm	100	ESF-MC-13-045	12915-60
MCE 25 mm	0.22 µm	100	ESF-MC-25-022	12915-63
	0.45 µm	100	ESF-MC-25-045	12915-66
MCE 30 mm	0.22 µm	100	ESF-MC-30-022	12915-70
	0.45 µm	100	ESF-MC-30-045	12915-73

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Regenerated Cellulose

- Hydrophilic
- Easily wettable
- Resistant to most solvents and aqueous solutions (pH range 3–12)
- Low non-specific of adsorption
- Particle removal from solvents
- Mobile phase filtration for HPLC

Regenerated Cellulose without pre-filter				
Description	**Pore Size**	**Pack Size**	**Mfg Part #**	**SKU #**
Regenerated Cellulose 13 mm	0.22 µm	100	ESF-RC-13-022	12917-45
	0.45 µm	100	ESF-RC-13-045	12917-48
Regenerated Cellulose 25 mm	0.22 µm	100	ESF-RC-25-022	12917-51
	0.45 µm	100	ESF-RC-25-045	12917-54
Regenerated Cellulose 30 mm	0.22 µm	100	ESF-RC-30-022	12917-57
	0.45 µm	100	ESF-RC-30-045	12917-60

Regenerated Cellulose integral pre-filter				
Description	**Pore Size**	**Pack Size**	**Mfg Part #**	**SKU #**
Regenerated Cellulose 25 mm	0.45 µm	100	ESF-RC-25-045-PF	12917-56
Regenerated Cellulose 30 mm	0.45 µm	100	ESF-RC-30-045-PF	12917-62

Specifications

Property	Diameter (mm)			
	4	**13**	**25**	**30**
Filter Area (cm2)	0.1	0.65	3.9	4.5
Burst Pressure (psi)	75	100	100	100
Retain Volume (µL)	8	30	120	140
Sample Volume (mL)	2	6	70	90
Housing Material	Polypropylene			
Connector (inlet/outlet)	Female Luer-Lok/Male Luer			

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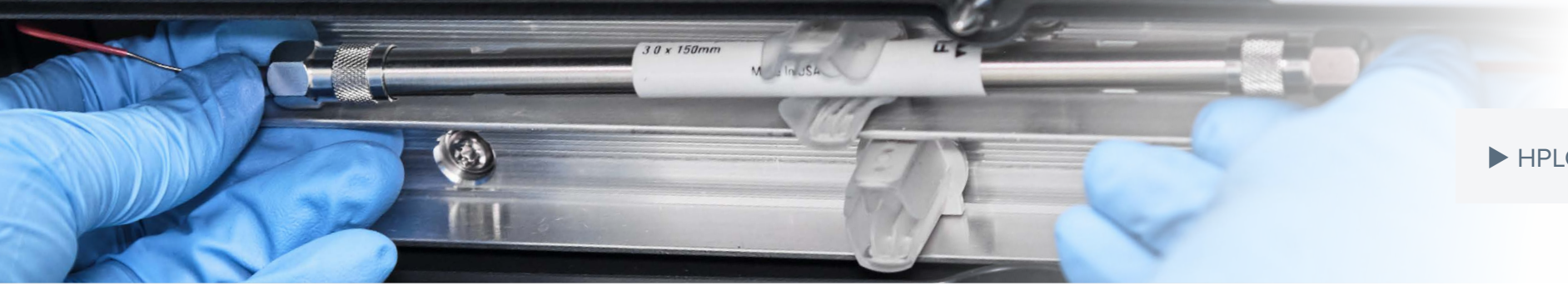

TELOS HPLC & UHPLC Columns

HPLC & UHPLC

- Comprehensive range of high density bonded phases producing robust materials
- Wide range of selectivities utilizing bonded phases from C8, C18, C18 Acid/Base Deactivated, and C18 Polar phases to Silica HILIC and Cyano
- Unique selectivities of Phenyl Hexyl and Penta Fluoro Phenyl
- Low bleed Penta Fluoro Phenyl and mass spec optimized C18
- 300 Å C4 for peptides and proteins

TELOS HPLC & UHPLC Columns are available packed with a variety of standard and wide pore materials, and optimum column geometries for 1.8 µm, 3 µ, and 5 µm particle sizes.

TELOS HPLC & UHPLC Columns

Highlights

- Comprehensive range of high density bonded phases producing robust materials
- Wide range of selectivities utilizing bonded phases from C8, C18, C18 Acid/ Base Deactivated, and C18 Polar phases to Silica HILIC and Cyano
- Unique selectivities of phenyl hexyl and penta fluoro phenyl
- Low bleed Penta Fluoro Phenyl (PFP) and mass spec optimized C18
- 300 Å C4 for peptides and proteins

TELOS HPLC & UHPLC Columns are available packed with a variety of standard and wide pore materials, and optimum column geometries for 1.8 µm, 3 µm and 5µm particle sizes.

The TELOS HPLC & UHPLC column range of bonded phases includes:

TELOS C8 and C18 - highly base deactivated phases, resulting in the most inert silica based C8 and C18 materials available. High density bonding levels (4 µmol/m2) result in columns with superior peak shapes, reproducibility and selectivity over a wide pH range (pH 1–12).

TELOS C18 AB-D - specially deactivated to produce superior peak shapes and performance for amines and acids. TELOS ultra pure silica selection, proprietary bonding, endcapping reagents and procedures yield columns that are much more resistant to degradation by acidic and basic mobile phase compositions, while improving peak shapes for amines and acids as a result of the reduced negative surface interactions.

TELOS C18 Polar - a high density packing specifically engineered for the retention of polar analytes, producing superior hydrophobic performance even when utilizing 100% aqueous mobile phases.

TELOS PFP - PFP is a hydrophobic phase with alternative selectivity when compared to classical C18 materials. The separation process is based on 4 different retention mechanisms (π-π, dipole-dipole, polar (H bonds) and hydrophobic interactions). The PFP phase is recommended for the separation of aromatic and unsaturated compounds, phenols, halogenated compounds, isomers, polar compounds, and the retention of basic compounds.

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TELOS PFP-LB - a penta fluoro phenyl that has been baseline stabilized and is ideal for high performance separations including natural products, halogenated compounds, aromatics, conjugated compounds, and trace impurities in complex matrices. Many of these high performance separations were not possible with existing PFP columns, particularly in the area of trace impurities, where baseline bleed levels were unacceptable.

TELOS Phenyl Hexyl - exhibits unique selectivity and comprises a hexyl linker and a phenyl ring. The TELOS dense bonding process and the presence of the hexyl linker reduces bonded phase hydrolysis and increases chemical stability. Applications include an increased retention for polar, aromatic and amine compounds.

TELOS MSP C4 300Å - consists of butyl aliphatic groups bonded to the surface of 300Å pore diameter ultra high purity silica. TELOS MSP C4 300 Å can be used to separate glycoproteins, haemoglobin variants, human growth hormone, and membrane proteins.

TELOS Cyano - because of its properties, cyano may be employed in both normal phase and reversed phase. When it is used as normal phase, the rapid equilibration with mobile phase will make it more convenient to use than silica columns, especially for gradient elution applications. It is ideal for the separation of aromatic alcohols, pesticides and broad ranges of pharmaceuticals, including steroids and analgesics. In reversed phase applications TELOS Cyano is less retentive than C18 and C8. Applications include the retention and separation of strongly basic analytes, fast elution of hydrophobic molecules, a unique selectivity, good peak shape for polar and compatibility with highly aqueous mobile phases.

TELOS Silica HILIC - used in conjunction with highly concentrated organic mobile phases (> 85%, v/v acetonitrile) to enhance the retention of polar analytes which are unretained in reverse phase conditions.

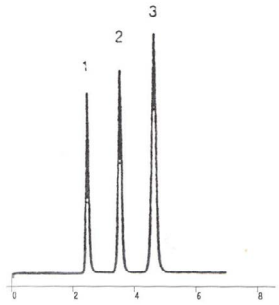
TELOS HPLC Columns

- Available in 3 µm and 5 µm particle sizes
- Available in Silica, C8, C18 AB-D, C18 Polar, PFP (Penta Fluoro Phenyl), Phenyl Hexyl, CN, and HILIC bonded phases
- 300 Å C4 for peptides and proteins
- TELOS columns are also available in phenyl bonded materials upon request

TELOS HPLC Chromatogram

TELOS Phenyl Hexyl 150 x 4.6 mm, 5 µm

Mobile Phase	Acetonitrile/Water (80:20, v/v)
Flow Rate	1.0 mL/min
Detection	UV @ 235 nm
Sample	1. Lormetazepam
	2. Diazepam
	3. Oxazepam



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TELOS HPLC Columns				
Description	Column Particle Size	Dimensions	Mfg Part #	Item #
TELOS C18	5 µm	250 x 4.6 mmid	3000-5-250-046	06481-96
	5 µm	150 x 4.6 mmid	3000-5-150-046	06481-23
	5 µm	100 x 4.6 mmid	3000-5-100-046	06481-94
	3 µm	150 x 4.6 mmid	3000-3-150-046	06480-15
	3 µm	100 x 4.6 mmid	3000-3-100-046	06480-93
TELOS C18 AB-D	5 µm	250 x 4.6 mmid	3001-5-250-046	06480-40
	5 µm	150 x 4.6 mmid	3001-5-150-046	06480-18
	5 µm	100 x 4.6 mmid	3001-5-100-046	06480-17
	3 µm	150 x 4.6 mmid	3001-3-150-046	06481-28
	3 µm	100 x 4.6 mmid	3001-3-100-046	06481-27
TELOS C18 Polar	5 µm	250 x 4. 6mmid	3002-5-250-046	06481-32
	5 µm	150 x 4.6 mmid	3002-5-150-046	06481-31
	5 µm	100 x 4.6 mmid	3002-5-100-046	06481-30
	3 µm	150 x 4.6 mmid	3002-3-150-046	06481-97
	3 µm	100 x 4.6 mmid	3002-3-100-046	06480-43
TELOS C8	5 µm	250 x 4.6 mmid	3019-5-250-046	06480-66
	5 µm	150 x 4.6 mmid	3019-5-150-046	06481-99
	5 µm	100 x 4.6 mmid	3019-5-100-046	06480-98
	3 µm	150 x 4.6 mmid	3019-3-150-046	06480-44
	3 µm	100 x 4.6 mmid	3019-3-100-046	06480-97
TELOS PFP	5 µm	250 x 4.6 mmid	3017-5-250-046	06481-98
	5 µm	150 x 4.6 mmid	3017-5-150-046	06480-20
	5 µm	100 x 4.6 mmid	3017-5-100-046	06481-33
	3 µm	150 x 4.6 mmid	3017-3-150-046	06480-95
	3 µm	100 x 4.6 mmid	3017-3-100-046	06481-67
TELOS Phenyl Hexyl	5 µm	250 x 4.6 mmid	3037-5-250-046	06480-95
	5 µm	150 x 4.6 mmid	3037-5-150-046	06481-71
	5 µm	100 x 4.6 mmid	3037-5-100-046	06480-28
	3 µm	150 x 4.6 mmid	3037-3-150-046	06480-46
	3 µm	100 x 4.6 mmid	3037-3-100-046	06480-27

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TELOS HPLC Columns (continued)				
Description	**Column Particle Size**	**Dimensions**	**Mfg Part #**	**Item #**
TELOS Cyano	5 µm	250 x 4.6 mmid	3038-5-250-046	06481-75
	5 µm	150 x 4.6 mmid	3038-5-150-046	06481-39
	5 µm	100 x 4.6 mmid	3038-5-100-046	06481-02
	3 µm	150 x 4.6 mmid	3038-3-150-046	06480-31
	3 µm	100 x 4.6 mmid	3038-3-100-046	06481-38
TELOS Silica HILIC	5 µm	250 x 4.6 mmid	3046-5-250-046	06480-72
	5 µm	100 x 4.6 mmid	3046-5-100-046	06480-69
	3 µm	150 x 4.6 mmid	3046-3-150-046	06480-68
	3 µm	100 x 4.6 mmid	3046-3-100-046	06481-05

TELOS MSP C4 300 Å – Analysis of Peptides and Proteins

TELOS MSP C4 300 Å is specifically developed for the analysis of peptides and proteins. Available in both 2.1 mmid and 4.6 mmid columns, the butyl stationary phase provides excellent separation of glycoproteins, haemoglobin variants, human growth hormone, and membrane proteins.

TELOS HPLC Columns				
Description	**Column Particle Size**	**Dimensions**	**Mfg Part #**	**Item #**
TELOS MSP C4 300 Å	5 µm	100 x 2.1 mmid	3059-5-100-021	06481-87
	5 µm	50 x 2.1 mmid	3059-5-050-021	06480-79
	5 µm	150 x 4.6 mmid	3059-5-150-046	06481-78
	5 µm	100 x 4.6 mmid	3059-5-100-046	06481-41

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TELOS UHPLC Columns

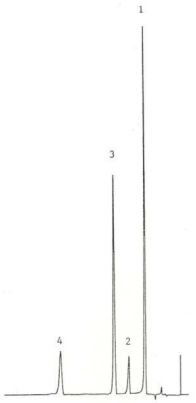
- Available in 1.8 µm particle size
- Available in Silica, C8, C18 AB-D, C18 Polar, PFP (Penta Fluoro Phenyl), Phenyl Hexyl, CN, and HILIC bonded phases
- Low bleed Penta Fluoro Phenyl and mass spec optimized C18
- 300 Å C4 for peptides and proteins
- TELOS columns are also available in phenyl bonded materials on special request
- TELOS UHPLC columns provide the highest resolution over a wide variety flow rate conditions and mobile phase compositions

TELOS UHPLC 1.8 µm columns are specifically designed for use with ultra high pressure liquid chromatograms. These columns have been engineered for chromatography at pressures up to 19,000 psi. Expertise in high purity silica selection, surface modification, high density bonding technology, and column packing technology has enabled TELOS to develop high quality materials based on the 1.8 µm particle technology. TELOS C18 MSO is a fully porous C18 optimized for use with LC-MS applications. TELOS MSP C4 300 Å is also available in 2.1 mmid column geometries for high performance bio molecule separations.

TELOS UHPLC Chromatograms

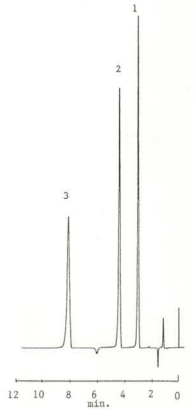
TELOS C18 Polar 1.8 µm 10 cm x 2.1 mm

Mobile Phase	CH_3CN/0.05M KH_2PO_4 (10:90, v/v) pH = 3.2
Flow Rate	0.4 mL/min
Detection	UV @ 254 nm
Temperature	Ambient
Sample	1. Procainamide HCL 2. (+)-V-Ephedrine HCL 3. Acetaminophen 4. Caffeine



TELOS PFP 1.8 µm 10 cm x 2.1 mm

Mobile Phase	CH_3CN/0.05M KH_2PO_4 (10:90, v/v) pH = 3.2
Flow Rate	0.4 mL/min
Detection	UV @ 254 nm
Temperature	Ambient
Sample	1. Theobromine 2. Theophylline 3. Caffeine



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TELOS UHPLC Columns				
Description	**Column Particle Size**	**Dimensions**	**Mfg Part #**	**Item #**
TELOS C18	1.8 µm	100 x 2.1 mmid	3000-2-100-021	06480-38
	1.8 µm	50 x 2.1 mmid	3000-2-050-021	06480-92
TELOS C18 AB-D C18	1.8 µm	100 x 2.1 mmid	3001-2-100-021	06481-63
	1.8 µm	50 x 2.1 mmid	3001-2-050-021	06480-16
TELOS C8	1.8 µm	100 x 2.1 mmid	3019-2-100-021	06480-21
	1.8 µm	50 x 2.1 mmid	3019-2-050-021	06480-96
TELOS PFP	1.8 µm	100 x 2.1 mmid	3017-2-100-021	06480-94
	1.8 µm	50 x 2.1 mmid	3017-2-050-021	06481-66
TELOS Phenyl Hexyl	1.8 µm	100 x 2.1 mmid	3037-2-100-021	06481-01
	1.8 µm	50 x 2.1 mmid	3037-2-050-021	06481-70
TELOS Cyano	1.8 µm	100 x 2.1 mmid	3038-2-100-021	06481-74
	1.8 µm	50 x 2.1 mmid	3038-2-050-021	06480-29
TELOS Silica	1.8 µm	100 x 2.1 mmid	3046-2-100-021	06481-04
	1.8 µm	50 x 2.1 mmid	3046-2-050-021	06480-32
TELOS C18 Polar	1.8 µm	100 x 2.1 mmid	3002-2-100-021	06480-42
	1.8 µm	50 x 2.1 mmid	3002-2-050-021	06480-19

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Deuterium Lamps

Our range of deuterium (D2) lamps are made to fit the majority of detectors used in analytical labs today. Our lamps are used by many of the major pharmaceutical and contract research organizations (CROs) around the globe.

Our lamps are manufactured under stringent ISO 9001 quality procedures. Each lamp is manufactured to rigorous standards and traceable from manufacturing to customer delivery.

When you choose a Spex D2 lamp, you receive the quality you need at a savings you deserve. With the lamps' constant intensity of light, stable spectrum and long lifespan of up to 2,000 hours, you can achieve continuous reliable results.

Highlights

- We offer the most comprehensive range of lamps compatible with approximately 90% of all leading instruments worldwide
- Our lamps come with the same warranty as offered by instrument manufacturers
- Our lamps are manufactured and tested in an ISO 9001 accredited facility
- Our lamps typically offer up to a 30% cost savings compared to instrument manufacturers' lamps

Superior Quality Control

- Manufactured in an ISO 9001 accredited facility
- Individually tested and issued with a test certificate
- Test results are recorded against unique serial numbers
- Full traceability from manufacture through to customer delivery

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Deuterium Lamps, Long Life, 2000 hour bulb				
Compatible With	**Equivalent SKUs**	**Warranty**	**Mfg Part #**	**Item #**
Agilent 1100 VWD D2 Longlife Lamp	G1314-60100, G1314-60101/2140-0585	2,000 Hours	LD-AGI-104LL	11941-11
Agilent 8453 D2 Lamp	2140-0605	2,000 Hours	LD-AGI-105	11941-12
Agilent 1100, 1200 G1315/G1365 A & B Series DAD Longlife D2 Lamp	5181-1530, 5182-1530, 2140-0813, 2140-0590	2,000 Hours	LD-AGI-105LL	11941-13
Agilent 1100, 1200 G1315/G1365 C & D Series DAD Longlife D2 Lamp	2140-0820	2,000 Hours	LD-AGI-107LL	11941-14
Agilent 1290 G4212A/B DAD Longlife D2 Lamp (8-Pin)	5190-0917	2,000 Hours	LD-AGI-108LL	11941-15
Dionex Ultimate VWD 3000, 3400 Nano LC	6074-1110/L6999-52	2,000 Hours	LD-DIO-105LL	11941-17
Shimadzu SPD-10A, AVP, AV, AVVP, M10AVP, 20A, 20AV D2 Lamp	228-34016-02	2,000 Hours	LD-SHI-101LL	11941-26
Shimadzu Spectrophotometer D2 Lamp	062-65055-05/062-65062-01/062-65063-02/200-75503-01	1,000 Hours	LD-SHI-102SLL	11941-27
Shimadzu LC2010 Longlife D2 Lamp	228-37401-00/-91	2,000 Hours	LD-SHI-103LL	11941-28
Waters 996, 2996 PDA D2 Longlife Lamp	WAT052586/WAT057760	2,000 Hours	LD-WAT-104LL	11941-35
Waters 2487 DAD Longlife D2 Lamp	WAS081142	2,000 Hours	LD-WAT-105LL	11941-36
Waters Acquity 2489/2998 Longlife D2 Lamp	201000281/201000186	2,000 Hours	LD-WAT-108LL	11958-00
Hitachi LaChrom L&U Series Nosed D2 Lamp	885-3570/890-2420/890-2430/892-2550/891-2377/635-0946	1,000 Hours	LD-MEH-100S	11958-11

Further Deuterium and Hollow Cathode Lamps are available, please contact us.

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VapLock™ Closed Solvent Containment Systems for Your HLPC

VapLock is a safety solution for scientists, laboratory safety personnel and researchers worldwide, designed to ensure proper delivery and waste containment of industrial chemicals and solvents.

A versatile product solution, VapLock conforms to a broad spectrum of laboratory and industrial applications. Useful wherever safety protocol for chemical handling is required or preferred, and through closed-system technology reduces harmful emissions which are potentially hazardous to employees and the environment. Our mission is to create a safer, healthier and cleaner workplace by providing unique, effective and price-sensitive solutions to fluid handling problems in the laboratory.

▶ Solvent Delivery

▶ Solvent Collection

▶ Systems & Kits

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Solvent Delivery

Our VapLock solvent delivery products allow you to maintain a safe HPLC workplace. VapLock solvent delivery allows you to prevent hazardous VOCs from evaporating from your HPLC solvent reservoir, while ensuring that analysis is not contaminated and that solvent composition remains constant. In the long run, using VapLock helps you to maintain a safe and compliant system that is easy to use and is reliable.

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SOLVENT DELIVERY CAPS
Solvent Delivery Caps
Solvent Delivery Caps with Inlet Valve and Filter

ADAPTERS FOR TUBING
VapLock Tubing Adapter, 1/8 OD x 1/4-28 UNF(M), blue PP w/ yellow ETFE
Adapters for Semi-Rigid Tubing, NPT(M)
Adapters for Semi-Rigid Tubing, UNF(M)
Adapters for FlexibleTubing
Adapters with Large Bore for Semi-Rigid Tubing

THREADED PLUGS
VapLock Port Plug, 1/4
Threaded Plugs, UNF(M)
Threaded Plugs, NPT(M)

VALVES
Solvent Management Valve
Inlet Check Valves for Solvent Management
Reversible Valves for Solvent Management
Relief Valves for Solvent Management

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Solvent Delivery Caps

Our VapLock solvent delivery caps are easy to connect and reliable. Each cap is constructed from HPLC solvent compatible materials and is designed to create a tight seal against the solvent reservoir. Inlet tubing connects via threaded connection ports for a perfect seal.

- Caps accept standard 1/4”-28 UNF(M) fittings to easily connect semi-rigid tubing
- A 50 µm PTFE Filter covers the valve assembly to reduce particulates
- Designed with ‘anti-twist’ to prevent tubes from tangling when caps are attached or removed
- Chemically compatible, colorful, autoclavable caps constructed from rigid PTFE body and PP collar
- Caps with threaded port have ports angled at 10° tilt for more accessible tubing connections

Solvent Delivery Caps					
	Cap Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	PTFE/PP/SS	GL45	2 x 1/4-28 UNF(F) with SS inserts	S45X-2H	12018-00
	PTFE/PP/SS	GL45	3 x 1/4-28 UNF(F) with SS inserts	S45X-3H	12018-01
	PTFE/PP/SS	GL45	4 x 1/4-28 UNF(F) with SS inserts	S45X-4H	12018-02
	PTFE/PP	GL45	2 x 1/4-28 UNF(F)	S45X-2D	12018-03
	PTFE/PP	GL45	3 x 1/4-28 UNF(F)	S45X-3D	12018-04
	PTFE/PP	GL45	4 x 1/4-28 UNF(F)	S45X-4D	12018-05

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Solvent Delivery Caps (continued)					
	Cap Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	PTFE/PP/SS	GL38	2 x 1/4-28 UNF(F) with SS inserts	S38X-2H	12018-12
	PTFE/PP/SS	GL38	3 x 1/4-28 UNF(F) with SS inserts	S38X-3H	12018-13
	PTFE/PP/SS	GL38	4 x 1/4-28 UNF(F) with SS inserts	S38X-4H	12018-14
	PTFE/PP	GL38	2 x 1/4-28 UNF(F)	S38X-2D	12018-15
	PTFE/PP	GL38	3 x 1/4-28 UNF(F)	S38X-3D	12018-16
	PTFE/PP	GL38	4 x 1/4-28 UNF(F)	S38X-4D	12018-17
	PTFE/PP/SS	Nalgene 38-430	2 x 1/4-28 UNF(F) with SS inserts	S38NX-2H	12018-24
	PTFE/PP/SS	Nalgene 38-430	3 x 1/4-28 UNF(F) with SS inserts	S38NX-3H	12018-25
	PTFE/PP/SS	Nalgene 38-430	4 x 1/4-28 UNF(F) with SS inserts	S38NX-4H	12018-26

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Solvent Delivery Caps (continued)					
	Cap Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	PTFE/PP	Nalgene 38-430	2 x 1/4-28 UNF(F)	S38NX-2D	12018-27
	PTFE/PP	Nalgene 38-430	3 x 1/4-28 UNF(F)	S38NX-3D	12018-28
	PTFE/PP	Nalgene 38-430	4 x 1/4-28 UNF(F)	S38NX-4D	12018-29
	PTFE/PP/SS	Wako 38 mm	2 x 1/4-28 UNF(F) with SS inserts	S38WX-2H	12018-36
	PTFE/PP/SS	Wako 38 mm	3 x 1/4-28 UNF(F) with SS inserts	S38WX-3H	12018-37
	PTFE/PP/SS	Wako 38 mm	4 x 1/4-28 UNF(F) with SS inserts	S38WX-4H	12018-38
	PTFE/PP	Wako 38 mm	2 x 1/4-28 UNF(F)	S38WX-2D	12018-39
	PTFE/PP	Wako 38 mm	3 x 1/4-28 UNF(F)	S38WX-3D	12018-40
	PTFE/PP	Wako 38 mm	4 x 1/4-28 UNF(F)	S38WX-4D	12018-41

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Solvent Delivery Caps (continued)					
	Cap Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	PTFE/PP/SS	GL32	2 x 1/4-28 UNF(F) with SS inserts	S32X-2H	12018-48
	PTFE/PP/SS	GL32	4 x 1/4-28 UNF(F) with SS inserts	S32X-4H	12018-50
	PTFE/PP	GL32	2 x 1/4-28 UNF(F)	S32X-2D	12018-51
	PTFE/PP	GL32	3 x 1/4-28 UNF(F)	S32X-3D	12018-52
	PTFE/PP	GL32	4 x 1/4-28 UNF(F)	S32X-4D	12018-53
	PTFE/PP	GL25	2 x 1/4-28 UNF(F)	S25X-2D	12018-54
	PTFE/PP	GL25	3 x 1/4-28 UNF(F)	S25X-3D	12018-55

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Solvent Delivery Caps with Inlet Valve and Filter

Caps with integrated air inlet valve and filter permit air to enter the bottle for vacuum displacement while solvent is pumped to the instrument. Valves are made of PTFE and 300-series stainless steel components and feature a 50 µm PTFE filter to reduce particulate contamination. Select from FFKM, EPDM or Viton® valve seal options.

Solvent Delivery Caps with Inlet Valve and Filter					
	Cap Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	EPDM air inlet valve	GL45	2 x 1/4"-28 UNF(F)	S45XEV-2D	12018-06
	EPDM air inlet valve	GL45	4 x 1/4"-28 UNF(F)	S45XEV-4D	12018-07
	FFKM air inlet valve	GL45	2 x 1/4"-28 UNF(F)	S45XFV-2D	12018-08
	FFKM air inlet valve	GL45	4 x 1/4"-28 UNF(F)	S45XFV-4D	12018-09
	Viton® air inlet valve	GL45	2 x 1/4"-28 UNF(F)	S45XVV-2D	12018-10

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Solvent Delivery Caps with Inlet Valve and Filter (continued)					
	Cap Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	Viton® air inlet valve	GL45	4 x 1/4"-28 UNF(F)	S45XVV-4D	12018-11
	FFKM air inlet valve	GL38	2 x 1/4"-28 UNF(F)	S38XFV-2D	12018-18
	EPDM air inlet valve	GL38	2 x 1/4"-28 UNF(F)	S38XEV-2D	12018-19
	Viton® air inlet valve	GL38	2 x 1/4"-28 UNF(F)	S38XVV-2D	12018-20
	FFKM air inlet valve	GL38	4 x 1/4"-28 UNF(F)	S38XFV-4D	12018-21
	Viton® air inlet valve	GL38	4 x 1/4"-28 UNF(F)	S38XVV-4D	12018-23
	FFKM air inlet valve	Nalgene 38-430	2 x 1/4"-28 UNF(F)	S38NXFV-2D	12018-32
	FFKM air inlet valve	Nalgene 38-430	4 x 1/4"-28 UNF(F)	S38NXFV-4D	12018-33
	Viton® air inlet valve	Nalgene 38-430	2 x 1/4"-28 UNF(F)	S38NXVV-2D	12018-34

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Solvent Delivery Caps with Inlet Valve and Filter (continued)					
	Cap Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	Viton® air inlet valve	Nalgene 38-430	4 x 1/4"-28 UNF(F)	S38NXVV-4D	12018-35
	EPDM® air inlet valve	Wako 38 mm	2 x 1/4"-28 UNF(F)	S38WXEV-2D	12018-42
	EPDM® air inlet valve	Wako 38 mm	4 x 1/4"-28 UNF(F)	S38WXEV-4D	12018-43
	FFKM® air inlet valve	Wako 38 mm	2 x 1/4"-28 UNF(F)	S38WXFV-2D	12018-44
	Viton® air inlet valve	Wako 38 mm	2 x 1/4"-28 UNF(F)	S38WXVV-2D	12018-46
	Viton® air inlet valve	Wako 38 mm	4 x 1/4"-28 UNF(F)	S38WXVV-4D	12018-47

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Adapters for Tubing

VapLock adapters for tubing are designed for secure leak-resistant connections, and are available in compression to threaded and hose barb to threaded formats. These adapters connect to semi-rigid and flexible tubing in a variety of sizes and can withstand pressures of 100 to 500 psi, depending on the model. There is also an option to use adapters that are color-coded by tubing size to make identification easy.

- Polypropylene adapters for flexible tubing connect 1/16” to 3/4” ID soft-wall tubing to NPT(F) port
- Adapters with large bore for semi-rigid tubing are constructed of two-piece molded polypropylene components
- Color coded adapters for semi-rigid tubing are comprised of a two-piece nut and ferrule system with polypropylene NPT(M) thread adapter
- Adapters withstand pressures of 100 to 500 psi. depending on the model
- Some NPT Adapter threads can be wrapped with PTFE tape and wrench tightened for leak-resistant connection

Adapter Fittings, Compression to Threaded NPT(M), Straight						
	Color	Compression Size / Tube O.D. (port 1) (mm)	Thread size NPT(M) (port 2) (in)	Pack Size	Mfg Part #	Item #
	Brown nut/white ferrule/ white adapter	4	1/4	PK/1	AC-108	12020-09
	White nut/blue ferrule/white adapter	4.76	1/4	PK/1	AC-109	12020-10
	Green nut/blue ferrule/ white adapter	1.6	1/4	PK/1	AC-150	12020-11
	Red nut/green ferrule/ white adapter	2	1/4	PK/1	AC-151	12020-12
	Black nut/white ferrule/ white adapter	2.2	1/4	PK/1	AC-152	12020-13
	Orange nut/white ferrule/ white adapter	2.5	1/4	PK/1	AC-153	12020-14

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Adapter Fittings, Compression to Threaded NPT(M), Straight (continued)						
	Color	Compression Size / Tube O.D. (port 1) (mm)	Thread size NPT(M) (port 2) (in)	Pack Size	Mfg Part #	Item #
	Yellow nut/orange ferrule/ white adapter	3	1/4	PK/1	AC-154	12020-15
	Blue nut/ yellow ferrule/ white adapter	3.175	1/4	PK/1	AC-155	12020-16

Adapter Fittings, Compression to Threaded UNF(M), Straight						
	Color	Compression Size / Tube O.D. (port 1) (mm)	Thread size UNF(M) (port 2) (in)	Pack Size	Mfg Part #	Item #
	Brown / White	4	5/16-24	PK/1	AQ-108	12020-01
	White / Blue	4.76	5/16-24	PK/1	AQ-109	12020-02
	Green / Blue	1.6	1/4-28	PK/10	AQ-150X	12020-03
	Red / Green	2	1/4-28	PK/10	AQ-151X	12020-04
	Black / White	2.2	1/4-28	PK/10	AQ-152X	12020-05
	Orange / White	2.5	1/4-28	PK/10	AQ-153X	12020-06

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Adapter Fittings, Compression to Threaded UNF(M), Straight (continued)						
	Color	Compression Size / Tube O.D. (port 1) (mm)	Thread size UNF(M) (port 2) (in)	Pack Size	Mfg Part #	Item #
	Yellow / Orange	3	1/4-28	PK/10	AQ-154X	12020-07
	Blue / Yellow	3.175	1/4-28	PK/10	AQ-155X	12020-08
	Red / Green	2	1/4-28	PK/1	AQ-151	12026-84
	Blue / Yellow	3.175	1/4-28	PK/1	AQ-155	12026-88

Adapter Fittings, Hose Barb to Threaded NPT(M), Straight, for Flexible Tubing						
	Barb Size / Tubing I.D. (port 1) (in)	Fitting Material	Thread size NPT(M) (port 2) (in)	Pack Size	Mfg Part #	Item #
	1/16	Polypropylene	1/4	PK/10	AB-111X	12020-17
	1/8	Polypropylene	1/4	PK/10	AB-112X	12020-18
	5/16	Polypropylene	1/4	PK/10	AB-115X	12020-21
	3/8	Polypropylene	1/4	PK/10	AB-116X	12020-22

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Adapter Fittings, Hose Barb to Threaded NPT(M), Straight, for Flexible Tubing						
	Barb Size / Tubing I.D. (port 1) (in)	Fitting Material	Thread size NPT(M) (port 2) (in)	Pack Size	Mfg Part #	Item #
	1/2	Polypropylene	1/4	PK/10	AB-117X	12020-23
	5/32	Polypropylene	1/4	PK/10	AB-118X	12020-24
	3/16	Polypropylene	1/8	PK/10	AB-123X	12020-27
	3/8	Polypropylene	1/8	PK/10	AB-126X	12020-30
	3/8	Polypropylene	1/2	PK/10	AB-205X	12020-32
	1/2	Polypropylene	1/2	PK/10	AB-206X	12020-33
	5/8	Polypropylene	1/2	PK/10	AB-207X	12020-34
	3/4	Polypropylene	1/2	PK/10	AB-208X	12020-35
	5/32	Polypropylene	1/4	PK/10	AB-118	12026-34

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Adapter Fittings, Hose Barb to Threaded NPT(M), Straight, for Flexible Tubing						
	Barb Size / Tubing I.D. (port 1) (in)	Fitting Material	Thread size NPT(M) (port 2) (in)	Pack Size	Mfg Part #	Item #
	1/8	Polypropylene	1/8	PK/10	AB-122	12026-36
	1/4	Polypropylene	1/8	PK/10	AB-124	12026-37
	5/16	Polypropylene	1/8	PK/10	AB-125	12026-38
	3/8	Polypropylene	1/8	PK/10	AB-126	12026-39
	1/2	Polypropylene	1/2	PK/10	AB-206	12026-42
	5/8	Polypropylene	1/2	PK/10	AB-207	12026-43
	3/4	Polypropylene	1/2	PK/10	AB-208	12026-44

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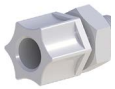
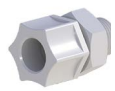
Adapter Fittings, Compression to Threaded NPT(M) with Large Bore for Semi-Rigid Tubing					
	Compression Size / Tube O.D. (port 1) (in)	Fitting Material	Thread size NPT(M) (port 2) (in)	Mfg Part #	Item #
	1/4	Polypropylene	1/4	AC-113V	12020-36
	5/16	Polypropylene	1/4	AC-114V	12020-37
	3/8	Polypropylene	1/4	AC-115V	12020-38
	1/2	Polypropylene	1/4	AC-116V	12020-39
	3/8	Polypropylene	1/2	AC-204V	12020-40
	1/2	Polypropylene	1/2	AC-205V	12020-41
	5/8	Polypropylene	1/2	AC-206V	12020-42
	3/4	Polypropylene	1/2	AC-207V	12020-43
	1/2	Polypropylene	1/4	AC-116	12026-53
	3/8	Polypropylene	1/2	AC-204	12026-57

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Threaded Plugs

VapLock threaded plugs can be used to seal unused manifold and bottle cap ports for a leak-resistant, closed system. Plugs are available in multiple materials and sizes to suit a range of HPLC set-ups.

- Threaded plugs are available with NPT(M) and UNF(M) connector thread types
- Constructed from multiple materials and in a variety sizes
- Options for NPT ports are 1/8”, 1/4”, 3/8”, and 1/2” NPT
- Bottom-sealing UNF thread options include 1/4”-28 and 5/16”-24
- UNF thread options do not require PTFE tape for leak-resistant connections (NPT thread does)

Threaded Plugs, UNF(M)						
	Thread size	Fitting Material	Description	Pack Size	Mfg Part #	Item #
	1/4”-28	POM	Port Plug, 1/4”-28 UNF(M), black acetal	10/pk	PL-103X	12020-46
	1/4”-28	PTFE	Port Plug, 1/4”-28 UNF(M), natural PTFE	10/pk	PL-104X	12020-47
	5/16”-24	PTFE	Port Plug, 5/16”-24 UNF(M), PTFE	1/ea	PL-113	12020-51
	Luer Taper Plug	PTFE	Plug, PTFE, Luer Taper Plug	1/ea	BC-132-01	12027-52

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Valves

VapLock valves are available in variety of options, including inlet check, reversible and relief. Each valve is designed to maintain pressure equilibrium within the bottle for safe solvent handling. They minimize evaporation and relieve pressure to ensure safe delivery and containment of solvents.

- Air inlet check valves allow air to enter a bottle to displace vacuum while solvent is pumped out to an instrument
- Reversible valves serve either purpose depending on the orientation of the valve
- Relief valves let pressurized bottle contents escape above the breaking pressure
- Available in a variety of materials to suit a multitude of HPLC systems
- Choice of 0.1 breaking pressure depending on valve

Inlet Check Valves for Solvent Management

	Breaking Pressure (PSI)	Wetted Materials	Connection Type	Mfg Part #	Item #
	0.1	PTFE/Viton®	1/4”-28 UNF(M)	DV-115	12020-52
	0.1	PTFE/EPDM	1/4”-28 UNF(M)	DV-115E	12020-53
	0.1	PTFE/FFKM	1/4”-28 UNF(M)	DV-215	12020-61

Reversible Valves for Solvent Management

	Breaking Pressure (PSI)	Wetted Materials	Connection Type	Mfg Part #	Item #
	0.1	PP/EPDM	1/4” NPT(M) x 1/4” NPT(M)	DV-136	12020-58
	0.1	PP/Viton®	1/4” NPT(M) x 1/4” NPT(M)	DV-137	12020-59
	0.1	PP/FFKM	1/4” NPT(M) x 1/4” NPT(M)	DV-138	12020-60

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Relief Valves for Solvent Management					
	Breaking Pressure (PSI)	Wetted Materials	Connection Type	Mfg Part #	Item #
	0.1	PTFE/Viton®	1/4”-28 UNF(M)	DV-116	12020-54
	0.1	PTFE/EPDM	1/4”-28 UNF(M)	DV-116E	12020-55
	1	PTFE/Viton®	1/4”-28 UNF(M)	DV-118	12020-56
	1	PTFE/EPDM	1/4”-28 UNF(M)	DV-118E	12020-57
	0.1	PTFE/FFKM	1/4”-28 UNF(M)	DV-216	12020-62
	1	PTFE/FFKM	1/4”-28 UNF(M)	DV-218	12020-63

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Solvent Collection

VapLock solvent waste containment products help to convert a variety of solvent collection containers into a closed system. By selecting the appropriate VapLock components, waste can be sealed effectively, allowing effluent tubing to drain into containers, without leaks or venting, forcing exhaust fumes through an exhaust filter where solvent vapors are captured before entering the laboratory.

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Activated Media Exhaust Filters
Breakthrough Color Indicator for Exhaust Filters

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THREADED PLUGS

Threaded Plugs, UNF(M)
Spex VapLock Threaded Plugs, NPT(M)

Solvent Waste Manifold Caps

Select from various manifold cap sizes to fit your laboratory and industrial solvent waste containers. Our VapLock solvent waste manifold caps are available for use with bottles, carboys, jars, pails, panel mounting, drums, and Justrite® Containers. These flexible caps ensure a secure closed HPLC system.

- Chemical resistant polypropylene or PTFE manifolds that attach to a range of containers with a gas-tight seal
- Ports accept male thread adapters to connect flexible and rigid tubing, filter or filter/indicator
- Four or ten connection ports, with versatile configuration, allow any waste line to be securely connected.
- Free spinning collar allows for quick disconnect and prevents any tangling of solvent lines
- Availble for use with bottles, carboys, jars, pails, panel mounting, drums, and Justrite® Containers

Manifold Caps for Bottles and Carboys					
	Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	Polypropylene	GL38	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM38P-10	12018-58
	Polypropylene	GL38	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM38P-4	12018-59
	PTFE	GL38	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM38X-10	12018-60
	PTFE	GL38	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM38X-4	12018-61
	Polypropylene	38-430	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM38NP-10	12018-64
	Polypropylene	38-430	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM38NP-4	12018-65

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Manifold Caps for Bottles and Carboys (continued)					
	Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	PTFE	38-430	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM38NX-10	12018-66
	PTFE	38-430	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM38NX-4	12018-67
	Polypropylene	38 mm Wako	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM38WP-10	12018-70
	Polypropylene	38 mm Wako	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM38WP-4	12018-71
	PTFE	38 mm Wako	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM38WX-10	12018-72
	PTFE	38 mm Wako	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM38WX-4	12018-73
	Polypropylene	GL45	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM45P-10	12018-76
	Polypropylene	GL45	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM45P-4	12018-77
	PTFE	GL45	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM45X-10	12018-78

Manifold Caps for Bottles and Carboys (continued)					
	Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	PTFE	GL45	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM45X-4	12018-79
	Polypropylene	DIN 45	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM45DP-10	12018-82
	Polypropylene	DIN 45	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM45DP-4	12018-83
	Polypropylene	DIN 50	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM50P-10	12018-88
	Polypropylene	DIN 50	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM50P-4	12018-89
	Polypropylene	51 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM51P-10	12018-94
	Polypropylene	51 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM51P-4	12018-95
	PTFE	51 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM51X-10	12018-96
	PTFE	51 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM51X-4	12018-97

Manifold Caps for Bottles and Carboys (continued)					
	Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	Polypropylene	53B	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM53P-10	12019-00
	Polypropylene	53B	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM53P-4	12019-01
	PTFE	53B	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM53X-10	12019-02
	PTFE	53B	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM53X-4	12019-03
	Polypropylene	DIN 60	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM60P-10	12019-06
	Polypropylene	DIN 60	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM60P-4	12019-07
	PTFE	DIN 60	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM60X-10	12019-08
	PTFE	DIN 60	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM60X-4	12019-09
	Polypropylene	61 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM61P-10	12019-12

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Manifold Caps for Bottles and Carboys (continued)					
	Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	Polypropylene	61 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM61P-4	12019-13
	PTFE	61 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM61X-10	12019-14
	Polypropylene	63 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM63P-10	12019-18
	Polypropylene	63 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM63P-4	12019-19
	PTFE	63 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM63X-10	12019-20
	PTFE	63 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM63X-4	12019-21
	Polypropylene	70 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM70NP-10	12019-30
	Polypropylene	70 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM70NP-4	12019-31
	Polypropylene	70 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM70NX-10	12019-32

Manifold Caps for Bottles and Carboys (continued)					
	Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	PTFE	70 mm	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM70NX-4	12019-33
	Polypropylene	GL80	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM80P-4	12019-37
	PTFE	GL80	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM80X-10	12019-38
	PTFE	GL80	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM80X-4	12019-39
	Polypropylene	83B	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM83P-10	12019-42
	Polypropylene	83B	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM83P-4	12019-43
	PTFE	83B	1 x 1/2” NPT(F), 3 x 1/4” NPT(F), 6 x 1/4-28 UNF(F)	WM83X-10	12019-44
	PTFE	83B	1 x 1/2” NPT(F), 3 x 1/4” NPT(F)	WM83X-4	12019-45

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Solvent Waste Manifold Caps for Jars and Pails					
	Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	Polypropylene	70 mm Rieke	1 x 1/2”NPT(F), 3 x 1/4”NPT(F), 6 x 1/4-28UNF(F)	WM70P-10	12019-24
	Polypropylene	70 mm Rieke	1 x 1/2”NPT(F), 3 x 1/4”NPT(F)	WM70P-4	12019-25
	PTFE	70 mm Rieke	1 x 1/2”NPT(F), 3 x 1/4”NPT(F), 6 x 1/4-28UNF(F)	WM70X-10	12019-26
	PTFE	70 mm Rieke	1 x 1/2”NPT(F), 3 x 1/4”NPT(F)	WM70X-4	12019-27
	Polypropylene	100-415	1 x 1/2”NPT(F), 3 x 1/4”NPT(F), 6 x 1/4-28UNF(F)	WM100P-10	12019-48
	Polypropylene	100-415	1 x 1/2”NPT(F), 3 x 1/4”NPT(F)	WM100P-4	12019-49
	PTFE	100-415	1 x 1/2”NPT(F), 3 x 1/4”NPT(F), 6 x 1/4-28UNF(F)	WM100X-10	12019-50
	PTFE	100-415	1 x 1/2”NPT(F), 3 x 1/4”NPT(F)	WM100X-4	12019-51
	Polypropylene	1/4” NPT(M)	1 x 1/2”NPT(F), 3 x 1/4”NPT(F), 6 x 1/4-28UNF(F)	WAKDMCP-10	12020-71

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Solvent Waste Manifold Caps for Panel Mounting					
	Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	Polypropylene	Panel Mount	1 x 1/2”NPT, 3 x 1/4”NPT, 6 x 1/4”-28	PMP-10	12019-73
	Polypropylene	Panel Mount	1 x 1/2” NPT, 3 x 1/4” NPT	PMP-4	12019-74
	PTFE	Panel Mount	1 x 1/2”NPT, 3 x 1/4”NPT, 6 x 1/4-28	PMX-10	12019-75
	PTFE	Panel Mount	1 x 1/2” NPT, 3 x 1/4” NPT	PMX-4	12019-76

Solvent Waste Manifold Caps for Drums					
	Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	Polypropylene	2” Fine Thread	1 x 1/2”NPT, 3 x 1/4”NPT, 6 x 1/4”-28UNF	DMFTP-10	12019-61
	Polypropylene	2” Fine Thread	1 x 1/2” NPT, 3 x 1/4” NPT	DMFTP-4	12019-62
	PTFE	2” Fine Thread	1 x 1/2”NPT, 3 x 1/4”NPT, 6 x 1/4-28UNF	DMFTX-10	12019-63
	PTFE	2” Fine Thread	1 x 1/2” NPT, 3 x 1/4” NPT	DMFTX-4	12019-64
	Polypropylene	2” Coarse Thread	1 x 1/2”NPT, 3 x 1/4”NPT, 6 x 1/4”-28UNF	DMCTP-10	12019-67
	Polypropylene	2” Coarse Thread	1 x 1/2” NPT, 3 x 1/4” NPT	DMCTP-4	12019-68
	PTFE	2” Coarse Thread	1 x 1/2”NPT, 3 x 1/4”NPT, 6 x 1/4-28UNF	DMCTX-10	12019-69
	PTFE	2” Coarse Thread	1 x 1/2” NPT, 3 x 1/4” NPT	DMCTX-4	12019-70

Solvent Waste Manifold Caps for Justrite® Containers					
	Material	Cap / Stopper Size	Special Features	Mfg Part #	Item #
	Polypropylene	Justrite Quick-Disconnect, PP	1 x 1/2”NPT, 3 x 1/4”NPT, 6 x 1/4-28UNF	WMJTPP-10	12019-55
	Polypropylene	Justrite Quick-Disconnect, PP	1 x 1/2” NPTF, 3 x 1/4” NPTF	WMJTPP-4	12019-56
	Polypropylene	Justrite Quick-Disconnect, SS	1 x 1/2”NPT, 3 x 1/4”NPT, 6 x 1/4-28UNF	WMJTPS-10	12019-57
	Polypropylene	Justrite Quick-Disconnect, SS	1 x 1/2” NPTF, 3 x 1/4” NPTF	WMJTPS-4	12019-58
	PTFE	Justrite Quick-Disconnect, SS	1 x 1/2”NPT, 3 x 1/4”NPT, 6 x 1/4-28; 1/ea	WMJTXS-10	12019-59
	PTFE	Justrite Quick-Disconnect, SS	1 x 1/2” NPTF, 3 x 1/4” NPTF	WMJTXS-4	12019-60

SOLVENT DELIVERY

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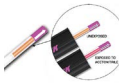
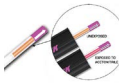
Chemical Exhaust Filters

Our VapLock chemical exhaust filters reduce chemical emissions and odors from laboratory solvent containers, and mitigate health hazards. Each exhaust filter is developed and tested specifically for HPLC organic solvents. They can be used in conjunction with a VapLock breakthrough indicator that responds to organic solvent vapors, detecting the end-of-service life of the filter.

- All VapLock chemical exhaust filters contain activated carbon to capture harmful chemicals
- Filters are made of HDPE and have a 1/4” NPT female port, and are available in 75 g and 300 g
- Various adapter configurations are available for a quick and easy connection to emission sources
- A VapLock breakthrough indicator gives a colorimetric change to indicate the need for replacement
- Breakthrough indicator housing is acrylic, with a borosilicate glass option also available

Activated Carbon Exhaust Filters					
	Filter Media	Inlet/Outlet NPT	Number of Cartridges	Mfg Part #	Item #
	75 g activated carbon	1/4” NPT(F)	1	EF-100	12019-79
	75 g activated carbon with indicator	1/4” NPT(F)	1	EF-100-102	12019-80
	75 g activated carbon	1/4” NPT(F)	5	EF-100V	12019-81
	300 g activated carbon	1/4” NPT(F)	1	EF-200	12019-84

Breakthrough Color Indicator for Exhaust Filters				
	Compatible With	Description	Mfg Part #	Item #
	VapLock activated carbon exhaust filters	Breakthrough Indicator for Exhaust Filters; 1/ea	EF-102	12019-82
	VapLock activated carbon exhaust filters	Breakthrough Indicator for Exhaust Filters; 5/pk	EF-102V	12019-83

Adapters for Exhaust Filters

VapLock chemical exhaust filters have a 1/4” NPT(F) port and may require these adapters. Various adapter configurations allow quick and easy connection to emission sources. Adapters available include those with micro ports, quick-disconnect adapters, adjustable adapters and NPT(M) x NPT(F) adapters.

- Available in a variety of materials and with a choice of connector thread types
- Adapters with micro ports connect via an NPT(M) x Luer Lock preventing leaks and accidental disconnection
- Quick-disconnect adapters fit Justrite® Centura safety containers and may feature a 90° elbow
- Adjustable adapters provide flexibility in positioning the filter to optimize the use of space.
- NPT(M) x NPT(M) Adapters include options for different sizes and choices between straight or elbow

Adapters for Exhaust Filters, NPT(M)					
	Thread size NPT(M) (port 1) (in)	Fitting Material	Connection Type	Mfg Part #	Item #
	1/4	Polypropylene	NPT(M) x NPT(M)	FA-004	12019-86
	1/2	Polypropylene	NPT(M) x NPT(M)	FA-005	12019-87
	1/2	Polypropylene	NPT(M) x NPT(M), 90° elbow	FA-010	12019-89

Adapters for Exhaust Filters, NPT(M) (continued)					
	Thread size NPT(M) (port 1) (in)	Fitting Material	Connection Type	Mfg Part #	Item #
	1/4	Nylon	NPT(M) x NPT(M), 45° elbow	FA-023	12019-93
	1/4	Polypropylene	NPT(M) x NPT(M), 90° elbow	FA-026	12019-94
	1/8	Polypropylene	NPT(M) x NPT(M)	FA-036	12020-00

Adapters for Exhaust Filters, NPT(F)					
	Thread size NPT(M) (port 1) (in)	Fitting Material	Connection Type	Mfg Part #	Item #
	1/4	Acetal	NPT(M) x NPT(F), adjustable	FA-028	12019-96
	1/2	Acetal	NPT(M) x NPT(F), adjustable	FA-029	12019-97

Adapters for Exhaust Filters, Quick-Disconnect				
	Fitting Material	Connection Type	Mfg Part #	Item #
	Polypropylene/EPDM	NPT(M) x Quick Disconnect	FA-010	12019-88
	Stainless steel/PTFE	NPT(M) x Quick Disconnect	FA-015	12019-90
	Polypropylene/EPDM	NPT(M) x Quick Disconnect, 90° elbow	FA-017	12019-91
	Stainless steel/PTFE	NPT(M) x Quick Disconnect, 90° elbow	FA-019	12019-92
	PP/EPDM/acetal	NPT(M) x Quick Disconnect, adjustable	FA-030	12019-98
	SS/PTFE/acetal	NPT(M) x Quick Disconnect, adjustable	FA-032	12019-99

Adapters for Exhaust Filters, Micro Ports				
	Fitting Material	Connection Type	Mfg Part #	Item #
	Polypropylene	NPT(M) x Luer Lock	FA-001	12019-85

Adapters for Tubing

VapLock adapters for tubing are designed for secure leak-resistant connections, and are available in compression to threaded and hose barb to threaded formats. These adapters connect to semi-rigid and flexible tubing in a variety of sizes and can withstand pressures of 100 to 500 psi, depending on the model. There is also an option to use Adapters that are color coded by tubing size to make identification easy.

- Polypropylene adapters for flexible tubing connect 1/16” to 3/4” ID soft-wall tubing to NPT(F) port
- Adapters with large bore for semi-rigid tubing are constructed of two-piece molded polypropylene components
- Color coded adapters for semi-rigid tubing are comprised of a two-piece nut and ferrule system with polypropylene NPT(M) thread adapter
- Adapters withstand pressures of 100 to 500 psi, depending on the model
- Some NPT adapter threads can be wrapped with PTFE tape and wrench tightened for leak-resistant connection

Adapter Fittings, Compression to Threaded NPT(M), Straight					
	Color	Compression Size / Tube O.D. (port 1) (mm)	Thread size NPT(M) (port 2) (in)	Mfg Part #	Item #
	Brown nut/white ferrule/ white adapter	4	1/4	AC-108	12020-09
	White nut/blue ferrule/ white adapter	4.76	1/4	AC-109	12020-10
	Green nut/blue ferrule/ white adapter	1.6	1/4	AC-150	12020-11
	Red nut/green ferrule/ white adapter	2	1/4	AC-151	12020-12
	Black nut/white ferrule/ white adapter	2.2	1/4	AC-152	12020-13

Adapter Fittings, Compression to Threaded NPT(M), Straight (continued)					
	Color	Compression Size / Tube O.D. (port 1) (mm)	Thread size NPT(M) (port 2) (in)	Mfg Part #	Item #
	Orange nut/white ferrule/ white adapter	2.5	1/4	AC-153	12020-14
	Yellow nut/orange ferrule/ white adapter	3	1/4	AC-154	12020-15
	Blue nut/ yellow ferrule/ white adapter	3.175	1/4	AC-155	12020-16

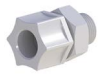
Adapter Fittings, Compression to Threaded UNF(M), Straight					
	Color	Compression Size / Tube O.D. (port 1) (mm)	Thread size UNF(M) (port 2) (in)	Mfg Part #	Item #
	Brown / White	4	5/16-24	AQ-108	12020-01
	White / Blue	4.76	5/16-24	AQ-109	12020-02
	Green / Blue	1.6	1/4-28	AQ-150X	12020-03
	Red / Green	2	1/4-28	AQ-151X	12020-04
	Black / White	2.2	1/4-28	AQ-152X	12020-05

Adapter Fittings, Compression to Threaded UNF(M), Straight (continued)					
	Color	Compression Size / Tube O.D. (port 1) (mm)	Thread size UNF(M) (port 2) (in)	Mfg Part #	Item #
	Orange / White	2.5	1/4-28	AQ-153X	12020-06
	Yellow / Orange	3	1/4-28	AQ-154X	12020-07
	Blue / Yellow	3.175	1/4-28	AQ-155X	12020-08
	Red / Green	2	1/4-28	AQ-151	12026-84
	Blue / Yellow	3.175	1/4-28	AQ-155	12026-88

Adapter Fittings, Hose Barb to Threaded NPT(M), Straight, for Flexible Tubing					
	Barb Size / Tubing I.D. (port 1) (in)	Fitting Material	Thread size NPT(M) (port 2) (in)	Mfg Part #	Item #
	1/16	Polypropylene	1/4	AB-111X	12020-17
	1/8	Polypropylene	1/4	AB-112X	12020-18
	1/4	Polypropylene	1/4	AB-114X	12020-20
	5/16	Polypropylene	1/4	AB-115X	12020-21
	3/8	Polypropylene	1/4	AB-116X	12020-22
	1/2	Polypropylene	1/4	AB-117X	12020-23
	5/32	Polypropylene	1/4	AB-118X	12020-24
	1/8	Polypropylene	1/8	AB-122X	12020-26
	3/16	Polypropylene	1/8	AB-123X	12020-27

Adapter Fittings, Hose Barb to Threaded NPT(M), Straight, for Flexible Tubing (continued)					
	Barb Size / Tubing I.D. (port 1) (in)	Fitting Material	Thread size NPT(M) (port 2) (in)	Mfg Part #	Item #
	1/4	Polypropylene	1/8	AB-124X	12020-28
	5/16	Polypropylene	1/8	AB-125X	12020-29
	3/8	Polypropylene	1/8	AB-126X	12020-30
	1/4	Polypropylene	1/2	AB-204X	12020-31
	3/8	Polypropylene	1/2	AB-205X	12020-32
	1/2	Polypropylene	1/2	AB-206X	12020-33
	5/8	Polypropylene	1/2	AB-207X	12020-34
	3/4	Polypropylene	1/2	AB-208X	12020-35
	5/32	Polypropylene	1/4	AB-118	12026-34
	1/8	Polypropylene	1/8	AB-122	12026-36

Adapter Fittings, Hose Barb to Threaded NPT(M), Straight, for Flexible Tubing (continued)					
	Barb Size / Tubing I.D. (port 1) (in)	Fitting Material	Thread size NPT(M) (port 2) (in)	Mfg Part #	Item #
	1/4	Polypropylene	1/8	AB-124	12026-37
	5/16	Polypropylene	1/8	AB-125	12026-38
	3/8	Polypropylene	1/8	AB-126	12026-39
	1/2	Polypropylene	1/2	AB-206	12026-42
	5/8	Polypropylene	1/2	AB-207	12026-43
	3/4	Polypropylene	1/2	AB-208	12026-44

Adapter Fittings, Compression to Threaded NPT(M) with Large Bore for Semi-Rigid Tubing					
	Compression Size / Tube O.D. (port 1) (in)	Fitting Material	Thread size NPT(M) (port 2) (in)	Mfg Part #	Item #
	1/4	Polypropylene	1/4	AC-113V	12020-36
	5/16	Polypropylene	1/4	AC-114V	12020-37
	3/8	Polypropylene	3/8	AC-115V	12020-38
	1/2	Polypropylene	1/4	AC-116V	12020-39
	3/8	Polypropylene	1/2	AC-204V	12020-40
	1/2	Polypropylene	1/2	AC-205V	12020-41
	5/8	Polypropylene	1/2	AC-206V	12020-42
	3/4	Polypropylene	1/2	AC-207V	12020-43
	1/2	Polypropylene	1/4	AC-116	12026-53
	3/8	Polypropylene	1/2	AC-204	12026-57

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Threaded Plugs

VapLock threaded plugs can be used to seal unused manifold and bottle cap ports for a leak-resistant system. Plugs are available in two materials and sizes to suit a range of HPLC set-ups.

- Threaded plugs are available with NPT(M) and UNF(M) connector thread types
- Constructed from two materials and in a variety sizes
- Options for NPT ports are 1/8”, 1/4”, 3/8”, and 1/2” NPT
- Bottom-sealing UNF thread options include 1/4”-28 and 5/16”-24
- UNF thread options do not require PTFE tape for leak-resistant connections (NPT thread does)

Threaded Plugs, UNF(M)					
	Thread size UNF(M) (port 1) (in)	Fitting Material	Description	Mfg Part #	Item #
	1/4”-28	POM	Port Plug, 1/4”-28 UNF(M), black acetal; 10/pk	PL-103X	12020-46
	1/4”-28	PTFE	Port Plug, 1/4”-28 UNF(M), natural PTFE; 10/pk	PL-104X	12020-47
	5/16”-24	PTFE	Port Plug, 5/16”-24 UNF(M), PTFE; 1/ea	PL-113	12020-51
	Luer Taper Plug	PTFE	Plug, PTFE, Luer Taper Plug; 1/Ea	BC-132-01	12027-52

Threaded Plugs, NPT(M)					
	Thread size NPT(M) (port 1) (in)	Fitting Material	Connection Type	Mfg Part #	Item #
	1/4	Polypropylene	NPT(M)	PL-101X	12020-44
	1/2	Polypropylene	NPT(M)	PL-102X	12020-45
	1/4	PTFE	NPT(M)	PL-105	12020-48
	3/8	Polypropylene	NPT(M)	PL-106X	12020-49
	1/8	Polypropylene	NPT(M)	PL-108X	12020-50
	1/4	Polypropylene	NPT(M)	PL-101	12031-14

Systems & Kits

Spex VapLock waste collection manifolds and kits are designed to conform to a wide range of common laboratory and industrial containers, with versatile connection types and a unique modular system allowing reconfiguration and addition of new manifold components as required.

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COMPLETE SOLVENT COLLECTION SYSTEMS

Complete Solvent Collection System, UN / DOT Waste Container, PP Manifold, 20L
Complete Solvent Collection System, 70mm Rieke 6TPI, PTFE manifold, 20 L
Complete Solvent Collection System, Quick Disconnect, PP Manifold, 20L
Complete Solvent Collection System, Quick Disconnect, PTFE Manifold, 20L

SOLVENT WASTE KITS (NO CONTAINER INCLUDED)

Solvent Waste Kits for Bottles and Carboys
Solvent Waste Kits for Jars and Pails
Solvent Waste Kits for Drums and Panel Mounting
Solvent Waste Kits for Justrite® Containers

Complete Solvent Collection Systems

Select from various manifold cap sizes to fit your laboratory and industrial solvent waste containers. Our VapLock solvent waste manifold caps are available for use with bottles, carboys, jars, pails, panel mounting, drums, and Justrite® Containers. These flexible caps ensure a secure closed HPLC system.

- Chemical resistant polypropylene or PTFE manifolds that attach to a range of containers with a gas-tight seal
- Ports accept male thread adapters to connect flexible and rigid tubing, filter or filter/indicator
- Four or ten connection ports, with versatile configuration, allow any waste line to be securely connected
- Free spinning collar allows for quick disconnect and prevents any tangling of solvent lines
- Available for use with bottles, carboys, jars, pails, panel mounting, drums, and Justrite® Containers

Complete Solvent Collection System, UN / DOT Waste Container, PP Manifold, 20L					
Capacity (L)	Cap / Stopper Size	Bottle Color	Description	Mfg Part #	Item #
20	70 mm Rieke 6TPI	Translucent	Complete Solvent Collection System, 70mm Rieke 6TPI, **PP** manifold, 20 L	—	12020-67

Complete Solvent Collection System, 70mm Rieke 6TPI, PTFE manifold, 20L					
Capacity (L)	Cap / Stopper Size	Bottle Color	Description	Mfg Part #	Item #
20	70 mm Rieke 6TPI	Translucent	Complete Solvent Collection System, 70mm Rieke 6TPI, **PTFE** manifold, 20 L	—	12020-68

Complete Solvent Collection System, Quick Disconnect, PP Manifold, 20L						
Capacity (L)	Material	Cap / Stopper Size	Bottle Color	Description	Mfg Part #	Item #
20	Polypropylene	Quick disconnect	Translucent	Complete Solvent Collection System, quick disconnect, **PP** manifold, 20 L	WCKJTPP-10	12020-69

Complete Solvent Collection System, Quick Disconnect, PTFE Manifold, 20L						
Capacity (L)	Material	Cap / Stopper Size	Bottle Color	Description	Mfg Part #	Item #
20	PTFE	Quick disconnect	Translucent	Complete Solvent Collection System, quick disconnect, **PTFE** manifold, 20 L	WCKJTXS-10	12020-70

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SOLVENT COLLECTION
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Solvent Waste Kits (no container included)

VapLock closed systems for solvent containment minimize leaks, spills, and vapor escape from solvent waste and supply containers. VapLock waste accessory kits provide an effective means of sealed solvent delivery, and select from waste containment kits to collect effluents while minimizing harmful solvent exhaust. Kits include all the components (apart from the container), required for safe waste containment.

- Designed for ease of use and adaptability
- For collection of solvent waste from multiple effluent streams
- Conforms to a broad range of standard laboratory solvent containers
- Includes a solvent collection manifold, an organic solvent exhaust filter with breakthrough indicator, adapters, plugs, and tubing connections required for installation on typical HPLC instruments

Solvent Waste Kits for Bottles and Carboys				
	Cap / Stopper Size	Material	Mfg Part #	Item #
	GL38	Polypropylene	WAK38P-10	12018-56
	GL38	PTFE	WAK38X-10	12018-57
	38-430	Polypropylene	WAK38NP-10	12018-62
	38-430	PTFE	WAK38NX-10	12018-63
	38 mm Wako	Polypropylene	WAK38WP-10	12018-68
	38 mm Wako	PTFE	WAK38WX-10	12018-69

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Solvent Waste Kits for Bottles and Carboys (continued)				
	Cap / Stopper Size	Material	Mfg Part #	Item #
	GL45	Polypropylene	WAK45P-10	12018-74
	GL45	PTFE	WAK45X-10	12018-75
	DIN 45	Polypropylene	WAK45DP-10	12018-80
	DIN 45	PTFE	WAK45DX-10	12018-81
	DIN 50	Polypropylene	WAK50P-10	12018-86
	51 mm	Polypropylene	WAK51P-10	12018-92
	51 mm	PTFE	WAK51X-10	12018-93
	53B	Polypropylene	WAK53P-10	12018-98
	53B	PTFE	WAK53X-10	12018-99

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Solvent Waste Kits for Bottles and Carboys (continued)				
	Cap / Stopper Size	Material	Mfg Part #	Item #
	DIN 60	Polypropylene	WAK60P-10	12019-04
	DIN 60	PTFE	WAK60X-10	12019-05
	61 mm	Polypropylene	WAK61P-10	12019-10
	61 mm	PTFE	WAK61X-10	12019-11
	63 mm	Polypropylene	WAK63P-10	12019-16
	63 mm	PTFE	WAK63X-10	12019-17
	70 mm Nalgene	Polypropylene	WAK70NP-10	12019-28
	70 mm Nalgene	PTFE	WAK70NX-10	12019-29
	GL80	Polypropylene	WAK80P-10	12019-34

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SOLVENT COLLECTION

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Solvent Waste Kits for Bottles and Carboys (continued)				
	Cap / Stopper Size	Material	Mfg Part #	Item #
	GL80	PTFE	WAK80X-10	12019-35
	83B	Polypropylene	WAK83P-10	12019-40
	83B	PTFE	WAK83X-10	12019-41

Solvent Waste Kits for Jars and Pails				
	Cap / Stopper Size	Material	Mfg Part #	Item #
	70 mm Rieke 8TPI	Polypropylene	WAK70P-10	12019-22
	70 mm Rieke 8TPI	PTFE	WAK70X-10	12019-23
	100-415	Polypropylene	WAK100P-10	12019-46
	100-415	PTFE	WAK100X-10	12019-47
	70 mm Rieke 6TPI	Polypropylene	WAK70AP-10	12020-98

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Solvent Waste Kits for Drums and Panel Mounting				
	Cap / Stopper Size	Material	Mfg Part #	Item #
	2” drum bung with fine threads	Polypropylene	WAKDMFP-10	12019-65
	2” drum bung with fine threads	PTFE	WAKDMFX-10	12019-66
	2” drum bung with coarse threads	Polypropylene	WAKDMCP-10	12019-71
	Panel mount	Polypropylene	WAKPMP-10	12019-77
	Panel mount	PTFE	WAKPMX-10	12019-78

Spex VapLock Solvent Waste Kits for Justrite® Containers						
	Cap / Stopper Size	Manifold Material	Description	Pack Size	Mfg Part #	Item #
	Quick disconnect, PP	Polypropylene	Solvent Waste Kit, PP, Justrite PP, 1 x 1/2” NPTF, 3 x 1/4”NPTF, 6 x 1/4”-28 UNFF	1/Ea	WAKJTPP-10	12019-52
	Quick disconnect, SS	Polypropylene	Solvent Waste Kit, PP, Justrite SS, 1 x 1/2” NPTF, 3 x 1/4”NPTF, 6 x 1/4”-28 UNFF	1/Ea	WAKJTPS-10	12019-53
	Quick disconnect, SS	PTFE	Solvent Waste Kit, PTFE, Justrite SS, 1 x 1/2”NPTF, 3 x 1/4”NPTF, 6 x 1/4-28UNFF	1/Ea	WAKJTXS-10	12019-54

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The Kinesis Range of D2 Lamps Includes

Part Number: ML-11941-11

Instrument Model: Agilent 1100 VWD

Equivalent: G1314-60100/G1314-60101/ 2140-0585

Part Number: ML-11941-22

Instrument Model: Hitachi L & U Series

Equivalent: 885-3570/890-2430/892-2550/891-2377

Part Number: ML-11941-13

Instrument Model: Agilent 1100, 1200 G1315/G1365 A & B Series DAD

Equivalent: 5181-1530/5182-1530/2140-0813/2140-0590

Part Number: ML-11941-26

Instrument Model:Shimadzu SPD-10A, AVP, AV, AVVP, M10AVP, 20A, 20AV M20A

Equivalent: 228-34016-02

Part Number: ML-11941-14

Instrument Model: Agilent 1100, 1200 G1315/G1365 C & D Series DAD

Equivalent: 2140-0820

Part Number: ML-11941-27

Instrument Model: Shimadzu UV series Spectrophotometer, BioSpec-mini, D2 Longlife Lamp

Equivalent: 062-65055-05/062-65063-02

Part Number: ML-11941-15

Instrument Model: Agilent 1290 DAD

Equivalent: 5190-0917

Part Number: ML-11941-28

Instrument Model: Shimadzu LC2010

Equivalent: 228-37401-00&-91

Part Number: ML-11941-17

Instrument Model: Dionex Ultimate VWD 3000, 3400 Nano LC

Equivalent: 6074.1110

Part Number: ML-11941-35

Instrument Model: Waters 996, 2996 PDA

Equivalent: WAT052586/WAT057760

Part Number: ML-11941-20

Instrument Model: Dionex / Gynkotek UVD 320 340S 160 170S 170U

Equivalent: 5053.1204

Part Number: ML-11941-36

Instrument Model: Waters 2487

Equivalent: WAS081142

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Cole-Parmer®

Kinesis Deuterium Lamps

Introducing Kinesis Deuterium Lamps

Kinesis deuterium (D2) lamps are made to fit almost all detectors. These quality lamps are used by many of the major pharmaceutical and contract research organizations (CROs) around the globe.

D2 lamps are manufactured under stringent ISO 9001 quality procedures. Each lamp is fully aligned to rigorous standards and has full traceability from manufacturing to customer delivery.

When you select a Kinesis D2 lamp, you can stretch your budget with the low cost—much lower than what instrument manufacturers charge—but never have to compromise on quality. With the lamps' constant intensity of light, stable spectrum, and long lifespan up to 2000 hours, you can achieve reliable results over and over again.

TOP 5
REASONS TO USE KINESIS LAMPS

1. Kinesis uses the **same bare lamps**, where available, as those used in instrument manufacturers' lamps and so offer **OEM Equivalent Lamps**

2. Kinesis D2 lamps come with the **same warranty** as that offered by instrument manufacturers

3. Kinesis D2 lamps are pre-aligned and tested to **ISO 9001 procedures**

4. Kinesis offers the most **comprehensive range** of D2 lamps, supplying lamps for more than 90% of all leading instruments worldwide, including: Agilent, Waters, Dionex, Shimadzu, Merck Hitachi, Thermo, PE, Varian, Jasco and many more

5. List prices of Kinesis D2 lamps are typically **30% below** instrument manufacturers' lamps

Superior Quality Control

- Kinesis D2 lamps are manufactured in an ISO-accredited facility
- Unique serial number for each lamp
- Kinesis lamps are individually tested
- Test results are recorded against unique serial numbers
- Full traceability of each lamp from manufacturer through to customer delivery

HPLC Instrument Spares

Kinesis also offers a wide range of HPLC instrument spares by Waters, Spark Holland, SGE, ETP, CTC Analytics and Kinesis own brands including seals, check valves, pistons, springs & many more.

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Cross References for Chromatography Vials, Caps, and Septa

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Cross Reference - Agilent

Please make use of our Agilent cross references to ensure that you choose the correct product that is compatible with your Agilent-based applications.

Agilent #	Mfg Part #	Item #
5061-3349 (alt.)	VR08-50	—
5061-3370 (alt)/500	CRC11-02A	98704-35
5065-4402	DWB96-02	—
5180-0806	CRV08-01A	98705-41
5180-0841/500	CRV08-05	98705-47
5180-0844/500	CRV08-06	98705-48
5181-1210 (alt.)/100	CRC11-02	98704-34
5183-4498 (alt./1000	CRC11-02	98704-34
5061-3370 (alt)/500	CRC11-02	98704-34
5181-1211 (100)	CRC11-03	98704-46
5183-4499 (1000)	CRC11-03	98704-46
5181-1213	DCT-11	98706-86
5181-1214	DCT-20	98706-82
5181-1215 (alt.)/100	CRC11-02B	98704-37
5181-1216 (alt.)/100	CRC11-02G	98704-40
5181-1217 (alt.)/100	CRC11-02R	98704-43
5181-1270/100	INWC-01SP	98700-94
5181-3375 (100)	CRV12-02	98705-53
5183-4491 (1000)	CRV12-02	98705-53
5181-3376 (100)	CRV12-02LA	98705-58
5183-4493 (1000)	CRV12-02LA	98705-58
5181-3377/500	INWF-01	98700-98
5181-3400 (alt.)/500	KSP-CRV-02	98701-03
5181-8801 (alt.)/500	KSP-CRVLA-02	98701-13
5181-8827	DCT-08	98706-84
5181-8872/100	INWC-01SPZ	98700-95
5182-0541/100	SNC11-04BS	98706-46
5182-0542 (alt.)/100	SNC11-06B	98706-54

Agilent #	Mfg Part #	Item #
5182-0540 (alt.)/100	SNC11-06B	98706-54
5181-1507 (alt.)/100	SNC11-06B	98706-54
5181-1513 (alt.)/500	SNC11-06B	98706-54
5182-0543 (100)	CRV12-02L	98705-57
5183-4492 (1000)	CRV12-02L	98705-57
5182-0544 (100)	SNV12-02	98705-16
5183-4504 (1000)	SNV12-02	98705-16
5182-0545 (100)	SNV12-02LA	98705-18
5183-4506 (1000)	SNV12-02LA	98705-18
5182-0546 (100)	SNV12-02L	98705-17
5183-4505 (1000)	SNV12-02L	98705-17
5182-0547 (alt.)/500	KSP-SNV-02	98701-43
5182-0548 (alt.)/500	KSP-SNVLA-02	98701-51
5182-0550 (alt.)/100	SNC11-02	98706-34
5182-0564 (alt.)/500	SNC11-02	98706-34
5182-0550 (alt.)/100	SNC11-02	98706-34
5182-0564 (alt.)/500	SNC11-02	98706-34
5182-3458/100	SNC11-02	98706-34
5182-0552 (100)	CRC11-04	98704-48
5183-4500 (1000)	CRC11-04	98704-48
5182-0553/100	CRC11-04	98704-48
5182-0566/100	SNC11-03S	—
5182-0567 (alt.)	SNV12-04P	98705-29
5182-0714 (100)	STV12-02	98702-65
5183-2067 (1000)	STV12-02	98702-65
5182-0715 (100)	STV12-02L	98702-67
5183-2068 (1000)	STV12-02L	98702-67
5182-0716 (100)	STV12-02LA	98702-68

Agilent #	Mfg Part #	Item #
5183-2069 (1000)	STV12-02LA	98702-68
5182-0717	SCC09-02BA	98703-36
5182-0719 (alt.)	SCC09-02R	98703-40
5182-0720/100	SCC09-04B	98703-48
5185-5863/500	SCC09-04B	98703-48
5182-0721/100	SCC09-04G	98703-57
5182-0722	SCC09-04R	98703-59
5182-0723/100	SCC09-03B	98703-42
5185-5862/500	SCC09-03B	98703-42
5182-0724/100	SCC09-03G	98984-32
5185-5861/500	SCC09-03G	98984-32
5182-0725	SCC09-03R	98703-45
5182-0732 (alt.)/500	KSP-STV-02	98701-24
5182-0734 (alt.)/500	KSP-STV-04	98701-27
5182-0736 (alt.)/500	KSP-STV-03	98701-25
5182-0837 (alt.)	CRV20-01H	98700-33
5182-0838 (alt.)	CRV10-01	98700-24
5182-0867 (alt.)/500	KSP-STVL-02	98701-31
5182-0868 (alt.)/500	KSP-STVL-04	98701-34
5182-0869 (alt.)/500	KSP-STVL-03	98701-33
5182-0871/100	CRC11-01	98704-32
5182-0876 (alt.)	CRV05-01	98893-99
5182-3454 (alt.)	CRV12-07	98705-67
5185-5821	CRV12-07	98705-67
5182-3458 (alt.)/100	SNC11-02BSA	98706-38
5182-3459 (alt.)/100	SNC11-02R	98706-39
5183-2030	STV12-10	98702-97
5183-2070	STV12-02S	98702-77

Cole-Parmer®

Cross Reference - Agilent (continued)

Agilent #	Mfg Part #	Item #
5183-2071 (alt.)	STV12-02S	98702-77
5183-2072	STV12-02LAS	98702-70
5183-2075	STV12-02LAS	98702-70
5183-2076/100	SCC09-04BS	98703-53
5185-5865/500	SCC09-04BS	98703-53
5183-2077	SCC09-04GS	98703-58
5183-2077	SCC09-04S	98703-61
5183-2078	SCC09-04S	98703-61
5183-2079 (alt.)/500	KSP-STV-04S	98701-29
5183-2080 (alt.)/500	KSP-STVL-04S	98701-35
5183-2085 (alt.)/100	INWC-01	98700-93
5183-2085/100	INWC-02	98700-97
5183-2088/100	INSC-01SP	98700-88
5183-2089/100	INSC-01	98700-87
5183-2090/100	INSF-01	98700-90
9301-1387/500	INSF-01	98700-90
5183-2094	INC48-01	98700-83
5183-2095	SPR13-01	98701-02
5183-4412	SEP10-04	98986-52
5183-4428 (100)	SCV12-01	98704-98
5183-4430 (1000)	SCV12-01	98704-98
5183-4429 (100)	SCV12-01A	98704-99
5183-4431 (1000)	SCV12-01A	98704-99
5183-4434	SEP08-01	98705-78
5183-4435	SEP08-04S	98705-83
5183-4436/100	SEP08-03	98705-80
5183-4437/100	SEP08-04	98705-81
5183-4438/100	SCC08-B	98703-26

Agilent #	Mfg Part #	Item #
5183-4442/100	SCCSEP08-04	98703-91
5183-4448 (100)	SCV15-01	98705-09
5183-4452 (500)	SCV15-01	98705-09
5183-4450 (100)	SCV15-01A	98705-10
5183-4453 (500)	SCV15-01A	98705-10
5183-4458	SV4PC15-01	98702-48
5183-4459/1000	SEP13-01	98705-98
5183-4460/100	SEP13-04	98706-01
5183-4461/100	SCC13-B	98703-78
5183-4464/100	SCCSEP13-04	98704-11
5183-4471	SV1PC08-03	98702-42
5183-4471**	SV1PC08-01	98702-38
5183-4472	SV1PC08-03A	98702-43
5183-4472**	SV1PC08-01A	98702-39
5183-4474	CRV20-01	98700-28
5183-4474 (alt.)	CRV20-01C	98700-30
5183-4475	CRV10-02	98700-25
5183-4476	SEP20-02IS	98706-13
5183-4477	CRC20-04A	98704-68
5183-4478	CRC20-04AH	98700-16
5183-4479	CRC20-02PH	98704-65
5183-4480	CRC20-02HPH	98700-15
5183-4481	CRV08-02	98705-42
5183-4484	CRV08-04	98705-45
5183-4485	CRV08-04A	98705-46
5183-4486	CRV08-03	98705-43
5183-4487	CRV08-03A	98705-44
5183-4489	CRC08-02	98704-24

Agilent #	Mfg Part #	Item #
5183-4490	CRC08-03	98704-26
5183-4511/100	SNC11-07S	98706-59
5183-4524	EPA40C	98700-57
5183-4743 (alt.)/72	SEP22-04EPA	98700-75
5183-4744/24	SCC24-0	98703-86
5185-5823	SCC09-04W	98703-64
5185-5824	SCC09-04WS	98703-65
5188-2753	SCV20-02	98700-37
5188-2759	SCCSEP18-04BM	98706-74
5188-5386/100	CRC11-04M	98704-51
5188-5390/100	STV12-03TS	98702-87
5188-5392	SCV10-01	98704-96
8710-0979	CRT-11	98706-85
8710-1643	CRT-08	98706-83
9301-0719	SEP20-04	98706-16
9301-0720	CRT-20	98706-81
9301-0721/100	CRC20-0P	—
9301-0722 (alt.)	VR12-50	98702-52
9301-0976	SEP20-02PH	98706-15
9301-0977/100	SNV12-03TS	98705-25
9301-0978/1000	CRV12-03P	98706-64
5188-2788/100	CRV12-03P	98706-64
5184-3557/1000	CRV12-03P	98706-64
9301-1031/144	SEP13-02	98705-99
9301-1130 (alt.)/500	SEP08-02	98705-79
9301-1388	CRV12-09	98894-48

**only to be used in conjunction with inserts

Cole-Parmer®

Cross Reference - Waters

Please make use of our Waters cross references to ensure that you choose the correct product that is compatible with your Waters-based applications.

Waters #	Mfg Part #	Item #
22861	SEP13-04	98706-01
186000273	STV12-02L	98702-67
186000274	SCC09-04W	98703-64
186000303	SNC11-04B	98706-45
186000304	SNC11-04S	98706-48
186000305	SCC09-04WS	98703-65
186000848	STV12-02LA	98702-68
186002626	STV12-03P	98702-84
186002627	SNV12-04P	98705-29
186002628	CRV12-03P	98706-64
186002634	STV12-04P	98702-91
186002650	SNC11-04R	98706-47
186002802	STV12-10	98702-97
186002804	STV12-03	98702-79
600000138	CRC20-04	98704-67
186000273DV (alt.)	STV12-02S	98702-77
186000274 (alt.)	SCC09-04B	98703-48
186000305 (alt.)	SCC09-04BS	98703-53
186000328 (alt.)	SNC11-06B	98706-54
186002645 (alt.)	SNC11-06B	98706-54
186002646 (alt.)	SNC11-06B	98706-54
186000841/100 (alt.)	SCCSEP13-04	98704-11
186000965/1000 (alt.)	SCCSEP13-04	98704-11
186000842/100 (alt.)	SCCSEP13-07	98704-14
186001919/1000 (alt.)	SCCSEP13-07	98704-14
186000848DV	STV12-02LAS	98702-70
186001135	SCV15-01A	98705-10

Waters #	Mfg Part #	Item #
PSL407499	SCV15-01A	98705-10
186002127 (alt.)	SCC09-04GS	98703-58
186002129 (alt.)	SCC09-04R	98703-59
186002130 (alt.)	SCC09-04G	98703-57
186002456 (alt.)	SCC09-04	98703-47
186002457 (alt.)	SCC09-04S	98703-61
186002803 (alt.)	STV12-03TSA	98702-88
186002804 (alt.)	STV12-03TS	98702-87
405000562 (48 pos.)	VR12-50	98702-52
200000114 (24 pos.)	VR12-50	98702-52
600000668CV	KSP-STVL-04S	98701-35
600000669CV	KSP-STVLA-04S	98701-40
600000751C	KSP-STVL-04	98701-34
600000752C	KSP-STVLA-04	98701-38
PSL400123	CRV50-01	98700-35
PSL403682	CRV50-01	98700-35
PSL403803	CRV08-06	98705-48
PSL403805	INSC-005	98700-86
PSL403810 (alt.)	INSC-01	98700-87
PSL403814 (alt.) (with spring)	INSC-01	98700-87
PSL403810 (alt.)	INSC-02	98700-89
PSL403814 (alt.) (with spring)	INSC-02	98700-89
PSL404218	CRC08-04	98704-27
PSL404219	CRC11-04	98704-48
PSL404231	CRC11-03	98704-46
PSL407167	CRV12-06	98705-65
PSL407500	SCC13-BC	98703-79

Waters #	Mfg Part #	Item #
PSL408004	CRV08-03A	98705-44
PSL408008	CRC08-02	98704-24
PSL408027	CRC11-01	98704-32
PSL408028	CRV08-04	98705-45
PSL408067	CRV20-01	98700-28
PSL408068	CRV05-01	98893-99
PSL408137	SPR08-01	98701-01
PSL408213	SCV12-01	98704-98
PSL408225	CRV08-05	98705-47
PSL408234	CRC20-02PH	98704-65
PSL410208	SCCSEP13-02	98704-09
PSL410408	SCC13425-09	98703-77
PSL412109	CRC08-01	98704-23
PSL412115	CRC11-02	98704-34
PSL414168	SEP20-02PH	98706-15
PSL904301	CRT-11	98706-85
PSL904303	CRT-20	98706-81
WAT015199/144	INC48-01	98700-83
WAT0210685	SEP08-04	98705-81
WAT025050 (alt.)	SV4PC15-01A	98702-49
WAT025051 (alt.)	SV4PC15-01	98702-48
WAT025053C/250	SV1PC08-03A	98702-43
WAT025053C/250**	SV1PC08-01A	98702-39
WAT025054C/250	SV1PC08-03	98702-42
WAT025054C/250**	SV1PC08-01	98702-38
WAT058874	SEP10-04	98986-52
WAT058874	SCCSEP10-04	98704-05

**only to be used in conjunction with inserts

Cole-Parmer®

Cross Reference - Waters (continued)

Waters #	Mfg Part #	Item #
WAT058875	SCC10-B	98703-73
WAT058876	SEP08-04S	98705-83
WAT058886	SEP08-01	98705-78
WAT063300	SCV12-02	98705-02
WAT072294 (alt.)	INC96-01	98700-84
WAT072708	SPR13-01	98701-02
WAT072710	SCV15-01	98705-09
186000840	SCV15-01	98705-09
PSL407498	SCV15-01	98705-09
WAT072711/144 (alt.)	SCC13-B	98703-78
600000162	SCC13-B	98703-78
WAT072714 (144)	SEP13-01	98705-98
WAT073005 (1440)	SEP13-01	98705-98
WAT094170	INWC-01SP	98700-94
WAT094171 (alt.)	INWC-01SP	98700-94
WAT094170DV	INWC-01SPZ	98700-95
WAT094171DV (alt.)	INWC-01SPZ	98700-95
WAT094174	SCCSEP08-04	98703-91
WAT094219	SNV12-02L	98705-17
WAT094220	SNV12-02LA	98705-18
WAT094222	CRV12-02	98705-53
WAT094223	CRV12-02LA	98705-58
WAT210684	SCC08-B	98703-26
WAT210685 (alt.)	SEP08-04	98705-81
WAT223176	CRV10-02	98700-25

hromatography and Autosampler Vials

Our chromatography and autosampler vials come in versatile designs for superb performance. The variety of styles and septa materials are available to match your equipment and applications. Headspace vials have round shoulders and bottoms to allow for even heating. We also offer vials to fit instruments that use 1- and 4- mL vials.

- Cole-Parmer® KX Microwave Vials

  - Product Type:Chromatography Vial
- Kinesis® Snap Top Glass Vials, 18 mm

COLE-PARMER

- Cole-Parmer® Wide Neck Vials

COLE-PARMER

- Product Type:Autosampler Vial

$

Cole-Parmer Smart Pack Vial and Septa Kit, 2 mL Glass Vials, 11 mm Rubber/PTFE Septa; 1000/pk

Item #: EW-98701-03

COLE-PARMER

- Volume (mL):2
- Tube Material:Type I, Class B 51-expansion borosilicate glass
- Tube Bottom Shape:Flat bottom

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-
-

- Cole-Parmer® Shell Vials with Plugs

COLE-PARMER

- Product Type:Autosampler Vial

Cole-Parmer® Crimp Cap for Vials

- Product Type:Vial Closure

Cole-Parmer® Short Thread Glass Vials, 9 mm

COLE-PARMER

- Product Type:Autosampler Vial

- Cole-Parmer® KX Microwave Vial Crimp Caps

COLE-PARMER

- Product Type:Vial Closure

- Cole-Parmer® KX+ LCMS Certified 2-mL Screw Top Glass Vials with Caps

COLE-PARMER

- Product Type:Chromatography Vial

- Cole-Parmer® Screw-Thread Vials

COLE-PARMER

- Product Type:Autosampler Vial
-

- Cole-Parmer® MS Certified Vial Kits

COLE-PARMER

- Product Type:Certified Vials
- Cole-Parmer® SamplePrep Disposable Open XRF X-Cell Sample Cups

- Kinesis® Short Thread Polypropylene Vials, 9 mm

COLE-PARMER

  - Product Type:Autosampler Vial
  -

- Cole-Parmer® Glass Crimp Neck Glass Vials

COLE-PARMER

  - Product Type:Chromatography Vial

Cole-Parmer KX+ Vial and Cap Kit, 0.3 mL, Screw Top Amber Glass Vials, Pre-Slit PTFE/Silicone Septa, Mass Spec Quality; 100/pk

Item #: EW-98702-02

COLE-PARMER

- Volume (mL):0.3
- Tube Material:Type I, Class B 51-expansion borosilicate glass
- Tube Bottom Shape:Conical

- Cole-Parmer® Snap Top Vial Smart Packs

COLE-PARMER

- Product Type:Sample Vial

- Kinesis® Short Thread TPX PMP/TPX PP Vials, 9 mm

COLE-PARMER

- Product Type:Autosampler Vial

- Cole-Parmer® Crimp Neck Glass Vials, 11 mm

COLE-PARMER

- Product Type:Chromatography Vial
-
-

- Cole-Parmer® Snap/Crimp Cap Fused-Insert Vials, 11 mm

COLE-PARMER

- Product Type:Chromatography Vial
-
-
-
-

- Cole-Parmer® KX+ LCGC Certified Snap Top Fused-Insert and Total Recovery Vials with Caps

COLE-PARMER

- Product Type:Chromatography Vial

Kinesis® Screw Neck Glass Vials, 13 mm

COLE-PARMER

- Product Type:Chromatography Vial

Kinesis® Snap Top Glass Vials, 22 mm

COLE-PARMER

- Product Type:Chromatography Vial

Kinesis® Crimp Neck Glass Vials, 13 and 20 mm

COLE-PARMER

- Product Type:Chromatography Vial

- Cole-Parmer® Snap Top Glass Vials, 11 mm

COLE-PARMER

- Product Type:Chromatography Vial

List Grid Table

Cole-Parmer® Snap Top TPX Vials, 11 mm

Cole-Parmer KX+ LCGC Fused-Insert Screw Top Vials, Glass, 9 mm Short Thread, 0.3 mL, PTFE/Silicone/PTFE Septum; 100/pk

- 

Cole-Parmer® Snap Seal Vials

- 

Cole-Parmer® KX+ LCMS Certified High-Recovery Screw Top Glass Vials with Caps

- 

Cole-Parmer® KX+ LCGC Certified High-Recovery Short Thread Screw Top Glass Vials with Caps

Cole-Parmer® KX+ LCGC Certified Snap Top High Recovery Glass Vials with Caps

Cole-Parmer Crimp Vial with Cap, Amber Glass, 2 mL, 11 mm, Rubber/TEF Septum, Label and Filling Lines; 1000/pk

Kinesis® Screw Neck Vials, 8 mm

- 

Kinesis® SureStop® Short Thread Glass Vials, 9 mm

- 

Kinesis® Screw Neck Glass Vials, 10 mm

- 

Cole-Parmer® KX+ LCGC Certified 2-mL Short Thread Screw Top Glass Vials with Caps

Cole-Parmer® TELOS® Filtration Columns

- COLE-PARMER

  Comes with frits for simple filtration and sample processing

- Select columns with polyethylene (PE) or PTFE frits
- PE frit models available with single- or double-frit configuration
  Total volumes for the columns range from 1 to 150 mL. Columns come with either polyethylene or PTFE frits in 5, 10, or 20 µm pore sizes. PE frits area available in single- or double-fritted configurations. Double frit columns have two frits one directly on top of the other to provide better filtration and cleaner sample. Use caps for room-temperature reactions and to easily transport columns.

item	Total Volume Capacity (mL)	Column Particle Size (µm)	Fritted Disk
 EW-06479-23	15	20	Double, Polyethylene

item	Total Volume Capacity (mL)	Column Particle Size (µm)	Fritted Disk
 EW-06479-25	70	10	Single, Polyethylene
 EW-06479-33	15	10	Single, PTFE
 EW-06479-41	6	20	Double, Polyethylene
 EW-06479-43	25	20	Double, Polyethylene

item	Total Volume Capacity (mL)	Column Particle Size (µm)	Fritted Disk
 EW-06479-45	70	20	Double, Polyethylene
 EW-06479-47	6	5	Single, PTFE
 EW-06479-49	15	5	Single, PTFE
 EW-06479-61	150	20	Double, Polyethylene

item	Total Volume Capacity (mL)	Column Particle Size (µm)	Fritted Disk
 EW-06479-63	70	10	Double, Polyethylene
 EW-06479-67	25	10	Single, PTFE
 EW-06479-89	3	20	Double, Polyethylene
 EW-06479-90	15	10	Double, Polyethylene

item	Total Volume Capacity (mL)	Column Particle Size (µm)	Fritted Disk
 EW-06479-97	15	10	Single, Polyethylene
 EW-06479-99	1	20	Double, Polyethylene
 EW-06480-01	10	20	Double, Polyethylene
 EW-06480-07	6	10	Single, PTFE

Cole-Parmer® TELOS® Frits for Empty Reservoirs

Optimize performance of your TELOS reservoirs

- Available in 10 or 20 µm
  Choose from multiple frit material options ideal for your application needs.

item	Wetted Materials	Fritted Disk
 EW-06479-15	Polyethylene	20 µm

item	Wetted Materials	Fritted Disk
 EW-06479-17	Polyethylene	10 µm
 EW-06479-19	PTFE	10 µm
 EW-06479-35	Polyethylene	10 µm
 EW-06479-53	Polyethylene	20 µm

item	Wetted Materials	Fritted Disk
 EW-06479-55	Polyethylene	20 µm
 EW-06479-68	Polyethylene	20 µm
 EW-06479-69	Polyethylene	20 µm
 EW-06479-70	Polyethylene	20 µm

item	Wetted Materials	Fritted Disk
 EW-06479-71	Polyethylene	10 µm
 EW-06479-72	Polyethylene	10 µm
 EW-06479-84	Polyethylene	20 µm
 EW-06479-85	Polyethylene	10 µm

item	Wetted Materials	Fritted Disk
 EW-06479-86	Polyethylene	10 µm

Cole-Parmer® Graphite Short Ferrules Compatible with Agilent Inlets

Reusable one-piece design

- Constructed of durable graphite
  Graphite Ferrules are preferred for capillary columns. Maximum temperature: 450°C. Does not stick to glass and is reusable if not over-tightened. One-piece design – no back ferrule.

item	Description
 EW-01998-56	Graphite Short Ferrules Compatible with Agilent Inlets, 1/16" to 0.4 mm

item	Description
 EW-01998-58	Graphite Short Ferrules Compatible with Agilent Inlets, 1/16" to 0.5 mm
 EW-01998-59	Graphite Short Ferrules Compatible with Agilent Inlets, 1/16" to 0.8 mm

Cole-Parmer® Graphite Straight Ferrules for Packed Columns

Reusable one-piece design

- Constructed of durable graphite
Graphite Ferrules are preferred for capillary columns. Maximum temperature: 450degC. Does not stick to glass and is reusable if not over-tightened. One-piece design – no back ferrule.

item	Description
 EW-01992-01	Graphite straight ferrules, 1/8"; 10/pack

item	Description
 EW-01992-02	Graphite straight ferrules, 1/4"; 10/pack
 EW-01992-30	Graphite straight ferrules, 1/16"; 10/pack

Cole-Parmer® Graphite Capillary Column Ferrules

COLE-PARMER

Reusable one-piece design

- Constructed of durable graphite
Graphite Ferrules are preferred for capillary columns. Maximum temperature: 450°C. Does not stick to glass and is reusable if not over-tightened. One-piece design – no back ferrule.

item	Description
 EW-01998-50	Graphite Capillary Column Ferrules, 1/16" to 0.4 mm

item	Description
 EW-01998-52	Graphite Capillary Column Ferrules, 1/16" to 0.5 mm
 EW-01998-54	Graphite Capillary Column Ferrules, 1/16" to 0.8 mm

Cole-Parmer® Chromatography/Analytical Gas Moisture Traps

Prolong column life and reduce detector interference

- Easily and efficiently remove moisture
These moisture traps are ideal for applications requiring high-efficiency moisture removal with the benefit of a depletion indicator. The adsorbing materials are molecular Sieve 5A and cobalt-free CoFree™ indicator. The CoFree indicator changes color from greenish-yellow to blue at 4-6% relative humidity to signal leaks in the system; the molecular sieve removes moisture to trace levels. The gas to be purified contacts only glass, metal and the adsorbents. The dual deal design features a heavy-walled inner glass tube which is protected by a sealed outer plastic tube. This design provides extra protection if the glass tube were to fail, the gas system is still fully protected against leaks. An internal frit at each end prevents particulate contamination.

Choose from a moisture trap with a 1/8" or 1/4" fitting.

item	Inlet Port	Description	Outlet Port
 EW-01997-20	1/8" OD	Moisture Traps; 55 mL volume; 1/8" fitting	1/8" OD

item	Inlet Port	Description	Outlet Port
 EW-01997-22	1/4" OD	Moisture Traps; 55 mL volume; 1/4" fitting	1/4" OD

Cole-Parmer® Chromatography Color-Change Indicating Oxygen Gas Trap

Reduce residual oxygen content

- Color-Change Indicating material provides visual indication of media depletion
  Reduce residual oxygen content to less than 0.1 ppm with standard gas chromatography flow rates. Indicating material changes color from bright green to gray when depleted. Plastic sleeve protects glass housing in case of breakage. Traps measure 10-1/4"L x 1-3/8" dia. Shpg wt 1 lb (0.5 kg).

$

item	Description
 EW-01997-00	Oxygen Trap, Color-Change/Indicating, 40 mL; 1/8" OD Fitting
 EW-01997-02	Oxygen Trap, Color-Change/Indicating, 40 mL; 1/4" OD Fitting

Cole-Parmer® Deuterium Lamps

Economical replacement deuterium lamps save you money

- Select from standard or long life lamps
- Manufactured in an ISO-accredited Facility
- Individually Tested and Issued with a Test Certificate

Our range of deuterium (D2) lamps are made to fit the majority of detectors used in analytical labs today. Our lamps are used by many of the major pharmaceutical and contract research organizations (CROs) around the globe.

Our lamps are manufactured under stringent ISO 9001 quality procedures. Each lamp is manufactured to rigorous standards and traceable from manufacturing to customer delivery.

item	Compatible With	Description
 EW-11941-00	Agilent 1050A	Detector Lamp Compatible with Agilent 1050A Detectors; 1/EA

item	Compatible With	Description
 EW-11941-01	Agilent 8452	Deuterium (D2) Detector Lamp for Agilent 8452 Detectors
 EW-11941-02	Aminco DW2C, DW2000	Deuterium (D2) Detector Lamp for Aminco DW2C, DW2000
 EW-11941-03	Analytik Jena (Zeiss)	Deuterium (D2) Detector Lamp for Analytik Jena (Zeiss)
 EW-11941-04	Analytik Jena Spekol	Deuterium (D2) Detector Lamp for Analytik Jena Spekol

item	Compatible With	Description
 EW-11941-05	Beckman DU600, 620, 630, 640, 650, 6000, 6500, 7000, 7500	Deuterium (D2) Detector Lamp for Beckman DU600, 620, 630, 640, 650, 6000, 6500, 7000, 7500
 EW-11941-10	Applied Biosystems 757, 759, 783A, 785A, 1000S, 980, 120A, 130A	Deuterium (D2) Detector Lamp for Applied Biosystems 757, 759, 783A, 785A, 1000S, 980, 120A, 130A
 ALWAYS IN STOCK EW-11941-11	Agilent 1100 VWD, 1200, 1260	Deuterium (D2) Detector Lamp for Agilent 1100 VWD Detectors
 EW-11941-12	Agilent 1100 DAD, 8453	Deuterium (D2) Detector Lamp for Agilent 8453 Detectors

item	Compatible With	Description
 EW-11941-13	Agilent 1100/1200 DAD (to fit G1315/1365 A & B series detectors)	Deuterium (D2) Detector Lamp for Agilent 1100/1200 DAD (G1315/G1365 A & B Series Detectors)
 EW-11941-14	Agilent 1100/1200 DAD (to fit G1315/1365 C & D series detectors)	Deuterium (D2) Detector Lamp for Agilent 1100/1200 DAD (G1315/G1365 C & D Series Detectors)
 EW-11941-15	Agilent 1260, 1290	Deuterium (D2) Detector Lamp for Agilent 1290 DAD (8-Pin) Detectors
 EW-11941-16	Biotage® SP1/4, Isolera	Deuterium (D2) Detector Lamp for Biotage SP1/4, Isolera

item	Compatible With	Description
 EW-11941-17	Dionex Ultimate 3000, 3000RS, 3100, 3400	Deuterium (D2) Detector Lamp for Dionex Ultimate VWD 3000, 3100, 3400, Longlife
 EW-11941-19	Gilson 170 DAD	Deuterium (D2) Detector Lamp for Gilson 170 DAD, longlife
 EW-11941-20	Dionex/Gynkotek UVD160, 170S, 170U, 320, 340S, 340U	Deuterium (D2) Detector Lamp for Dionex / Gynkotek UVD 320, 340S, 160, 170S, 170U
 EW-11941-21	Interchim PuriFlash (PF) 215, PF430, PF450, PF800, PF4100, PF1, SP2	Deuterium (D2) Detector Lamp for Interchim Puriflash PF215, PF430

item	Compatible With	Description
 EW-11941-26	Shimadzu SPD-10A, AVP, AV, AVVP, M10AVP, 20A, 20AV, M20A	Deuterium (D2) Detector Lamp for Shimadzu SPD-10A, AVP, AV, AVVP, M10AVP, 20A, 20AV
 EW-11941-27	Shimadzu spectrophotometers	Deuterium (D2) Detector Lamp for Shimadzu UV Series
 EW-11941-28	Shimadzu LC2010	Deuterium (D2) Detector Lamp for Shimadzu LC2010 Longlife
 EW-11941-29	Thermo TSP UV100, 150, 200, 1000, 2000, 3000	Deuterium (D2) Detector Lamp for TSP UV100, 150, 200, 1000, 2000, 3000

item	Compatible With	Description
 EW-11941-31	Varian UV50, 100, 200, 9050, Prostart 310	Deuterium (D2) Detector Lamp for Varian UV50/100/200 9050 Prostar 310
 EW-11941-33	Varian Prostar 325, 335	Deuterium (D2) Detector Lamp for Varian Prostar 325, 335
 EW-11941-34	Varian Prostar 340, 345	Deuterium (D2) Detector Lamp for Varian Prostar 340, 345
 EW-11941-35	Waters 996, 2996 PDA	Deuterium (D2) Detector Lamp for Waters 996, 2996 PDA

item	Compatible With	Description
 EW-11941-36	Waters 2487	Deuterium (D2) Detector Lamp for Waters 2487
 EW-11941-39	Beckman P/ACE MDQ	Deuterium (D2) Detector Lamp for Beckman P/ACE MDQ
 EW-11941-40	Biorad 206, 300, 1790; BioDimensions Microsampler 100	Deuterium (D2) Detector Lamp for Biorad 206, 300, 1790, BioDimensions Microsampler 100
 EW-11941-41	Biorad	Deuterium (D2) Detector Lamp for Biorad SKU 1194141

item	Compatible With	Description
 EW-11941-43	Bischoff Lambda 1010	Deuterium (D2) Detector Lamp for Bischoff Lambda 1010
 EW-11941-46	Biotek 540 DAD	Deuterium (D2) Detector Lamp for Biotek 540 DAD
 EW-11941-47	Cecil Series 2, 1000 to 9000, CE Series	Deuterium (D2) Detector Lamp for Cecil Series 2, 1000 to 9000, CE Series
 EW-11941-48	Dionex DSA-1 VDM-1	Deuterium (D2) Detector Lamp for Dionex DSA-1 VDM-1

item	Compatible With	Description
 EW-11941-49	Dionex PDA-100, PDA-3000, AD-25	Deuterium (D2) Detector Lamp for Dionex PDA-100, PDA-3000, AD-25
 EW-11941-51	GBC LC1205, LC1206, LC1210	Deuterium (D2) Detector Lamp for GBC LC1205, LC1206, LC1210
 EW-11941-53	Gilson 115, 116, 117, 118, 119, 151, 152, 155, 156	Deuterium (D2) Detector Lamp for Gilson 115, 116, 117, 118, 119, 151, 152, 155, 156
 EW-11941-55	ICI LC1200	Deuterium (D2) Detector Lamp for ICI LC1200

item	Compatible With	Description
 EW-11941-56	ICI LC 1205/1210	Deuterium (D2) Detector Lamp for ICI LC 1205/1210
 EW-11941-64	Knauer Smartline PDA 2800	Deuterium (D2) Detector Lamp for Knauer Smartline PDA 2800
 EW-11941-66	Kontron 540DAD, 540+, 545V	Deuterium (D2) Detector Lamp for Kontron 540DAD, 540+, 545V
 EW-11941-67	Kontron Uvikon 922, 923, 943, 930, 932, 933, 940	Deuterium (D2) Detector Lamp for Kontron Uvikon 922, 923, 943, 930, 932, 933, 940

item	Compatible With	Description
 EW-11941-69	Kontron 720LC	Deuterium (D2) Detector Lamp for Kontron 720LC
 EW-11941-71	Hitachi 100-X, 124	Deuterium (D2) Detector Lamp for Hitachi 100-X, 124
 EW-11941-72	Hitachi U1800, U2800, U2810	Deuterium (D2) Detector Lamp for Hitachi U1800, U2800, U2810
 EW-11941-73	Metertech SP-8001	Deuterium (D2) Detector Lamp for Metertech SP-8001

item	Compatible With	Description
 EW-11941-78	Perkin Elmer LC55, 65, 75, 85, 95, 135, 141, 235, 241, Lambda 1 3, Integral	Deuterium (D2) Detector Lamp for Perkin Elmer LC55, 65, 75, 85, 95, 135, 141, 235, 241, Lambda 1 3, Integral
 EW-11941-79	Thermo Unicam UV & Helios Series	Deuterium (D2) Detector Lamp for Thermo Unicam UV & Helios Series
 EW-11941-82	Shimadzu LC4A, LC6A, SPD2A, SPD6A, SPD6AV, SP4	Deuterium (D2) Detector Lamp for Shimadzu LC4A, LC6A, SPD2A, SPD6A, SPD6AV, SP4
 EW-11941-83	Shimadzu SPD-M10A, M10AV	Deuterium (D2) Detector Lamp for Shimadzu SPD-M10A, M10AV

item	Compatible With	Description
 EW-11958-00	Waters Acquity HB	Deuterium (D2) Detector Lamp for Waters Acquity HB, Long Life
 EW-11958-01	Shimadzu Prominence 2030, Nexera 2040	Deuterium (D2) Detector Lamp for Shimadzu Prominence 2030, Nexera 2040
 EW-11958-02	Buchi C700 Flash	Deuterium (D2) Detector Lamp for Buchi C700 Flash
 EW-11958-03	Ecom Flash series, Opal, Sapphire, Topaz & LCD 2073A	Deuterium (D2) Detector Lamp for Ecom Flash series, Opal, Sapphire, Topaz & LCD 2073A

item	Compatible With	Description
 EW-11958-04	Jasco UV970 975 (B&C) 1570 1575 2070 2075 3075, MD900 MD1500 MD2000	Deuterium (D2) Detector Lamp for Jasco UV970 975 (B&C) 1570 1575 2070 2075 3075, MD900 MD1500 MD2000
 EW-11958-08	LKB Pharmacia Ultrospec I II III Plus	Deuterium (D2) Detector Lamp for LKB Pharmacia Ultrospec I II III Plus
 EW-11958-11	Hitachi 150 to 655, 2000, 3200, select L & U series	Deuterium (D2) Detector Lamp for Hitachi 150 to 655, 2000, 3200, select L & U series

Cole-Parmer® Column Temperature Control Systems

Choose from single, programmable, or high-capacity units to suit your application needs

- Accurately control column temperature with PID temperature control
  These Cole-Parmer® column temperature control systems provide even chamber temperatures.

item	Max Temperature (° C)	Min Temperature (° C)	Power (VAC)
 EW-42650-70	90	25	90 to 260

item	Max Temperature (° C)	Min Temperature (° C)	Power (VAC)
 EW-42650-75	70	4	90 to 260
 EW-42650-80	100	4	90 to 260

Cole-Parmer® TELOS® Dry Loading Columns with Luer Lock Connection

Zoom Image

- COLE-PARMER

Use dry loading columns with bulk sorbents to quickly and easily apply to flash chromatography systems

- Columns are prefitted with a bottom frit
Attach dry loading columns directly to the main flash columns to suit majority of reaction scales. Columns feature luer lock inlet and luer slip outlet or luer lock inlet and outlet depending on model. Models with luer slip outlets can be used with ISCO CombiFlash® and Grace Reveleris® systems. Other models are best suited for SP and Idolera™ systems from Biotage®. They come pre-fitted with a bottom frit.

item	Bed Mass (g)	Fritted Disk
 EW-06475-53	4	20 µm top frit, 10 µm bottom frit

item	Bed Mass (g)	Fritted Disk
 EW-06475-54	12	20 µm top frit, 10 µm bottom frit
 EW-06475-55	12	20 µm top frit, 10 µm bottom frit
 EW-06475-56	20	20 µm top frit, 10 µm bottom frit
 EW-06475-57	20	20 µm top frit, 10 µm bottom frit

item	Bed Mass (g)	Fritted Disk
 EW-06475-59	40	20 µm top frit, 10 µm bottom frit
 EW-06475-60	40	20 µm top frit, 10 µm bottom frit
 EW-06475-61	45	20 µm top frit, 10 µm bottom frit
 EW-06475-63	80	20 µm top frit, 10 µm bottom frit

item	Bed Mass (g)	Fritted Disk
 EW-06475-65	120	20 µm top frit, 10 µm bottom frit
 EW-06475-66	330	20 µm top frit, 10 µm bottom frit
 EW-06475-67	4	10 µm bottom frit, no top frit
 EW-06475-68	12	10 µm bottom frit, no top frit

item	Bed Mass (g)	Fritted Disk
 EW-06475-69	20	10 µm bottom frit, no top frit
 EW-06475-70	40	10 µm bottom frit, no top frit
 EW-06475-71	80	10 µm bottom frit, no top frit

Cole-Parmer® TELOS® Phase Separator Columns

Quickly and easily separate aqueous and chlorinated solvents

- Gravity flow filtration process, no vacuum required
- No need for separating funnels and rewashing glassware
  Simply apply aqueous and chlorinated solvents to the column for a quick separation. A special hydrophobic frit allows the chlorinated solvent to pass through under gravity while preventing the aqueous layer from flowing though. The aqueous layer remains in the separator column, separating the two phases and allowing additional work up.

item	Total Volume Capacity (mL)
 EW-06475-48	6

item	Total Volume Capacity (mL)
 EW-06475-49	15
 EW-06475-51	70
 EW-06475-52	150

Cole-Parmer®

Cole-Parmer 1.7 µm UHPLC Columns

UHPLC Columns

- Optimized for Ultra-High Pressure LC (UHPLC)
- Available in 8 different selectivities
- Operate at 1200 bar (18,000 psi)

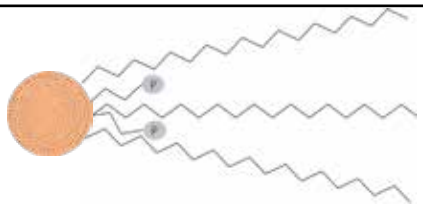
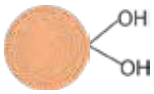
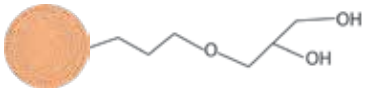
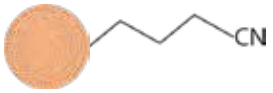
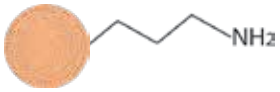
Speed

Resolution

Selectivity

Sensitivity

Phase Chemistry Selectivity

	**C18** – **General UHPLC use** – **Method development from pH 1–12**	Acids Bases Neutrals
	**Polar endcapped C18** – **Polar endcapped** – **Increased polar retention**	Hydrophilic analytes Organic acids Catecholamines
	**Diphenyl** – **Unique diphenyl structure** – **Metabolite profiling** – **Separate positional isomers**	Metabolites Positional isomers Hydrophilic / hydrophobic analytes
	**C8** – **General UHPLC use** – **Method development**	Lipids Steroids Highly hydrophobic analytes
	**HILIC** – **High polar retention** – **Homogenous silanol concentration** – **Improve MS sensitivity**	Carboxylic acids Nucleotides Vitamins
	**DIOL** – **Alternate selectivity to bare silica** – **Stable bonding** – **HILIC or normal phase mode**	Steroids Proteins Metabolites
	**Cyano** – **Cyano functionality** – **Reversed phase or normal phase**	Explosives Pesticides Steroids
	**Amino** – **Reproducible, robust bonding** – **Reversed phase, normal phase or ion exchange mode**	Saccarides Oligonucleotides Steroids

Cole-Parmer 1.7 µm UHPLC Columns

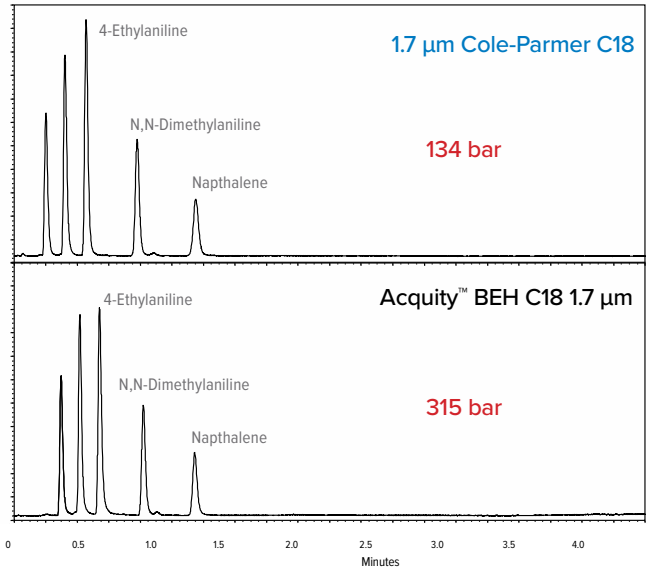
- **Use 1.7 µm Cole-Parmer particles as a traditional UHPLC column or in place of core-shell**
- **380 m²/g surface area for increased peak capacity**
- **Available in 8 phase chemistries**
- **Operate to 1200 bar (18,000 psi)**
- **Fully pH stable 1 to 12**
- **Fully scalable to analytical**

The 1.7 µm Cole-Parmer UHPLC columns can be used in UHPLC systems or in standard 400 to 600 bar systems to produce ultra-high pressure or ultra-high performance chromatography. The 1.7 µm particles are designed to be robust, reproducible and fully scalable with 3 µm and 5 µm particles. They will operate up to 1200 bar (18,000 psi) providing increased efficiency at high linear velocities, allowing speed and sensitivity to be achieved on all the latest UHPLC systems. By choosing a high surface area UHPLC phase, the analyst can increase peak capacity using their existing column dimension, or maintain existing capacity while lowering back pressure on a shorter column.

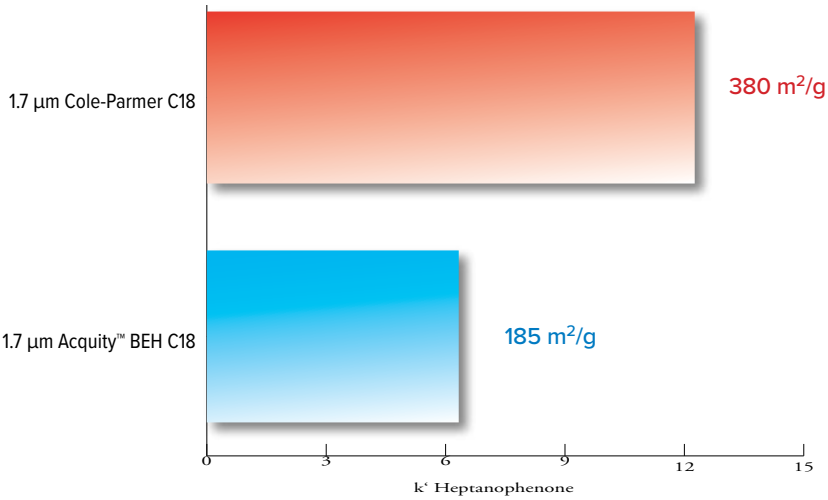
High Efficiency with Lower Back Pressure

The 1.7 µm Cole-Parmer C18 provides increased efficiency over 3 µm and 5 µm particles. This provides the opportunity to increase resolution or speed of analysis.

- **Higher efficiency**
- **Lower back pressure**



Comparison of Hydrophobicity and Peak Shape



1.7 µm Cole-Parmer C18, 50 x 2.1 mm	
Surface area	380 m²/g
Efficiency	191,670
Peak shape (N,N-Dimethylaniline)	1.03
Pressure - 0.4 mL/min (60:40 ACN:Water)	225 bar

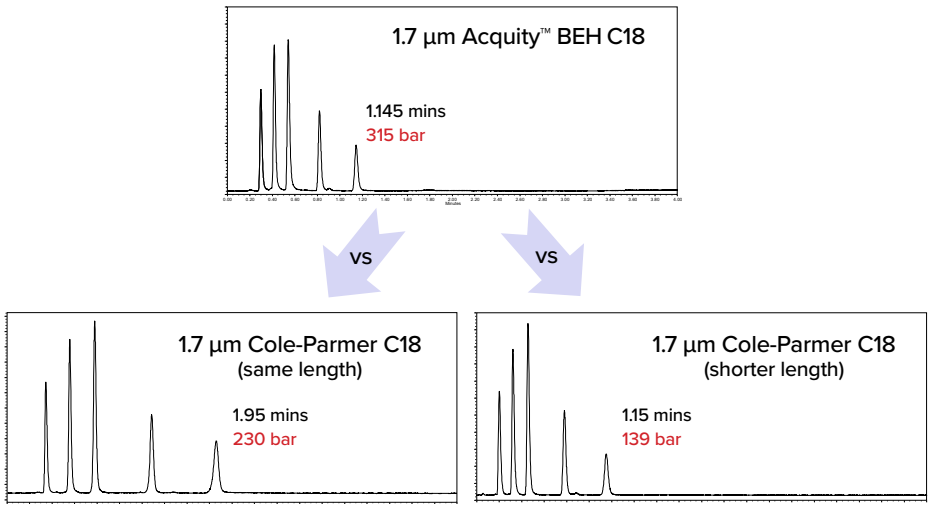
Acquity™ BEH 1.7 µm C18, 50 x 2.1 mm	
Surface area	185 m²/g
Efficiency	167,400
Peak shape (N,N-Dimethylaniline)	1.28
Pressure - 0.4 mL/min (60:40 ACN:Water)	292 bar

Comparisons

Performance Comparison of 1.7 µm Cole-Parmer C18 vs 1.7 µm Acquity™ BEH C18

The high surface area of the silica 1.7 µm Cole-Parmer C18 gives you the choice to increase retention/resolution or to lower back pressure compared to other manufacturer's columns.

Increase peak capacity by using the same column length or use a shorter column to maintain the same retention while reducing back pressure.



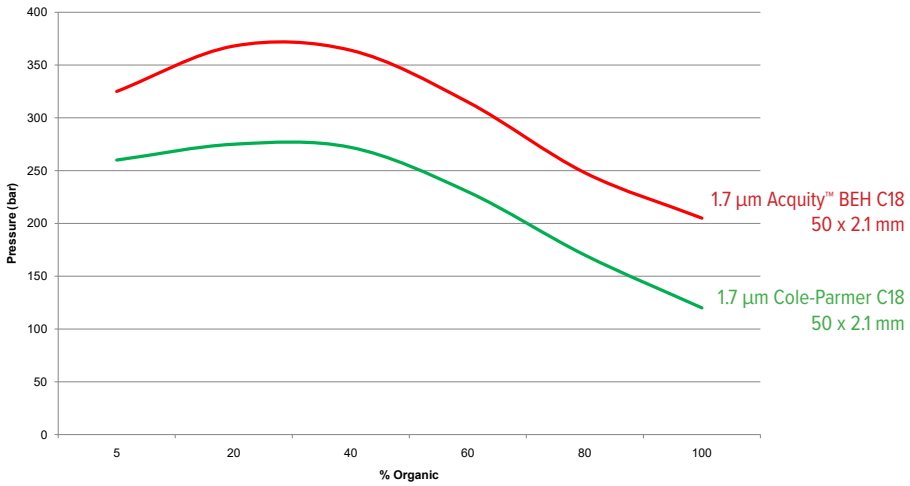
Using the same column length delivers a longer retention time and increased peak capacity.

Using a shorter column length provides a comparable retention time and reduced back pressure.

Pressure Comparison of 1.7 µm Cole-Parmer C18 vs 1.7 µm Acquity™ BEH C18

The high surface area of the 1.7 µm Cole-Parmer C18 provides less back pressure than many of other UHPLC columns on the market.

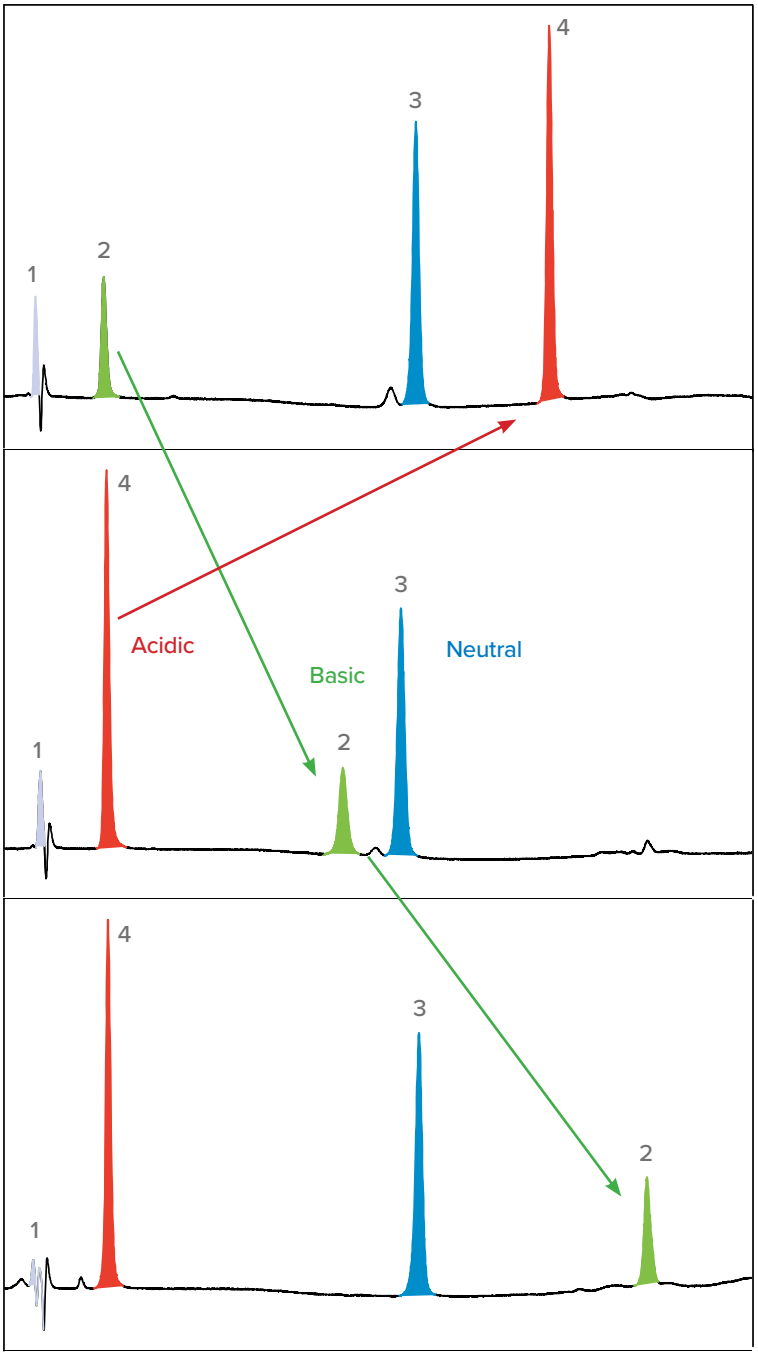
You can decide to use a shorter column that will reduce the pressure with no loss of separation.



1.7 µm Cole-Parmer C18 pH Options

- **pH selectivity for method development**
- **pH stable 1 to 12**
- **Gives high speed of equilibration**

The 1.7 µm Cole-Parmer C18 will operate across the pH spectrum giving the analyst the ability to optimize the correct pH region for their separation. Quickly equilibrating from formic acid to ammonium acetate through to ammonia allows pH, as a method variable, to be rapidly evaluated. Resolution of compounds can be changed radically by altering pH to optimize separation between compound classes.



1. Uracil
2. Procaine
3. Fenuron
4. 3-Nitrobenzoic acid

pH 2.2

pH 7.2

pH 11.2

Scalability and Sensitivity

Fully Scalable

All Cole-Parmer phases can be scaled from 1.7 µm all the way through analytical 3 µm and 5 µm particles without any change in retention profile.

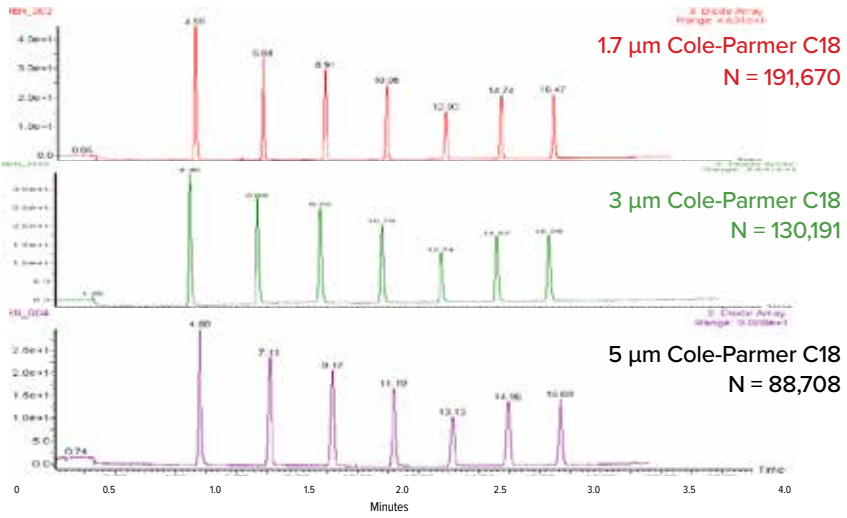
– Facilitate method transfer

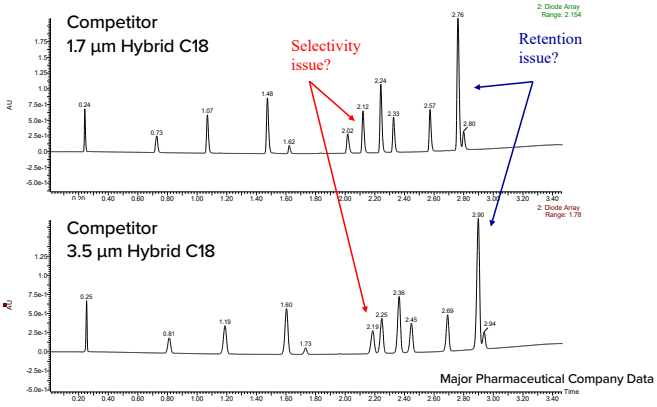
Using columns of identical chemistry and by adjusting flow rate, injection volume and gradient scaling, scaling up or down is possible without change in selectivity, making it easy to transfer methods between laboratories.

– Avoid changes in resolution and retention

If a small particle used in UHPLC is not the same as its larger 3 µm and 5 µm particle then changes in resolution and retention can occur, neither of which are acceptable in method validation.

The 1.7 µm Cole-Parmer C18 will alleviate all these potential issues, leaving the analyst confident in method transfer.





Sensitivity Gains

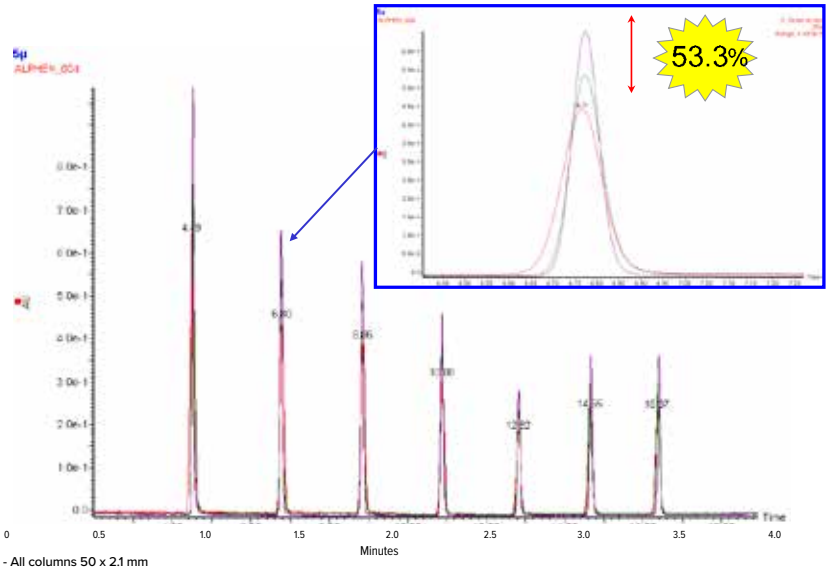
Peak height increases in UHPLC due to the rise in efficiency (N) from the smaller particle, but it is also inversely proportional to peak width, so symmetrical peaks will lead to increased sensitivity.

– Sharp Peak Shapes

All Cole-Parmer phases are designed to give the sharpest possible peak shapes.

– High Efficiency

Moving from 3 µm to 1.7 µm Cole-Parmer C18 gives a peak height increase of 27% in this example. The increase from 5 µm particles is 53%.



- All columns 50 x 2.1 mm

UHPLC Method Development

The 1.7 µm Cole-Parmer columns will allow the transfer of methods from traditional HPLC to UHPLC, saving both time and solvent. If done properly the overall method time will be reduced but resolution and selectivity of solutes will remain constant or improve.

Equivalent UHPLC Column — 'Separating Power'

First consideration is the ability to scale the method down in column dimension, length and diameter:

– Equivalent UHPLC column
If you can retain equivalent column plate count or 'separating power' then it is much easier to scale down effectively.

– Example
If you move from a 5 µm 150 x 4.6 mm to a 1.7 µm 50 x 2.1 mm, the equivalent separation should be achieved but a several fold improvement in analysis time will be achieved.

Column length	Efficiency of 5 µm	Efficiency of 3 µm	Efficiency of 1.7 µm
250	22,000		
150	12,700	16,800	26,460
100	8,300	10,700	21,000
50	4,000	6,000	11,200
30		3,200	7,000
20			3,000

UHPLC Method Development

Scaling a Method — Isocratic

To scale to a UHPLC column, change the flow rate and injection volume in order to maintain the linear velocity across the method and not overload the column.

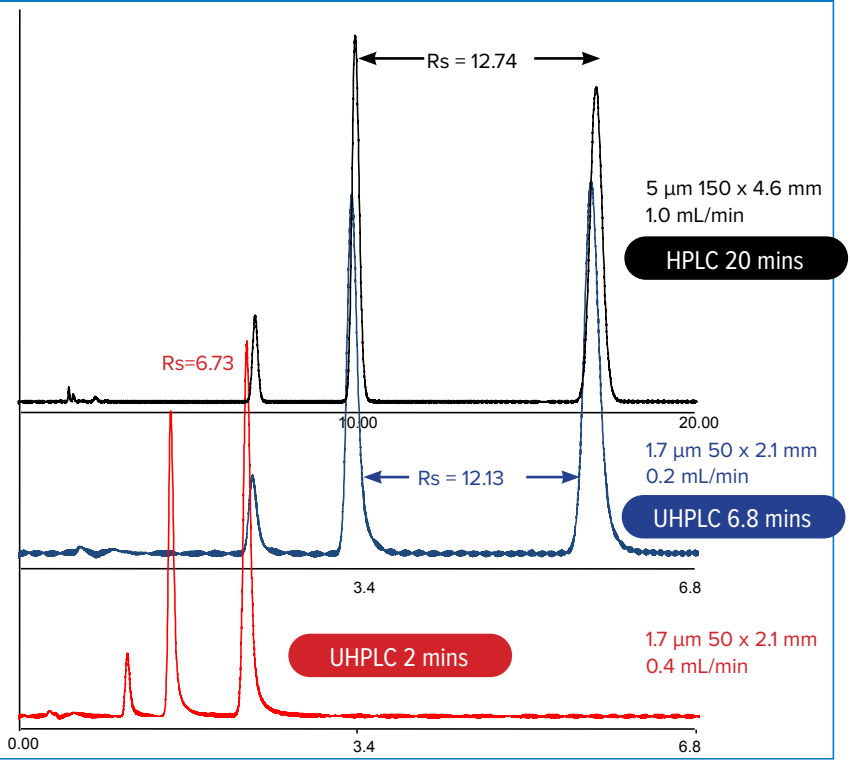
– Change flow rate

$$F_2 = F_1 \times (Dc_2 / Dc_1)^2$$

– Change injection volume

$$V_2 = V_1 \times \frac{(Dc_2^2 \times L_2)}{(Dc_1^2 \times L_1)}$$

F_2 = New flow rate
F_1 = Original flow rate
Dc_2 = New column diameter
Dc_1 = Original column diameter
L_2 = Length of new column
L_1 = Length of original column
V_2 = New injection volume
V_1 = Original injection volume



Scaling a Method — Gradient

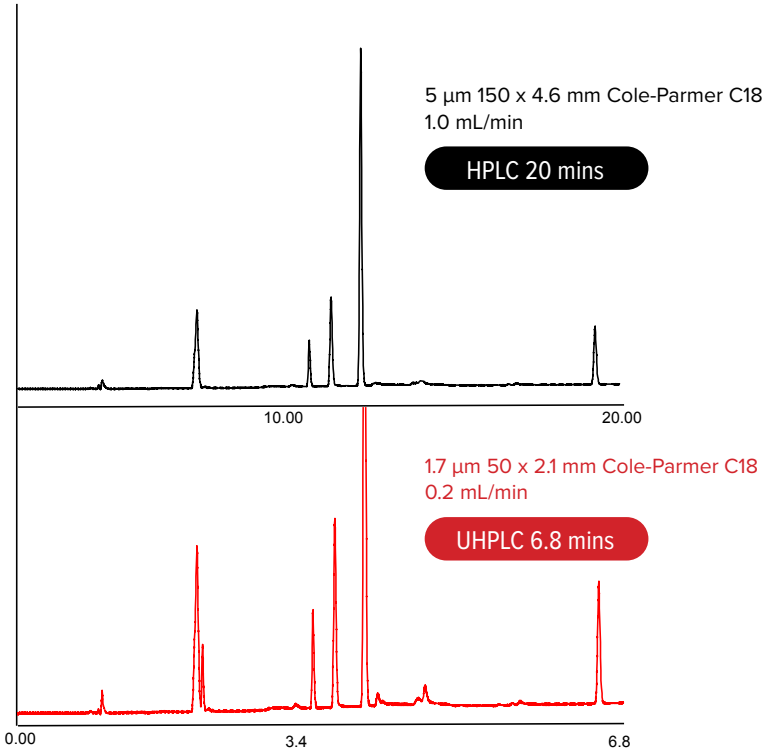
In order to change our gradient, we must aim to keep the slope and the start point the same but lower the time the gradient runs in.

Altering the gradient time retains the same linear gradient and slope, but reduces the run time.

– Change Gradient

$$tg_2 = tg_1 \times (F_1 / F_2) \times (Dc_2^2 / Dc_1^2) \times (L_1 / L_2)$$

tg_2 = New gradient time
tg_1 = Original gradient time



UHPLC Method Development

Resolution vs Efficiency vs Selectivity

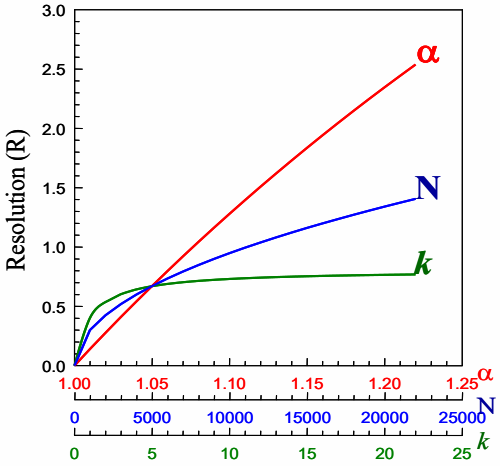
The 1.7 µm Cole-Parmer C18 will provide hydrophobic selectivity which is suitable for many compounds. However as the resolution equation shows us having multiple phase chemistries available is a definite advantage even in UHPLC. Selectivity can then be used in conjunction with higher efficiency.

Efficiency ↘ Retention ↓ Selectivity ↙

$$R = \frac{\sqrt{N}}{4} \cdot \frac{k'}{k'+1} \cdot \frac{\alpha-1}{\alpha}$$

$$\alpha = \frac{k_2}{k_1}$$

- Selectivity (α) has the greatest impact on improving resolution.

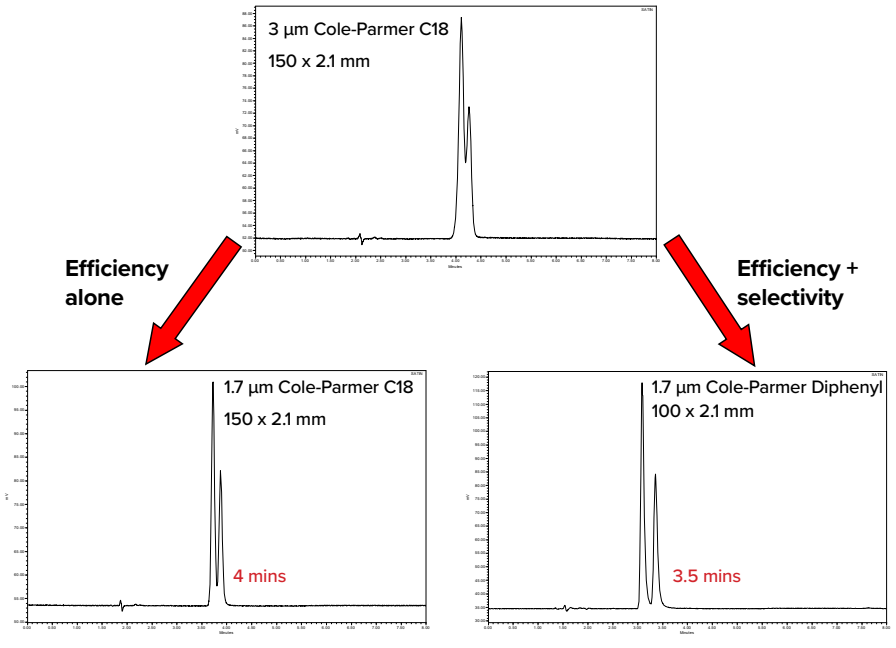


Improve Selectivity

To scale a method, efficiency alone can't provide the necessary resolution.

Scaling from 3 µm to 1.7 µm does not provide baseline resolution between the compounds.

Selecting an alternative phase chemistry may be needed to achieve faster separation on a shorter column and achieve full baseline separation.



Isonicotinamide and Nicotinamide

UHPLC In-Line Filters

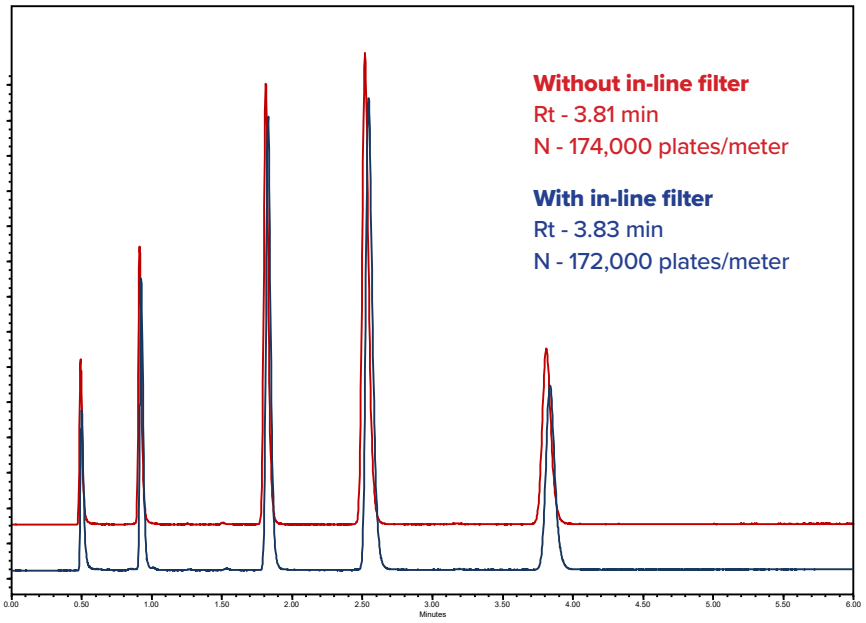
- **Low volume in-line filters for all UHPLC columns**
- **No back pressure increase**
- **Increase lifetime of UHPLC columns**
- **Change-over time in seconds not minutes**

Column Protection — No Loss in Performance

Cole-Parmer UHPLC in-line filters are direct connect design, fitting in between the UHPLC column and the conventional system fitting to filter out particulate matter.

In-line filters are ideal for 1.7 µm UHPLC columns where extra packed bed from a guard would be detrimental.

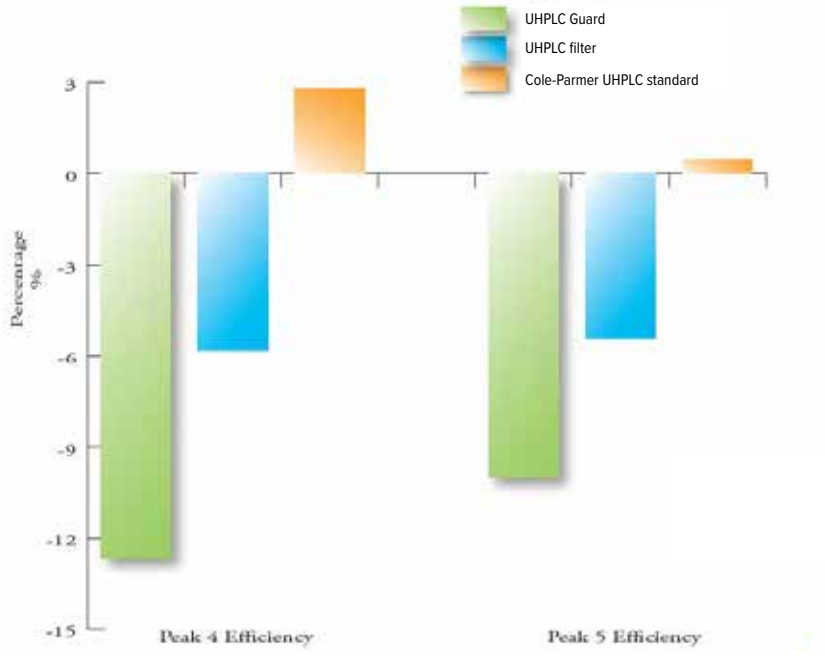
UHPLC in-line filters are manufactured to withstand 1379 bar (20,000 psi).



Column Protection — No Loss in Performance

In-line filters are more suitable to many instances of UHPLC since with very short run times guard columns will add retention that is not required. Guards can also reduce the efficiency of the system.

All in-line filters are not the same and some filters may affect both efficiency and peak shape. Cole-Parmer in-line filters are optimized for UHPLC.



Ordering Information

Phase Characteristics

Chemistry	C18	Polar endcapped C18	Diphenyl	C8	HILIC	DIOL	Cyano	Amino
Carbon loading	17%	18%	13%	13%	N/A	4%	7%	5%
Particle size	1.7 µm	1.7 µm	1.7 µm	1.7 µm	1.7 µm	1.7 µm	1.7 µm	1.7 µm
Specific area	380 m^2/g	380 m^2/g	380 m^2/g	380 m^2/g	380 m^2/g	380 m^2/g	380 m^2/g	380 m^2/g
Pore size	100 Å	100 Å	100 Å	100 Å	100 Å	100 Å	100 Å	100 Å
pH range	1 to 12	2 to 10	2 to 9	2 to 10	2 to 8	2 to 8	2 to 7	2 to 8
USP classification	L1	L1	L11	L7	L3	L20	L10	L8

UHPLC Columns

				C18	Polar end-capped C18	Diphenyl	C8	HILIC	DIOL	Cyano	Amino
Particle size	Length	Column ID	Qty	Item number	Item number	Item number	Item number	Item number	Item number	Item number	Item number
1.7 µm	50 mm	2.1 mm	1	**16470-12**	**16470-54**	**16471-33**	**16470-33**	**16471-96**	**16471-75**	**16471-12**	**16471-54**
		4.6 mm	1	**16470-09**	**16470-51**	**16471-30**	**16470-30**	**16471-93**	**16471-72**	**16471-09**	**16471-51**
	100 mm	2.1 mm	1	**16470-11**	**16470-53**	**16471-32**	**16470-32**	**16471-95**	**16471-74**	**16471-11**	**16471-53**
	150 mm	2.1 mm	1	**16470-10**	**16470-52**	**16471-31**	**16470-31**	**16471-94**	**16471-73**	**16471-10**	**16471-52**

In-Line Filters

- Maintain chromatographic integrity and increase column lifetime
- Low-volume in-line filters change out in seconds, not minutes
- Place between column and fitting—no back pressure increase
- Fingertight direct connection

Description	Qty	Item number
In-line filters for UHPLC columns, 0.5 µm	2	**16470-92**
	4	**16470-93**

Applications

Compound	Use	Column
1-Hydroxy-midazolam	Anxiolytic	C18
11 a-Hydroxyprogester-one	Steroid	Polar endcapped C18
11 a-Hydroxyprogester-one	Steroid	Cyano
17 a-Hydroxyproges-terone	Steroid	Polar endcapped C18
17-Hydroxyprogesterone	Hormone	C18
2,4-D	Herbicide	Cyano
2,4-DB	Herbicide	Cyano
2,4-DCP	Herbicide	C18
2,4-DP	Herbicide	Cyano
2,6-Dinitrotoluene	Explosives	Cyano
2-Hydroxybenzoic acid	Positional isomers	Diphenyl
2-Hydroxyestradiol	Positional isomers	Diphenyl
2-Nitroaniline	Explosives	Cyano
3-Hydroxyanabsinthin	Sesquiterpene lactones	C18
3-Hydroxybenzoic acid	Positional isomers	Diphenyl
3-Methoxytyramine	Catecholamine	HILIC
3-Nitrobenzoic acid		C18
3-Octanon	Fragrance	C18
4-Ethylaniline		C18
4-Hydroxybenzoic acid	Positional isomers	Diphenyl
4-Hydroxyestradiol	Positional isomers	Diphenyl
4-Nitroaniline	Explosives	Cyano
5-HIAA	Catecholamines	Polar endcapped C18
6-Monacetylmorphine	Drugs of abuse	C18
7-Aminoclonazepam	Hypnotic	C18
7-Aminoflunitrazepam	Benzodiazepines	C18
7-Aminonitrazepam	Anxiolytic	C18
Absinthin	Sesquiterpene lactones	C18
Acetaminophen	Flu relief	C18
Acetic acid	Ear infections	C18
Adenine	Polars	HILIC
ALA	Amino acids	C18
Aldehydes	Aldehydes	C18
Alprazolam	Anxiolytic	C18
Amiloride	Diuretic	C18
Amitriptyline	Antidepressant	C18
Amoxicillin	Antibiotic	C18
Amphetamine	Drugs of abuse	C18
Amprenavir	HIV drugs	C18
Anabsin	Sesquiterpene lactones	C18
Anabsinthin	Sesquiterpene lactones	C18
Apigenin	Natural dyes	C18
ARG	Amino acids	C18
Artemisetin	Sesquiterpene lactones	C18

Compound	Use	Column
Ascisic acid	Plant hormone	C18
Ascorbic acid	Vitamins	HILIC
ASP	Amino acids	C18
Atazanavir	HIV drugs	C18
Atenolol	Beta blocker	Polar endcapped C18
Atorvastatin	Statins	C18
Azithromycin	Antibiotic	C18
Banvel	Herbicide	C18
Bendroflumethiazide	Thiazide diuretic	Polar endcapped C18
Benoquinone acetic acid		Polar endcapped C18
Benzene	Alkyl benzenes	C18
Benzoylecgonine	Drugs of abuse	C18
Benzyladenine	Plant hormone	C18
Bromazepam	Benzodiazepines	C18
Butylbenzene	Alkyl benzenes	C18
Campher	Fragrance	C18
Candesartan cilexetil	Hypertension	C18
Cefachlor	Antibiotic	C18
Cefadroxil	Antibiotic	C18
Cefalexin	Antibiotic	C18
Cefradine	Antibiotic	C18
Chloramphenicol	Antibiotic	Polar endcapped C18
Cineol	Fragrance	C18
Ciprofloxacin	Antibiotic	Diphenyl
Citalopram	Antidepressant	C18
Clonaepam	Hypnotic	C18
Clopidogrel hydrogen SO_4	Antiplatelet	C8
Clozapine	Drugs of abuse	C18
CMPP	Herbicide	Cyano
Co-amoxiclav	Antibiotic	C18
Co-codamol	Pain relief	C18
Cortisone	Anti-inflammatory	C18
CYS-CYS	Amino acids	C18
Cytosine	Nuclosides	HILIC
D3-Digitoxin	Cardiac glycosides	C18
Dalbavancin	Antibiotic	Diphenyl
Demoxepam	Benzodiazepines	C18
Desmethyldiazepam	Anxiolytic	C18
Dexamethasone	Ear infections	C18
Diamorphine	Opioid analgesic	Polar endcapped C18
Dianette	Alkaloid	C18
Diazepam	Anti anxiety	C18

Applications

Compound	Use	Column
Diclofenac sodium	Painkiller	C18
Diethylaniline		C18
Digitoxin	Cardiac glycosides	C18
Dihydroquinidine	Antiarrhythmic	Diphenyl
Diltiazem	High blood pressure	Polar endcapped C18
Dimethylaniline		C18
Diphenhydramine	Antihistamine	C18
D-metafetamine	Drugs of abuse	C18
DOPAC	Catecholamines	Polar endcapped C18
Dopamine	Catecholamine	HILIC
Doxazosin	Apha blocker	Diphenyl
Entecavir	Antiviral	Diphenyl
Epinephrine	Catecholamine	HILIC
Epiyangambin	Sesquiterpene lactones	C18
Erythromycin	Erythromycin	HILIC
Estradiols	Estradiols	C18
Fenuron		C18
Flucloxacillin	Antibiotic	C18
Flunitrazepam	Anxiolytic	C18
Fluoruracil	Polars	HILIC
Fluoxetine	Antidepressant	C18
Folic acid	Vitamin	Polar endcapped C18
Fructose	Monosaccharide	Amino
Gabapentin	Epilepsy	C18
Gibberellin acid	Plant hormone	C18
Gliclazide	Diabetes	C18
GLU	Amino acids	C18
Glucose	Monosaccharide	Amino
GLY	Amino acids	C18
Guanosine	Nuclosides	HILIC
Haloperidol	Antipsychotic	C18
Heptylbenzene	Alkyl benzenes	C18
Hexylbenzene	Alkyl benzenes	C18
HIS	Amino acids	C18
Homogentisic acid		Polar endcapped C18
Hydroxy-21-acetate	Steroid	Cyano
Hydroxyphenylacetic acid		Polar endcapped C18
Hydroxyphenylpyruvic acid		Polar endcapped C18
Hydroxytisone-21-acetate	Steroid	Polar endcapped C18
Ibuprofen	Painkiller	C18
ILE	Amino acids	C18
Indol-3-yl-acetate	Plant hormone	C18

Compound	Use	Column
Irbesartan	Angiotensin II antagonist	C18
Isoascorbic acid	Vitamins	HILIC
Isonicatinamide	Positional isomers	Diphenyl
Ketopelenolide	Sesquiterpene lactones	C18
Kinetin	Plant hormone	C18
Lactose	Disaccharide	Amino
Lamotrigine	Epilepsy	C8
Lanalool	Fragrance	C18
Lanandulyl acetate		C18
Lansoprazole	Stomach ulcers	C18
Lavandulol		C18
LEU	Amino acids	C18
Levocetirizine	Antihistamine	Polar endcapped C18
Lidocaine	Irregular heartbeats	C18
Limonen	Fragrance	C18
Linalyl acetate	Fragrance	C18
Lopinavir	HIV drugs	C18
Loratadine	Antihistamine	C18
Lorazepam	Anti anxiety	Diphenyl
LSD	Drugs of abuse	C18
Luteolin	Natural dyes	C18
LYS	Amino acids	C18
Maltose	Disaccharide	Amino
MCPA	Agrochemicals	C18
MCPB	Weed control	Cyano
MDA	Drugs of abuse	C18
MDEA	Drugs of abuse	C18
MDMA (Ecstasy)	Drugs of abuse	C18
Melamine		HILIC
MET	Amino acids	C18
Metanephrine	Catecholamine	HILIC
Methamphetamine	Drugs of abuse	C18
Methyl melonic acid	Organic acids	Polar endcapped C18
Methylbenzoate		C18
Midazolam	Anxiolytic	C18
Mirtazapine	Antidepressant	C18
Morphine	Drugs of abuse	C18
N,N-Dimethylaniline	QC test	C18
Naphthalene	QC test	C18
Nelfinavir	HIV drugs	C18
Neomycin sulphate	Ear Infections	C18
Nicotinamide	Positional isomers	Diphenyl
Nicotinic acid	Vitamins	HILIC
Nitosininone		Polar endcapped C18

Applications

Compound	Use	Column
Nitrazepam	Anxiolytic	C18
Nitrobenzene	Explosives	Cyano
Nordiazepam	Drugs of abuse	C18
Normetanephrine	Catecholamine	HILIC
Norpinephrine	Catecholamine	HILIC
Nortriptyline	Tricyclic antidepressants	C18
OH-Dalbavancin	Antibiotic	Diphenyl
Omeprazole	Stomach ulcers	C18
Oseltamivir	Antiviral	C18
Oxazepam	Hypnotic	C18
PAH	16 PAH EPA	C18
Paracetamol	Flu relief	C18
Paroxetine	Antidepressant	Polar endcapped C18
PCOC	Weed control	Cyano
Pentylbenzene	Alkyl benzenes	C18
Pesticides	KFDA 83 - 59 pesticides	C18
PHE	Amino acids	C18
Phenoxymethylpenicillin	Antibiotic	C18
Phenylephrine	Flu relief	C18
Pheophorbide		C18
Pheophytin		C18
PK11195	PET tracer	Diphenyl
PK11195 Dechlorinated	PET tracer	Diphenyl
Prednisolone	Steroid	Polar endcapped C18
Prednisone	Steroid	Polar endcapped C18
PRO	Amino acids	C18
Procaine	Anestetic	C18
Prochlorperazine maleate	Phenothiazine antipsychotics	Diphenyl
Progesterone	Steroid	Polar endcapped C18
Proguanil	Anti-malarial	Diphenyl
Promethazine theoclate	Nausea	C18
Propylbenzene	Alkyl benzenes	C18
Protriptyline	Antidepressant	C18
Pyrazoline		C18
Pyridine		C18
Pyridoxine	Polars	HILIC
Pyropheophytin		C18
Quinidine	Antiarrhythmic	Diphenyl
Raloxifene glucoronides	Treat osteoporosis	C18
Riboflavin	Vitamins	HILIC
Ribose	Monosaccharide	Amino
Ritonavir	HIV drugs	C18

Compound	Use	Column
Rosuvastatin	Statins	C18
Sequinavir	HIV drugs	C18
SER	Amino acids	C18
Serotonin	Catecholamines	Polar endcapped C18
Sesartemin	Sesquiterpene lactones	C18
Simvastatin	High blood pressure	Polar endcapped C18
Sotalol	Beta blocker	C18
Succinic acid	Organic acids	Polar endcapped C18
Sucrose	Disaccharide	Amino
Sulfamerazine	Sulfa drugs	C18
Sulfamethoxazole	Sulfa drugs	C18
Sulfathiazole	Sulfa drugs	C18
Telmisartan	Hypertension	C8
Temazepam	Anti anxiety	C18
Tenofovir	HIV drugs	Polar endcapped C18
Terpinen 4 ol	Fragrance	C18
Terpineol	Plant hormone	C18
Testosterone	Hormone	C18
Theophylline	Alkaloid	C18
THR	Amino acids	C18
Thymidine (IS)	HIV drugs	Polar endcapped C18
Tiotropium bromide	Bronchodilator	C18
Toluene	Polars	HILIC
Tramadol	Opioid painkiller	C18
Trimipramine	Antidepressant	C18
TYR	Amino acids	C18
Tyrosine	Amino acids	Polar endcapped C18
Uracil	Nuclosides	HILIC
Uridine	Nuclosides	HILIC
VAL	Amino acids	C18
Valproate semisodium	Manic depression	C8
Verapamil	Irregular heartbeats	C18
Vitamin C	Vitamins	HILIC
Warfarin	Anticoagulant	Polar endcapped C18
Xylose	Monosaccharide	Amino
Zolpidem	Hypnotic	C18
Zopiclone	Hypnotic	C18

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