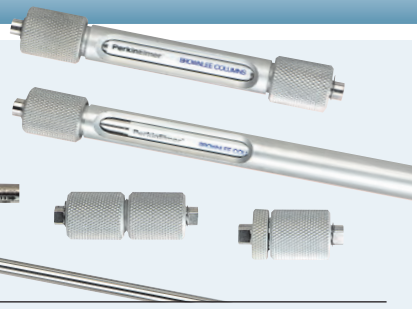
Chromatography
Consumables and Supplies

Genuine PerkinElmer Products — Genuine Value

VOLUME 3 2008 – 2009

PerkinElmer—The Clear Choice in Chromatography

NEW! SERIES 275 HRES LC



Brownlee Cartridge and Conventional Columns!

See pages 10-19 for details.

NEW!

Portable Gas Leak Detector!

Compact handheld detector with audible alarm.

See page 36 for details.

Crimp Top Headspace Vials!

See page 51 for details.

Hydrogen Generators!

The newest membrane technology for safe production of pure hydrogen gas.

NEW!

See page 56 for details.

Elite Series Capillary Columns!

See page 43 for details.

PerkinElmer®

Genuine **PerkinElmer** Products–Genuine **Value**

PerkinElmer—The Clear Choice in Chromatography

PerkinElmer is the only chromatography supplier who develops, manufactures, supports and services every product it offers to provide a truly integrated system.

This means one expert supplier—with best-in-class instruments and a world-class service and support organization—can address all of your applications and troubleshooting needs, from sample handling to data handling.

With over 50 years of experience in gas chromatography and a long history of innovation, you can rely on PerkinElmer for leading-edge instrumentation plus superior end-to-end training, technical and applications support, from sample handling through data handling

PerkinElmer®

NEW!

Series 275 HRes™ LC System

Expand your Separation Capability while Increasing Throughput

Improved resolution and throughput with higher pressure operating range to 10,000 psi.

See pages 4-7 for more information.

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Expand your Separation Capability while increasing throughput

Isn't it time you considered HRes™ Fast-LC to expand your separation capabilities while increasing your sample throughput? The flexible PerkinElmer Series 275 HRes™ LC System leverages small particle-size column technology at ultra-high pressures, giving you greater flexibility to develop methods across a wider operating range.

The Series 275 HRes HPLC System: Versatile flexibility to expand your separation capabilities

Improve your efficiency, easily. The Series 275 HRes LC System enables today's LC laboratories to achieve higher levels of performance and throughput to meet escalating scientific and business challenges. Your lab is on the line to do it better, and do it faster. Whether you are evaluating candidate compounds, controlling product quality, assuring consumer safety or assessing environmental impact, the Series 275 HRes System has the power and the flexibility to accelerate your productivity.

Preconfigured Series 275 HRes System

	Part No.
	N2980935

Includes:

Series 275 Autosampler with Peltier cooling/heating option, Vacuum Degasser, Series 275 Binary Micro Pumps, Series 200 Column Oven, and Series 200 UV/Vis Detector with high efficiency 2.4 µL flow cell and dotLink interface. Communication Cables, Static Mixer and all Low Dead-volume Fittings, Pre-cut Tubing and connections necessary to configure system included. TotalChrom Software and HRes columns sold separately.

Preconfigured Series 275 HRes System

	Part No.
	N2980915

Includes:

Series 275 Autosampler, Vacuum Degasser, Series 275 Binary Micro Pumps, Series 200 Column Oven, and Series 200 UV/Vis Detector with high efficiency 2.4 µL flow cell and dotLink interface. Communication Cables, Static Mixer and all Low Dead-volume Fittings, Pre-cut Tubing and connections necessary to configure system included. TotalChrom Software and HRes columns sold separately.

Series 275 HRes Micro Binary Pump Package

	Part No.
	N2910601

Includes:

Series 275 Binary Micro Pumps, High Pressure Static Mixer, and all necessary Pre-cut 0.007"-i.d. SS Tubing to connect pump package to an injection valve. Ideal as a front-end to a mass spec. TotalChrom Software and HRes columns sold separately.

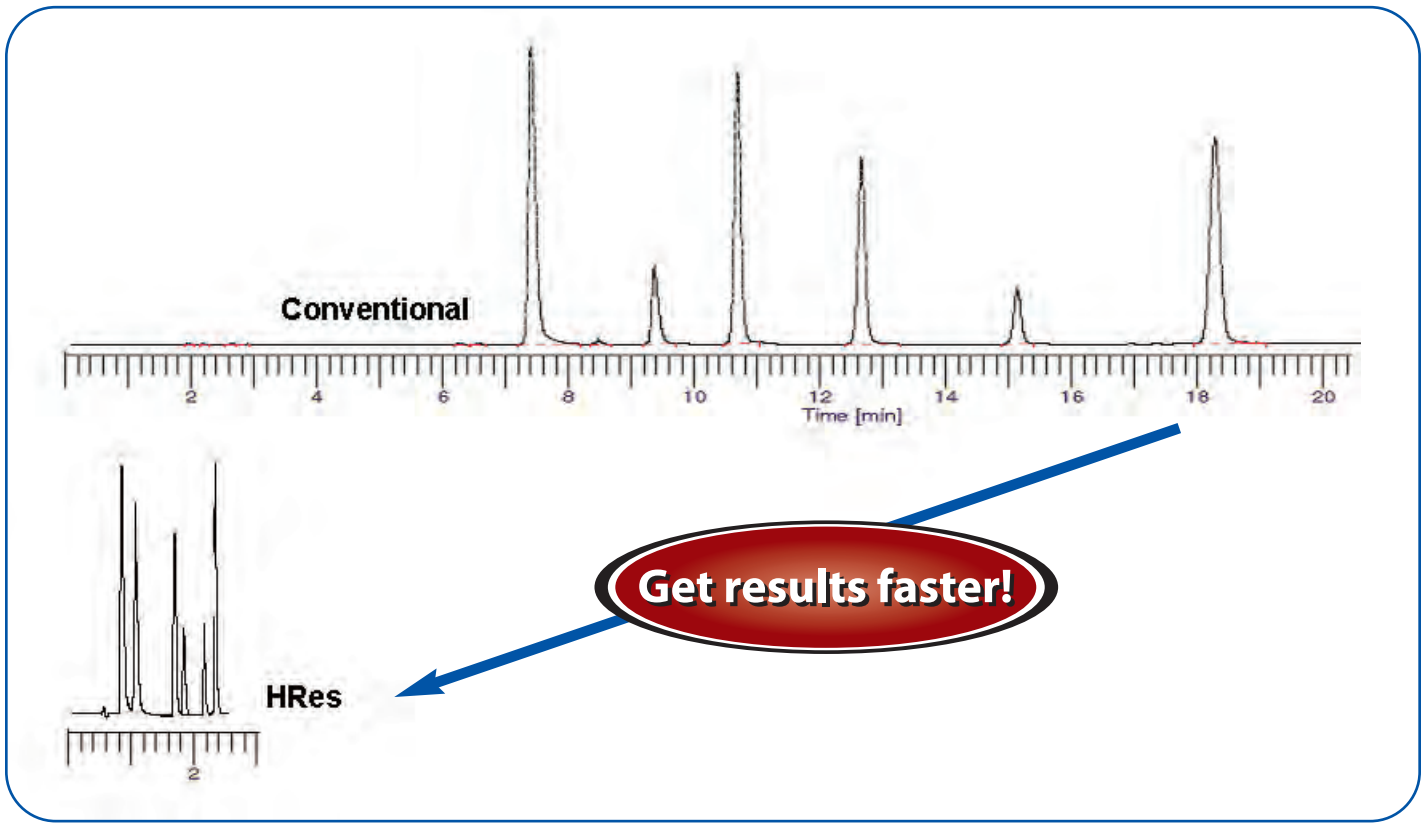
Features and Benefits

- Greater operating flexibility to optimize method development
- Improved resolution and throughput with higher pressure operating range (500-10,000 psi)
- Outstanding linearity and repeatability even at small injection volumes and high operating pressures
- “Best-in-class” cycle time with exceptionally low carry-over drives increased throughput
- Extremely low dispersion for maximum resolving power and peak capacity
- High speed data capture assures excellent peak fidelity at high sample throughput
- 21 CFR Part 11 architecture allows operation in a regulated environment

Preconfigured Integrated System Flexible Enough for HRes Fast-LC and Conventional Applications

Even though your method development options are greatly increased with the Series 275 HRes System, you don’t have to convert your valuable tried-and-true methods developed over all these years. Our Brownlee™ HRes LC columns, available in a wide variety of stationary phases and dimensions, can be operated over a wide range of flow rates and operating pressures. This allows you to select the throughput and resolution best suited for your specific application needs.

The flexibility of the Series 275 HRes System allows you to run all your HRes and your existing conventional methods on a single LC system!



NEW!

Expanded Capabilities with high throughput performance

Series 275 Autosampler

The NEW Series 275 Autosampler sets the bar for automated, high throughput Fast-LC sample management.

Features and Benefits

- **High pressure operation:** Designed and tested to 15,000 psi (1,034 bar) – capable of HRes Fast-LC and conventional applications
- **Multiple Injection Modes:** Supports full loop and partial fill injection modes, and new microliter pickup mode for efficient injection as low as 1 µL without sample waste
- **Short Cycle Times:** Best-in-class sample throughput with a cycle time of 8 seconds in partial fill mode
- **Low Carryover:** Low cross contamination typically ≤0.01% (using caffeine). Best-in-class at protecting against cross contamination
- **Exceptional Injection Repeatability:** Typically <0.3% RSD
- **Available with Peltier Cooling/Heating:** Exceptional cooling capacity allows the air temperature in the sample compartment to reach 4 °C ± 2 °C, even when the ambient temperature of lab is as high as 25 °C. Heating and cooling options also available as field upgrades
- **Automated Derivatization, Standard Additions and Serial Dilution functions:** Automated sample preparation for unattended operation

Autosamplers and Upgrade Kits

Series 275 Autosamplers

Description	Part No.
Series 275 Autosampler (standard)	**N2930653**
Series 275 Autosampler with cool/heat	**N2930655**

Series 275 Autosamplers Upgrade Kits

Description	Part No.
Series 275 Autosampler Upgrade Kit (from standard to cooling)	**N2930672**
Series 275 Autosampler Upgrade Kit (from standard to cool/heat)	**N2930673**
Series 275 Autosampler Upgrade Kit (from cool to cool/heat)	**N2930669**

Brownlee Columns for HRes™ Fast-LC

Recent developments in LC column technology have now made the use of sub 3 µm particle packing materials practical. These smaller particle size materials allow higher mobile phase linear velocities to be used, without the decrease in separation efficiency experienced with conventional larger particle size packings. This translates into higher throughput and higher productivity. To conserve mobile phase, these sub 3 µm column materials are typically packed into 2.1 mm i.d. columns so that flow rates (mobile phase volume) are kept low. However, smaller sized packings result in elevated operating pressures. Technological advances in pump and injector designs have also kept pace, and these columns can be used at pressures as high as 10,000 psi with the PerkinElmer Series 275 HRes LC Systems.

The rugged construction of this new line of small particle columns for high pressure application yield excellent longevity and reproducibility. These packings exhibit an exceptionally tight particle size distribution for excellent resolving power and are packed at elevated pressures to assure column stability even at high pressure applications. Each column is tested to ensure the highest level of quality and efficiency in high pressure LC testing.

Features and Benefits

- Sub 3 µm particle technology and 2.1 µm i.d. for higher separation efficiency
- Packed to withstand higher operating pressures
- Wide choice of stationary phases

Description	Length	i.d.	Particle Size	Part No.
Brownlee HRes Biphenyl	50 mm	2.1 mm	1.9 µm	**N9303912**
Brownlee HRes Biphenyl	100 mm	2.1 mm	1.9 µm	**N9303913**
Brownlee HRes PFP Propyl	30 mm	2.1 mm	1.9 µm	**N9303914**
Brownlee HRes PFP Propyl	50 mm	2.1 mm	1.9 µm	**N9303915**
Brownlee HRes PFP Propyl	100 mm	2.1 mm	1.9 µm	**N9303916**
Brownlee HRes Aqueous C18	30 mm	2.1 mm	1.9 µm	**N9303917**
Brownlee HRes Aqueous C18	50 mm	2.1 mm	1.9 µm	**N9303918**
Brownlee HRes Aqueous C18	100 mm	2.1 mm	1.9 µm	**N9303919**
Brownlee HRes IBD	30 mm	2.1 mm	1.9 µm	**N9303920**
Brownlee HRes IBD	50 mm	2.1 mm	1.9 µm	**N9303921**
Brownlee HRes IBD	100 mm	2.1 mm	1.9 µm	**N9303922**
Brownlee Analytical	30 mm	2.1 mm	1.9 µm	**N9303852**
Brownlee Analytical	50 mm	2.1 mm	1.9 µm	**N9303853**
Brownlee Analytical	100 mm	2.1 mm	1.9 µm	**N9303854**

HRes™ LC System Accessories

Series 275 HRes Flowcell

This 2.4 µL flowcell with 0.005" ID tubing connections is ideally suited for the Series 275 HRes systems, requiring the absolute lowest dispersion with exceptional performance.

Description	Part No.
S275 HRes Flowcell assembly, 2.4 µL 6 mm path length, w/fittings	**N2920070**

Syringes and Kits NEW!

PerkinElmer syringe kits for high pressure applications are manufactured for precise liquid delivery. All of these glass syringes come with precision stainless steel plungers. They are used for sampling and flushing and are available in a large variety of sizes. The 250 µL syringe comes standard with both the Series 225 and Series 275 Autosamplers.

Syringe Kits

Description	Part No.
100 µL w/200 µL Buffer Tubing	**N2936051**
250 µL w/500 µL Buffer Tubing	**N2936052**
500 µL w/1,000 µL Buffer Tubing	**N2936053**
1000 µL w/2,000 µL Buffer Tubing	**N2936054**
2500 µL w/2,000 µL Buffer Tubing	**N2936055**

Syringes

Description	Part No.
Sample Needle w/fittings	**N2936009**
Air Guide Needle (62 mm)	**N2936000**
Bio Compatible Sample Needle w/tubing Connector	**N2936010**

Solvent and Sample Filtration NEW!

Syringe filters are important for high pressure applications of effectively filter samples to prevent premature column performance loss and possible flow restriction of the narrow tubing that is typically required for high pressure LC applications.

Syringe Filters

Description	Pore Size	Part No.
PVDR 13 mm Filter (pkg. 100)	0.45 µm	**02542783**
PTFE 13 mm Filter (pkg. 100)	0.45 µm	**02542782**
Nylon 17 mm Filter (pkg. 100)	0.45 µm	**02542880**
Nylon 17 mm Filter (pkg. 100)	0.20 µm	**02542881**
Nylon 30 mm Filter (pkg. 100)	0.45 µm	**02542882**
Nylon 30 mm Filter (pkg. 100)	0.20 µm	**02542883**
PTFE 17 mm Filter (pkg. 100)	0.20 µm	**02542884**
PTFE 30 mm Filter (pkg. 100)	0.45 µm	**02542885**
PTFE 30 mm Filter (pkg. 100)	0.20 µm	**02542886**

High Pressure Static Mixers NEW!

Static Mixers are important in facilitating complete mobile phase blending, resulting in improved retention performance. These mixers should be used as part of a Series 275 binary pump system, where high pressure blending of the two pump outputs required. Mixers incorporate a highly efficient cross-flow shearing mechanism which produces vortex sheer mixing over a wide range of volumes. They are now offered in both 6,000 and 15,000 psi pressure max flavors and should be the same as or no less than half the flow rate volume. For example, when pumping at a 0.5 mL/min flow rate, a 500 µL mixer is ideally suited.

High Pressure Static Mixers

Description	Part No.
50 µL In-Line High Pressure Mixer Assembly, SS	**N2911200**
150 µL In-Line High Pressure Mixer Assembly, SS	**N2911201**
250 µL In-Line High Pressure Mixer Assembly, SS	**N2911202**
350 µL In-Line High Pressure Mixer Assembly, SS	**N2911205**
500 µL In-Line High Pressure Mixer Assembly, SS	**N2911203**

Binary Mixing-T Mixers

Description	Part No.
150 µL HP Binary High Pressure Mixing-T, SS	**N2911206**
10 µL Binary Mixing-T, SS	**N2911170**

High Pressure Stainless Steel Sample Loops NEW!

The high integrity 3/16 stainless steel loops are ideal for both High Pressure and general LC applications and ferrules come in a full range of sizes.

These loops are required for the Series 275 Autosampler, especially for applications requiring ≥ 6,000 psi back pressure.

High Pressure Static Mixers

Description	Part No.
2 µL Sample Loop, SS	**N2936071**
5 µL Sample Loop, SS	**N2936056**
10 µL Sample Loop, SS	**N2936057**
20 µL Sample Loop, SS	**N2936058**
50 µL Sample Loop, SS	**N2936059**
100 µL Sample Loop, SS	**N2936060**
200 µL Sample Loop, SS	**N2936061**
500 µL Sample Loop, SS	**N2936062**
1 mL Sample Loop, SS	**N2936063**
2 mL Sample Loop, SS	**N2936064**
5 mL Sample Loop, SS	**N2936065**

Performance beyond Expectations – always

Features and Benefits

- **Short Cycle Times:** Best-in-class sample throughput with a cycle time of 8 seconds in partial fill mode
- **Low Carryover:** Low cross contamination typically ≤0.01%. Best-in-class at protecting against cross contamination
- **Multiple Injection Modes:** Supports full loop and partial fill injection modes, and new microliter pickup mode for efficient injection as low as 1µL without sample waste
- **Exceptional Injection Repeatability:** Typically <0.3% RSD
- **Available with Peltier Cooling/Heating tray compartment:** Exceptional cooling capacity allows the air temperature in the sample compartment to reach 4 °C ± 2 °C, even when the ambient temperature of lab is as high as 25 °C. Heating option allows tray to reach 40 °C
- **Automated Derivatization, Standard Additions and Serial Dilution functions:** Automated sample preparation for unattended operation

The Series 225 LC Autosampler

The Series 225 LC Autosampler sets the bar for speed and performance. A new member of the Series 200 family of liquid chromatography (LC) products, it is the ultimate sampling tool designed to address your growing need for automation, quantitation and throughput. It automates key operations with built-in derivatization and dilution, as well as automatic internal standard addition and micro-volume pick-up. With best-in-class cycle time and protection against cross contamination, the Series 225 LC Autosampler is compatible with a wide range of temperature-controlled trays for a variety of applications and is designed for easy serviceability and maintenance.

Series 225 Autosamplers

Description	Part No.
Series 225 Autosampler (standard)	**N2930650**
Series 225 Autosampler with Peltier Cooling Option	**N2930651**

Upgrade Kits and Trays

Series 225/275 Autosamplers Upgrade Kits

Description	Part No.
Series 225 Autosampler Upgrade Kit (from standard to cooling)	**N2930672**
Series 225 Autosampler Upgrade Kit (from standard to cool/heat)	**N2930673**
Series 225 Autosampler Upgrade Kit (from cool to cool/heat)	**N2930669**

Series 225/275 Autosampler Trays

Description	Part No.
25-Position 6 mL Vial Sample Tray	**N2936045**
80-Position 2 mL Vial plus (5) 6 mL Vial Tray (for derivatization)	**N2936046**
80-Position 2 mL Vial Tray with Dilution Tray	**N2930676**
96-well Microtiter	**N9302562**
96-well 'Deep-well' Microtiter	**N9302560**
96-well 7 mm Pre-slit Silicone Plate Mat/Seal	**N9302555**
96-well 'Shallow' Microtiter Plate Adaptor (supports dual microtiter plates)	**N2936048**
96-well 'Deep' Microtiteator (supports dual microtiter plates)	**N2936049**
100-Position 2 mL Vial Sample Tray	**N2936042**
(200) 0.2 mL Microvial plus (5) 2 mL Vial Tray	**N2936043**

Accessories

0.2 mL Micro Vials, Caps, and Septa

Description	Part No.
Caps/Septa	
Polyethylene Press-on Cross-slit Cap for 8 mm o.d. Vials (pkg. 1,000)	**N9302141**
Aluminum Crimp-top Cap with Teflon-lined Butyl Rubber Septa for 8 mm Vials (pkg. 1,000)	**03300806**
Crimp Top Vials	
Glass MicroVials, Tapered, 0.2 mL, 8 mm o.d. Top (pkg. 500)	**N9302136**
Autosampler Vial Sleeve	
Glass	**N9307027**
Micro Vial Kit	
Polyethylene Includes 300 µL tapered vial, blue polypropylene cap with bonded silicone/PTFE septa. (pkg. 500)	**N9306080**

6 mL Vials and Caps

Description	Part No.
Caps/Septa	
Polyethylene Press-on Slit Cap for 20 mm o.d. Vials (pkg. 25)	**N2936083**
Crimp Top Vials	
Glass Large-volume Vials, 6.0 mL, 20 mm o.d. Top (pkg. 125)	**N9302134**

2.0 mL Vials, Caps and Septa

PerkinElmer Autosampler Vials are guaranteed for fit and compatibility with the Series 200 Autosampler. Both vials and caps are totally inert to samples ordinarily analyzed by Liquid Chromatography.

Crimp-on Caps

Description	Size	Part No.
Crimp Green (pkg. 100) Aluminum cap with Teflon®/rubber	11 mm	**N9302684**
Crimp Red (pkg. 100) Aluminum cap with Teflon/rubber	11 mm	**N9302685**
Crimp Blue (pkg. 100) Aluminum cap with Teflon/rubber	11 mm	**N9302686**
Crimp Silver (pkg. 100) Aluminum cap with Teflon/rubber	11 mm	**N9306015**

Crimp Top Vials

Type 1 borosilicate standard glass vials, 2.0 mL, 11 mm o.d. top.

Description	Size	Part No.
Amber Glass Vials (pkg. 100)	11 mm	**N9302680**
Clear Glass Vials (pkg. 100)	11 mm	**N9301385**

Screw Top Vials and Caps – Wide Mouth

Type 1 borosilicate standard glass vials, 2.0 mL, 12 x 32 mm.

Description	Size	Part No.
Amber Glass Vials (pkg. 100)	12 mm	**N9306057**
Clear Glass Vials (pkg. 100)	12 mm	**N9306053**
Screw-top Vial Caps, black (pkg. 100) Polypropylene with PTFE/slit white silicone	10 mm	**N9306052**

Compatibility Table for Vials and Caps in Sample Trays

Series 225/275 Autosamplers

Volume	Series 225/275 Tray	Tray Part No.	Vials Part No.	Caps Part No.
0.2 mL*	205-Position (200 micro vial sample plus 5 calibration vial tray)	**N2936043**	**N9302136**	**N9302141** **03300806**
2.0 mL - Crimp Top	80-Position (80-Position Sample Tray plus tank, for serial dilution) 85-Position (80-Position 2 mL vial sample plus 5 reagent vial tray, for derivatization) 100-Position 205-Position (200 micro vial sample plus 5 calibration vial tray)	**N2936047** **N2936046** **N2936042** **N2936043**	**N9302680** **N9301385**	**N9302684** **N9302685** **N9302686** **N9306015**
2.0 mL - Screw Top	80-Position (80-Position Sample Tray plus tank, for serial dilution) 85-Position (80-Position 2 mL vial sample plus 5 reagent vial tray, for derivatization) 100-Position 205-Position (200 micro vial sample plus 5 calibration vial tray)	**N2936047** **N2936046** **N2936042** **N2936043**	**N9306053** **N9306057**	**N9306052**
6.0 mL - Snap Top	25-Position 85-Position (80-Position 2 mL vial sample plus 5 reagent vial tray, for derivatization)	**N2936045** **N2936046**	**N9302134**	**N2936083**

Brownlee Conventional Columns from

Which Column Do I Need?

- Brownlee Analytical
- Brownlee Aquapore®
- Brownlee Bio
- Brownlee CHOICE™
- Brownlee pH-ex C18 NEW!
- Brownlee Spheri-5®
- Brownlee Validated™

Having the right stationary phase for your separation is the first step in selecting the appropriate column. This should be based on sample solubility and on chemical differences among the sample compounds.

Depending on the mode of separation you will use, PerkinElmer has the right column for you. In reversed-phase separations, the mobile phase is more polar than the stationary phase. Sample hydrophobicity also is a major determinant of the separation mode. In reversed-phase separations, the mobile phase is more polar than the stationary phase, which is traditionally a straight alkyl chain, most often C18.

The majority of HPLC analyses are performed in reversed-phase mode, due to the fact that the analytes of interest can be dissolved in water, or mixtures of water and a polar organic solvent such as methanol or acetonitrile.

In normal phase separations, the mobile phase is less polar than the stationary phase. Cyano phases are commonly used in either reversed-phase or normal-phase mode. A stationary phase incorporating both polar and nonpolar functionality can be used in either reversed-phase or normal-phase mode.

Brownlee Analytical

PerkinElmer's all-purpose HPLC column line for conventional as well as high-speed LC separations. The Brownlee Analytical family is available in 3 or 5 µ, and lengths ranging from 30–250 mm, in 2.1 mm and 4.6 mm i.d.

Brownlee Aquapore®

This is a wide-pore silica-based support suitable for the separation of large biopolymers.

Brownlee Bio

Wide-pore silica that is excellent for peptide and protein separation. Columns are available in 5 µ, and lengths ranging from 30–250 mm, in 2.1 mm and 4.6 mm i.d.

Brownlee CHOICE™

This line of columns is made of 60 Å silica which results in large surface area, high carbon loads and high retention compounds. Columns are available in 3 or 5 µ, and lengths ranging from 30–250 mm, in 2.1 mm and 4.6 mm i.d.

Brownlee pH-ex C18 NEW!

Brownlee pH-ex C18, HPLC columns utilize a patented polycarbosilane barrier layer that protects the silica particles from extremely basic conditions. This layer uses multiple attachment points to the silica particle which yields a modified surface with enhanced stability. A second layer is then attached, providing the functional group (C18). Using this approach to shield the silica surface, a highly durable stationary phase is created. These columns are designed to be used in a pH range of 1–12 and have shown no loss of efficiency after 50 hours in a pH of 12 at 60 °C.

Brownlee Spheri-5®

This is small-pore silica-based sorbent for separating small molecules. Both monofunctional (comb-pre) and polyfunctional (polymerized loop-type) C8 and C18 sorbents available.

Brownlee Validated™

These columns are made on high-purity Type B silica with inherent low silanophilic activity. They exhibit excellent peak shape for a wide range of compounds, while also having a wide number of phases. Columns are available in 3 or 5 µ, and lengths ranging from 30–250 mm, in 2.1 mm or 4.6 mm i.d.

For a full listing of Brownlee conventional columns, please visit:
www.perkinelmer.com/lcsupplies

Brownlee Columns

Choose only genuine PerkinElmer Brownlee™ columns for the best separation results. Six different column types to meet all your analytical needs.

Features and Benefits

- Each column individually tested and certificate provided
- End fittings compatible with a variety of HPLC systems
- Do not require MPLC holders

Conventional columns do not require MPLC holders.

Conventional Columns

Column	Functionality	Pore Diameter Å	% Carbon	End Cap	Applications
Analytical	Amino	110	2	No	Excellent for carbohydrate analysis
Analytical	C18 & C8	110	13	Yes	Superior for non-basic analytes
Analytical	Cyano	110	4	Yes	General purpose for normal or reversed-phase
Analytical	Biphenyl	110	–	Yes	U.S. EPA Method 8330
Analytical	Phenyl	110	6	Yes	General purpose for neutral analytes
Analytical	Silica	110	–	–	Ideal for polar analytes
Analytical	PAH	110	–	Yes	Maximum resolution of polynuclear aromatic hydrocarbons
Aquapore®	AX-300	300	–	–	Used for ion exchange chromatography
Aquapore	Octyl C8	300	–	–	Used for reversed-phase chromatography
Aquapore	ODS C18	300	–	–	Silica based support used for the separation of large biopolymers
Bio	C18	300	6	Yes	High molecular weight compounds and proteins
Bio	C8	300	–	–	High molecular weight compounds and proteins
CHOICE™	Basix	60	12	Yes	Ideal for LC/MS. Excellent for amine-containing compounds and basic pharmaceuticals
CHOICE	C18	60	27	Yes	Excellent for explosives or steroids
CHOICE	Biphenyl	60	23	Yes	Highly retentive and selective phase for aromatic compounds
CHOICE	Organic acids	60	–	No	Used for challenging organic acids
CHOICE	PFP propyl	60	17	Yes	Ideal for MS, ELSD, or NPD detection of nucleosides, nucleotides, purines, pyrimidines or halogenated compounds
Spheri-5®	C8, C18, C18 ODS and Silica	80	–	–	Excellent for separating small molecules both non-functional and polyfunctional
Validated™	Amino	100	2	No	Ideal for carbohydrates
Validated	C1	100	5	–	Least retentive reversed-phase hydrocarbon packing
Validated	C4	100	9	Yes	High bonding coverage and base deactivation
Validated	Aqueous C18	100	15	No	Excellent for highly water-soluble or poorly organic-soluble compounds
Validated	C18	100	20	Yes	Used for the detection of anilines, barbiturates, carbonyls, fat-soluble vitamins, fatty acids, glycerides, phthalates
Validated	C8	100	12	Yes	Less hydrophobic retention than C18
Validated	Carbamate	100	–	–	Fast analysis of carbamates
Validated	Cyano	100	8	Yes	Basic pharmaceuticals and steroids
Validated	IBD	100	12	No	Unique separation for acids, bases, zwitterions and other polar compounds
Validated	PFP	100	7	Yes	Ideal for taxors and precursors or halogenated compounds
Validated	Phenyl	100	10	Yes	Separation of fatty acids, polynuclear aromatic hydrocarbons, purines and pyrimidines
Validated	Quat	100	–	–	High purity, base deactivated reversed-phase packing

Extensive column selection meets all your analytical needs

Brownlee Analytical

pH Range: 2.5 to 7.5

Length	i.d.	Particle Size	Temp. Limit	Pore Size	Carb. Load	End Cap	Part No.
Brownlee Analytical Amino							
Ideal for mono and disaccharide analyses. Most popular amino-based stationary phase. Routine analysis of simple sugars, using isocratic elution and a refractive index detector or an evaporative light scattering detector.							
100 mm	4.6 mm	5 µm	80 °C	110 Å	2%	No	**N9303503**
150 mm	4.6 mm	5 µm	80 °C	110 Å	2%	No	**N9303504**
Brownlee Analytical C8							
Shorter retention times for hydrophobic compounds. Reliable performance with symmetrical peak shapes for neutral to acidic compounds.							
100 mm	4.6 mm	5 µm	80 °C	110 Å	7%	Yes	**N9303515**
150 mm	4.6 mm	5 µm	80 °C	110 Å	7%	Yes	**N9303517**
Brownlee Analytical C18							
Suitable for a wide range of acidic to neutral hydrophobic compounds. Excellent all purpose column.							
100 mm	4.6 mm	3 µm	80 °C	110 Å	13%	Yes	**N9303507**
100 mm	4.6 mm	5 µm	80 °C	110 Å	13%	Yes	**N9303512**
150 mm	4.6 mm	5 µm	80 °C	110 Å	13%	Yes	**N9303513**
Brownlee Analytical Cyano							
Suitable for analyses of a wide range of compounds from acidic through slightly basic. Highly-base-deactivated spherical silica.							
150 mm	4.6 mm	5 µm	80 °C	110 Å	4%	Yes	**N9303522**
Brownlee Analytical PAH							
Specifically designed for challenging analyses of polynuclear aromatic hydrocarbons.							
150 mm	3.2 mm	5 µm	80 °C	110 Å		Yes	**N9303430**
250 mm	2.1 mm	5 µm	80 °C	110 Å		Yes	**N9303530**
Brownlee Analytical Phenyl							
Unique selectivity especially for aromatic compounds.							
150 mm	4.6 mm	5 µm	80 °C	110 Å	6%	Yes	**N9303524**
Brownlee Analytical Silica							
Good general purpose packing for normal phase separations.							
150 mm	4.6 mm	5 µm	80 °C	110 Å		Yes	**N9303525**

For a full listing of Brownlee conventional columns, please visit:
www.perkinelmer.com/lcsupplies

Brownlee Bio

pH Range: 2.5 to 7.5

Length	i.d.	Particle Size	Temp. Limit	Pore Size	Carb. Load	End Cap	Part No.
Brownlee Bio C8							
Wide-bore HPLC column. High proportion of pore/surface area available for large molecule separations.							
150 mm	2.1 mm	5 µm		300 Å	6%	Yes	**N9303658**
150 mm	4.6 mm	5 µm		300 Å	6%	Yes	**N9303659**
Brownlee Bio C18							
Excellent for separating peptides or proteins. Wide-pore HPLC column.							
150 mm	2.1 mm	5 µm		300 Å	5%	Yes	**N9303648**
150 mm	4.6 mm	5 µm		300 Å	6%	Yes	**N9303649**

Brownlee Choice

pH Range: 2.5 to 7.5

Length	i.d.	Particle Size	Temp. Limit	Pore Size	Carb. Load	End Cap	Part No.
Brownlee CHOICE Basix							
Excellent choice for analytes containing amine group functionality.							
150 mm	4.6 mm	5 µm	80 °C	60 Å	12%	Yes	**N9303618**
Brownlee CHOICE C18							
Excellent choice for LC/MS. Highly retentive phase for hydrophobic and slightly polar analytes.							
100 mm	4.6 mm	3 µm	80 °C	60 Å	27%	Yes	**N9303621**
150 mm	2.1 mm	5 µm	80 °C	60 Å	27%	Yes	**N9303627**
150 mm	4.6 mm	5 µm	80 °C	60 Å	12%	Yes	**N9303628**
Brownlee CHOICE Organic Acids							
Enhanced retention and selectivity for polar organic acids. Retention is stable and reproducible even with 100% aqueous mobile phase specified in the AOAC method.							
150 mm	4.6 mm	5 µm	80 °C	60 Å			**N9303631**
250 mm	2.1 mm	5 µm	80 °C	60 Å			**N9303632**
Brownlee CHOICE Propyl							
Highly retentive for basic analytes. Excellent separation of nucleosides, nucleotides, purines, pyrimidines, halogenated compounds, beta blockers and tricyclic antidepressants.							
150 mm	4.6 mm	5 µm	80 °C	60 Å	17%	Yes	**N9303644**

Brownlee Validated

pH Range: 2.5 to 7.5

Length	i.d.	Particle Size	Temp. Limit	Pore Size	Carb. Load	End Cap	Part No.
Brownlee Validated Amino							
Good for normal phase analytes of mono-and disaccharides or similar compounds.							
150 mm	4.6 mm	5 µm	80 °C	100 Å	2%		**N9303534**
Brownlee Validated Aqueous C18							
Highly base deactivated. Compatible with highly aqueous mobile phases.							
150 mm	4.6 mm	5 µm	80 °C	100 Å	15%		**N9303546**
Brownlee Validated C1							
Least retentive reversed phase hydrocarbon packing.							
150 mm	4.6 mm	5 µm	80 °C	100 Å	5%		**N9303718**
Brownlee Validated C4							
High bonding coverage and base deactivation. Less retention that C18 or C8 phases.							
150 mm	4.6 mm	5 µm	80 °C	100 Å	9%	Yes	**N9303720**
Brownlee Validated C8							
Retentive, high purity-base deactivated reversed phase packing.							
150 mm	2.1 mm	5 µm	80 °C	80 Å	12%	Yes	**N9303566**
150 mm	4.6 mm	5 µm	80 °C	80 Å	12%	Yes	**N9303567**
Brownlee Validated C18							
Excellent general purpose phase column. Retentive high purity packing.							
150 mm	2.1 mm	5 µm	80 °C	100 Å	20%	Yes	**N9303556**
150 mm	4.6 mm	5 µm	80 °C	100 Å	20%	Yes	**N9303558**
Brownlee Validated Carbamate							
A unique stationary phase specifically designed for carbamate analysis. This column is compatible with fluorescence or LC/MS detection, and is designed for fast analysis times, reducing solvent usage.							
100 mm	4.6 mm	3 µm	80 °C	100 Å			**N9303569**
Brownlee Validated Cyano							
High purity Cyano phase with few silanol sites. Less sensitive to small amounts of water present in the mobile phase.							
150 mm	4.6 mm	5 µm	80 °C	100 Å	10%	Yes	**N9303575**
Brownlee Validated IBD							
Unique selectivity and a high level of base-deactivation. Reduces or eliminates the need for mobile phase additives.							
150 mm	4.6 mm	3 µm	80 °C	100 Å	12%		**N9303593**
150 mm	4.6 mm	5 µm	80 °C	100 Å	12%		**N9303582**
Brownlee Validated PFP							
Unique selectivity for compounds containing organohalogens or other basic functional groups.							
150 mm	4.6 mm	5 µm	80 °C	100 Å	7%	Yes	**N9303599**
Brownlee Validated Phenyl							
High purity, highly retentive base-deactivated phase, especially designed for aromatic analytes.							
150 mm	4.6 mm	5 µm	80 °C	100 Å	10%	Yes	**N9303606**

Brownlee Spheri-5®

pH Range: 2.5 to 7.5

Length	i.d.	Particle Size	Temp. Limit	Pore Size	Carb. Load	End Cap	Part No.
Brownlee Spheri-5 C8							
Small pore silica-based sorbent for separating small molecules both non-functional and polyfunctional.							
250 mm	4.6 mm	5 µm					**07120012**
Brownlee Spheri-5 C18							
Small pore silica-based sorbent for separating small molecules both non-functional and polyfunctional.							
250 mm	4.6 mm	10 µm					**07120001**

Brownlee pH-ex C18

pH Range: 1.0 to 12.0

NEW!

Especially useful for applications requiring high/low pH ranges (1–12). A silica based C18 column with exceptional stability.

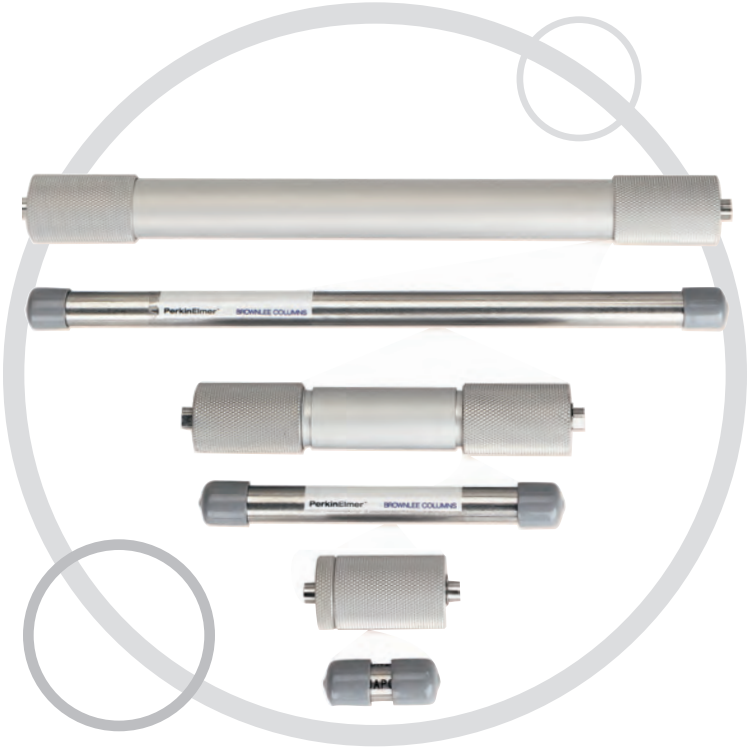
Length	i.d.	Particle Size	Temp. Limit	Pore Size	Carb. Load	End Cap	Part No.
30 mm	4.6 mm	3 µm	80 °C	140 Å			**N9303855**
50 mm	4.6 mm	3 µm	80 °C	140 Å			**N9303856**
100 mm	4.6 mm	3 µm	80 °C	140 Å			**N9303857**
150 mm	4.6 mm	3 µm	80 °C	140 Å			**N9303858**

Conventional Column Kits

NEW!

Length	i.d.	Particle Size	Temp. Limit	Pore Size	Carb. Load	End Cap	Part No.
Method Validation Column Kit							
Includes set of three identical Brownlee Validated C18 columns from different lots. Ideal to check robustness in the method validation process. Packing materials of varying lot #'s.							
150 mm	4.6 mm	5 µm					**N9303950**
C18 Lot Specific Column Kit							
Includes 3 Brownlee Validated C18 columns. Ideal tool for the R & D and Contract Lab applications working on specific projects and studies. Identical lot# specific packing material guaranteed. Absolute minimal variability and one convenient kit for long-term use.							
150 mm	4.6 mm	5 µm					**N9303951**

Brownlee Cartridge Columns for Quality



Brownlee Sorbents

PerkinElmer Brownlee™ cartridge columns are offered in a wide range of sorbent material. Choose the right sorbent for the analysis and mode of separation being used.

Aquapore® – is a wide-pore, silica-based support suitable for the separation of large biopolymers.

Spheri-5® – is a small-pore, silica-based solvent for separating small molecules. Both monofunctional (comb-type) and polyfunctional (polymerized loop-type) C8 and C18 sorbents are available.

Polypore® – is a polymer-based (microporous, 10 µm) sorbent for the analysis of organic acids and sugars.

Validated™ – is a small-pore, silica-based C18 sorbent for small molecules, specifically for consistent pharmaceutical assays.

Pecosphere™ – is a small-pore, silica-based sorbent for HPLC of small molecules.

Reduced Activity – is a small-pore, base deactivated silica-based, reversed-phase sorbent (C18 or C8) developed for HPLC of basic analytes and pharmaceuticals.

CHOICE™ – is a small-pore, base deactivated silica-based, reversed-phase sorbent (C18) developed for LC/MS separations.

Peco HCODS – is especially suited for reversed-phase separation of proteins and peptides.

Brownlee Cartridge Columns

Column	Functionality	Pore Diameter Å	% Carbon	End Cap	Applications
Aquapore	AX-300 (anion exchange)	300	-	-	Silica-based support for larger anionic compounds
Aquapore	OD-300 (C18)	300	10	Yes	Silica-based support for larger compounds by reversed-phase
Aquapore	RP-300 (C8)	300	5	Yes	Same as above, but for slightly more polar compounds
Aquapore	BU-300 (C4)	300	3	Yes	Same as above, but for even somewhat more polar compounds
Choice	C18	100	12	Yes	For high speed/efficiency separation of basic compounds/pharmaceuticals
Choice	C8	100	7	Yes	For high speed/efficiency separation of basic compounds/pharmaceuticals
Choice	PFPP (Pentafluorophenylpropyl)	100	5	Yes	For high speed/efficiency separation of basic drugs, especially for LC/MS
Pecosphere	C18, monofunctional	80	11	Yes	Reversed-phase column for fast separation of smaller compounds
Pecosphere CR	C18	80	11	Yes	Same as above, but for more basic compounds
Pecosphere CR	C8	80	11	Yes	Same as above, but, also, for slightly more polar compounds
Peco HCODS	C18, polyfunctional	300	9	No	Especially suited for reversed-phase separation of proteins and peptides
Polypore	CA (calcium form), Mixed Mode	Microporous	-	-	Especially suited for separation of organic acids, as well as sugars
Polypore	H (hydrogen form), Mixed Mode	Microporous	-	-	Especially suited for separation of sugars, as well as organic acids
Reduced Activity	C18	80	12	Yes	Reversed-phase sorbent geared for fast separation of basic compounds/pharmaceuticals
Reduced Activity	C8	80	5	Yes	Same as above, but for slightly more polar compounds
Spheri-5	RP-18 (monofunctional C18)	80	11	Yes	Reversed-phase separation of smaller compounds
Spheri-5	ODS (polyfunctional C18)	80	14	Yes	Same as above, but with somewhat different selectivity
Spheri-5	RP-8 (monofunctional C8)	80	6	Yes	Reversed-phase separation of more basic smaller compounds
Spheri-5	Phenyl (C5)	80	6	Yes	Especially suited for hydrophobic interaction separation of biomolecules, where the activity of the compound must be preserved
Spheri-5	Amino	80	3	No	Normal-phase separation of smaller, relatively more polar compounds
Spheri-5	Cyano	80	4	No	Same as above, but with somewhat different selectivity
Spheri-5	Silica	80	-	-	Same as above, but with different selectivity
Validated	C18	100	18	Yes	Reversed-phase separations in which very little variation in both lot-to-lot and column-to-column variability can be tolerated
VeloSep	RP-18 (C18)	100	14	Yes	Reversed-phase column for high through-put and minimal solvent usage
VeloSep	RP-8 (C8)	100	7	Yes	Same as above, but for slightly more polar compounds

and Flexibility

Brownlee™ Analytical Cartridge Columns for conventional and narrowbore HPLC

Analytical cartridges from the Brownlee line are available in three lengths (30, 100 and 220 mm) and two internal diameters (4.6 and 2.1 mm). The MPLC cartridge system allows direct coupling of a cartridge to a guard without any dead-volume. Changing cartridges is easy with the finger-tight cartridge design, which does not require any wrench tightening of the holder or disconnecting of tubing from the LC system.

Features and Benefits

- Quality – manufactured under ISO-9001 certified quality control procedures
- Quick and easy cartridge change with the finger-tight design
- Flexible – same reusable holder for 2.1 and 4.6 mm cartridges
- Economical – less expensive than conventional columns

Brownlee CHOICE™

The CHOICE™ columns provide the speed and efficiency appropriate for LC/MS. Each column's separation requirements vary depending on the system, sample and mass spectrometer.

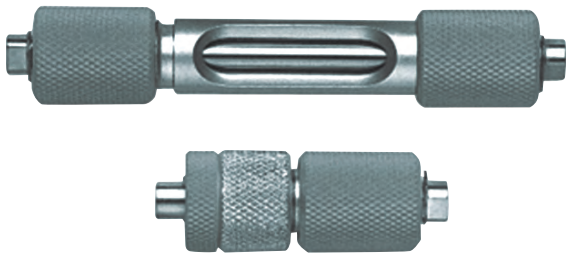
Brownlee PECO

PerkinElmer pioneered the development of Fast HPLC and introduced the popular 3 x 3 column. This column is capable of rapid analysis, as short as one to two minutes. The 83 mm long 3 x 8 column with > 10,000 plates can separate many complex mixtures in less than 10 minutes. Peco cartridges are available with MPLC® holders. Three cartridge lengths (33, 83 and 150 mm) are available in 4.6 mm i.d.

Brownlee Preparative

Preparative columns are 10 mm i.d. cartridges, packed with Aquapore® 20 µm, 300 Å sorbents. Save time with high-pressure preparative runs up to 3000 psi and achieve high performance with the 20 µm, 300 Å sorbents. Typical sample capacity of the 250 mm cartridge is 50 mg to 1 g of material; the typical flow rate is 4 – 10 mL/min.

For a full listing of Brownlee cartridge columns, please visit:
www.perkinelmer.com/lcsupplies



Peco MPLC holders (83 and 33 mm).

Brownlee VeloSep®

VeloSep columns are 3.2 mm i.d. cartridges packed with 3 µm reversed-phase support for high throughput analysis and reduced solvent consumption. VeloSep is packed with 3 µm C8 or C18 sorbents and available in 40 or 100 mm lengths.

Brownlee Validated

Brownlee Validated sorbent is derived from a neutral "Type B" silica with inherent low silanophobic activity. Each sorbent is tested to meet stringent specifications for the separation of basic, neutral and acidic test probes. A high-temperature bonding technique is coupled with an exhaustive end-capping procedure to ensure maximum coverage of the silica surface. A proprietary treatment step is used to further eliminate any trace residual metals in the silica that create active absorptive sites. This is a highly deactivated column which yields excellent peak shape for difficult base analytes, pharmaceuticals and small peptides.

NewGuard Columns

NewGuard cartridges are small guard cartridges (15 mm x 3.2 mm i.d.) packed with 5 or 7 µm sorbents. NewGuard columns prolong column life 2 to 5 times by eliminating particulates, contaminants and strongly bound sample components. They act as disposable, replaceable heads of your analytical columns. NewGuard columns are easily coupled to MPLC cartridges or conventional columns.

Brownlee MPLC/Peco Holders

MPLC cartridge system ensures leak-free operation up to 7000 psi, with only finger-tightening. The high-pressure seal in each end assembly actually seals tighter as pressure increases. No wrenches are required and there is no need to disconnect any tubing to your LC system when changing a cartridge. MPLC cartridges can be directly coupled to another using a union.

Brownlee cartridge columns
offer an extensive range of
phases and **column lengths**

Ion Exchange

Column	Description	30 mm x 4.6 mm i.d.* 2 per package Part No.	30 mm x 2.1 mm i.d.* 2 per package Part No.	100 mm x 4.6 mm i.d.** 1 per package Part No.
AX-300, Aquapore®	7 µm, 300 Å, weak anion	**07110073**	**07110074**	**07110075**
Polypore® CA	10 µm, polymeric, calcium form	**07110091**		**07110093**
Polypore H	10 µm, polymeric, hydrogen form	**07110085**		**07110087**

Polar Phase

Column	Description	30 mm x 4.6 mm i.d.* 2 per package Part No.	30 mm x 2.1 mm i.d.* 2 per package Part No.	100 mm x 4.6 mm i.d.** 1 per package Part No.
Amino, Spheri-5®	Aminopropyl, 5 µm, 80 Å	**07110037**		**07110039**
Cyano, Spheri-5	Cyanopropyl, 5 µm, 80 Å	**07110043**		**07110045**
Silica, Spheri-5	5 µm, 80 Å	**07110031**	**07110032**	**07110033**
Silica, Spheri-10	10 µm, 80 Å	**07110145**		

Reversed Phase

Column	Description	30 mm x 4.6 mm i.d.* 2 per package Part No.	30 mm x 2.1 mm i.d.* 2 per package Part No.	100 mm x 4.6 mm i.d.** 1 per package Part No.
BU-300, Aquapore Butyl C-4	7 µm, 300 Å	**07110061**	**07110062**	
Cyano, Spheri-5	Cyanopropyl, 5 µm, 80 Å	**07110043**		**07110045**
OD-300, Aquapore ODS	C-18, 7 µm, 300 Å	**07110235**	**07110234**	**07110232**
ODS, Spheri-5	C-18, polyfunctional, 5 µm, 80 Å	**07110019**	**07110020**	**07110021**
Phenyl, Spheri-5	Phenyl, 5 µm, 80 Å	**07110025**		**07110027**
RP-8, Spheri-5	C-8, monofunctional, 5 µm, 80 Å	**07110001**	**07110002**	**07110003**
Pecosphere 3CR	C-18, Base Deactivated, 3 µm	**02580195**		
RP-18, Spheri-5	C-18, monofunctional, 5 µm, 80 Å	**07110013**	**07110014**	**07110015**
Pecosphere 3CR	C-8, Base Deactivated, 3 µm	**02580191**		
RP-300, Aquapore Octyl C-8	7 µm, 300 Å	**07110055**	**07110056**	**07110057**

** Requires Holder (07150013) ** Requires Holder (07150014)*

Choice and Variety

Scavenger Columns

Column	Description	33 mm x 4.6 mm i.d.* 5 per package Part No.
Silica Scavenger	10 µm	**02580203**
C18 Scavenger	Monofunctional, 10 µm, 80A	**02580202**

Ion Exchange

Column	Description	100 mm x 2.1 mm i.d.** 1 per package Part No.	220 mm x 4.6 mm i.d.*** 1 per package Part No.	220 mm x 2.1 mm i.d.*** 1 per package Part No.
AX-300, Aquapore	7 µm, 300 Å, weak anion		**07110077**	
Polypore® CA	10 µm, polymeric, calcium form		**07110095**	
Polypore H	10 µm, polymeric, hydrogen form		**07110089**	

Polar Phase

Column	Description	100 mm x 2.1 mm i.d.** 1 per package Part No.	220 mm x 4.6 mm i.d.*** 1 per package Part No.	220 mm x 2.1 mm i.d.*** 1 per package Part No.
Amino, Spheri-5	Aminopropyl, 5 µm, 80 Å		**07110041**	
Cyano, Spheri-5	Cyanopropyl, 5 µm, 80 Å		**07110047**	
Silica, Spheri-5	5 µm, 80 Å		**07110035**	

Reversed Phase

Column	Description	100 mm x 2.1 mm i.d.** 1 per package Part No.	220 mm x 4.6 mm i.d.*** 1 per package Part No.	220 mm x 2.1 mm i.d.*** 1 per package Part No.
BU-300, Aquapore Butyl C-4	7 µm, 300 Å	**07110064**		
Cyano, Spheri-5	Cyanopropyl, 5 µm, 80 Å		**07110047**	
OD-300, Aquapore ODS	C-18, 7 µm, 300 Å	**07110233**	**07110231**	**07110236**
ODS, Spheri-5	C-18, polyfunctional, 5 µm, 80 Å	**07110022**	**07110023**	**07110024**
Phenyl, Spheri-5	Phenyl, 5 µm, 80 Å		**07110029**	
RP-8, Spheri-5	C-8, monofunctional, 5 µm, 80 Å	**07110004**	**07110005**	**07110006**
Pecosphere 3CR	C-18, Base Deactivated, 3 µm			
RP-18, Spheri-5	C-18, monofunctional, 5 µm, 80 Å	**07110016**	**07110017**	**07110018**
Pecosphere 3CR	C-8, Base Deactivated, 3 µm			
RP-300, Aquapore Octyl C-8	7 µm, 300 Å	**07110058**	**07110059**	**07110060**

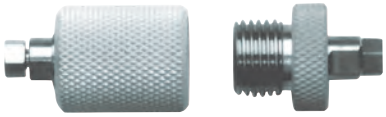
** Requires Holder (07150028) ** Requires Holder (07150014) *** Requires Holder (07150015)*

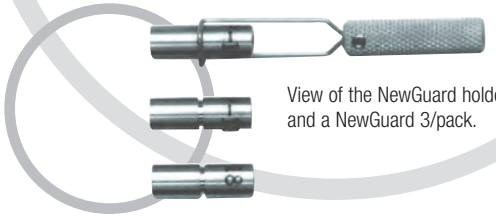
Guard Cartridge Columns and Accessories

NewGuard Columns

NewGuard cartridges are small guard cartridges (15 mm x 3.2 mm i.d.) packed with 5 or 7 µm sorbents. NewGuard cartridges prolong column life by eliminating particulates, contaminant's, and strongly bound sample components. They act as replaceable, disposable heads of your analytical columns. There is negligible loss of efficiency and little effect on retention or resolution. NewGuards are available in a convenient 3-pack and can be coupled directly to any MPLC cartridge with a union (07150018).

NewGuard cartridges directly coupled to a 220 mm MPLC cartridge and connected externally to a 250 mm conventional column.





View of the NewGuard holder and a NewGuard 3/pack.

Features and Benefits

- Prolong column life by 2 to 5 times
- Protect your column from particulates and strongly bound sample components
- Optimized dimensions to prevent loss of resolution
- Easy coupling to MPLC cartridges or conventional columns
- Finger-tight seal to 7000 psi using NewGuard holders
- Can be used for sample preconcentration (connected to sample injection loop)

15 mm cartridge*, 3.2 mm i.d., 3 per pkg.

Description	Part No.
Amino, Aquapore® Amino, 7 µm spherical	**07110098**
Anion, Aquapore Anion, 7 µm spherical	**07110102**
Cyano, Aquapore Cyano, 7 µm spherical	**07110100**
Diol, Aquapore Diol, 7 µm spherical	**07110105**
Phenyl, Aquapore Phenyl, 7 µm spherical	**07110096**
RP-2, Aquapore Dimethyl, 7 µm spherical	**07110086**
RP-4, Aquapore Butyl, 7 µm spherical	**07110088**
RP-8, Aquapore Octyl, 7 µm spherical	**07110090**
RP-18, Aquapore ODS, 7 µm spherical	**07110092**
Silica, Aquapore Silica, 7 µm spherical	**07110106**
Validated®, C18, 5 µm spherical	**00402237**

** Requires holder (07150001)*
Note: Actual bed length of NewGuard is about 13 mm

Standards Solutions

Test Mix

Description	Part No.
Universal test mix for reversed-phase (5 mL/pkg.)	**00890893**

Standards

Description	Part No.
HPLC SV Calibration Mix #5/610 PAH	**00891542**
HPLC 610 Calibration Mix A	**00891543**
HPLC 610 Calibration Mix B	**00891544**

Replacement Seals for MPLC and Prep-10 Holders

Item	Description	Part No.
Prep-10 Inlet Seal	One each (Prep-10 Seal Replacement Kit tools required)	**07150012**
Prep-10 Outlet Seal	One each (Prep-10 Seal Replacement Kit tools required)	**07150026**
Seals for MPLC Holders	Two 7000 psi seals (Seal Replacement Kit tools required)	**07150024**
Seal Replacement Kit for MPLC Holders	Tools and two 7000 psi seals	**07150023**

and Holders for choice and variety

MPLC/Peco™ Holders

The patented MPLC cartridge system ensures leak-free operation up to 7000 psi, with only finger-tightening. The high-pressure seal in each end assembly actually seals tighter as pressure increases. No wrenches are required, and there is no need to disconnect any tubing to your LC system when changing a cartridge. Each MPLC cartridge can be directly coupled to another using a union.

Name	Description	Part No.
Universal Holder Kit	Includes 100 and 220 mm holder bodies, 2 end assemblies, 1 union, 1 NewGuard end assembly.	**07150025**
NewGuard® Holder	Holds a single NewGuard cartridge or a single 20 mm CHOICE™ cartridge.	**07150001**
30 mm Holder	Holds a single MPLC and CHOICE 30 mm cartridge.	**07150013**
33 mm Peco Holder	Holds 33 mm Fast LC Peco cartridge only.	**07150028**
50 mm Holder	Holds a single 50 mm CHOICE cartridge only.	**N2580030**
83 mm Peco Holder	Holds 83 mm Fast LC Peco cartridge only.	**07150029**
100 mm Holder	Holds a single MPLC 100 mm cartridge.	**07150014**
150 mm Holder	Holds a single MPLC 150 mm cartridge.	**07150030**
220 mm Holder	Holds a single MPLC 220 mm cartridge.	**07150015**
250 mm Holder	Holds a single MPLC 250 mm cartridge.	**07150031**
100 mm NewGuard System Holder	Holder for a NewGuard and a 100 mm coupled cartridge.	**07150016**
220 mm NewGuard System Holder	Holder for a NewGuard and a 220 mm coupled cartridge.	**07150017**
130 mm MPLC System Holder	Holder for a 30 and 100 mm coupled cartridge.	**07150032**
Union	For direct coupling of 2 cartridge holders. (Two holder bodies and 2 end assemblies also required.)	**07150018**
NewGuard End Assembly	Upgrades a 30 mm holder to a NewGuard holder.	**07150002**
End Assembly	Holder component.	**07150019**
30 mm Holder Body	Holder component.	**07150020**
100 mm Holder Body	Holder component.	**07150021**
220 mm Holder Body	Holder component.	**07150022**

Prep-10 Cartridge Holders

Name	Description	Part No.
100 mm Prep-10 Holder	Holds a single 100 mm Prep-10 cartridge.	**07150005**
250 mm Prep-10 Holder	Holds a single 250 mm Prep-10 cartridge.	**07150006**

Chemically-inert and mechanically strong PEEK sample loops and tubing for HPLC applications

PEEK Sample Loops

Sample loops are made from PEEK tubing and fittings. PEEK (poly-ether-ether-ketone) is a mechanically-strong, chemically-inert polymer, ideal for HPLC applications where metal surfaces may interact with the mobile phase or sample component. Each sample loop is supplied with two PEEK hex-head nuts and ferrules. These fittings grip the tubing in two locations for a more reliable connection.

Description	Size	Part No.
PEEK Sample Loop	20 µL	**N9306035**
PEEK Sample Loop	50 µL	**N9306036**
PEEK Sample Loop	200 µL	**N9306038**
Internal Loop (PEEK and Ceramic)	2 µL	**N9306022**

Stainless Steel Sample Loops

Size	Model 7125/7010 Part No.	Model 7725 Part No.	Model 8125 Part No.
10 µL	**09904938**	**N9306024**	
50 µL	**09904940**	**N9306026**	
100 µL	**09904942**	**N9306027**	**41000013**
200 µL	**09904818**	**N9306028**	**09904818**
5 mL		**N9306032**	

Clean-Cut Tubing Tool

Clean-Cut™ tubing tool is designed to cut Teflon®, Tefzel® and polymers in general but, in particular, PEEK tubing. The compact design enables every chromatographer to carry it in his pocket. A unique safety locking mechanism secures the blade when not in use.

Tubing Accessories

Description	Part No.
Clean-Cut Tubing	**ED020015**
Clean-Cut Tubing Replacement Blade	**ED020016**

PEEK Tubing

PEEK tubing has the strength required to withstand continuous use at HPLC pressure without swelling or bursting. The dense polymer structure of PEEK tubing eliminates the permeability to organic solvents that causes other polymer tubing, such as Tefzel®, to sweat.

Tubing and Connectors

Use PEEK with virtually any organic or inorganic liquid. PEEK tubing is not affected by halide salts, high-strength buffers or other aggressive mobile phases that degrade stainless steel.

PEEK Tubing

Description	Length	Part No.
1/16 in o.d. x 0.007 in i.d.	5 ft	**N9302678**
1/16 in o.d. x 0.010 in i.d.	5 ft	**N9302650**

Stainless Steel Tubing

■ Pre-cut and mirror-polished in 316 stainless steel

Description	Length	Part No.
1/16 in o.d. x 0.015 in i.d.	6 ft	**00873036**
1/16 in o.d. x 0.007 in i.d.	3 ft	**02540838**

One-piece, easy-to-use Fingertight® fittings

PEEK Fingertight® Fittings

High-performance Fingertight® fittings for the most demanding applications.

This PEEK Fingertight® fitting is the toughest with regard to chemical resistance and pressure. This high-performance Fingertight® fitting is recommended for the most demanding applications and will resist pressures up to 6,000 psi (400 bar). Made from a single piece of PEEK, the size permits tightening without tools.

Description	Part No.
PEEK One-Piece Fingertight® Fitting	**ED020005**

Stainless Steel Fittings

Stainless steel nuts are available in both Parker-Hannifin and Rheodyne™ formats. The nuts are used to connect 1/16 inch o.d. stainless steel tubing and feature a 10-32 thread size. PerkinElmer also offers select SSI fittings for 1/16 inch o.d. tubing in 1/4-28 thread size.

Stainless Steel Fittings

Description	Part No.
Parker-Hannifin Ferrule, 1/16 inch	**00873032**
Parker-Hannifin Nut, 1/16 inch	**09903980**
Parker-Hannifin Nut & Ferrule Kit, 1/16 inch Includes: 6 nuts and 6 ferrules	**00890945**
Parker-Hannifin Zero-Dead-Volume Union with nuts and ferrules	**09903289**
Rheodyne™ Ferrule, 1/16 inch	**09904947**
Rheodyne™ Nut, 1/16 inch long body	**09904974**
Rheodyne™ Nut, 1/16 inch short body	**09904956**
Rheodyne™ Nut and Ferrule Kit, 1/16 inch Includes: 6 ferrules, 3 short nuts and 3 long nuts	**02540274**

Fittings Kits

Biocompatible Column Fittings for LC. Recommended for users of a PerkinElmer Biocompatible LC system. Contains nuts, ferrules and unions.

	Part No.
	N9301001

Fittings Kit for LC

All-in-one fittings kit. The kit contains Rheodyne™ and SSI nuts and ferrules as well as Fingertight® II nuts and ferrules for toolless installation. Zero-dead-volume unions are also included. In addition you receive varying lengths of stainless steel tubing in 0.007 and 0.010 inch i.d.s, as well as 0.30 inch i.d Tefzel® tubing.

	Part No.
	N9301002

Operation Kit

Recommended for purchasers of their first LC. Includes tubing, union, fittings, syringe, basic LC book and test mix.

	Part No.
	00890873

Vacuum kits for all your degassing requirements

Degassing Kits

Using a solvent degassing system will extend the performance of your pump. PerkinElmer offers both vacuum degassing systems that can handle all your degassing requirements.

Series 200 On-Line Vacuum Degasser Kit

This is a low-volume, high efficiency, on-line module for the removal of dissolved gasses from HPLC solvents. The vacuum degasser is available in 3 and 5 channel models to support isocratic, binary and quaternary pumps as well as degassing of autosampler flush solvent.

Description	Part No.
3-channel Vacuum Degassing Package Includes: a Vacuum Degasser, one 1 L Bottle with Cap, one 2 L Bottle with Cap, one Organizer Tray and Accessory	**N2600571**
5-channel Vacuum Degassing Package Includes: a Vacuum Degasser, two 1 L Bottle with Caps, two 2 L Bottles with Caps, Solvent Tray and Organizer	**N2600570**
Binary Bottle Cap Kit Includes: two Caps, Tubing, Fittings and Labels required for two Solvent Bottles	**N2600522**
Quatenary Bottle Cap Kit Includes: four Caps, Tubing, Fittings and Labels required for four Solvent Bottles	**N2600523**

Check Valves

HPLC check valves allow solvent to flow in only the desired direction. Check valves are easy to install with the torque wrench kit. For all PerkinElmer pumps an intermediate check valve is required. The input check valve, which is identical, should be ordered. The check valves of the biocompatible pumps differ from those of the stainless steel pumps in that all portions that contact fluid are composed of titanium.

Check Valves

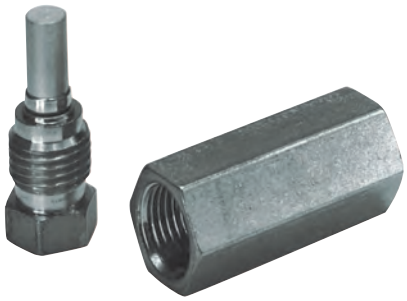
Type	*Inlet/Intermediate Check valve* Part No.	*Outlet Check valve* Part No.
Standard Stainless Steel	**02540177**	**02540197**
Micropump	**02540177**	**02540197**
Biocompatible Titanium	**N2600226**	**N2600192**

Maintenance Kits and Tools

Description	Part No.
Biocompatible Piston Seal Replacement Kit Includes: Four Seals, Backup Rings, and O-rings	**N2910385**
Check Valve Torque Wrench	**02540871**
Diaphragm for Pulse Compensator	**N2601316**
High Pressure Piston Seal Replacement Kit Includes: Four Seals, Backup Rings, and O-rings	**N2910383**
Insertion Tool	**N2601503**
Micropump Piston Seal Replacement Kit	**N2910384**
Pulse Compensator Repair Kit Includes: Diaphragm, Elastomer Plug, and Seal	**N2600313**
Seal Removal Tool	**N2601295**
Series 200 Bio LC Pump Maintenance Kit Includes: Fuses, Seals, O-rings, and Seal Tools	**N2910346**
Series 200 Pump Maintenance Kit Includes: Fuses, Seals, O-rings, and Seal Tools	**N2910345**

Replacement Vacuum Degasser Bottles

Description	Part No.
1 L Glass Bottle	**N2600497**
2 L Glass Bottle	**N2600498**



Solvent Sparger and Solvent Filters

Solvent filters remove unwanted particulate matter from the LC instrument. Spargers connect directly to the solvent delivery line and are easily removed for cleaning. The scavenger column is ideal for eliminating particulate material from solvents.

Solvent Sparger and Solvent Filters

Solvent Reservoir Sparger

Description	Size	Part No.
Stainless Steel	10 µm	**09903610**
Titanium	10 µm	**N2600070**
Stainless Steel	40 µm	**09903615**
Titanium	40 µm	**N2600089**

Solvent Filters

Description	Part No.
In-Line Solvent Filter System	**09903606**
In-Line Solvent Filter Replacement Kit	**02540311**
In-Line Solvent Filter System, Titanium	**N2600259**
Replacement 2 µm Titanium Filter Element	**N2601477**
Replacement Seal for In-Line Solvent Filter	**N2601262**

Mixing Head

Static Mixers

The Series 200 static mixer accessory (100-240 V) is used to facilitate complete mobile phase blending, resulting in improved retention performance. The mixer will most typically be used as part of a Series 200 Pump package — where high-pressure blending of two pump outputs is required. Mixers incorporate a highly efficient crossflow shearing mechanism which produces vortex sheer mixing over a wide flow range.

Series 200 Static Mixers

- Improve gradient accuracy and increase sensitivity
- Reduce baseline noise
- In-line binary format

Description	Size	Part No.
Binary T Mixer	10 µL	**N2911170**
Binary T Mixer	25 µL	**N2911171**
In-Line Mixer Assembly	150 µL	**N2911173**
In-Line Mixer Assembly	500 µL	**N2911172**
Binary T Mixer Cartridge	10 µL	**N2911174**
Binary T Mixer Cartridge	25 µL	**N2911175**
Binary T Mixer Cartridge	50 µL	**N2911176**
Binary T Mixer Cartridge	150 µL	**N2911177**
Binary T Mixer Cartridge	250 µL	**N2911178**

Series 200 Dynamic Mixer

Series 200 Dynamic Mixer Accessory (100-240 V) – Used to facilitate complete mobile phase blending, resulting in improved retention performance. The mixer will most typically be used as part of a Series 200 Micro pump package – where high-pressure blending of 2 pump outputs is required. Three different volume mixing heads (75, 200 and 400 µL) are available.

Kit includes: Mixer Accessory, Stainless Steel “Tee” Fitting (N2911127), U.S. style AC Line Cord and 0.1 A Type T Fuse.

	Part No.
	N2910520

Mixing Heads

Size	Part No.
75 µL	**N2910521**
200 µL	**N2910522**
400 µL	**N2910523**

Injection valves and rotor seals for analytical HPLC

Flom Analytical Injection Valve

The Flom Analytical Injection Valve is a very reliable manual HPLC injection valve. It comes with a built in "Inject" contact closure connection output. A PEEK rotor seal is provided for excellent solvent/sample resistance and the fluid path is designed for minimal dispersion. This valve is available in either stainless steel or PEEK, depending on the application or need.

Description	Part No.
Flom Injection Valve Stainless Steel	**N9306073**
Flom Injection Valve PEEK	**N9306072**

Injector Valve Rotor Seals

For both Series 200 Autosampler and manual injectors.

For both the Rheodyne and Flom valves, rotor seals should be periodically replaced every 6 months to a year and are available in PEEK. For the Rheodyne valve, they are also available in Vespel. PEEK is more inert towards amines and other basic biomolecules/pharmaceuticals, exhibiting less sample carryover. However, Vespel is somewhat more resilient than PEEK, providing somewhat better wear life.

Description	Part No.
Flom Rotor Seal PEEK	**N9306068**
Rheodyne 7725 Vespel Rotor Seal	**09904802**
Rheodyne 8125 Vespel Rotor Seal	**10070900**
Rheodyne 7725/9725 PEEK Rotor Seal	**N9306044**

For a full listing of Rheodyne™ injection valves, please visit:
www.perkinelmer.com/lcsupplies

Rheodyne™ 9725 PEEK Bio Injection Valve

Model 9725 is inert and well-suited to the chromatography of biological molecules, including applications with aggressive mobile phases. This valve is useful in all applications in which metal contact with the mobile phase and or sample should be avoided. This valve uses PEEK vent lines and a Teflon® rotor seal and can be operated in a pH range from 0–14.

Description	Part No.
9725 Injection Valve for Series 200 Autosampler	**N9306020**

Rheodyne™ 8125 Low-Dispersion Stainless Steel Injection Valve

Ideal for use in an LC/MS system, the model 8125 is designed for 1 and 2 mm microbore columns and can also be used with conventional analytical (3 to 5 mm) columns. Small flow passages produce low dispersion, maintaining the high mass sensitivity inherent in micro columns.

Description	Part No.
8125 Low-Dispersion Stainless Steel Injection Valve	**N9306021**

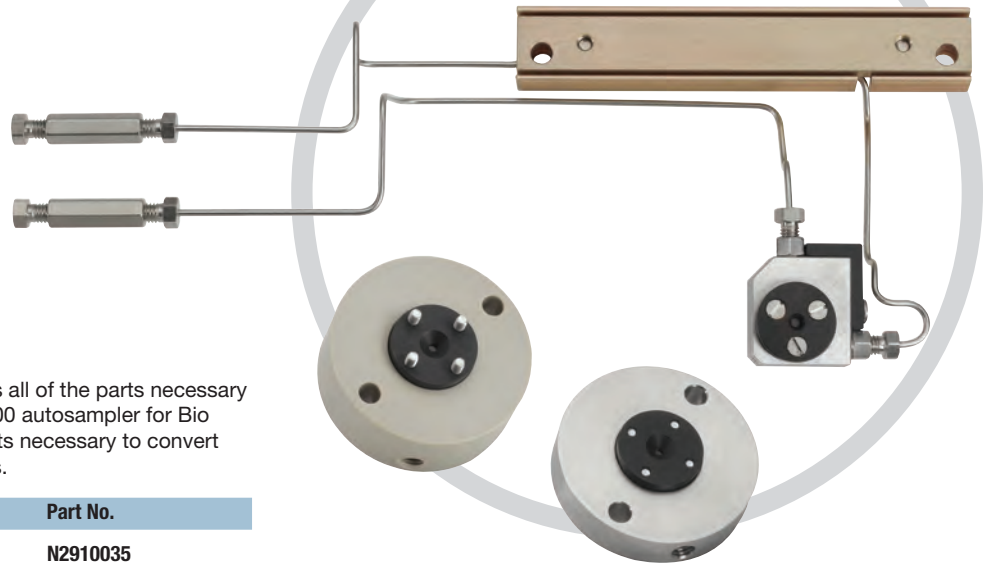
Rheodyne™ 7725 Analytical Injection Valve

Inject from 1 µL to 5 mL with high accuracy and precision, with the Rheodyne™ 7725 and 7725i valves.

Rheodyne™ 7725 and 7725i valves are versatile injectors and can use both partial-filling and complete-filling methods for loading the sample loop. Wide port angles of the 7725/7725i valve provide improved access to fittings. Sample loop with a 2 µL internal capacity is also available. In a clean system, the 7725/7725i typically can make more than 30,000 injections before requiring replacement of the rotor seal.

Description	Part No.
7725 Injection Valve for Series 200 Autosampler	**N9306019**
7725i Injection Valve with Internal Switch	**N9306017**

Interchangeable flowcells and pump accessory kits



Bio Conversion Kits

There are two kits available; one that contains all of the parts necessary to convert the Series 200 pump and Series 200 autosampler for Bio applications. The other contains all of the parts necessary to convert only the Series 200 Pump for Bio applications.

Description	Part No.
S200 Pump and S200 Autosampler Conversion Kit	**N2910035**
S200 Pump Conversion Kit	**N2910036**

Pump Seal Kits

Description	Part No.
High Pressure Piston Seal Replacement Kit Includes: Seals (4), Backup Rings and O-Rings	**N2910383**
Micropump Piston Seal Replacement Kit Includes: Seals and O-Rings	**N2910384**
Series 200 Pump Maintenance Kit Includes: Fuses, Seals, O-Rings and Seal Tools	**N2910345**

Detector Backpressure Regulator

The detector backpressure regulator is a device that is attached to the outlet of the detector to prevent outgassing in the flowcell, eliminating variations to the detector baseline.

Description	Material	Part No.
Backpressure Regulator Adjustable from 15 – 59 psi	Stainless Steel	**09907126**

Series 200/785A UV/VIS and Series 200 EP PDA Detector Flow Cells

The standard 10 mm pathlength used with conventional 4.6 mm i.d. columns provides the highest detection limits possible for your sample. The 6 mm pathlength flowcell has been optimized for lower-dispersion LC analysis and is the perfect choice when using narrowbore, 2.1 mm or microbore, 1 mm columns (see Figure 1). The 3 mm pathlength is the choice for semiprep LC to avoid detector saturation at high-solute concentrations.

Description	Size	Part No.
Series 200 Standard Flowcell	15 µL, 10 mm	**N2920124**
785A Standard Flowcell	12 µL, 8 mm	**N2920117**
Flowcell Bulkhead Union		**25000323**
Flowcell Assembly Microbore	2.4 µL, 6 mm	**29000544**
Flowcell Assembly Prep	1.7 µL, 3 mm	**29000545**

Photo Diode Array Detector Flowcells

Series 200 EP

NEW!

Description	Size	Part No.
Series 200 Standard Flowcell	15 µL, 10 mm	**N2920124**
Flowcell Assembly Microbore	2.4 µL, 6 mm	**29000544**
Flowcell Assembly Prep	1.7 µL, 3 mm	**29000545**

Series 200

Description	Material	Size	Part No.
Standard Flowcell Assembly	Stain. Steel	12 µL, 10 mm	**N2922028**
Flowcell Assembly	PEEK	12 µL, 10 mm	**N2922029**
Low-volume Flowcell Assembly	Stain. Steel	5 µL, 4.5 mm	**N2922030**

LC-135C/235

Description	Material	Size	Part No.
Flowcell Assembly	Titanium	8 µL	**N2350211**

Vials, caps and septa are inert to samples ordinarily analyzed by liquid chromatography and guaranteed for fit and compatibility

Autosampler Vials and Caps with the unique Inter-Seal® bonded Septa and Cap

PerkinElmer screw thread vial caps use the revolutionary Inter-Seal® Bonding System. Using a process that bonds silicone/PTFE and other elastomeric compounds directly into thermoplastic closures eliminates liner fallout whilst still providing the excellent resealability and multiple injection capability. No adhesives are used in this process, bonding the cap and septa at the molecular level of plastic and rubber. This septa has a very broad chemical resistance and can be used in many markets including; the environmental market, diagnostic packaging, pharmaceutical packaging, cosmetic and food packaging.

Vials, Caps and Septa

Vials

Description	Pkg.	Part No.
200 µL Clear Glass Micro Vial To be used with Glass Vial Sleeve (N9307027)	500	**N9302136**
Glass Support Sleeve	25	**N9307027**
300 µL Polypropylene Vial Kit Includes: tapered polyethylene vial, blue cap with bonded silicone/PTFE septa	500	**N9306080**
2 mL Clear Glass Crimp Vial	100	**N9301385**
2 mL Amber Glass Crimp Vial	100	**N9302680**
2 mL Clear Glass Screw Top Vial	100	**N9306053**
2 mL Amber Glass Screw Top Vial	100	**N9306057**

Caps

Description	Pkg.	Part No.
8 mm Silver Aluminum Crimp Cap PTFE/Rubber	1,000	**03300806**
11 mm Snap Cap	1,000	**04978532**
11 mm Silver Aluminum Crimp	100	**N9306015**
Cap PTFE/Rubber 10 mm Black Polypropylene Screw Cap with PTFE/Pre-Slit White Silicone	100	**N9306052**

Microsyringes (For Manual Injection)

Syringes are used for accurate and precise liquid delivery. Each syringe is hand-fitted to assure maximum accuracy. Our syringes are composed of glass barrels and precision stainless steel needles. The needle features a blunt tip, required for use with a Rheodyne injector.

Description	Part No.
10 µL Syringe	**09904937**
25 µL Syringe	**09904823**
50 µL Syringe	**09904941**
100 µL Syringe	**09904822**

Solvent and Sample Filtration

Description	Part No.
All-Glass Filter Apparatus For Solvent Filtration	**N9301063**
FP Vericel Hydrophilic Filters For Aqueous Mobile Phase, 47 mm, 0.45 µm (pkg. 100)	**N9301067**
PTFE Hydrophobic Filters For Nonaqueous Mobile Phase, 47 mm, 0.45 µm (pkg. 100)	**N9301068**

Autosampler Vial Starter Kits

Complete and convenient starter kits for your volatile and standard applications. Each kit contains everything you will need to run your LC instruments under two convenient part numbers. Each kit contains syringes, vials,caps and vial rack.

NEW!

Description	Qty.	Part No.
LC Screw Top Starter Kit		**N2930366**
Includes:		
30 mL pump priming syringes	3	
Racks for 50 vials-12 mm	2	
PTFE/SILICONE screw caps (pkg. 100)	4	
2 mL screw top vials w/label & Fill lines (pkg. 100)	2	
12x32 mm amber vials (pkg. 100)	2	
25 µL blunt syringes	2	
1/16 union tubes	2	
Nut and ferrules (pkg. 6)	1	
LC Crimp Top Starter Kit		**N2930365**
Includes:		
Crimper tool (manual)	1	
Racks for 50 vials-12 mm	2	
2 mL 11 mm crimp top vials (pkg. 100)	3	
2.0 mL crimp top amber vials (pkg. 100)	1	
25 µL blunt syringes	1	
11 mm decappers tool (manual)	1	
11 mm Silver Crimp top caps w/Septa (pkg. 100)	4	

For outstanding **performance,** use only PerkinElmer **deuterium, tungsten** or **xenon HPLC** lamps

UV/VIS Deuterium
Detector Lamp

Series 200/200 EP
Photo Diode Array Detector Lamp

UV/VIS Detector Lamps

Our extensive quality control and inspection process demands the very best quality sources. Choosing a PerkinElmer deuterium, tungsten or xenon source provides outstanding ultraviolet and true visible performance.

- Exceptional performance anywhere in the detector's 190–700 nm wavelength range
- Lamp changes are quick and easy due to a unique self-aligning lamp mount

Series 200/785A UV/VIS Detector Lamps

Components	Part No.
Deuterium Lamp	**N2920149**
Tungsten Lamp	**N2920146**

LC-295 UV/VIS Detector Lamps

Components	Part No.
Deuterium Lamp	**02712266**

Refractive Index Detector Lamps

The Series 200/200a Refractive Index, with its deflection-type design, allows sensitive detection of these compounds with low noise and drift characteristics.

Series 200/200a

Components	Part No.
Tungsten Lamps	**02712273**

For our complete listing of HPLC detector lamps, please visit:
www.perkinelmer.com/lcsupplies

Photo Diode Array Detector Lamps

The Series 200/200 EP Photo Diode Array Detector provides true UV/VIS detection and high resolution spectral data. The excellent signal-to-noise characteristics make it ideally suited for low-volume or low concentration samples.

Series 200 EP

Components	Part No.
Deuterium Lamp	**N2925030**
Tungsten Lamp	**N2922011**

Series 200

Components	Part No.
Deuterium Lamp (Phase 2)	**N2922046**
Tungsten Lamp	**N2922011**

LC-135C/235

Components	Part No.
Detector Lamp	**N2351285**

Fluorescence Detector Lamps

The major benefit afforded by fluorescence detection is the inherent high sensitivity of the technique coupled with outstanding specificity. The Series 200a Fluorescence Detector provides signal to noise ratio of >700:1 from trace analysis using a 150 W xenon source.

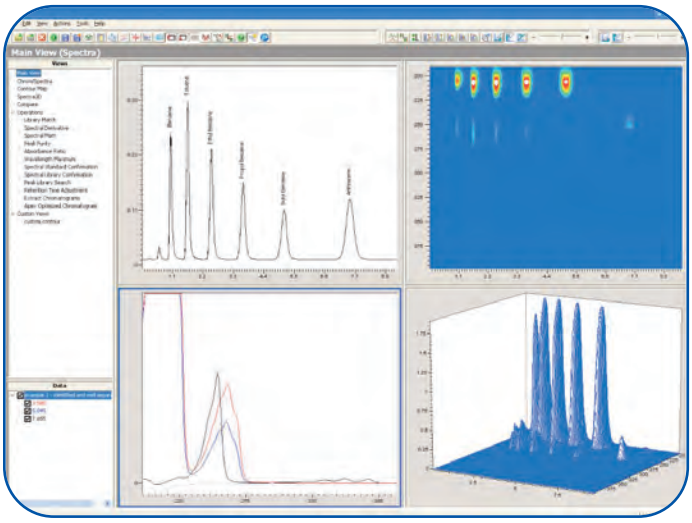
Series 200/200a

Components	Part No.
Xenon Lamp	**N2922082**

LC-240

Components	Part No.
Xenon Lamp	**L2251157**
Festoon Lamp	**04969486**

IRIS spectral processing software



Introduction

With the continued need to increase productivity and enhance the quality of analytical results, the use of photo diode array (PDA) detectors continues to grow rapidly. However, in order to truly utilize the power, performance and wealth of data generated by a PDA detector, an equally powerful software package is essential.

The IRIS™ spectral processing software from PerkinElmer offers a full suite of functionality and an intuitive user interface, all protected under a fully 21 CFR Part 11-compliant architecture. Used in conjunction with the award-winning TotalChrom® Chromatography Data Systems (CDS), IRIS spectral processing software brings spectral handling to a new level of efficiency and ease-of-use.

User Interaction

IRIS features an Outlook™-like graphical user interface that facilitates a short learning curve and allows an easy navigation into information. A hierarchical relationship and a tree-like structure of data are available on screen for a convenient sample tracking. A single environment for all software functions is available, as well as specific views for certain functions. User-specific customizable views can be prepared for needed tasks.

Confirmation of Peak Identity and Purity

One of the most important benefits a PDA detector delivers is the confirmation of the identity and/or purity of a chromatographic peak. IRIS spectral processing software performs automated mathematical processing, determining the similarity of spectra within every peak in the run. This is a necessary tool to calculate spectral peak purity, providing critical information on the efficiency of the separation. This resulting purity value is then automatically inserted into the final TotalChrom chromatography report and available for the Review & Approve process. Also available in the report is the maximum absorbance wavelength of each peak. This “Lambda Max” value is useful in confirming the proper identity of the component.

Spectral Library Matching

Spectral library matching is another valuable feature available in IRIS software. You can use PDA spectra to confirm the identity of chromatographic peaks. IRIS contains a spectral library function, allowing users to construct libraries of standard spectra taken under specific analytical conditions. These libraries can be used for automated spectral matching. A chromatogram, when collected or reprocessed, can be compared against the library — and each component’s spectral profile analyzed to find the best match. The matching algorithm gives a “Hit Quality” rating indicating the quality or confidence level in the match. This value can be used to automatically update the chromatographic method and can be included in the final analytical report, an ideal tool for laboratories working in method development.

Compliance for FDA-Regulated Industries

IRIS software provides a complete range of features and functionality to ensure FDA 21 CFR Part 11 compliance and similar regulatory agencies’ requirements. IRIS software provides multi-level user permissions, password-protected access control and full audit-trailing, as well as configurable e-signature points.

IRIS Spectral processing Software

IRIS is an optional software program for spectral processing of data acquired from the PerkinElmer S200 Diode Array Detectors. Requires IPM for PerkinElmer LC Modules (N5150162) for control of S200. Also requires TotalChrom or TurboChrom 6.3.1 or higher.

	Part No.
	N5150130

NEW! LC Separation Notes CD and Technical Tips Poster

Valuable LC Technical Tips Guide at your fingertips, including:

- Commonly used formulas applied in chromatographic separation (USP/EP)
- Tips to improve sensitivity for specific detectors
- Care and maintenance of your HPLC
- Solvent miscibility
- HPLC pump pressure conversion factors
- Column void volume and optimum flow rates
- Wall poster measures 24" x 36"

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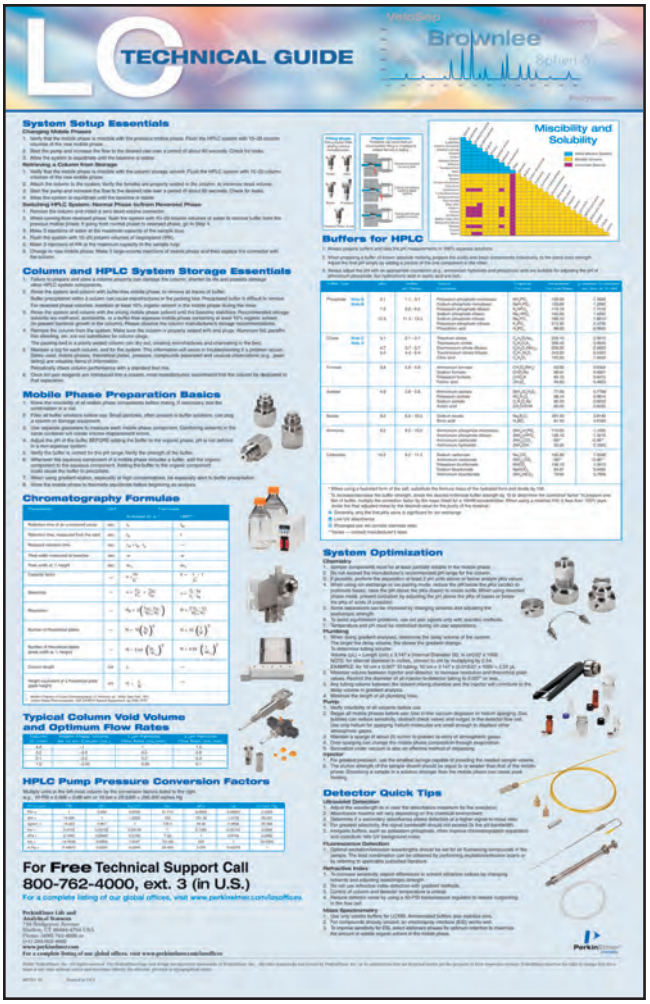
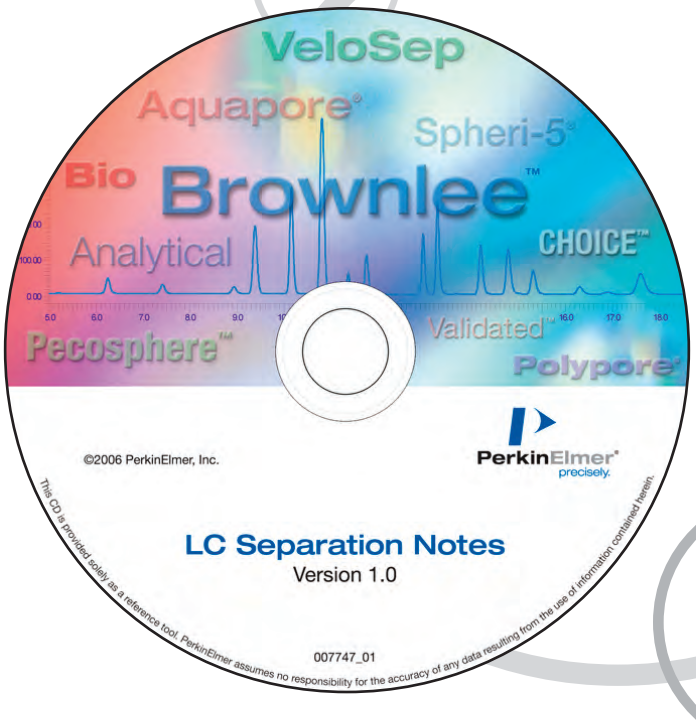




PerkinElmer LC Separation Notes CD

Enjoy the convenience of:

- References to separations conducted on 516 compounds or class of compounds
- References point to over 230 LC applications – just one click away
- Information on the column used in the application
- Analytical conditions such as flow, gradient and solvents
- A labeled chromatogram with information on the compounds, matrix and sample preparation
- Application by industry
- Applications presented in a one page template for easy printing
- CD also contains a full electronic copy of the Consumables and Supplies reference catalog

Order your FREE copy today! Visit:

www.perkinelmer.com/LCseparations

The **fastest** injection-to-injection time in conventional **gas chromatography**

NEW!

Every fast-paced, high-volume laboratory shares a common goal: to speed up analytical cycle times. Now, PerkinElmer delivers with its latest innovation in GC, the high-performance **Clarus® 600 Gas Chromatograph.**

Clarus 600 Gas Chromatograph – the innovation is simply its speed

Powered by the fastest available heat-up and cool-down conventional oven

PerkinElmer has always led the way with innovations in gas chromatography and the Clarus 600 Gas Chromatograph (GC) is no exception. It features a unique, high-performance oven with the fastest combined heat-up and cool-down rate in a conventional GC oven design.

Autosampler pre-rinse performs time-consuming syringe rinse with sample before the GC becomes ready, saving time in between runs. The resulting shorter injection-to-injection time will significantly increase your throughput and productivity by speeding up your analytical cycle time. And higher productivity means a fast return on your investment (ROI).

QUICK GLANCE

- Oven cool-down from 450 °C to 50 °C in less than 2 minutes
- Integrated autosampler adds flexibility and automation
- Temperature programmable inlets deliver performance and flexibility for more demanding applications
- Programmable pneumatic control (PPC) adds automation efficiencies
- Exclusive optional PreVent pressure-balanced system enhances performance and productivity
- Innovative, intuitive touch-screen interface makes operation easy–no training required
- Scalable TotalChrom CDS make data management and reporting easier than ever
- PerkinElmer's complete offering allows easy integration of best-in-class mass spectrometer, headspace, headspace trap or thermal desorption

See for yourself how the NEW Clarus 600 GC will increase your productivity!

Try our **ROI Calculator** at
www.perkinelmer.com/GC

Get results better and faster with the NEW Clarus 600/560 Family of GC/MS

Take your GC/MS to the limit with the **Clarus® 600 Gas Chromatograph/ Mass Spectrometers** (GC/MS). It provides the performance and throughput you require with the ruggedness you demand.

Whatever you need it for the Clarus 600 GC/MS family delivers

The compact Clarus 600 GC/MS, with its advanced electronics, features the widest mass range and best-in-class detection limits of any quadrupole MS. Our high-speed scanning delivers far better peak integrity and accuracy. Its gas chromatograph has the fastest heat-up and cool-down oven in a conventional GC. Multiple pumping options offer an instrument for every lab's needs. Plus, the system is driven by our sample-centric TurboMass™ software for ease-of-use from data collection to evaluation and reporting.

Whether you do routine "workhorse" applications or challenging research requiring more capabilities, the Clarus 600 GC/MS is an extremely robust, precise and accurate system that can handle all your demands.

QUICK GLANCE

- EI and CI: best-in-class signal/noise specifications offer new possibilities for analysis
- Plug-and-play ion source: loosen two screws and easily change when needed
- Three pumping systems: provide the right performance to fit your needs and budget
- Smaller footprint: for economical space use
- Fastest scan rates (12,500 amu/sec): for the most accurate determination of peaks
- Widest mass range (1–1,200 u): encompasses a variety of applications, such as brominated flame retardants
- SIFI™ simultaneous collection of selected ion and full ion scanning data for the most productive analytical work
- UltraTune™ automated tuning for BFB/DFTTP or custom tuning on any compound for faster setup

A model for every lab's needs:

Clarus 600 C GC/MS:
- Electron ionization and chemical ionization with 255 L/sec turbomolecular pump

Clarus 600 T GC/MS:
- Electron ionization with 255 L/sec turbomolecular pump

Clarus 600/560 S GC/MS:
- Electron ionization with 75 L/sec turbomolecular pump

Clarus 600/560 D GC/MS:
- Electron ionization with air-cooled oil diffusion pump

Convenient GC/MS Consumable Kits

NEW! GC/MS PSS Injector Starter Kit

Part No. N6100447

Contents:	Pkg.	Qty.	Part No.
5.0 µL Autosampler Syringe		1	**N6101390**
Vial Locator (dongle)		2	**N6101182**
PSS Injector Viton o-rings (250 deg)	10	1	**N6101747**
PSS Injector Kelrez o-rings (350 deg)	1	10	**09921004**
PSS split/splitless Injector, 2 mm, no wool		2	**N6121004**
Graphite/Vespel ferrules, for 0.25 mm columns	10	2	**09920104**
Thermogreen Speta (50 pieces)		1	**N6621028**
Rhenium Filament		1	**N6470012**
Aluminum oxide powder (3 oz)		1	**4190197**

NEW! GC/MS CAP Injector Starter Kit

Part No. N6100448

Contents:	Pkg.	Qty.	Part No.
5.0 µL Autosampler Syringe		1	**N6101390**
Vial Locator (dongle)		2	**N6101182**
CAP Injector Viton o-rings (250 deg)		10	**N9302783**
CAP Injector Kelrez o-rings (350 deg)		10	**N9302782**
CAP split/splitless Injector, 4 mm, no wool		2	**N6121001**
Graphite/Vespel ferrules, for 0.25 mm columns	10	2	**09920104**
Thermogreen Speta (50 pieces)		1	**N6621028**
Rhenium Filament		1	**N6470012**
Aluminum oxide powder (3 oz)		1	**4190197**

Organic Calibration Standards for 8000 series U.S. EPA Methods

PerkinElmer offers a wide selection of GC and GC/MS standards. Each solution is supplied with a comprehensive Certificate of Analysis that documents quality and assurance to the highest level obtainable by a Calibration Standard.

Organic Certified Reference Materials from PerkinElmer are a new addition to an already extensive organic product line, designed to enhance your one-stop shopping experience. Each new standard is provided in convenient 1.2 mL ampules to minimize waste and comes with a pre-labeled amber glass storage vial with cap for easy use.

To ensure customer satisfaction, our Organic Mixes are prepared at concentration levels that take into consideration a number of factors including: vapor pressure, evaporation, breakdown rates and dilution schemes. PerkinElmer goes the extra step by analyzing each organic standard on the Clarus 600 GC and GC/MS state-of-the-art instrumentation, to ensure that the standard conforms to the customer's exact needs.

For customer ease, all Organic Standards are prepared with a precision of +/- 0.5% and accompanied with a comprehensive Certificate of Analysis (lot specified by part number). Data packs are also available upon request. These include a chromatogram of the standard and quantitative report listing the values for each analyte.

For a full product listing of NEW PerkinElmer GC Standards please visit:
www.perkinelmer.com/gcsupplies

Method 8260B for Water and Solid Waste Matrices

Method 8260B is an analytical method that uses a GC/MS equipped with a capillary column to perform the separation of the volatile organic compounds found in water and a variety of solid waste matrices.

Method 524.2 is an analytical method that uses a purge and trap device for sample preparation and a GC/MS equipped with a capillary column to perform the separation of volatile organic compounds.

Volatile Organics Combination Blend

Contains all analytes in Mixes A, C and D.

Method SW-846 is an analytical method which utilizes a Clarus 600 GC to perform the separation of the volatile organic components found in a variety of solid waste matrices. To detect the GC eluant a Clarus 600 GC/MS is used.

Description	Part No.
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331047**

Method 8260B Standards

Description	Part No.
Alternate Four-Component Surrogate Standard for Method 8260B	
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331042**
Internal Standard for Method 8260B	
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331041**

Ketones for Method 8260B

Description	Part No.
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331043**

Mix B Purgeable Gases for Methods 8260B/524.2

Description	Part No.
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331048**

NEW! 8000 Series Solid and Hazardous Waste Methods

Resource Conservation and Recover Act (RCRA) under SW-846, "Test Methods for Evaluating Solid Waste"

- Method 8080A contains detailed operating procedures to be followed by laboratories analyzing solid and liquid matrices. It is a method that uses a GC/ECD to perform the separation of the selected pesticides following concentration and clean up of an extract for aqueous or solid samples
- Method 8082 is used to determine the concentrations of PCB's, either as individual congeners or Aroclors by GC/ECD.

Method 8082 PCB's (polychlorinated biphenyls) Standards Kit

Method 8082 is used to determine the concentration of PCB's either as individual congeners or Aroclors. A Clarus 600 GC with a capillary column is used to perform the separation and to detect the eluent and ECD (electron capture detector) or ELCD (electrolytic conductivity detector) is used.

Description	Part No.
1.2 mL @ 1,000 µg/mL in Hexane	**N9331028**

Method 8270C Standards

Method 8270C is an analytical method which utilizes a Methylene Chloride extraction of aqueous sample or Methylene Chloride:Acetone extraction of solid sample and a Clarus 600 GC equipped with a capillary column to perform the separation of the compounds. To detect the GC eluant a Clarus 600 GC/MS is used.

Description	Part No.
Semi-Volatile Calibration Standard for Method 8270C	
1.2 mL @ 2,000 µg/mL in Methylene Chloride/Benzene	**N9331030**
Internal Standard for Method 8270C	
1.2 mL @ 2,000 µg/mL in Methylene Chloride/Benzene	**N9331036**

Method 8270C Mixes

Description	Part No.
HICAL-Acids Mix for Method 8270C	
1.2 mL @ 2,000 µg/mL in Methylene Chloride	**N9331031**
Analyte Mix for Method 8270C	
1.2 mL @ 2,000 µg/mL in Methanol	**N9331032**
Balance Mix for Method 8270C	
1.2 mL @ 2,000 µg/mL in Methylene Chloride	**N9331033**

Method 8270C Surrogates

Description	Part No.
Acid Surrogate for Method 8270C	
1.2 mL @ 2,000 µg/mL in Methanol	**N9331037**
Base Neutral Surrogate for Method 8270C	
1.2 mL @ 2,000 µg/mL in Methylene Chloride/Acetone	**N9331038**

600 Series Wastewater Methods Clean Water Act "Wastewaters"

Method 624 Standards Kit for Volatile Organic Compounds

Contains: N9331060, N9331061, N9331062, 9331063.

The U.S. EPA Method 624 is an analytical method which utilizes a TurboMatrix Headspace Purge and Trap instrument for sample prep and a Clarus 600 GC equipped with a packed column to perform the separation of the volatile organic compounds found in a 5 mL sample of municipal or industrial wastewater. To detect the eluant a Clarus 60 GC/MS is used.

Description	Part No.
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331064**
Mix A for Method 624	
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331060**
Purgeable Gases Mix B for Method 624	
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331061**
Mix C for Method 624	
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331062**
Mix D for Method 624	
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331063**

Method 8100/625

Method 8100

Method 8100 is a method for the analysis of polynuclear aromatic hydrocarbons. A Clarus 600 GC is used to perform the separation of compounds with an FID (flame ionization detector) to detect the eluent.

Method 625

Method 625 is an analytical method that uses a methylene chloride extraction of municipal or industrial wastewater, concentrated to 1 mL and a GC/MS equipped to perform the separation of acid and base neutral extractable fractions.

Description	Part No.
Polynuclear Aromatic Hydrocarbons for Method 8100/625	
1.2 mL @ 2,000 µg/mL in Methylene Chloride/Benzene	**N9331044**
Polynuclear Aromatic Hydrocarbons Mix B for Method 8100	
1.2 mL @ 1,000 µg/mL in Methylene Chloride/Benzene	**N9331045**
Surrogate Standard for Method 8100	
1.2 mL @ 2,000 µg/mL in Methylene Chloride	**N9331046**

Fast and easy to use Click-On Inline Super Clean™ Gas Purifiers save you time and money

PerkinElmer Click-On Inline Super Clean™ Purifiers reduce your maintenance system downtime

Using the Click-On Connectors lets you change the trap without introducing contaminant's into your system. Click-On connectors can replace a trap, without introducing impurities into the system. This in turn eliminates the need to flush the system.

The unique Click-On Connector fitting has a spring-loaded needle valve, which seals when a trap is removed and only opens when a new trap is connected and locked into position. When the Click-On connectors are installed into the gas line, there is no need to loosen or tighten any fittings, simply click on the new trap in seconds.

The ability to add a Click-On Inline Super Clean™ Indicator after the stainless steel trap gives the user a clear visual indication of when to change the filter. This indicator may also be used as a standalone trap.

Features and Benefits

- Reduce system downtime with Click-On fast connectors
- High purity ensures 99.9999% pure gas
- No open gas line when changing the trap
- Helium Specific Glass Indicating Triple Trap is ideal for GC/MS
- No tools necessary to replace trap

Click-On Inline Purifier Compatibility Chart

Type of Gas	Moisture Filter	Oxygen Filter	Hydrocarbons Filter	Combination Filter	Triple Filter
Acetylene	√	√			
Air	√		√	√	
Carbon Dioxide			√		√
Helium	√	√	√	√	√
Hydrogen	√	√	√	√	√
Methane	√	√			
Nitrogen	√	√	√	√	√
Nitrous Oxide	√	√	√	√	√
Oxygen	√		√	√	
Propane	√	√			
P5 *(5% Methane in Argon)*	√	√			
P10 *(10% Methane in Argon)*	√	√			

Product Specifications

Purifier Type	Gas Quality*	Max. Pressure	Max. Flow	Use For	H_2O	Capacity O_2	Hydrocarbons	Est. Lifetime
Moisture	99.9999%	11 bar, 160 psi	25 L/min	Inert carrier gas He, Air, H_2	21 g	NA	NA	> 3 years
Oxygen	99.9999%	11 bar, 160 psi	25 L/min	Inert carrier gas	NA	3,000 mL	NA	> 3 years
Hydrocarbons	99.9999%	11 bar, 160 psi	25 L/min	Inert carrier gas Air, H_2	NA	NA	36 g (as *n*-butane)	> 3 years
Combination Moisture/ Hydrocarbons	99.9999%	11 bar, 160 psi	25 L/min	Inert carrier gas He, Air, H_2	10 g	NA	18 g (as *n*-butane)	> 2 years
Indicating Triple Moisture/ Oxygen/Hydrocarbons	99.9999%	11 bar, 160 psi	25 L/min	Inert carrier gas He	3 g	400 mL	5 g (as *n*-butane)	> 1 year
Triple Moisture/ Oxygen/Hydrocarbons	99.9999%	11 bar, 160 psi	25 L/min	Inert carrier gas	6 g	1,000 mL	12 g (as *n*-butane)	> 2 years

**Results @ 2 L/min*

3-Cartridge Gas Purification System

AFS Manifold and Mounting Hardware

Advanced Filter System

Stainless Steel Trap Kits

Description	Connector (Qty)	Part No.
Combination: Oxygen/Moisture Trap	⅛" Brass (2)	**N9306108**
Combination: Oxygen/Moisture Trap	⅛" SS (2)	**N9306109**
Combination: Moisture/Hydrocarbons Trap	⅛" Brass (2)	**N9306117**
Combination: Moisture/Hydrocarbons Trap	⅛" SS (2)	**N9306118**
Triple: Oxygen/Moisture/Hydrocarbons Trap	⅛" Brass (2)	**N9306110**
Triple: Oxygen/Moisture/Hydrocarbons Trap	⅛" SS (2)	**N9306111**
Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	⅛" Brass (2)	**N9306112**
Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	⅛" SS (2)	**N9306113**

Stainless Steel Traps

Description	Part No.
Moisture Trap	**N9306100**
Oxygen Trap	**N9306101**
Hydrocarbons Trap	**N9306102**
Combination: Oxygen/Moisture Trap	**N9306103**
Combination: Moisture/Hydrocarbons Trap	**N9306105**
Triple: Oxygen/Moisture/Hydrocarbons Trap	**N9306104**
Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	**N9306106**

Helium Specific Glass Indicating Triple Trap for your PerkinElmer Clarus GC/MS

PerkinElmer recommends the use of the Helium Specific Glass Indicating Triple Trap for your GC/MS system. This trap contains oxygen, moisture and hydrocarbons adsorbents in one trap and is packed and purged under helium.

The glass indicating trap clearly shows when the filter needs to be replaced with the use of color changes. The packing material is a silica-based environmentally friendly substitute for cobalt dioxide (blue) in the moisture indicator.

Available as a kit with the necessary ⅛" brass connectors, and as a replacement trap, this system is easy to install.

Description	Connector (Qty)	Part No.
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons		**N9306107**
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	⅛" Brass (2)*	**N9306114**
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	⅛" SS (2)	**N9306116**

Advanced Filter System

The Advanced Filter System has high capacity and efficiency levels for oxygen, water and hydrocarbons. The recommended maximum flow rate is 2.0 L/min and 200 psi maximum operating pressure.

Features and Benefits

- Two indicators, for oxygen and moisture
- Easy cartridge replacement with on/off knob
- Double seal construction for safety
- Check valves protect gas lines during cartridge replacement

System	Capacity	Efficiency
Oxygen	850 cc	< 1 ppb
Water	12 g	< 10 ppb
Hydrocarbns	8 g	< 1 ppb

A polycarbonate shield surrounds the glass indicator section of the filter is sealed, unlike other gas filters, the gas flow is secure even if the glass should break. This redundant sealing system and robust construction provides a new level of security in gas filtration. Maximum flow rate is 2.0 L/min with 200 psi max operating pressure.

Description	Part No.
Advanced Filter System	**N9303963**
Replacement Cartridge	**N9303964**
Manifold and Mounting Hardware	**N9306139**

3-Cartridge Gas Purification System

This system provides for high capacity contaminant removal for GC supply gasses, and allows for individual cartridge replacement. Cartridge replacement is recommended after processing 19 cylinders of 8 m^3 high purity gas (99.997%).

Features and Benefits

- All stainless steel cartridges are easy to replace
- High capacity
- Wall bracket gets the system up and out of the way

System	Capacity	Efficiency
Oxygen	1,000 cc	< 1 ppb
Water	25 g	< 30 ppb
Hydrocarbons (C5 and higher)	19 g	< 1 ppb

Description	Part No.
Purification System, 3 Head All Steel System	**N9306135**
Cartridge Set, Gas Purification All System Cart (Replacement)	**N9306136**
Cartridge, Gas Purification Moisture	**N9306137**
Cartridge, Gas Purification Hydrocarbon	**N9306138**
Cartridge, High Capacity O2 Replacement	**N9306004**
Hardware, Gas Purification Manifold/Mtg	**N9306140**
Hardware, Gas Purification Manifold/Mtg for bench or wall	**N9306140**

Essential GC lab supplies from PerkinElmer

NEW!

Portable Gas Leak Detector

The new PerkinElmer compact handheld electronic gas leak detector is the ideal solution for detecting gas leaks in your Gas Chromatography systems. Leaks in your system waste gas and can cause detector noise, baseline instability, and shorter column life. This portable unit detects minute leaks of any gas with thermal conductivity different from air. The reference gas inlet draws in ambient air for comparison to air drawn into the sample probe. A leak is detected by both LED bar graph display and audible alarm.

Detectable Gases

Gas Type	Minimum Detectable Leak Rate (atm cc / sec)	Indicating LED Light Color
Helium	1.0×10^{-5}	Red
Hydrogen**	1.0×10^{-5}	Red
Nitrogen	1.4×10^{-3}	Yellow
Argon	1.0×10^{-4}	Yellow
Carbon Dioxide	1.0×10^{-4}	Yellow

Battery: Rechargeable Ni-MH internal battery pack (6 hours normal operation)
Universal Power Adapter Set: US, UK, European, Australian plugs included
Operating Temperature Range: 32-120 °F (0-48 °C)
Humidity Range: 0 – 97%
Warranty: 1 Year
Certifications: CE, Japan
Compliance: WEEE, ROHS

Features and Benefits

- Sleek ergonomic, hand-held design with rugged side grips
- Automatic shut-off capabilities
- Optimized sample flow path
- LED readout and audible alarm

Description	Part No.
Portable Electronic Leak Detector	**N9306089**
Soft Carrying Case	**N9306142**
Probe (fine tip)	**N9306063**

***Caution: The PerkinElmer leak detector is not designed for determining leaks in a combustible environment. This unit may be used for determining trace amounts of hydrogen in a GC environment only.*

MiniTemp MT4 Non-contact Temperature Measurement with Laser Sighting

Features and Benefits

- Displays thermal measurement readings in °C or °F
- Easy point and shot infrared technology in a pocket size configuration
- Great for instrument thermal test confirmation, including GC injector port and detector measurements, thermostatted LC vials, and enzymatic hydrolysis baths

NEW!

Non-contact Surface Temperature Measurement with Laser Sighting

Specifications

Model	MiniTemp MT4
Temperature Range	-18 to 400 °C (0 to 750 °F)
Distance to Spot Size (D:S)	8:1
Response time	500 m/sec
Emissivity	Pre-set at 0.95
Accuracy	±2%, or ±2°C (±3 °F) whichever is greater
Typical Distance to Target (Spot)	Up to 1.5 m (4 ft)
Laser Sighting	Yes

The popular MiniTemp MT4 also includes single dot laser sighting to assist with aiming. 9 volt battery included. Recalibration is not available.

Description	Part No.
MiniTemp MT4	**N9306074**

Basic Tool Kit

Description	Part No.
Tools come in a tool box for easy storage and use	**N9301327**

Kit Includes:

Open-end Wrench Set (6 pc), Screwdriver Set (6 pc.), Adjustable Wrench (6 in), Chain Nose Pliers (narrow), Wire Cutters, and Wire Strippers

Deluxe Tool Kit

Description	Part No.
Shipped in a plastic tool box for convenient storage	**N9301328**

Kit Includes:

Open-end Wrench Set (6 pc.), Screwdriver Set (6 pc.), Adjustable Wrench (6 in), Chain Nose Pliers (narrow), Wire Cutters, Wire Strippers, Slip-joint Pliers (6 in), Long Nose No. 5 Stainless Steel Tweezers (4⅜ inches), Needle File Set (6 pc.), Allen Key Set (11 pc. imperial sizes), and Allen Key Set (9 pc. metric sizes)

Merlin MicroSeal™ and SilTite™ ferrules

SilTite™ metal ferrules provide a continuous leak-free connection and are perfect for connecting your column to a GC/MS.

The SilTite™ metal ferrule and nut are manufactured from the same material and therefore expand and contract at the same rate, eliminating the need to retighten, even after temperature cycling. The base of the SilTite™ ferrule forms a perfect seal with the MS interface, ensuring a leak-free connection. SilTite™ metal ferrules have a temperature limit well above the temperature capacity of the injector, MS interface or GC oven.

Description	Hole Size	Part No.
SilTite™ Ferrules Starter Kit (pkg. 10)	0.4 mm	**N9306090**
SilTite™ Ferrules Starter Kit (pkg. 10)	0.5 mm	**N9306091**
SilTite™ Ferrules Starter Kit (pkg. 10)	0.8 mm	**N9306092**
SilTite™ Ferrules (pkg. 10)	0.4 mm	**N9306093**
SilTite™ Ferrules (pkg. 10)	0.5 mm	**N9306094**
SilTite™ Ferrules (pkg. 10)	0.8 mm	**N9306095**
SilTite™ Nuts (pkg. 5)		**N9306096**

Capillary Column Ferrules

Graphite

Ferrule of choice for high-temperature applications up to 450 °C. Graphite seals easily and does not stick to glass columns.

Graphite/Vespel®

15% graphite/85% polyimide ferrule recommended for use with GC/MS systems. Temperature limit 350 °C.

Vespel®

Not reusable. Not recommended for fused silica capillary columns. Use these ferrules on ⅛ inch metal tubing and glass-lined receivers. Temperature limit 350 °C.

Capillary Column Ferrules

Nut Size	Column i.d. / Ferrule i.d.	Graphite Part No.	Graphite/Vespel® Part No.
1/16 in	0.18 – 0.25 mm / 0.4 mm		**09920104**
1/16 in	0.18 – 0.32 mm / 0.5 mm	**09903700**	**09920105**
1/16 in	0.18 – 0.32 mm / 0.5 mm*	**N9306001**	**N9306000**
1/16 in	0.18 – 0.53 mm / 0.8 mm	**09920141**	**09920107**
1/8 in	0.18 – 0.53 mm / 1.0 mm	**09903394**	
1/8 in	0.18 – 0.32 mm / 0.5 mm*	**09903395**	
1/8 in	0.18 – 0.32 mm / 0.5 mm	**09903981**	

**2-hole*

Merlin MicroSeal™ Septum

The Merlin MicroSeal™ septa is a unique replacement septa employing a two-step sealing system and an advanced elastomer material.

Because the syringe needle does not pierce the septa, there is no debris and ghost peaks are greatly reduced. The MicroSeal™ septa also reduces the incidence of bent syringe needles and liner contamination. Usable in either manual or autosampler applications, this septa can improve your productivity and run reliability. Designed to be used with 23 gauge straight needle syringes. Pressure ranges from 4 to 100 psi and injection port temperatures up to 325 °C.

Features and Benefits

- Thousands of injections before septa change
- 2-step sealing system
- No debris — no ghost peaks
- Temperatures up to 325 °C
- Pressure ranges 4 to 100 psi
- Easy installation

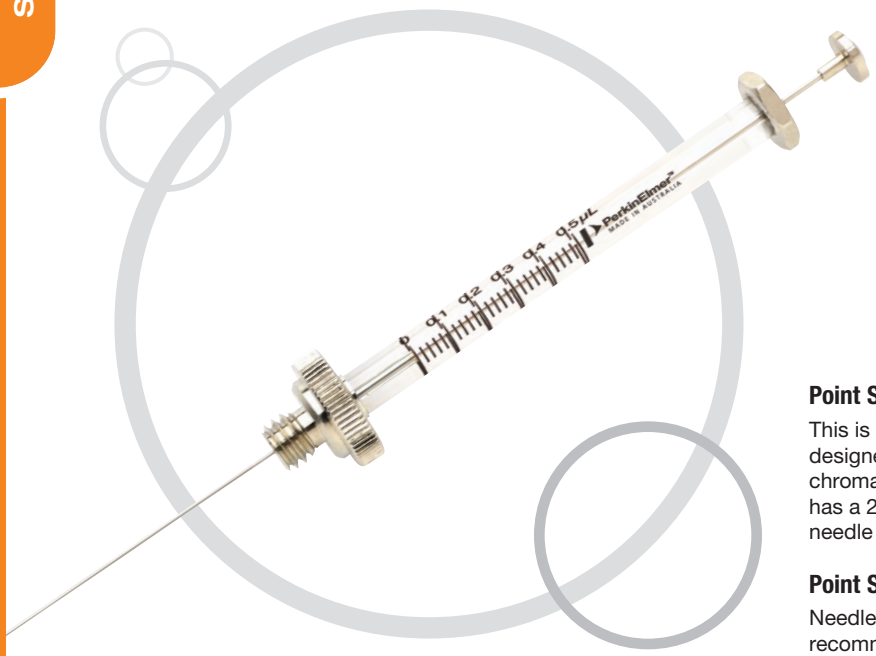
Description	Pkg.	Part No.
Merlin MicroSeal™ Septum Kit Includes: Injector Port Adapter, 2 Septa and 1 Nut		**N9303344**
Merlin MicroSeal™ Septum	1	**N9303345**

Injector Septa

- Thermogreen® LB-2 septum, extremely low bleed over a wide range of inlet temperatures — 100 to 350 °C. Easier needle penetration and high puncture tolerance make this septum ideal for autosamplers. This septum is already conditioned and ready to use
- BTO™ (Bleed Temperature Optimized) injector septa, 11 mm diameter. Maximum recommended operating temperature 300 °C
- PTFE/Silicone injector septa, 11 mm diameter

Description	Pkg.	Part No.
Thermogreen® Injector Septa	50	**N6621028**
Low Bleed Injector Septa	25	**N9303343**
PTFE/Silicone Injector Septa	50	**00090652**

GC injector and autosampler syringes



Autosampler Syringes

Syringes from PerkinElmer are individually inspected for accuracy and performance.

Recommended autosampler syringes are available in 0.5, 5 and 50 µL capacities. For routine analyses, the metal plunger in barrel with PTFE-tipped seal is the standard syringe as shipped with each Clarus® GC instrument. Alternative syringes to use are the metal plunger in barrel or the 0.53 mm on-column injection.

Description	Part No.
50 µL Syringe, Metal Plunger 0.63 mm o.d. needle	**N6101760**
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm o.d. needle	**N6101390**
5 µL Syringe, Metal Plunger 0.63 mm o.d needle	**N6101251**
5 µL On-column Syringe Metal Plunger 0.47 mm o.d needle	**N6101380**
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.63 mm o.d. needle	**N6101252**
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.47 mm o.d. needle	**N6101253**

Ultramicro Volume Syringes

- Recommended for liquid sample injections of less than 5 µL for gas chromatography
- Syringes come standard with needle length of 7 cm — optimum for PerkinElmer injectors

Syringe Capacity	Gauge	Length	Pack Size	Point Style	Part No.
0.5 µL	25		1		**N9302231**
1.0 µL	22		1		**00230177**
1.0 µL	26†		1		**00230111**
2.0 µL	25		1		**N9302235**

† Recommended for PerkinElmer wide-bore capillary adapter

Point Style 2

This is a general purpose point style designed for septum penetration in all chromatographic techniques. The needle has a 22° bevel to minimize coring and needle plugging.

Point Style 3

Needle has a 90° bevel. Point style is recommended when the syringe is used for accurate pipetting of liquids. Excellent for mixing standards of very small volume.

GC Injector Syringes

- All PerkinElmer injectors have been tested and optimized for use with a 7 cm needle
- A 7 cm needle is critical to be sure your sample is deposited in the optimal zone

Removable Needle Syringes (RN)

Syringe Capacity	Gauge	Length	Pack Size	Point Style	Part No.
10 µL			1	#2	**N9302210**
25 µL			1	#2	**N9302211**
50 µL			1	#2	**N9302212**
100 µL			1	#2	**N9302213**

Replacement Needles for RN Syringes

Syringe Capacity	Gauge	Length	Pack Size	Point Style	Part No.
10 µL	26S	2 in	3	#2	**N9302222**
25/50/100 µL	22S	2 in	3	#2	**N9302224**
250 µL	22S	2 in	3	#2	**N9302226**

Fixed Needle Syringes

Syringe Capacity	Gauge	Length	Pack Size	Point Style	Part No.
10 µL**			1	#2	**00230523**
10 µL*			6	#2	**N9302230**
25 µL			1	#2	**N9302202**
25 µL			1	#3	**09904823**
50 µL			1	#2	**N9302203**
50 µL			1	#3	**09904941**

**Savings based on one-piece price. Savings of 20% reflected in price shown.*
***Standard fitted with 7 cm needle.*

Glass Inlet Liners
for PerkinElmer Injector Systems

Programmed Temperature Split/Splitless (PSS) Injector Liners

Description	Dimensions (mm) i.d. x o.d. x length	Pkg.	Part No.
Quartz Split Liner PerkinElmer Standard (ships in instrument)	2 x 4 x 86.2	1	**N6121004**
Quartz Splitless Liner Excellent for low-volume analysis (ships with instrument)	1 x 4 x 86.2	1	**N6121006**
On-Column Glass Liner	2.4 x 4 x 86.2	1	**N6101539**
Borosilicate Glass Split Liner This liner is loosely packed with wool for the specific use of analyzing fuel in oil	2 x 4 x 86.2	5	**N9302949**
Glass PSS Drilled Uniliner (hole at the top) **NEW!** Glass liner with siloxane deactivation	2 x 4 x 86.2	5	**N9303424**
Glass PSS Drilled Uniliner (hole on the bottom) **NEW!** Glass liner with siloxane deactivation	2 x 4 x 86.2	5	**N9303425**

Capillary Split/Splitless Injector Liners

Description	Dimensions (mm) i.d. x o.d. x length	Pkg.	Part No.
Quartz Liner for Split Operation Good for large volume injections	4 x 6.2 x 92.1	1	**N6121001**
Quartz Liner for Splitless Operation Standard Injector Liner (ships with instrument)	2 x 6.2 x 92.1	1	**N6121002**
Glass Liner for Split Operation Universal liner for general purpose analysis	4 x 6.2 x 92.1	1	**N6101052**
Glass Liner for Splitless Operation Universal liner for general purpose analysis	2 x 6.2 x 92.1	1	**N6101372**
Precision Split Glass Liner Deactivated Surface with wool Wool can be adsorptive if fibers are broken	4 x 6.2 x 92.1	5	**N6121020**
Zero Dilution Glass Outer Liner Ideal for trace headspace work	2.7 x 6.3 x 69	1	**N1011445**
Zero Dilution Inner Liner Use with Outer Liner (N1011445)	1 x 2 x 73	1	**N1011446**

Packed Column Injector Liners

Description	Dimensions (mm) i.d. x o.d. x length	Pkg.	Part No.
Wide-Bore Column On/Off Quartz Liner	6 x 4 x 92.1	1	**N6121003**
Wide-Bore Column Glass Liner	6 x 4 x 92.1	1	**N6101375**
Drilled Uniliner (hole on bottom) **NEW!** Good for PPC equipped GCs. Recommended for analysis in which compounds of interest could be affected by a tailing solvent peak.	4 x 6.2 x 92.1	5	**N6502013**
Gooseneck Drilled Uniliner (hole on top) **NEW!** Use for trace, active samples. Gives high recovery and linearity.	4 x 6.2 x 92.1	5	**N6502014**

Low prices on autosampler vials and caps

Always have enough vials and caps readily available for your analysis

NEW!

Autosampler Vial Convenience Kits

The screw top convenience pack provides 100 vials and 100 pre-assembled caps and septa together in an environmentally clean, resealable clamshell pack. Clear crimp top vials and silver crimp caps with PTFE/rubber septa are also packed in a 100 piece clamshell pack.

Description	Pkg.	Part No.	1 Pack	10 Packs
Clear Crimp Top Vials and Silver Caps with PTFE/Rubber Septa	100	**N9300654**		
Clear Screw Top Vials and Black Caps with PTFE/Butyl Rubber Septa	100	**N9301945**		

Prices shown are per pack price.

Autosampler Starter Kit

The PerkinElmer Autosampler Starter Kit contains everything you need to run the Clarus® GC autosampler under one convenient part number.

Part No.
N6120105

Contents:

5 µL x 0.63 mm o.d. syringe, 2 mL clear sample vials (100), 2 mL amber sample vials (100), blue crimp caps with septa (100), green crimp caps with septa (100), red crimp caps with septa (100), septa for waste/wash vials (100), crimper 11 mm, decapper 11 mm, 2 mL vial rack.

GC Educational Consumable Kit - Electronic Crimper

Part No.
N6500570

Contents:

Crimper 11 mm Electronic with Universal battery pack (1), **N6101390** syringe-9000 5.0 µL .63 NDL DYNA (2), 12 mm 50 holder vial rack (2), 11 mm (2 mL) crimp top vials (100), 11 mm cap and septa (100), **N9316076** col-Elite-5-30M-2.5UM-.25MM column (1).

GC Educational Consumable Kit - Manual Crimper

Part No.
N6500571

Contents:

Crimper 11 mm manual hand crimper (1), **N6101390** syringe-9000 5.0 µL .63 NDL DYNA (2), 12 mm 50 holder vial rack (2), 11 mm (2 mL) crimp top vials (100), 11 mm cap and septa (100), **N9316076** col-Elite-5-30M-2.5UM-.25MM column (1).

Autosampler crimp and screw top vials, guaranteed for fit and compatibility.

Screw thread vials are custom designed for the PerkinElmer Clarus GC. Manufactured from Type 33 borosilicate glass, the vials have high-temperature tolerance and are chemically inert. Color variety crimp caps offer easy identification within the laboratory on 2 mL crimp top vials. Microsampling with a maximum capacity of 200 µL can be accomplished with the use of a low-volume insert and support foot.

Autosampler Vials and Caps

Description	Size	Pkg.	Part No.
Crimp Top Vials			
Clear Glass	11 mm	100	**N9301385**
Amber Glass	11 mm	100	**N9302680**
Crimp Caps			
Blue with Teflon®/Rubber	11 mm	100	**N9302686**
Green with Teflon®/Rubber	11 mm	100	**N9302684**
Red with Teflon®/Rubber	11 mm	100	**N9302685**
Silver with Teflon®/Rubber	11 mm	100	**N9306015**
Screw Top Vials			
Clear Glass	8 mm	100	**N9302945**
Screw Caps			
Screw Caps	9 mm	100	**N9303441**
Septa for Black Screw Caps PTFE-Coated Butyl Rubber		100	**N9303442**
Inserts			
Low Volume, Clear Glass	200 µL	1,000	**N9302681**
Vial Support for insert		500	**N9302682**

TotalChrom—a proven solution with leading-edge productivity

Streamlining your laboratory workflow, the entire process from setting up an analytical method to the final approval of reports is a streamlined series of operations in TotalChrom.

PerkinElmer's TotalChrom Chromatography Data System (CDS) is designed to provide laboratories with the total answer to chromatography data-handling needs.

Introduction

Acquiring, processing, reporting, reviewing and approving data is a streamlined series of operations in PerkinElmer's TotalChrom CDS, software designed to fit your laboratory workflow and maximize productivity. With its scalable architecture, 21 CFR Part 11 compliance features and proven algorithms, TotalChrom offers a computing strategy to manage your chromatography data quickly and securely in both regulated and non-regulated environments.

When configured with a PerkinElmer Clarus GC or a PerkinElmer Series 200 HPLC system, TotalChrom CDS is the controller and data manager for the overall system. TotalChrom CDS can also control selected instruments from other vendors and can acquire data from any chromatographic system through A/D interface.

The TotalChrom client/server (TC C/S) data system is the solution in multi-user environments. TC C/S systems can easily integrate all existing chromatographs into a single networked system supporting an unlimited number of users and an unlimited number of chromatographs.

User Interaction

TotalChrom features TC Publisher, a powerful application that extends report capabilities beyond the standard templates by providing a sophisticated laboratory report generator using standardized tools. Unique features let you graphically format the exact report as needed without extensive training or special commands. It ensures that the stages of chromatographic analysis, report generation and distribution are quick, easy and complete.

Report templates can perform calculations between different peaks in the same sample or even between samples, as well as automate statistical determination to replicate injections, with full control over the output format.

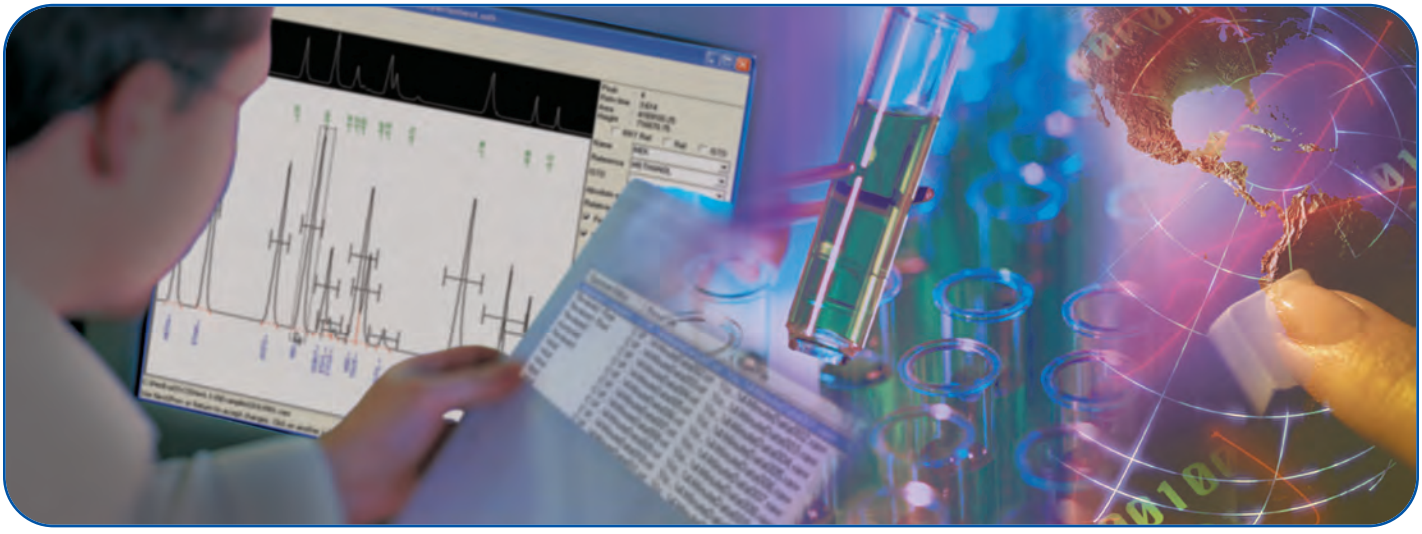
Unsurpassed 21 CFR Part 11 Compliance for Regulated labs

The TotalChrom system features Enhanced Security™, a proprietary protocol for supporting United States FDA 21 CFR Part 11 compliance. Audit trails and electronic signatures recorded during data acquisition, instrument control and data analysis processes ensure that data integrity is always maintained. System features fully document all methods, sequences, and reports, including instrument run logs, and provide a complete and unambiguous link from the initial experiment to the final results. Multiple TotalChrom "JobTypes" can be created to control who can perform what functions in the system.

Quickly and Easily Navigate, Review and Approve Your Data

In the "paper world," reports need to be reviewed and signed. The TotalChrom Review & Approve (R&A) feature is a graphical reviewing environment that allows intuitive navigation into data and reports and provides for the implementation of a data-approval cycle. With TC R&A, chromatograms, raw data results and reports can be easily viewed and compared at a glance.

Reviewing and approving reports can be done electronically, with multiple levels of authority and secure electronic signatures. High-throughput applications have dramatically increased the amount of information produced every day in a laboratory. This feature streamlines tedious data review by using a single environment to navigate into data, just like we, every day, navigate into e-mail.



Elite Series capillary columns use only the finest quality high-strength fused silica

Top 10 reasons to buy PerkinElmer Elite Series Capillary Columns

1. Finest quality of high-strength fused silica
2. Each column individually inspected and tested
3. Reproducible results
4. Crosslinked and bonded stationary phase
5. Robust column cage
6. Superior resolution
7. Wide selection of stationary phases available
8. Reduced baseline bleed
9. Lower baseline noise
10. Column lengths from 5 to 105 M

Why choose fused silica?

Many factors influence the quality of a column. Fused silica is considered to be the purest form of glass, with fewer metal oxides (Lewis acid sites) and hydrogen bonding (surface silanol) groups. The stationary phase is cross linked (polymerized) and also bonded to the surface of the column to provide a high degree of stability, resulting in lower bleeding of the stationary phase at elevated temperatures. The superior inertness of the column means that acidic and basic compounds can be analyzed on the same column.

Selecting the right Stationary Phase

The inherent efficiency (large number of theoretical plates) of capillary columns allows you to choose from relatively few types of phases, compared to the many varieties of packed columns previously required. Perhaps more importantly, because capillary columns are more efficient, you will see superior resolution resulting in narrower, taller peaks that allow easier integration from your data system. Identification of small peaks are facilitated by a reduced baseline bleed and lower baseline noise. Non-polar Elite-1 columns from PerkinElmer will preferentially retain non-polar compounds, whereas the PerkinElmer Elite-200 column phase provides high selectivity for analytes containing lone pair electrons, such as nitro and carbonyl groups. Elite-WAX polyethylene glycol columns are highly selective toward polar compounds such as alcohols.

What length do I need?

Typically capillary columns are available in lengths from 15 to 105 meters. The longer the column the more resolving power, but this also increases the analysis time. Doubling a column length only increases resolution by approximately 40% but, under isothermal conditions, will double the analysis time. If using a temperature programmed analysis retention times are more dependent on the temperature than on the column length. PerkinElmer provides columns in the most popular lengths of 5, 10, 12, 15, 25, 30, 50, 60, 75, 100 and 105 meters depending upon the column i.d.

Phase Cross Reference Chart

Phase/Description	Equivalent Capillary Phase
Elite-1, Elite-1ht 100% Dimethyl	DB-1, DB-1ht, HP-1, HP-101, Ultra-1, SPB-1, CP-Sil 5CB, CI-Sil5CBMS. RSL-150, RSL-160, Rtx-1, BP-1, CB-1, OV-1, 007-1MS, SP-2100, SE-30
Elite-200 Trifluoropropylmethyl	DB-210, AT-210, VF-200MS, 007-210, Rtx-200
Elite-5, Elite 5ms, Elite -5ht 5% Diphenyl – 95% Dimethyl	DB-5, DB-5ms, DB-5ht, Ultra-2, SPB-5, CP-Sil8CB, RSL-200. Rtx-5, BP-5, CB-5, OV-5, 007-2(MPS-5), SE-52, SE-54, XTI-5. Rtx-5ms, PTE-5, HP-5ms
Elite-5Amine 5% Diphenyl – 95% Dimethyl Polysiloxane	PTA-5
Elite-35, Elite-35ms 35% Phenyl – 65% Methyl	DB-35, DB-35ms, Rtx-35, SPB-35, AT-35, Sup-Herb
Elite-17, Elite-17ms, Elite-17ht 50% Phenyl – 50% Methyl	DB-17, DB-17ht, HP-17, RSL-300, Rtx-50, 007-17(MPS-50), SP-2250, HP-50+
Elite-1301 6% Cyanopropylphenyl	DB-1301, Rtx-1301, CP-624
Elite-1701 14% Cyanopropylphenyl – 86% Dimethyl	DB-1701, SPB-7, CP-Sil 19CB, Rtx-1701,BP-10, CB-1701, OV-1701, 007-1701
Elite-225 50% Cyanopropylphenyl – 50% Phenyl methyl	DB-225, HP-225, SP-2330, CP-Sil 43CB, RSL-500, Rtx-225, BP-225, CB-225, OV-225, 007-225
Elite-WAX Polyethylene Glycol	DB-FFAP, HP-20M, SUPELCOWAX 10, CP-WAX 52CB, SUPEROX II, CB-WAX, STABILWAX, BP-20, Elite-CW 007-CW, Carbowax, HP-Innowax
Elite-FFAP Polyethylene Glycol – Acid Modified	DB-WAX, HP-FFAP, Nukol, SUPEROX FA, STABILWAX-DA, 007-FFAP, OV-351, DB-FFAP
Elite-608 Specialty phase for semi-volatile pesticides (EPA 608)	SPB-608, NON_PAKD Pesticide, DB-608, 007-608, HP-608
Elite-624, Elite-Volatiles Specialty phase for volatiles	DB-624, DB_VRX, VOCOL, NONPAKD AT-624, Rtx-Volatiles, Rtx-502.2, 007-624, HP-624, CP-624, Rtx-624
Elite-CLPesticides Specialty Phase for Chlorinated Pesticides	Rtx-CLPesticides
Elite-VMS Specialty Phase for Volatile Organics on GC/MS	Rtx-VMS
Elite-PONA Dimethyl polysiloxane processed for detailed analysis of petroleum naphtha	DB-Petro100, Petrocol DH, HP-PONA, SPB-1, 007-1, RTx-1PONA

Elite-200, Elite-5Amine and Elite-CLPesticides

Elite-5Amine 5% Diphenyl and 95% Dimethyl Polysiloxane

The tubing surface of the Elite-5Amine is chemically altered to reduce tailing of basic compounds. Thorough testing on each column ensures that every column exceeds the requirements for analyzing ppm levels of amines, without priming. The temperature program/bleed profile is measured to ensure low bleed at maximum operating temperature. This column is ideal for analyzing a wide variety of basic compounds such as alkylamines, diamines, triamines, ethanoloamines nitrogen-containing heterocycles.

Primary Applications

Specifically designed for amines and other basic compounds.

Features and Benefits

- Thermally stable to 315 °C
- Reduced tailing
- Low bleed at maximum operating temperature
- Eliminates column priming

Description	Dimensions	Part No.
Elite-5Amine	15 M x 0.32 mm x 1.00 µm	**N9316676**
Elite-5Amine	15 M x 0.53 mm x 3.00 µm	**N9316681**
Elite-5Amine	30 M x 0.25 mm x 0.50 µm	**N9316673**
Elite-5Amine	30 M x 0.25 mm x 1.00 µm	**N9316675**
Elite-5Amine	30 M x 0.32 mm x 1.50 µm	**N9316679**

Elite-CLPesticides

Elite-CLPesticides is specially designed to overcome the coelutions and analyte breakdown typically encountered in chlorinated pesticide analyses for U.S. EPA methods 8081, 608 and CLP. Column bleed measured by ECD is extremely low at temperatures greater than 300 °C, which is critical for baking out the column to remove high-boiling compounds commonly found in pesticide/PCB extracts.

Primary Applications

Chlorinated pesticides and herbicides. U.S. EPA Methods 504, 608, 619, 8081, 8151 and CLP.

Features and Benefits

- Thermally stable to 340 °C
- Low column bleed — ideal for ECD or GC/MS analysis
- Exceeds performance criteria for U.S. EPA Methods 8081, 608, CLP
- Baseline separation in less than 15 minutes

Description	Dimensions	Part No.
Elite-CLPesticides	15 M x 0.25 mm x 0.25 µm	**N9316661**
Elite-CLPesticides	15 M x 0.53 mm x 0.50 µm	**N9316665**
Elite-CLPesticides	15 M x 0.25 mm x 0.20 µm	**N9316667**
Elite-CLPesticides	30 M x 0.32 mm x 0.50 µm	**N9316664**
Elite-CLPesticides	30 M x 0.32 mm x 0.25 µm	**N9316670**
Elite-CLPesticides	30 M x 0.53 mm x 0.42 µm	**N9316672**

Elite-200 Trifluoropropylmethyl Polysiloxane Capillary Column

Elite-200 is considered to be one of the best capillary columns in the market today, solving many difficult separation problems not possible on any other bonded stationary phase. Due to the electrophilic nature of the fluorine-containing polymer, Elite-200 trifluoropropyl stationary phase has a unique selectivity creating interactions with compounds that contain groups displaying lone-pair electrons, or with electron-rich molecules.

Primary Applications

Ideal for solvents, Freon®, fluorocarbons, alcohols, ketones, silanes and glycols, environmental analytes and CFCs.

Features and Benefits

- Low bleed
- Superior inertness
- Equivalent to USP G6 phase
- Thermally stable to 340 °C

Description	Dimensions	Part No.
Elite-200	15 M x 0.25 mm x 0.10 µm	**N9316616**
Elite-200	15 M x 0.32 mm x 1.50 µm	**N9316632**
Elite-200	30 M x 0.25 mm x 0.25 µm	**N9316619**
Elite-200	30 M x 0.53 mm x 1.00 µm	**N9316642**
Elite-200	60 M x 0.53 mm x 0.25 µm	**N9316637**
Elite-200	60 M x 0.53 mm x 1.00 µm	**N9316643**

For a full listing of Elite® capillary columns, please visit: www.perkinelmer.com/gcsupplies

Elite-Guard and Elite-Siltek® guard columns

Maintain the integrity of your capillary column with a fused silica guard column

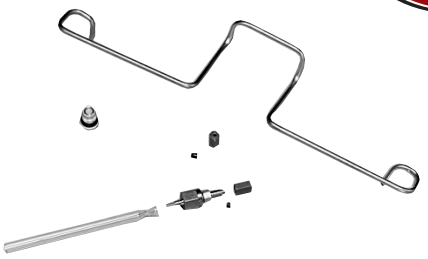
Using the Elite-Guard or Elite-Siltek® guard column lengthens the life of the capillary column and improves the analyte focusing. The 5 M length of deactivated uncoated fused silica is connected to the inlet end of the capillary column and traps nonvolatile residues, preventing them from collecting at the head of the analytical column. This length of fused silica does not contain stationary phase adding only a minimal amount of time to the analysis.

PerkinElmer offers both the intermediate-polarity deactivated guard column and the Siltek® deactivated guard column as it is important to match the polarity of the solvent and the polarity of the surface deactivation. Elite-Guard intermediate-polarity deactivated column has an operating temperature up to 325 °C. Siltek® deactivation creates a highly inert surface for very active compounds such as chlorinated pesticides with a maximum temperature range up to 380 °C.

Features and Benefits

- Increase the life of the capillary column
- Maintain retention time and resolution on capillary column
- Traps nonvolatile particles
- Increases column performance
- Elite-Guard temperature range to 325 °C
- Elite-Siltek® guard temperature range to 380 °C

Description	Dimensions	Part No.
Elite-Guard	5 M x 0.10 mm	**N9316601**
Elite-Guard	5 M x 0.18 mm	**N9316602**
Elite-Guard	5 M x 0.25 mm	**N9301356**
Elite-Guard	5 M x 0.32 mm	**N9301357**
Elite-Guard	5 M x 0.45 mm	**N9316605**
Elite-Guard	5 M x 0.53 mm	**N9301358**
Elite-Siltek® Guard	5 M x 0.25 mm	**N9316607**
Elite-Siltek® Guard	5 M x 0.32 mm	**N9316608**
Elite-Siltek® Guard	5 M x 0.53 mm	**N9316609**



Wide-Bore Adapter Kit

Contains all the parts necessary to adapt packed column injectors quickly and easily for use with wide-bore capillary columns. Includes 0-20 mL/min flow controller element, wide-bore adapter with ⅛ inch fitting, wide-bore glass liner and column support hanger.

Description	Part No.
Wide-Bore Adapter Kit	**N6120001**

Universal Connectors

- Allows for fast, leak-free connections of fused-silica columns
- The new fused-silica tapered design allows connection of any size column and is easy to use. (Suitable for 0.1 to 0.53 mm columns)

Description	Part No.
Universal Connector (pkg. 5)	**N9302149**
Universal Y Splitter (pkg. 1)	**N9303448**
Polyimide Sealing Resin (5 g)	**N9301343**
Undeactivated Presstight Column Connectors (pkg. 5)	**N9303962**

Wafer Scribes

The PerkinElmer ceramic wafer scribe is inexpensive and ideal for cutting polyimide fused silica capillary columns and guard columns. The scribe is easy to hold and simple to use. All four sides can be used as a cutting tool. (pkg. 10)

Description	Part No.
Wafer Scribes (pkg. 10)	**N9301376**

Convenient Consumable Kits for a Variety of Applications

NEW!

NEW from PerkinElmer!
Complete Consumable Application Kits

All your consumable needs in one convenient kit, designed specifically to be used within the application requirements for OVI, Environmental, Blood Alcohol and Biodiesel Materials Testing application notes*.

Biodiesel Application Kit ASTM 6584

	Part No.
	N9300670

Contents:	Pkg.	Qty.	Part No.
Autosampler Syringe 5.0 µL (0.47 mm)	1	2	N6101380
Elite-5ht Column 15 M x 0.32 mm x .10 µm	1	1	N9316274
Elite Guard Column (ht) 5 M x 0.53 mm	1	1	N9316609
Mini Union Connector Kit – Includes Mini Union and Nuts, 0.32 mm Ferrules and 0.53 mm Ferrules	5	1	N9306128
11 mm Electronic Crimper	1	1	N9302592
Crimp Vials 2 mL	100	5	N9301385
Aluminum Crimp Caps 11 mm Rubber/PTFE	100	5	N9306015
GC Septa	50	1	N6621028
Injector Liner, Hour Glass	1	2	N6101703

Biodiesel Application Kit ASTM 6584 & D2887 SIMDIS2

	Part No.
	N9300672

Contents:	Pkg.	Qty.	Part No.
Autosampler Syringe 5.0 µL (0.47 mm)	1	2	N6101380
Elite-5ht Column 15 M x 0.32 mm x 0.10 µm	1	1	N9316274
Elite Guard Column (ht) 5 M x 0.53 mm	1	1	N9316609
Mini Union Connector Kit – Includes Mini Union and Nuts, 0.32 mm Ferrules and 0.53 mm Ferrules	5	1	N9306128
Elite-MXT2887 SIMDIS Column	1	1	N9316689
20 mm Electronic Crimper	1	1	N9302594
Crimp Vials 2 mL	100	5	N9301385
Aluminum Crimp Caps 11 mm Rubber/PTFE	100	5	N9306015
GC Septa	50	1	N6621028
Injector Liner, Hour Glass	1	2	N6101703
Graphite Ferrules	10	1	09903394

Blood Alcohol Application Kit

	Part No.
Promo Code: GC020802 (see details right)	N9300656

Contents:	Pkg.	Qty.	Part No.
20 mm Headspace Crimp Vials	1,000	1	B0104236
19 mm PTFE/Butyl Caps, Springs & Septa	1,000	1	N1010070
20 mm Electronic Crimper		1	N9302594
Application Notes **NEW!**		1	09936886
Elite-BAC-1 / 30 m x 0.32 mm x 1.8 µm		1	N9316579
Elite-BAC-2 / 30 m x 0.32 mm x 1.2 µm		1	N9316577
1/16" to 0.5 mm 2-hole Graphite Ferrule	5	1	N9306001

** For full downloadable pdf format application notes, please visit: **http://las.perkinelmer.com/applications***

Environmental Application Kit for U.S. EPA Method 8260B

	Part No.
Promo Code: GC020804 (see details below)	N9300658

Contents:	Pkg.	Qty.	Part No.
20 mm Headspace Crimp Vials	1,000	1	B0104236
19 mm PTFE-Coated/Silicone Caps, Springs & Septa	1,000	1	B4000022
20 mm Electronic Crimper, 110 V		1	N9302571
20 mm Electronic Crimper		1	N9302594
Application Notes **NEW!**		1	09936885
Polyimide Deactivated Uncoated Tubing / 5 m x 0.32 mm		1	N9301357
Elite-Volatiles / 30 m x 0.25 mm x 1.4 µm		1	N9316388
Universal Connector	5	1	N9302149

OVI (Organic Volatile Impurities) Application Kit for Pharmaceuticals

	Part No.
Promo Code: GC020801 (see details below)	N9300655

Contents:	Pkg.	Qty.	Part No.
Elite-130 / 130 m x 0.53 mm x 3.0 µm		1	N9316687
Zero Dilution Glass Outer Liner		1	N1011445
Zero Dilution Glass Inner Liner		1	N1011446
Polyimide Uncoated Deactivated Tubing / 5 m x 0.18 mm		1	N9301354
20 mm Headspace Crimp Vials	1,000	1	B0104236
Assembled Headspace Caps and Septa	1,000	1	B4000022
20 mm Electronic Crimper		1	N9302594
Application Notes **NEW!**		1	09936887

Materials Testing or Food and Beverage GC/Headspace Consumables Kit

	Part No.
Promo Code: GC020803 (see details below)	N9300657

Contents:	Pkg.	Qty.	Part No.
20 mm Headspace Crimp Vials	1,000	1	B0104236
Assembled Headspace Caps and Septa	1,000	1	N1010070
20 mm Electronic Crimper		1	N9302594
Application Notes **NEW!**		1	09936888

Meeting the **Updated** Requirements for the **Residual Solvents** in **Pharmaceutical Materials**

NEW!

Introduction

The United States Pharmacopeia (USP) has implemented a revised method for the determination of residual solvents, chapter 467; this revision has brought the methodology of USP 467 into close alignment with European Pharmacopeia (EP) method 2.4.24. The USP and EP determination of class 1 and class 2 residual solvents is performed with static headspace (HS) sample introduction and gas chromatography (GC) with flame ionization detection (FID); class 3 has flexibility in the technique, however, it is often included in the HS analysis.

The purpose of this paper is to work under the guidance of the USP and EP to achieve the best method possible for the analysis of residual solvents, while adhering to USP 467 and EP 2.4.24 criteria. Discussed will be the analysis of class 1 residual solvents.

Experimental

The instrumental platform used in these analyses, was the PerkinElmer® TurboMatrix™ HS-40 headspace system and the PerkinElmer Clarus® 600 Gas Chromatograph with FID. The following instrument parameters used in this study achieved results which exceeded the USP detection-limits method criteria for the analysis of class 1 and class 2 solvents.

The sample vial was equilibrated at 80 ºC for 20 minutes; the needle temperature and transfer line temperature were maintained at 110 ºC and 140 ºC, respectively. The injection system utilized was the pressure-balanced sampling technique. The system first pressurizes the headspace vial for 1 minute at 18 psi. Following pressurization, the vial pressure is allowed to decay onto the column performing a timed sample injection. The time used was 0.1 minutes which allowed for a 1-mL volume of headspace to be injected.

The pressure-balanced sampling technique allows for optimu m analytical results, including enhanced precision, recoveries, detection limits and inertness.

Within USP method 467, there are two sets of column/oven conditions, A and B. The data presented here were acquired utilizing the GC conditions described in procedure A.

Results

The measure of system suitability for class 1 residual solvents is determined by the signal-to-noise value for each component. When analyzing class 1 solvents by procedure A, the criteria of signal to noise for benzene must be greater than 5:1 and the signal to noise of the other components must be greater than 3:1.

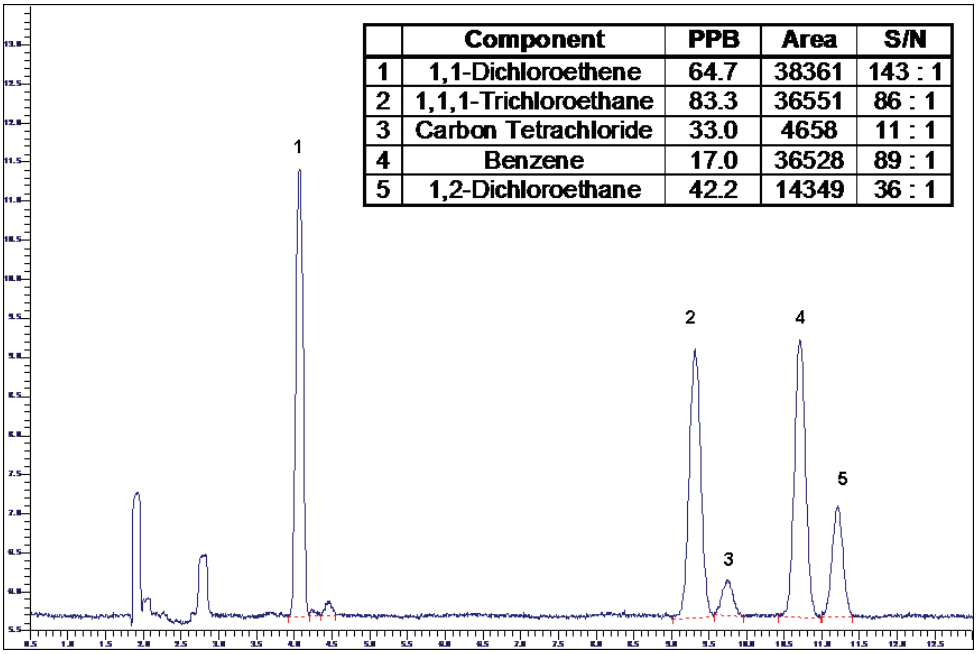
The experimentally determined signal-to-noise values are presented in figure 1; the signal to noise achieved ranged from 11:1 for carbon tetrachloride, a poorly-responding component when FID detection is used, to 143:1 for 1,1-Dichloroethene, with benzene responding at 89:1.

Conclusion

Demonstrated here are method and data which operate under the guidance of and fulfill the performance criteria of both USP 467 and EP 2.4.24 for the determination of residual solvents in pharmaceutical materials. Recent revisions of these methods have aligned the analytical techniques to allow for a single method to meet the criteria of both organizations. Within the scope of USP chapter 621 and EP chapter 2.2.28, the injection volume was reduced to improve peak shape and method performance; necessary sensitivity was maintained with the modified method.

Method 467

Chromatogram



	Component	PPB	Area	S/N
1	1,1-Dichloroethene	64.7	38361	143 : 1
2	1,1,1-Trichloroethane	83.3	36551	86 : 1
3	Carbon Tetrachloride	33.0	4658	11 : 1
4	Benzene	17.0	36528	89 : 1
5	1,2-Dichloroethane	42.2	14349	36 : 1

Figure 1: Chromatogram demonstrating the performance of the class 1 system-suitability solution.

HEADSPACE CONDITIONS

Headspace Unit: TurboMatrix HS
Needle Temperature: 110 °C
Transfer Line Temperature: 130 °C
Oven Temperature: 80 °C
Thermostat Time: 20 min
Vial Pressurization Time: 1 min
Injection Time: 0.1 min
Column Pressure: 18 psig
Vial Pressure: 18 psig

GC CONDITIONS

Headspace: TurboMatrix HS
Needle Temperature: 110 °C
Transfer Line Temperature: 130 °C
Oven Temperature: 80 °C
Thermostat Time: 20 min
Vial Pressurization Time: 1 min
Injection Time: 0.1 min
Column Pressure: 18 psig
Vial Pressure: 18 psig
Gas Chromatograph: Clarus GC
Analytical Column: Elite - 1301 (30 m x 0.53 mm x 3.0 µm)
Injector temperature (or program): 140 °C
Oven Temp 1: 40 °C
Hold: 20 min
Rate: 10 °C/min
Oven Temp 2: 240 °C
Hold: 20 min
Rate: End
Detector Type: FID
Detector Temperature: 250 °C

GC/HS Pharmaceutical OVI Application Consumables Kit

	Part No.
	N9300655

Contents:	Part No.
Elite-1301: 30 M x 0.53 mm x 3.0 µm	**N9316687**
Zero Dilution Glass Outer Liner (Cap Injector)	**N1011445**
Zero Dilution Glass Inner Liner (Cap Injector)	**N1011446**
Polyimide-Uncoated Deactivated Tubing (5m x 0.18mm)	**N9301354**
Crimp Top Headspace Vials (pkg 1000)	**B0104236**
Assembled Headspace Caps and Septa PTFE	**B4000022**
20 mm Electronic Crimper	**N9302594**
Application notes (New)	**09936887**

For TurboMatrix Headspace and Headspace Trap

TurboMatrix 40 Headspace Trap

Sample Head Assembly Replacement Parts

	Description	Part No.
1	Platinum/Iridium Needle, Wide-Bore	**B0144169**
	Platinum/Iridium Needle, Small-Bore	**B0500959**
	Platinum/Iridium Needle, Jet	**B0510364**
	Silcosteel Needle, for Headspace Trap Only	**N6700130**
	Stainless Steel Needle, Wide-Bore	**B0131385**
	Stainless Steel Needle, Small-Bore	**B0500987**
	Stainless Steel Needle, Jet (ships with instrument)	**B4000011**
2	Needle Seal Assembly (without O-Rings)	**B0500833**
3	O-Ring for Needle Seal Assembly (pkg. 10)	**B0198110**
4	Vespel Ferrule 1/16 in. (pkg. 10)	**09920127**
5	Male Nut 1/16 in.	**N9302832**
6	GLT Adapter Tube	**B0503956**
	GLT Adapter Tube, Silcosteel	**N6700113**
7	Graphite/Vespel Ferrule 1/16 in. x 0.4 mm For use with 0.25 mm i.d. Transfer Line, pkg. 10	**09920104**
	Graphite/Vespel Ferrule 1/16 in. x 0.5 mm For use with 0.32 mm i.d. Transfer Line, pkg. 10	**09903700**
8	Nut 1/16 in. Swagelok	**N9300059**
9	Fused-Silica Capillary Transfer Line:	
	0.25 mm i.d. x 5 m length	**N9301356**
	0.32 mm i.d. x 5 m length	**N9301357**

NEW!

Solid Glass Blocking Trap

Description	Part No.
Block for use in standard headspace mode.	**N6701170**

Sample Trays

For use on the Mid-Range or High-Capacity headspace sampler.

Description	Part No.
TurboMatrix 40 Mid-Range Sample Tray	**M0413592**
TurboMatrix 110 High-Capacity Sample Tray	**M0413593**

Transfer Lines

Description	Tubing i.d.	Length	Part No.
Siltek Deactivated Fused-Silica	0.25 mm	5 m	**N9316607**
Siltek Deactivated Fused-Silica	0.32 mm	5 m	**N9316608**

Miscellaneous Accessories

Description	Part No.
Gas Chromatography – Theory and Practice, Static Headspace Book by L. Ettre and B. Kolb	**N1011210**

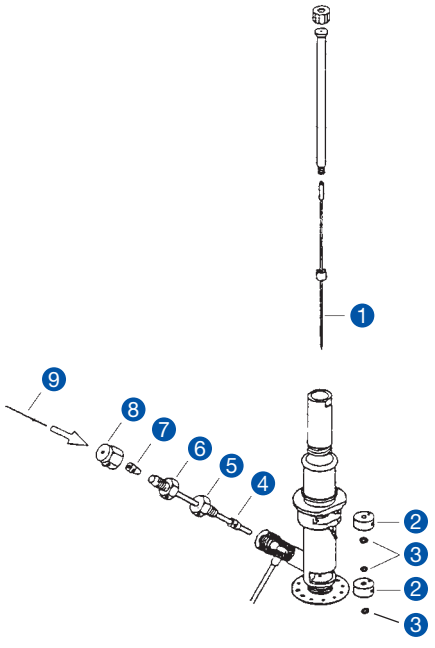
Cold Trap Options

Headspace Trap instruments only.

Description	Part No.
TurboMatrix HS Trap Cold Trap Tube (Carbopack C)	**N6200150**
TurboMatrix HS Trap Air Monitoring Trap*	**M0413628**

**Trap comes standard with the instrument.*

Headspace Sample Head Assembly Schematic



One-step solution – from field sample to lab results – NEW PerkinElmer Headspace screw top vials and caps

Headspace Screw Top Vials and Preassembled Caps

NEW from PerkinElmer, headspace screw top vials and preassembled caps allows for samples to be taken in the field and directly analyzed on the TurboMatrix Headspace Sampler* without having to transfer the sample into another vial. Screw thread vials are designed for a guaranteed fit.

PerkinElmer cap septa are lot tested and certified for impurities to the level of 1 ppb benzene. Test conditions use the PerkinElmer TurboMatrix Headspace FID for the analysis, assuring you of the highest quality to attain reproducible results.

The cap is conveniently preassembled for ease of use and packed in clean Mylar® bags to reduce the risk of contamination.

Features and Benefits

- Samples from field to lab — no transfer necessary
- No crimping or decrimping tools needed
- No variation in correct sealing
- Lot tested and certified septa
- Easy disposal after use

Using only the PerkinElmer lot-tested, certified, approved septa, gives the analyst the same excellent analytical results that the TurboMatrix Headspace Crimp Vials have always provided.

Description	Pkg.	Part No.
22 mL Headspace Screw Top Vials*	100	**N9306075**
22 mL Headspace Screw Top Vials*	1,000	**N9306078**
18 mm PTFE/Butyl Assembled Cap/Septa	100	**N9306076**
18 mm PTFE/Silicone Assembled Cap/Septa	100	**N9306077**

**Headspace vials are not compatible with TurboMatrix 40 and 110 manufactured before September 1, 2006.*

Headspace Mini Starter Kit

NEW!

Contains the same great consumables as the Headspace Starter Kit but with fewer headspace vials. (200 total) 100 each 22 mL Crimp and Screw top vials.

Part No.
N6710197

Headspace Starter Kit

The Headspace Starter Kit contains a variety of headspace consumables so you can evaluate different types of septa and vials for your sampling requirements.

	Part No.
	N6710195

Contents:	Pkg.	Qty.	Part No.
22 mL Headspace Crimp Vials	100	5	**N9306079**
19 mm PTFE/Butyl Septa/Cap/Springs	100	1	**B0104239**
19 mm PTFE/Silicone Septa/Cap/Springs	100	1	**B0104241**
19 mm Aluminum Silicone Septa/Cap/Springs	100	1	**B0104243**
O-rings	10	1	**B0198110**
Needle Seal Assemblies	1	2	**B0500833**
Pressure Gauge with Needle for Vials	1	1	**B0501377**
Book by B. Kolb and L. S. Etre; *Static Headspace Gas Chromatography Theory and Practice*	1	1	**N1011210**
20 mm Hand Crimper	1	1	**N9302785**
22 mL Headspace Screw Top Vials*	100	5	**N9306075**
18 mm PTFE/Butyl Assembled Cap and Septa*	100	1	**N9306076**
18 mm PTFE/Silicone Assembled Cap and Septa*	100	1	**N9306077**

Our exclusive design **ensures** a **safe operation** and **guaranteed fit** every time

PerkinElmer's patented vial and cap design incorporates pressure-relief features which guarantee safe operation with the high pressure typically developed during thermostatting. Ordinary vials and caps without these safety features may burst.

22 mL Headspace Vials

22 mL headspace vials give a maximum liquid sample volume of 15 mL. These vials have a greater wall thickness and round base which enables them to withstand pressure up to 60 psig. Low-volume sampling can be achieved by using a 6 mL crimp vial and vial adapter. The vial adapter is compatible with TurboMatrix HS 16, TurboMatrix HS 40 or Headspace 40 XL instruments; however, it is not compatible with the TurboMatrix HS 110 headspace sampler. All PerkinElmer headspace vials are manufactured to specific tolerances that are guaranteed to fit within PerkinElmer instruments. Other manufacturers' vials do not meet these exact manufacturing specifications and can damage the instrument. Damage to the instrument under these circumstances will void the PerkinElmer warranty agreement.

Hand and Benchtop Crimpers

Description	Part No.
8mm Hand Crimper	**N9306127**
11mm Hand Crimper	**00090699**
11mm Hand Decapper Tool	**N9301390**
20mm Hand Decapper	**N9301270**
Benchtop Vial Crimper	**N6621006**
11mm Crimper Jaws	**N6621008**

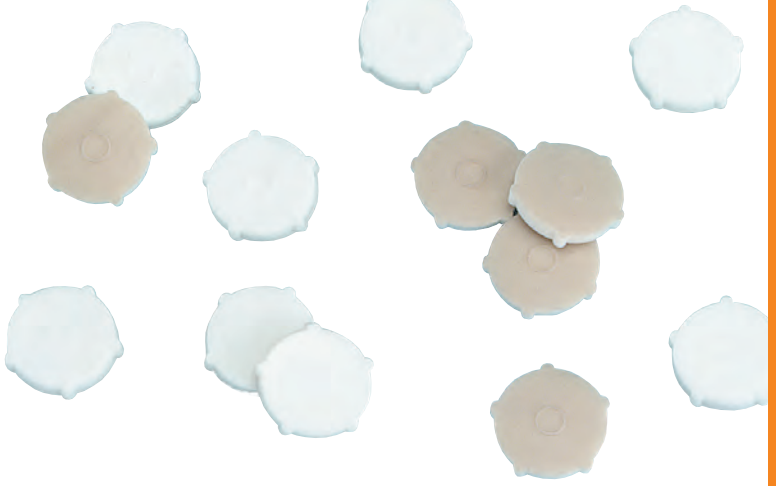
Electronic Crimpers

Features and Benefits

- Universal voltage
- Precision control crimping
- Ergonomically-designed grip
- Numerous reproducible crimps from a single charge
- Includes standard Black & Decker® VersaPak® Gold battery and charger
- Fully rechargeable

Description	Voltage	Part No.
20 mm Electronic Crimper with global mains plug pack	Universal	**N9302594**
20 mm Electronic Decapper with global mains plug pack	Universal	**N9302595**
11 mm Electronic Crimper with global mains plug pack	Universal	**N9302592**
11 mm Electronic Decapper with global mains plug pack	Universal	**N9302593**
Electronic Crimper Battery		**N9302585**
Rechargable Battery		**N9302596**

Septa



Choosing the Right Septa for your Analysis

Although a wide variety of septa is available, chemical compatibility and temperature are the most critical to the analysis. Temperature applies not only to the vial, but also to the temperature of the instrument's needle used for pressurization and sample transfer, which is heated to prevent condensation. A needle temperature higher than the vial temperature setting can decompose the septum material. PTFE-coated silicone and aluminum-coated silicone offer the highest temperature operating limits. (See Septa Recommended Temperature Chart)

Only genuine PerkinElmer headspace septa are batch tested for impurities to the level of 1 ppb benzene for silicone/PTFE, butyl/PTFE and aluminum/PTFE septa; the butyl septa is tested to 20 ppb of toluene. Test conditions use the PerkinElmer TurboMatrix headspace FID for the analysis, assuring you of the highest quality to attain reproducible results.

Features and Benefits

- PerkinElmer septa designed for the patented pressure release cap
- Provided in resealing Mylar® bags for cleanliness and storage
- Available pre-assembled into caps with starsprings
- Batch tested to the level of 1 ppb benzene
- Tested for VOCs

Septa Recommended Temperature Chart

Material	Upper Temperature Limit at Vial	Inertness
Butyl Rubber	100 °C	Poor
PTFE-Coated Butyl Rubber	100 °C	Good
Aluminum-Coated Silicone	120 °C	Good
PTFE-Coated Silicone	210 °C	Good

Headspace Vials, Caps and Septa

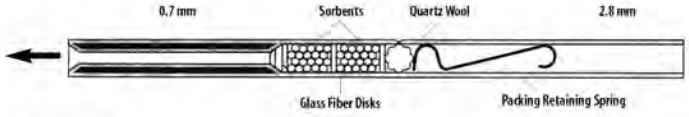
Description	Pkg.	Part No.
6 mL Headspace Clear Glass Vial** (use with N6120110)	125	**N9302134**
Low Volume Vial Adapter (use with N9302134)	10	**N6120110**
22 mL Headspace Clear Glass Vial	1,000	**B0104236**
Butyl Rubber	100	**B0159356**
Butyl Rubber	1,000	**B0159357**
Butyl Rubber preassembled	1,000	**N1010070**
PTFE-Coated Butyl Rubber	100	**B0104239**
PTFE-Coated Butyl Rubber	1,000	**B0104240**
PTFE-Coated Butyl Rubber preassembled	1,000	**B4000025**
Aluminum-Coated Silicone	100	**B0104243**
Aluminum-Coated Silicone	1,000	**B0104244**
Aluminum-Coated Silicone preassembled	1,000	**B4000028**
PTFE-Coated Silicone	100	**B0104241**
PTFE-Coated Silicone	1,000	**B0104242**
PTFE-Coated Silicone preassembled	1,000	**B4000022**
22 mL Headspace Crimp Top Vials	100	**N9306079**

Savings available on packs of 1,000. Bulk quantity discounts not available on packs of 125 or less. Offer may not be used in conjunction with other discounts or promotions.
***Not compatible with TurboMatrix Headspace 110.*

Packed traps specifically designed for PerkinElmer Thermal Desorbers

Air Monitoring Trap

Low flow trap packed with carbonaceous sorbents suitable for ozone precursor and air toxics monitoring.



Low Flow Cold Trap

Cold Traps

TurboMatrix Thermal Desorption Trap Supplies

Trap supplies from PerkinElmer, the market leader in thermal desorption, will provide exceptional analytical performance. Used for U.S. EPA Method TO17, the PerkinElmer standard trap, packed with Tenax™, on the TurboMatrix™ Thermal Desorber, will improve productivity and trapping capacity. The TurboMatrix air monitoring trap is packed with carbonaceous sorbents suitable for ozone precursor and air toxics monitoring.

Description	Qty.	Part No.
Cold Traps for TurboMatrix		
Air Monitoring Trap	1	**M0413628**
Empty Trap	1	**M0413627**
Tenax™ TA 60/80 Packed Trap	1	**M0413535**
Carbopack® C Packed Trap	1	**N6200150**
Cold Traps for ATD 400		
Air Monitoring Trap	1	**L4275108**
Trap Nuts (2 required)	1	**L4275009**
Trap Tube Low Flow, Empty (Narrow-bore at one end. Allows minimum gas flow during trap desorption)	1	**L4275107**
Tenax™ TA 60/80 Packed Trap	1	**L4275089**
Empty Trap	1	**L4271106**

Cold Traps Fittings and Accessories

Description	Qty.	Part No.
Graphite Ferrule	2	**L4271187**
SilTite™ Ferrule (GC/MS) 0.4 mm	10	**N9306093**
SilTite™ Ferrule (GC/MS) 0.5 mm	10	**N9306094**
SilTite™ Ferrule (GC/MS) 0.8 mm	10	**N9306095**
SilTite™ Nuts	5	**N9306096**
PTFE Ferrule	10	**L4275110**
Graphite/Vespel® Ferrule for ATD 400	5	**L1003027**
Valco® Graphite/Vespel® Ferrule for ATD 400	5	**L1003028**
Trap Filter Disk		**L1003030**
Trap Packing Disk	20	**L4271290**
Trap Packing Retaining Spring	5	**N6301054**
Quartz Wool (untreated)	5 g	**N6102354**
Cold Trap Packing Tool		**L4271203**
Cold Trap Removal Tool		**L4271205**
Regulator 0–60 psig		**N6101474**
Backflush Nozzle for ATD 400		**L4275072**
Internal Standard Injection Accessory for ATD 400		**L4270010**
Liquid Nitrogen Accessory for ATD 400		**L4270009**
Gauze Loading Rig		**L4070023**
Replacement Plastic Plunger for Gauze Loading Rig		**L4071151**

Cost-effective, round-the-clock air monitoring

The Model STS 25 sequential tube sampler is used for the continuous monitoring of atmospheric concentrations of volatile organic compounds.

The unit is housed in a compact weatherproof box and allows the monitoring of indoor and outdoor atmospheres. This convenient portable unit designed for pumped air sampling of up to 24 tubes, offers cost-effective, round-the-clock monitoring for the workplace and ambient air. It can be operated by a 12 V battery or can connect to 120 V/24 V mains electricity, making it extremely versatile for use in the laboratory or in the field. The sampler includes cables with jack plug connectors (for use with the monitoring pump) and a set of diffusion limiting caps. Maintenance kit and accessories are also available.

Features and Benefits

- Portability – small, lightweight and compact
- Variable sampling times – operator adjusted from minutes to hours
- Sample integrity – diffusion limiting caps block the sample from contaminants
- Sampling versatility – heaters are included to prevent condensation

Description	Part No.
Model STS 25 Sequential Tube Sampler	**L4280001**
Model STS 25 Maintenance Kit	**N6609060**
Includes; Rotor Tube Seals (pkg. 50), Filter Disks (pkg. 25), Diffusion Limiting Caps (pkg. 5) and Rotor Seal (pkg. 10)	
12 V Rechargeable Battery	**L4280002**
Air Monitoring Pump (120 V)	**L4271275**
Cable (for connecting STS 25 to a generic 12 V battery)	**L4285007**
Diffusion Limiting Caps (pkg. 5)	**L4285001**
Electrical Adapter	**L4280003**
Allows for direct connection to wall outlet 120 V/240 V. Also acts as a battery charger for 12 V battery.	
Rotor Filter Disk	**L4281023**
Viton O-Ring (pkg. 50)	**L4275033**

Personal Monitoring Pump

This compact and lightweight sampler combines convenience and useful functions for accurate sampling.

The personal monitoring pump offers two modes of sampling which are easily activated by turning the selector dial located at the back of the sampler. Two low-flow modes of sampling allow constant flows from 5 – 200 cc/min, as well as constant pressure for multiple sorbent-tube sampling from 1 – 350 cc/min (combined flow rates).

Description	Part No.
Personal Monitoring Pump 5-100 mL/min 110 V	**N6102351**

Consumable Application Kits

All your consumable needs in one convenient kit, designed specifically to be used within the application requirements for Air Monitoring and Ozone Precursor application notes*.

Air Monitoring Application Kit

	Part No.
	N6710187

Contents:	Pkg.	Qty.	Part No.
Air Toxics Stainless Steel Thermal Desorber Tubes	10	1	**N9307001**
Air Monitoring Trap	1	1	**M0413628**
Methyl Silicone Column 100 m x 0.32 mm x 5 µm	1	1	**N6300155**

Ozone Precursor Application Kit

	Part No.
	N6710186

Contents:	Pkg.	Qty.	Part No.
Alumina PLOT Column 50 m x 0.32 mm i.d.	1	1	**N6301107**
Air Monitoring Trap	1	1	**M0413628**
Methyl Silicone Column 50 m x 0.32 mm x 1.0 µm	1	1	**N6301108**

** For full downloadable pdf format application notes, please visit: **http://las.perkinelmer.com/applications***

Thermal Desorber kits and accessories from PerkinElmer

Thermal Desorber Starter Kit

PerkinElmer's convenient starter kit includes all products you need to run the TurboMatrix Thermal Desorber.

Features and Benefits

- All items available under one part number in a convenient kit
- Guaranteed PerkinElmer parts
- Improved chromatography with exceptional analytical performance using PerkinElmer parts

	Part No.
	M0413541

Contents:	Pkg.	Qty.	Part No.
Glass Fiber Separator Disks	6	1	**L4271290**
Glass Sample Tubes	10	1	**M0413598**
Glass Wool	1	1	**54120790**
Graphite Ferrules	2	1	**L4271187**
O-Ring	1	1	**L1003006**
O-Ring, Viton	1	1	**L1003008**
Packing Gauze	100	1	**L4071034**
PTFE Filter Discs	10	1	**L1003030**
PTFE Filter Discs – Large	10	1	**L1003029**
Retaining Spring	50	1	**L4071123**
Sample Tube - 5 mL	1	1	**04970673**
Stainless Steel Retaining Spring	2	1	**L6301054**
Stainless Steel Sample Tubes – Capped	10	1	**M0413595**
Tenax TA 60/80, Mesh - 15 g	1	1	**04978064**
Trap Tube Nuts	2	1	**L4275009**
Trap Tubes	2	1	**M0410094**

TurboMatrix Upgrade Kit

Internal Standard Addition/Tube Dry Purge Add-On Kit

This kit adds capability to introduce a known quantity of a gaseous standard into the sample tube prior to desorption to verify analyte recovery. Standard gas is added to the tube in the sampling direction, allowing use of tubes packed with multiple adsorbents.

Requires, but does not include, an options board, when added to the entry-level thermal desorber. Installation by PerkinElmer Service is required, but not included.

	Part No.
	M0413555

NEW!

Thermal Desorber Industrial Hygiene Application Kit

All your consumable needs in one convenient kit, designed specifically for Industrial Hygiene using Thermal Desorption*.

Workplace Air Monitoring Industrial Hygiene Application Kit**

	Part No.
	N6710188

Contents:	Pkg.	Qty.	Part No.
Cold Trap O-Ring, 0.145 i.d./0.070 w.d.	1	1	**09200091**
Cold Trap Tube (Tenax TA)	1	1	**L4275089**
Empty Glass Sample Tubes – No caps	10	1	**L4071594**
Graphite Ferrule	2	1	**L4271187**
Pen Clips for Stainless Steel Sample Tubes	10	1	**L4071029**
PTFE Ferrule	10	1	**L4275110**
PTFE Filter Disk – Either side of the cold trap	10	1	**L1003030**
Tenax TA Stainless Steel Sample Tubes	10	1	**N9307005**

** For full downloadable pdf format application notes, please visit: **http://las.perkinelmer.com/applications***

*** Applicable to TurboMatrix 100/150/300/350 and 650 only.*

Thermal Desorber Caps and Accessories

Description	Pkg.	Part No.
Brass Long-Term Storage Caps Recommended for long-term storage, two required per tube. Also requires Teflon® Ferrule (L1003015).	1	**09908851**
Combined Teflon® Ferrule For use with ¼ in Brass Long-Term Storage Caps (09908851), two required per tube.	1	**L1003015**
Diffusion Caps – Standard For passive air sampling, to ensure correct diffusion path length.	10	**L4070207**
Diffusion Caps with Membrane As above, with silicone membrane inserted.	10	**L4070208**
Pen Clips For Stainless Steel Thermal Desorber Tubes.	10	**L4071029**
PFA Teflon® Ferrules For TurboMatrix Storage End Caps.	20	**M0413625**
TurboMatrix Analytical Caps PTFE caps with o-ring, required for use on the TurboMatrix instrument during analysis.	20	**N6200119**

For a full listing of thermal desorber kits and supplies please visit us at:
www.perkinelmer.com/gcsupplies

Packing material **tube identification** and **polarity** now on **every tube!**

NEW!

NEW!

Unconditioned Thermal Desorber Tubes

For your convenience, new low-cost thermal desorber tubes are offered in both stainless steel and glass. Each tube maintains its unique serial number which is etched for easy identification. Tubes are offered with a variety of sorbent packing materials for many GC applications including indoor and outdoor air monitoring, analysis of flavors and fragrances and the analysis of outgassing from packaging, polymers, pharmaceuticals and semi-conductor material. These tubes are unconditioned and ship with plastic end caps for short-term storage.

Fully conditioned
Thermal Desorber tubes shown

Packed Unconditioned Sample Tubes, Plastic End Caps (pkg. 10)

Sorbent	Stainless Steel Part No.	Glass Part No.
Air Toxics	**N9307050**	**N9307058**
Carbopack® B60/80	**N9307051**	**N9307059**
Carbosieve® SIII 60/80	**N9307052**	**N9307060**
Tenax™ GR 60/80	**N9307053**	**N9307061**
Tenax™ TA 60/80	**N9307054**	**N9307062**
Chromasorb™ 60/80	**N9307055**	**N9307063**
Carbopack® B 60/80 Carbopack® C 60/80 Carbosieve® SIII 60/80	**N9307056**	**N9307064**
Carbotrap® C/B		**N9307065**
NIOSH	**N9307057**	**N9307066**

Empty Sample Tubes without Caps

Description	Part No.
Stainless Steel (pkg. 10)	**L4270128**
Glass (pkg. 10)	**L4071594**
Stainless Steel (pkg. 100)	**L4270129**

Empty Sample Tubes with Caps

Description	Part No.
Stainless Steel (pkg. 10)	**M0413595**
Glass Lined Stainless Steel (pkg. 10)	**M0413597**
Glass (pkg. 10)	**M0413598**

Conditioned Thermal Desorber Tubes

Stainless steel and glass sample tubes are available with a wide variety of packing materials from single to multi-bed. PerkinElmer Thermal Desorber tubes will now be printed with the packing material clearly identified on each tube. In addition an arrow will also be printed, which points to the end of the tube where sample is drawn from, and also indicates the end that desorb vapors will exit.

Each tube is etched with a unique serial number for ease of traceability and adsorbent identification. Stainless steel tubes may also be fitted with clips that accept adhesive labels for identification. Packed tubes are shipped with long-term brass storage caps and all PerkinElmer thermal desorber tubes are thermally conditioned and tested for background and backpressure.

Packed Conditioned Sample Tubes, Brass Long-Term Storage Caps (pkg. 10)

"NOT for Analytical test applications", USE **N6200119** PTFE caps and O-ring. (pkg. 20)

Sorbent	Stainless Steel Part No.	Glass Part No.
Air Toxics	**N9307001**	**N9307008**
Carbopack® B60/80	**N9307002**	**N9307009**
Carbosieve® SIII 60/80	**N9307003**	**N9307010**
Tenax™ GR 60/80	**N9307004**	**N9307011**
Tenax™ TA 60/80	**N9307005**	**N9307012**
Chromasorb™ 60/80	**N9307006**	**N9307013**
Carbopack® B 60/80 Carbopack® C 60/80 Carbosieve® SIII 60/80	**N9307000**	**N9307007**
Carbotrap® C/B	**N9307026**	
NIOSH 2549	**N9307038**	**N9307037**

New and Improved **next generation Generators** for your application needs

NEW!

PGX-H_2 Hydrogen Generators

Pure gas hydrogen generator employ the newest membrane technology available for the safe production of pure hydrogen gas.

This patented design is ideal for operation with gas analyzers, as fuel gas for flame tools, or as a source for pure hydrogen in plasma chambers and other isolated environments. Electrolytic membrane technology is preferred over alternative hydrogen generating techniques because it is clean, requires less maintenance and there is no need to store chemicals to maintain operation. The generators offer silent operation and require only deionized or distilled water with no caustic solutions that can affect the purity of the hydrogen.

Technical Specifications for PGX-H_2

Electrolysis cell	PEM Membrane type
H2 purity	99.9999%
Delivery pressure	100 psig - 7 barg (max)
H2 flow rate	Adjustable, according to model (100 - 160 - 250 - 300 - 500 - 600 mL/min)
Safety	Auto shut-off
User interface	Set points, system status
Display	4 row x 34 character LCD, set points, status, alarms
Indicator lights	Power ON, System OK, System error
Outputs	RS232C, bi-directional
Options	Remote control Cascading via RS-485 of up to 32 units in parallel for models 250 and 500 only (patented feature)

Description	Part No.
PGX-H_2 100 mL/min of hydrogen	**N9306058**
PGX-H_2 160 mL/min of hydrogen	**N9306059**
PGX-H_2 250 mL/min of hydrogen	**N9306060**
PGX-H_2 500 mL/min of hydrogen	**N9306061**
PGX-H_2 Desiccant Cartridge, Fitting and Refill Kit	**N9306064**
PGX-H_2 Desiccant Refill (sufficient for 3 cartridge refills)	**N9306065**
PGX-H_2 Deionizer Bag	**N9306066**

No Maintenance Hydrogen Generators

A Safe Source of Hydrogen

Both the PGX-H_2 and the No Maintenance Hydrogen Generators have an auto shutoff procedure that places the units in standby in the event of an internal error and selectable alarms allow the user to be informed whenever operating conditions vary from the set point.

The No Maintenance (NM-H_2) Hydrogen Pure Gas Generators employ the newest membrane technology available for electrolytic production of pure hydrogen gas, including exclusive no maintenance auto-drying technology.

Technical Specifications for No Maintenance

Electrolysis cell	PEM Membrane type
H2 purity	99.9999%
Auto Drying System	No maintenance of drying cartridges (exclusive system)
Delivery pressure	155 psig - 10 barg (max.)
H2 flow rate	Adjustable, according to model (100 - 160 - 250 - 300 - 500 - 600 - 1000 mL/min)
Safety	Auto shut-off
User interface	Set points, system status
Display	4 row x 34 character LCD, set points, status, alarms
Indicator lights	Power ON, System OK, System error
Options	Remote control Cascading via RS-485 of up to 32 units in parallel for models 250 and 500 only (patented feature)

Description	Part No.
100 mL/min of hydrogen	**N9307070**
160 mL/min of hydrogen	**N9307071**
250 mL/min of hydrogen	**N9307072**
500 mL/min of hydrogen	**N9307073**
1000 mL/min of hydrogen	**N9307074**

Accessories

Description	Part No.
Cable for Cascading	**N9307093***
I/O Board	**N9307094**
Remote control RS-232 (Includes converter, cables, software)	**N9307095***
Auto refill	**N9307096***
Deionizer LE bag	**N9307097**
Triangle deionizer LE bag	**N9307098**

**Requires I/O Board*

Zero and Ultra Air Generators

The Zero / Ultra Zero Air Generators produce laboratory grade purified air for FID (flame ionization detectors) and other detectors. Designed with safety and convenience in mind, this system will generate purified and hydrocarbon free air from an existing in-house oil-free compressed air supply, eliminating the need for inconvenient high-pressure gas cylinders. Eliminating gas cylinders reduces annual operating costs associated with materials, labor, and down-time.

The Zero / Ultra Zero Air Generator series removes HC pollutants to less than 0.1 ppm, and all forms of particles. Operation of the generator requires low levels of electrical power consumption. This complete turnkey system is engineered with the highest quality components, is easy to install, and requires minimal annual maintenance. The Ultra Zero Air Generators will remove CO and HC pollutants to less than 0.1 ppm, and NOx contaminants to 1 ppm. Carbon dioxide is also removed to about 1 ppm levels.

Specifications for Zero Air

Part No.	N9307075	N9307076	N9307077	N9307078	N9307079
Outlet Zero Air	1500 mL/min	3000 mL/min	6000 mL/min	15000 mL/min	30000 mL/min
Maximum Continuous Output Flow Rate	1.5 L/min	3.0 L/min	6.0 L/min	15.0 L/min	30.0 L/min
Electrical Requirements	230/115 VAC 250 W max	230/115 VAC 250 W max	230/115 VAC 250 W max	230/115 VAC 480 W max	230/115 VAC 480 W max
Temperature / Pressure Control Board	N/A	Included	Included	Included	Included

Description	Part No.
1.5 L/min of air (without compressor)	**N9307075**
3.0 L/min of air (without compressor)	**N9307076**
6.0 L/min of air (without compressor)	**N9307077**
15.0 L/min of air (without compressor)	**N9307078**
30.0 L/min of air (without compressor)	**N9307079**

Specifications for Zero and Ultra Zero Air

Outlet Hydrocarbon Concentration	< 0.1 ppm
Outlet Carbon Monoxide Concentration	< 0.1 ppm
Outlet Particles < 0.5 Microns Removed	99.99%
Outlet Air Temperature	Ambient +15 °C
Max Inlet Hydrocarbon Concentration	100 ppm
Maximum Outlet Pressure	6.5 bar
Max Inlet Carbon Monoxide Concentration	50 ppm
Max Inlet Temperature	40 °C
Inlet Pressure Range (regulated to 7 bar)	4.5–10 bar
Inlet Port	1/4" NPT
Outlet Port	1/8" NPT

Ultra Zero Air Generators

Features and Benefits

- Flow rate: < 0.1 ppm HC; < 0.1 ppm CO; < 1 ppm NOx; < 5 ppm CO2
- Produce laboratory-grade purified air for the most accurate and convenient calibration of testing equipment
- Designed with safety and convenience in mind, this system will generate purified air from an existing in-house oil-free compressed air supply, eliminating the need for inconvenient high-pressure gas cylinders
- Eliminate gas cylinders reducing annual operating costs associated with materials, labor and downtime, and reduces risk of injury to workers
- Will remove CO and HC pollutants to less than 0.1 ppm and NOx contaminants to 1 ppm. Carbon dioxide is also removed to about 1 ppm levels. Operation of the generator requires low levels of air consumption and electrical power
- Fully supported by PerkinElmer Service Organization

Specifications for Ultra Zero Air

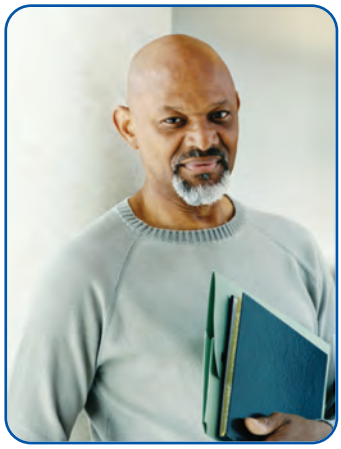
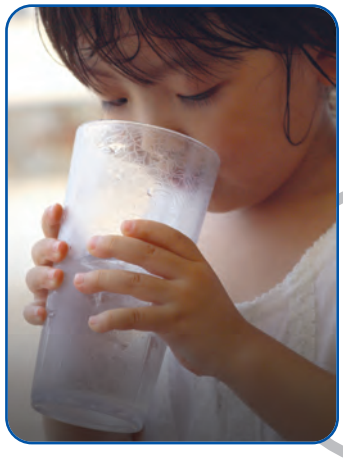
Part No.	N9307081	N9307082	N9307083	N9307080
Outlet Ultra Zero Air	1500 mL/min	3000 mL/min	6000 mL/min	15000 mL/min
Outlet Carbon Dioxide Concentration	< 5 ppm	< 10 ppm	< 10 ppm	< 10 ppm
Outlet Nitrogen Oxides Concentration	< 0.1 ppm	< 1 ppm	< 1 ppm	< 1 ppm
Outlet Dewpoint	< -70 °C	< -50 °C	< -50 °C	< -50 °C
Electrical Requirements	230/115 VAC 270 W max	230/115 VAC 270 W max	230/115 VAC 270 W max	230/115 VAC 500 W max

Description	Part No.
1.5 L/min of air (without compressor)	**N9307081**
3.0 L/min of air (without compressor)	**N9307082**
6.0 L/min of air (without compressor)	**N9307083**
15.0 L/min of air (without compressor)	**N9307080**

All models come WITHOUT a compressor.
Oil Free Compressor Required.

The New Measure of Success



EcoAnalytix™ is PerkinElmer's collaborative problem-solving initiative that creates application-based solutions for supporting local, regional and global projects. It is through these focused solutions that PerkinElmer contributes to protecting and improving our world.

Application Development Centers

Two new PerkinElmer EcoAnalytix Application Development Centers (ADC), in Shanghai and Mumbai, have been established and are being resourced to help facilitate support of responsible growth within the industry and to support rapidly growing infrastructure in developing countries.

PerkinElmer's EcoAnalytix

What is Eco?

"Eco" is derived from the idea of an ecosystem – a defined group of interdependent entities existing together within the environment they inhabit or depend on.

Why Eco?

Because we want our customers to understand that we view their businesses as complete, unique and contributing ecosystems.

What is Analytix?

"Analytix" refers to the process of analyzing and providing measurement of the ecosystem – anything that we consume, breathe, see or touch.

What is EcoAnalytix?

Combined, "Eco" and "Analytix" refer to the analytical measurements of our entire world.

Why EcoAnalytix?

Because only PerkinElmer can best help our customers make a measurable difference.

Community Outreach

PerkinElmer's EcoAnalytix program encourages local and global advocacy and partnerships for ecosystemic excellence on all levels.

PerkinElmer is working with and through customers, local governments and NGOs and the public to generate awareness of topics of importance to global health and well-being to people across the world.

PerkinElmer's Commitment to Environmental Responsibility

PerkinElmer is dedicated to ensuring that its facilities and employees operate in a manner that is environmentally conscious and contributes to a better world.

PerkinElmer facilities are taking an active role establishing programs to minimize impact on the environment. Whether in the laboratory, production facilities or other operations, the company is designing safe products and processes that prevent pollution, conserve resources and reduce waste. Employee involvement is integral to the continuous improvement of environmental safety and health programs.

EcoAnalytix is more than analytical solutions. It is training, SOPs, regulatory leadership, community outreach and industry collaboration, all working together to get you to better answers faster. A new way of viewing your world, your needs — your business ecosystem.

PerkinElmer®

EcoAnalytix Application Focus

The EcoAnalytix initiative focuses on three primary application areas that are integral to global health and well-being: **Biofuels Development, Environmental Analysis** and **Food Safety**.

ecoanalytix™

Biofuels Development

EcoAnalytix solutions from PerkinElmer can help you achieve your business and operations objectives, from the field through to processing, and from fermentation to the final product, while ensuring the quality of biofuels and meeting regulatory requirements. Pre-defined analyzers and platforms support both ASTM and EN methods.

PerkinElmer's Latest Biofuels Testing Analyzers include:

- EcoAnalytix Biodiesel Glycerin and Methanol Analyzer - based on the Clarus 500 GC with an innovative dual-oven design and a TurboMatrix™ Headspace, offering a unique solution to test for free/total glycerin and residual methanol according to EN and ASTM standards

Environmental Analysis

EcoAnalytix analyzers and platforms for environmental analysis from PerkinElmer provide methods, guidebooks and standard operating procedures where necessary so that you can keep pace with regulatory change. We provide industry leading environmental monitoring technology as well as renowned expertise and advocacy that shape regulatory methods.

EcoAnalytix water quality platforms will provide specific analyzers and methodologies to detect trace metal, organic, pesticide, chemical and radioactive contaminants in water.

PerkinElmer's Latest Environmental Analyzers include:

- EcoAnalytix Polycyclic Aromatic Hydrocarbons Analyzer - based on a complete preconfigured Series 200 UV/Vis & Fluorescence HPLC system, providing expedited ramp-up and increased uptime for challenging PAH analyses that require specific regulated methods

Food Quality and Safety

EcoAnalytix analyzers and platforms for food safety from PerkinElmer provide methods, guidebooks and standard operating procedures where necessary to allow you to simply and quickly meet or exceed an increasing level of scrutiny for food safety standards in an ever-expanding global food supply chain. EcoAnalytix food safety platforms are designed to assure food quality while ensuring regulatory compliance. Specific applications include the analysis of foods and food stuffs for melamine, pesticide, organic, chemical and metal contaminants.

PerkinElmer's Latest Food Quality and Safety Analyzers include:

- EcoAnalytix Melamine Analyzer - based on the Clarus 600 T GC/Mass Spectrometer, delivering the first complete solution on the market for this application using GC/MS technology which includes everything the laboratory needs for rapid ramp-up

PerkinElmer knows that the right training, methods, applications, reporting and support are as integral to getting answers as the instrumentation. That's why PerkinElmer has developed a novel approach to meet the challenges that today's labs face — that approach is called EcoAnalytix™.

PerkinElmer's Melamine Analyzer

Visit us Online!

To find out more about **PerkinElmer's EcoAnalytix** solutions, please visit:

www.perkinelmer.com/ecoanalytix

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See page 45 for details.

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IR Temperature Gun!

Low-cost, non-contact temperature measurement with laser sighting.

See page 36 for details.

Gas Filtration Systems!

Protect your capillary columns with the correct high-quality gas filtration system.

NEW!

See pages 34-35 for details.

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