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- The PerkinElmer part numbers of the items that you wish to return
- Reason for return

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SPE

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

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QuEChERS



We provide a complete range of products for QuEChERS methodologies, offering all three standard QuEChERS methods: Original QuEChERS method, American AOAC Standard (Official Method 2007.01) QuEChERS method and European Standard (EN 15662) QuEChERS method.

SPE Columns and Cartridges



Ideal for a broad array of analytes and matrices, our SPE solutions are available in a variety of formats including Large Reservoir Capacity (LRC) columns, Polypropylene (PP) columns and cartridges, and also glass columns. Each technology is offered with a wide selection of polymer and silica sorbents, and large and small sample volumes (50 µL to 1 L) allow you to perform scalable analyses depending upon your required detection limits.

SPE Application Packs

Ideal for extraction of known entities from a variety of matrices, our packs are expertly tailored to meet your application needs and are designed to support major EPA methods and applications.

Nylon and PTFE Syringe Filters



Our Syringe Filters are lab tested and certified to bring you the highest quality syringe filters available. Our membrane materials are supplied per ISO9001:2008 certified manufacturing practices, in certified clean room conditions, using the latest manufacturing technology to ensure you receive a high quality, consistent product every time.

Select our superior premium 17 and 30 mm filters which are suitable for coarse/crude samples or higher detection limit applications (such as food, beverage, or environmental analysis) and our 4, 13 and 25 mm syringe filters are ideal for routine QA/QC analysis.

Nylon Syringe Filters

Ideal for aqueous (non-acidic) or organic sample preparation and HPLC, GC or dissolution sample analysis. With its excellent flow characteristics, very low extractable levels and mechanical stability, Nylon offers the best combination of physical parameters to meet the most stringent analytical needs.

Size (mm)	Pkg.	Color	0.22 µm Particle Part No.	0.45 µm Particle Part No.
4	200	Clear	**02542900**	**02542901**
13	100	Purple	**02542902**	**02542903**
17	100	Yellow	**02542881**	**02542880**
25	100	Purple	**02542904**	**02542905**
30	100	Yellow	**02542883**	**02542882**

PTFE (Hydrophobic) Syringe Filters

Versatile filters for use with aggressive organic solvent-based solutions and are particularly suited for HPLC sample preparation. Hydrophobic PTFE syringe filters have broad chemical compatibility and high pH resistance.

Size (mm)	Pkg.	Color	0.22 µm Particle Part No.	0.45 µm Particle Part No.
4	200	Clear	**02542906**	**02542907**
13	100	Red	**02542908**	**02542909**
17	100	Red	**02542884**	**02542910**
25	100	Red	**02542911**	**02542912**
30	100	Red	**02542886**	**02542885**

PVDF (Hydrophobic Polyvinylidene Fluoride) Syringe Filters

Compatible with a wide range of mild organic solutions. PVDF membranes are not recommended for use with acetone, DMF, DMSO, or bases >6N.

Size (mm)	Pkg.	Color	0.22 µm Particle Part No.	0.45 µm Particle Part No.
4	200	Clear	**02542913**	**02542914**
13	100	Yellow	**02542915**	**02542783**
17	100	Maroon	**02542916**	**02542917**
25	100	Yellow	**02542918**	**02542919**
30	100	Maroon	**02542920**	**02542921**

PTFE (Hydrophylic) Syringe Filters

Versatile filters for use with aqueous and aggressive organic solvent-based solutions and are suitable for HPLC sample preparation. They have broad chemical compatibility and high pH resistance.

Size (mm)	Pkg.	Color	0.22 µm Particle Part No.	0.45 µm Particle Part No.
4	200	Clear	**02542922**	**02542923**
13	100	Red	**02542924**	**02542925**
25	100	Red	**02542926**	**02542927**
30	100	Red	**02542928**	**02542929**

Supra-Clean and Supra-Poly SPE Solutions

Recovery, capacity, selectivity and reproducibility are the principal sample prep demands of today's analyst. We have developed an innovative SPE product range incorporating silica and polymer based technology. Supra-Clean® (silica) and Supra-Poly® (polymer) deliver the recovery, reproducibility, and reliability desired for consistently excellent results.

Both utilize Precise Bed Technology® (PBT) with our spherical media (figure 1) allowing columns to be evenly and consistently filled with particles sized for optimum distribution. This homogeneous filling yields a +/- 1% variation in bed volume precision, ensuring you experience repeatability and optimized recovery reproducibility.

Spherical media and consistent particle distribution enable smaller elution volumes and better, more reproducible extraction, purification, concentration and recovery.



Figure 1: Comparison of Spherical and Irregular Media.

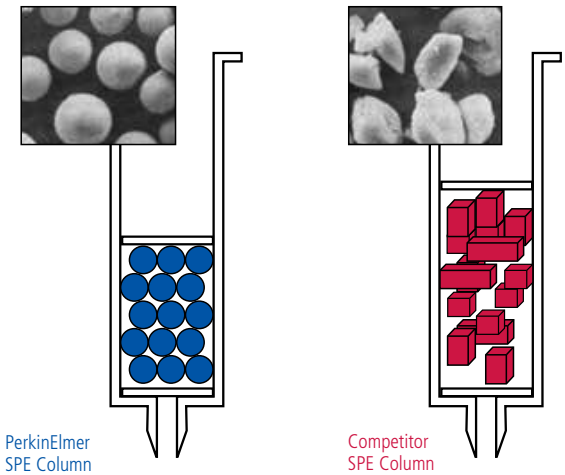
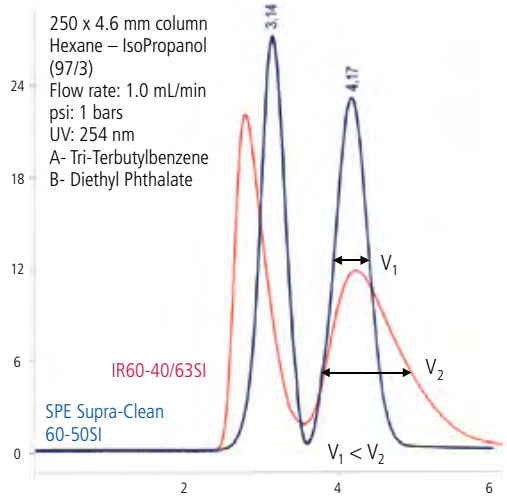


Figure 2: Performance Comparison of PerkinElmer Spherical SPE Media vs. Leading Irregular SPE Silica.



PerkinElmer's smaller, more homogeneous, spherical media deliver sharper, narrower peaks for faster, more accurate sample analysis, figure 2.

Ideal for a broad array of analytes and matrices, our SPE solutions are available in a variety of formats including Large Reservoir Capacity (LRC) columns, Polypropylene (PP) columns and cartridges, and also glass columns. Each technology is offered with a wide selection of polymer and silica sorbents, and large and small sample volumes (50 µL to 1 L) allow you to perform scalable analyses depending upon your required detection limits.

Each finished product is delivered with an individual quality certificate.

Supra-Clean and Supra-Poly Application Overview

Supra-Clean Spherical Silica

Phase	Mechanism	Interaction Mode	Compounds	Matrix
C18-S	Hydrophobic	Reversed Phase	Polar to Non-Polar compounds	Biological fluids, aqueous samples
High Recovery REC18	Hydrophobic	Reversed Phase	Non-polar and mid-polar compounds including 100% water solvents	Biological fluids, aqueous samples toxins in food
Phenyl (PH-S)	Hydrophobic	Reversed Phase	Non-polar to mid-polar aromatic compounds	Biological fluids
Silica (SI-S)	Hydrophilic	Normal Phase	Polar compounds	Non-polar organics, oils, lipids
Amino (NH_2-S)	Hydrophilic	Normal Phase	Polar to Mid-Polar aromatic compounds	Biological fluids, aqueous samples, buffered organics
Strong Cation Exchange (SCX)	Ion Exchange	Ion Exchange	Basic compounds	Biological fluids, aqueous samples, buffered organics
Weak cation Exchange (WCX)	Ion Exchange	Ion Exchange	Strong basic compounds	Biological fluids, aqueous samples
Strong Anion Exchange (SAX)	Ion Exchange	Ion Exchange	Acidic compounds	Biological fluids, aqueous samples
Cyano (CN-S)	Hydrophilic	Normal Phase	Polar to Mid-Polar compounds	Non-polar organics, oils, lipids
Florisil (FL-S)	Hydrophilic	Normal Phase	Polar compounds	Ideal for polar compounds in non-polar matrix
Florisil Pesticide (FL-S)	Hydrophilic	Normal Phase	Polar compounds	Ideal for polar compounds in non-polar matrix
Polyamine (P6)	Hydrophilic	Reversed Phase	Carboxylic acids, phenolics and nitroaromatics	Aqueous and mid-polar matrices
300 A (C4)	Hydrophobic	Reversed Phase	Non-polar to mid-polar compounds	Biological Samples
LCC	Hydrophobic	Reversed Phase	Non-polar to mid-polar compounds	Biological fluids, aqueous samples
Mixed mode (MM1)	Ion Exchange/ Hydrophobic	Reversed Phase/SCX	Basic compounds	Biological samples
Mixed mode (MM2)	Ion Exchange/ Hydrophobic	Reversed Phase/WCX	Very basic compounds	Biological samples
Mixed mode (MM3)	Ion Exchange/ Hydrophobic	Reversed Phase/SAX	Acidic compounds	Biological samples

Supra-Poly Spherical Polymer

Phase	Mechanism	Interaction Mode	Compounds	Matrix
Extreme Capacity (XC)	Hydrophobic	Reversed Phase	Polar and non-polar	Aqueous or organic
Extreme Capacity Wide Pore (XWP)	Hydrophobic	Reversed Phase	Polar and non-polar	Biological and viscous samples
Hydrophilic (ATH)	Hydrophilic	Reversed Phase	Mid to non-polar compounds	Aqueous or organic
Lipophilic (ATL)	Lipophilic	Reversed Phase	Mid to non-polar compounds	Crude samples
Environmental (AEV)	Hydrophilic/ Hydrophobic	Reversed Phase	Mid to non-polar compounds	Aqueous or Organic
HLB	Hydrophilic/lipophilic balanced	Reversed Phase	Mid to non-polar compounds	Aqueous or organic

Typical Applications	pH Range	End-Capping	Pore Size (A)	Surface Area (m^2/g)	Particle Size (µm)	Comments
Drugs and drug metabolites in biological matrices, trace organic material in water, toxins in food	2 – 8	Yes	60	500	50	18% Carbon Load (CL)
Drugs and drug metabolites in biological matrices, trace organic material in water	2 – 8	Yes	–	–	50	High capacity and better recovery especially for high aqueous conditions. 15% CL
Benzodiazepines in biological matrices, extraction of aromatic compounds	2 – 8	No	60	500	50	9% CL
Aldehydes, amines, pesticides, herbicides, carotenoids, fat soluble vitamins, baflatoxins, fatty acids, and phospholipids	2 – 8	No	60	500	50	Bare Silica
Basic compounds, polar amine compounds, carbohydrates	2 – 8	No	60	500	50	5% CL
Cations, antibiotics, drugs, amino acids, catecholamines, herbicides, nucleic acid bases, nucleosides, and surfactants	2 – 8	No	60	450	60	Strong Acid – Sulfonic acid; Exchange capacity 0.70 meq/g
Cations, amines, antibiotics, drugs, amino acids, catecholamines, nucleic acid bases, nucleosides, and surfactants	2 – 8	No	60	450	60	Weak Acid – Carboxylic acid; Exchange capacity 0.22 meq/g
Acidic food pigments, organic acids, phenol compounds, nucleic acids, nucleotides, surfactants	2 – 8	No	60	450	60	Strong Base – quaternary amine; Exchange capacity 0.30 meq/g
Polar compounds in hexane and oil	2 – 8	Yes	60	500	50	8% CL; Mid-range polarity between silica and C18
Pesticides, Polychlorinated Biphenyls (PCB)	2 – 8	No	–	–	200	Standard grade. Alternative to silica for viscous matrices due to large particle size
Pesticides	2 – 8	No	–	–	200	High purity pesticide grade. Alternative to silica for viscous matrices
Aromatic and natural products; Flavones, Chalkones, Anthraquinones	2 – 8	No	–	–	100	Nylon 6
Hydrophobic peptides and polypeptides	2 – 8	No	300	–	–	Large pore size for isolation of large biomolecules
Non-polar compounds in aqueous solution	2 – 8	Yes	60	500	50	10% CL; Lower carbon load than C18-S and REC18
Drugs and drug metabolites	2 – 8	No	60	450	60	Exchange capacity 0.09 meq/g
Drugs and drug metabolites	2 – 8	No	60	450	60	Exchange capacity 0.10 meq/g
Drugs and drug metabolites	2 – 8	No	60	450	60	Exchange capacity 0.14 meq/g

Typical Applications	pH Range	End-Capping	Pore Size (A)	Surface Area (m^2/g)	Particle Size (µm)	Comments
Drugs and drug metabolites biological fluids	0 – 14	No	–	1500	70	High capacity polystyrene-divinylbenzene (PSDVB)
Drugs and drug metabolites biological fluids	0 – 14	No	Wide Pore	1200	90	High capacity PSDVB for large biomolecules and viscous matrices
Mid-polar and non-polar compounds in aqueous and organic solvents	1 – 13	No	70	800	75	Mixed hydrophilic/hydrophobic interactions
Lipids	0 – 14	No	70	800	100	PSDVB; Alternative to high flow silica for mid-polar to non-polar compounds (<3000D) in crude samples
Aqueous environmental compounds that are not retained on C18	1 – 12	No	70	800	75	Advanced environmental; Polystyrene-co-2-hydroxyethyl methacrylate (PSHEMA)
Mid-polar and non-polar compounds in aqueous and organic solvents	0 – 14	No	80	850	30 and 60	Hydrophilic-lipophilic-balanced reversed-phase sorbent for acids, bases and neutrals

Supra-Clean Columns, Cartridges and 96 Well Plates

Supra-Clean SPE products are available in a range of media weights, volumes and formats, including easy to order selection its and application packs.

- Pure spherical silica
- Pore size 60 – 120 Å
- 17 chemistries with pH range 2 – 8

Columns

Media Weight	Volume	Qty.	Part No.
Supra-Clean C18			
50 mg	1 mL	50	**N9306476**
100 mg	1 mL	100	**N9306478**
100 mg	3 mL	50	**N9306523**
200 mg	3 mL	50	**N9306462**
500 mg	3 mL	50	**N9306438**
500 mg	3 mL*	50	**N9306642**
200 mg	6 mL	30	**N9306634**
500 mg	6 mL	30	**N9306448**
500 mg	6 mL*	30	**N9306640**
1 g	6 mL	30	**N9306422**
2 g	6 mL	30	**N9306430**
2 g	15 mL	20	**N9306479**
2 g	25 mL	20	**N9306475**
Supra-Clean REC18			
50 mg	1 mL	50	**N9306519**
100 mg	1 mL	100	**N9306520**
100 mg	3 mL	50	**N9306455**
200 mg	3 mL	50	**N9306521**
500 mg	3 mL	50	**N9306522**
200 mg	6 mL	30	**N9306633**
500 mg	6 mL	30	**N9306457**
1 g	6 mL	30	**N9306491**
Supra-Clean Strong Anion Exchange (SAX)			
50 mg	1 mL	50	**N9306553**
100 mg	1 mL	100	**N9306471**
100 mg	3 mL	50	**N9306554**
200 mg	3 mL	50	**N9306482**
500 mg	3 mL	50	**N9306555**
500 mg	6 mL	30	**N9306556**
Supra-Clean Strong Cation Exchange (SCX)			
50 mg	1 mL	50	**N9306536**
100 mg	1 mL	100	**N9306432**
100 mg	3 mL	50	**N9306537**
200 mg	3 mL	50	**N9306538**
500 mg	3 mL	50	**N9306539**
500 mg	6 mL	30	**N9306540**

* Not end-capped

Columns *continued*

Media Weight	Volume	Qty.	Part No.
Supra-Clean Weak Cation Exchange (WCX)			
50 mg	1 mL	50	**N9306544**
100 mg	1 mL	100	**N9306545**
100 mg	3 mL	50	**N9306546**
200 mg	3 mL	50	**N9306547**
500 mg	3 mL	50	**N9306420**
500 mg	6 mL	30	**N9306407**
Supra-Clean 300Å C4			
50 mg	1 mL	50	**N9306590**
100 mg	1 mL	100	**N9306591**
100 mg	3 mL	50	**N9306592**
200 mg	3 mL	50	**N9306593**
Supra-Clean Mixed-Mode (MM1)			
50 mg	1 mL	50	**N9306541**
100 mg	1 mL	100	**N9306542**
100 mg	3 mL	50	**N9306419**
200 mg	3 mL	50	**N9306543**
500 mg	3 mL	50	**N9306481**
500 mg	6 mL	30	**N9306416**
200 mg	15 mL	50	**N9306713**
Supra-Clean Mixed-Mode (MM2)			
50 mg	1 mL	50	**N9306548**
100 mg	1 mL	100	**N9306549**
100 mg	3 mL	50	**N9306550**
200 mg	3 mL	50	**N9306551**
500 mg	3 mL	50	**N9306411**
500 mg	6 mL	30	**N9306552**
Supra-Clean Mixed-Mode (MM3)			
500 mg	6 mL	30	**N9306649**
Supra-Clean Florisil (FL-S)			
200 mg	3 mL	50	**N9306511**
500 mg	3 mL	50	**N9306512**
500 mg	6 mL	30	**N9306494**
1 g	6 mL	30	**N9306413**
2 g	6 mL	20	**N9306513**
2 g	15 mL	20	**N9306514**
2 g	25 mL	20	**N9306515**

Columns *continued*

Media Weight	Volume	Qty.	Part No.
Supra-Clean Florisil (FL-S) Pesticide Grade			
200 mg	3 mL	50	**N9306516**
500 mg	3 mL	50	**N9306400**
500 mg	6 mL	30	**N9306517**
1 g	6 mL	30	**N9306436**
2 g	6 mL	30	**N9306470**
2 g	15 mL	20	**N9306443**
2 g	25 mL	20	**N9306447**
Supra-Clean Silica (SI-S)			
100 mg	3 mL	50	**N9306532**
200 mg	3 mL	50	**N9306444**
500 mg	3 mL	50	**N9306402**
500 mg	6 mL	30	**N9306466**
1 g	6 mL	30	**N9306404**
2 g	6 mL	20	**N9306533**
2 g	15 mL	20	**N9306534**
2 g	25 mL	20	**N9306535**
Supra-Clean Cyano (CN-S)			
500 mg	3 mL	50	**N9306645**
500 mg	6 mL	30	**N9306644**
Supra-Clean Amino (NH_2-S)			
50 mg	1 mL	50	**N9306528**
100 mg	1 mL	100	**N9306410**
100 mg	3 mL	50	**N9306529**
500 mg	3 mL	50	**N9306414**
200 mg	6 mL	50	**N9306530**
500 mg	6 mL	30	**N9306531**
Supra-Clean Polyamine (P6)			
500 mg	3 mL	50	**N9306518**
500 mg	6 mL	30	**N9306434**
Supra-Clean Phenyl (PH-S)			
50 mg	1 mL	50	**N9306401**
100 mg	1 mL	100	**N9306524**
100 mg	3 mL	50	**N9306525**
200 mg	3 mL	50	**N9306490**
500 mg	3 mL	50	**N9306421**
500 mg	6 mL	30	**N9306526**
1 g	6 mL	30	**N9306527**
Supra-Clean LCC			
500 mg	3 mL	50	**N9306643**
500 mg	6 mL	30	**N9306641**

96 Well Plates

Media Weight	Volume	Qty.	Part No.
Supra-Clean C18			
25 mg	2 mL	1	**N9306566**
50 mg	2 mL	1	**N9306567**
100 mg	2 mL	1	**N9306568**
Supra-Clean REC18			
25 mg	2 mL	1	**N9306563**
50 mg	2 mL	1	**N9306564**
100 mg	2 mL	1	**N9306565**
Supra-Clean Strong Anion Exchange (SAX)			
25 mg	2 mL	1	**N9306581**
50 mg	2 mL	1	**N9306582**
100 mg	2 mL	1	**N9306583**
Supra-Clean Strong Cation Exchange (SCX)			
25 mg	2 mL	1	**N9306575**
50 mg	2 mL	1	**N9306576**
100 mg	2 mL	1	**N9306577**
Supra-Clean Mixed-Mode (MM1)			
25 mg	2 mL	1	**N9306578**
50 mg	2 mL	1	**N9306579**
100 mg	2 mL	1	**N9306580**
Supra-Clean Amino (NH_2-S)			
25 mg	2 mL	1	**N9306572**
50 mg	2 mL	1	**N9306573**
100 mg	2 mL	1	**N9306574**
Supra-Clean Phenyl (PH-S)			
25 mg	2 mL	1	**N9306569**
50 mg	2 mL	1	**N9306570**
100 mg	2 mL	1	**N9306571**

Cartridges

Media Weight	Qty.	Part No.
Supra-Clean C18		
390 mg	50	**N9306587**
910 mg	50	**N9306588**
1690 mg	50	**N9306589**
Supra-Clean Silica (SI-S)		
300 mg	50	**N9306584**
700 mg	50	**N9306585**
1300 mg	50	**N9306586**

Supra-Poly HLB Columns and 96 Well Plates

Supra-Poly SPE products are available in a range of media weights, volumes and formats, including glass and Large Reservoir Capacity (LRC) columns.

- Contains macro-porous polymers with ultra-pure, pharmaceutical grade spherical particles
- Shorter analysis times, greater load capacity and reduced solvent usage
- Ideal for high throughput assays

Supra-Poly HLB

Media Weight	Volume	Qty.	Part No.
30 µm Columns			
30 mg	1 mL	50	**N9306650**
50 mg	1 mL	50	**N9306655**
60 mg	1 mL	50	**N9306656**
100 mg	1 mL	50	**N9306657**
30 mg	3 mL	50	**N9306651**
60 mg	3 mL	50	**N9306658**
100 mg	3 mL	50	**N9306659**
200 mg	3 mL	50	**N9306660**
500 mg	3 mL	30	**N9306661**
100 mg	6 mL*	30	**N9306672**
150 mg	6 mL	30	**N9306662**
200 mg	6 mL	30	**N9306663**
200 mg	6 mL*	30	**N9306673**
500 mg	6 mL*	30	**N9306674**
500 mg	6 mL	30	**N9306664**
500 mg	15 mL	20	**N9306665**
1 g	15 mL	20	**N9306666**
30 mg	15 mL**	50	**N9306668**
60 mg	15 mL**	50	**N9306669**
100 mg	15 mL**	50	**N9306670**
200 mg	15 mL**	50	**N9306671**
1 g	25 mL	20	**N9306667**
30 µm 96 Well Plates			
30 mg	2 mL	1	**N9306698**
50 mg	2 mL	1	**N9306699**
60 mg	2 mL	1	**N9306700**

Media Weight	Volume	Qty.	Part No.
60 µm Columns			
30 mg	1 mL	50	**N9306652**
50 mg	1 mL	50	**N9306675**
60 mg	1 mL	50	**N9306676**
100 mg	1 mL	50	**N9306677**
30 mg	3 mL	50	**N9306653**
60 mg	3 mL	50	**N9306678**
100 mg	3 mL	50	**N9306679**
200 mg	3 mL	50	**N9306680**
500 mg	3 mL	30	**N9306681**
100 mg	6 mL*	30	**N9306692**
150 mg	6 mL	30	**N9306682**
200 mg	6 mL	30	**N9306683**
200 mg	6 mL*	30	**N9306693**
500 mg	6 mL	30	**N9306684**
500 mg	15 mL	20	**N9306685**
500 mg	6 mL*	30	**N9306694**
1 g	15 mL	20	**N9306686**
30 mg	15 mL**	50	**N9306688**
60 mg	15 mL**	50	**N9306689**
100 mg	15 mL**	50	**N9306690**
200 mg	15 mL**	50	**N9306691**
1 g	25 mL	20	**N9306687**
60 µm 96 Well Plates			
30 mg	2 mL	1	**N9306695**
50 mg	2 mL	1	**N9306696**
60 mg	2 mL	1	**N9306697**

* Glass columns
** LRC columns

Supra-Poly Columns and 96 Well Plates

SPE products are available in a range of media weights, volumes and formats, including easy to order selection its and application packs.

- Contains macro-porous polymers with ultra-pure, pharmaceutical grade spherical particles
- Shorter analysis times, greater load capacity and reduced solvent usage
- Ideal for high throughput assays

Supra-Poly Extreme Capacity 1500 m^2/g (XC)

Media Weight	Volume	Qty.	Part No.
Columns			
30 mg	1 mL	50	**N9306441**
50 mg	1 mL	50	**N9306500**
60 mg	1 mL	50	**N9306501**
100 mg	1 mL	50	**N9306403**
60 mg	3 mL	50	**N9306502**
100 mg	3 mL	50	**N9306440**
200 mg	3 mL	50	**N9306428**
200 mg	6 mL	30	**N9306635**
500 mg	6 mL	30	**N9306405**
1 g	15 mL	20	**N9306503**
96 Well Plates			
30 mg	2 mL	1	**N9306557**
50 mg	2 mL	1	**N9306558**
60 mg	2 mL	1	**N9306559**

Supra-Poly Extra Wide Particle 1200 m^2/g (XWP)

Media Weight	Volume	Qty.	Part No.
Columns			
30 mg	1 mL	50	**N9306504**
50 mg	1 mL	50	**N9306427**
60 mg	1 mL	50	**N9306505**
100 mg	1 mL	50	**N9306506**
60 mg	3 mL	50	**N9306507**
100 mg	3 mL	50	**N9306508**
200 mg	3 mL	50	**N9306509**
500 mg	6 mL	30	**N9306418**
1 g	15 mL	20	**N9306510**
96 Well Plates			
30 mg	2 mL	1	**N9306560**
50 mg	2 mL	1	**N9306561**
60 mg	2 mL	1	**N9306562**

Supra-Poly Environmental (AEV)

Media Weight	Volume	Qty.	Part No.
Columns			
100 mg	3 mL	50	**N9306648**

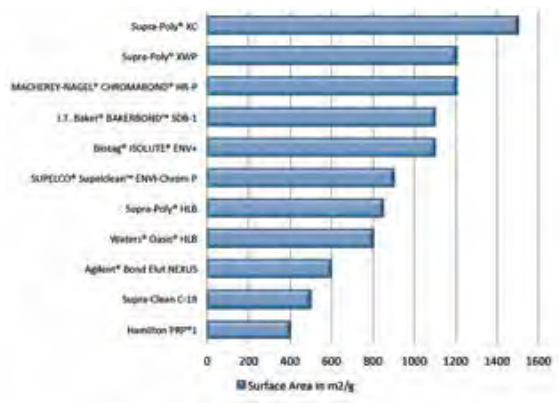
Supra-Poly Hydrophilic (ATH)

Media Weight	Volume	Qty.	Part No.
Columns			
100 mg	3 mL	50	**N9306646**
200 mg	3 mL	50	**N9306638**
200 mg	6 mL	30	**N9306636**

Supra-Poly Lipophilic (ATL)

Media Weight	Volume	Qty.	Part No.
Columns			
100 mg	3 mL	50	**N9306647**
200 mg	3 mL	50	**N9306639**
200 mg	6 mL	30	**N9306637**

Compared to other industry-leading SPE materials, our Extreme Capacity (XC) and Extra Wide Particles (XWP) lead market in surface area. This allows for higher capacities at lower bed weights.



SPE Application and Selection Packs

SPE Application Packs

Ideal for extraction of known entities from a variety of matrices, our packs are expertly tailored to meet your application needs and are designed to support major EPA methods and applications.

Description	Media Weight	Volume	Qty.	Part No.
Extraction of Basic Drugs from Biological Fluids	200 mg	3 mL	50	**N9306605**
Extraction of Bisphenol A from Aqueous Matrix	1 g	6 mL	30	**N9306613**
Extraction of Oil and Grease from Aqueous Matrix-EPA 1664	500 mg	3 mL	50	**N9306612**
	1 g	6 mL	30	**N9306611**
Extraction of PAH from Soil and Oil	1.5 g	6 mL	30	**N9306609**
Extraction of PAH from Soil and Oil (Glass Straight Column)	1.5 g	6 mL	30	**N9306610**
Extraction of PAH from Water Containing Humic Acids	1.5 g	6 mL	30	**N9306608**
Extraction of PAH from Water or Soil	4 g	6 mL	30	**N9306606**
Extraction of PAH from Water or Soil (Glass Straight Column)	4 g	6 mL	30	**N9306607**
Extraction of PCB from Oil	1 g	6 mL	30	**N9306617**
	1 g	3 mL	50	**N9306616**
Extraction of Pesticides and Herbicides from Aqueous Matrix	500 mg	3 mL	50	**N9306614**
Extraction of Steroids from Biological Fluids	500 mg	6 mL	30	**N9306615**
Extraction of SVOC from Water-EPA 525	1 g	6 mL	30	**N9306618**

SPE Selection Packs

Enables quick column selection for development of reproducible and repeatable SPE methods.

Description	Media Weight	Volume	Qty.	Part No.
Pre-Concentration of Hydrophobic Compounds from Aqueous Matrix	200 mg	6 mL	50	**N9306594**
	200 mg	3 mL	50	**N9306595**
Extraction of Hydrophobic Compounds from Aqueous Matrix	500 mg	6 mL	50	**N9306596**
	500 mg	3 mL	50	**N9306597**
Pre-Concentration of Hydrophilic Compounds	500 mg	6 mL	30	**N9306598**
	500 mg	3 mL	30	**N9306599**
Removal of Polar Compounds from Aqueous and Organic Matrix	500 mg	6 mL	30	**N9306600**
	500 mg	3 mL	30	**N9306601**
Extraction of Acidic Basic and Neutral Compounds from Aqueous or Organic Matrix	100 mg	3 mL	50	**N9306602**
Extraction of Carboxylic Acids and Strong Bases from Aqueous Matrix	500 mg	6 mL	40	**N9306603**
Extraction of Weak Bases from Aqueous Matrix	500 mg	6 mL	30	**N9306604**

SPE Vacuum PUMPS, Manifolds and Accessories

SPE Vacuum Manifolds accommodate either 12 or 24 cartridges; 1, 3, 6, 15, and 25 mL columns can be used. Manifolds are equipped with a vacuum port to connect a standard laboratory vacuum pump. Vacuum pulls the sample through the stationary phase, metered by the stopcocks, to control the speed of the extraction process and the sample flow. Waste and wash solvents are discarded and analytes are collected in sample tubes below the manifold completing the extraction. For your convenience, manifold kits are supplied in either 12 position or 24 position configurations.



Kit Contents

Description	Qty.	12 Position Part No.	Qty.	24 Position Part No.
Vacuum Manifold Kit	1	**N9306619**	1	**N9306626**
Replacement Chamber (Glass)	1	**N9306620**	1	**N9306627**
Cover Gasket – 12 Position	1	**N9306621**	1	**N9306628**
Stopcocks – 12 Position	12	**N9306624**	24	**N9306631**
Needles – Polypropylene	12	**N9306622**	24	**N9306629**
Needles – Stainless Steel	12	**N9306623**	24	**N9306630**
Drying Attachment	1	**N9306625**	1	**N9306632**

Description	Qty.	20 L/min 115 V	60 L/min 115 V	17 L/min 230 V	58 L/min 230 V
Vacuum Pumps	1	**N9308035**	**N9308063**	**N9308331**	**N9308332**

Supra-d QuEChERS Dispersive SPE

For more than 30 years, pesticide extraction methods have evolved to ensure rugged and safe liquid chromatography (LC) or gas chromatography (GC) analysis. Initial techniques of liquid to liquid extraction and Dispersive SPE (dSPE) have been optimized to combat emulsions, loss of analytes and excessive solvent consumption.

PerkinElmer's Supra-d QuEChERS dispersive SPE turns sample preparation into an easy two-step process by using the QuEChERS method. QuEChERS (Quick, Easy, Cheap, Effective, Rugged, Safe) dispersive SPE, is the number one used sample preparation approach in pesticide residue analysis. It eliminates complex liquid extraction methods and extends the range of recovered pesticides. The QuEChERS procedure is fast and easy, improving lab productivity and resulting in fewer errors.

Features and Benefits:

- High recoveries are achieved for more accurate analyses
- Up to 4 times faster than traditional methods
- Low solvent usage and waste for maximum cost savings



Our SPE extraction and clean-up kits have been customized for your specific sample preparation needs. They are designed for both steps of the QuEChERS method and each kit includes pre-prepared products for simplicity sand error-free extractions. A certificate of quality is included in each kit, ensuring you have the best for your application. With our extensive line of dispersive SPE kits you'll be sure to find what you're looking for.

QuEChERS simple two-step procedure:

Step 1: Extraction

Homogenize sample and place 10 g in a 50 mL tube → Add 10 mL acetonitrile and mix → Add internal standard(s) → Add prepared sample to an extraction reagent tube → Shake → Centrifuge

Step 2: Clean-Up

Transfer an aliquot of the supernatant to a clean-up tube → Shake → Centrifuge → Test supernatant directly by GC, GC/MS, LC, LC/MS

Supra-d QuEChERS For Multiple Pesticide Residue Analysis

PerkinElmer provides a complete range of products for QuEChERS methodologies, offering all three standard QuEChERS methods: Original QuEChERS method, American AOAC Standard (Official Method 2007.01) QuEChERS method and European Standard (EN 15662) QuEChERS method.



Method	Vol.	Qty.	$MgSO_4$	Na Acetate	Na Citrate	Na Citrate Sesquihydrate	NaCl	Part No.	Empty Tube Part No.	Powder Pack (pkg. 50) Part No.	Powder Pack (pkg. 500) Part No.
Extraction Kits											
AOAC 2007.01	50 mL	50	6 g	1.5 g				**N9306900**	**N9306935**	**N9306936**	**N9306939**
EN 15662	50 mL	50	4 g		1 g	0.5 g	1 g	**N9306901**	**N9306935**	**N9306937**	**N9306940**
Original	50 mL	50	4 g				1 g	**N9306902**	**N9306935**	**N9306938**	**N9306941**

Description	Vol.	Qty.	$MgSO_4$*	PSA**	C18***	PGC****	Part No.
AOAC 2007.01 Clean-Up Kits							
Fruit and Vegetables	2 mL	100	150 mg	50 mg			**N9306908**
Fruit and Vegetables	15 mL	50	1200 mg	400 mg			**N9306909**
Fruit and Vegetables with Fats and Waxes	2 mL	100	150 mg	50 mg	50 mg		**N9306910**
Waxed Fruit and Vegetables	15 mL	50	1200 mg	400 mg	400 mg		**N9306911**
Pigmented Fruit and Vegetables	15 mL	50	1200 mg	400 mg		400 mg	**N9306912**
Fruit and Vegetables with Pigments and Fats	2 mL	100	150 mg	50 mg	50 mg	50 mg	**N9306913**
Fruit and Vegetables with Pigments and Fats	15 mL	50	1200 mg	400 mg	400 mg	400 mg	**N9306914**
EN 15662 Clean-Up Kits							
Fruit and Vegetables	2 mL	100	150 mg	25 mg			**N9306920**
Fruit and Vegetables	15 mL	50	900 mg	150 mg			**N9306921**
Fruit and Vegetables with Fats and Waxes	2 mL	100	150 mg	25 mg	25 mg		**N9306922**
Waxed Fruit and Vegetables	15 mL	50	900 mg	150 mg	150 mg		**N9306923**
Pigmented Fruit and Vegetables	15 mL	50	900 mg	150 mg		15 mg	**N9306924**
Pigmented Fruit and Vegetables	2 mL	100	150 mg	25 mg		2.5 mg	**N9306925**
High Pigmented Fruit and Vegetables	2 mL	100	150 mg	25 mg		7.5 mg	**N9306926**
High Pigmented Fruit and Vegetables	15 mL	50	900 mg	150 mg		45 mg	**N9306927**

Description	Method	Vol.	Qty.	$MgSO_4$*	PSA**	C18***	PGC****	Part No.
Clean-up Kit								
Clean-up Kit	Original	15 mL	50	900 mg	300 mg		150 mg	**N9306933**

* $MgSO_4$ removes excess water

** PSA removes sugars, fatty acids, organic acids, and anthocyanine pigments

*** C18 removes nonpolar interferences

**** PGC (carbon) removes pigments, sterols, and nonpolar interferences

Syringes

Disposable Syringes

Designed for use with syringe filters, these disposable, sterile, polypropylene syringes are for general-purpose applications. Packaged in easy-to-open sealed package and they can be autoclaved out of the package.



Description	Pkg.	Part No.
Luer-Lock Tips, 1 mL	100	**02542890**
Luer-Lock Tips, 3 mL	200	**02542891**
Luer-Lock Tips, 5 mL	100	**02542892**
Luer-Lock Tips, 10 mL	100	**02542893**

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	OD	ID	Tip Description	Pkg.	Part No.
0.5 µL	26	0.47	0.1	Bevel	1	**N9302231**
1.0 µL	23	0.63	0.15	Cone	1	**00230177**
1.0 µL	26[1]	0.47	0.15	Cone	1	**00230111**
2.0 µL	23	0.63	0.12	Bevel	1	**N9302235**
5.0 µL	23	0.63	0.37	Cone	1	**00230178**

[1] Recommended for PerkinElmer wide-bore capillary adapter

For a full listing of GC autosampler and manual syringes please refer to page 116.

Vials, Caps and Septa

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

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NEW High Recovery Vials

Manufactured from the same high quality glass as our standard 2 mL vials, these high recovery vials provide efficient handling of a range sample volumes from 30 µL to 1.5 mL, with the convenience of a single vial format.



Vial, Cap and Septa Kits

Buying a kit offers you a guaranteed proper fit between the cap and vial. Available with either glass or polypropylene vials, and a range of cap choices these autosampler vial, cap and septa kits make it surprising simple to re-stock your laboratory.

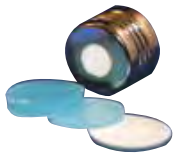


NEW PACK SIZE

For your added convenience, the most popular kits are now available in 1000 pack size.

NEW Ultra-Low Bleed Septa

Our ultra-low bleed septa is the benchmark for high purity septa, eliminating any possibility of contamination. Available in caps for 2 mL vials, headspace and SPME applications.



NEW High Powered Crimpers and Decappers

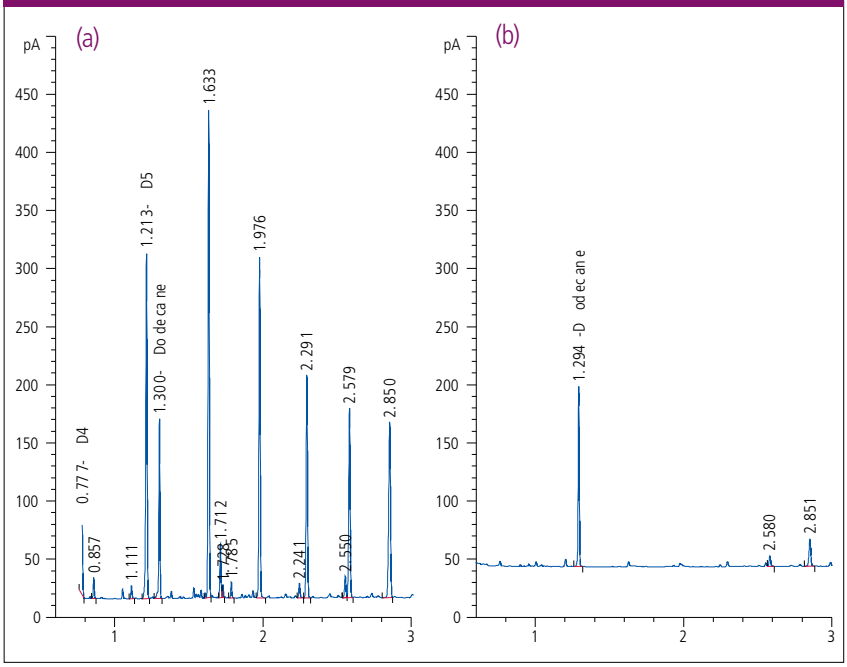
The high powered crimper and decapper is an essential laboratory accessory for any high through put environment. Realise the benefits of not only fast and accurate crimping or decapping, but also the ultimate tool in flexibility with interchangeable jaw sets.



Quality Matters; Vials, Caps and Septa

Vials and closures are a critical part of your workflow; just as important as the instrument or column used. It is easy to think of a vial or cap as an inexpensive commodity that won't impact your results, but the reality is different. It's not only the physical attributes that can affect overall analytical performance, but also the quality of the glass and septa used. Contamination from sub-standard glass or poor quality septa (figure 3) can lead to interferences, inaccuracies and failures which ultimately effects lab productivity.

Figure 3: GC analysis of (a) cheaper supply of 20 mm head space septa. (b) PerkinElmer 20 mm head space septa.



A sample of the septa was taken and placed into an extraction solution, heated, and the resulting supernatant analyzed by GC. There is a marked difference between the two sources of septa. The poor quality (often cheaper) septa clearly shows the presence of some impurities, siloxanes. These impurities are absent from the PerkinElmer septa sample.

Taking purity and inertness of septa to the next level are PerkinElmer's range of ultra low bleed septa. Offering unsurpassed quality, no bleed is detected ensuring maximum sensitivity for applications; particularly MS, headspace and SPME. See page 31 for a full product listing.

You can rely on PerkinElmer to consistently supply only the highest quality vials, caps and septa to ensure that your analytical instruments continue to operate smoothly. All are tested to our stringent requirements and are compatible with both PerkinElmer instruments and other vendor systems. Choose from a range of glass or polypropylene vials and select your particular closure from a variety of options. Separate vials and caps can readily be purchased or select one of our kits for added convenience.

Features and Benefits:

- Vials are made from Type I Borosilicate Glass; which meets all USP, JP and EP requirements. This glass is very hard and has a low expansion coefficient even at high temperature
- Vials are stringently tested using camera gauging technology to ensure final product meets all dimensional specifications
- All our vials, caps and septa are fit to perform on PerkinElmer and non-PerkinElmer instruments
- We stock a wide variety of sizes, colors and materials of vials, caps and septa
- All vials are packed in a clean room and those labelled with 'LC Clean' include an additional certificate of analysis
- Option for ultra low bleed septa for the ultimate in inertness. Batch certification is also available

How to Choose a Vial:

1. **Choose a size.**
   a. Volume (i.e. 2 mL, high recovery or micro volume)
   b. Diameter and height (i.e.12 mm x 32 mm)
   c. ID of the neck (i.e. 9 mm or 11 mm)
   d. Finish (i.e. snap, crimp or screw top)
2. **Choose a color.**
   If your sample is sensitive to light you may want to consider an amber vial.
3. **Choose a material.**
   Vials are available in both glass and polypropylene.
   For biological applications polypropylene vials are recommended.



How to Choose a Seal:

1. **Choose a septa material.**
   Required temperature of operation, resistance to coring, storage shelf time are a few of the variables that should be taken into consideration when choosing your septa material.
   Refer to the table below for an overview of compatibility.
2. **Decide between a pre-slit or non-slit septa.**
   Due to the technique and type of needle they use, pre-slit septa are ideal for LC systems, while non-slit septa are ideal for GC and GC/MS systems.
3. **Match the size of the cap/septa with the size of your vial.**



Cap and Septa Compatibility

	Aluminum/Silicone	PTFE/Silicone	PTFE/Red Rubber	PTFE/Butyl (Red or Gray)	Red or Gray Butyl
Temperature Range	Up to 220 °C	Up to 210 °C	Up to 160 °C	Up to 130 °C	Up to 130 °C
Use for multiple injections?	No	Yes	Yes	No	No
Price per 1000	Most Expensive	Expensive	Economical	Economical	Very Economical
Resistance to coring	Good	Excellent	Good	Low	Low
Recommended for storage	Yes	Yes	Yes	No	No
Solvent Compatibility					
Acids	Excellent	Excellent	Good	Fair	Fair
Alcohols	Good	Good	Fair	Good	Good
Chloroform	Good	Good	Poor	Fair	Fair
Ethyl acetate	Excellent	Excellent	Good	Fair	Fair
Hexane	Good	Good	Poor	Poor	Poor
Methanol	Excellent	Excellent	Good	Good	Good

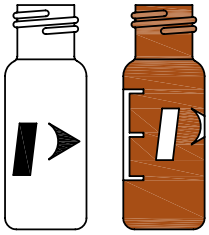
Do You Need Anything Else?

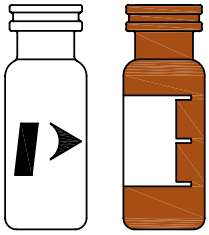
We have a wide variety of crimpers, decappers, and vial trays to also make your analysis easier.

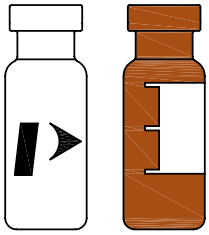
Autosampler Vials

Our vials are manufactured from Type I Borosilicate Glass, which meets all USP, JP, and EP Pharmacopeia requirements. The glass performs excellently at high temperatures and is chemical resistant to acidic, neutral and alkali solutions. All our vials are packed in a clean environment to ensure you receive contaminant free product every time.

2 mL Autosampler Glass Vials (12 x 32 mm)


Screw Top


Snap Top

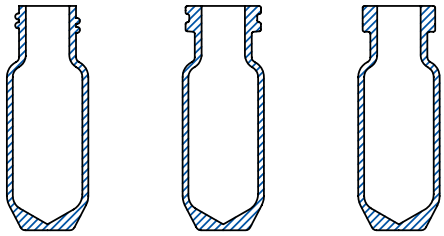

Crimp Top

Neck ID Size (mm)	Vial Top Type	Vial Description	Pkg.	Part No.
8	Screw	Clear glass	200	**N9301069**
8	Screw	Clear glass	100	**N9302945**
9	Screw	Clear glass	100	**N9306201**
9	Screw	Clear glass with write on patch and fill lines	100	**N9307801**
9	Screw	Clear glass with write on patch (deactivated)	100	**N9304139**
9	Screw	Amber glass	100	**N9306220**
9	Screw	Amber glass with write on patch and fill lines	100	**N9307802**
9	Screw	Amber glass with write on patch and fill lines (deactivated)	100	**N9304140**
10	Screw	Clear glass with write on patch and fill lines	100	**N9306053**
10	Screw	Amber glass with write on patch and fill lines	100	**N9306057**
11	Crimp	Clear glass	100	**N9301385**
11	Crimp	Clear glass with write on patch and fill lines	100	**N9306223**
11	Crimp	Clear glass with write on patch and fill lines (deactivated)	100	**N9304135**
11	Crimp	Amber glass	100	**N9302680**
11	Crimp	Amber glass with write on patch and fill lines	100	**N9302679**
11	Crimp	Amber glass with write on patch and fill lines (deactivated)	100	**N9304136**
11	Snap	Clear glass	100	**N9303418**
11	Snap	Clear glass with write on patch and fill lines	100	**N9306207**
11	Snap	Clear glass with write on patch and fill lines (deactivated)	100	**N9304137**
11	Snap	Amber glass with write on patch and fill lines	100	**N9306208**
11	Snap	Amber glass with write on patch and fill lines (deactivated)	100	**N9304138**

NEW

1.5 mL Autosampler High Recovery Vials

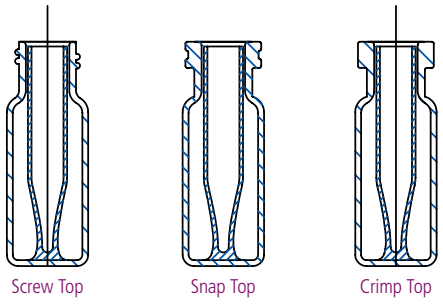
Manufactured from the same high quality Type 1 Class A borosilicate glass as our standard 2 mL vials, these high recovery vials provide efficient handling of a range sample volumes from 30 µL to 1.5 mL, with the convenience of a single vial format.



Neck ID Size (mm)	Vial Top Type	Vial Description	Pkg.	Part No.
9	Screw	Clear glass	100	**N2926202**
11	Snap	Clear glass	100	**N2926201**
11	Crimp	Clear glass	100	**N2926200**

Autosampler Vials with Fused Inserts

For easy sampling, try our glass vials with fused sample inserts; a variety of volumes are available in either clear or amber glass. They are ideal when handling micro volume samples.
For polypropylene standard 2 mL vials and small volume vials, please refer to the table on page 28.



Neck ID size (mm)	Capacity	Vial Top Type	Vial Description	Pkg.	Part No.
8	100 µL	Screw	Clear glass	100	**N9300713**
8	100 µL	Screw	Amber glass	100	**N9300714**
8	200 µL	Crimp	Clear glass	500	**N9302136***
9	300 µL	Screw	Clear glass	100	**N9300715**
9	300 µL	Screw	Amber glass	100	**N9300716**
10	300 µL	Screw	Clear glass	100	**N9300717**
10	300 µL	Screw	Amber glass	100	**N9300718**
11	300 µL	Crimp	Clear glass	100	**N9300709**
11	300 µL	Snap	Clear glass	100	**N9300711**
11	300 µL	Crimp	Amber glass	100	**N9300710**
11	300 µL	Snap	Amber glass	100	**N9300712**

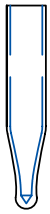
***N9302136** should be used with glass vial support sleeve **N9307027**

Autosampler Vial Inserts

Our vial inserts are made from the same Type 1 borosilicate glass as our vials and can be used for maximum sample extraction when handling micro volumes. Extend the usability of your standard 2 mL vials with the addition of a micro volume insert. Simply select the vial insert that matches with the neck ID of your vial.



Flat Bottom Insert



Precision Point Insert

Insert Capacity	Insert Dimension (mm)	Fits Vial Neck ID (mm)	Qty.	Part No.
150 µL	5 x 29 spring bottom	8	100	**N9300705**
200 µL	5 x 31 flat bottom	8	100	**N9300706**
250 µL	6 x 29 spring bottom	9, 10 or 11	100	**N9300703**
400 µL	6 x 31 flat bottom	9, 10 or 11	100	**N9300704**

Polypropylene Vials

Polypropylene vials offer an alternative to glass vials and provide an ultra-inert sample environment, which is ideal for biological samples. They are also an excellent choice for applications involving high metal ion content, such as ion chromatography, AA, ICP or ICPMS.

Volume	Neck ID Size (mm)	Vial Top Type	Vial Description	Pkg.	Part No.
300 µL	9	Screw	Clear polypropylene	100	**N9301732**
2 mL	9	Screw	Clear polypropylene	100	**N9301733**
2 mL	9	Screw	Amber polypropylene	100	**N9301734**
600 µL	9	Screw	Clear polypropylene	500	**N9302130**

Waste and Wash Vials, Caps and Septa for GC

ID Size (mm)	Product Description	Screw Part No. Pkg. 1	Screw Part No. Pkg. 100	Screw Part No. Pkg. 1000
13	Clear Glass Vial – 4 mL (15 x 45 mm)	**09923031**	**N9306247**	
	200 µL Vial Insert			**N9302681**
	Support for Vial Insert			**N9302682***
13	Black Cap with PTFE/Silicone (Ultra Low Bleed) Septa		**N9304141**	**N9304142**
13	Black Phenolic Cap (no septa)	**09923032**		
13	Silicone Septa (no cap)		**N9302780**	
	Vial Diffuser	**N6101276**		

***N9302682** is pkg. 500

Autosampler Caps and Septa

PerkinElmer offers a variety of caps and septa to fulfil your application needs. Our screw thread vial caps use the revolutionary Inter-Seal®. Using a process that bonds silicone/PTFE and other elastomeric compounds directly into thermoplastic closures eliminates liner fallout, while still providing the excellent re-sealability and multiple injection capability. No adhesives are used in this process, bonding the cap and septa at the molecular level of plastic and rubber. These septa have a very broad chemical resistance and can be used in many markets including: environmental, diagnostic packaging, pharmaceutical packaging, cosmetic and food packaging.



Pre-Assembled Cap and Septa

For your convenience, a wide range of pre-assembled caps and septa are available, in differing pack sizes.

Neck ID Size (mm)		Septa Type	Cap Type	Closure Type	Pkg.	Part No.
8		PTFE	Aluminium	Crimp	1000	**N9302140**
8		PTFE/red rubber	Aluminium	Crimp	1000	**03300806**
8		PTFE/silicone	Black flanged cap	Screw	100	**N9303449**
8		PTFE/silicone (pre-slit)	Polyethylene	Snap	1000	**N9302141**
9		PTFE/red rubber	Blue (polypropylene)	Screw	100	**N9306200**
9		PTFE/silicone	Blue (polypropylene)	Screw	100	**N9306360**
9		PTFE/silicone	Blue (polypropylene)	Screw	1000	**N9306361**
9		PTFE/silicone (ultra-low bleed)	Blue (polypropylene)	Screw	100	**N9306362**
9		PTFE/silicone (ultra-low bleed)	Blue (polypropylene)	Screw	1000	**N9306363**
9		PTFE/silicone (ultra-low bleed and pre-slit)	Blue (polypropylene)	Screw	100	**N9306364**
9		PTFE/silicone (ultra-low bleed and pre-slit)	Blue (polypropylene)	Screw	1000	**N9306365**
9		PTFE/silicone (pre-slit)	Blue (polypropylene)	Screw	100	**N9306203**
9		PTFE/silicone	Blue (polypropylene)	Screw	1000	**N9306202**
10		PTFE/red rubber	Black (polypropylene)	Screw	100	**N9306206**
10		PTFE/silicone	Black (polypropylene)	Screw	100	**N9306205**
10		PTFE/silicone (pre-slit)	Black (polypropylene)	Screw	100	**N9306052**
11		PTFE/red rubber	Aluminium (sliver)	Crimp	100	**N9306015***
11		PTFE/red rubber	Aluminium (green)	Crimp	100	**N9302684**
11		PTFE/red rubber	Aluminium (red)	Crimp	100	**N9302685**
11		PTFE/red rubber	Aluminium (blue)	Crimp	100	**N9302686**
11		PTFE/silicone (red/white)	Aluminium (silver)	Crimp	100	**N9307823**
11		PTFE/silicone (red/white)	Aluminium (silver)	Crimp	100	**N9306228**
11	**NEW**	PTFE/Silicone (red/white) Ultra low bleed	Aluminium (silver)	Crimp	100	**N9304148**
11	**NEW**	PTFE/Silicone (red/white) Ultra low bleed	Clear (polypropylene)	Snap	100	**N9304149**
11	**NEW**	PTFE/Silicone (red/white) Ultra low bleed	Clear (polypropylene)	Snap	1000	**N9304185**
11		PTFE/silicone (red/white)	Clear plastic (polyethylene)	Snap	100	**N9303419**
11		PTFE/silicone (red/white) pre-slit	Clear plastic (polyethylene)	Snap	100	**N9303416**
11		PTFE/silicone/PTFE	Aluminium (silver)	Crimp	100	**N9306229**
11		PTFE/silicone/PTFE	Gold magnetic	Crimp	100	**N6356473**
11		PTFE/silicone/PTFE	Clear plastic	Snap	100	**N9303417**
11		Aluminium/PTFE	Aluminium (silver)	Crimp	500	**N9302139**
11		Black viton	Aluminium (silver)	Crimp	1000	**N9302784**

*Same Part No. as **N9306230**

Un-Assembled Cap and Septa

Neck ID Size (mm)	Description	Material	Closure Type	Pkg.	Part No.
8	Septa	PTFE/red rubber	–	100	**N9303442**
8	Cap	Phenolic cap	Screw	100	**N9303441**
11	Septa	PTFE/silicone	–	12	**00091357**
11	Septa	PTFE/silicone (pre-split)	–	500	**N9307021**
11	Cap	Clear plastic cap with slit	Snap	500	**N9307023**

Autosampler Vial, Cap and Septa Convenience Kits

Available with either glass or polypropylene vials and a range of cap choices, these autosampler vial, cap and septa kits make it surprising simple to re-stock your laboratory. For your added convenience, the most popular kits are also available in 1000 pack size.



NEW
1000/Pack

ID Size (mm)	Septa Type	Cap Type	Vial Type	Screw Top Part No. Pkg. 100	Screw Top Part No. Pkg. 500	Screw Top Part No. Pkg. 1000
8	PTFE/Silicone	Black Cap	Clear Glass	**N9301945**		
9	PTFE/Red Rubber	Blue Cap	Clear Glass	**N9300699**		**N9300910**
9 (certified)	PTFE/Silicone	Blue Cap	Amber Glass	**N9300719**		**N9300911**
9	PTFE/Silicone	Blue Cap	Clear Glass	**N9300700**		**N9300912**
9 (certified)	PTFE/Silicone	Blue Cap	Clear Glass	**N9300707**		
9	PTFE/Silicone (Pre-Slit)	Blue Cap	Amber Polypropylene	**N9301735**		
9 (certified)	PTFE/Silicone (Pre-Slit)	Gray Cap	Amber Glass	**N9300720**		
9	PTFE/Silicone (Pre-Slit)	Blue Cap	Clear Polypropylene	**N9301736**		
9	PTFE/Silicone (Pre-Slit)	Blue Cap	Clear Polypropylene (300 µL capacity)		**N9306080**	
9 (certified)	PTFE/Silicone (Pre-Slit)	Gray Cap	Clear Glass	**N9300708**		
9	PTFE/Silicone (Pre-Slit)	Blue Cap	Clear Glass	**N9300701**		
10	PTFE/Silicone (Pre-Slit)	Black Cap	Clear Glass	**N9300695**	**N9300650**	**N9300913**
10	PTFE/Silicone (Pre-Slit)	Black Cap	Amber Glass	**N9300696**		**N9300914**

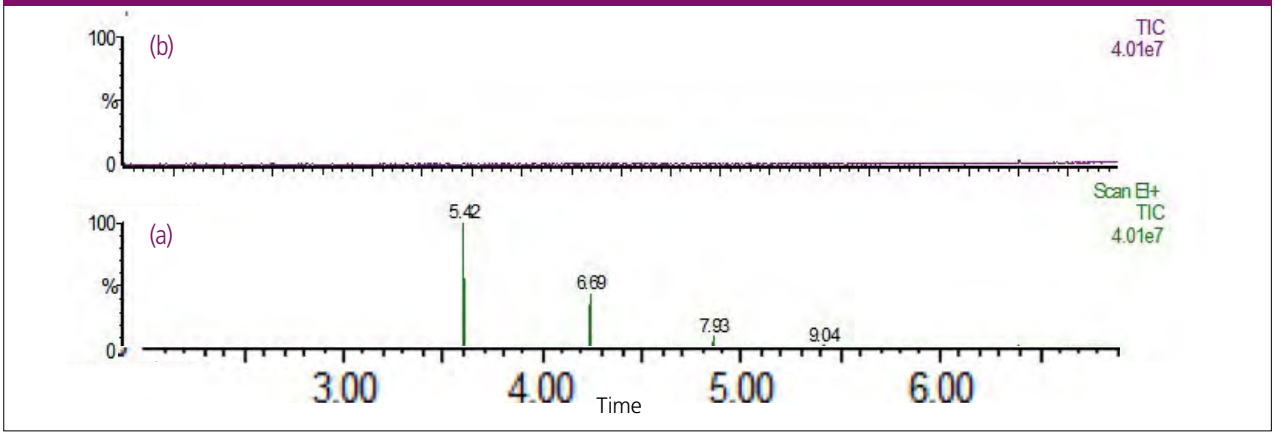
ID Size (mm)	Septa Type	Cap Type	Vial Type	Crimp Top Part No. Pkg. 100	Crimp Top Part No. Pkg. 500	Snap Top Part No. Pkg. 100
11	PTFE/Red Rubber	Aluminum Cap	Clear Glass	**N9300502**	**N9300503**	
11	PTFE/Silicone	Aluminum Cap	Clear Glass	**N9300500**		
11	PTFE/Silicone	Clear Plastic Cap	Clear Glass			**N9300702**
11	PTFE/Silicone (Pre-Slit)	Clear Plastic Cap	Clear Glass			**N9300697**
11	PTFE/Silicone/PTFE	Aluminum Cap	Clear Glass	**N9300501**		
11	PTFE/Silicone/PTFE	Clear Plastic Cap	Clear Glass			**N9300698**

NEW

Ultra Low Bleed Septa

Septa quality, as well as vial quality, is important to ensure rugged and reproducible analytical results, day in day out. PerkinElmer's range of ultra-low bleed septa offers the ultimate in purity and inertness, (figure 4). Eliminate potential contamination from septa which can lead to interferences, inaccuracies and failures which ultimately effects lab productivity. A range of septa combinations area available for standard analytical and headspace applications. The 1.3 mm thick septa are recommended for SPME applications.

Figure 4: Comparison of Headspace Septa by GC (a) PerkinElmer Standard HS Septa. (b) PerkinElmer Ultra Low Bleed Septa.



2 mL Caps with Ultra Low Bleed Septa

Neck ID Size (mm)	Description	Material	Closure Type	Pkg.	Part No.
9	PTFE/silicone	Blue polypropylene	Screw	100	**N9306362**
9	PTFE/silicone	Blue polypropylene	Screw	1000	**N9306363**
9	PTFE/silicone – pre split	Blue polypropylene	Screw	100	**N9306364**
9	PTFE/silicone – pre split	Blue polypropylene	Screw	1000	**N9306365**
11	PTFE/Silicone (red/white)	Aluminium (silver)	Crimp	100	**N9304148**
11	PTFE/Silicone (red/white)	Clear (polypropylene)	Snap	100	**N9304149**
11	PTFE/Silicone (red/white)	Clear (polypropylene)	Snap	1000	**N9304185**

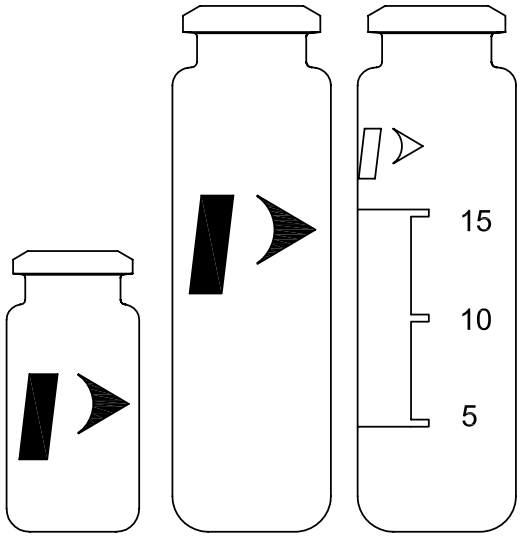
Headspace Caps with Ultra Low Bleed Septa

Septa Type	Cap Type	Closure Type	Pkg.	Part No
PTFE/Silicone (blue/white) 1.5 mm thick	Bi-Metal Cap	Crimp	100	**N9304181**
PTFE/Silicone (blue/white) 1.5 mm thick	Bi-Metal Cap	Crimp	1000	**N9304182**
PTFE/Silicone (blue/white) 1.5 mm thick	Gold Aluminium Cap	Crimp	100	**N9304183**
PTFE/Silicone (blue/white) 1.5 mm thick	Gold Aluminium Cap	Crimp	1000	**N9304184**
PTFE/Silicone (blue/white) 1.5 mm thick	Aluminium Magnetic Cap	Screw	100	**N9304175**
PTFE/Silicone (blue/white) 1.5 mm thick	Aluminium Magnetic Cap	Screw	1000	**N9304176**
PTFE/Silicone (red/white) 1.3 mm thick	Aluminium Magnetic Cap	Screw	100	**N9304177**
PTFE/Silicone (red/white) 1.3 mm thick	Aluminium Magnetic Cap	Screw	1000	**N9304178**
PTFE/Silicone (white/blue) 1.3 mm thick	Aluminium Magnetic Cap	Screw	100	**N9304179**
PTFE/Silicone (white/blue) 1.3 mm thick	Aluminium Magnetic Cap	Screw	1000	**N9304180**

Headspace Vials

PerkinElmer offers a variety of GC headspace vials, caps and septa to fulfil your application needs. Our 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. All of our headspace 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 vial and vial adapter. All PerkinElmer headspace vials are manufactured to specific tolerances that are guaranteed for fit and performance.



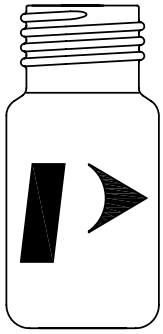


Headspace Crimp Top Vials

Round bottomed vials designed for use with PerkinElmer headspace instruments.

Vial Volume	Dimensions (OD x Height) (mm)	Description	Pkg.	Part No.
6 mL	21.75 x 38	Clear glass vial (requires Part No. **N6120110** for use)*	125	**N9302134**
6 mL	–	Low volume adaptor for 6 mL vial (Part No. **N9302134**)*	10	**N6120110**
10 mL	21.75 x 46	Clear glass vial (requires Part No. **N6120111** for use)	100	**N6356478**
10 mL	–	Low volume adapter for 10 mL vial (Part No. **N6356478**)	10	**N6120111**
20 mL	23 x 75.5	Clear glass vial (no logo)	1000	**N9306216**
20 mL	23 x 75.5	Clear glass vial with 'P' logo	100	**N9306079**
20 mL	23 x 75.5	Clear glass vial with write on patch and fill lines	100	**N9303349**
20 mL	23 x 75.5	Clear glass vial with write on patch and fill lines	1000	**N9303348**
22 mL	23 x 75.5	Clear glass vial, with 'P' logo	1000	**B0104236**

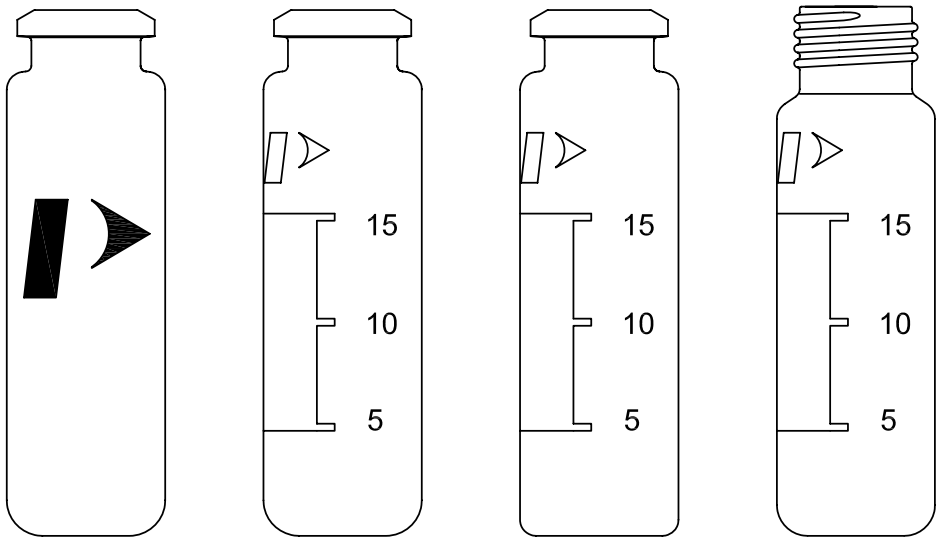
*Not compatible with TurboMatrix HS 110 headspace sampler



Headspace Screw Top Vials

Round bottomed vials designed for use with PerkinElmer headspace instruments.

Vial Volume	Dimensions (OD x Height) (mm)	Description	Pkg.	Part No.
10 mL	23 x 46	Clear glass vial, no adaptor	100	**N6356479**
20 mL	23 x 75.5	Clear glass vial with 'P' logo	100	**N9306075**
20 mL	23 x 75.5	Clear glass vial with 'P' logo	1000	**N9306078**
20 mL	23 x 75.5	Clear glass vial with write on patch and fill lines	100	**N9306240**
20 mL	23 x 75.5	Clear glass vial with write on patch and fill lines	1000	**N9306241**



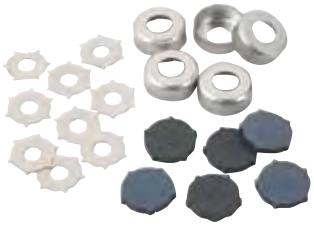
CTC Headspace Vials

Vial Volume	Vial Closure Type	Dimensions (OD x Height) (mm)	Description	Pkg.	Part No.
20 mL	Crimp	22.6 x 75.5	Clear glass vial with 'P' logo (radius bottom)	100	**N6356471**
20 mL	Crimp	22.6 x 75.5	Clear glass vial with write on patch and fill lines (radius bottom)	100	**N6356472**
20 mL	Crimp	22.6 x 75.5	Clear glass vial with write on patch and fill lines (radius bottom)	1000	**N9303351***
20 mL	Crimp	22.6 x 75.5	Clear glass vial with write on patch and fill lines (flat bottom)	1000	**N9303352****
20 mL	Screw	22.6 x 75.5	Clear glass vial with write on patch and fill lines (radius bottom)	1000	**N9306242**

*Also suitable for Shimadzu, Tekmar and Varian
** Also suitable for Agilent

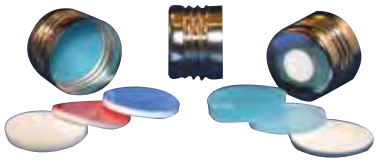
Headspace Caps and Septa

Choose 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 Chart for more details.)



Pre-Assembled Aluminum Crimp Caps and Septa

Septa Type	Aluminum Caps (Pre-Assembled)	Crimp Top Part No. Pkg. 100	Crimp Top Part No. Pkg. 1000
Butyl (red)	Aluminum Cap, Star Spring and Septa	**N9304143**	**N1010070**
Butyl (gray)	Aluminum Cap, Star Spring and Septa	**N9306269**	**N9306268**
PTFE/Butyl (red)	Aluminum Cap, Star Spring and Septa	**N9304144**	**B4000025**
PTFE/Butyl (gray)	Aluminum Cap, Star Spring and Septa	**N9306265**	**N9306264**
PTFE/Butyl (gray)	Aluminum Cap		**N9302981**
PTFE/Butyl (Pharma Fix Septa)	Aluminum Cap	**N9306224**	
PTFE/Red Rubber (red)	Aluminum Cap, Star Spring and Septa	**N9304147**	**N9302978**
PTFE/Silicone (white)	Aluminum Cap, Star Spring and Septa	**N9304146**	**B4000022**
PTFE/Silicone (white) Low Bleed	Aluminum, Skived Pressure Relief		**N9302975**
PTFE/Silicone (white) Low Bleed	Aluminum, Skived (non-Pressure Relief)		**N9302977**
PTFE/Silicone (natural) Low Bleed	Aluminum, Skived (non-Pressure Relief)		**N9302976**
Aluminum/Silicone	Aluminum Cap, Star Spring and Septa	**N9304145**	**B4000028**
NEW Ultra Low Bleed PTFE/Silicone (blue/white) 1.5 mm thick	Gold Aluminium Cap	**N9304183**	**N9304184**



Pre-Assembled Magnetic Crimp and Screw Caps and Septa

Septa Type	Closure	Magnetic Caps (Pre-Assembled)	Part No. Pkg. 100	Part No. Pkg. 1000
Butyl (gray)	Crimp	Steel Magnetic Cap	**N6356561**	
PTFE/Butyl (red), 3.0 mm thick	Screw	Steel Magnetic Cap	**N9306076**	
PTFE/Butyl (red), 1.5 mm thick	Crimp	Steel Magnetic Cap	**N6356560**	
PTFE/Butyl (red), 1.5 mm thick	Screw	Steel Magnetic Cap	**N6356477**	
PTFE/Butyl (blue)	Crimp	Bi-Metal Magnetic Cap	**N6356565**	
PTFE/Butyl (Pharma Fix Septa)	Crimp	Steel Magnetic Cap	**N6356562**	
PTFE/Silicone (red)	Screw	Steel Magnetic Cap	**N6356474**	
PTFE/Silicone (blue/white) 0.060 in. thick	Screw	Steel Magnetic Cap	**N6356476**	
PTFE/Silicone (white)	Screw	Steel Magnetic Cap	**N9306077**	
PTFE/Silicone (natural)	Crimp	Steel Magnetic Cap	**N6356558**	
PTFE/Silicone (blue)	Crimp	Steel Magnetic Cap	**N6356559**	
PTFE/Silicone (blue)	Screw	Steel Magnetic Cap	**N6356475**	
PTFE/Silicone (blue)	Crimp	SPME Liner Steel Magnetic Cap	**N6356564**	
PTFE/Silicone (blue)	Crimp	Bi-Metal Magnetic Cap	**N6356566**	
Aluminum/Silicone	Crimp	Steel Magnetic Cap	**N6356563**	
NEW Ultra Low Bleed PTFE/Silicone (blue/white) 1.5 mm thick	Crimp	Bi-Metal Cap	**N9304181**	**N9304182**
NEW Ultra Low Bleed PTFE/Silicone (blue/white) 1.5 mm thick	Screw	Aluminium Magnetic Cap	**N9304175**	**N9304176**
NEW Ultra Low Bleed PTFE/Silicone (red/white) 1.3 mm thick	Screw	Aluminium Magnetic Cap	**N9304177**	**N9304178**
NEW Ultra Low Bleed PTFE/Silicone (white/blue) 1.3 mm thick	Screw	Aluminium Magnetic Cap	**N9304179**	**N9304180**

Un-Assembled Aluminum Crimp Caps and Septa

		Crimp Top	Crimp Top
Septa Type	Aluminum Caps (Un-Assembled)	Part No. Pkg. 100	Part No. Pkg. 1000
Butyl (red)	Aluminum Cap, Star Spring and Septa	**B0159356**	**B0159357**
Butyl (gray)	Aluminum Cap, Star Spring and Septa	**N9306270**	**N9306271**
Butyl (gray) Stopper	Aluminum Cap (Ridged)		**N9303350**
Butyl (gray) Stopper	Aluminum Cap		**B0110728**
PTFE/Butyl (red)	Aluminum Cap, Star Spring and Septa	**B0104239**	**B0104240**
PTFE/Butyl (gray)	Aluminum Cap, Star Spring and Septa	**N9306266**	**N9306267**
PTFE/Red Rubber (red)	Aluminum Cap, Star Spring and Septa	**N9302979**	**N9302980**
PTFE/Silicone (white)	Aluminum Cap, Star Spring and Septa	**B0104241**	**B0104242**
Aluminum/Silicone	Aluminum Cap, Star Spring and Septa	**B0104243**	**B0104244**
	Aluminum Cap	**B0099814**	**N9302969**

Headspace Vial, Cap and Septa Convenience Kits



PerkinElmer understands your challenges and offers a variety of kits so that you can easily order and restock your laboratory supplies.

Crimp Top

Septa Type	Cap Type	Vial Type	Part No. Pkg. 100	Part No. Pkg. 500
Butyl (red)	Aluminum Cap, Star Spring and Septa	20 mL Crimp Top Clear Glass with Write on Patch and Fill Lines	**N9303990**	
Butyl (gray)	Aluminum Cap, Star Spring and Septa	20 mL Crimp Top Clear Glass with Write on Patch and Fill Lines	**N9306269**	
PTFE/Butyl (red)	Aluminum Cap, Star Spring and Septa	20 mL Crimp Top Clear Glass with Write on Patch and Fill Lines	**N9303991**	
PTFE/Butyl (gray)	Aluminum Cap, Star Spring and Septa	20 mL Crimp Top Clear Glass with Write on Patch and Fill Lines	**N9306265**	
PTFE/Silicone (natural)	Aluminum, Skived Pressure Relief (extreme bleed)	20 mL Crimp Top Clear Glass with Write-on Patch and Fill Lines (Flat Bottom)		**N9300901**
PTFE/Silicone (white)	Aluminum, Skived Pressure Relief (ultra bleed)	20 mL Crimp Top Clear Glass with Write-on Patch and Fill Lines (Flat Bottom)		**N9300902**
PTFE/Silicone (white)	Aluminum, Skived (ultra bleed)	20 mL Clear Glass with Write-on Patch and Fill Lines (Flat Bottom)		**N9300903**
PTFE/Silicone (white)	Aluminum Cap, Star Spring and Septa	20 mL Crimp Top Clear Glass with Write on Patch and Fill Lines	**N9303992**	
Aluminum/Silicone	Aluminum Cap, Star Spring and Septa	20 mL Crimp Top Clear Glass with Write on Patch and Fill Lines	**N9303993**	

Screw Top

Septa Type	Cap Type	Vial Type	Part No. Pkg. 100
PTFE/Silicone	Open Top Gray Polypropylene Screw Cap	40 mL Screw Top Clear Glass (24 mm x 98 mm)	**N6352030**
PTFE/Silicone	Open Top Gray Polypropylene Screw Cap	40 mL Screw Top Amber Glass (24 mm x 98 mm)	**N6352031**
PTFE/Silicone			**N6352032**
	Open Top Gray Polypropylene Screw Cap		**N6352033***

*N6352033 is only available in pkg. 72

Headspace Starter Kits

We offer a variety of headspace consumables so you can evaluate different types of septa and vials for your sampling requirements.

Kits Include:	Part No.	Headspace Starter Kit 500 Part No. B0505601	Headspace Starter Kit 100 Part No. N6710195	Headspace Mini Starter Kit Part No. N6710197	Headspace Mini Starter Kit 1000 Part No. N6710198
20 mm Hand Crimper	**N9302785**	1	1	1	1*
20 mL Clear Glass Crimp Top Vials	**N9306079**	500	500	100	1000
PTFE/Butyl (red) Septa with Pre-Assembled Aluminum Crimp Caps	**B0104239**	100	100	100	
PTFE/Silicone (white) Septa with Pre-Assembled Aluminum Crimp Caps	**B0104241**	100	100	100	1000
Aluminum/Silicone Septa with Pre-Assembled Aluminum Crimp Caps	**B0104243**	100	100	100	
20 mL Clear Glass Screw Top Vials	**N9306075**	500	100	100	
PTFE/Butyl (red) Septa with Steel Magnetic Screw Caps	**N9306076**	100	100	100	
PTFE/Silicone (white) Septa with Steel Magnetic Screw Caps	**N9306077**	100	100	100	
Needle Seal Assemblies	**B0500833**	2	2	2	
O-Rings	**B0198110**	10	10	10	
Pressure Gauge with Needle for Vials	**B0501377**	1	1	1	
'Static Headspace GC Theory and Practice' book by B. Kolb and L.S. Ettre	**N1011210**	1	1		

* This kit includes an Ergonomic Hand Crimper

Crimpers: Electronic, Handheld and Benchtop

Crimping Tools and Vial Accessories

Whatever your need may be, PerkinElmer offers a wide range of crimping tools for your convenience. Our universal voltage, precision control, power crimpers with adjustable settings are designed to deliver hundreds of crimps on a single battery charge. The tools are ergonomically designed to reduce strain associated with the repetitive actions of using a blocky metal manual crimping tool.



Benchtop Crimper



Manual Ergonomic Crimper



Electronic Hand Crimper

Headspace Crimper and Decapper Tools

Description	Qty.	Part No.
Benchtop Crimper	1	**N6621006**
Benchtop Crimper Jaws – 20 mm	1	**N6621009**
Electronic Hand Crimper – 20 mm	1	**N9304501**
Electronic Hand Decapper – 20 mm	1	**N9304503**
Manual Hand Crimper – 20 mm	1	**N9302785**
Manual Hand Crimper (Ergonomic) – 20 mm	1	**N6621037**
Manual Hand Decapper – 20 mm	1	**N9301270**
Manual Hand Decapper (Ergonomic) – 20 mm	1	**N6621038**



Vial Racks

Description	Qty.	Part No.
11 mm Vial Rack – 50 Vial Capacity	1	**N9301303**
20 mm Vial Rack – 36 Vial Capacity	1	**N9301304**

Autosampler Crimper and Decapper Tools

Description	Qty.	Part No.
Benchtop Crimper	1	**N6621006**
Benchtop Crimper Jaws – 11 mm	1	**N6621008**
Electronic Hand Crimper – 11 mm	1	**N9304500**
Electronic Hand Decapper – 11 mm	1	**N9304502**
Manual Hand Crimper – 8 mm	1	**N9306127**
Manual Hand Crimper – 11 mm	1	**00090699**
Manual Hand Crimper (Ergonomic) – 11 mm	1	**N6621035**
Manual Hand Decapper – 11 mm	1	**N9301390**
Manual Hand Decapper (Ergonomic) – 11 mm	1	**N6621036**

High Powered Crimpers and Decappers

NEW

The high powered crimper and decapper is an essential laboratory accessory for any high through put environment. Realise the benefits of not only fast and accurate crimping or decapping, but also the ultimate tool in flexibility with interchangeable jaw sets. Now in a single unit you can crimp and decap standard analytical vials and headspace vials. Changing the jaws, either size or function, takes a matter of just seconds.



High Powered Crimper with Jaw Set

Description	Qty.	Part No.
High powered crimping tool	1	**N9304510**
20 mm crimper jaw set	1	**N9304511**
20 mm decapper jaw set	1	**N9304512**
11 mm crimper jaw set	1	**N9304513**
11 mm decapper jaw set	1	**N9304514**
Base and mounting kit	1	**N9304515**

LC Columns

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

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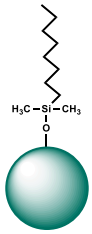
Brownlee SPP HPLC and UHPLC Columns

Brownlee SPP columns produce sharper peaks and faster separation results; made possible by their breakthrough particle design and size. Brownlee SPP columns use 2.7 µm particles comprised of a thin outer shell of high-quality porous silica fused to a solid inner core.



Brownlee Spheri Columns

The Brownlee Spheri line of columns is based on a small-pore (80 Å) silica-based sorbent for optimized for separating small molecules. The Spheri-5 reverse phase C18 type sorbents are available in a monofunctional comb-type (RP-18) and a polyfunctional loop-type (ODS) which provide slight differences in selectivity.



Brownlee Aquapore Columns

Essential items to keep your pumps running at maximum efficiency; seals, pistons and check valves.



Selecting The Right Column

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.

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.

Modes of Separation

Reversed-Phase Chromatography (RPC) is the most popular HPLC mode and is used in 60% – 80% of all applications. In RPC, hydrophobic groups (C18, C8, or C4) bonded to a silica support are used together with a mobile phase of water and organic solvent (e.g. methanol, acetonitrile).

Polar Phase (Normal Phase) Chromatography (NPC) uses a polar stationary phase (unbonded silica, bonded amino or cyano group) together with a non-polar mobile phase (e.g., hexane). NPC is useful for functional group analysis, isomeric separations, purification of organics, and sample cleanup.

Ion-Exchange Chromatography (IEC) utilizes bonded ionic groups to separate ionic analytes. Retention is based on the affinity of various analyte ions for the stationary phase and various mobile phase parameters (e.g., pH, ionic strength).

Column Hardware

The Brownlee columns provide numerous options for HPLC analysis, spanning a wide range of column dimensions. Two main formats are used: conventional columns and cartridge columns.

The conventional columns, employing standard compression end fittings, are compatible with all HPLC instrumentation. cartridge column format requires an MPLC holder in addition to the cartridge column. There is an option to directly connect the NewGuard cartridges to cartridge column, reducing the overall dead volume. NewGuard cartridges can still be employed with conventional hardware by using a stand-alone holder.

Conventional columns do not require MPLC holders



Brownlee MPLC cartridges and holders



NewGuard cartridge coupled directly to 220 mm cartridge column



NewGuard cartridge connected externally to a conventional column



Column hardware formats

Features and Benefits

- End fittings compatible with HPLC systems from any vendor
- Use with NewGuard system for even longer column life
- Each column is individually tested
- ISO-9001 certified process ensures the highest quality

PerkinElmer LC Column Selection Overview

Brand	Phase	Particle size (µm)	Pore size (Å)	Carbon %	End Cap	Application	USP Code
Analytical	C18	3, 5	110	13	Yes	All-purpose reverse phase HPLC column, similar to Hypersil ODS	L1
Analytical	Phenyl	5	110	6	Yes	All-purpose reverse phase HPLC column, similar to Hypersil phenyl	L11
Analytical	Silica	5	110	–	–	Normal phase separations of polar compounds similar to Hypersil silica	L3
Analytical DB	C18	1.9, 3, 5	140	11	Yes	General purpose phase for acidic to slightly basic compounds	L1
Analytical DB	Aq C18	1.9, 3, 5	140	6	Yes	A more well balanced retention profile for polar and non polar compounds	L1
Analytical DB	PAH	1.9	140	–	Yes	Specifically designed for poly aromatic hydrocarbons (PAHs)	–
Aquapore	AX-300 (anion exchange)	7	300	–	–	Silica based support for larger anionic compounds	L14
Aquapore	RP-300 (C8)	7	300	5	Yes	Suitable for the separation of large biomolecules such as peptides and proteins	L7
Aquapore	BU-300 (C4)	7	300	3	Yes	Suitable for the separation of large biomolecules such as peptides and proteins	L26
Aquapore	Octyl (C8)	7, 20	300	5	Yes	Suitable for the separation of large biomolecules such as peptides and proteins	L7
Aquapore	ODS (C18)	7, 20	300	10	Yes	Suitable for the separation of large biomolecules such as peptides and proteins	L1
Spheri-5	ODS	5	80	14	Yes	Polyfunctional phase which provides slight differences in selectivity	L1
Spheri-5, -10	RP-18	5, 10	80	11	Yes	Monofunctional bonded phase for general purpose RP small molecule applications	L1
Spheri-5, -10	RP-8	5, 10	80	6	Yes	Monofunctional bonded phase RP for more basic small molecule applications	L7
Spheri-5	Cyano	5	80	4	No	Offering alternative selectivity in RP to alkyl phases	L10
SPP	C18	2.7	90	8	Yes	High purity general Purpose C18 phase for RP separations	L1
SPP	C8	2.7	90	–	Yes	Less retentive high purity C8 phase for RP separations	L7
SPP	HILIC	2.7	90	–	No	High purity silica column for NP and HILIC applications	L3
SPP	Peptide ES C18	2.7	160	–	No	Sterically protected ligand provides greater stability at low pH where most peptide separations are performed	L1
SPP	PhenylHexyl 2.7	2.7	90	–	Yes	Alternative selectivity to alkyl bonded phases, recommended for aromatic groups. Compatible with highly aqueous eluents	
SPP	RP-Amide	2.7	90		Yes	Shows significant increased retention and selectivity for acids. Excellent peak shape for bases, zwitterions and other polar compounds	
Pecosphere	C18	3,5	80	11	Yes	RP column for fast separation of small compounds	L1
Pecosphere	RA C18	3,5	80	12	Yes	RP sorbent geared towards the fast separation of basic compounds/pharmaceuticals	L1
Pecosphere	RA C8	3,5	80	5	Yes	RP sorbent geared towards the fast separation for increasingly basic compounds	L7
Pecosphere	C18 scavenger	10	80	11	Yes		L1
Polypore	CA	10	microporous	–	–	For the analysis of sugars and organic acids	L19
Polypore	H	10	microporous	–	–	For the analysis of sugars and organic acids	L17
Validated	C18	3,5	100	20	Yes	General purpose phase with moderate to high retention for hydrophobic compounds	L1
Validated	Aqueous C18	3,5	100	15	Yes	Compatible and reproducible with a variety of mobile phases, including 100% aqueous. Ideal for LCMS screening	L1
Validated	C8	5	100	20	Yes	General purpose phase for slightly acidic to slightly basic compounds	L7
Validated	Phenyl	5	100	15	Yes	Offers alternate selectivity to straight chain hydrocarbon phases	L11

* Maximum pressure 9,000 psi for all columns. All particle sizes are 2.7 µm
**Not end-capped. All others end-capped

Brownlee Analytical Columns

Brownlee Analytical columns are built on 110 Å pore size Type A silica in 3 µm and 5 µm particle sizes that is equivalent to the classic Hypersil® silica. These columns provide excellent peak shape for acidic and neutral analytes but are generally not recommended for basic analytes. They are available in column lengths from 5 – 250 mm in 2.1 and 4.6 mm ID.

Features and Benefits

- Type A, 110 Å pore size silica equivalent to classic Hypersil® silica
- Good choice when analyzing neutral and acidic analytes

Material Characteristics

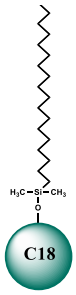
Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit (°C)	USP Code
Analytical C18	3.0, 5.0	110	13%	Yes	2.5 – 7.5	80	L1
Analytical Phenyl	5	110	6%	Yes	2.5 – 7.5	80	L11
Analytical Silica	5	110	–	No	2.5 – 7.5	80	L3

* Proprietary

Brownlee Analytical C18

Excellent choice for a general purpose C18 column with intermediate carbon loading and surface area. These columns provide reliable performance and excellent peak symmetry for a broad range of acidic and neutral hydrophobic compounds.

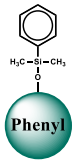
Particle Size (µm)	Length (mm)	ID (mm)	Part No.
3.0	50	4.6	**N9303510**
3.0	100	4.6	**N9303507**
3.0	150	4.6	**N9303508**
5.0	100	4.0	**N9303511**
5.0	100	4.6	**N9303512**
5.0	150	4.6	**N9303513**
5.0	250	4.6	**N9303514**



Brownlee Analytical Phenyl

The Analytical Phenyl offer alternative selectivity to the traditional straight alkyl chain phases, especially for aromatic compounds due to *pi-pi* interactions with the phenyl phase.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	150	4.6	**N9303524**



Brownlee Analytical Silica

Analytical silica columns are simply bare silica particles for use in normal phase separations recommended for analysis of highly polar compounds.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	150	4.6	**N9303525**
5.0	200	4.6	**N9303526**



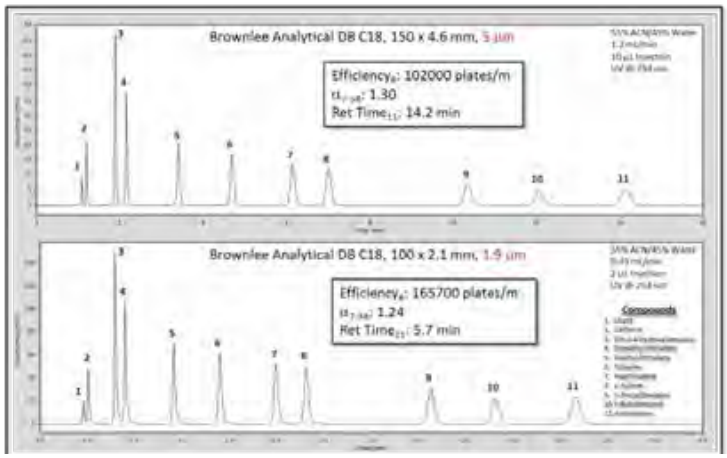
Brownlee Analytical DB Columns for HPLC and UHPLC

Brownlee Analytical DB columns are moderately retentive HPLC and sub-2 µm UHPLC columns built on a foundation of high purity, base-deactivated silica that is optimized for UHPLC performance. These columns are available in 3 and 5 µm HPLC particle sizes, as well as a 1.9 µm UHPLC particle size. The silica manufacturing and phase bonding processes are identical for all particle sizes in this series resulting in method scalability from HPLC (3 and 5 µm) to UHPLC (1.9 µm), or vice versa. In addition the larger 140 Å pore size allows analysis of a range of compounds from small molecules to short peptides while the base deactivation makes these columns appropriate for the analysis of acidic, neutral and basic compounds.

Features and Benefits

- Conventional and sub-2 µm particles sizes for HPLC and UHPLC
- All silica prepared by the same process for true HPLC to UHPLC scalability

Increase efficiency and shorten run times while maintaining selectivity with 1.9 µm Brownlee Analytical DB UHPLC columns.



Material Characteristics

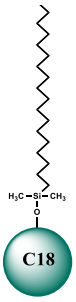
Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit (°C)	USP Code
Analytical DB C18	1.9, 3.0, 5.0	140	11%	Yes	2.5 – 8.0	80	L1
Analytical DB Aq C18	1.9, 3.0, 5.0	140	6%	*	2.5 – 8.0	80	L1
Analytical DB PAH	1.9	140	*	Yes	2.5 – 8.0	80	

* Proprietary

Brownlee Analytical DB C18

C18 is a good general purpose phase for the analysis of compounds ranging from acid to slightly basic.

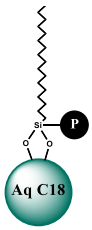
Particle Size (µm)	Length (mm)	ID (mm)	Part No.
1.9	50	2.1	**N9303853**
1.9	100	2.1	**N9303854**
3.0	50	4.6	**N9303862**
3.0	100	4.6	**N9303863**
5.0	150	4.6	**N9303865**
5.0	250	4.6	**N9303866**



Brownlee Analytical DB Aqueous C18

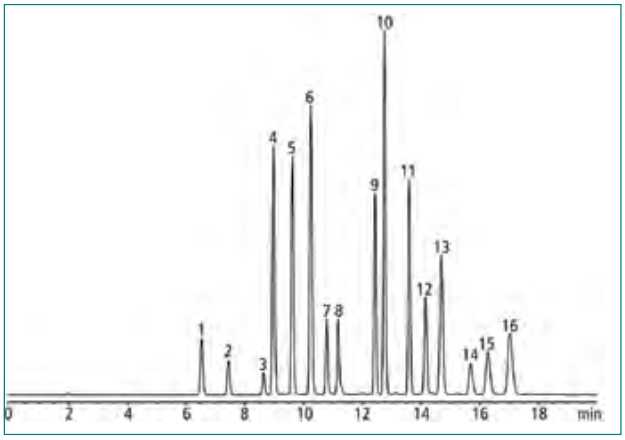
The Aqueous C18 contains a proprietary polar side chain functionally bonded C18 that provides a more well balanced retention profile for both polar and non-polar compounds than a traditional C18.
It provides both high reproducibility and compatibility with a wide variety of mobile phases including 100% aqueous mobile phases.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
1.9	50	2.1	**N9303918**
1.9	100	2.1	**N9303919**
3.0	50	4.6	**N9303904**
3.0	100	4.6	**N9303905**
5.0	150	4.6	**N9303907**
5.0	250	4.6	**N9303908**



Brownlee Analytical DB PAH

The Analytical HRes PAH column was specifically developed for fast analysis of polycyclic aromatic hydrocarbons. The PAH stationary phase incorporates a proprietary specially bonded C18 that is shape selective that results in baseline resolution of all 16 priority PAHs in US EPA Method 610. The Analytical HRes PAH is capable of separating all 16 PAHs in under 18 minutes with a simple acetonitrile/water gradient.



Peak List **Concentration** (µg/mL)

1. naphthalene	100	9. benzo (a) anthracene	50
2. acenaphthylene	100	10. chrysene	50
3. acenaphthene	100	11. benzo (b) fluoranthene	50
4. fluorene	100	12. benzo (k) fluoranthene	50
5. phenanthrene	50	13. benzo (a) pyrene	50
6. anthracene	100	14. dibenzo (a,h) anthracene	50
7. fluoranthene	50	15. benzo (ghi) perylene	50
8. pyrene	50	16. indeno (1,2,3-cd) pyrene	50

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
1.9	50	2.1	**N9303995**
1.9	100	2.1	**N9303996**

Brownlee Aquapore Columns

Brownlee Aquapore columns are built on large pore (300 Å) silica for the analysis of large biomolecules such as peptides and proteins. Large pore stationary phases are required for the analysis of large molecules because the analytes need to penetrate the pores to improve retention and resolution. The RP-300 is a reverse-phase C8; AX-300 is a weak anion exchanger that is composed of a crosslinked polyethyleneimine phase bonded on the silica surface. The reverse-phase columns are also available in microbore (1.0 mm ID) for increased sensitivity and better compatibility with LC/MS interfaces.

Features and Benefits

- Rugged, spherical silica particles with 300 Å pore size
- Excellent choice for separation of peptides, proteins and other large molecules

Material Characteristics

Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit (°C)	USP Code
AP RP-300 (C8)	7	300	5%	Yes	2.5 – 8.0	60	L7
AP AX-300†	7	300	–	–	2.0 – 8.0	60	L14

* AP = Aquapore; † AX = Weak Anion Exchange

ID (mm)	Length (mm)	RP-300 (C8) Part No.	AX-300 Part No.
1.0	250	**07120097**	
2.1	30	**07110056**	**07110074**
2.1	100	**07110058**	**07110076**
2.1	220	**07110060**	
4.6	30	**07110055**	**07110073**
4.6	100	**07110057**	**07110075**
4.6	220	**07110059**	**07110077**
4.6	250	**07120033**	**07120040**

Brownlee Aquapore Prep-10 Cartridge Columns

The Brownlee Prep-10 columns are 10 mm ID cartridges packed with 20 µm particle size, 300 Å pore size Aquapore® sorbents. These unique 250 mm cartridges incorporate a moveable inlet plug and filter which compensates for changes in bed volume with continued use. The typical capacity of the 250 mm cartridge is 50 mg to 1 g depending on the resolution and purity required. A separate column holder needs to be purchased in addition to the cartridge column.

Material Characteristics

Phase	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	Surface Area (m^2/g)	pH Stability	Temp. Limit (°C)	USP Code
Aquapore ODS (C18)	20	300	10%	Yes	100	2.5 – 8.0	60	L1

Phase	Length (mm)	Particle Size (µm)	Qty.	4.6 mm ID Part No.	Column Holder
Aquapore Octyl (C8)	250	20	Each	**07110166**	**07150006**
Aquapore ODS (C18)	250	20	Each	**07110163**	**07150006**

Brownlee Validated Columns

Brownlee Validated HPLC columns are built on high purity, Type B silica with inherently low silanol activity and very consistent performance from lot-to-lot. This series of columns represent the most choices of stationary phases of any of the column lines offered by PerkinElmer. These columns exhibit excellent peak shapes for a wide range of compounds and are the best choice for pharmaceutical applications that deal with many basic and multi-functional compounds.

Features and Benefits

- Built on high purity, Type B silica for excellent peak shape for a wide range of compounds
- Recommended for pharmaceutical applications with basic and multi-functional compounds

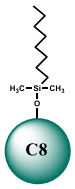
Material Characteristics

Phase	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit (°C)	USP Code
Validated C8	5.0	100	12%	Yes	2.5 – 8.0	80	L7
Validated C18	3.0, 5.0	100	20%	Yes	2.5 – 8.0	80	L1
Validated Aq C18	3.0, 5.0	100	15%	No	2.5 – 8.0	80	L1
Validated Phenyl	3.0, 5.0	100	10%	Yes	2.5 – 8.0	80	L11

Brownlee Validated C8

The Validated C8 is a reverse-phase alkyl that provide less hydrophobic retention but better peak shape for basic compounds than a traditional C18. Like C18, C8 is a good general purpose reverse phase that is suitable for a wide range of compounds from acidic to slightly basic.

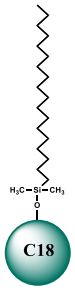
Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	100	4.6	**N9303565**
5.0	150	4.6	**N9303567**
5.0	250	4.6	**N9303568**



Brownlee Validated C18

The Validated C18 is a good general purpose reverse-phase column with moderate to high retention for hyphobic compounds. The high purity, Type B silica has low silanol activity resulting in excellent peak shapes even for basic analytes. This phase is more retentive than C8 and recommended for a wide range of analystes from acidic to slightly basic.

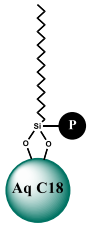
Particle Size (µm)	Length (mm)	2.1 mm ID Part No.	4.6 mm ID Part No.
3.0	100	**N9303551**	**N9303552**
5.0	100	**N9303553**	**N9303554**
5.0	150	**N9303556**	**N9303558**
5.0	200		**N9303559**
5.0	250	**N9303560**	**N9303561**



Brownlee Validated Aqueous C18

The Aqueous C18 contains a proprietary polar side chain functionally bonded C18 that provides a more well balanced retention profile for both polar and non-polar compounds than a traditional C18. This column can be used with a gradient to retain polar compounds that elute near the void time on a standard C18. The Aqueous C18 provides both high reproducibility and compatibility with a wide variety of mobile phases including 100% aqueous mobile phases. This is an excellent choice for the analysis of a wide variety of compounds by LC/MS screening.

Particle Size (µm)	Length (mm)	2.1 mm ID Part No.	4.6 mm ID Part No.
3.0	50	**N9303541**	**N9303542**
3.0	100	**N9303537**	**N9303538**
3.0	150	**N9303539**	
5.0	100		**N9303544**
5.0	150	**N9303545**	**N9303546**
5.0	250		**N9303549**



Brownlee Validated Phenyl

The Validated Phenyl is a high purity, highly retentive, base-deactivated phase with alternate selectivity to straight chain hydrocarbon phases, especially for aromatic compounds.

Particle Size (µm)	Length (mm)	4.6 mm ID Part No.
5.0	150	**N9303606**
5.0	250	**N9303607**



Brownlee Spheri-5 and Spheri-10 Columns

The Brownlee Spheri line of columns is based on a small-pore (80 Å) silica-based sorbent for optimized for separating small molecules. Spheri-5® columns are based on 5 µm particle size silica and Spheri-10® incorporates a 10 µm silica particle. The Spheri-5 reverse phase C18 type sorbents are available in a monofunctional comb-type (RP-18) and a polyfunctional loop-type (ODS) which provide slight differences in selectivity.

Features and Benefits

- Small pore size (80 Å) designed for separating small molecules
- Reverse phase sorbents in 5 µm and 10 µm particles sizes and normal phase 5 µm particles

Material Characteristics

Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit (°C)	USP Code
Spheri-5, -10 RP-8	5.0, 10.0	80	6%	Yes	2.5 – 8.0	60	L7
Spheri-5, -10 RP-18	5.0, 10.0	80	11%	Yes	2.5 – 8.0	60	L1
Spheri-5 ODS	5	80	14%	Yes	2.5 – 8.0	60	L1
Spheri-5 Cyano	5	80	4%	No	2.5 – 8.0	60	L10

Columns with Cartridge Column Hardware

Phase*	Length (mm)	Particle Size (µm)	Qty.	2.1 mm ID Part No.	4.6 mm ID Part No.	Column Holder Code* w/o Guard	Column Holder Code* w/ Guard
Spheri-5 RP-8	100	5	Each	**07110004**	**07110003**	**07150014**	**07150016**
	220	5	Each	**07110006**	**07110005**	**07150015**	**07150017**
Spheri-5 RP-18	100	5	Each	**07110016**	**07110015**	**07150014**	**07150016**
	220	5	Each	**07110018**	**07110017**	**07150015**	**07150017**
Spheri-5 ODS	100	5	Each	**07110022**	**07110021**	**07150014**	**07150016**
	220	5	Each	**07110024**	**07110023**	**07150015**	**07150017**
Spheri-5 Cyano	100	5	Each	**07110046**	**07110045**	**07150014**	**07150016**
	220	5	Each	–	**07110047**	**07150015**	**07150017**

Columns with Conventional Column Hardware

All columns are 250 x 4.6 mm

Phase	Particle Sizes (µm)	Carbon Load	End Capping	USP Code	Part No.
Spheri-5 RP-8	5	6%	Yes	L7	**07120012**
Spheri-5 RP-18 (monofunctional)	5	11%	Yes	L1	**07120016**
Spheri-10 RP-18	10	11%	Yes	L1	**07120001**
Spheri-5 C18 ODS (Polyfunctional)	5	14%	Yes	L1	**07120019**
Spheri-5 Silica	5	–	–	L3	**07120023**

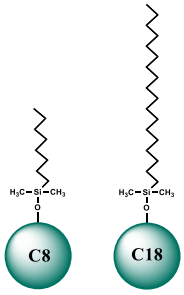
Brownlee Pecosphere Cartridge Columns

PerkinElmer pioneered the development of Fast HPLC and introduced the popular 3 µm particle size '3 x 3' Columns (33 mm x 4.6 mm) in the 1980s. The '3 x 3' columns are capable of very rapid analysis and still they are still very popular because of the economical price and reliable performance. The Pecosphere cartridges are also available 83 mm and 150 mm lengths for the separation of more complex mixtures.

They are packed with rugged, high purity silica in 3 µm and 5 µm, 80 Å pore size particles; with standard end-capping for the analysis of acidic and neutral analytes. A special end-capped Reduced Activity (RA) version that is especially suited for the analysis basic analytes. In addition the 10 µm particles size C18 Scavenger cartridge designed to remove contaminants from the mobile phase when installed prior to the HPLC injector. These columns use cartridge style hardware – thus the associated column holder needs to be ordered with the column.

Features and Benefits

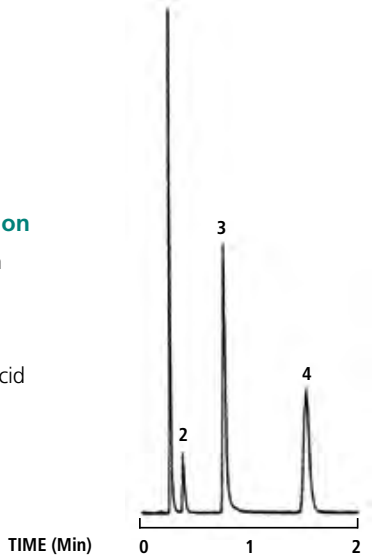
- The Pecosphere '3 x 3' column is the world's first fast HPLC column
- Reduced Activity C18 and C8 with low silanol activity for the analysis of basic compounds



Analysis of an Analgesic Tablet Using Fast LC

Peak Identification

1. Acetaminophen
2. Caffeine
3. Salicylamide
4. Acetylsalicylic Acid



Chromatographic Conditions

Column	Detection	Mobile Phase	Flow Rate	Sample	Part No.
Pecosphere 3 x 3 C18 (33 x 4.6 mm) CH_3CN in H_20	UV at 240 nm .	0 – 15%	2.0 mL/min	1 µL of the tablet extract	**02580164**

Material Characteristics

Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	Surface Area (M^2/g)	End Capping	pH Stability	USP Code
C18	3.0, 5.0	80	11%	170	Yes	2.0 – 8.0	L1
RA C8	3.0, 5.0	80	5%	200	Yes	2.0 – 8.0	L7
RA C18	3.0, 5.0	80	12%	200	Yes	2.0 – 8.0	L1
C18 Scavenger	10	80	11%	170	Yes	2.0 – 8.0	L1

Cartridge Columns and Hardware

Phase	Length (mm)	Particle Size	Qty.	4.6 mm ID Part No.	Column Holder Part No.
Aquapore Octyl (C18)	33	3 µm	5	**02580164**	**07150028**
	83	3 µm	1	**02580166**	**07150029**
	150	5 µm	1	**02580169**	**07150030**
RA C18	33	3 µm	5	**02580195**	**07150028**
	83	3 µm	1	**02580194**	**07150029**
RA C8	33	3 µm	5	**02580191**	**07150028**
	83	3 µm	1	**02580192**	**07150029**
C18 Scavenger	33	10 µm	5	**02580202**	**07150028**
C18 Scavenger Kit*	33	10 µm	1	**02580204**	–

* Scavenger kit includes C18 cartridge (**02580202**) and holder (**07150028**)

Brownlee Polypore Cartridge Columns

Brownlee Polypore® columns are 10 mm, microporous polymer based columns especially suited for the analysis of sugars and organic acids.

Features and Benefits

- Available in calcium (CA) and hydrogen (H) counter ion forms
- For analysis of sugars and organic acids

Material Characteristics

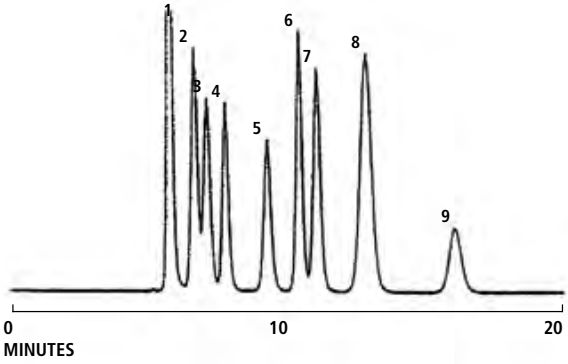
Phase	Particle Sizes (µm)	Pore Size	pH Stability	Temp. Limit (°C)	USP Code
Polypore® CA	10	Microporous	1 – 14	90	L19
Polypore® H	10	Microporous	1 – 14	90	L17

Phase	Length (mm)	Particle Size (µm)	Qty.	4.6 mm ID Part No.	Column Holder*
Polypore® H	30	10	2	**07110085**	**07150013**
	100	10	1	**07110087**	**07150014**
	220	10	1	**07110089**	**07150015**
Polypore® CA	30	10	2	**07110091**	**07150013**
	100	10	1	**07110093**	**07150014**
	220	10	1	**07110095**	**07150015**

Organic Acids

Peak Identification

1. Oxalic Acid
2. Citric Acid
3. α-Ketoguitaric Acid
4. Malic Acid
5. Succicinic Acid
6. Formic Acid
7. Acetic Acid
8. Fumaric Acid
9. Butyric Acid



Chromatographic Conditions

Column	Detection	Mobile Phase	Flow Rate	Sample	Part No.
Polypore H (220 x 4.6 mm ID)	210 nm	0.01 N H_2SO_4	0.15 mL/min	25 °C	**07110089**

NewGuard Cartridges

NewGuard cartridges are small guard cartridges (15 mm x 3.2 mm ID) packed with 5 or 7 µm sorbents. They help to prolong column life by eliminating particulates, contaminants, and strongly bound sample components; acting as replaceable disposable heads of your analytical column. 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**), or any LC column using the stand alone holder (**07150001**).

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 7,000 psi using NewGuard holders
- Can be used for sample preconcentration (connected to sample injection loop)

Description	Size (µm)	Shape	Part No.
Amino, Aquapore Amino	7	Spherical	**07110098**
Anion, Aquapore Anion	7	Spherical	**07110102**
RP-8, Aquapore Octyl	7	Spherical	**07110090**
RP-18, Aquapore ODS	7	Spherical	**07110092**
Validated C18	5	Spherical	**00402237**

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

a)

b)



Figure 5 a) NewGuard cartridges directly coupled to a 220 mm MPLC cartridge (with union **07150018**) b)connected externally to a 250 mm conventional column with a stand alone holder (**07150001**)

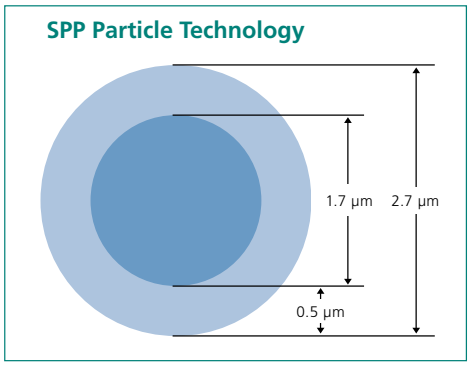
Cartridge Holders

	Description	Part No.
	Single 30 mm holder for MPLC cartridges	**07150013**
	Single 100 mm holder for MPLC cartridges	**07150014**
	MPLC holder for directly coupling a NewGuard and a 100 mm cartridge	**07150016**
	Holder for directly coupling a 30 mm and 100 mm MPLC cartridge	**07150032**
	Single 220 mm holder for MPLC cartridges	**07150015**
	MPLC holder for directly coupling a NewGuard and a 220 mm cartridge	**07150017**
	Holder for a single, stand-alone NewGuard cartridge	**07150001**
	For direct coupling of two cartridge holders or a NewGuard to any cartridge holder. (NewGuard end assembly required)	**07150018**
	Used with union to couple a NewGuard to any cartridge holder	**07150002**
	End assembly for any MPLC holder body	**07150019**
	Holder body for 100 mm MPLC cartridge	**07150021**
	Holder body for 220 mm MPLC cartridge	**07150022**
	Includes 100 mm and 220 mm holder bodies, 2 end assemblies, 1 union and 1 NewGuard end assembly	**07150025**
	Holder for a single 250 mm Prep-10 MPLC cartridge	**07150006**
	Holder for a 33 mm fast LC Pecosphere cartridge. (Not for use with MPLC cartridges)	**07150028**
	Holder for a 83 mm fast LC Pecosphere cartridge. (Not for use with MPLC cartridges)	**07150029**

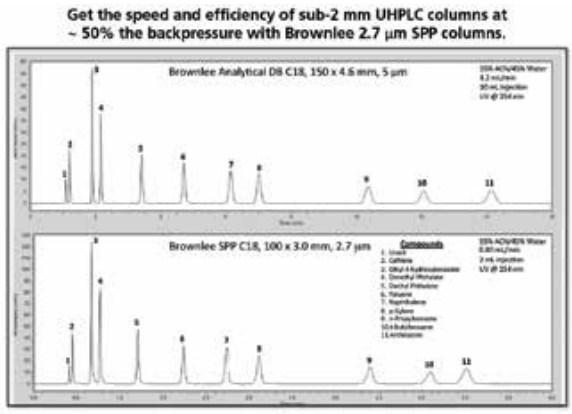
Brownlee SPP HPLC and UHPLC Column Solutions

Say goodbye to the limitations of traditional columns and experience greater speed, lasting durability and better results from your liquid chromatography instrument.

Brownlee Superficially Porous Particle (SPP) columns produce sharper peaks and faster separation results. These results are possible due to their breakthrough particle design and size. Brownlee SPP columns use 2.7 µm particles comprised of a thin outer shell of high-quality porous silica fused to a solid inner core. This advanced design allows for a shorter diffusion path, reducing the time solute molecules spend inside the particles while passing through the stationary phase.



Smaller in size and innovative in design, superficially porous particles are made by fusing a porous silica layer to a solid inner core.



Brownlee SPP Phases and Applications

UHPLC Phases*	Pore Size (Å)	Coverage (µmol/m²)	pH Range	Temp Limit (°C)	Applications	Chromatographic Properties
C18	90	3.5	2 – 9	60	General purpose Octadecyl phase for reversed phase separations	A high purity column that exhibits excellent peak shape for a wide range of compounds
C8	90	3.7	2 – 9	60	General purpose Octyl phase for reversed phase separations when less retention than a C18 is desired	High purity reversed phase packing that exhibits excellent peak shape for a wide range of compounds
HILIC**	90	–	2 – 8	60	General purpose bare silica column for normal phase and HILIC applications	High purity silica substrate
Peptide ES-C18**	160	2.0	1 – 8	90	Sterically protected ligand (isobutyl – side chains), results in an extra stable bonded phase at low pH where most peptide separations are performed	The 160 Å pore size was specially chosen for the molecular weight range of peptides. The ligand was chosen due to its sterically protected bonding technology that inhibits acid hydrolysis of the siloxane bonds, even under extremes of high temperature and low pH
PFP (pentafluoro-phenyl-propyl)	90	3.6	2 – 8	60	Highly retentive and selective for protonated basic analytes and molecules containing aromatic moities	End-capped pentafluorophenyl with a propyl spacer
PhenylHexyl	90	3.0	2 – 9	60	Alternative selectivity to alkyl bonded phases, recommended for aromatic groups. Compatible with highly aqueous mobile phases to facilitate the retention and separation of polar compounds	Base-deactivated for good peak shapes when separating basic compounds. Hexyl spacer provides optimal flexibility for phenyl ring to facilitate π-π interactions with solutes
RP-Amide	90	3.0	2 – 9	60	Excellent phase for significantly increasing the retention and selectivity of acids, for symmetrical peak shapes of bases, zwitterions and other polar compounds	Base-deactivated phase with a polar group within the alkyl bonded phase. Provides unique selectivity and a high level of base deactivation while reducing or eliminating the need for mobile phase additives.

* Maximum pressure 9,000 psi for all columns. All particle sizes are 2.7 µm
**Not end-capped. All others end-capped

Brownlee SPP Columns

Phase	Length (mm)	2.1 mm ID Part No.	3.0 mm ID Part No.	4.6 mm ID Part No.
C18	30	**N9308401**	**N9308407**	**N9308413**
	50	**N9308402**	**N9308408**	**N9308414**
	75	**N9308403**	**N9308409**	**N9308415**
	100	**N9308404**	**N9308410**	**N9308416**
	150	**N9308405**	**N9308411**	**N9308417**
Peptide ES-C18	50	**N9308451**	**N9308456**	**N9308461**
	75	**N9308452**	**N9308457**	**N9308462**
	100	**N9308453**	**N9308458**	**N9308463**
	150	**N9308454**	**N9308459**	**N9308464**
C8	30	**N9308419**	**N9308424**	**N9308430**
	50	**N9308420**	**N9308425**	**N9308431**
	75	**N9308421**	**N9308426**	**N9308432**
	100	**N9308422**	**N9308427**	**N9308433**
	150	**N9308423**	**N9308428**	**N9308434**
PFP	50	**N9308467**	**N9308472**	**N9308477**
	75	**N9308468**	**N9308473**	**N9308478**
	100	**N9308469**	**N9308474**	**N9308479**
	150	**N9308470**	**N9308475**	**N9308480**
Phenyl Hexyl	50	**N9308483**	**N9308488**	**N9308493**
	75	**N9308484**	**N9308489**	**N9308494**
	100	**N9308485**	**N9308490**	**N9308495**
	150	**N9308486**	**N9308491**	**N9308496**
RP-Amide	50	**N9308499**	**N9308504**	**N9308509**
	75	**N9308500**	**N9308505**	**N9308510**
	100	**N9308501**	**N9308506**	**N9308511**
	150	**N9308502**	**N9308507**	**N9308512**
HILIC	50	**N9308420**	**N9308425**	**N9308446**
	75	**N9308421**	**N9308426**	**N9308447**
	100	**N9308422**	**N9308427**	**N9308448**
	150	**N9308423**	**N9308428**	**N9308449**

SPP Guard Columns (Pkg. 3)*

Phase	Length (mm)	2.1 mm ID Part No.	3.0 mm ID Part No.	4.6 mm ID Part No.
C18	5	**N9308513**	**N9308514**	**N9308515**
Peptide ES-C18	5	**N9308528**	**N9308529**	**N9308530**
C8	5	**N9308522**	**N9308523**	**N9308524**
PFP	5	**N9308531**	**N9308532**	**N9308533**
Phenyl Hexyl	5	**N9308519**	**N9308520**	**N9308521**
RP-Amide	5	**N9308516**	**N9308517**	**N9308518**
HILIC	5	**N9308525**	**N9308526**	**N9308527**
SPP Guard Column Holder		**N9308534**	**N9308534**	**N9308534**

* Maximum pressure 9,000 psi for all columns. All particle sizes are 2.7 µm



Brownlee Guard Column Holders and Pre-Filters

The Brownlee conventional column pre-filter and guard column holder systems allow you to select from three different levels of column protection that couple directly to the head of your column. The high pressure filter (**N9303711**) simply contains a filter frit selectable in two different diameters (2.0 mm or 4.0 mm) and two different frit porosities (2.0 µm or 0.5 µm) for basic protection against particulates in the sample or mobile phase. The 10 mm guard cartridge holder without a pre-filter (**N9303713**) provides protection against compounds that irreversibly absorb onto the stationary phase. The 10 mm guard cartridge holder with a pre-filter (**N9303712**) provides the ultimate in column protection with a selectable filter frit for elimination of particulates along with a guard cartridge packed with a selectable stationary phase to protection against compounds that irreversibly absorb onto the stationary phase.

Guard Column Holders and Pre-Filters

Description	Part No.
10 mm guard cartridge holder with filter	**N9303713**
10 mm guard cartridge holder without filter	**N9303712**
High pressure filter	**N9303711**
Peek tip standard fittings	**N9303714**
Replacement cap frits 2.0 mm, 2.0 µm	**N9303717**
Replacement cap frits 4.0 mm, 0.5 µm	**N9303716**
Replacement cap frits 4.0 mm, 2.0 µm	**N9303715**



High Pressure Pre-Filter **Part No. N9303711**





Assembled Guard Holder with Filter **Part No. N9303713**



Installed on Column

Brownlee Analytical Guard Cartridges*

Length: 10 mm Particle Size: 5 µm Quantity: Pkg. 3

Phase	2.1 mm ID Part No.	4.0 mm ID Part No.
Analytical C18	**N9303676**	**N9303677**
Analytical Phenyl	**N9303684**	**N9303685**
Analytical Silica	**N9303686**	**N9303687**

* Guard cartridge holder required, to be ordered separately

Brownlee Analytical DB Guard Cartridges*

Length: 10 mm or 20 mm Particle Size: 5 µm Quantity: Pkg. 3

Phase	Length 10 mm 4.0 mm ID Part No. Analytical DB	Length 20 mm 4.0 mm ID Part No.
Analytical DB C18	**N9303867**	**N9303868**
Analytical DB Aq C18	**N9303909**	**N9303910**

* Guard cartridge holder required, to be ordered separately

Brownlee Validated Guard Cartridges*

Length: 10 mm or 20 mm Particle Size: 5 µm Quantity: Pkg. 3

ID (mm)	Length 10 mm 2.1 mm ID Part No.	Length 10 mm 4.0 mm ID Part No.	Length 20 mm 4.0 mm ID Part No.
Validated Aq C18	**N9303690**	**N9303691**	**N9303910**
Validated C8	**N9303695**	**N9303696**	
Validated C18	**N9303693**	**N9303694****	**N9303868**

* Guard cartridge holder required, to be ordered separately
** This guard cartridge is also available in 10 µm under Part No. **N9303692**

LC Accessories

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PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

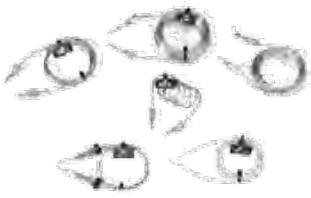
HPLC and UHPLC Detector Lamps

Choosing a PerkinElmer deuterium, tungsten or xenon source provides outstanding ultraviolet and true visible performance. With 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.



Rheodyne Valves and Spare Parts

A range of valves with associated spares for LC/MS (low dispersion), biological applications (PEEK valves) and high precision, high accuracy standard LC applications are available.



Pump Spare Parts

Essential items to keep your pumps running at maximum efficiency; seals, pistons and check valves.



Flow Cells and Pump Accessory Kits

Pump Seal Kits

Description	Part No.
Series 200 Standard 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**
Flexar Standard LC Pump Maintenance Kit Includes: Fuses, Seals, O-Rings and Seal Tools	**N2910345**



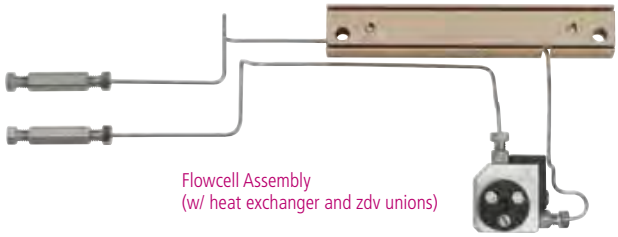
Detector Backpressure Regulator

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.
40 psi in-line backpressure regulator		**N2925090**
2 – 5K psi variable backpressure regulator		**N2925091**
Backpressure Regulator Adjustable from 15 – 59 psi	Stainless Steel	**09907126**

Flexar UV/Vis, Series 200/785A UV/Vis, Flexar PDA and Series 200 EP

These flowcells provide 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.



Flowcell Assembly
(w/ heat exchanger and zdv unions)

UV/Vis and PDA Flowcells and Assemblies

Description	Size	Part No.
Flowcells for Flexar FX-UV/Vis UHPLC Detectors		
Flowcell	6 mm x 2.4 µL	**N2920127**
Flowcell Kit (includes flowcell and detector head plate w/ gasket)	6 mm x 2.4 µL	**N2920070**
Flowcell Kit (includes flowcell w/ heat exchanger and zdv unions)	10 mm x 15 µL	**N2920125**
Flowcell	10 mm x 15 µL	**N2920124**
Flowcell Assembly	6 mm x 2.4 µL	**N2920128**
Prep Flowcell Assembly (w/ zdv unions)	3 mm x 1.7 µL	**29000545**
Flowcells for 785A and Series 200 UV/Vis Detectors		
Flowcell	8 mm x 12 µL	**29000542**
Flowcells for Flexar FX-PDA UHPLC and Series 275 PDA Detectors		
Flowcell Assembly (dual-lensed)	6 mm x 2.4 µL	**N2920166**
Flowcells for Flexar and Series 200EP PDA Detectors		
Flowcell	10 mm x 15 µL	**N2920126**
Flowcell Assembly	10 mm x 15 µL	**N2920160**
Flowcells for Series 200 PDA Detectors		
Flowcell	10 mm x 12 µL	**N2922107**
Flexar PDA Plus		
Flowcell	10 mm x 1 µL	**N2950450**
Flowcell	50 mm x 5 µL	**N2950455**
Flowcell	Dry Cell	**N2950429**

HPLC and UHPLC Detector Lamps



UV/VIS Deuterium
Detector Lamp



Series 200/200 EP
Photo Diode Array Detector Lamp

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

UV/VIS Detector Lamps

Description	Part No.
Flexar, Series 200/200a, 785A UV/VIS Detector Lamps	
Deuterium Lamp	**N2920149**
Tungsten Lamp	**N2920146**
LC-295 UV/VIS Detector Lamps	
Deuterium Lamp	**02712266**

Refractive Index Detector Lamps

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

Description	Part No.
Series 200/200a	
Refraction Index (RI) Lamp	**02712273**
Flexar	
Refraction Index (RI) Lamp	**02712303**

Photo Diode Array Detector Lamps

The Flexar Series 200/200a 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.

Components	Part No.
Flexar/Series 200/200a EP	
Deuterium Lamp (PDA)	**N2925030**
Deuterium Lamp (PDA Plus)	**09290900**
Tungsten Lamp	**N2922011**
Series 200/200a	
Deuterium Lamp	**N2922046**
Tungsten Lamp	**N2922011**
LC-135C/235	
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.

Components	Part No.
Flexar/Series 200/200a	
Xenon Lamp	**N2922082**
Festoon Lamp	**04969486**

Seals, Pistons and Check Valves

Check valves, which include a sealing washer, are easy to install using the optional Torque Wrench kit. For all PerkinElmer pumps an intermediate check valve is required. The input check valve, which is identical, should be ordered.

Description	Flexar LC or Series 200 (6000 psi)			FX-10
	Standard Stainless Steel Part No.	Micropump Stainless Steel Part No.	Biocompatible Titanium Part No.	Micropump Stainless Steel Part No.
1 Standard High Pressure Piston Seal	09907324	09923367†	09907338	09923367†
1 High Pressure Piston Seal – chemically resistant	09907345			
2 High Pressure Piston with Seal Backup Ring	02542076	†	02540276	†
3 High Pressure Piston Seal PTFE O-Ring	09902128	09902128	09902018	09902128
4 Low Pressure Piston Seal	09907330	09923366	09907339	09923366
5 Low Pressure Piston Seal Backup Guide Bushing	02542313	N2915006	N2061174	N2915006
6 High Pressure Piston	N2600124	N2910511	N2600124	N2910511
7 Low Pressure Piston	N2600117**	N2910512	N2600104	N2910512
8 Inlet Check Valve	02540177	02540177	N2600226	02540177
9 Intermediate Check Valve	02540177	02540177	N2600226	N2916052
10 Outlet check Valve	02540197	02540197	N2600192	02540154

* Refer to Users Manual for complete illustrated parts list
** Part No. **N2600117** is for Flexar. For Series 200 Part No. is **N2600104**
† High Pressure Piston Seal Backup ring (2) is included with the Standard High Pressure Piston Seal (1)



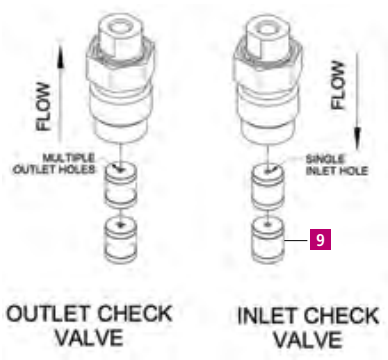
Check Valves

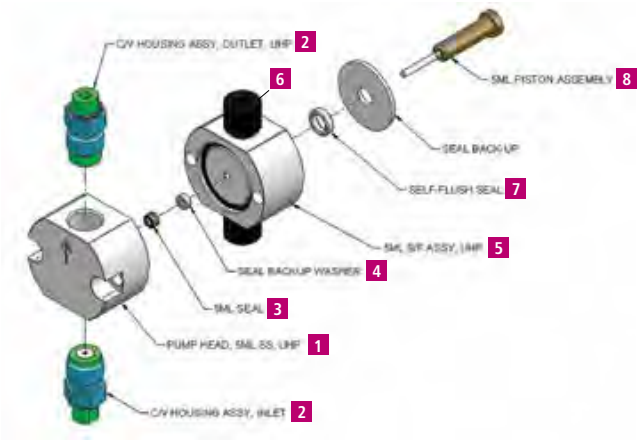
Exploded view of standard stainless steel pump head.

Pistons and Seals

Flexar FX-15 and FX-20 Pump Head

Check Valve Assemblies





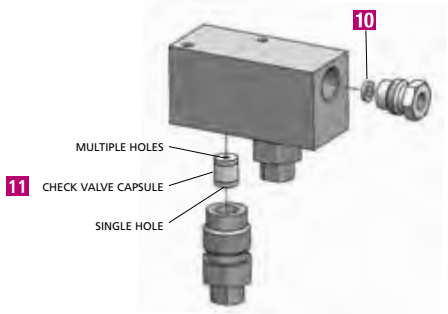
Description	FX-15 Stainless Steel Part No.	FX-20 Standard Stainless Steel Part No.	FX-20 Biocompatible Titanium Part No.
1 Pump Head (Stainless Steel – pkg. 2, Titanium – each)	†	N2911251	N2911244
2 Inlet/Outlet Check Valve Kit (1 inlet and 1 outlet)	N2911220	N2911220	–
3 High Pressure Piston Seal	*	*	*
4 High Pressure Piston Seal Backup Washer	*	*	*
5 Self Flush Assembly w/ Seals	N2911235	N2911235	N2911245
6 Self-Flush Check Valve Kit (1 inlet and 1 outlet)	N2911236	N2911236	N2911236
7 Self-Flush Seal	*	*	*
8 Piston	N9308535	N9308535	N9308535
9 Check Valve Capsule (Stainless Steel – Each, Titanium – pkg. 4)	N2911239	N2911239	N2911240
10 0.5 mm Tee Assembly Frit	N2911224	N2911224	N2911241
11 Check Valve Capsule	N2911239	N2911239	N2911240

* Seals sold in Kits only. See Preventive Maintenance and Seal Kits
† Replacement with FX-20 pump heads (**N2911251**) is recommended

Preventive Maintenance (PM) and Seal Kits

Description	Part No.
FX-15 PM Kit Complete (4 Heads)	N2911249
FX-15 Single Head Seal Kit (1 Head)	N2911221
FX-15 Heavy Duty HP Seals (1 Head)	N9308536
FX-20 PM Seal Kit (4 Heads)	N2911250

Tee Valve Assembly



Flexar Autosamplers

Features and Benefits

- Injects sample volumes as little as 1 µL at pressures up to 18,000 psi with the FX UHPLC Autosampler
- Loads sample in only 8 seconds (in partial fill mode)
- Three injection modes: full loop, partial fill and µL-pickup with no sample waste and excellent reproducibility
- Peltier cooling/heating mode option for operation at 4 °C to 40 °C. Will reach 4 °C ± 2 °C, achievable even at ambient temperatures up to 25 °C



All Flexar autosamplers can be upgraded in the field for Peltier cooling and heating and they all include:

- 100-sample tray
- 100 2 mL vials
- 100 2 mL screw top cap with cross slit vial septum
- Tubing to connect to waste reservoir
- I/O cable (Pump Start/Ready-In)
- Service Manager SW CD
- User's Manual
- Nuts and ferrules
- All fuses for 120–240 V
- All cables required for connection to a TotalChrom or Chromera Operating Environment

Flexar or Series 225/275 Autosampler Trays and Accessories

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 Adapter	**N9302562**
96-Well 'Deep-well' Microtiter Adapter	**N9302560**
96-Well 7 mm Pre-slit Silicone Plate Mat/Seal	**N9302555**
96-Well 'Deep' Microtiter Plate Adaptor (Supports Dual Microtiter Plates)	**N2936048**
96-Well 'Shallow' Microtiter Plate Adaptor (Supports Dual Microtiter Plates)	**N2936049**
384-Well Microtiter Adapter	**N2936050**
100-Position 2 mL Vial Sample Tray	**N2936042**
(200) 0.2 mL Microvial plus (5) 2 mL Vial Tray	**N2936043**
250 µL Syringe Tip Replacements (pkg. 10)	**N2936003**
Flexar/225 Biocompatible Upgrade Kit (w/ valve)	**N2930675**
1/16 in. OD x 0.038 in. ID PTFE Tubing (AS Transfer Line)	**02506495**

Flexar Autosampler Valve Maintenance Parts

Description	Flexar LC (6000 psi) Part No.	Flexar UHPLC (18000 psi) Part No.
Rotor Seal	**N2936021**	**N2932001**
Stator	**N2936022**	**N2932002**

Description	Part No.
Flexar UHPLC (18000 psi) Autosampler Valve Upgrade Kit	**N2936023**
Flexar Analytical LC (6000 psi) Autosampler Valve	**N2936020**

Flexar Autosamplers and Upgrade Kits

Description	Part No.
Flexar LC Autosampler	
High throughput autosampler with exceptionally low carryover. Operates up to 6,100 psi (420 bar). Provides flexible injection modes: full-loop, partial-fill and µL-Pickup (no sample waste). Peltier cooling and heating options available as field upgrades. Comes standard with 100 µL loop and 250 µL sample flush syringe	**N2930660**
Flexar Peltier LC Autosampler	
High throughput autosampler with exceptionally low carryover. Operates up to 6,100 psi (420 bar). Provides flexible injection modes: full-loop, partial-fill and µL-Pickup (no sample waste). Built-in Peltier cooling comes standard. Peltier heating option available as field upgrade. Comes standard with 100 µL loop and 250 µL sample flush syringe	**N2930661**
Flexar FX UHPLC Autosampler	
High throughput UHPLC autosampler with exceptionally low carryover. Operates up to 18,000 psi (1,241 bar). Provides flexible injection modes: full-loop, partial-fill and µL-Pickup (no sample waste). Built-in Peltier cooling comes standard. Peltier heating option available as field upgrade. Comes standard with 10 µL loop and 250 µL sample flush syringe	**N2930664**
Field Upgrade Peltier Kits	
Flexar and Series 225 Upgrade Kit (from standard to Peltier Cooling option)	**N2930672**
Flexar and Series 225 Upgrade Kit (from standard to Peltier Cooling and Heating option)	**N2930673**
Flexar and Series 225 Upgrade Kit (from Peltier Cooling to Peltier Cooling and Heating option)	**N2930669**

FX-15, FX-20 UHPLC Pump Accessories

Description	Part No.
Replacement 0.5 µm Filter Frits for FX-15 (pkg. 4)	**N2911224**
High Pressure FX-15 Piston Seal Kit (Need 4 per FX-15)	**N2911221**
Piston Wash Bottle Kit	**N2601616**
2,500 µL Sample Syringe Starting Kit	**N2930313**

FX-10, FX-15 and FX-20 UHPLC System Accessories

Description	Color	Size (cm)	Part No.
ID PEEK Tubing			
0.004 in.	Black	50	**N2916200**
0.005 in.	Red	50	**N2916056**
0.004 in.	Black	76	**N2916260**
0.005 in.	Red	66	**N2916262**
Connector Tubing, Stainless Steel			
Flexar ISO/Binary/Quaternary Pump to Autosampler			**N2916210**
Dual Mixer Connection (≤ 250 µL)			**N2916216**
Dual Mixer Connection (≤ 350 µL)			**N2916217**
FX-10 Pump A (Upper) to T-mixer			**N2916213**
FX-10 Pump B (Lower) to T-mixer			**N2916214**
FX-10 Purge Valve to Filter/Scavenger			**N2916212**
FX-10 Injector to Column			**N2916215**
FX-10 Pump A (Upper) to Dual Mixers			**N2916218**
FX-10 Pump B (Lower) to Dual Mixers			**N2916219**
FX-15 Pump to In-line Mixer			**N2916222**
FX-15 Pump to Dual Mixers			**N2916224**
FX-15 Injector to Column, Standard			**N2916223**
FX-15 Injector to Column, 33 cm			**N2916201**
3 cm Scavenger Cartridge Holder			**02580178**
Spheri5 Scavenger Columns (pkg. 5)			**02580202**
30 mL Priming Syringe			**09904849**
FX-15 C18 Scavenger Column Kit			**N2910765**
FX-15 C18 Scavenger Columns (pkg. 2)			**02580223**

Maintenance Kits and Tools

Description	Part No.
Biocompatible Piston Seal Replacement Kit Includes: four seals, backup rings, and O-Rings	**N2910385**
Piston Seal Replacement Kit Includes: four seals, backup rings, and O-Rings	**N2910383**
Pulse Compensator Repair Kit Includes: diaphragm, elastomer plug, and seal	**N2600313**
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**
Micropump Piston Seal Replacement Kit	**N2910384**
Check Valve Torque Wrench	**02540871**
Seal Removal Tool	**N2601295**
Insertion Tool	**N2601503**

Manuals and Accessories

Description	Part No.
Backpressure Regulator (to generate backpressure for applications less than 250 psi)	**02540272**
Pump Priming Syringe (30 mL, plastic)	**09904849**
Series 200 Operator's Manual	**09938910**
Series 200 Pump Injector Bracket	**N2910349**

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 Filters

Solvent Spargers, Filters and Scavengers

Description	Size	Part No.
Solvent Reservoir Sparger		
Stainless Steel	10 µm	**09903610**
Titanium	10 µm	**N2600070**
Stainless Steel	40 µm	**09903615**
Titanium	40 µm	**N2600089**
Solvent Filters/Scavengers		
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**
3 cm Scavenger Cartridge Holder		**02580178**
Spheri-5 C18 10 µm Scavenger Column (pkg. 5)		**02580202**
LC System Accessories		
Solvent waste cup		**N2916019**
Drain Cup		**N2916085**
90° Elbow Adapter, 1/4 in. ID HDPP		**09220102**
Tubing Clip (U-shaped, Polypropylene)		**NX598006**
Polypro Elbow Barbs		**09220102**
Large ID (11 mm) Silicone Tubing (5 ft)		**N2916016**
Manual Injector Bracket (Magnetic Clip-on)		**N2931275**

Pulse Compensators

The pulse compensator combines high-efficiency pulse smoothing with a low void volume. A Teflon diaphragm separates a reservoir filled by an RTV elastomer plug. Normal use will necessitate the eventual replacement of the diaphragm.

Description	Part No.
Diaphragm for Pulse Compensator	**N2601316**
Pulse Compensator Repair Kit Includes: diaphragm, elastomer plug, and seal	**N2601313**

Flexar/Series 200 Pump Solvent Upgrade Kits

The unique design of the PerkinElmer Flexar/Series 200 Pump allows it to easily be upgraded for additional solvent capability right in your laboratory as your needs change. Installation of the kit by a PerkinElmer Service and Support is recommended, but not included. Contact your local PerkinElmer representative for more information.

Description	Part No.
Binary to Quaternary Upgrade Kit	**N2910344**
Isocratic to Binary Upgrade Kit	**N2910342**
Isocratic to Quaternary Upgrade Kit	**N2910343**

Stainless Steel Sample Loops


Sample Loops

For Flexar FX UHPLC Autosampler (up to 18,000 psi operation)

Stainless Steel loops required for use with FX-10 or FX-20/FX-15 systems operating above 6,200 psi.

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

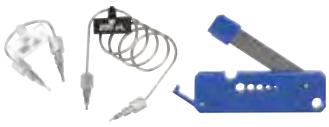
PEEK Sample Loops

For Series 200/225 and Flexar LC Autosamplers (up to 6,200 psi operation)

These loops are compatible with all standard Flexar autosamplers as well as Series 225 autosamplers. PEEK loops cannot be used above 6,200 psi operation therefore are NOT compatible with standard Flexar autosamplers. Stainless steel loops required for use with FX-10 or FX-20/ FX-15 UHPLC systems operating above 6,200 psi.

Description	Size	Part No.
PEEK Sample Loop	2 µL	**N2936072**
PEEK Sample Loop	5 µL	**N2936073**
PEEK Sample Loop	10 µL	**N2936074**
PEEK Sample Loop	20 µL	**N2936075**
PEEK Sample Loop	50 µL	**N2936076**
PEEK Sample Loop	100 µL	**N2936077**
PEEK Sample Loop	250 µL	**N2936078**
PEEK Sample Loop	500 µL	**N2936079**
PEEK Sample Loop	1 mL	**N2936080**
PEEK Sample Loop	2 mL	**N2936081**
PEEK Sample Loop	5 mL	**N2936082**

Tubing Accessories



Clean-Cut™ tubing tool is designed to cut PTFE, Tefzel® and polymers in general but, in particular, PEEK tubing. A unique safety locking mechanism secures the blade when not in use.

Description	Part No.
Clean-Cut Tubing Cutter	**ED020015**
Clean-Cut Tubing Replacement Blade	**ED020016**
Cable/Tubing clip (U-Shaped)	**NX598006**
Stick-on Tubing Organizer (Gray Plastic)	**NX598006**

PEEK Tubing

PEEK tubing has the strength required to withstand continuous use at HPLC pressure without swelling or bursting. 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.

Description	Size	Part No.
1/16 in. OD x 0.007 in. ID	5 ft	**N9302678**
1/16 in. OD x 0.010 in. ID	5 ft	**N9302650**
1/16 in. OD x 0.004 in. ID (Black)	50 cm	**N2916200**
1/16 in. OD x 0.005 in. ID (Red)	50 cm	**N2916059**
Connector Tubing, Flexar/FX Mixer to Injector, Stainless Steel		**N2916211**
Connector Tubing, Flexar ISO/Binary/Quaternary Pump to Autosampler, Stainless Steel		**N2916210**

Stainless Steel Tubing

Tubing is pre-cut and mirror-polished in 316 stainless steel.

SS-316 Tubing

Description	Size	Part No.
1/16 in. OD x 0.043 in. ID	6 ft	**00873035**
1/16 in. OD x 0.015 in. ID	6 ft	**00873036**
1/16 in. OD x 0.007 in. ID	3 ft	**02540838**
1/16 in. OD x 0.007 in. ID	20 cm	**02711441**
1/16 in. OD x 0.007 in. ID	50 cm	**00891480**

Tefzel Tubing

Description	Size	Part No.
1/16 in. OD x 0.030 in. ID	10 ft	**N9301029**

High-Performance Fingertight Fittings

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**



Fittings, Nuts and Ferrules

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

Stainless Steel Fittings

Description	Part No.
Kel-F Reverse Ferrule, 1/8 in.*	**09903771**
Kel-F Ferrule, 1/16 in.*	**09920382**
Tefzel Nut, 1/16 in.*	**09920381**
Parker-Hannifin Ferrule, 1/16 in.	**00873032**
Parker-Hannifin Nut, 1/16 in.	**09903980**
Parker-Hannifin Nut and Ferrule Kit, 1/16 in. Includes: 6 nuts and 6 ferrules	**00890945**
Parker-Hannifin Zero-Dead-Volume Union with nuts and ferrules	**09903289**
Parker-Hannifin Medium-Stem Stainless Steel Nut	**N2916202**
Rheodyne™ Ferrule, 1/16 in.	**09904947**
Rheodyne™ Nut, 1/16 in. long body	**09904974**
Rheodyne™ Nut, 1/16 in. short body	**09904956**
Rheodyne™ Nut and Ferrule Kit, 1/16 in. Includes: 6 ferrules, 3 short nuts and 3 long nuts	**02540274**
Tefzel Nut (for Reverse Ferrule), 1/8 in.*	**N2601189**
Tefzel Nut, 1/16 in.*	**09920381**
Valco Ferrule	**09903891**
OptiTech Reusable Nut/Ferrule for UHPLC (fingertight to 15K psi)	**N9306301**
OptiTechFerrule replacements for UHPLC (pkg. 10)	**N9306300**
UHPLC 1/16 in. Reusable Fitting	**N9307800**

* The Tefzel and Kel-F fittings above are only for low pressure use (under 400 psi)



Fittings Kits

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

Description	Part No.
Biocompatible Column Fittings for LC	**N9301001**

Fittings Kit for LC

The kit contains Rheodyne™ and SSI nuts and ferrules as well as Fingertight® II nuts and ferrules for tool-less installation. Zero-dead-volume unions are also included. In addition, you receive varying lengths of stainless steel tubing in 0.007 and 0.010 in. ID, as well as 0.30 in. ID Tefzel® tubing.

Description	Part No.
All-in-one Fittings Kit	**N9301002**

Operation Kit

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

Description	Part No.
Operation Kit	**00890873**

Rheodyne Valves

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 PTFE 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

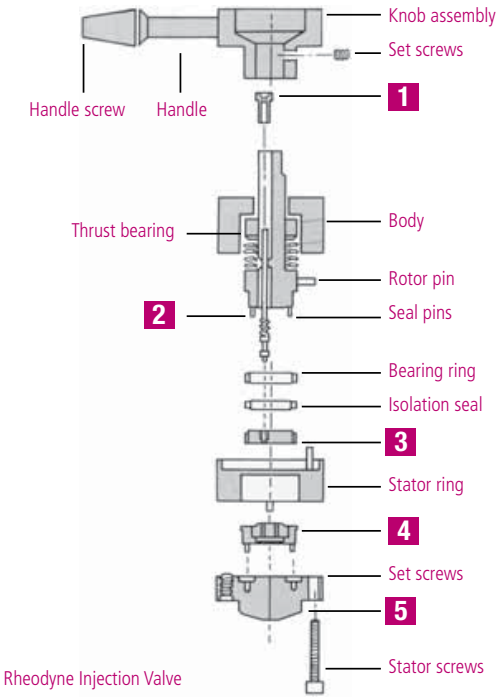
Inject from 1 µL to 5 mL with high accuracy and precision, with the Rheodyne™ 7725 and 7725i valves.

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**

Rheodyne Valves Spare Parts

	Description	Model 9725 Part No.	Model 7725 Part No.
1	Needle Guide S200 Autosampler	**N2931054**	**N2931054**
	Manual Valve ISS-100	**09904800**	**09904800**
2	Needle Port Tube	**09904805**	**09904805**
3	Rotor Seal Vespel	**09904802**	**09904802**
	Tefzel	**N9302677**	**N9302677**
	PEEK	**N9306044**	**N9306044**
4	Stator Face Assembly PEEK and Ceramic	**N9306047**	**N9306047**
5	Stator PEEK	**N9306046**	
	Stainless Steel Titanium		**N9306045**



Rheodyne Injection Valve

PEEK Sample Loops for Rheodyne Valves

PEEK Sample Loops avoid many of the problems associated with stainless steel sample loops. Metal loops will often absorb sample components resulting in inaccurate quantitative results. In addition, metal loops may be corroded by high-salt buffers and chloride salts. 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 mobile phase or sample components. 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	Model 9725 Part No.
5 µL PEEK Sample Loop	**N9306033**
10 µL PEEK Sample Loop	**N9306034**
20 µL PEEK Sample Loop	**N9306035**
50 µL PEEK Sample Loop	**N9306036**
100 µL PEEK Sample Loop	**N9306037**
200 µL PEEK Sample Loop	**N9306038**
500 µL PEEK Sample Loop	**N9306039**
1 mL PEEK Sample Loop	**N9306040**
2 mL PEEK Sample Loop	**N9306041**
5 mL PEEK Sample Loop	**N9306042**



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**	**00890873**
Rheodyne 7725 Vespel Rotor Seal	**09904802**
Rheodyne 8125 Vespel Rotor Seal	**10070900**
Rheodyne 7725/9725 PEEK Rotor Seal	**N9306044**

Stainless Steel Sample Loops for 7725 Valve

Description	Model 7725 Part No.
5 µL Stainless Steel Sample Loop	**N9306023**
10 µL Stainless Steel Sample Loop	**N9306024**
20 µL Stainless Steel Sample Loop	**N9306025**
50 µL Stainless Steel Sample Loop	**N9306026**
100 µL Stainless Steel Sample Loop	**N9306027**
200 µL Stainless Steel Sample Loop	**N9306028**
500 µL Stainless Steel Sample Loop	**N9306029**
1 mL Stainless Steel Sample Loop	**N9306030**
2 mL Stainless Steel Sample Loop	**N9306031**
5 mL Stainless Steel Sample Loop	**N9306032**

Note: Loops are compatible with both manual valves and Series 200 Autosampler valves

Internal Loop for 7725/9725 Valves

Description	Part No.
2 µL (PEEK and Ceramic)	**N9306022**

High Pressure Analytical Static Mixers

Static Mixers are important in facilitating complete mobile phase blending, resulting in improved retention performance. These mixers should be used as part of FX10, or FX15 LC systems, where high pressure blending is 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 18,000 psi pressure max flavor.

A good first choice selection is a volume of about half the flow rate volume. For example, when pumping at a 0.5 mL/min flow rate, a 350 µL mixer provides good mixing with very good baseline stability.

Description	Part No.
50 µL In-Line High Pressure Mixer Assembly, Stainless Steel	**N2911200**
150 µL In-Line High Pressure Mixer Assembly, Stainless Steel	**N2911201**
250 µL In-Line High Pressure Mixer Assembly, Stainless Steel	**N2911202**
350 µL In-Line High Pressure Mixer Assembly, Stainless Steel	**N2911205**
500 µL In-Line High Pressure Mixer Assembly, Stainless Steel	**N2911203**
150 µL High Pressure Binary High Pressure Mixing-T, Stainless Steel	**N2911206**
10 µL Binary Mixing-T, Stainless Steel	**N2911170**
Binary High Pressure T-Mixer, Stainless Steel, 50 µL	**N2911212**
Binary High Pressure T-Mixer, Stainless Steel, 350 µL	**N2911210**
Binary High Pressure T-Mixer, Stainless Steel, 500 µL	**N2911211**
T-connector, Stainless Steel	**N2911127**

Syringes and Kits

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.

Syringes

Description	Part No.
Sample Needle w/ Fittings	**N2936009**
Air Guide Needle (62 mm)	**N2936000**
Bio Compatible Sample Needle w/ Tubing Connector	**N2936010**
Needle (80 mm)	**N2936342**
Blunt Tip/Low Volume Needle	**N2931199**

Syringe Kits

Dimension	Buffer Tubing	Part No.
100 µL	200 µL	**N2936051**
250 µL	500 µL	**N2936052**
500 µL	1,000 µL	**N2936053**
1,000 µL	2,000 µL	**N2936054**
2,500 µL	2,000 µL	**N2936055**

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**
Rheodyne 22-gauge Blunt Needle with Luer Hub	**09904943**

HUMAN HEALTH

ENVIRONMENTAL HEALTH



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PerkinElmer®
For the Better

Peltier Tray Accessories

100-Position Peltier Temperature-Controlled Tray Accessory

100 standard 2 mL vials. Temperature controlled from 4 – 60 °C within ± 1 °C directly from Autosampler keypad – or from TotalChrom Workstation – Client/Server.

Description	Part No.
100-Position Peltier Temperature-Controlled Tray Accessory	**N2930035**

Double Microtiter Peltier Temperature-Controlled Tray Accessory



Two shallow or medium depth microtiter plates. Temperature controlled from 4 – 60 °C within ± 1 °C directly from Autosampler keypad – or from TotalChrom Workstation – Client/Server. (Also requires **N2930036**).

Description	Part No.
Double Microtiter Peltier Temperature-Controlled Tray Accessory	**N2930037**

Peltier Temperature Controller



Controller Unit required for operation of either 100-position or Double Microtiter Peltier trays.

Description	Part No.
Peltier Temperature Controller	**N2930036**
100-Position Peltier Temperature-Controlled Tray Accessory	**N2930035**

Sample Trays

PerkinElmer has researched, engineered, and developed the Series 200 Autosampler to ensure precision, flexibility, reliability, and ease-of-use.

Our unique XYZ design allows you to take advantage of the built-in 'extra' capabilities including dilution, derivatization, and standard addition – all without additional hardware or cost.

Description	Part No.
25-Position Sample Tray	**N2930040**
80-Position Sample Tray, Dilution (with tank)	**N2930314**
Includes: 80-Position Tray Only	**N2930044**
Glass Diluent Tank Only	**B0505677**
85-Position Sample Tray, Derivatization	**N2930041**
100-Position Sample Tray	**N2931097**
205-Position Sample Tray, Microvials/10 standard vials	**N2930042**
225-Position Sample Tray, Microvials/high throughput	**N2930043**

Series 200 Autosampler Microtiter Trays and Plates

If you need high throughput and high speed, the Series 200 is designed for injecting up to 225 samples at rates as fast as two to three injections per minute from any sample position – ideal for LC/MS work. The Series 200 even supports direct injections from microtiter plates – shallow or deepwell format.

Tray Description	Part No.
Double Deep Microtiter Tray (Holds two 96-Well Plates)	**N2930147**
Double Microtiter Peltier Tray Requires Peltier Controller (**N2930036**) (Holds two 96-Well Plates)	**N2930037**
Double Shallow Microtiter Plate Tray (Holds two 96-Well Plates)	**N2930146**
Peltier Tray for 384-Well Microtiter Plates Requires Peltier Controller (**N2930036**) and Series 200 Autosampler Firmware 1.08 or higher	**N2930038**
Microtiter Plates Description	**Part No.**
96-Well Deep (1 mL)	**N9302560**
96-Well Plate Cover/Mat	**N9302563**
96-Well Shallow (200 µL)	**N9302562**
96-Well Mid (500 µL)	**N9302561**
384-Well Plate (100 µL)	**N9302564**
384-Well Plate Cover/Mat	**N9302565**

Starter Kits

UHPLC – General Starter Kit

Description	Part No.
UHPLC – General Starter Kit	**N2930801**

Contents	Qty./Pkg.	Part No.
Open-End Wrench	2	**09907233**
Adjustable Wrench	1	**N9301326**
Reversible Screw Driver	1	**N9301480**
Parker-Hannifin ZDV Stainless Steel Union	1	**09903289**
Parker-Hannifin Medium-Stem Stainless Steel Nuts	10	**09903980**
1/16 in. Parker-Hannifin Stainless Steel Ferrules	10	**00873032**
1/16 in. Valco Stainless Steel Ferrules	6	**09903891**
Finger-Tight Fittings, PEEK, 5.5K psi Max (pkg. 5)	1	**N9307822**
Optimize Technologies EZP (Hand-Tight Fitting to 13K psi, Wrench-tight to 20K psi)	1	**N9306301**
1/16 in. Tefzel Nuts	2	**09920381**
1/16 in. Tefzel Reverse Ferrules	2	**09920382**
1/8 in. Tefzel Nuts	4	**N2601189**
1/8 in. Tefzel Reverse Ferrules	4	**09903771**
PEEK Tubing Cutter (Includes 5 Extra Blades)	1	**N9307820**
50 cm x 0.005 in. ID 1/16 in. Stainless Steel Tubing	3	**02507060**
5 ft. x 0.004 in. ID 1/16 in. PEEK Tubing, Black	1	**N2916261**
5 ft. x 0.005 in. ID 1/16 in. PEEK Tubing, Red	1	**N2916262**
30 mL Priming Syringe	1	**09904849**
2 mL Clear Write-On Vials w/ 10 mm Pre-Slit PTFE/Silicone Caps (pkg. 100)	1	**N9300695**
Cable/Tubing Organizer Clip	3	**NX598006**

HPLC – General Starter Kit

Description	Part No.
HPLC – General Starter Kit	**N2930802**

Contents	Qty./Pkg.	Part No.
Open-End Wrench	2	**09907233**
Adjustable Wrench	1	**N9301326**
Reversible Screw Driver	1	**N9301480**
Parker-Hannifin ZDV Stainless Steel Union	1	**09903289**
Parker-Hannifin Medium-Stem Stainless Steel Nut	10	**09903980**
1/16 in. Parker-Hannifin Stainless Steel Ferrule	10	**00873032**
1/16 in. Valco Stainless Steel Ferrules	6	**09903891**
Rheodyne Stainless Steel Nut, Short Stem	2	**09904956**
Rheodyne Stainless Steel Nut, Long Stem	2	**09904974**
1/16 in. Rheodyne Stainless Steel Ferrule	4	**09904947**
1/16 in. Tefzel Nuts	2	**09920381**
1/16 in. Tefzel Reverse Ferrules	2	**09920382**
1/8 in. Tefzel Nuts	4	**N2601189**
1/8 in. Tefzel Reverse Ferrules	4	**09903771**
Finger-Tight Fittings, PEEK, 4K psi Max	6	**09920513**
PEEK Tubing Cutter (Includes 5 Extra Blades)	1	**N9307820**
50 cm x 0.005 in. ID 1/16 in. Stainless Steel Tubing	1	**02507060**
50 cm x 0.007 in. ID 1/16 in. Stainless Steel Tubing	2	**00891480**
5 ft. x 0.007 in. ID 1/16 in. PEEK Tubing, Yellowish-Tan	1	**N9302650**
5 ft. x 0.005 in. ID 1/16 in. PEEK Tubing, Red	1	**N2916262**
30 mL Priming Syringe	1	**09904849**
2 mL clear write-on vials w/ 10 mm Pre-Slit PTFE/ Silicone Caps (pkg. 100)	1	**N9300695**
Cable/Tubing Organizer Clip	3	**NX598006**

Autosampler Syringes

Contents	Size	Part No.
Sampling Syringe	50 µL	**09923304**
Sampling Syringe	100 µL	**09923305**
Sampling Syringe	250 µL	**09923270**
Sampling Syringe	500 µL	**09923306**
Sampling Syringe	1000 µL	**09923307**
Sampling Syringe	2500 µL	**09923219***
Sampling Syringe Kit 2500 µL (includes 2500 µL syringe, union and tubing kit)	2500 µL	**N2930313**
Flush Syringe	2500 µL	**09923219**

*Requires one-time purchase of **N2930313**

Vacuum 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.

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**

Liquid Chromatography Laboratory Bottle Kits

Description	Part No.
1 x 5 Liter Bottle with Cap and PTFE Insert, 2 Meters PTFE 1/8 in. Tubing and 1x10 µm Stainless Steel Solvent Frit	**N2601610**
1 x 2 Liter Bottle with Cap and PTFE Insert 1 Meter PTFE 1/8 in. Tubing and 1 x 10 µm Stainless Steel Solvent Frit	**N2601611**
1 x 1 Liter Bottle with Cap and PTFE Insert 1 Meter PTFE 1/8 in. Tubing and 1 x 10 µm Stainless Steel Solvent Frit	**N2601612**
1 x 0.5 Liter Bottle with Cap and PTFE Insert 1 Meter PTFE 1/16 in. Tubing and 1 x 40 µm Stainless Steel Solvent Frit	**N2601613**
1 Cap with PTFE Insert 1 Meter PTFE 1/8 in. Tubing and 1 x 10 µm Stainless Steel Solvent Frit	**N2601614**
1 Cap with PTFE Insert 1 Meter PTFE 1/16 in. Tubing and 1 x 40 µm Stainless Steel Solvent Frit	**N2601615**
1 x 0.5 Liter Bottle with Cap and Dual PTFE Insert 2 pcs of 2 Meter PTFE 1/8 in. Tubing (Piston Wash Function)	**N2601616**
1 Cap with Dual PTFE Insert 2 pcs of 2 Meter PTFE 1/8 in. Tubing and 1 x 10 µm Stainless Steel Solvent Frit (Piston Wash Function)	**N2601617**

Replacement Vacuum Degasser Bottles

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

QSight LC/MS/MS Consumables and Spares

PerkinElmer's QSight™ LC/MS/MS provides a high sensitivity triple quadrupole solution that enables high levels of efficiency and productivity to meet both standard and regulatory requirements.

Features and Benefits

- Self-cleaning StayClean™ technology
- Dual-source ion probes for flexible method development
- Easy-to-use and learn Simplicity software to streamline workflow



Ion Source Accessories

Description	Part No.
Additional ESI probe	**BC001283F**
Additional APCI probe	**BC002312F**
ESI source needle	**BC004866F**
APCI source needle	**BC004868F**

Tuning Solutions

Description	Part No.
100-200 series tuning solution	**BC004850**
LC infusion kit	**BC002931**

Uninterruptable Power Supply Systems

With the Security Plus Series, you get much more protection and a higher comfort level than you get with most other UPS systems. The Security Plus Series also provides complete power conditioning and, because the Security Plus Series features on-line inverter design, added peace of mind. And regardless of input fluctuations, the Security Plus Series ensures that the output remains continuous and regulated.

Description	Part No.
QSight UPS System	**N9306749**

Nitrogen Generators

PerkinElmer offers customers a new line of nitrogen generators to meet the growing need for cost effective and pure nitrogen. Membrane Nitrogen Generators are designed to supply single or multiple LC/MS instruments with dry nitrogen at purities of 98% to 99.5%. The generator can also be used for solvent evaporation as well as supplying dry nitrogen to analytical instruments.

Description	Part No.
Nitroflow TG2NA Multi-Gas Generator for US For Single/Dual Source, 208-230 V/60 Hz	**BC004852**
Nitroflow TG2WD Multi-Gas Generator for World For Single/Dual Source, 230 VAC/50 Hz	**BC004874**
Nitroflow TG2JA200 Multi-Gas Generator for Japan	**BC004875**

Noise Enclosure and Reduction Cover

Laboratories can be loud and noise in labs is distracting, stressful and potentially harmful to your hearing. While noise in labs may not be frequently talked about, it is something you should be concerned with.

Noise enclosure for SC40 and reduces perceived operator noise level by approximately 4 to 5 dB (A) Fits on **MZ321147**.



Description	Part No.	Depth (ins/cm)	Width (ins/cm)	Height (ins/cm)	Height with Oil Tray (ins/cm)	Enclosure Weight (lbs/kg)	Oil Tray Weight (lbs/kg)
Noise Enclosure including dolly	**MZ321146**	29.15/74	16.75/42.5	23.25/59	26.97/68.5	30.8/14	16.75/8

GC Columns

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

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NEW Elite-Carbon Columns

Elite-Carbon columns offer rapid separation of permanent gas/light hydrocarbon mixtures; including carbon monoxide and carbon dioxide without cryogenic cooling. They are preconditioned and thus take less than 30 minutes to stabilize.

NEW GC Column Cutter

PerkinElmer's capillary column cutting tool ensures you make a perfect cut of your GC column, first time, every time. The rotating diamond blade with a built in magnifier to verify a square cut, affords a precise clean cut of fused silica columns.



GC Columns with Integrated Guard Column



These innovative columns incorporate both guard column and analytical column in a continuous length of tubing, eliminating the connection and all connection-associated problems! The guard column section is marked separately from the analytical column, using high-temperature string.

Finest Quality High-Strength Fused Silica

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%. Under isothermal conditions, the analysis time will double if using 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 ID.

GC Capillary Column Cutter

NEW

Use PerkinElmer's capillary column cutting tool to ensure a perfect cut of your GC column, first time, every time. The rotating diamond blade with a built in magnifier to verify a square cut, affords a precise clean cut of fused silica columns. Suitable for use with 0.25 mm ID to 0.53 mm ID tubing, (0.78 mm OD maximum).

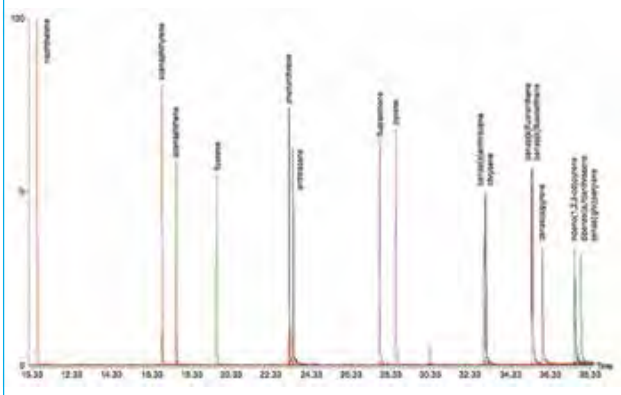


Description	Part No.
GC capillary cutting tool	**N6107245**
Maintenance kit Contains replacement cutting wheel, O-Rings and tool to open the cutter	**N6107246**

Application Highlights

Environmental

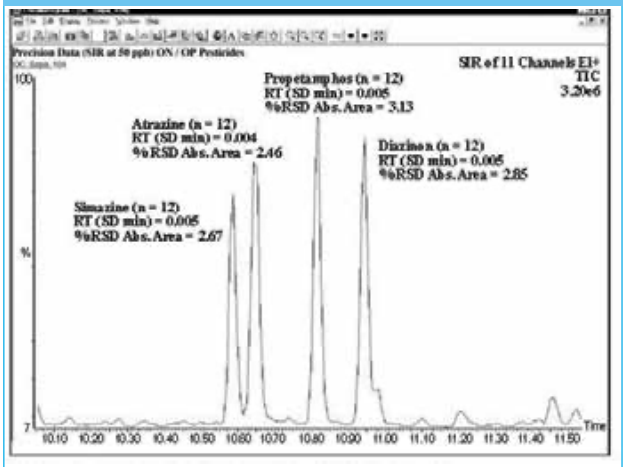
Thermal Desorption-GC/MS Analysis of Polycyclic Aromatic Hydrocarbons on Fine Particulates in Air.



Recommended Column: Elite-5ms, 30 m x 0.25 mm x 0.25 µm, Part No. **N9316282**

Environmental

Analysis of Organophosphorus and Organonitrogen Herbicides in Water using GC/MS with Selected Ion Recording.

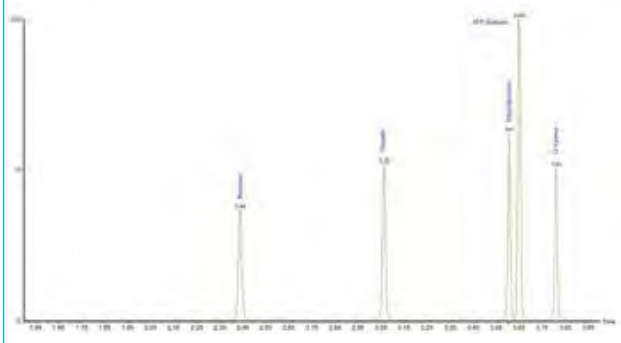


Recommended Column: Elite-5ms, 30 m x 0.25 mm x 0.25 µm, Part No. **N9316282**

Liner: a quartz injector liner packed with quartz or silanized glass wool.

Environmental

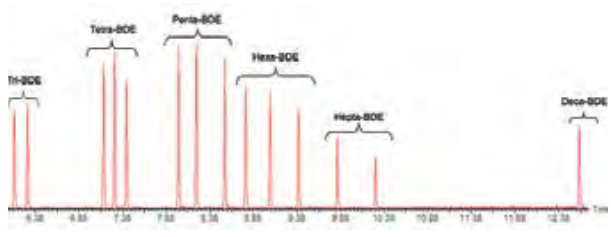
An example mass at 4.0 ppb acquiring in full scan.



Recommended Column: Elite-624, 20 m x 0.18 mm x 1.0 µm, Part No. **N9316200**

Environmental

Analysis of Polybrominated Diphenyl Ether Flame Retardants by Gas Chromatography/Mass Spectrometry.

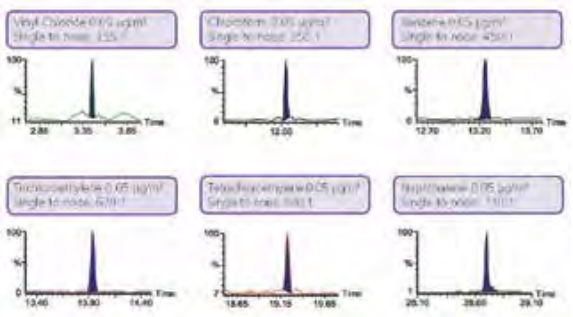


Recommended Column: Elite-1, 15 m x 0.25 mm x 0.1 µm, Part No. **N9316006**

Liner: deactivated glass liner with wool, Part No. **N6502001**

Environmental

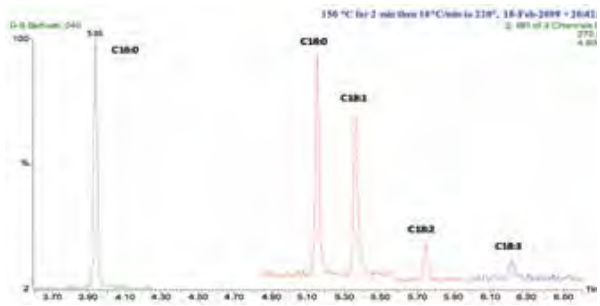
Analysis of Volatile Organic Compounds (VOCs) in Air Using US EPA Method TO-17.



Recommended Column: Elite-624, 60 m x 0.25 mm x 1.4 µm, Part No. **N9316006**

Industrial

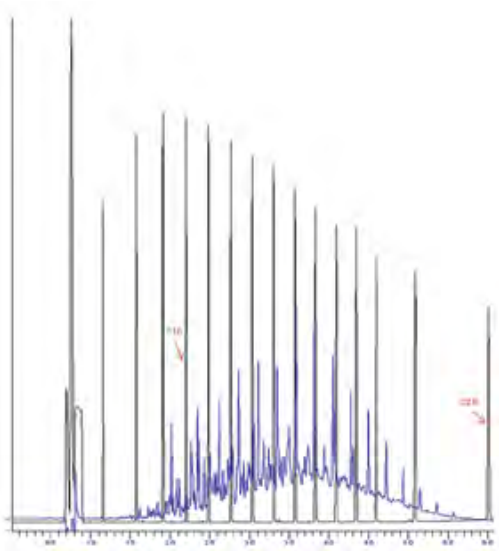
Fatty Acid Methyl Ester Contamination of Aviation Fuel by GC/MS.



Recommended Column: Elite-23, 50 m x 0.25 mm x 0.25 µm, Part No. **N9316506**

Industrial

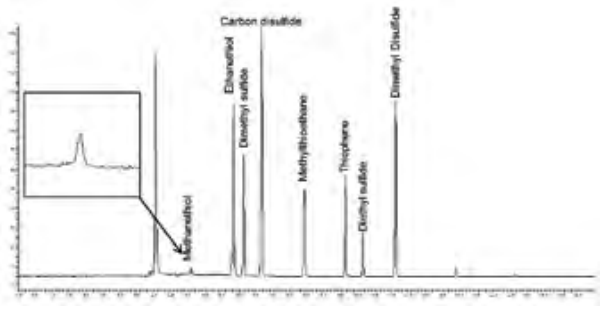
EPA Method 8015C for Diesel Range Organics.



Recommended Column: Elite-1, 15 m x 0.25 mm x 1.0 µm, Part No. **N9316006**

Industrial

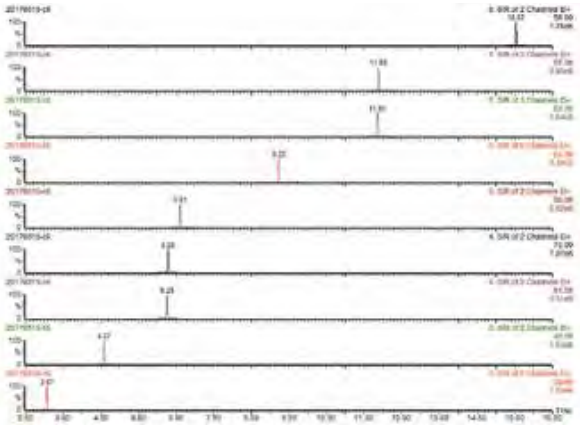
Determination of sulfur compounds in air by online TD-GC/FPD.



Recommended Column: Elite-5, 60 m x 0.32 mm x 0.25 mm, Part No. **N9316090**

Industrial

Determination of nine carbonates in lithium ion battery electrolyte by GC/MS.

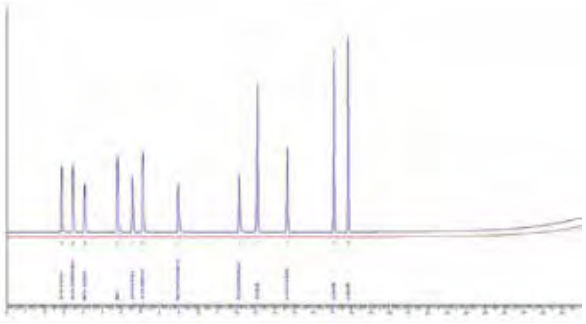


Recommended Column: Elite-35ms, 30 m x 0.25 mm x 0.25 µm (Part No. **N9316438**)

Liner: Capillary splitless deactivated glass liners with deactivated wool (**N9306235**)

Food and Flavor

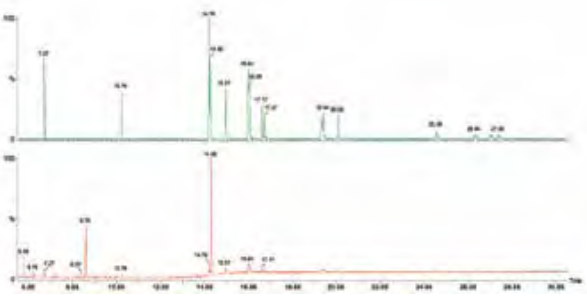
Determination of Residual Solvents in Flexible Packaging According to EN 13628-2:2004.



Recommended Column: Elite-1, 30 m, 0.32 mm, 3.0 µm, Part No. **N9316025**

Food

The Preparation and Analysis of Polycyclic Aromatic Hydrocarbons in Meat by GC/MS.

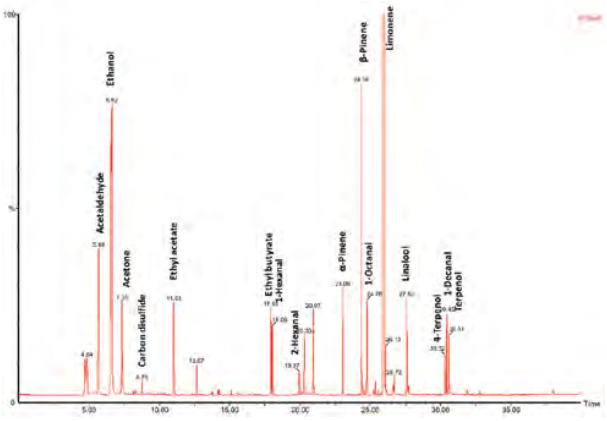


Column: Elite-5ms column, 30 m x 0.25 mm x 0.25 µm, Part No. **N9316282**

Liner Deactivated Liner, Part No. **N6502002**

Food and Flavor

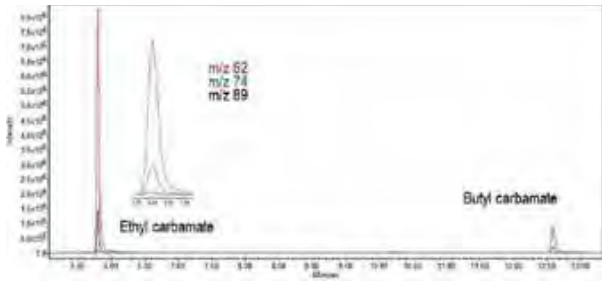
The Qualitative Characterization of Fruit Juice Flavor using a TurboMatrix Hs Trap and a Clarus SQ 8 GC/MS.



Recommended Column: Elite-5ms, 60 m x 0.25 mm x 1.0 µm, Part No. **N9316287**

Food and Flavor

Analysis of Ethyl Carbamate Using GC/MS

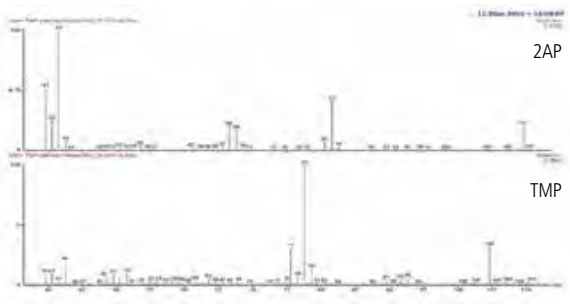


Recommended Column: Elite-35, 30 m x 0.25 mm x 0.25 µm
(Part No. **N9316145**)

Liner: 2 mm ID glass (no glass wool)

Food and Flavor

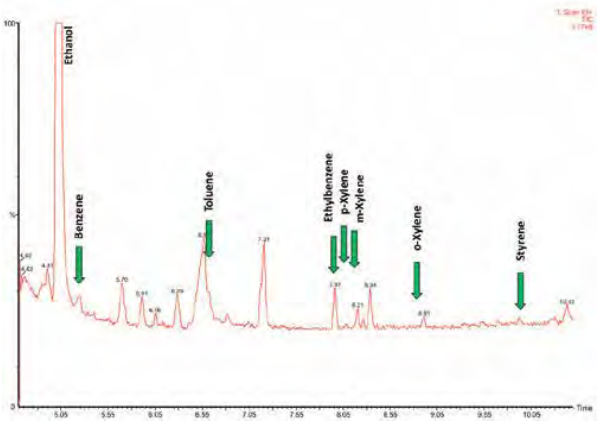
Quantification of Rice Aroma, 2-Acetyl-1-Pyrroline (2-AP), Using TurboMatrix Headspace Trap Coupled with GC/NPD and GC/MS



Recommended Column: Elite-5ms, 30 m × 0.32 mm × 0.25 µm
(Part No. **N9316293**)

Food and Flavor

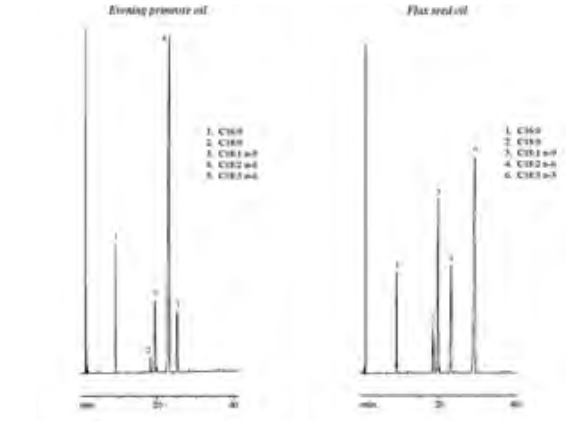
The Determination of Low Levels of Benzene, Toluene, Ethylbenzene, Xylenes and Styrene in Olive Oil Using a Turbomatrix HS and a Clarus SQ 8 GC/MS



Recommended Column: Elite-WAX, 30 m x 0.25 mm x 1.0 µm
(Part No. **N9316485**)

Food and Flavor

Determination of Omega-3 (n-3) and Omega-6 (n-6) Fatty Acid Composition in Evening Primrose Oil and Flax Seed Oil

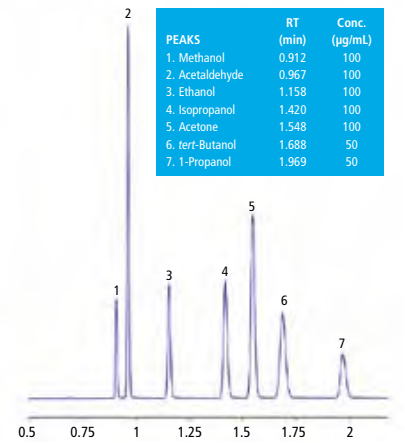


Recommended Column: Elite-WAX, 30 m × 0.25 mm × 0.25 µm
(Part No. **N9316403**)

Clinical

Blood Alcohol Analysis.

PEAKS	RT (min)	Conc. (µg/mL)
1. Methanol	0.912	100
2. Acetaldehyde	0.967	100
3. Ethanol	1.158	100
4. Isopropanol	1.420	100
5. Acetone	1.548	100
6. *tert*-Butanol	1.688	50
7. 1-Propanol	1.969	50



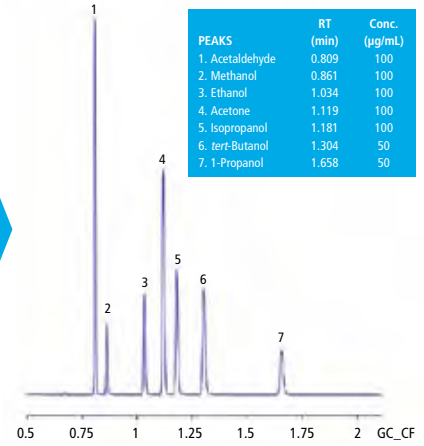
Elite-BAC 1 Advantage, 10 m x 0.18 mm x 1.0 µm, Part No. **N9315075**

- Baseline resolution
- Symmetrical peaks
- Run time under 2 min

Clinical

Blood Alcohol Analysis.

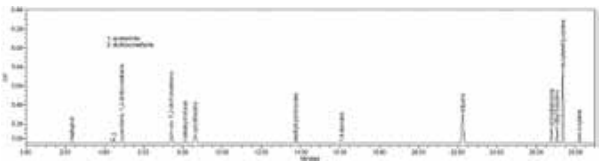
PEAKS	RT (min)	Conc. (µg/mL)
1. Acetaldehyde	0.809	100
2. Methanol	0.861	100
3. Ethanol	1.034	100
4. Acetone	1.119	100
5. Isopropanol	1.181	100
6. *tert*-Butanol	1.304	50
7. 1-Propanol	1.658	50



Elite-BAC 2 Advantage, 10 m x 0.18 mm x 1.0 µm, Part No. **N9315076**

Pharma

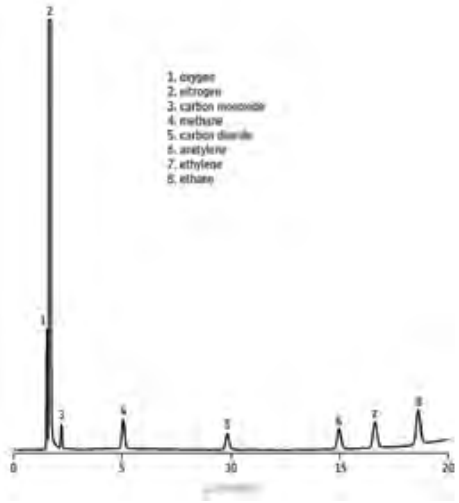
Residual solvents in pharmaceuticals by USP 467.



Elite-624, 30 m x 0.32 mm x 1.8 µm, Part No. **N9316203**

Petrochemical

Analysis of Permanent Gases and C1+C2 Hydrocarbons with the Elite-Carbon Column.



Column: Elite-Carbon, 2 m x 1.0 mm, 100/120 mesh, Part No: **N9303926**

Column requires an installation kit: for valve applications, Part No: **N9303450**; for direct injections Part No: **N9303451**

Cross Reference Chart by Phase

PerkinElmer	Phase Composition	USP	Agilent®	Alltech®
Elite-1, Elite-ms	Dimethyl polysiloxane	G1, G2, G38	HP-1, DB-1, CP-Sil 5 CB	007-1AT-1, EC-1
Elite-1ht	Dimethyl polysiloxane	G1, G2, G38	DB-1ht	AT-1ht
Elite-1ms	Dimethyl polysiloxane (low bleed)	G1, G2, G38	HP-1, HP-1ms, HP-1msUI, DB-1, DB-1MS, DB-1msUI, Ultra-1, VF-1ms, CP-Sil 5 CB	AT-1ms
Elite-5	Diphenyl dimethyl polysiloxane	G27, G36	HP-5, DB-5, CP-Sil 8 CB	EC-5, AT-5
Elite-5ht	Diphenyl dimethyl polysiloxane	G27, G36	DB-5ht, VF-5ht	
Elite-5ms	1,4-bis(dimethylsiloxy)phenylene dimethyl polysiloxane	G27, G36	DB-5ms, DB-5msUI, VF-5ms, CP Sil 8 CB MS	
Elite-5ms II	Diphenyl dimethyl polysiloxane	G27, G36	HP-5, HP-5ms, DB-5, Ultra-2	
Elite-17	Phenyl methyl polysiloxane	G3	DB-17, CP Sil 24 CB	AT-50
Elite-17ht	Phenyl methyl polysiloxane	G3	DB-17ht	
Elite-17ms	Phenyl methyl polysiloxane	G3	HP-50+, DB-17, DB-17ht, DB-608, CP Sil 24 CB	
Elite-17ms+	Diphenyl dimethyl polysiloxane	G3	DB-17ms, VF-17ms, CP-Sil 24 CB	
Elite-35	Unique Phase	G42	HP-35, DB-35, VF-35	AT-35, AT-35ms
Elite-35ms	Diphenyl dimethyl polysiloxane	G42	DB-35ms, DB35msUI	
Elite-200	Unique Phase	G6	DB-210, DB-200, VF-200ms	AT-210
Elite-225	Trifluoropropylmethyl polysiloxane	G7, G19	DB-225ms, CP Sil 43 CB	AT-225
Elite-624	Cyanopropylmethyl phenylmethyl polysiloxane	G43	DB-1301, DB-624, VF-624ms, CP-1301	AT-624, AT-1301
Elite-624ms	Cyanopropylphenyl dimethyl polysiloxane	G43	DB-624, VF-624ms, CP-Select 624 CB	
Elite-1301	Unique phase	G43	DB-1301, DB-624, VF-1301ms, VF-624ms, CP-1301	AT-624, AT-1301
Elite-1701	Cyanoprpylphenyl dimethyl polysiloxane	G46	DB-1701R, DB-1701, CP Sil 19 CB, VF-1701ms, VF-1701 Pesticides	AT-1701
Elite-WAX	Cyanoprpylphenyl dimethyl polysiloxane	G14, G15, G16, G20, G39	DB-Wax, CP Wax 52 CB, VF WAX	AT-WAXms, EC-WAX
Elite-WAX ETR	Polyethylene glycol	G14, G15, G16, G20, G39	HP-INNOWax, CP Wax 52 CB, VF-WAX MS	AT-WAX

Cross Reference Chart by Application

PerkinElmer	Applications	Agilent®	Alltech®	Machery-Nagel®
Elite-23	cis/trans FAMEs and Dioxins	VF-23ms	AT-Silar90	
Elite-502	Volatile analytes by EPA Method 502.2	DB-502.2		
Elite-608	Semivolatile pesticides by EPA Method 608	DB-608, HP-608		
Elite-2560	cis/transFAMEs	HP-88, CP Sil 88		
Elite-Alumina PLOT	Light hydrocarbons	Alumina PLOT		
Elite-BAC 1 Advantage	Blood alcohol testing	DB-ALC1		
Elite-BAC 2 Advantage	Blood alcohol testing	DB-ALC2		
Elite-CLPesticides	Organochlorine pesticides by EPA Methods 504, 608, 8081, 8082, and CLP	DB-CLP1		
Elite-CLPesticides2	Organochlorine pesticides by EPA Methods 504, 608, 8081, 8082, and CLP	DB-CLP2		
Elite-Cyclosil B	Chiral separations			
Elite-FFAP	Free fatty acids	HP-FFAP, DB-FFAP, CP WAX58 CB, CP-FFAP CB	AT-AquaWax DA, AT-1000	PERMABOND FFAP, OPTIMA FFAP, OPTIMA FFAP Plus
Elite-Molesieve PLOT	Permanent gases			
Elite-PONA	Detailed analysis of petroleum naphtha	HP-PONA, DB-Petro, CP Sil PONA CB		
Elite-Carbon	Permanent gases and light hydrocarbons			
Elite-SimDist	Simulated Distillation and Hydrocarbons – ASTM 2887	DB-2887, CP SimDist	AT-2887	
Elite-THP	Total petroleum hydrocarbons			
Elite-VMS	Volatiles Organic Pollutants by GC-MS for EPA Methods 8260,624,524	Unique Phase		
Elite-VRX	Volatile analytes by EPA Methods 502.2, 601, 602, 8010, 8020	DB-VRX		
Elite-XLB	Polychlorinated biphenyl analytes by EPA Methods 8082, 6008, PCB congeners	DB-XLB, VF-XMS		

Machery-Nagel®	Ohio Valley®	Phenomenex®	Quadrex®	Restek®	SGE®	Supelco®
OPTIMA 1	OV-1	ZB-1	007-1	Rtx-1, Mtx-1	BP1	SPB-1
		ZB-1HTinferno		Rxi-1HT		
OPTIMA 1 MS, OPTIMA 1 MS Accent		ZB-1, ZB-1ms	007-1	Rxi-1ms	BP-1	SPB-1, Equity-1
OPTIMA 5	OV-5	ZB-5	007-5	Rtx-5	BP5	SPB-5
OPTIMA 5HT		ZB-5HTinferno		Rxi-5HT	HT5	
OPTIMA 5 MS Accent	OV-5MS	ZB-5msi	007-5MS	Rxi-5Sil MS	BPX5	SLB-5ms
OPTIMA 5, OPTIMA 5 MS		ZB-5, ZB-5ms		Rxi-5ms	BP5ms	
	OV-17		007-17	Rtx-50		SPB-50
OPTIMA 17		ZB-50		Rxi-17		SPB-17
OPTIMA 17 MS		ZB-50		Rxi-17Sil MS	BPX50	
	OV-35	ZB-35	007-35	Rtx-35	BPX35,BPX608	SPB-35,SPB-608
OPTIMA 35 MS		MR2		Rxi-35Sil MS	BPX35	
OPTIMA 210				Rtx-200		
OPTIMA 225	OV-225		007-225	Rtx-225	BP225	SPB-225
OPTIMA 1301, OPTIMA 624	OV-624	ZB-624	007-1301, 007-624	Rtx-624	BP624	SPB-624
OPTIMA 624 LB		ZB-624		Rxi-624Sil MS	BP624	
OPTIMA 1301, OPTIMA 624	OV-1301	ZB-624	007-1301, 007-624	Rtx-624	BP624	SPB-624
OPTIMA 1701	OV-1701	ZB-1701, ZB-1701P	007-1701	Rtx-1701	BP10	Equity-1701
OPTIMA WAX	Carbowax 20M	ZB-Wax	007-CW	Rtx-Wax	BP20	
OPTIMA WAX plus		ZB-WaxPLUS		Stabilwax		Supelcowax-10

Ohio Valley®	Phenomenex®	Quadrex®	Restek®	SGE®	Supelco®
		007-23		BPX70	SP-2330, SP-2331, SP-2380
			Rtx-502.2		VOCOL
		007-608			SPB-608
			Rt-2560		SPB-2560
	ZB-BAC1		Rtx-BAC Plus 1		
	ZB-BAC2		Rtx-BAC Plus 2		
			Rtx-CLPesticides		
			Rtx-CLPesticides 2	Rtx-200	
OV-351	ZB-FFAP		Stabilwax-DA	BP-21	Nukol
			Rtx-DHA	BP1PONA	Petrocol DH
			Rtx-2887		Petrocol 2887, Petrocol EX2887
	MR1, ZB-XLB		Rxi-XLB		

GC Columns with Integrated Guard Columns

Integrated Guard columns: guard columns WITHOUT connections – protecting your analytical GC column has never been this easy!

For analysts who find it inconvenient to make a leak-free connection between the guard column and the analytical column, we offer Integrated Guard columns. These innovative columns incorporate both guard column and analytical column in a continuous length of tubing, eliminating the connection and all connection-associated problems! The guard column section is marked separately from the analytical column, using high-temperature string. A GC column with an integrated Guard column is so economical that we challenge you to compare our price against that of a GC column and guard with a conventional connection, even if you assemble it yourself.

Features and Benefits

- No leaks for a more robust method
- No column connections for easier, faster maintenance
- No peak distortions due to connector dead volume and thermal capacity

Elite-1

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.
0.25	0.25	-60 to 330/350	5 m	**N9305600**
0.53	1.00	-60 to 330/350	5 m	**N9305601**
	5.00	-60 to 340/360	5 m	**N9305602**

Elite-5

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.	60 m Part No.
0.25	0.25	-60 to 330/350	5 m	**N9305603**	
	0.25	-60 to 330/350	10 m	**N9305604**	
	1.00	-60 to 330/350	5 m	**N9305605**	
0.32	0.25	-60 to 330/350	5 m	**N9305606**	**N9305607**
	1.00	-60 to 330/350	5 m	**N9305608**	
0.53	5.00	-60 to 340/360	5 m	**N9305609**	

Elite-5ms II

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	15 m Part No.	30 m Part No.
0.25	0.10	-60 to 330/350	5 m		**N9305610**
	0.25	-60 to 330/350	5 m	**N9305611**	**N9305612**
	0.25	-60 to 330/350	10 m		**N9305613**
	0.50	-60 to 330/350	5 m		**N9305614**
	0.50	-60 to 330/350	10 m	**N9305615**	**N9305616**
0.32	0.25	-60 to 330/350	5 m		**N9305617**
	1.00	-60 to 330/350	5 m		**N9305618**

Elite-5ms

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.	60 m Part No.
0.25	0.10	-60 to 330/350	5 m		
	0.25	-60 to 330/350	5 m		**N9305619**
	0.25	-60 to 330/350	10 m	**N9305620**	**N9305621**
	0.50	-60 to 330/350	5 m	**N9305622**	**N9305623**
	0.50	-60 to 330/350	10 m		**N9305624**
0.32	0.50	-60 to 330/350	5 m		**N9305625**
	1.00	-60 to 330/350	5 m		**N9305626**

Elite-624

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.
0.25	1.40	-60 to 330/350	5 m	**N9305627**
0.32	1.80	-60 to 330/350	5 m	**N9305628**
0.53	3.00	-60 to 340/360	5 m	**N9305629**

Elite-1301

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.
0.53	3.00	-60 to 330/350	5 m	**N9305630**

Elite-1701

ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.
0.25	0.25	-60 to 330/350	5 m	**N9305631**

Elite-WAX ETR

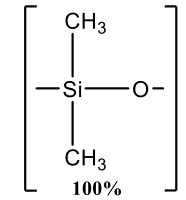
ID (mm)	df (µm)	Temp Limits (°C)	Integra-Guard	30 m Part No.
0.25	0.25	-60 to 330/350	5 m	**N9305632**
0.32	1.00	-60 to 330/350	5 m	**N9305633**
0.53	1.00	-60 to 340/360	5 m	**N9305634**

Elite-1

The Elite-1 100% dimethyl polysiloxane columns is a highly versatile, non-polar, cross-linked general purpose phase that is rugged, exhibiting long column lifetime, low bleed, and high maximum operating temperatures. The Elite-1ht (high-temperature) is designed for reduced bleed when operating at higher temperature (up to 400 °C).

Primary Applications: Elite-1 columns are ideal for the analysis of non-polar petrochemical samples, such as detailed hydrocarbon analysis, hydrocarbon gases, petroleum oxygenates, petroleum aromatics, fuels, waxes, oils, sulfur compounds, mercaptans, and carbon disulfide. It also is an excellent phase for solvents, chemicals, flavors, fragrances, essential oils, air toxins, chlorofluorocarbons, arson analysis, pesticides, hydrocarbons and high-temperature applications.

Elite-1 Structure



Features and Benefits

- Temperature Range: -60 °C to 350 °C
- Equivalent to USP G1, G2, and G38 phases

ID (mm)	df (µm)	Temp Limits (°C)	5 m Part No.	15 m Part No.	30 m Part No.	60 m Part No.	105 m Part No.
0.25	0.10	-60 to 330/350		**N9316006**	**N9316009**	**N9316012**	
	0.25	-60 to 330/350		**N9316007**	**N9316010**	**N9316013**	
	0.50	-60 to 330/350		**N9316686**	**N9316685**		
	1.00	-60 to 320/340		**N9316008**	**N9316011**	**N9316014**	
0.32	0.10	-60 to 330/350		**N9316016**	**N9316022**	**N9316027**	
	0.25	-60 to 330/350	**N9316596**	**N9316017**	**N9316023**	**N9316028**	
	0.50	-60 to 330/350			**N9316021**[1]	**N9316691**	
	1.00	-60 to 320/340		**N9316018**	**N9316024**	**N9316029**	
	1.50	-60 to 310/330			**N9316050**	**N9316580**	
	3.00	-60 to 280/300		**N9316019**	**N9316025**	**N9316030**	
	5.00	-60 to 260/280		**N9316020**	**N9316026**	**N9316031**	
0.45	0.13	-60 to 330/350		**N9316032**			
	0.42	-60 to 310/330		**N9316037**	**N9316041**		
	1.27	-60 to 310/330		**N9316034**	**N9316038**	**N9316042**	
	2.55	-60 to 270/290		**N9316035**	**N9316039**		**N9316043**
	4.25	-60 to 260/280	**N9316032**	**N9316036**	**N9316040**		
0.53	0.15	-60 to 320/340		**N9316045**			
	0.50	-60 to 310/330		**N9316049**	**N9316053**		
	1.50	-60 to 310/330		**N9316046**	**N9316050**	**N9316054**	
	3.00	-60 to 270/290		**N9316047**	**N9316051**	**N9315499**	**N9316692**
	5.00	-60 to 270/290	**N9316044**	**N9316048**	**N9316052**		

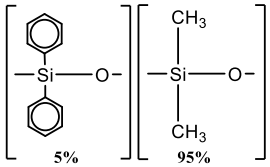
ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	12 m Part No.	20 m Part No.	25 m Part No.	50 m Part No.
0.05	0.05	-60 to 330/350	**N9316056**				
	0.20	-60 to 330/350	**N9316057**				
0.10	0.10	-60 to 330/350	**N9316058**				
	0.40	-60 to 320/340			**N9316061**		
0.18	0.18	-60 to 330/350	**N9316001**		**N9316003**		
	0.40	-60 to 320/340	**N9316002**		**N9316004**		**N9316005**[2]
0.20	0.33	-60 to 330/350		**N9316062**		**N9316063**	**N9316064**

[1] **N9316021**: Elite-1, 25M x 0.32 mm x 0.52 µm [2] The length of **N9316005** is 40 m

Elite-5

A 5% diphenyl/95% dimethyl polysiloxane stationary phase is a general purpose, low polarity phase that is the most popular GC stationary phase used for a wide variety of applications. These columns are commonly used for analysis of drugs, pesticides, hydrocarbons, PCBs, essential oils, semivolatiles and solvent impurities. The Elite-5 is a crosslinked phase in which all residual catalysts and low molecular weight fragments have been removed providing a tight mono-modal distribution and extremely low bleed.

Elite-5 Structure



Features and Benefits

- Temperature Range: -60 °C to 350 °C
- Equivalent to USP G27 and G36 phases

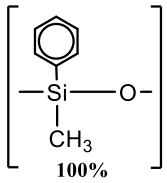
ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	40 m Part No.	60 m Part No.
0.05	0.05	-60 to 325/350	**N9316104**					
	0.20	-60 to 325/350	**N9316105**					
0.10	0.10	-60 to 330/350			**N9316108**			
	0.40	-60 to 320/340			**N9316109**			
0.18	0.18	-60 to 330/350	**N9316066**		**N9316068**			
	0.4	-60 to 320/340	**N9316067**		**N9316069**		**N9316071**	
0.20	0.33	-60 to 330/350	**N9316110**[1]		**N9316111**[1]		**N9316112**[1]	
0.25	0.10	-60 to 330/350		**N9316072**		**N9316075**		**N9316078**
	0.25	-60 to 330/350		**N9316073**		**N9316076**		**N9316079**
	1.00	-60 to 320/340		**N9316074**		**N9316077**		**N9316080**
0.32	0.10	-60 to 330/350		**N9316081**		**N9316085**		**N9316089**
	0.25	-60 to 330/350		**N9316082**		**N9316086**		**N9316090**
	1.00	-60 to 320/340		**N9316083**		**N9316087**		**N9316091**
0.45	0.13	-60 to 340/350						**N9316097**
	0.42	-60 to 310/330		**N9316093**		**N9316096**		
	1.27	-60 to 310/330		**N9316092**		**N9316094**		
	4.25	-60 to 260/280				**N9316095**		
0.53	0.50	-60 to 310/330		**N9316099**		**N9316102**		
	1.50	-60 to 310/330		**N9316098**		**N9316100**		**N9316103**
	5.00	-60 to 270/290				**N9316101**		

[1] The lengths of **N9316110**, **N9316111** and **N9316112** are 12 m, 25 m and 50 m, respectively

Elite-17

The Elite-17 columns are general purpose, mid-polarity, (50%-phenyl)-methylpolysiloxane phases for the analysis of pesticides, herbicides, phthalate esters, sterols, and rosin acids. All Elite-17 phases incorporate a crosslinking technology for very low bleed and long column lifetimes.

Elite-17 Structure



Features and Benefits

- Temperature Range: 40 °C to 330 °C
- Equivalent to USP G3 phase

ID (mm)	df (µm)	Temp Limits (°C)	5 m Part No.	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.05	0.05	40 to 280/300		**N9316138**				
	0.10	40 to 280/300		**N9316139**				
0.10	0.02	40 to 280/300		**N9316141**				
	0.10	40 to 280/300		**N9316140**		**N9316142**		
	0.20	40 to 280/300				**N9316143**		
0.18	0.18	40 to 310/330		**N9316113**		**N9316115**		
	0.3	40 to 300/320		**N9316114**		**N9316116**		
0.25	0.15	40 to 300/320			**N9316117**		**N9316120**	
	0.25	40 to 300/320			**N9316118**		**N9316121**	**N9316123**
	0.50	40 to 290/310			**N9316119**		**N9316122**	
0.32	0.15	40 to 300/320			**N9316124**		**N9316127**	
	0.25	40 to 300/320			**N9316125**		**N9316128**	
	0.50	40 to 290/310			**N9316126**		**N9316129**	
0.45	0.85	40 to 270/290			**N9316131**		**N9316132**	**N9316133**
0.53	1.00	40 to 260/280			**N9316135**		**N9316136**	**N9316137**
	2.00	40 to 250/270	**N9316134**					

Elite-35

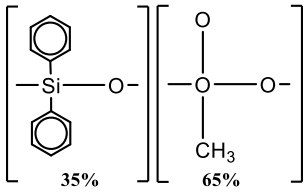
The Elite-35 columns are general purpose, mid-polarity columns that are coated with a crosslinked, (35%-diphenyl)-dimethylpolysiloxane commonly used for organochlorine pesticides, PDB congeners (e.g. Alaclor mixes), herbicides, pharmaceuticals, sterols, phthalate esters and rosin acids. The Elite-35 column is a popular confirmation column for pesticides and herbicides, in conjunction with an Elite-5 or Elite-1701. The higher phenyl content results in useful elution order and retention time changes.

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.15	40 to 300/320		**N9316144**
	0.25	40 to 300/320		**N9316145**
0.32	0.25	40 to 300/320		**N9316146**
	0.50	40 to 290/310		**N9316147**
0.45	0.42	40 to 290/310		**N9316150**
	0.85	40 to 280/300	**N9316148**	**N9316149**
0.53	0.50	40 to 260/280		**N9316153**
	1.00	40 to 260/280	**N9316151**	**N9316152**

Features and Benefits

- Temperature Range: 40 °C to 300/320 °C
- Equivalent to USP G42 phase

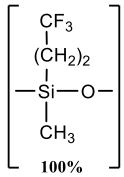
Elite-35 Structure



Elite-200

Elite-200 columns are comprised of a (trifluoropropyl)-methylpolysiloxane stationary phase that has a unique selectivity which changes elution orders and resolves compounds that phenyl, cyano, or Carbowax® phases cannot. These columns have accomplished many difficult separations not possible on any other bonded stationary phase. Many analysts consider these the best, most inert mid-polarity columns available. The Elite-200 column offers exceptional thermal stability, low bleed, and superior inertness – even for active compounds such as phenols, and with sensitive detectors such as ECDs, NPDs, and MSDs. It is a good general purpose column for solvents, Freon® fluorocarbons, alcohols, ketones, silanes, glycols, and drugs of abuse. An excellent column for confirmation of phenols, nitrosamines, organochlorine pesticides, chlorinated hydrocarbons, and chlorophenoxy herbicides when paired with an Elite-5 column.

Elite-200 Structure



Features and Benefits

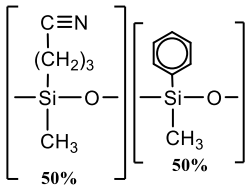
- Temperature Range: 40 °C to 320/340 °C
- Equivalent to USP G6 phase

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.25	0.10	-20 to 320/340	**N9316616**	**N9316617**	
	0.25	-20 to 320/340	**N9316618**	**N9316619**	
	0.50	-20 to 310/330	**N9316620**	**N9316621**	
	1.00	-20 to 290/310	**N9316622**	**N9316623**	**N9316624**
0.32	0.25	-20 to 320/340	**N9316625**	**N9316626**	
	0.50	-20 to 310/330	**N9316627**	**N9316628**	
	1.00	-20 to 290/310	**N9316629**	**N9316630**	**N9316631**
	1.50	-20 to 280/300	**N9316632**	**N9316633**	**N9316634**
0.53	0.25	-20 to 310/330	**N9316635**	**N9316636**	**N9316637**
	0.50	-20 to 300/320	**N9316638**	**N9316639**	**N9316640**
	1.00	-20 to 290/310	**N9316641**	**N9316642**	**N9316643**
	1.50	-20 to 280/300	**N9316644**	**N9316645**	**N9316646**
	3.00	-20 to 260/280	**N9316647**	**N9316648**	**N9316649**

Elite-225

The Elite-225 is a general purpose column for the analysis of FAMEs, carbohydrates, sterols and flavor compounds. The cyanopropyl-containing Elite-225 phase is slightly less polar than bonded polyethylene glycol (PEG) phases, but it can be used for many of the same applications. Improvements to the Elite-225 polymer have increased thermal stability, reduced bleed, and improved inertness. The Elite-225 column provides a 20 °C thermal stability advantage over other '225' columns because of our unique polymer synthesis technology and proprietary siloxane deactivation. In most similar columns, the Carbowax® deactivation layer is not fully compatible with the cyanopropyl siloxane polymer, which can cause adsorption, tailing of active compounds, and lower efficiency.

Elite-225 Structure



Features and Benefits

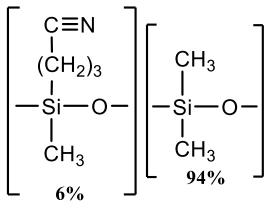
- Temperature Range: 40 °C to 220/240 °C
- Equivalent to USP G7, G19 phases

ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.05	0.05	45 to 220/240	**N9316186**				
0.10	0.10	45 to 220/240			**N9316187**		
0.18	0.2	45 to 220/240	**N9316172**		**N9316173**		
0.25	0.15	45 to 220/240		**N9316174**		**N9316176**	**N9305631**
	0.25	45 to 220/240		**N9316175**		**N9316177**	
0.32	0.15	45 to 220/240		**N9316178**		**N9316180**	
	0.25	45 to 220/240		**N9316179**		**N9316181**	
0.45	0.85	40 to 200/220		**N9316182**		**N9316183**	
0.53	1.00	40 to 200/220		**N9316184**		**N9316185**	

Elite-624

The Elite-624 column is a specially engineered, low to mid-polarity (6%-cyanopropylphenyl)-dimethylpolysiloxane phase. The unique polarity of the Elite-624 column makes it ideal for analyzing volatile organic pollutants and it is recommended in U.S. EPA methods. Although the Elite-502.2 column is recommended in many methods, the Elite-624 column offers better resolution of early eluting compounds. The Elite-624 phase produces greater than 90% resolution of the first six gases in EPA Methods 8260 and 524.2. This stationary phase is especially well-suited for EPA Method 524.2 since it resolves 2-nitropropane from 1,1-dichloropropanone, which share quantification ion m/z 43 and must be separated chromatographically.

Elite-624 Structure



Features and Benefits

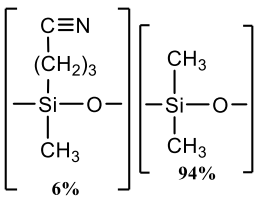
- Temperature Range: -20 °C to 240 °C
- Equivalent to USP G43 phase
- Well suited for EPA methods 524.2 and 8260

ID (mm)	df (µm)	Temp Limits (°C)	20 m Part No.	25 m Part No.	30 m Part No.	60 m Part No.	75 m Part No.
0.18	1.00	-20 to 240	**N9316200**				
0.20	1.12	-20 to 240		**N9316209**			
0.25	1.40	-20 to 240			**N9316201**	**N9316202**	
0.32	1.80	-20 to 240			**N9316203**	**N9316204**	
0.45	2.55	-20 to 240			**N9316205**		**N9316206**
0.53	3.00	-20 to 240			**N9316207**		**N9316208**

Elite-1301

The Elite-1301 column is a general purpose low to mid-polarity phase commonly used for the analysis of residual solvents, alcohols, oxygenates and volatile organic compounds. The stationary phase is (6%-cyanopropylphenyl)-methylpolysiloxane. Many analysts feel the Elite-1301 column is the best cyanosiloxane bonded stationary phase available, with no other column supplier providing lower bleed, longer lifetime, or better inertness. Our polymer is fully characterized to ensure long-term reproducibility, column-to-column consistency, and low bleed – even with sensitive detectors such as ECD and MS.

Elite-1301 Structure



Features and Benefits

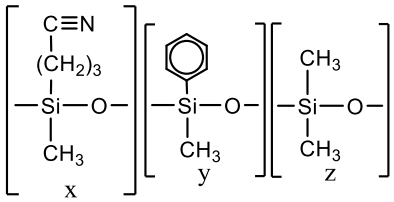
- Temperature Range: -20 °C to 280 °C
- Equivalent to USP G43 phase

ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.18	0.40	-20 to 280	**N9316210**		**N9316211**		
0.25	0.25	-20 to 280		**N9316212**		**N9316214**	**N9316216**
	1.00	-20 to 260/280				**N9316215**	**N9316217**
0.32	0.25	-20 to 280		**N9316218**		**N9316220**	**N9316222**
	1.00	-20 to 260/280		**N9316219**		**N9316221**	**N9316223**
0.45	0.85	-20 to 260/280		**N9316224**		**N9316225**	
0.53	1.00	-20 to 260/280		**N9316226**		**N9316227**	

Elite-1701

The Elite-1701 is a good mid-polarity general purpose column for the analysis of alcohols, oxygenates, PCB congeners (e.g. Aroclor mixes), and pesticides. With a stationary phase of (14%-cyanopropylphenyl)-methylpolysiloxane it is one of the more popular stationary phases used in capillary GC. The mix of cyano and phenyl functional groups increases the polarity and offers a different elution order relative to less polar Elite-1 or Elite-5 columns. An Elite-1701 column is ideal for confirmation analysis in combination with an Elite-35 or Elite-5 column. The polymer is fully characterized to ensure long-term reproducibility, column-to-column consistency, and low bleed – even with sensitive detectors such as ECD and MS.

Elite-1701 Structure



Features and Benefits

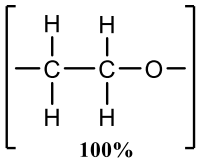
- Temperature Range: -20 °C to 280 °C
- Equivalent to USP G46 phase

ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	50 m Part No.	60 m Part No.
0.05	0.05	-20 to 280	**N9316257**					
	0.20	-20 to 280	**N9316258**					
0.10	0.10	-20 to 280			**N9316259**			
0.18	0.4	-20 to 270/280	**N9316228**		**N9316229**			
0.25	0.15	-20 to 280		**N9316230**				**N9316236**
	0.25	-20 to 280		**N9316231**		**N9316234**		**N9316237**
	1.00	-20 to 260/280		**N9316232**		**N9316235**		**N9316238**
0.32	0.15	-20 to 280		**N9316239**		**N9316242**		**N9316246**
	0.25	-20 to 280		**N9316240**		**N9316243**		**N9316247**
	1.00	-20 to 260/280		**N9326141**		**N9316244**	**N9316245**	**N9316248**
0.45	0.42	-20 to 260/270		**N9316250**		**N9316252**		
	0.85	-20 to 250/270		**N9316249**		**N9316251**		
0.53	0.50	-20 to 260/270		**N9316254**		**N9316256**		
	1.00	-20 to 250/270		**N9316253**		**N9316255**		

Elite-WAX

The Elite-WAX column, a Polar Polyethylene glycol (PEG) stationary phase column, is a general purpose polar PEG phase commonly used for the analysis of polar compounds like alkenols, glycols and aldehydes. The extended operating temperature range up to 250 °C allowing analysis of compounds that have a wide volatility range. Selectivity of the Elite-WAX is comparable to other Carbowax® columns for compounds of intermediate to high polarity.

Elite-WAX Structure



Features and Benefits

- Temperature Range: 20 °C to 250 °C
- Equivalent to USP G14, G15, G16, G20 and G39 phases

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.25	0.15	20 to 250	**N9316399**	**N9316402**	**N9316405**
	0.25	20 to 250	**N9316400**	**N9316403**	**N9316406**
	0.50	20 to 250	**N9316401**	**N9316404**	**N9316407**
0.32	0.15	20 to 250	**N9316408**	**N9316411**	
	0.25	20 to 250	**N9316409**	**N9316412**	**N9316416**
	0.50	20 to 250	**N9316410**	**N9316413**	**N9316417**
0.45	0.42	20 to 250	**N9316420**	**N9316422**	
	0.85	20 to 240/250	**N9316419**	**N9316421**	**N9316423**
	1.70	50 to 230	**N9316418**		
0.53	0.50	20 to 250	**N9316426**	**N9316428**	
	1.00	20 to 240/250	**N9316425**	**N9316427**	**N9316429**

Elite-MWAX: Metal Column

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.
0.53	1.00	20 to 240/250	**N9316478**

Elite-WAX ETR

The Elite-WAX ETR (Extended Temperature Range) columns are manufactured with a special bonding process that binds the Carbowax® polymer to the polar deactivated silica. This results in a low bleed WAX column that exhibits extended lifetimes even when repeatedly heated to 260 °C. The bonding mechanism of this column produces very stable polar retention that does not shift as often as observed with other WAX-type columns. Additionally, the bonding mechanism makes this column rugged enough to stand up to repeated water injections and allows solvent washing to rejuvenate the column. The Elite-WAX ETR can be used for a wide range of compounds and matrices such as: FAMEs, flavor compounds, essential oils, solvents, aromatics, acrolein/acrylonitrile (EPA 603), oxygenated compounds, impurities in water matrices and alcoholic beverages.

Features and Benefits

- Temperature Range: 40 °C to 260 °C
- Equivalent to USP G14, G15, G16, G20 and G39 phases
- Suitable for EPA method 603

ID (mm)	df (µm)	Temp Limits (°C)	5 m Part No.	15 m Part No.	30 m Part No.	50 m Part No.	60 m Part No.
0.25	0.25	40 to 250		**N9316547**	**N9316549**		**N9316551**
	0.50	40 to 250		**N9316548**	**N9316550**		
0.32	0.25	40 to 250		**N9316552**	**N9316555**		**N9316559**
	0.50	40 to 250		**N9316553**	**N9316556**		**N9316560**
	1.00	40 to 240/250		**N9316554**	**N9316557**	**N9316558**	**N9316561**
0.45	0.85	40 to 240		**N9316563**	**N9316564**		**N9316565**
	1.70	40 to 230/250	**N9316562**				
0.53	1.00	40 to 240/250		**N9316567**	**N9316569**		**N9316571**
	2.00	40 to 220/230	**N9316566**	**N9316568**	**N9316570**		

GC Columns for GC/MS

The Elite range of MS columns are engineered for extremely low bleed for MS detectors. Covering a range of polarities and applications.

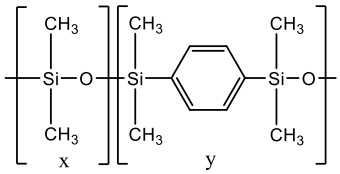
Elite-1ms

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.18	0.18	-60 to 330/350		**N9305635**		
	2.00	-60 to 330/350		**N9305636**		
0.25	0.25	-60 to 330/350	**N9305637**		**N9305638**	**N9305639**
	0.50	-60 to 330/350	**N9305640**		**N9305641**	**N9305642**
	1.00	-60 to 330/350	**N9305643**		**N9305644**	**N9305645**
0.32	0.25	-60 to 330/350	**N9305646**		**N9305647**	**N9305648**
	0.50	-60 to 330/350	**N9305649**		**N9305650**	**N9305651**
	1.00	-60 to 330/350			**N9305652**	**N9305653**
	4.00	-60 to 330/350			**N9305654**	

Elite-5ms

The Elite-5ms phase incorporates a phenyl group in the polymer backbone to improve thermal stability, reduce bleed and make the phase less prone to oxidation. This results in a phase that is inert to active compounds with extremely low bleed to meet the requirements of sensitive MS detectors. It is a general purpose column ideal for GC/MS analysis of semivolatiles, PAHs, chlorinated hydrocarbons, phthalates, phenols, amines, organochlorine and organophosphorus pesticides, drugs and solvent impurities.

Elite-5ms Structure



Features and Benefits

- Temperature Range: -60 °C to 350 °C
- Similar to USP G27 and G36 phases

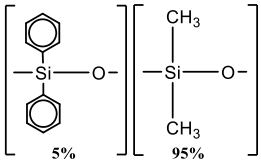
ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.18	0.18	-60 to 325/340		**N9316276**[1]	**N9316277**[1]
0.20	0.33	-60 to 330/350	**N9316301**[2]	**N9316302**[2]	**N9316303**[2]
0.25	0.25	-60 to 330/350	**N9316279**	**N9316282**	**N9316286**
	0.50	-60 to 330/350		**N9316284**	
	1.00	-60 to 325/350	**N9316280**	**N9316283**	**N9316287**
0.32	0.25	-60 to 330/350	**N9316289**	**N9316293**	**N9316297**
	0.50	-60 to 330/350		**N9316295**	
	0.52	-60 to 330/350		**N9316291**[3]	
	1.00	-60 to 325/350	**N9316290**	**N9316294**	**N9316298**
0.53	1.50	-60 to 310/330	**N9316299**	**N9316300**	

[1] The lengths of **N9316276** and **N9316277** are 20 m and 40 m, respectively
[2] The lengths of **N9316301**, **N9316302** and **N9316303** are 12 m, 25 m and 50 m, respectively
[3] The length of **N9316291** is 25 m

Elite-5ms II

The Elite-5ms II columns incorporate the same phase as the Elite-5 columns but are specifically tested for low bleed performance.

Elite-5ms II Structure



Features and Benefits

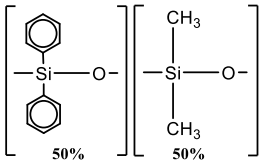
- Temperature Range: -60 °C to 350 °C
- Equivalent to USP G27 and G36 phases

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.25	0.10	-60 to 330/350	**N9305655**	**N9305656**	**N9305657**
	0.25	-60 to 330/350	**N9305658**	**N9305659**	**N9305660**
	0.50	-60 to 330/350	**N9305661**	**N9305662**	**N9305663**
	1.00	-60 to 325/350	**N9305664**	**N9305665**	
0.32	0.10	-60 to 330/350	**N9305666**	**N9305667**	**N9305668**
	0.25	-60 to 330/350	**N9305669**	**N9305670**	**N9305671**
	0.50	-60 to 330/350		**N9305672**	**N9305673**
	1.00	-60 to 325/350	**N9305674**	**N9305675**	**N9305698**

Elite-17ms

The Elite-17ms columns are general purpose, mid-polarity columns that are coated with a crosslinked, (50%-diphenyl)-dimethylpolysiloxane engineered for very low bleed to meet the requirements of sensitive MS detectors.

Elite-17ms Structure



Features and Benefits

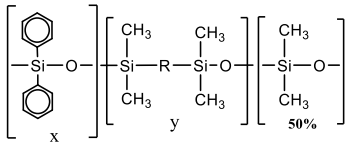
- Temperature Range: 40 °C to 320/340 °C
- Equivalent to USP G3 phase

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.18	1.411	40 to 300/340	**N9316534**		
0.25	0.15	40 to 300/320	**N9316535**	**N9316537**	
	0.25	40 to 300/320	**N9316536**	**N9316538**	**N9316539**
0.32	0.15	40 to 300/320	**N9316540**	**N9316542**	
	0.25	40 to 300/320	**N9316541**		

Elite-17ms+

The Elite-17ms+ columns are general purpose, mid-polarity columns offering extremely low bleed at higher temperatures. They are coated with a unique blend of linked dimethyl polysiloxanes and diphenyl polysiloxanes that is inert and selective for active environmental compounds, such as PAHs, while maintaining a similar selectivity and polarity as traditional Elite-17 phases. This phase has been engineered for extremely low bleed as required by MS detectors at higher temperature (up to 360 °C) as required for sensitive MS detectors.

Elite-17ms+ Structure



Features and Benefits

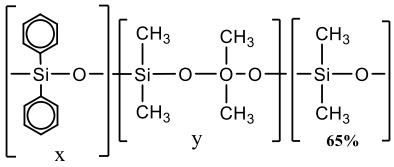
- Temperature Range: 40 °C to 360 °C
- Equivalent to USP G3 phase

ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.15	0.15	40 to 340/360	**N9305677**		**N9305678**		
0.18	0.18	40 to 340/360			**N9305679**		
	0.36	40 to 340/360			**N9305680**		
0.25	0.25	40 to 340/360		**N9305681**		**N9305682**	**N9305685**
0.32	0.25	40 to 340/360		**N9305683**		**N9305684**	

Elite-35ms

The Elite-35ms columns are general purpose, mid-polarity columns offering extremely low bleed at higher temperatures. They are coated with a unique blend of linked dimethyl polysiloxanes and diphenyl polysiloxanes that are inert and selective for substituted polar compounds, such as drugs, pestcides, herbicides, PCBs and phenyls, while maintaining a similar selectivity and polarity as traditional Elite-35 phases. This phase has been engineered for extremely low bleed as required by MS detectors at higher temperature (up to 360 °C) as required for sensitive MS detectors.

Elite-35ms Structure



Features and Benefits

- Temperature Range: 50 °C to 340/ 360 °C
- Equivalent to USP G42 phase

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.25	50 to 340/360	**N9305686**	**N9305687**
	0.50	50 to 340/360	**N9305688**	**N9305689**
	1.00	50 to 320/340	**N9305690**	**N9305691**
0.32	0.25	40 to 340/360	**N9305692**	**N9305693**
	0.50	40 to 340/360	**N9305694**	**N9305695**
	1.00	40 to 320/340	**N9305696**	**N9305697**

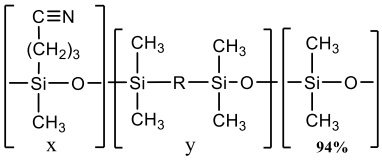
Elite-624ms

The Elite-624ms incorporates a unique proprietary blend of cyanopropyl and methyl siloxanes that results in a very inert, extremely low bleed and high thermal stability column. This column provides excellent peak shape for a wide range of compounds and is highly selective for residual solvents making it a great choice for USP<467>. These columns are manufactured for column-to-column reproducibility, so they are well suited for validated methods.

Features and Benefits

- Temperature Range: -20 °C to 240 °C
- Similar to USP G43 phase
- Ideal choice for USP method 467

Elite-624ms Structure



ID (mm)	df (µm)	Temp Limits (°C)	20 m Part No.	30 m Part No.	60 m Part No.
0.18	1.00	-20 to 240	**N9315067**		
0.25	1.40	-20 to 240		**N9315068**	NEW **N9315066**
0.32	1.80	-20 to 240		**N9315069**	**N9315070**

High Temperature Columns

Available in a range of phases with varying polarity, the high temperature (ht) columns are specifically designed for reduced bleed when operating at higher temperatures, up to 400 °C.

Elite-1ht

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.10	-60 to 380/400	**N9316268**	**N9316269**
0.32	0.10	-60 to 380/400	**N9316270**	**N9316271**

Elite-5ht

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.10	-60 to 400	**N9316272**	**N9316273**
0.32	0.10	-60 to 400	**N9316274**	**N9316275**

Elite-17ht

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.
0.25	0.15	40 to 300/320	**N9316264**
0.32	0.15	40 to 300/320	**N9316266**

Elite-SimDist ht

Application: High-temperature simulated distillation
Phase: Metal Column, 100% dimethylpolysiloxane, non-polar

ID (mm)	df (µm)	Length (m)	Temp Limits (°C)	6 m Part No.
0.53	0.15	6	-60 to 400	**N9316572**
0.53	1.0	10	-60 to 400	**N9316581**

Elite-BAC Advantage: Blood Alcohol Content

The Elite-BAC Advantage columns are optimized for selectivities guaranteed to resolve ethanol, internal standards, and frequently encountered interferences. These application-specific columns for blood alcohol analysis baseline separate all critical compounds, including ethanol, methanol, acetone, tert-butanol, acetaldehyde, isopropanol, and n-propanol, in less than 2 minutes. Every Elite-BAC 1 Advantage and Elite-BAC 2 Advantage column is qualified with a test mix containing these important BAC target compounds to ensure reproducibility. These columns, baseline separate all blood alcohol compounds in blood, breath, or urine, in less than 2 minutes, under isothermal conditions. Isothermal analysis increases productivity by eliminating the need for oven cycling. Confirmation is easily achieved with this tandem set because there are two elution order changes between the columns.

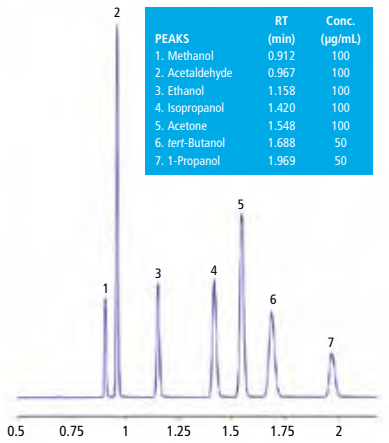
Features and Benefits

- Robust and reproducible
- Baseline separation of all components in less than 2 minutes
- Stable to 260 °C

Clinical

Elite-BAC 1 Advantage

PEAKS	RT (min)	Conc. (µg/mL)
1. Methanol	0.912	100
2. Acetaldehyde	0.967	100
3. Ethanol	1.158	100
4. Isopropanol	1.420	100
5. Acetone	1.548	100
6. *tert*-Butanol	1.688	50
7. 1-Propanol	1.969	50

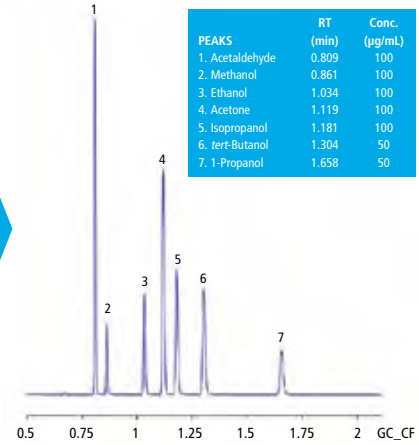


- Baseline resolution
- Symmetrical peaks
- Run time under 2 min

Clinical

Elite-BAC 2 Advantage

PEAKS	RT (min)	Conc. (µg/mL)
1. Acetaldehyde	0.809	100
2. Methanol	0.861	100
3. Ethanol	1.034	100
4. Acetone	1.119	100
5. Isopropanol	1.181	100
6. *tert*-Butanol	1.304	50
7. 1-Propanol	1.658	50



Column Type	ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.	30 m Part No.
Elite-BAC 1 Advantage	0.18	1.00	-20 to 240/260	**N9315075**	
	0.32	1.80	-20 to 240/260		**N9315071**
	0.53	3.00	-20 to 240/260		**N9315072**
Elite-BAC 2 Advantage	0.18	0.34	-20 to 240/260	**N9315076**	
	0.32	0.60	-20 to 240/260		**N9315073**
	0.53	1.00	-20 to 240/260		**N9315074**
Elite-BAC 3 Advantage	0.18	0.30	20 to 250	**N9316575**	

Elite-VMS

Elite-VMS columns offer lower bleed, better selectivity, and overall faster analysis for separating volatile organic compounds. These columns are capable of separating the compounds listed in U.S. EPA Method 8260B in under 10 minutes. The Elite-VMS stationary phase is a highly stable polymer that provides outstanding analysis of volatile compounds on MS detectors. The 0.18 and 0.25 mm ID columns allow sample splitting at the injection port, eliminating the added expense and maintenance of a jet separator. A 0.45 mm or 0.53 mm ID column can be directly connected to the purge-and-trap transfer line in a system equipped with a jet separator.

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.	60 m Part No.
0.18	1.00	-40 to 240/260	**N9316650**[1]	**N9316651**[1]
0.25	1.40	-40 to 240/260	**N9316652**	**N9316653**
0.32	1.80	-40 to 240/260	**N9316654**	**N9316655**
0.45	2.55	-40 to 240/260	**N9316656**	**N9316657**
0.53	3.00	-40 to 240/260	**N9316658**	**N9316659**

[1] The lengths of N9316650 and N9316651 are 20 m and 40 m, respectively

Features and Benefits

- Temperature Range: -40 °C to 240/260 °C
- No known equivalent phases
- Ideal for analysis of volatile organic pollutants by GC/MS
- Suitable for EPA method 8260B

Elite-XLB

The Elite-XLB phase is a proprietary low-polarity, very inert and exceptionally low bleed column for GC/MS analysis of pesticides, PCB congeners (e.g., Aroclor mixes) and PAHs. Improvements in polymer synthesis and tubing deactivation enable us to make inert, stable Elite-XLB columns especially well-suited for analyzing active, high molecular weight compounds with sensitive GC-MS systems, including ion trap detectors. Excellent efficiency, coupled with inertness, low bleed, and high thermal stability, make Elite-XLB columns ideal for analyzing semivolatile compounds in drinking water (e.g., US EPA Method 525).

Features and Benefits

- Temperature Range: 30 °C to 340/360 °C
- No known equivalent phases
- Exceptionally low bleed for GC/MS

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.18	0.18	40 to 340/360		**N9316480**[1]	
0.20	0.33	40 to 340/360	**N9316496**[2]	**N9316497**[2]	
0.25	0.10	40 to 340/360		**N9316483**	
	0.25	40 to 340/360	**N9316481**	**N9316484**	**N9316487**
	1.00	40 to 340/360	**N9318482**	**N9316485**	
0.32	0.10	40 to 340/360		**N9316489**	
	0.25	40 to 340/360	**N9316488**	**N9316490**	**N9316493**
	0.50	40 to 340/360		**N9316492**	
	1.00	40 to 340/360		**N9316491**	
0.53	1.50	40 to 320/340	**N9316494**	**N9316495**	

[1] The length of N9316480 is 20 m
[2] The lengths of N9316496 and N9316497 are 12 m and 25 m, respectively

Elite-Volatiles

The Elite-Volatiles stationary phase and optimized column dimensions provide low bleed, excellent resolution, and fast analysis times for volatile organic pollutants. These columns are excellent for U.S. EPA method 8021 compounds.

Features and Benefits

- Temperature Range: -20 °C to 240 °C
- Proprietary phase
- Ideal for EPA Method 8021

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.	60 m Part No.	75 m Part No.
0.25	1.40	-20 to 240	**N9316388**	**N9316389**	
0.32	1.80	-20 to 240	**N9316390**	**N9316391**	
0.45	2.55	-20 to 240	**N9316392**		**N9316393**

Elite-CLPesticides: Chlorinated Pesticides

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 and CLP
- Baseline separation in less than 15 minutes

Column Type	ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
Elite-CLPesticides	0.25	0.25	-60 to 320/340	**N9316661**	**N9316662**
	0.32	0.50	-60 to 320/340	**N9316663**	**N9316664**
	0.53	0.50	-60 to 300/320	**N9316665**	**N9316666**
Elite-CLPesticides 2	0.25	0.20	-20 to 240/260	**N9316667**	**N9316668**
	0.32	0.25	-20 to 240/260	**N9316669**	**N9316670**
	0.53	0.42	-20 to 240/260	**N9316671**	**N9316672**

Elite-502.2: U.S. EPA Method 502.2

Application: Analysis of volatiles by U.S. EPA method 502.2
Phase: Proprietary Dimethyl-diphenyl polysiloxane, low-polarity

ID (mm)	df (µm)	Temp Limits (°C)	60 m Part No.	75 m Part No.	105 m Part No.
0.25	1.40	0 to 250/270	**N9316498**		
0.45	2.55	0 to 250/270		**N9316188**	**N9316189**
0.53	3.00	0 to 250/270			**N9316190**

Elite-RX: Drugs of Abuse

Application: Analysis of drugs of abuse

Phase	ID (mm)	df (µm)	Temp Limits (°C)	12 m Part No.	25 m Part No.
Elite-1 RX	0.20	0.33	-60 to 330/350	**N9316345**	**N9316346**
Elite-5ms RX	0.20	0.33	-60 to 330/350	**N9316349**	**N9316350**
Elite-17 RX	0.20	0.33	40 to 300/320	**N9316347**	**N9316348**

Elite-Betecylodextrin: Chiral Separations

Description: General-purpose chiral, Chiral compounds in essential oils

Column Type	ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.
Elite-Beta-cydex		0.25	40 to 230	**N9316319**
Elite-Cyclosil B	0.25	0.25	40 to 230	**N9316545**

Elite-608

Application: Analysis of semivolatile pesticides by U.S. EPA method 608
Phase: Phenyl methyl polysiloxane, mid-polarity

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	60 m Part No.
0.32	0.50	40 to 290/310		**N9316191**
0.45	0.42	40 to 270/290	**N9316194**	**N9316195**
	0.70	40 to 260/280	**N9316192**	**N9316193**
0.53	0.50	40 to 270/290	**N9316198**	**N9316199**
	0.83	40 to 260/280	**N9316196**	**N9316197**

Elite-SimDist

Application: Simulated distillation
Phase: Specially processed dimethylpolysiloxane, non-polar

ID (mm)	df (µm)	Temp Limits (°C)	10 m Part No.
0.45	2.55	-60 to 360	**N9316261**
0.53	3.00	-60 to 360	**N9316262**

Elite-TPH

Application: Analysis of total petroleum hydrocarbons
Phase: (5%-diphenyl)-dimethylpolysiloxane, low polarity

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.
0.32	0.25	-10 to 320	**N9316386**
0.45	1.00	-10 to 290	**N9316387**

Elite-PONA

Application: Detailed analysis of petroleum naphtha
Phase: Specially processed dimethylpolysiloxane, non-polar

ID (mm)	df (µm)	Temp Limits (°C)	50 m Part No.	100 m Part No.
0.20	0.50	-60 to 300/320	**N9316065**	
0.25	0.50	-60 to 300/320		**N9316015**

Elite-FFAP

Application: Free fatty acids
Phase: Nitroterephthalic acid modified PEG (bonded), polar

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.25	40 to 250	**N9316351**	**N9316352**
0.32	0.25	40 to 250	**N9316353**	**N9316354**
0.45	0.85	40 to 240/250	**N9316355**	**N9316356**
0.53	1.00	40 to 240/250	**N9316357**	**N9316358**

Elite-5 Amine

Elite-5 Amine is an application-specific column for amines and other basic compounds, including alkylamines and di/triamines

ID (mm)	df (µm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25	0.50	-60 to 300/315	**N9316684**	**N9316673**
	1.00	-60 to 300/315	**N9316674**	**N9316675**
0.32	1.00	-60 to 300/315	**N9316676**	**N9316677**
	1.50	-60 to 290/305	**N9316678**	**N9316679**
0.53	1.00	-60 to 290/305		**N9316680**
	3.00	-60 to 280/295	**N9316681**	**N9316682**

Elite-23

Application: Analysis of cis/trans isomers in FAMEs and dioxins. Equivalent to USP G5
Phase: (50%-cyanopropyl)-methylpolysiloxane

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.	60 m Part No.
0.25	0.15	0 to 275		**N9316507**
	0.25	0 to 275	**N9316506**	**N9316508**

Elite-MTBE

Application: Analysis of methyl t-butylether and other oxgenates
Phase: Proprietary low polarity phase

ID (mm)	df (µm)	Temp Limits (°C)	30 m Part No.
0.45	2.55	10 to 250	**N9316520**
0.53	3.00	10 to 250	**N9316521**

Elite-2560

Application: Application-specific column for cis/trans FAMEs
Phase: Biscyanopropylpolysiloxane, highly polar

ID (mm)	df (µm)	Temp Limits (°C)	100 m Part No.
0.25	0.20	20 to 250	**N9311570**

Elite-Alumina/KCl* PLOT

ID (mm)	Length (mm)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.53	50	10	up to 200	**N9316544**

* Lower Polarity than Elite-Alumina

Elite-Alumina PLOT Phase for Analysis of Light Hydrocarbons

ID (mm)	Length (mm)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.53	30	6	-60 to 200	**N9316304**
0.53	50	10	-60 to 200	**N9316305**

Note: -60 °C is the lowest temperature used on this phase in our lab. Lower temperatures may be used depending on the sample

Elite-Cyclosil B PLOT for Chiral Separations

ID (mm)	Length (mm)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.25	30	0.25	35 to 230	**N9316545**
0.32	30	0.25	35 to 230	**N9316546**

Elite-Molesieve PLOT Phase for Analysis of Permanent Gases

ID (mm)	Length (mm)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.53	30	–	-60 to 300	**N9316361**

Note: -60 °C is the lowest temperature used on this phase in our lab. Lower temperatures may be used depending on the sample

Elite-Q PLOT Phase for Analysis of Light Gases and Hydrocarbons

ID (mm)	Length (mm)	Film Thickness (µm)	Temp Limits (°C)	Part No.
0.32	30	10	-60 to 250	**N9316359**
0.53	30	20	-60 to 250	**N9316360**

Note: -60 °C is the lowest temperature used on this phase in our lab. Lower temperatures may be used depending on the sample

Elite-Carbon Columns for Volatiles in Hydrocarbon Streams

NEW

The Elite-Carbon columns offer rapid separation of permanent gas/light hydrocarbon mixtures; including carbon monoxide and carbon dioxide without cryogenic cooling. They are preconditioned and thus take less than 30 minutes to stabilize. They are used in conjunction with a molecular sieve column (Molecular sieve 5 Å, 50 m, 0.53 mm, 50 µm Part No. **NR201108**).

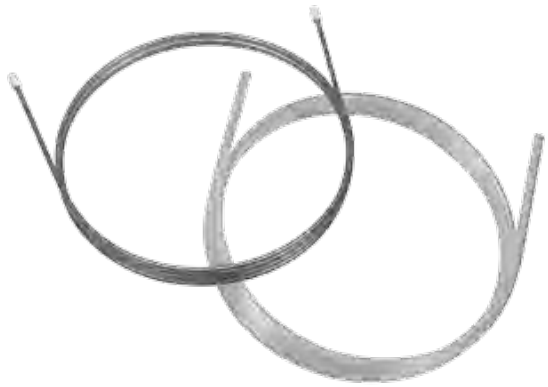
ID (mm)	Length (m)	Mesh Size	Temp Limits (°C)	Part No.
1.0	1	100/120	Up to 300	**N9303927**
1.0	2	100/120	Up to 300	**N9303926**

Fittings for the micropacked Elite-Carbon columns need to be ordered separately.

Description	Part No.
Installation kit for 1 mm ID columns; for valve applications	**N9303450**
Installation kit for 1 mm ID columns; for direct injections	**N9303451**

Custom Packed Capillary Columns

Can you find what you need? Do you need a different combination of column length, particle size and film thickness? We have many more options available. Simply contact your local representative with the details.



Custom Packed Columns

Design your own custom packed column in 3 easy steps:

- Choose your preferred column material (glass or metal)
- Select the length, diameter, phase, solid support, mesh and quantity
- Add your contact information and submit your quote request

It's that easy! We can supply any combination of support and liquid phase listed on our online ordering form. If your laboratory requires something that is not listed on our form, we will make every effort to find a solution to meet your needs.

- Custom packed columns for PerkinElmer, Agilent®, Thermo Scientific®, and other GC instruments
- Over 300+ Stationery Phases
- Over 100+ Solid Supports

To get your custom quote today fill out our online form:

http://www.perkinelmer.com/tools/custompackedcolumn.aspx

GC Accessories

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PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

Glass Inlet Liners



The injector and liner is an essential component of the GC and users have a broad choice of different injectors and liners which allow you to adjust several variables in order to optimize the injection.

Injector Septa



Our injection septum provide extremely low bleed over a wide range of inlet temperatures – 100 °C to 350 °C. Easier needle penetration and high puncture tolerance make this septum ideal for autosamplers.

Thermal Desorber Consumables



Our convenient starter kit includes all products you need to run the TurboMatrix Thermal Desorber. A wide range of conditioned and unconditioned tubes, other kits and accessories are also available.

Swafer Micro-Channel Wafer Technology

PerkinElmer's Swafer™ micro-channel wafer technology is an innovative and user-friendly approach for flowswitching and splitting applications. It delivers unparalleled hardware and application flexibility, expanding the capabilities of capillary gas chromatography (GC).

Features and Benefits

- Allows you to tackle difficult or otherwise impossible separations, delivering richer sample information which was previously unattainable
- User-friendly design and user-defined oven position allow easy setup and configuration changes, without requiring service intervention
- Complete independence of the column from injectors or detectors lets you combine injection techniques (headspace, thermal desorption, liquid, etc.), based on sample requirements
- 15 user-interchangeable configurations deliver over 18 possible modes of operation for unparalleled application flexibility
- Can be used on any Clarus 580/500 or 680/600 GC with programmable pneumatic control (PPC)
- Vent unwanted solvent or other large peak from chromatogram
- Tweak the column polarity with serial column for difficult separations



Swafer Kits for Clarus GC Systems

Description	Part No.
D-Swafer Complete Kit – for Clarus GC units only (for Clarus 680/580 GCs with PPC) Includes all required installation hardware user guides, and the D-Swafer	**N6520273**
S-Swafer Complete Kit – for Clarus GC units only (for Clarus 680/580 GCs with PPC) Includes all required installation hardware, user guides, and the S-Swafer	**N6520272**

Swafer Kits and Accessories for Existing Clarus GC Systems

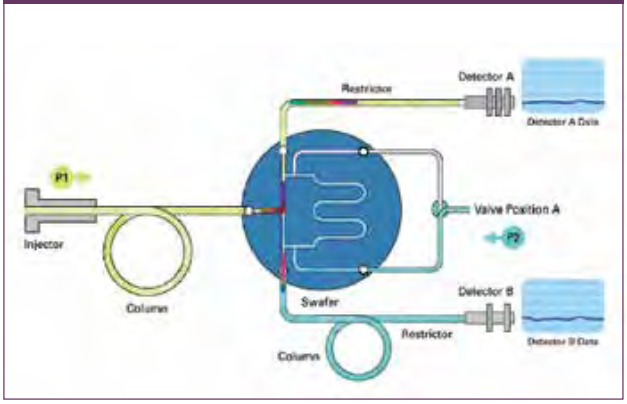
Description	Part No.
Micro-Channel Kit for Existing Clarus 680/600/580/500 GC with PPC. Includes all hardware required to install a Swafer. The Swafer and installation are not included and must be purchased separately	**N6520270**
Micro-Channel Kit for Existing Clarus 680/600/580/500 GCs with PreVent currently installed. If PreVent is already included in the GC configuration, this hardware kit provides the additional parts required to install a Swafer. The Swafer and installation are not included and must be purchased separately	**N6520271**
D-Swafer Dean's Switch (Swafer only)	**N9306251**
S-Swafer Splitter (Swafer only)	**N9306262**

How Can the Swafer Help You?

Enhanced Sample Information		
Solvent venting	Vent unwanted solvent or other large peak from chromatogram	D-Swafer S-Swafer
Detector switching	Switch between your detectors of choice anytime during the run or between injections	D-Swafer
Column switching	Make your GC more flexible by choosing which column should be used to chromatograph the injected sample	D-Swafer
Heartcutting	Cut your chromatogram and analyze the cut on a different column for a better separation	D-Swafer
Polarity tuning	Tweak the column polarity with serial column for difficult separations	D-Swafer S-Swafer
Column selection	Better utilize large and expensive detectors by choosing which of the two columns to monitor	D-Swafer
Carrier-gas swapping	Use a different carrier gas in the injector or sampling system from that used for the chromatography	D-Swafer
Peak attenuation	Analyze a wide dynamic range by diluting portions of your chromatography	D-Swafer
Splitting	Split your chromatography between up to four channels (detectors, sniffer ports, etc.)	S-Swafer

Throughput and Maintenance		
Column backflushing	Remove unwanted compounds from the column after the analytes have eluted	D-Swafer S-Swafer
MS isolation	Perform your MS, column and inlet maintenance without venting for less downtime	D-Swafer S-Swafer
Retention-gap purging	Remove large amounts of solvent with cold on-column injection	D-Swafer
Inlet selection	Automate your inlet choices (headspace, thermal desorption, liquid autosampler, etc.) between injections	D-Swafer
Injector maintenance or enhanced large volume injection	Enable injector septa or liner exchange while the system is still active Prevent solvent vapor from entering column and detector during injector purging	D-Swafer S-Swafer

Heartcutting (D-Swafer) allows separation of selected peaks within a complex sample matrix.



Swafer can be installed in any Clarus 580/500 or 680/600 GC with programmable pneumatic control (PPC).



Ferules and Connectors

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

* Kits include 2 nuts and 10 ferrules

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 is 350 °C.

Vespel®

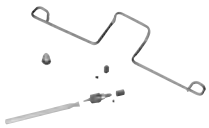
Not reusable. Not recommended for fused silica capillary columns. Use these ferrules on 1/16 in. metal tubing and glass-lined receivers. Temperature limit is 350 °C.

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

* Not suitable for Clarus 590/690 capillary injector ** 2-hole

Wide-Bore Adapter Kit

Contains all the parts necessary to adapt to 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 1/16 in. fitting, wide-bore glass liner and column support hanger.



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



Universal Connectors

Description	Part No.
Universal Connector (pkg. 5)	**N9302149**
Metal Universal Connectors: 0.25 mm ID (pkg. 10)	**N9301167**
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.

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

Swagelok Fittings

The patented advanced-geometry back ferrule design provides a leak-tight tube connection on all Swagelok™ stainless steel tube fittings, in sizes 1/4 to 1/2 in., and 6 to 12 mm. Leak-tight seals that will withstand high-pressure, vibration, vacuum and temperature changes depend upon close tolerances and consistent, exacting quality control in conjunction with good design principles. Swagelok fittings from PerkinElmer are available in brass and stainless steel.

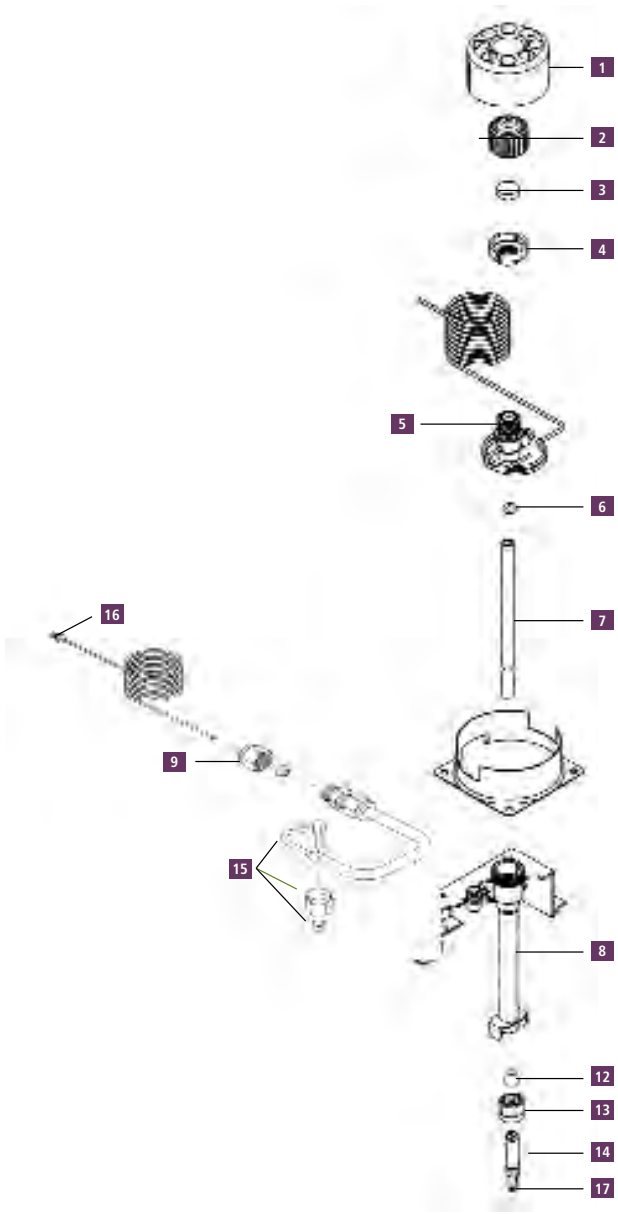
Features and Benefits

- Ease of installation
- Back ferrule axially advances the front ferrule
- Vibration fatigue resistance
- Wide variety of configurations

Swagelok™ Fittings

Product	Qty.	Size	Brass Part No.	Stainless Steel Part No.
Bulkhead Adapter 	pkg. 1	1/4 in. to 1/4 in. tube		**N9301267**
Back Ferrule 	pkg. 5	1/16 in.	**N9300040**	**N9300042**
		1/8 in.	**N9300036**	**N9300038**
		1/4 in.	**N9300030**	**N9300032**
Cross Union 	pkg. 1	1/8 in.	**N9301259**	
Front Ferrule 	pkg. 5	1/16 in.	**N9300041**	**N9300043**
		1/8 in.	**N9300037**	**N9300039**
		1/4 in.	**N9300031**	**N9300033**
Male Adapter Tube to Pipe 	pkg. 1	1/4 in. tube to 1/8 in. NPT	**N9301266**	
Male Connector 	pkg. 1	1/8 in. to 1/8 in. NPT	**N9301253**	
		1/8 in. to 1/4 in. NPT	**N9301254**	
		1/4 in. to 1/8 in. NPT	**N9301255**	
		1/4 in. to 1/4 in. NPT	**N9301269**	
Nut 	pkg. 5	1/16 in.	**N9300058**	**N9300059**
		1/8 in.	**N9300056**	**N9300057**
		1/4 in.	**N9300054**	**N9300055**
Plug 	pkg. 1	1/16 in.		**N9300053**
		1/8 in.	**N9300060**	**N9300061**
		1/4 in.	**N9301268**	**N9301233**
Union 	pkg. 2	1/16 in.	**N9300048**	**N9300049**
		1/8 in.	**N9300046**	**N9300047**
		1/4 in.	**N9300044**	
Union Tee 	pkg. 1	1/16 in.	**N9301221**	
		1/8 in.	**N9301222**	
		1/4 in.	**N9301223**	
Reducing Union 	pkg. 1	1/8 in. to 1/16 in.	**N9300051**	**N9301225**
		1/4 in. to 1/8 in.	**N9300050**	**N9301226**
		1/4 in. to 1/16 in.	**N9301227**	

Capillary Injector Replacement Parts*



	Description	Part No.
1	Injector Cover	N6101482
2	Septum Cap	N6100153
3	PerkinElmer Green Injection Septum (pkg. 50)	N6621028
4	Injector Top Nut	N6101358
5	Injector Head	N6100158
6	O-Ring, Silicone for Glass Liner (pkg. 10) Maximum injector temperature 250 °C	N6101374
	O-Ring, Graphite for Glass Liner (pkg. 5) Maximum injector temperature 450 °C	N6101378
	O-Ring, KALREZ® for Glass Liner (pkg. 1) Maximum injector temperature 450 °C	N9302782
	O-Ring, Viton® for Glass liner (pkg. 1) Maximum injector temperature 250 °C, recommended for use with Mass Spec. ships with instrument	N9302783
7	Quartz Liner (2 mm) for Splitless Operation	N6121002
	Quartz Liner (4 mm) for Split Operation or Large Volume Splitless Injection	N6121001
	Glass Liner (2 mm) for Splitless Operation	N6101372
	Glass Liner (4 mm) for Split Operation	N6101052
	Deactivated Liner for Splitless Operation 2 mm, packed with wool. (pkg. 5)	N6121021
	Deactivated Liner for Split Operation 4 mm, packed with wool. (pkg. 5)	N6121020
	Deactivated Uniliner 4 mm, packed with wool. (pkg. 5)	N6121022
8	Injector Body	N6100047
9	1/8 in. Swagelok™ Nut Brass (pkg. 5)	N9300056
10	Restrictor**	N6101034
11	1/8 in. Graphite/Vespel Ferrule (pkg. 10)*	09920301
12	1/4 in. Graphite Ferrule (pkg. 10)	09920140
13	1/4 in. Swagelok Nut, Stainless Steel (pkg. 5)	N9300055
14	Injector Adapter	N6100157
15	Charcoal Trap	N6100275
	Charcoal Trap for PPC Version*	N6100331
16	Split Vent Tube	N6100159
17	Column Nut 1/16 in. Long length for reversed ferrule (pkg. 5)	09903392

* Not suitable for Clarus 590 and 690 models.** Not shown

Miscellaneous Injector Accessories

Description	Part No.
2 oz. Replacement Charcoal (30/60 mesh)	**03300904**
Column Ferrule Graphite/Vespel	**09920105**
Liner Removal Tool	**N6100102**
Merlin Microseal Adapter Kit Includes: 2 Merlin Microseal septa, 1 nut and 1 injection port adapter	**N9303344**
Merlin Microseal Septa	**N9303345**
Zero Dilution Liner (Inner)	**N1011446**
Zero Dilution Liner (Outer)	**N1011445**

Split/Splitless Injector Add-On Kits

Capillary Injector with PPC

Kit includes split/splitless injector with programmable pneumatic control for carrier gas, split vent, heater, sensor, and heater block. The AutoSystem XL must be PPC™ ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included. Not compatible with Clarus 590 and 690 models.

Voltage	Part No.
120 V	**N6120138**
240 V	**N6120139**

Complete Capillary Injector Add-On Kits

Kit includes split/splitless injector in module with heater and sensor, 0 – 60 psi pressure regulator, and transducer for pressure readout. For manual gas control. Not compatible with Clarus 590 and 690 models.

Voltage	Part No.
120 V AutoSystem	**N6120009**
240 V AutoSystem	**N6120022**
120 V Clarus	**N6520012**
230 V Clarus	**N6520013**

Dual Capillary Column Adapter Kit

Kit includes all necessary hardware to install two capillary columns to a capillary injector. Note: kit does not include appropriate 1/8 in. 2-hole ferrule. (See page 200) For manual gas control. Not compatible with Clarus 590/690 capillary injector.

Voltage	Part No.
120 V	**N6120050**

Split/Splitless Injector Starter Kit

Includes: 2 mm ID quartz liner, 4 mm ID quartz liner, silicone O-Rings (10), green septa (50), 0.5 mm graphite ferrules (10), 0.8 mm graphite ferrules (10), 1/16 in. stainless steel nuts (5), untreated quartz wool, packing rod, and wafer scribes (10). Not compatible with Clarus 590 and 690 models.

Description	Part No.
Split/Splitless Injector Starter Kit for Manual Gas Control	**N6120101**

Packed Column Injector Add-On Kits

Packed Column Injector Kit with Manual Pneumatics

Includes: complete injector assembly with heater and sensor, 0 – 100 mL flow controller, and column head pressure gauge for installation into the AutoSystem.

Voltage	Part No.
120 V*	**N6120007**
240 V*	**N6120023**

Packed Column Injector Kit with PPC

The kit includes complete injector assembly with programmable pneumatic control, heater, sensor, and heater block. The GC must be PPC™ ready. If not, a PPC upgrade kit (**N6120146**) is required.

Voltage	Part No.
120 V*	**N6120136**
240 V*	**N6120137**

Packed Column Injector Kit with Screen Readout and Manual Pneumatics

Includes: complete injector assembly with heater and sensor, 0 – 100 mL flow controller and column head pressure gauge, and transducer for screen readout of column carrier flow.

Voltage	Part No.
120 V* AutoSystem	**N6120008**
240 V* AutoSystem	**N6120025**
120 V* Clarus	**N6520010**
230 V* Clarus	**N6520011**

Packed Column Injector Kit AutoSystem XL and Clarus

The kit includes complete injector, heater, sensor, and heater block. (Does not include pneumatics.)

Voltage	Part No.
120 V*	**N6120071**
240 V*	**N6120072**

Packed Column Injector Starter Kit

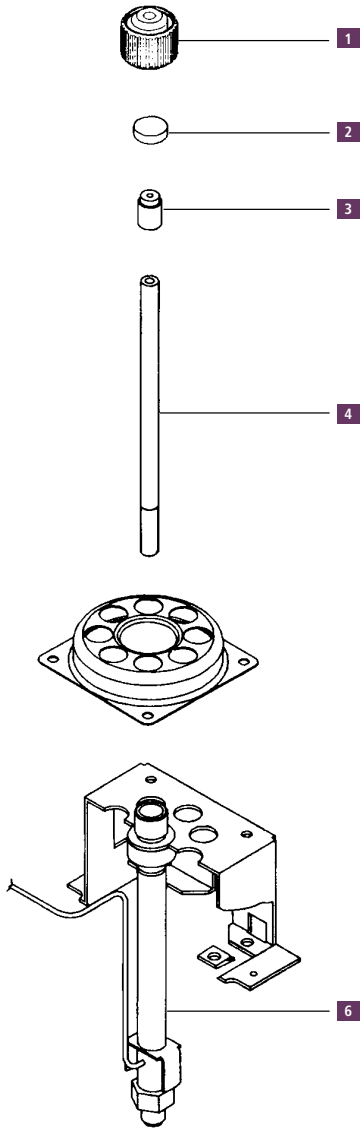
Includes glass liner, needle guide, green septa (50), untreated quartz wool, and packing rod.

Description	Part No.
Packed Column Injector Starter Kit	**N6120100**

*Service installation suggested

Packed Injector Replacement Parts

	Description	Part No.
1	Septum Cap	**N6100153**
2	PerkinElmer Green Injection Septum (pkg. 50)	**N6621028**
3	Needle Guide	**N6101050**
4	Glass Liner	**N6101048**
	Quartz Liner	**N6121000**
5	Packed Injector Assembly	**N6100048**



Miscellaneous Accessories

Injector/Detector Adapter 1/4 in.

Adapter fits on injector and detector outlet (inside oven) for use with 1/4 in. columns.

Description	Part No.
Injector/Detector Adapter 1/4 in.	**00080100**

Liner Removal Tool

Allows easy removal of glass liners from injector port.

Description	Part No.
Liner Removal Tool	**N6100102**

Silanized Glass Wool

Packing for wide-bore glass liners.



Description	Part No.
Silanized Glass Wool (2 oz.)	**03300905**

Wide-Bore Adapter Kit

0.53 Capillary Column Adapter Kit

The AutoSystem Wide-Bore Adapter Kit allows conversion of the packed inlet for 0.53 mm capillary column operation. The kit includes 0 – 20 mL flow control element, wide-bore adapter with 1/16 in. fitting, wide-bore glass liner, and column support hanger. Can be used in both on-column and off-column modes of operation.

Description	Part No.
0.53 Capillary Column Adapter Kit	**N6120001**

Convenient GC/MS Consumable Kits*

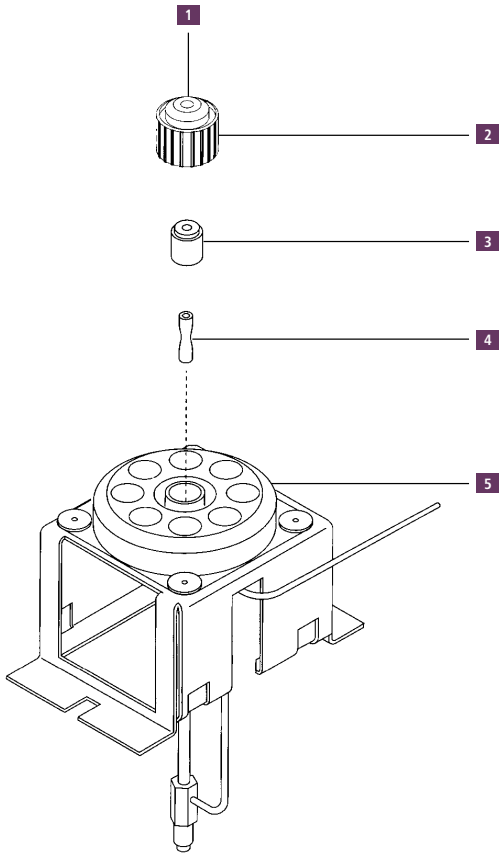
Description			Part No.
GC/MS PSS Injector Starter Kit			**N6100447**
Contents	**Pkg.**	**Qty.**	**Part No.**
5.0 µL Autosampler Syringe		1	**N6101390**
Vial Locator (dongle)		2	**N6101182**
PSS Injector Viton O-Rings (250 °C)	10	1	**N6101747**
PSS Injector Kelrez O-Rings (350 °C)	1	1	**09921004**
PSS Split/Splitless Injector, 2 mm, No Wool		1	**N6121004**
Graphite/Vespel Ferrules, for 0.25 mm Columns	10	2	**09920104**
PerkinElmer Green Speta (50 pieces)		1	**N6621028**
Marathon Filament		1	**N6470012**
Aluminum Oxide Powder (3 oz.)		1	**04190197**

Description			Part No.
GC/MS CAP Injector Starter Kit for Clarus 680, 580, 480			**N6100448***
Contents	**Pkg.**	**Qty.**	**Part No.**
5.0 µL Autosampler Syringe		1	**N6101390**
Vial Locator (Dongle)		2	**N6101182**
CAP Injector Viton O-Rings (250 °C)		10	**N9302783**
CAP Injector Kelrez O-Rings (350 °C)		10	**N9302782**
CAP Split/Splitless Injector, 4 mm, No Wool		2	**N6121002**
Graphite/Vespel Ferrules, for 0.25 mm Columns	10	2	**09920104**
PerkinElmer Green Speta (50 pieces)		1	**N6621028**
Marathon Filament		1	**N6470012**
Aluminum Oxide Powder (3 oz.)		1	**04190197**

* **N6100448** Not compatible with Clarus 590 and 690 models
Refer to the Clarus 590/690 consumable reference guide for more details

POC Replacement Parts

	Description	Part No.
1	Septum Cap	N6100153
2	PerkinElmer Green Injection Septum (pkg. 50)	N6621028
3	Needle Guide	N6101702
4	Liner/Hour Glass	N6101703
	Body Assembly	N6100256
5	Packed Injector Assembly	N6100048



Programmed-Temperature On-Column Injector System

Programmed-Temperature On-Column (POC) Inlet is designed to be used with fused-silica capillary columns. The sample is injected onto the column while the inlet is cool. After the injection, the inlet begins to heat. This delay in heating avoids the flash vaporization associated with a normal injection. This explosive vaporization can cause thermal breakdown and/or discrimination of certain analytes, which can be avoided by using the POC.

The POC Injector is best used to achieve recovery of compounds of greater than C60 (e.g., polywaxes). The POC utilizes flow control, producing the best recovery out to C_{100} or greater.

POC Injector with Manual Flow Controller and Head Pressure Gauge

Kit includes all necessary hardware to install injector into AutoSystem Series or Clarus Series.

Voltage	Part No.
120 V*	N6120076
240 V*	N6120077

POC Injector with Manual Flow Controller and Head Pressure Gauge with Flow Readout on Screen

Kit includes all necessary hardware to install injector into AutoSystem Series or Clarus Series.

Voltage	Part No.
120 V*	N6120082
240 V*	N6120083

POC Injector with PPC Add-On Kit

Kit includes injector with programmable pneumatic control, heater, sensor, and heater block. The AutoSystem XL or Clarus GC must be PPC™ ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V*	N6120142
240 V*	N6120143

POC Injector Starter Kit

Includes: needle guides (5), universal connectors (5), 0.53 mm ID deactivated fused silica (5 m), 1/16 in. stainless steel nuts (5), 0.8 mm graphite ferrules (10), green septa (50), and wafer scribes (10).

Voltage	Part No.
POC Injector Starter Kit	N6120098

* Service installation suggested

Programmed-Temperature Split/Splitless Injector System

PSS Injector Add-On Kits with Manual Pneumatics

The programmed-temperature split/splitless (PSS) inlet allows accurate sample delivery to a capillary column. The PSS allows the analysis of thermally labile compounds, while eliminating the discrimination of high-boiling compounds. One of the major advantages of the PSS is that any nonvolatile material will remain in the inlet liner and not on the front of the column.

PSS with pneumatics and pressure readout on screen. Kit includes all necessary hardware to install injector into GC.

Voltage	Part No.
120 V* AutoSystem	**N6120074**
240 V* AutoSystem	**N6120075**
120 V* Clarus	**N6520014**
230 V* Clarus	**N6520015**

PSS Injector with PPC

Kit includes injector with programmable pneumatic control, heater, sensor, and heater block. The GC must be PPC™ ready. If not, a PPC upgrade kit (**N6120146**) is required.

Voltage	Part No.
120 V*	**N6120140**
240 V*	**N6120141**

PSS Injector Starter Kit

Includes: universal connectors (5), 0.53 mm ID deactivated fused-silica (5 m), 2 mm ID quartz liner, 1 mm ID quartz liner, glass hourglass liner, 1/16 in. stainless steel nuts (5), 0.5 mm ID graphite ferrules (10), 0.8 mm ID graphite ferrules (10), Viton® O-Rings (6), graphite O-Rings (5), untreated quartz wool, wafer scribes (10), and green septa (50).

Voltage	Part No.
PSS Injector Starter Kit	**N6120102**

Zero Dilution Liners

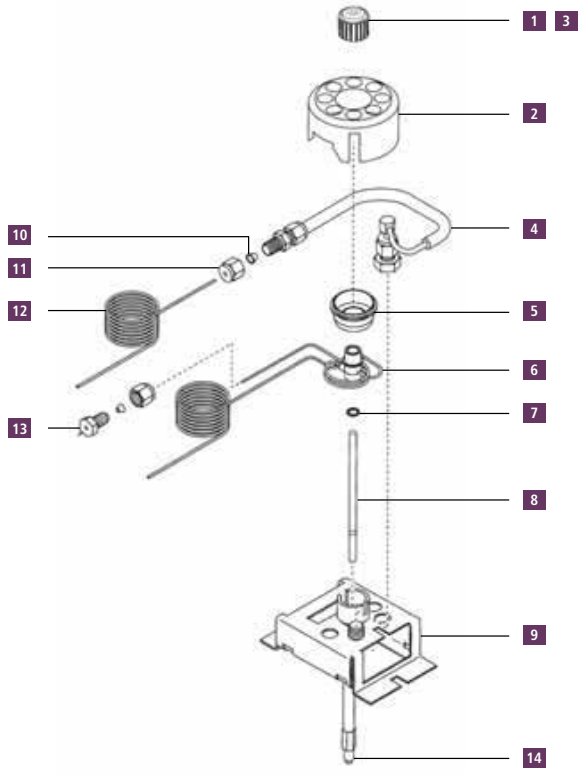
Used together as set.

Voltage	Part No.
Inner Liner	**N1011446**
Outer Liner	**N1011447**

* Service installation suggested

PSS Replacement Parts

	Description	Part No.
1	Septum Cap	**N6100153**
2	Injector Cover	**N6101482**
3	PerkinElmer Green Injection Septum (pkg. 50)	**N6621028**
4	Trap, Charcoal – non PPC version	**N6100275**
	PPC version (not shown)	
5	Nut	**N6101705**
6	Septum Purge	**N6100260**
7	O-Ring Viton (pkg. 10) max temp 250 °C, recommended for use with mass spec. Shipped with instrument	**N6101747**
	O-Ring KALREZ® (pkg. 1) max temp. 450 °C	**09921004**
	O-Ring Graphite (pkg. 5) max temp. 450 °C	**N6101751**
8	Quartz Liner, 2 mm Split Mode Shipped with instrument.	**N6121004**
	Quartz Liner, 1 mm Splitless Mode	**N6121006**
	On-column liner	**N6101539**
9	Body Assembly	**N6100261**
10	Ferrule 1/8 in. x 1/16 in. (pkg. 10)	**09920301**
11	Nut 1/8 in.	**09903128**
12	Split Vent Line	**N6100159**
13	Purge Restrictor	**N6101034**
14	Nut	**09903392**





BETTER GC FOR THE MOST CRITICAL APPLICATIONS – YOURS



Clarus® 590/690 GC Systems

PerkinElmer®
For the Better

Glass Inlet Liners

Inlet liners for split injection have mixing chambers with tortuous flow paths to allow full vaporization of the sample. Deactivating the surface of these liners prevents active compounds from degrading. Packing the liner with wool will trap non-volatile residue and prevent column contamination when analyzing dirty samples.

Inlet liners for splitless injection are generally designed as straight tubes, although new designs such as the gooseneck will help contain the sample in the injector. Packing these liners with wool will also help trap non-volatile residue and prevent column contamination.

Capillary Split/Splitless Injector Liners*

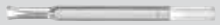
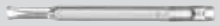
Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Split Glass Liner Siltek Deactivated Surface Liner (with wool) – Universal liner for general purpose analyses. Surface provides inertness over a wide sample pH range. Wool can be adsorptive if fibers are broken	4	6.2	92.1	5	**N6121020**
	Split Glass Liner (with wool) – Universal liner for general purpose analyses	4	6.2	92.1	5	**N6502009**
	Split Siltek Deactivated Glass Liner (with wool) – Universal liner for general purpose analyses. Deactivated surface provides minimal bleed and inertness over a wide sample pH range	4	6.2	92.1	5	**N6502010**
	Clarus Cup Split Glass Liner – Good for both high and low molecular weight compounds. Sample vaporization is aided by tortuous flow path and minimizes molecular weight discrimination. Difficult to clean	4	6.2	92.1	5	**N6502011**
	Clarus Cyclosplitter Glass Liner – Patented cylindrical design for dirty samples, easy to clean and allows many injections before cleaning is required. Not recommended for large volume injections	4	6.2	92.1	5	**N6502012**
	Uniliner Deactivated Glass Liner (with wool) – Universal liner for general purpose analyses	4	6.2	92.1	5	**N6121022**
	Clarus Splitless Glass Liner – Low volume sample analyses, beneficial with headspace and purge/trap	1	6.2	92.1	5	**N6502006**
	Quartz Liner for Splitless Operation (ships with instrument) – Standard injector liner	2	6.2	92.1	1	**N6121002**
	Glass Liner for Splitless Operation – Universal liner for general purpose analyses	2	6.2	92.1	1	**N6101372**
	Deactivated Glass Liner for Splitless Operation (with wool) – Good for analyses of trace samples	2	6.2	92.1	5	**N6121021**
	Siltek Deactivated Liner (with wool) for Splitless Operation – Optimum sample dispertion for active samples. Surface provides inertness over a wide sample pH range. Wool can be adsorptive if fibers are broken	2	6.2	92.1	5	**N6502004**
	Quartz Liner for Split Operation – Good for large volume injection samples	4	6.2	92.1	1	**N6121001**
	Glass Liner for Split Operation – Universal liner for general purpose analyses	4	6.2	92.1	1	**N6101052**
	Siltek Deactivated Double Gooseneck Glass Liner (with wool) – Optimum sample dispertion for active samples. Decreases breakdown of active compounds such as endrin and DDT. Chamber contains sample vaporization cloud. Not suitable for PPC systems	4	6.2	92.1	5	**N6502003**
	Cyclo Double Gooseneck Liner for Split Operation – Cylindrical design for large volume and trace dirty samples. Decreases injection port discrimination. Cannot be packed with wool and more difficult to clean	4	6.2	92.1	5	**N6502005**
	Zero Dilution Glass Outer Liner – Ideal for trace HS work. Use in conjunction with **N1011446**	2	6.3	90	1	**N1011445**
	Zero Dilution Glass Inner Liner – Ideal for trace HS work. Use in conjunction with **N1011445**		2	73	1	**N1011446**

* Not compatible with Clarus 590/690 capillary injector. Refer to the Clarus 590/690 consumable reference guide for more details

Programmed Temperature Split/Splitless (PSS) Injector Liners

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Quartz Liner for Splitless operation (ships with instrument) – Excellent liner for low volume analyses	1	4	86.2	1	**N6121006**
	Siltek Deactivated Glass PSS Liner – Used for low volume trace sample analyses	1	4	86.2	5	**N6502000**
	Quartz Liner for Split operation (ships with instrument) – Approved PerkinElmer standard injector liner	2	4	86.2	1	**N6121004**
	Siltek Deactivated Glass Liner for Split operation (with wool) – Maximum inertness and packed with wool gives optimum sample dispersion. Surface provides inertness over wide sample pH range. Wool can be adsorptive if fibers are broken	2	4	86.2	5	**N6502001**
	Siltek Deactivated Glass Liner for Split operation – Max inertness gives optimum sample dispersion. Deactivated surface provides minimal bleed and inertness over a wide sample pH range	2	4	86.2	5	**N6502002**
	Zero Dilution Outer Liner – Use in conjunction with **N1011446**	2.8	4	83	1	**N1011447**
	Zero Dilution Inner Liner – Use in conjunction with **N1011447**		2	73	1	**N1011446**
	On-column Glass Liner	2.4	4	86.2	1	**N6101539**
	Liner/Hour Glass for POC Injector	2.4	4	19.05	1	**N6101703**
	Quartz Split Liner with Silanized Glass Wool	2	4	86.2	1	**N6121008**
	Quartz Split Liner with Silanized Glass Wool	2	4	86.2	5	**N6121009**

Packed Column Injector Liners

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	Drilled Uniliner (hole on top) – Excellent liner for high sample recovery and linearity, recommended for aqueous injections. Good for PPC equipped GCs	4	6.2	92.1	5	**N6121022**
	Drilled Uniliner (hole on bottom) – Recommended for analysis in which compounds of interest could be affected by a tailing solvent peak. Good for PPC equipped GCs	4	6.2	92.1	5	**N6502013**
	Gooseneck Drilled Uniliner (hole on top) – Use for trace, active samples, high recovery and linearity	4	6.2	92.1	5	**N6502014**
	Gooseneck Drilled Uniliner (hole on bottom) – Use for trace, active samples, high recovery and linearity	4	6.2	92.1	5	**N6502015**
	Open Top Uniliner (with wool) – Packed with fused silica wool, highly recommended for high molecular weight active samples. The fused silica wool traps dirt and sample residue	4	6.2	92.1	5	**N6502016**
	Cyclo Uniliner – Cylindrical design for high molecular weight samples provides an excellent vaporization surface. Spiral traps dirt reducing further residue sample interaction	4	6.2	92.1	5	**N6502017**
	Wide-Bore Column Glass Liner	6	4	92.1	1	**N6101375**
	Wide-Bore Column On/Off Quartz Liner	6	4	92.1	1	**N6121003**

Colored Injector Liners

Product	Description	ID (mm)	OD (mm)	Length (mm)	Pkg.	Part No.
	PSS deactivated glass liners with deactivated wool. Narrow bore and quartz wool increase volatilization and reproducibility	2	4	86.2	5	**N9306232**
	Capillary split/splitless deactivated glass liners with deactivated wool*	4	6.2	92.1	5	**N9306233**
	Capillary split/splitless deactivated glass liners with deactivated wool and tapered end*	4	6.2	92.1	5	**N9306235**
	Capillary split/splitless deactivated glass liners with deactivated wool. Quartz wool is used to fully vaporize the sample*	4	6.2	92.1	5	**N9306236**
	PSS Splitless deactivated glass liners	1.25	4	86.2	5	**N9306237**

*Not compatible with Clarus 690/590 GC capillary injector. Refer to the Clarus 590/690 consumable reference guide for more details

Autosampler and Manual Syringes



New Blue Barrel color design for enhanced sample volume verification (packs of 5 and 10 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 OD Needle	**N6101760**
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm OD Needle	**N6101390**
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm OD Needle BLUE Barrel (pkg. 5 syringes)	**N6103240**
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm OD Needle BLUE Barrel (pkg. 10 syringes)	**N6103241**
5 µL Syringe, Metal Plunger 0.63 mm OD Needle	**N6101251**
5 µL On-column Syringe Metal Plunger 0.47 mm OD Needle	**N6101380**
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.63 mm OD Needle	**N6101252**
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (pkg. 5 syringes)	**N6103242**
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (pkg. 10 syringes)	**N6103243**
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.47 mm OD Needle	**N6101253**
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.63 mm OD Needle	**N6101252**
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (pkg. 5 syringes)	**N6103242**
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm OD Needle BLUE Barrel (pkg. 10 syringes)	**N6103243**
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.47 mm OD Needle	**N6101253**

Needles and Syringe Kits

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.

Needles

Description	Part No.
Sample Needle w/ Fittings	**N2936009**
Air Guide Needle (62 mm)	**N2936000**
Bio Compatible Sample Needle w/ Tubing Connector	**N2936010**
Needle (80 mm)	**N2936342**
Low volume needles	**N2931199**

Syringe Kits

Description	Hole Size	Part No.
100 µL	200 µL	**N2936051**
250 µL	500 µL	**N2936052**
500 µL	1,000 µL	**N2936053**
1,000 µL	2,000 µL	**N2936054**
2,500 µL	2,000 µL	**N2936055**

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

Features and Benefits

- 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

Syringe Capacity	Gauge	Length	Pkg.	Point Style	Part No.
Removable Needle Syringes (RN)					
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					
10 µL			1	#2	**N9302222**
25/50/100 µL	22S	2 in.	3	#2	**N9302224**
250 µL	22S	2 in.	3	#2	**N9302226**
Fixed Needle Syringes					
10 µL[3]			1	#2	**00230523**
10 µL[2]			6	#2	**N9302230**
25 µL			1	#2	**N9302202**
25 µL			1	#3	**09904823**
50 µL			1	#2	**N9302203**
50 µL			1	#3	**09904941**

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

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. This is not compatible with Clarus 690/590 GCs.

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

Injector Septa



Features and Benefits

- PerkinElmer Green Injection septum, extremely low bleed over a wide range of inlet temperatures – 100 °C 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.
PerkinElmer Green Injection Septum	50	**N6621028**
Low Bleed Injector Septa	25	**N9303343**
PTFE/Silicone Injector Septa	50	**00090652**
Green Injection Port Septa	10	**N9306218**
Green Injection Port Septa	50	**N9306219**
Orange Injection Port Septa	50	**N9302972**

Green

Septa rated to 400 °C. The advanced green septum was created to combine significantly longer injection life, low bleed and low injection port adhesion. The result is a general use green septum made of uniquely formulated silicone rubber you can use for all your daily analyses. Packaged in a pre-cleaned glass screw top jar for high purity.

Orange

Septa rated to 400 °C. Uniquely formulated silicone rubber septa BTO® is bleed and temperature optimized for today's most demanding GC and GC/MS applications. Septa BTO is formulated to extend low-bleed and outstanding mechanical properties of premium GC septa. It retains remarkable softness at high temperatures and has been optimized to reduce injection port adhesion. Packaged in a precleaned glass screw top jar for high purity.

FID Add-On Kits

Auto-Ignite FID with PPC Add-On Kit*

Kit includes: detector assembly with heater and sensor, heater block, igniter, programmable pneumatics, and controls for detector combustion gases. Requires, but does not include, amplifier (**N6120162**) and AutoSystem XL firmware revision 3.3 or higher. The AutoSystem XL must be PPC ready. If not, a PPC upgrade kit (**N6120146**) is required.

Voltage	Part No.
120 V*	**N6120167**
240 V*	**N6120168**

*Not compatible with the FID detector on the Clarus 690 and 590 GCs
Refer to the Clarus 590/690 consumables reference guide for more details

Auto-Ignite FID Add-On Kit (Manual Pneumatics)

Kit includes: detector assembly with heater and sensor, heater block, igniter, hydrogen pressure regulator, and needle valve. Requires, but does not include, amplifier (**N6120162**). Requires AutoSystem XL to have firmware revision 3.3 or higher.

Voltage	Part No.
120 V AutoSystem	**N6120165**
240 V AutoSystem	**N6120166**
120 V Clarus*	**N6520018**
230 V Clarus*	**N6520019**

*Not compatible with the FID detector on the Clarus 690 and 590 GCs
Refer to the Clarus 590/690 consumables reference guide for more details

FID Amplifier

Required for use with FID Detector Add-On Kit*.

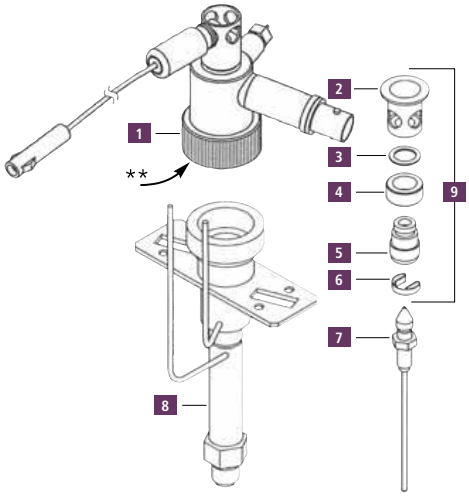
Description	Part No.
FID Amplifier	**N6120162**

* This is not required for the Clarus 590/690 FID add-on kits

Auto-Ignite FID Replacement Parts*

	Description	Part No.
1	Collector Head Assembly Silicone Rubber O-Ring* (not shown)	**N6100357** **09902143**
2	Polarizer Nozzle	**N6103167**
3	Nozzle Insulator	**09907827**
4	Nozzle Collector	**N6101085**
5	Body Assembly	**N6103175**
6	FID Jet Contact/Spring	**N6001204**
7	Jet Assembly*	**N6100361**
8	FID Body	**N6100364**
9	Nozzle Assembly	**N6100430**

*Not compatible with the FID detector on the Clarus 690 and 590 GCs
Refer to the Clarus 590/690 consumables reference guide for more details



Detector Series Operation Kit

TCD/FID Series Operation Kit

Used to direct sample effluent from the TCD to the FID.

Description	Part No.
TCD/FID Series Operation Kit	**N6120006**

PID/FID Series Operation Kit

Used to direct sample effluent from the PID to the FID.

Description	Part No.
PID/FID Series Operation Kit	**N6120059**

FID Miscellaneous Accessories*

Description	Part No.
Auto-Ignite Nozzle Replacement Tool for removing nozzle from auto-ignite FID body	N6103188
Auto-Ignite FID Catalytic Reactor Accessory*	N6120161
Capillary Column Adapter for capillary column use with the FID 1/8 to 1/16 in. detector adapter	N6120020
Ceramic Column Cutter	N9301376
Cotton Applicators	N9301272
Detector Cover (Brown Color)	N6103225
Detector Cover (White Color)	N6103151
Eraser Brush-Pencil	09923078
Jet Assembly*	N6100194
Jet Replacement Tool 1/4 in. nut driver for removing jet from auto-ignite FID body	N6101297
Quartz Wool	N6102354
Replacement Stainless Steel Glow Plug for Auto-ignite FID	N6103089
Septa, low bleed (pkg. 50)	N9302972
1/4 in. Packed Column Adapter for use with 1/4 in. packed columns. 1/8 to 1/4 in. adapter fits both injector and detector ends	00080100

*Not compatible with the FID detector on the Clarus 690 and 590 GCs
Refer to the Clarus 590/690 consumables reference guide for more details

Catalytic Reactor Accessory

Auto-Ignite FID with PPC Add-On Kit

The catalytic reactor converts CO and CO_2 to methane conveniently and efficiently. The lower detection limit is extended to well below 0.1 ppm.

The catalytic reactor consists of a special catalytic reactor base which replaces the FID base. The reactor body contains a quantity of catalyst held in place by a quartz wool plug.

Kits include base assembly, reactor tube, and instructions.

External Igniter FID Catalytic Reactor Accessory

Description	Part No.
External Igniter FID Catalytic Reactor Accessory*	N6120070

Auto-Ignite FID Catalytic Reactor Accessory

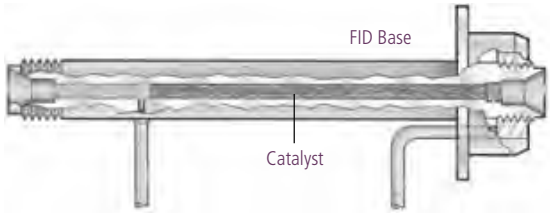
Description	Part No.
Auto-Ignite FID Catalytic Reactor Accessory*	N6120161

*Not compatible with the FID detector on the Clarus 690 and 590 GCs
Refer to the Clarus 590/690 consumables reference guide for more details

Catalytic Reactor Replacement Parts

Description	Part No.
Catalyst	N9302698
Jet Assembly	N6100194
Quartz Wool*	N6102354

* Product available in the USA only



Miscellaneous Accessories

External Ignite Nozzle Replacement Tool

For removing nozzle from External Ignite FID body.

Description	Part No.
External Ignite Nozzle Replacement Tool	N6103188

Hydrogen Regulator Replacement Kit

Description	Part No.
Hydrogen Regulator Replacement Kit	N6100289

Hydrogen/Air Replacement Needle Valve

Description	Part No.
Hydrogen/Air Replacement Needle Valve	N6101412

Igniter Assembly

Complete replacement igniter assembly with glow plug.

Description	Part No.
Igniter Assembly	N6100016

Replacement Glow Plug for External Ignite FID

Description	Part No.
Replacement Glow Plug for External Ignite FID	00091279

FID Flow Measurement Adapter

Description	Part No.
FID Flow Measurement Adapter	N6101345

FPD Add-On Kits

The FPD is a highly sensitive and selective detector for both sulfur and phosphorus compounds. It is especially suitable for environmental monitoring of H_2S and sulfur gases in general and for organophosphorus compounds present at trace levels in pesticide analysis. Alkyl tin compounds can also be analyzed by changing the filter assembly. The sulfur filter is shipped standard.

The FPD mounts in either the front or rear detector position. This allows many detector combinations, such as FPD/FPD, FPD/TCD, and FPD/ELCD.

The AutoSystem also includes a linearizer function for the sulfur mode and convenient control of the photomultiplier tube from the keyboard.

The FPD is capillary-column compatible. The detector will accept columns of 0.530 mm ID or less. The standard jet shipped with the FPD does not have a glass-lined tail pipe. If an all-glass system is required and glass packed columns will be used, then a glass-lined tail pipe should be ordered (**N6100264**). As a reminder, use of packed 1/4 in. columns requires a 1/8 to 1/4 in. adapter.

Filters

Description	Part No.
Phosphorus Lens (Yellow)	**N6000981**
Sulfur Lens* (Blue)	**N6000637**
Tin Lens (Orange)	**L4135472**

* Shipped standard

FPD Add-On Kit (Manual Pneumatics)

Kit includes detector, heater, sensor, heater block, hydrogen needle valve, air pressure regulator, and sulfur photomultiplier filter. Requires but does not include FPD amplifier (**N6120095**). Firmware revision 1.6 or greater required. Firmware must be PerkinElmer Service installed. AutoSystem operator's manual (**09938559**) revision E or higher required.

Voltage	Part No.
120 V AutoSystem	**N6120088**
240 V AutoSystem	**N6120089**
120 V Clarus	**N6520028**
230 V Clarus	**N6520029**

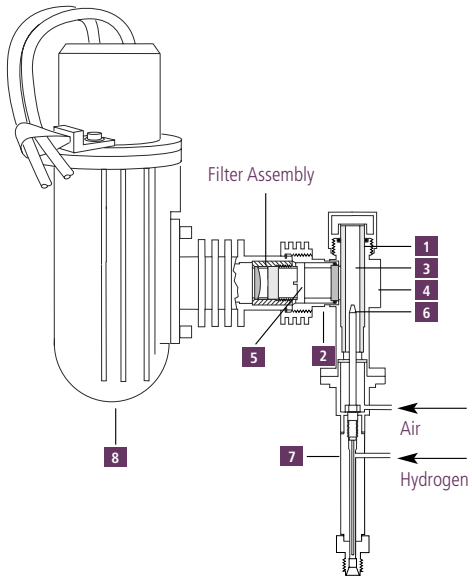
FPD Amplifier

Firmware revision 1.6 or greater required. Firmware must be PerkinElmer Service installed. AutoSystem operator's manual (**09938559**) revision E or higher required.

Description	Part No.
FPD Amplifier	**N6120095**

FPD Replacement Parts for AutoSystem Series GCs

	Description	Part No.
1	O-Ring	**09902247**
2	Seal Assembly and Window (heat shield)	**N9300096**
3	Liner (window)	**N6003057**
4	FPD Body (upper)	**N6100243**
5	Window Holder	**N6003066**
6	FPD Jet	**N6100245**
	Glass-lined Jet Tailpipe (for all-glass system)	**N6100264**
7	FPD Body (lower)	**N6100244**
8	Photomultiplier Tube	**09972321**



FPD with PPC Add-On Kit

Kit includes: detector, heater, sensor, heater block, programmable pneumatic control for detector combustion gases, and sulfur photomultiplier filter. Requires, but does not include, FPD amplifier (**N6120095**). AutoSystem XL GC must be PPC ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	**N6120128**
230 V	**N6120129**

Packed Column Adapter

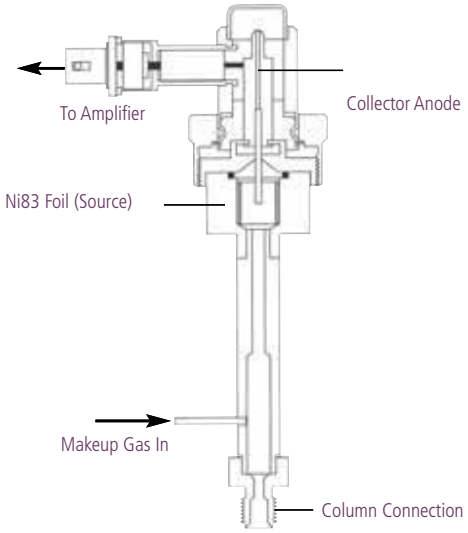
1/8 to 1/4 in. adapter for use with 1/4 in. packed columns.

Description	Part No.
Adapter (set of 2)	**00080100**

ECD Add-On Kits

The ECD is a versatile, nondestructive detector which responds strongly to halogen-containing compounds as well as to certain other electron-capturing substances. The ECD's high sensitivity and selectivity make it an ideal choice for pesticide-residue analysis and for detection of halogen-derivatized compounds.

The ECD has an independent temperature range of 100 – 450 °C. The detector contains thermal protection that prevents heating the Ni63 source to temperatures beyond safe operating limits. Two ECDs can be installed and operated simultaneously on the AutoSystem Series and Clarus GCs. Nitrogen or argon/methane is the required detector operating gas. The base of the detector terminates in a 1/8 in. fitting.



ECD Add-On Kit (Manual Pneumatics)

Kit includes all parts necessary to install an ECD on the AutoSystem Series or Clarus GCs. Includes: detector, heater, sensor, heater block, 1/16 in. makeup gas line, makeup gas needle valve, and vent tube assembly. Requires, but does not include, ECD amplifier (**N6120014**). Installation by PerkinElmer Service is recommended.

Voltage	Part No.
120 V AutoSystem	**N6120011**
240 V AutoSystem	**N6120026**
120 V Clarus	**N6520020**
230 V Clarus	**N6520021**

ECD Amplifier

Required for use with ECD detector with add-on kit.

Description	Part No.
ECD Amplifier	**N6120014**

ECD Add-On Kit (PPC Pneumatics)

Kit includes: detector, heater, sensor, heater block, and programmable pneumatic control for makeup gas. Requires, but does not include, ECD amplifier (**N6120014**). The AutoSystem XL or Clarus GCs must be PPC ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	**N6120122**
230 V	**N6120123**

Vent Tube Assembly

Flexible tube to safely vent toxic sample effluent.

Description	Part No.
Vent Tube Assembly	**N6100161**

Column Adapters

Column Adapter/Receiver

Adapter converts 1/8 in. fitting to 1/16 in. for use with capillary columns. **Note:** Glass-lined tubing reduces background from polyimide coating in high-temperature applications.

Description	Part No.
Capillary Column Adapter/Receiver	**N6000968**

PID/ECD Series Operation Kit

Kit for directing effluent from PID to ECD.

Description	Part No.
PID/ECD Series Operation Kit	**N6120059**

1/4 in. Packed Column Adapter

For use with 1/4 in. packed columns. 1/8 to 1/4 in. adapters fit both injector and detector ends. (Pkg. 2).

Description	Part No.
1/4 in. Packed Column Adapter	**00080100**

ECD Wipe Test Kit

U.S. Federal law requires that all ECDs be wipe-tested periodically as described in the instrument operator's manual. In the U.S., possession and use of ECD is regulated by N.R.C. and/or state regulatory agencies. Licensing by regulatory agencies is required. Outside of the U.S., check with governing bodies for licensing and regulations covering possession and use. This kit contains everything necessary to do a complete wipe test. For use on any model GC ECD.

Description	Part No.
ECD Wipe Test Kit	**00091667**

NPD Add-On Kits

NPD Add-On Kit (Manual Pneumatics)

The NPD can be used for the analysis of organic compounds containing nitrogen or phosphorus down to the picogram level. The NPD has become the detector of choice for low-level drug and pesticide applications because of its sensitivity and selectivity.

Kit includes: detector, heater, sensor, heater block, air needle valve, and hydrogen pressure regulator with snubber and two beads. Requires, but does not include, amplifier. For AutoSystem GC Firmware revision 1.4 or greater is required. Firmware must be PerkinElmer Service installed.

Voltage	Part No.
120 V AutoSystem	**N6120090**
240 V AutoSystem	**N6120091**
120 V Clarus	**N6520024**
230 V Clarus	**N6520025**

NPD Amplifier

Required for use with NPD Add-On Kit.

Description	Part No.
NPD Amplifier	**N6120094**

NPD with PPC Add-On Kit

Kit includes: detector, heater, sensor, heater block, and programmable pneumatic control for detector combustion gases and two beads. Requires, but does not include, amplifier (**N6120094**). The AutoSystem XL or Clarus GC must be PPC ready. If not, the PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	**N6120126**
240 V	**N6120127**

Column Adapter

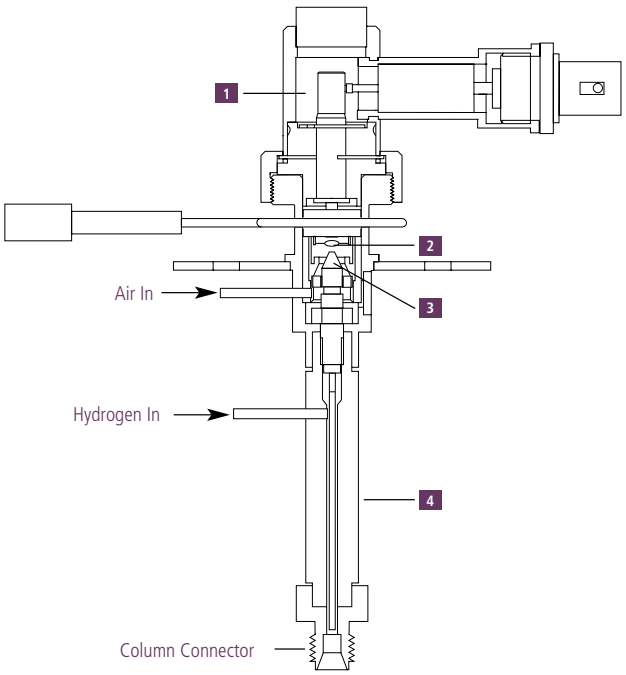
1/4 in. Packed Column Adapter

1/8 to 1/4 in. detector receiver adapter for use with 1/4 in. packed columns. Two included (injector/detector).

Description	Part No.
1/4 in. Packed Column Adapter	**00080100**

NPD Replacement Parts

	Description	Part No.
1	Collector Head	**N6100253**
2	Bead Assembly (pkg. 5)	**N6120093**
	Single pkg.	**N6120092**
3	Jet Assembly	**N6100038**
4	NPD Body	**N6100228**



PID Add-On Kits

PID Add-On Kit (Manual Pneumatics)

The PID utilizes a high-intensity ultraviolet light source to ionize the sample components eluting from the column in order to generate the chromatographic signal. The PID has a maximum recommended operating temperature of 250 °C. The lamp can be replaced with a blanking disk to allow bake-out operation (up to 350 °C). Kit includes: detector, heater, sensor, makeup gas needle valve, and all necessary mounting hardware for installation on an AutoSystem GC. Requires, but does not include, amplifier (**N6120061**) and lamp power supply (**N6120062**). Firmware revision 1.2 or greater is required. Firmware must be PerkinElmer Service installed. AutoSystem operator's manual (**09908559**) is required if not revision F or higher.

Voltage	Part No.
120 V AutoSystem	**N6120047**
240 V AutoSystem	**N6120057**
120 V Clarus	**N6520026**
230 V Clarus	**N6520027**

PID Amplifier

Required for use with PID Add-On Kit.

Description	Part No.
PID Amplifier	**N6120061**

PID Lamp Power Supply

Required for use with PID Add-On Kit.

Description	Part No.
PID Lamp Power Supply	**N6120062**

PID with PPC Add-On Kit

Kit includes: detector, heater, sensor, heater block, and programmable pneumatic control for makeup gas. Requires, but does not include, amplifier (**N6120061**) and power supply (**N6120062**). The GC must be PPC ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	**N6120130**
230 V	**N6120131**

Detector Series Operation Kits

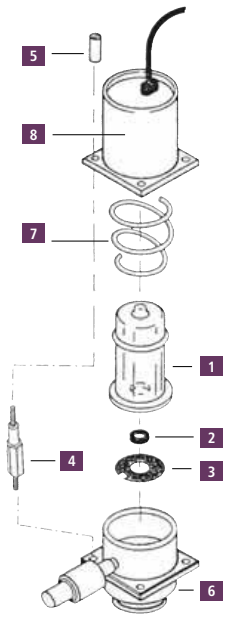
Description	Part No.
PID/FID, PID/ECD Series kit for directing effluent from a PID to an FID or an ECD	**N6120059**

Miscellaneous Accessories

Description	Part No.
Bakeout Disk	**03302989**
Lamp Cleaning Compound	**03302775**
1/4 in. Detector Receiver	**03300866**
1/8 in. Detector Receiver	**03300865**

PID Replacement Parts

	Description	Part No.
1	PID Lamp (10.2eV), For most applications including aromatics, alkenes, and aliphatics higher than C4. Shipped standard with PID	**03303599**
	PID Lamp (9.5eV), Improved selectivity for multiple ring aromatic, sulfur compounds	**03303598**
2	PID Lamp Window Seal	**03302778**
3	PID Lower Lamp Seal	**03302777**
4	Shoulder Pin	**03302976**
5	Cap Nut	**03303773**
6	Base Assembly	**03302979**
7	Spring	**03302973**
8	Cap with Harness	**N6101696**



TCD Add-On Kits

Features and Benefits

- Lower Internal Volume and Smaller Overall Size
- No Makeup Gas Required with 0.53 mm and 0.32 mm ID Capillary Columns
- Series Connection Option
- Excellent Sensitivity Over a Wide Dynamic Range

TCD Add-On Kit (Manual Pneumatics)

Kit includes all necessary items to install the TCD into the instrument: detector, heater, sensor, heater block, 1/16 in. gas line, and flow controller pneumatics. Requires, but does not include, amplifier (**N6120015**). The TCD can only be installed in the rear detector position.

Voltage	Part No.
120 V AutoSystem	**N6120012**
240 V AutoSystem	**N6120027**
120 V Clarus	**N6520022**
230 V Clarus	**N6520023**

TCD Amplifier

Description	Part No.
TCD Amplifier	**N6120015**

TCD with PPC Add-On Kit

Kit includes: detector, heater, sensor, heater block, and programmable pneumatic control for reference gas. Requires, but does not include, amplifier (**N6120015**). The TCD can only be installed in the rear detector position. The GC must be PPC ready. If not, a PPC upgrade kit (**N6120146**) is required. Installation by PerkinElmer Service is required, but not included.

Voltage	Part No.
120 V	**N6120124**
240 V	**N6120125**

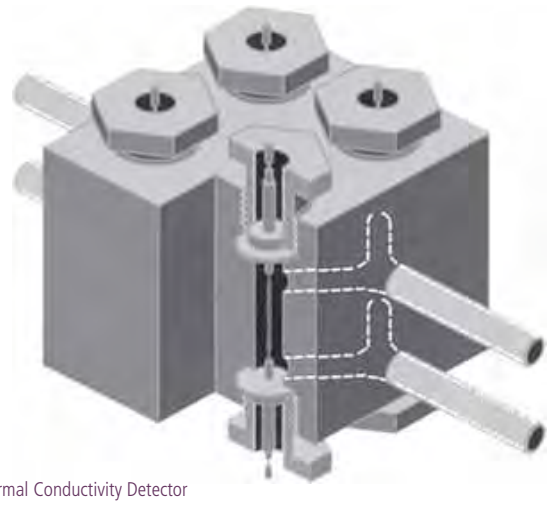
TCD with PPC Makeup Gas Kit

Includes parts required to add PPC controlled makeup gas to an existing TCD. Includes tubing, tee-piece, PPC pneumatics module, and PPC frit #4 (**N6120155**). Requires PPC capability in the GC.

Description	Part No.
TCD with PPC Makeup Gas Kit	**N6120150**

Column Adapter

Description	Part No.
1/8 to 1/4 in. Column adapter for use with 1/4 in. packed columns	**00080100**
1/8 to 1/16 in. Column adapter for use with capillary columns	**N6120020**



Thermal Conductivity Detector

TCD/FID Series Operation Kit

TCD and FID series operation kit for directing effluent from a TCD to an FID.

Description	Part No.
TCD/FID Series Operation Kit	**N6120006**

TCD Detector Makeup Gas Kit (Manual Pneumatics)

For use with TCD (at low flow rates). Required when using 0.25 mm ID and recommended when using 0.32 mm ID capillary columns. Kit includes 1 m of 1/16 in. tubing to connect to gas supply, graphite/vespel ferrules, manual pneumatics, and installation instructions.

Description	Part No.
TCD Detector Makeup Gas Kit (Manual Pneumatics)	**N6120080**

Marathon Filament



The Marathon™ Filament is a revolutionary, patent-pending technology developed exclusively by PerkinElmer, delivering long life even under the most difficult chromatography conditions.

After lengthy performance testing and filament research, the new Marathon Filament has been engineered to provide exceptional long life and withstand difficult chromatography conditions.

It has high resistance to demanding injections such as Headspace or purge and trap and has stood up to challenging applications such as flame-retardant analysis.

The Marathon Filament is a direct replacement of the previous rhenium filament – no system changes required.

At PerkinElmer, we understand your challenges and are committed to providing the best solutions to make your life easier. The new Marathon Filament is part of our ongoing efforts to deliver the latest technology for our PerkinElmer GC/MS platform.

Features and Benefits

- Long life even under the most difficult chromatography conditions
- Unique white surface engineered for maximum durability and optimum performance
- Now included with all new Clarus® GC/MS systems (580 and SQ8 series)
- Backward compatible with all units using rhenium filaments
- Works with both electron and chemical ionization sources

Description	Part No.
Marathon Filament for PerkinElmer GC/MS Systems	**N6470012**

To view the webcast and to order your replacement filament, visit: https://perkinelmer.com/marathonfilament

SMARTsource with Marathon Filament for Clarus SQ 8 GC/MS Systems

Capable of both EI and CI ionization, the SMARTsource™ (Simplified Maintenance And Removal Technology) on the Clarus® SQ 8 GC/MS has been designed for ultimate simplicity, flexibility and productivity. Switching sources can be done in a matter of seconds by simply twisting and pulling – no tools required, no wires to disconnect. Cleaning the source is equally as easy and can be performed by the user. So even if you're running tough matrices, you won't be slowed down by time-consuming expensive source cleanings and replacements.

Fewer Parts, Greater Ease

With very few parts, the SMARTsource is exceptionally robust and easy to maintain. Each component is clearly marked for simple reassembly, and reconfiguring between EI and CI can even be performed in less than 3 minutes with a quick-conversion kit. Since the source is removed from the front of the Clarus SQ 8, the analyzing quadrupole is never exposed, minimizing the risk of contamination to ensure more reliable data.



Take the guesswork out of setting your column depth. Our Handle Assembly allows for precise alignment of the column within the SMARTsource every time.



Features and Benefits

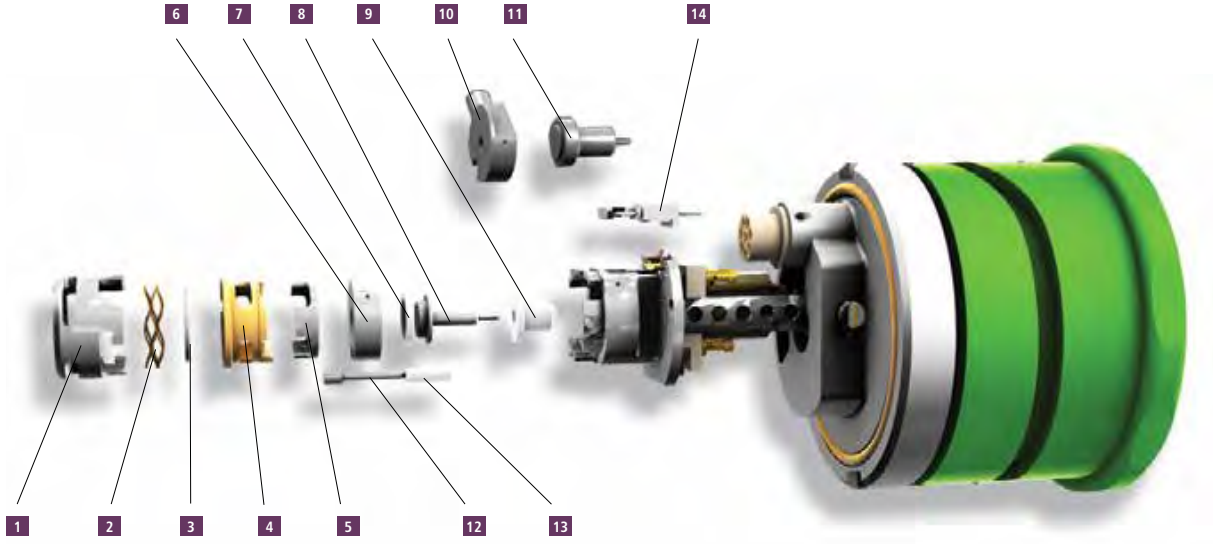
- 12 parts make up EI source
- SMARTsource rebuilt in minutes
- Remove SMARTsource with the twist of a wrist
- Marathon filament has a long life even under the most difficult chromatography conditions and is engineered for maximum durability and optimum performance

Handle Assembly (Source Blank and Sight)

Description	Part No.
Handle Assembly (Source Blank and Sight)	**N6480380**
Replacement Protective Cover	**N6482024**

SMARTsource Maintenance Kits

Description	Part No.
SQ8 Maintenance Kit Tool kit needed to maintain source	**N6480360**
SQ8 Deluxe Polishing Kit (120 Volt) Kit for polishing cleanable source parts	**N6480361**
SQ8 Deluxe Polishing Kit (240 Volt)	**N6480362**



SMARTsource Replacement Parts

	Description	Part No.
1	Source Lens #3	**N6480149**
2	Source Spring	**N6480151**
3	Source Lens #2	**N6480148**
4	Lens Insulator	**N6480153**
5	Source Lens #1	**N6480147**
6	EI Ion Volume	**N6480144**
7	Insulator (Ion Volume)	**N6480145**
8	Repeller	**N6480140**
9	Insulator (Repeller)	**N6480141**
10	CI Ion Volume	**N6480146**
11	CI Ion Volume Disc	**N6480154**
12	Trap	**N6480142**
13	Insulator (Trap)	**N6480143**
14	Marathon Filament	**N6470012**

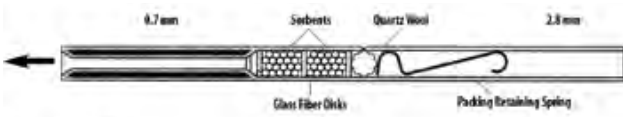
SMARTsource Kits

Description	Part No.
Complete CI Source Consists of a fully assembled CI Source, ready to install	**N6480130**
Complete EI Source	
Consists of a fully assembled EI Source, ready to install	**N6480132**
Insulator Replacement Kit (Numbers 2, 4, 7, 9, 13)	**N6480080**
El Optics Replacement Kit (Numbers 1, 3, 5, 6, 8, 12)	**N6480081**
Cl Optics Replacement Kit (Numbers 1, 3, 5, 8, 10, 12)	**N6480082**

Packed Traps for PerkinElmer Thermal Desorbers

Air Monitoring Trap

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



Low Flow Cold Trap

TurboMatrix Thermal Desorption Cold 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**



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

Description			Part No.
Thermal Desorber Starter Kit			**N6100448**
Contents	**Pkg.**	**Qty.**	**Part No.**
Glass Fiber Separator Disks	20	1	**L4271290**
Glass Sample Tubes	10	1	**M0413598**
Glass Wool	1	1	**54120790**
Graphite Ferrules	2	1	**L4271187**
O-Ring	5	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	**N6301054**
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**

Thermal Desorber Industrial Hygiene Application Kit

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

Description			Part No.
Workplace Air Monitoring Industrial Hygiene Application Kit**			**N6100448**
Contents	**Pkg.**	**Qty.**	**Part No.**
Cold Trap O-Ring, 0.145 ID/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 PTFE Ferrule (**L1003015**)	1	**09908851**
Combined PTFE Ferrule For use with ¼ in. Brass Long-Term Storage Caps (**09908851**), two required per tube	5	**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 PTFE 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**

ATD Tubes



PerkinElmer's New ATD tube conditioning oven now conditions tubes faster and easier than ever before. ATD tubes must be re-conditioned after analysis to remove contaminants before they are used for sampling. You can do this one of two ways. You can condition each tube individually on your thermal desorption instrument. This takes time – especially if you have several tubes to condition – and also ties up your instrument which could be used for more important analysis. Or, a better more efficient alternative is to condition your tubes in a separate oven.

Features and Benefits

- Condition any number or combination of stainless steel and glass tubes simultaneously without wasting gas
- Hood interlock protects anyone in the lab from opening the oven until it's cool
- Dual automatic fan design cools the oven in minutes
- Oven vent through the top hood ensuring a contaminant free oven

Description	Part No.
TurboMatrix TC 220 (120 V)	**N9309160**
TurboMatrix TC 220 (230 V)	**N9309161**

Specifications	
Capacity	Holds up to 20 tubes
Temperature Range	Ambient – 400 °C
Programming	4 Ramps + 4 Soaks
Flow Rate	25 – 150 mL/min

Unconditioned Thermal Desorber Tubes



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.

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

Description	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	**N9307056**	**N9307064**
Carbopack™ C 60/80		
Carbosievev SIII 60/80		
Carbotrap™ C/B		**N9307065**
NIOSH	**N9307057**	**N9307066**

Empty Sample Tubes without Caps

Description	Pkg.	Part No.
Stainless Steel	10	**L4270128**
Glass	10	**L4071594**
Stainless Steel	100	**L4270129**

Empty Sample Tubes with Plastic End Caps

Description	Pkg.	Part No.
Stainless Steel	10	**M0413595**
Glass Lined Stainless Steel	10	**M0413597**
Glass	10	**M0413598**

Soil Vapor Intrusion (SVI™) Tubes



Soil vapor intrusion occurs when toxic compounds that are present in the air space in soil of a contaminated location have ways of entering a building, potentially creating a health risk. Our new multi-bed construction extends the hydrocarbon range past naphthalene while retaining the lighter components, enabling larger sample volumes, hence, enhancing detection limits. Has a unique design that meets the challenges and criteria of the EPA regulations for air monitoring.

Features and Benefits

- From chloromethane through diesel range hydrocarbons
- After the analysis, tubes are clean and ready for re-sampling reducing costs

Description	Part No.
Stainless Steel TD Tubes Conditioned	**N9306277**
Stainless Steel TD Tubes Un-Conditioned	**N9306278**

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 are printed with the packing material and an arrow, which points to the end of the tube where sample is drawn from, and also indicates the end that desorb vapors will exit.



Fully conditioned Thermal Desorber tubes

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 tubes are thermally conditioned and tested for background and backpressure.

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

'NOT for Analytical test applications', use **N6200119** PTFE caps and O-Rings. (pkg. 20).

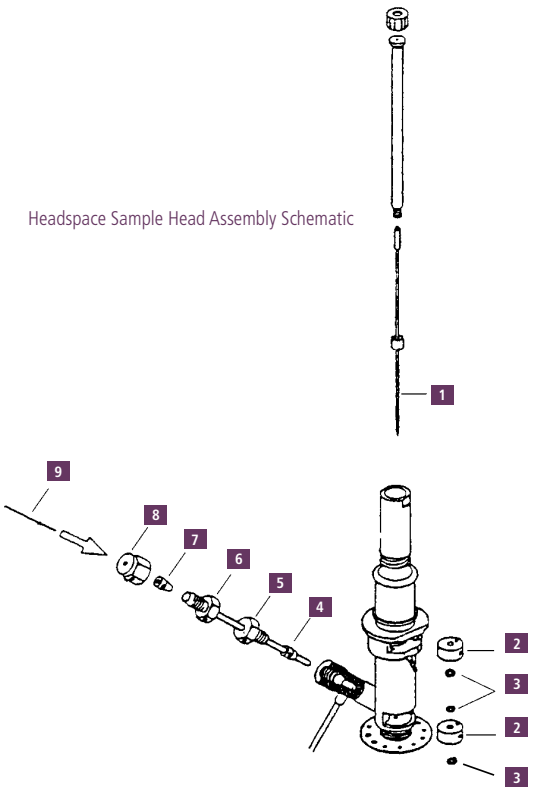
Description	Stainless Steel Part No.	Glass Part No.
Air Toxics	**N9307001**	**N9307008**
Carbopack™ B60/80	**N9307002**	**N9307009**
Carbosieve™ SIII 60/80	**N9307003**	**N9307010**
Tenax™ GR 60/80	**N9307004**	**N9307011**
NEW PKI Tenax™ TA 60/80	**N9309130**	
Tenax™ TA 60/80	**N9307005**	**N9307012**
Chromasorb™ 60/80	**N9307006**	**N9307013**
Carbopack™ B 60/80	**N9307000**	**N9307007**
Carbopack™ C 60/80		
Carbosieve™ SIII 60/80		
Carbotrap™ C/B	**N9307026**	
NIOSH 2549	**N9307038**	**N9307037**

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 ID Transfer Line (pkg. 10)	09920104
	Graphite/Vespel Ferrule 1/16 in. x 0.5 mm For use with 0.32 mm ID Transfer Line (pkg. 10)	09920105
8	Nut 1/16 in. Swagelok	N9300059
9	Fused-Silica Capillary Transfer Line: 0.25 mm ID x 5 m Length	N9301356
	0.32 mm ID x 5 m Length	N9301357

Headspace Sample Head Assembly Schematic





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 ID (mm)	Length	Part No.
Siltek Deactivated Fused Silica	0.25	5 m	N9316607
Siltek Deactivated Fused Silica	0.32	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



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SIMPLE: PERKINELMER.

For anyone charged with protecting the public from VOCs in the air, water, and soil, time is of the essence. So the big question becomes: How do I get accurate – and *actionable* – results even faster than before? With the Torion® T-9 portable GC/MS, you do your testing where the hazardous event occurs, and get your results there, too. No sample transportation or degradation. No processing, packaging, and prep time. You simply respond, collect, analyze, and identify, right there on the ground. So who gets you from response to remedial action 70 times faster than conventional lab analysis? The answer is perfectly clear.

Learn more at www.perkinelmer.com/torion

PerkinElmer®
For the Better

Arnel Analyzer Consumables

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

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Valves

A majority of the Arnel configurations utilize two different types of valves. Most can be categorized as external volume injectors while the other type is an internal sample injector.



Sample Loops

A range of stainless steel sample loops are available for varying applications; with injection volumes from 100 µL to 5 mL and options for 6, 8 or 10 port valves. The Arnel sample loops are set apart from standard stainless steel loops due to the materials that are used in their manufacture.



Capillary Columns for Arnel Engineered Analyzers

PerkinElmer capillary column replacement sets are available for a wide range of applications. From refinery and natural gas to specific and also including many standard methods, ASTM and trace gases for example.

Calibration Materials

Our calibration gas blends were formulated to be used exclusively in our Refinery and Natural Gas Analyzers. These are the same test gases that are used in the verification and validation processes that take place at our factory.



Arnel Analyzers

The measurement of semivolatile and volatile compounds in petrochemical feeds, processes and products can be easily accomplished with turnkey analyzers and systems designed to meet accepted standard methods. PerkinElmer's Arnel™ analysers offer a market leading customized chromatography solution. We provide, install, and support a full range of guaranteed analyzers, systems and accessories.

Arnel ***We have an APP for that!***

The Arnel Group within PerkinElmer Gas Chromatography is responsible for providing complete engineered solutions for a wide array of often encountered analytical problems. Do you have the need for a custom solution to perform ASTM or other regulated methods in your lab? Some of the types of analyzers Arnel has supplied are found in the list of categories shown here:

Natural Gas/NGL
Condensates
LPG
Refinery/Light Hydrocarbon Gas
Olefins
Aromatics
Oxygenates
Industrial Solvents
Naphthas
Gasoline
Distillates
Lube Oils/Waxes
Crude Oils
Asphalt
Bulk Gases
Trace Gases
TOGA
SCD



Capillary Columns for Arnel Engineered Analyzers

Why would you compromise your gas chromatography by accepting cheap substitutes when replacing the columns in your Arnel Analyzer? Use only genuine PerkinElmer column sets as replacements to meet your specific chromatographic needs.

Don't see what you need?

Please contact your local PerkinElmer sales representative for replacement column sets for Custom Engineered Arnel Analyzers or for more information about our Arnel Engineered Solutions Analyzers.

ARNEL ANALYZER CONSUMABLES

Replacement Column Sets for Standard Arnel Refinery Gas Analyzers

Model	Description	Part No.
1015	Replacement column set for the RGA Model 1015 – Two channel RGA; Hydrocarbons (FID) and Light Gases (TCD)	**N6107032**
1115	Replacement column set for the Arnel RGA – Three channel RGA; Hydrocarbons (FID), Light Gases (TCD) and He/H_2 channel (TCD)	**N6107033**
1116	Replacement column set for the RGA Model 1116 – Three channel RGA; Hydrocarbons (TCD) and Light Gases (TCD) + He/H_2 channel (TCD)	**N6107033**
1157	Replacement column set for the RGA Model 1157 – Three channel RGA; Hydrocarbons (FID), Light Gases (TCD) and He/H_2 channel (TCD)	**N6107033**
1215	Replacement column set for the RGA Model 1215 – Two channel RGA; Hydrocarbons (FID) and Light Gases (TCD) + LSV	**N6107032**
1315	Replacement column set for the RGA Model 1315 – Three channel RGA; Hydrocarbons (FID) and Light Gases (TCD) and He/H_2 channel (TCD) + LSV	**N6107033**
1317	Replacement column set for the RGA Model 1317 – Three channel RGA; Hydrocarbons (FID) and Light Gases (TCD) and He/H_2 channel (TCD) + LSV	**N6107033**
1515	Replacement column set for the RGA Model 1515 – Three channel RGA; Hydrocarbons (FID) and Light Gases (TCD) and He/H_2 channel (TCD) + LSV	**N6107033**
Other		
Hydrocarbon channel	Replacement column set for the hydrocarbon channel in any RGA model	**NR00HC15**

Replacement Column Sets for Standard Arnel Natural Gas Analyzers

Model	Description	Part No.
2000	Replacement column set for the NGA Model 2000 – Detection of hydrocarbons	**N6107040**
2001	Replacement column set for the NGA Model 2001 – Detection of hydrocarbons, CO_2, air and H_2S	**N6107040**
2002	Replacement column set for the NGA Model 2002 – Separation of air and methane	**N6107048**
2003	Replacement column set for the NGA Model 2003 – Separation of O_2 and N_2	**N6107052**
2006	Replacement column set for the NGA Model 2006 – Detection of hydrocarbons, CO_2, air and H_2S	**N6107056**
2008	Replacement column set for the NGA Model 2008 – Separation of O_2 and N_2 (with capillary channel)	**N6107060**
2101	Replacement column set for the NGA Model 2101 – Detection of hydrocarbons, CO_2, air, H_2S and He/H_2	**N6107041**
2103	Replacement column set for the NGA Model 2103 – Separation of O_2 and N_2 + He/H_2 channel	**N6107053**
2106	Replacement column set for the NGA Model 2106 – Detection of hydrocarbons, CO_2, air, H_2S and He/H_2	**N6107057**
2108	Replacement column set for the NGA Model 2108 – Separation of O_2, N_2 and He/H_2 (with capillary channel)	**N6107061**
2201	Replacement column set for the NGA Model 2201 – Detection of hydrocarbons, CO_2, air and H_2S + LSV	**N6107040**
2203	Replacement column set for the NGA Model 2203 – Separation of O_2 and N_2 + LSV	**N6107052**
2206	Replacement column set for the NGA Model 2206 – Detection of hydrocarbons, CO_2, air, and H_2S + LSV	**N6107056**
2208	Replacement column set for the NGA Model 2208 – Separation of O_2 and N_2 (with capillary channel) + LSV	**N6107060**
2301	Replacement column set for the NGA Model 2301 – Detection of hydrocarbons, CO_2, air, H_2S and He/H_2 + LSV	**N6107041**
2303	Replacement column set for the NGA Model 2303 – Separation of O_2 and N_2 + He/H_2 channel + LSV	**N6107053**
2306	Replacement column set for the NGA Model 2306 – Detection of hydrocarbons, CO_2, air, H_2S and He/H_2 + LSV	**N6107057**
2406	Replacement column set for the NGA Model 2406 – Detection of hydrocarbons, CO_2, air, and H_2S + LSV	**N6107056**
2501	Replacement column set for the NGA Model 2501 – Detection of hydrocarbons with sulfur channel	**NR002500**
2503	Replacement column set for the NGA Model 2503 – Detection of hydrocarbons with sulfur channel	**NR002503**

Replacement Column Sets for Other Standard Arnel Analyzers

Model	Description	Part No.
3023	Sim Dis Capillary Column, COL C 10 x 0.53 x 2.65 MXT-2887	**NR213000**
3023	Sim Dis Capillary Column, COL C 5 x 0.53 x 0.10 MXT-1 HT	**NR213314**
4001	Replacement column set for the Models 4001 and 4002 – ASTM 4815	**N6107070**
4002	Replacement column set for the Models 4001 and 4002 – ASTM 4815	**N6107070**
4003	Replacement column set for the Model 4003 – TOGA	**N6107072**
4004	Replacement column set for the Model 4004 – ASTM 4815 and ASTM 5580	**N6107073**
4005	Replacement column set for the Model 4005 – ASTM 5580	**N6107073**

Note: Column sets are sold only as spares with an order, or as replacements to installed analyzers

Model	Description	Part No.
4012	Replacement column set for Models 4012 – ASTM 3606 + ASTM 4815	**N6107216**
4013	Replacement column set for the Models 4013 and 4014 – ASTM 3606	**N6107218**
4014	Replacement column set for the Models 4013 and 4014 – ASTM 3606	**N6107218**
4015	Replacement column set for the Model 4015 – ASTM 3606, 5580 + 4815	**N6107216**
4016	Replacement column set for the Model 4016 – Light and combustion gas	**N6107221**
4017	Replacement column set for the Model 4017 – Light and combustion gas	**N6107222**
4019	Replacement column set for the Model 4019 – Light and combustion gas	**N6107224**
4020	Replacement column set for the Model 4020 – Impurities in chlorine	**N6107075**
4021	Replacement column set for the Model 4021 – Trace CO, CH_4 and CO_2	**N6107225**
4022	Replacement column set for the Model 4022 – CO, CO_2 in propylene	**N6107076**
4024	Replacement column set for the Model 4024 – UOP 603	**N6107226**
4025	Replacement column set for the Model 4025 – Trace sulfur in gases by GSV	**N6107208**
4027	Replacement column set for the Model 4027 – Trace sulfur in gases by syringe	**N6107208**
4028	Replacement column set for the Model 4028 – Trace sulfur in gases by GSV and LSV	**N6107241**
4029	Replacement column set for the Model 4029 – Trace sulfur in gases by GSV and syringe	**N6107241**
4030	Replacement column set for the Model 4030 – Trace sulfur in gases by GSV + PID	**NR004030**
4031	Replacement column set for the Model 4031 – Trace sulfur in gases by GSV + FID	**NR004031**
4032	Replacement column set for the Model 4032 – Full range H_2	**N6107227**
4033	Replacement column set for the Model 4033 – Full range O_2 and N_2	**N6107228**
4034	Replacement column set for the Model 4034 – Hull range H_2, O_2 and N_2	**N6107229**
4035	Replacement column set for the Model 4035 – Light hydrocarbons by GSV	**N6107230**
4036	Replacement column set for the Model 4036 – Light hydrocarbons by LSV	**N6107230**
4037-1	Replacement column set for the Model 4037 – LPG light hydrocarbons by GSV and LSV with one column	**N6107230**
4037-2	Replacement column set for the Model 4037 – LPG light hydrocarbons by GSV and LSV with two columns	**N6107232**
4038	Replacement column set for the Model 4038 – Trace sulfur in gases by GSV + PID and FID	**NR004038**
4040	Replacement column set for the Model 4040 – Trace light gases by DID	**NR004040**
4041	Replacement column set for the Model 4041 – Trace light gases by PID	**NR004041**
4043	Replacement column set for the Model 4043 – Trace gases by PID and DID	**NR004043**
4044	Replacement column set for the Model 4044 – Trace gases by DID and FID	**NR004044**
4045	Replacement column set for the Model 4045 – Trace gases by FID and PID	**NR004045**
4046	Replacement column set for the Model 4046 – Trace gases by DID, FID and PID	**NR004046**
4050	Replacement column set for the Model 4050 – Detailed Hydrocarbon Analyzer	**N6107220**
4080	Replacement column set for the Model 4080 – Oxygenates and Aromatics in Gasoline	**N6107233**
4083	Replacement column set for the Model 4083 – ASTM 2504	**NR004083**
4086	Replacement column set for the Model 4086 – Analysis of Trace Methanol and MTBE in Light Hydrocarbon Gases	**NR004086**
4087	Replacement column set for the Model 4087 – Transformer Oil Gases using ASTM 3612 Headspace Method C	**NR004087**
4227	Replacement column set for the Model 4227 – Trace sulfur in gases by syringe + LSV	**N6107241**
4425	Replacement column set for the Model 4425 – Trace sulfur in gases by GSV with permeation chamber	**N6107208**
4428	Replacement column set for the Model 4428 – Trace sulfur in gases by GSV + LSV with permeation chamber	**N6107241**
4429	Replacement column set for the Model 4429 – Trace sulfur in gases by GSV and syringe with permeation chamber	**N6107241**
4430	Replacement column set for the Model 4430 – Trace sulfur in gases by GSV + PID with permeation chamber	**NR004030**
4431	Replacement column set for the Model 4431 – Trace sulfur in gases by GSV + FID with permeation chamber	**NR004031**
4438	Replacement column set for the Model 4438 – Trace sulfur in gases by GSV + PID and FID with permeation chamber	**NR004038**
4629	Replacement column set for the Model 4629 – Trace sulfur in gases by GSV and syringe + LSV with permeation chamber	**N6107241**
51XX	Replacement column set for the 51XX PET Bottle Analyzer	**NR005100**
52XX	Replacement column set for the 52XX Workspace Air Monitoring System	**NR005200**

Note: Column sets are sold only as spares with an order, or as replacements to installed analyzers

Valves



A majority of the Arnel configurations utilize two different types of valves. Most can be categorized as external volume injectors while the other type is an internal sample injector. The injection volume of an internal sample injector valve is determined by the size of etching on the rotor of the valve. External volume sample size is determined by a sample loop outside the valve. External valves are used primarily for sample injection and/or switching applications. A valve used for just switching requires another valve for sample injection. Valves include nuts and ferrules, but not loops.

Ports	Part No.	Max Temperature (C°)	Rotation	Max Pressure (psi)	Fitting (in.)	Material	Rotor Type	Replacement Rotor Part No.
3 Port	**N9302885**	330	90°	300	1/16	Stainless Steel	T	
4 Port	**N9302809**	175	90°	400	1/16	Stainless Steel	P	
	N9302813	350	90°	300	1/16	Stainless Steel	T	
	N9302817	330	90°	300	1/8	Stainless Steel	T	
6 Port	**N9302810**	175	60	400	1/16	Stainless Steel	P	**N9302897**
	N9302814	350	60	300	1/16	Stainless Steel	T	**N9302901**
	N9302818	330	60	300	1/8	Stainless Steel	T	**N9302905**
8 Port	**N9302811**	175	45	400	1/16	Stainless Steel	P	
	N9302815	350	45	300	1/16	Stainless Steel	T	
	N9302819	330	45	300	1/8	Stainless Steel	T	
10 Port	**N9302812**	175	36	400	1/16	Stainless Steel	P	**N9302899**
	N9302816	350	36	300	1/16	Stainless Steel	T	**N9302903**
	N9302820*	330	36	300	1/8	Stainless Steel	T	

*(P) PTFE-Carbon Composite(T) Polyimide-PTFE-Carbon Composite

Liquid Sample Valves

Arnel liquid sample valves come with a complete valve, close-mount kit, actuator and valve mounting bracket.

Ports	Part No.	Volume (µL)	Rotation	Max Pressure (psi)	Fitting (in.)	Material	Rotor Type	Replacement Rotor Part No.
4	**NR810070**	0.2 and 0.5	90	1000	1/16	Stainless Steel	75 °C	**NR510291**

Liquid Sample Valve Accessories

Description	Part No.
2 Micron In-line Filter – 1/8 in. Stainless Steel – Used on 'Sample In' line	**N6107085**
Check Valve (10 psi) – Brass – Used on 'Sample Out' Line	**N6107086**

Standoffs

A standoff supports both the actuator and the valve. The standoff places the valve at the specific distance from the actuator. A 4 1/8 in. standoff is recommended for mounting valves in PerkinElmer GC ovens. Standoff and actuator sold separately.

Length	Part No.
2 in. 	N9302909
3 1/4 in. 	N9302910
4 1/8 in. 	N9302911
6 in. 	N9302912

Description	Part No.
Close mount hardware kit	N9302908

Sample Loops



Volume	Size (in.)	6 Port Part No.	8 Port Part No.	10 Port Part No.
100 µL	1/16	N9302851	N9302854	N9302857
100 µL	1/8	N9302860		N9302866
250 µL	1/16	N9302852	N9302855	N9302858
250 µL	1/8			N9302867
500 µL	1/16	N9302853		N9302859
500 µL	1/8	N9302862		N9302868
1 mL	1/16	N9302950	N9302953	N9302956
1 mL	1/8		N9302962	N9302965
2 mL	1/16	N9302951	N9302954	N9302957
2 mL	1/8	N9302960		N9302966
5 mL	1/16	N9302952		N9302958
5 mL	1/8	N9302961		N9302967

1/8 in. fitting loop for valves with 0.030 in. standard port diameter
1/16 in. fitting loop for valves with 0.016 in. standard port diameter

Arnel Sample Loops

The Arnel sample loops are set apart from standard stainless steel loops due to the materials that are used in their manufacture. Arnel offers loops made of nickel and Sulfinert treated stainless steel tubing.

Description	Part No.
0.1 cc Nickel	NR950001
0.125 cc Nickel	NR950007
0.2 cc Nickel	NR950002
0.25 cc Nickel	NR950003
0.5 cc Nickel	NR950004
1.0 cc Nickel	NR950005
2.0 cc Nickel	NR950006
0.07 cc Sulfinert Treated	NRSLSF0.07
0.1 cc Sulfinert Treated	NR950008
0.125 cc Sulfinert Treated	NR950014
0.2 cc Sulfinert Treated	NR950009
0.25 cc Sulfinert Treated	NR950010
0.5 cc Sulfinert Treated	NR950011
1.0 cc Sulfinert Treated	NR950012
2.0 cc Sulfinert Treated	NR950013
3.0 cc Sulfinert Treated	NR950015

Calibration Material

Our calibration gas blends were formulated to be used exclusively in our Refinery and Natural Gas Analyzers. These are the same test gases that are used in the verification and validation processes that take place at our factory. Please contact your local PerkinElmer sales representative for more information about the composition of the gas blends.



Description	Part No.
RGA Calibration Blend With Syringe Adapter	N6107198
RGA Calibration Blend Without Adapter	N6107199
NGA Calibration Blend With Syringe Adapter	N6107200
NGA Calibration Blend Without Adapter	N6107201
Sampling Kit – Arnel GSV; Connects to 1/16 in. sample inlet line for easy gas sample introduction – Content of kit: 3 – BD 30 mL Luer Lock Syringes, 1 six-pack of needles, 1 port adapter, 10 septa	N6100724

Permeation Tubes



Full NIST traceability using established EPA and ASTM protocols by using the appropriate combination of permeation devices. The permeation tubes are certified to be permeating at a certain weigh and threshold (~+/– 2%). Uncertified tubes have an estimated rate and a very large threshold, up to + /– 25%.

Description	Part No.
Dimethylsulfide permeation tube (certified)	**N6107361**
Ethanol permeation tube (certified)	**N6107362**
Benzene permeation tube (certified)	**N6107363**

SCD Maintenance

The SCD parts listed are to support the Agilent 355 Dual Plasma Sulfur Chemilumenescence Detector (SCD).

Description	Part No.
12 Month Maintenance Kit for Dual Plasma SCD	**N6107237**
Ceramic Tube Package for the Dual Plasma SCD Burner	**NR310502**
12 Month Maintenance Kit for Single Plasma SCD	**N6107209**
Ceramic Tube Package for the Single Plasma SCD Burner	**N6107313**

These kits support the PAC SeNse® NCD and SCD detectors.

Description	Part No.
SeNse Consumable Sulfur Kit	**NR333003**
SeNse Spare Kit for the Consumable Kit	**NR333004**

Sampling and Installation Parts

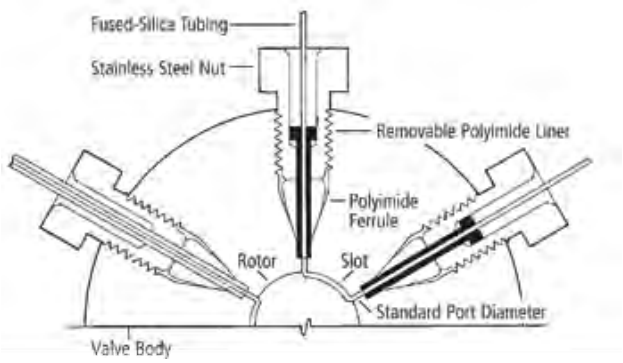
Description	Part No.
Sampling Accessories	
Sampling Kit – Arnel GSV; Connects to 1/16 in. sample inlet line for easy gas sample introduction – Content of kit: 3 – BD 30 mL Luer Lock Syringes, 1 6-pack of needles, 1 port adapter, 10 septa	**N6100724**
Installation Hardware	
Tee 1/8 in. brass	**09903170**
Cross 1/8 in. brass	**N9301259**
Pre-cleaned copper tubing. 1/8 in. OD x 50 ft.	**N9300077**
VCR Gasket (PDID Channel)	
Nickel Face Seal VCR Gasket – For use with PDID channel 'Sample In' line connections	**NR410252N**

Nuts and Ferrules

Description	Part No.
Nuts	
Nut 1/16 Stainless Steel – For use with Valco valves and fittings	**09903980**
Nut for 1/8 in. Tube Fitting – Stainless Steel – Used to make connections at FID, TCD, FPD, PID	**09903453**
Nut 1/16 in. Stainless Steel – Used to make connections at CAP, PSS and POC injectors	**09903392**
Nut 1/8 in. – Stainless Steel – For use with Valco Valves and Fittings	**N9302833**
Ferrules	
FRL 1/16 in. 0.8 mm ID (pkg. 10) – For use with capillary columns 0.18 – 0.53 mm ID and nut **09903392**	**09920141**
FRL 1/16 in. 0.5 mm ID (pkg. 10) – For use with capillary columns 0.18 – 0.32 mm ID and nut **09903392**	**09903700**
FRL 1/32 in. 0.8 mm ID Polyamide – For use with 1/32 in. unions and fittings	**NR410229**
FRL 1/32 in. 0.8 mm ID Polyamide – For use with 1/32 in. unions and fittings (pkg. 5)	**NR410229-5**
FRL 1/8 in. Graphite 0.5 mm ID – For use with capillary columns 0.18 – 0.32 mm ID and nut **09903453**	**NR510002**
Ferrule Set 1/16 in. Stainless Steel (pkg. 10) (1 front ferrule/1 back ferrule)	**NR410049-10**
Ferrule Set 1/8 in. Stainless Steel (pkg. 10) (1 front ferrule/1 back ferrule)	**NR410068-10**
FRL 1/16 in. Stainless Steel – For use with Valco Valves and Fittings	**09903891**
Ferrule 1/8 in. Graphite/Vespel – For use with packed columns union **NR410110**	**09920133**
Ferrule Reducing 1/8 in. – 1/16 in ID Graphite/Vespel	**09920301**
FRL 1/32 in. 0.5 mm ID Polyamide – For use with 1/32 in. unions and fittings	**NR510486**
FRL 1/32 in. 0.5 mm ID Polyamide – For use with 1/32 in. unions and fittings (pkg. 5)	**NR510486-5**

Fused Silica Adaptors

These adapters allow connection of fused silica to unions, valves and ports.



Description	Part No.
Fused Silica Adapter 1/16 in. for 0.2 to 0.4 mm ID tube	**NR510233**
Fused Silica Adapter 1/16 in. for 0.4 to 0.5 mm ID tube	**N9302846**
Fused Silica Adapter 1/16 in. for 0.5 to 0.8 mm ID tube	**NR510030**

Union and Tees

Description	Part No.
Union 1/16 x 0.75 mm ID bore – Stainless Steel	**N9302839**
Union 1/16 x 0.75 mm ID bore – Stainless Steel Silco treated	**NR410175**
Reducing union 1/16 in. to 1/32 in. Stainless Steel – For use with 1/16 in. Valco valves and fittings	**09920163**
Tee – 1/16 in. x 0.75 mm Bore – Stainless Steel	**NR410245**
Tee – 1/32 in. Low dead volume connector for capillary tubing/columns	**NR410262**
Bulkhead Reducing union 1/8 in. to 1/16 in. Stainless Steel. For use with packed columns in rack	**NR410110**

Methanizers

Description	Part No.
Methanizers	
Replacement Methanizer Assembly for Models containing Arnel Methanizers. For 115 V operation	**N6107080**
Replacement Methanizer Assembly for Models containing Arnel Methanizers. For 230 V operation	**N6107081**

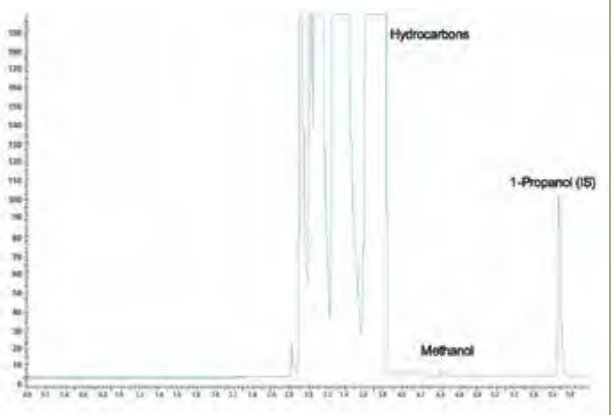
PID Maintenance

Details of the replacement lamp for Arnel instruments equipped with a PID detector.

Description	Part No.
10.0/10.6 eV PID Lamp	**NR510522**

Arnel Analyzer Application Highlights

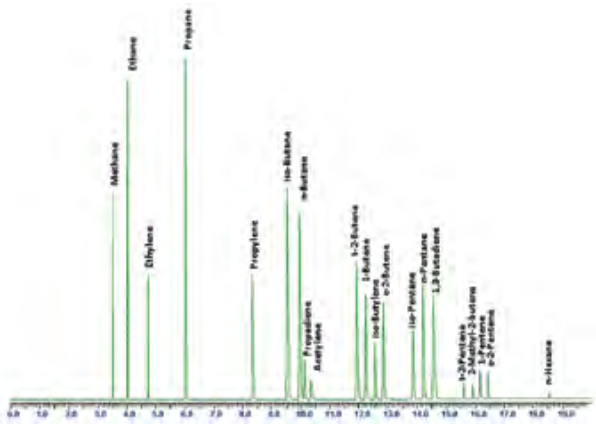
Methanol in Crude Oils According to ASTM D7059-04 Using a Clarus GC with S-Swafer Micro-Channel Flow Technology.



Column: Elite-1 30 m x 0.53 mm x 5.0 µm Part No. **N9316052**

S-Swafer Part No. **N6520272**

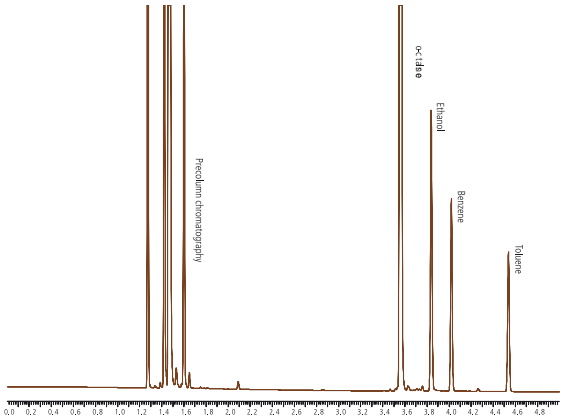
The Determination of C2 to C5 Hydrocarbons in Finished Gasolines using the PerkinElmer Clarus 680 GC with Swafer Technology.



Column: Elite-WAX, 30 m x 0.25 mm x 0.5 µm Part No. **N9316404**
and Al_2O_3 PLOT/Na_2SO_4 50 m x 0.32 mm Part No. **N6107777**

S-Swafer Part No. **N6520272**

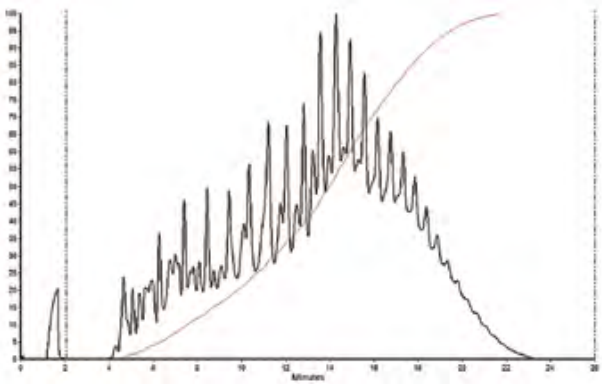
The Determination of Benzene and Toluene in Finished Gasolines Containing Ethanol Using the PerkinElmer Clarus GC with Swafer Technology.



Column: Elite-1, 30 m x 0.25 mm x 0.25 µm Part No. **N9316010**
and COL-Elite-TCEP 60 m 0.25 mm 0.40 µm Part No. **N6107760**

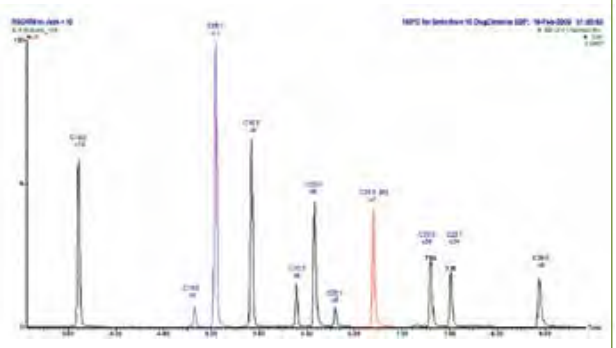
S-Swafer Part No. **N6520272**

Fast Simulated Distillation Analysis by Modified ASTM® D2887, D6352 and D7169.



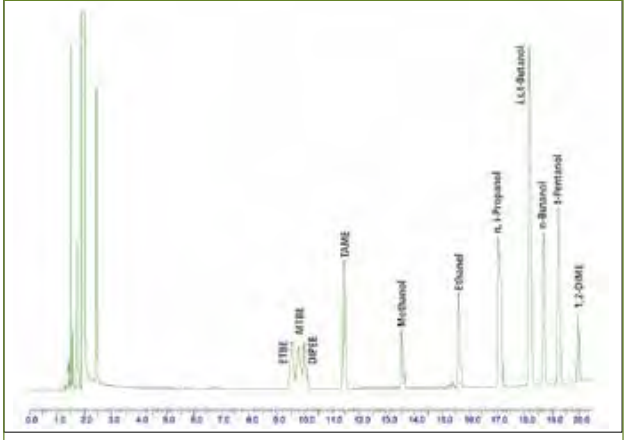
Column: 10 m x 0.53 mm x 2.65 µm MXT-2887 Part No. **NR213000**

Fatty Acid Methyl Ester Contamination of Aviation Fuel by GC/MS.



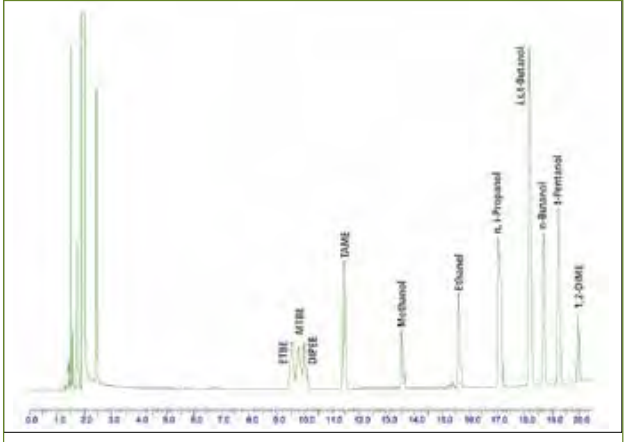
Column: 25 m x 0.32 mm ID x 0.25 µm BPX70

Determination of Low-Level Oxygenated Compounds in Gasoline Using the Clarus GC with S-Swafer Micro-Channel Flow Technology.



Column: Elite-1, 15 m x 0.530 mm x 1.5 µm Part No. **N9316046**
S-Swafer Part No. **N6520272**

Fast Detailed Hydrocarbon Analysis by Modified ASTM Method D6730.



Column: DHA He CARR tuned with conditions Part No. **N9316015**
or DHA H_2 CARR tuned with conditions Part No. **N6107238**

Torion

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

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Custodion SPME Syringes

The Custodion® SPME (Solid Phase Microextraction) syringes useful for sampling and identification of a wide range of volatiles and semi-volatile compounds while in the field; used conjunction with the Torion T-9 portable system.



Custodion Needle Trap – Basic Kit

Our Custodion needle trap kits enable users to collect air samples in the field, adsorbing analytes directly onto our novel Custodion needle trap devices.



Calion Chemical Standards

Calion standards are premixed and adsorbed into a solid phase. These standards are ideal for in-field use because they contain no liquids.



Merlin Seal

The Merlin Microseal is an alternative to the conventional silicone rubber septa. Its unique design is ideal to use with the Custodion SPME and Needle Trap.



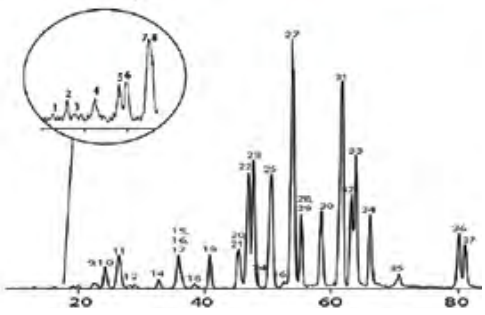
Torion T-9 portable GC/MS

PerkinElmer's Torion® T-9 is a portable GC/MS integrating a high speed Low Thermal Mass (LTM) capillary GC with a miniaturized toroidal ion trap mass spectrometer (TMS). It is designed to be carried in the field and is ideal for rapid screening of chemicals such as environmental volatiles and semi-volatiles (VOCs/SVOCs), explosives, chemical threats, and hazardous substances. The Torion T-9 family includes accessories for sampling air, water and soil.



Volatile Organic Compound Screening in Soil Using SPME-GC/MS.

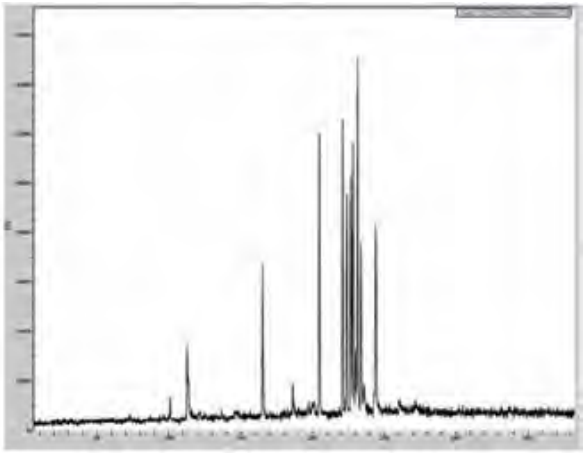
1. Trichlorofluoromethane
2. 1,1-Dichloroethylene
3. Dichloromethane
4. MTBE
5. 1,2-Dichloroethylene (Z)
6. Chloroform
7. 1,1-Trichloroethane
8. 1,2-Dichloroethane
9. Carbon Tetrachloride
10. Benzene
11. 2-Butanone
12. Trichloroethylene
13. Bromodichloromethane
14. 1,3-Dichloro-1-propene (Z)
15. 1,3-Dichloro-1-propene (E)
16. Toluene
17. 1,1,2-Trichloroethane
18. 4-Methyl-2-pentanone
19. Tetrachloroethylene
20. Chlorobenzene
21. 1,1,1,2-Tetrachloroethane
22. Ethylbenzene
23. Xylene
24. Bromoform
25. Styrene
26. 1,1,2,2-Tetrachloroethane
27. Isopropylbenzene
28. Bromobenzene
29. 1,2,3-Trichloropropane
30. 1,3,5-Trimethylbenzene
31. 1,2,4-Trimethylbenzene
32. 1,3-Dichlorobenzene
33. 1,4-Dichlorobenzene
34. 1,2-Dichlorobenzene
35. 1,2-Dibromo-3-chloropropane
36. 1,2,4-Trichlorobenzene
37. Naphthalene



Time(s)

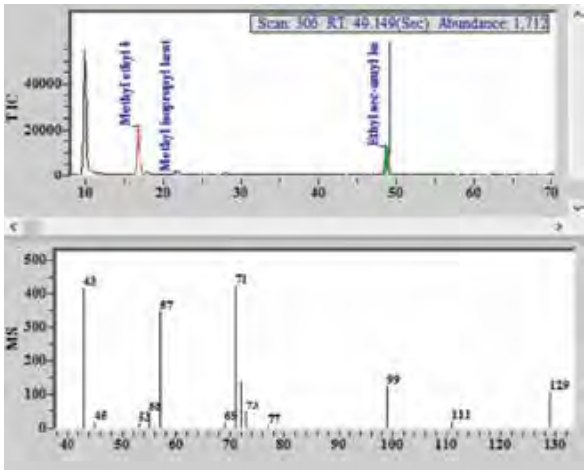
SPME Phase: Divinylbenzene/Polydimethylsiloxane (DVB/PDMS, 65 µm)

Rapid Identification of Illicit Drug Substances Using Thermal Desorption Coupled with a Portable Toroidal Trap GC/MS System.



SPME Phase: Polydimethylsiloxane/divinylbenzene/carboxen (PDMS/DVB/CAR)

Method Development for Identification of Adulterated Spirits using Field Portable GC/MS.



SPME Phase: Divinylbenzene/Polydimethylsiloxane (DVB/PDMS, 65 µm)

Sample Prep Station (SPS-3) for Rapid Field Sampling

The SPS-3 expands sampling capabilities of the Torion T-9 GC/MS. The SPS-3 has a single sample desorption module (DM) and an internal standard module.

The Internal Standard (IS) module adds the capability for semi-quantitative and quantitative analysis through addition of a fixed amount of 2 internal standard reference compounds onto a Custodion Needle Trap (NT). The addition of the desorption module extends the limits of detection of the T-9 by allowing samples to be collected using full size conventional thermal desorption tubes prior to analysis.

SPS-3 Sample Prep Station Single DM with Internal Standard (IS)

Description	Qty.	Part No.
PS-3 Sample Prep Station with single sample desorption module and internal standard module		**NTSSPS30001**
SPS-3 with Single DM and IS Modules	1	
CT Handle Assembly	1	
CT Holder Assembly	1	
Helium Quick Disconnect with 1/16 in.	1	
Power Cord	1	
Power Supply	1	
Ethernet LAN Cable	1	
SPS-3 User Manual	1	
SPS-3 Transport Case with Foam	1	

SPS-3 Consumables

Replacement Seal Kits

Replacement Seal and O-Ring kits for SPS-3 and Accessories.



Description	Part No.
Internal Standard Module Seal kit	**NTSSPS30013**
CT Holder Seal Kit	**NTSSPS30011**
CT Handle Seal Kit	**NTSSPS30014**



SPS-3 Sample Prep Station Dual DM with Internal Standard (IS)

Description	Qty.	Part No.
SPS-3 Sample Prep Station with dual sample desorption modules and internal standard module		**NTSSPS30002**
SPS-3 with Dual DM and single IS Modules	1	
CT Handle Assembly	1	
CT Holder Assembly	1	
Helium Quick Disconnect with 1/16 in.	1	
Power Cord	1	
Power Supply	1	
Ethernet LAN Cable	1	
SPS-3 User Manual	1	
SPS-3 Transport Case with Foam	1	

SPS-3 Accessories

CT Handle

Replacement CT Handle unit.

Acts as interface between Needle Trap and Conventional Trap during SPS-3 desorption cycle.



Description	Part No.
Conventional Trap Handle	**NTSS0060015**

CT Holder

Replacement CT Holder unit.

Holds Conventional Trap during SPS-3 desorption cycle.



Description	Part No.
Conventional Trap Holder	**NTSS0060016**

SPS-3 Tool Kit

Contains tools for operation and maintenance of the SPS-3.

Description	Part No.
SPS-3 Tool kit	**NTSSPS30020**

Starter Kits

Two different starter kits are available to provide everything you need to get up and running with ease.

Description	Qty.	Part No.
Torion T-9 Basic Package		**NTSST090505**
BB-2590 Charger	1	**09280440**
Transcend 32 GB Class 10 SDHC/SDXC UHS-I	1	**09400003**
Merlin Seal 19 GA for SPME NT Injector	6	**NTS25700012**
SRN SPME 19G BT W/DVB/PDMS 3 Rep Fibers	1	**NTSC19SN3B171**
Filament Assembly for T-9	1	**NTSS0070034**
GC Injector Liner Deactivated Gasket	1	**NTSS20000021CG**
Spare Cable Kit for ION Trap	1	**NTSST090012**
ION Spare O-Ring Kit Trap	1	**NTSST090045**
Spare Screws and Washer Kit	1	**NTSST090047**

Description	Qty.	Part No.
Torion T-9 Advanced Kit		**NTSST090506**
BB-2590 Charger	1	**09280440**
Transcend 32 GB Class 10 SDHC/SDXC UHS-I	1	**09400003**
Merlin Seal 19 GA for SPME NT Injector	12	**NTS25700012**
SRN SPME 19G BT W/DVB/PDMS 3 Rep Fibers	2	**NTSC19SN3B171**
Filament Assembly for T-9	1	**NTSS0070034**
GC Injector Liner Deactivated Gasket	1	**NTSS20000021CG**
Spare Cable Kit for ION Trap	2	**NTSST090012**
ION Spare O-Ring Kit Trap	2	**NTSST090045**
Spare Screws and Washer Kit	2	**NTSST090047**

Sampling Accessories

Custodion Needle Trap Samplers

The Custodion Needle Trap (NT) is a miniature thermal desorption tube used for extracting and concentrating volatile compounds from air samples used with the Clairion pump. The Custodion-NT should be used with a flow rate range of 5 – 15 mL/min. The Custodion-NT is small enough to desorb samples directly into the Torion T-9 portable GC/MS. The NT is packed with 3 different adsorption beds to give it a broad range of chemical compatibility.

Custodion SPME Samplers



The Custodion SPME (Solid Phase Microextraction) is ideal for quick screening and identification of volatile and semi-volatile compounds. The active phase on the fiber is 65 µm film of DVB/PDMS (Divinylbenzene/ Poyldimethylsiloxane) is a general purpose material useful for a wide range of volatilities and chemistries.

Available as a single Custodion syringe handle and fiber, or as a kit with 3 replacement fibers (4 fibers total). Replacement fibers are available as singles.

Needle Trap

Description	Qty.	Part No.
Custodion SPME Syringe, 19 gauge blunt needle, with DVB/PDMS fiber	1	**NTSC19SNB171**
Custodion SPME Syringe, 19 gauge blunt needle, with DVB/PDMS fiber and three replacement fibers	1	**NTSC19SN3B171**
Custodion SPME 19 gauge DVB/PDMS Replacement fiber	1	**NTS25710033**



With needle trap (NT)



With conventional trap (CT)

Conventional Trap

Description	Qty.	Part No.
Custodion Needle Trap (NT) Syringe, 19 gauge blunt needle	1	**NTSC19NTB200**
Custodion Needle Trap (NT) Syringe, 19 gauge blunt needle	3	**NTSC19NTB203**
Custodion Needle Trap (NT) Syringe, 19 gauge blunt needle	5	**NTSC19NTB205**
Custodion Needle Trap (NT) Syringe, 19 gauge blunt needle	10	**NTSC19NTB210**

Conventional Trap Sample Collection Tubes



Conventional Trap (CT) sample tubes allow for faster sampling of larger air volumes compared to direct sampling with the Needle Trap. The Custodion-CT accommodates a flow rate range of 5 – 100 mL/min. The Custodion-CT is used in conjunction with the Clairion pump for sample collection. Sample analysis requires the SPS-3 to transfer the sample onto a Needle Trap for analysis on the T-9.

Description	Part No.
Air Toxics Pre-conditioned Sample Tube (pkg. 10)	**N9307001**
Carbopack B 60/80 Pre-conditioned Sample Tubes (pkg. 10)	**N9307002**
Carbotrap 349 Pre-conditioned Sample Tubes (pkg. 10)	**N9307038**
Carbopack B/C/S-III Pre-Conditioned Sample Tubes (pkg. 10)	**N9307000**

Visit www.PerkinElmer.com for additional sample collection tubes

Needle Trap Kits

Our Custodion Needle Trap Kits enable users to collect air samples in the field, adsorbing analytes directly onto our novel Custodion Needle Trap devices. The Needle Trap then directly inject samples into our portable GC/MS, the Torion T-9, allowing users to collect, inject and analyze air samples right at the sample's source.



The Clairion pump can operate for up to 27 hours at 1 L/min on a single charge.

Description	Part No.
Clairion Needle Trap Basic Kit (No Pump)	**NTSSCL60705NP**
Custodion Needle Trap Syringe, 19 gauge blunt needle Clairion NT-Pump Interface, basic O-Ring/Seal Replacement Kit Seal Removal Tool	
Clairion Needle Trap Basic Kit, 110 V	**NTSSCL60705**
Clairion Basic Pump, 110 V Clairion Transport Case with Foam Insert Clairion NT-Pump Interface, Basic Custodion Needle Trap O-Ring/Seal Replacement Kit Seal Removal Tool USB Drive with Pump User Manual	
Clairion Needle Trap Basic Kit, 220 V	**NTSSCL60705I**
Clairion Basic Pump, 220 V Clairion Transport Case with Foam Insert Clairion NT-Pump Interface, Basic Custodion Needle Trap O-Ring/Seal Replacement Kit Seal Removal Tool USB Drive with Pump User Manual	
Clairion Conventional Trap Basic Kit, 110 V	**NTSSCL60706**
Clairion Basic Pump, 110 V Clairion Transport Case with Foam Insert Clairion CT to Pump Interface CT to Pump Interface O-Ring Kit USB Drive with Pump User Manual	
Clairion Conventional Trap Basic Kit, 220 V	**NTSSCL60706I**
Clairion Basic Pump, 220 V Clairion Transport Case with Foam Insert Clairion CT-Pump Interface, Basic Whatever O-Ring Kit is necessary USB Drive with Pump User Manual	

Accessory Kits

Description	Qty.	Part No.
T-9 Basic Consumable Kit Supplies for six (6) months		**NTSN090100**
Custodion SPME Syringe, PDMS/DVB Fiber, 19 gauge with pkg. 3 Replacement	1	
Merlin seal, 19 gauge SPME and Needle Trap Injector	6	
Single Bay Battery Charger	1	
32 GB Industrial SD Card, Formatted	1	
GC Injector Liner, Deactivated, Removable, for SPME and Needle Trap	1	
Cable Kit, T-9 Ion Trap	1	
O-Rings Kit, T-9 Ion Trap	1	
Screws and Washers Kit, T-9 Ion Trap	1	
Advanced Consumable Kit Supplies for twelve (12) months		**NTSN090101**
Custodion SPME Syringe, PDMS/DVB Fiber, 19 gauge with pkg. 3 Replacement	2	
Merlin seal, 19 gauge SPME and Needle Trap Injector	12	
Single Bay Battery Charger	1	
32 GB Industrial SD Card, Formatted	2	
GC Injector Liner, Deactivated, Removable, for SPME and Needle Trap	1	
Cable Kit, T-9 Ion Trap	2	
O-Rings Kit, T-9 Ion Trap	2	
Screws and Washers Kit, T-9 Ion Trap	2	
Filament Assembly	1	

Carrier Gas Consumables

Disposable helium gas cylinder is a 98 mL stainless steel cylinder at ~2500 psi. Helium cylinders are used for both the T-9 GC/MS and SPS-3 during portable operation.

Description	Qty.	Purity %	Part No.
Ultra-high purity 98 mL disposable helium gas cylinder	1	99.95%	**NTSST090034**
Ultra-high purity 98 mL disposable helium gas cylinder	2	99.95%	**NTSST090035**
Ultra-high purity 98 mL disposable helium gas cylinder	6	99.95%	**NTSST090036**
Ultra-high purity 98 mL disposable helium gas cylinder	12	99.95%	**NTSST090037**
High purity 98 mL disposable helium gas cylinder	1	99.50%	**NTSSG070034**
High purity 98 mL disposable helium gas cylinder	2	99.50%	**NTSSG070035**
High purity 98 mL disposable helium gas cylinder	6	99.50%	**NTSSG070036**
High purity 98 mL disposable helium gas cylinder	12	99.50%	**NTSSG070037**

Calion Chemical Standards

Calion standards are premixed and adsorbed into a solid phase. These standards are ideal for in-field use because they contain no liquids. Calion® PV Mixes are used for Torion T-9 calibration, including both mass and GC retention time calibrations.
The combination of Custodion SPME sampling with Calion standards provides robust and rapid capability for in-field calibration because they contain no liquids. Calion® PV Mixes are used for Torion T-9 calibration, including both mass and GC retention time calibrations. The combination of Custodion SPME sampling with Calion standards provides robust and rapid capability for in-field calibration.



Mininert Vials used with Custodion SPME Syringe and T-9 Instrument

Description	Qty.	Part No.
Standard Calion PV Mix (pkg. 1)	1	**NTSSMIX011019**
Standard Calion PV Mix (pkg. 3)	3	**NTSSMIX031019**

Calion IS internal standard mix is to be used with the SPS-3 and Needle Traps for semi-quantitative and quantitative analysis.



Internal Standard Ampule used with the SPS-3

Description	Qty.	Part No.
Calion IS	1	**NTSSMIX0160**

Liners, Seals and Filaments



Description	Part No.
GC Deactivated Injector Liner, removable 0. 048 in. ID, for needle trap and SPME	**NTSS2000021CG**
Replacement Merlin seal, 19 gauge for SPME and needle trap injector	**NTS25700012**
Replacement Filament Assembly for the T-9 Ion Source	**NTSS0070034**

Battery Options

Description	Part No.
Spare Li-Ion Rechargeable Battery for the T-9	**NTS02750005**
T-9 Single Bay Batter Charger	**NTS02890001**

Spare Parts

Description	Part No.
SPS Conventional Trap Assembly Mounts a Conventional Trap in a holder for use in the SPS-3 (**NTSSPS30001** and **NTSSPS30002**)	**NTSS0060016**
Handle Assembly for SPS Conventional Trap/Needle Trap adapter	**NTSS0060015**
Conventional Trap to Pump Interface for SPS-3	**NTSS0060095**
Needle Trap to Pump Interface for SPS-3	**NTSS00600071**
Clairion™ Seal Replacement Kit for the Pump to Needle Trap interface	**NTSSCL60711**
Seal Removal Tool	**NTSM0060124**
Clairion CT to Pump INTFC O-Ring Kit for the conventional Trap to Pump interface	**NTSSCL60708**
Conventional Holder Seal and O-Rings for SPS-3 for the conventional Trap holder	**NTSSPS30011**
IS Gasket Seal O-Ring Kit for SPS-3	**NTSSPS30013**
Conventional Handle Seal with O-Ring Kit for SPS-3	**NTSSPS30014**
Clairion Seal Replacement Kit for the NT-to-Pump interface	**NTSSCL60713**
SPS-3 Tool Kit	**NTSSPS30020**
T-9 Basic Tool Kit	**NTSTG080022**
Quick Disconnect External Gas Assembly. Quick connection adapter for use with regular gas cylinders. Not for use with the disposable He cartridges	**NTSSG080017**
Clairion Basic Air Pump, 110 V	**NTSS00600041**
Clairion Basic Air Pump, 220 V	**NTSS00600043**
External Battery Cable, 'Pig Tail'	**NTSCBL80020**

Gas Management

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

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NEW FID Gas Station

The FID gas station is a novel system that combines the reliability of the high purity PG or ultrahigh purity NM hydrogen generators with the superior performance of the zero air generators into a single compact instrument.



NEW Ultra Quiet Analytical Compressor

The Ultra Quiet Analytical compressor is the most dependable, trouble-free and quietest compressor for use with PerkinElmer instruments. This oil-free system incorporates features to provide years of reliability.



NEW Flowmeter Plus

The Flowmeter Plus is a valuable tool for troubleshooting detector problems, without needing to select gas type. Highly accurate in identifying leaks it offers a minimum detection limit of 0.0005 mL/min hydrogen and helium.



Ultra Clean Gas Filters

Gas purifiers remove contaminants from gas sources, thereby improving system performance. Cartridge systems make changing gas filters quick and easy. A base plate allows cartridges to be exchanged without introducing ambient air.



Gas Generators – Simply a Smarter Choice

Analytical gas generators can remove the requirement for high-pressure cylinder gases and are typically placed next to the instrument they are servicing. This removes any need for extended gas lines and negates any associated problems impacting on purity, cost and convenience.

The latest gas generators from PerkinElmer utilise new technologies in adsorbents, catalysts, and specialist micro dryers to produce a continual supply of ultra-high purity gases to your instrumentation. This all but eliminates the introduction of impurities, which can be reduced further by the installation of in-line gas purifiers.

Nitrogen Generators

EVO Nitrogen Generators



The EVO N_2 nitrogen generators are designed as a full 'plug and play' solution with integral oil free, low noise compressors. The EVO Nitrogen hybrid gas model was specifically designed to meet the flow, purity and pressure requirements of the LC/MS /MS applications of AB SCIEX with appropriate pressures and flows of nitrogen. The simple and proven pressure swing adsorption (PSA) technology is employed to remove nitrogen from compressed air. Carbon molecular sieves (CMS) adsorb remaining oxygen and traces of humidity. These generators require minimal maintenance and operator attention. They are CE CSA certified.

Technical Specifications for all Nitrogen Generators

Description	Specification
Purity	> 99.5% (less 2% O2)
Outlet Pressure	8 bar/120 psi
Height	64.1 cm (25.2 in.)
Width	48.2 cm (19 in.)
Depth	83.5 cm (32.9 in.)
Weight	121 kg (266 lbs)
Operating Temperature	+10 °C to +40 °C (+50 °F to +104 °F)
Operating Relative Humidity	0 – 80 % rF, no condense/0 – 99% rF with condense drain
Power Consumption	1300 Watt
Circuit Breaker	10 A for 230 V ; 15 A for 110 V
Heat Dissipation Approx	2700 Btu/h

Nitrogen Model	Flow Rate	Voltage (V)	Part No.
EVO N_2	25 L/min	115	**N9308587**
	25 L/min	220	**N9308573**
	35 L/min	115	**N9308588**
	35 L/min	220	**N9308574**
EVO N_2 Hybrid	Up to 10 L/min +/– 1.5 L/min (at atmospheric pressure) 35 L/min of AIR@116 psi	115	**N9308590**
	Up to 10 L/min +/– 1.5 L/min (at atmospheric pressure) 35 L/min of AIR@116 psi	220	**N9308576**

N_2 Whisper Generators

The Whisper nitrogen generator has been developed to meet specific requirements in terms of flow, purity and pressure in LC/MS applications. It can also be used for the evaporation of solvents in samples being analyzed. The simple high efficiency membrane technology allows nitrogen separation from other air components present within the supplied compressed air.

Better results: The constant purity of nitrogen improves system stability and ensures reproducible results.

Saving you money: Initial investment is typically paid back in less than a year. No plumbing is required to transfer gas from the storeroom to the lab.

Better lab efficiency: Constant supply of high quality nitrogen, in line with your application demands. Gas cylinders are often insufficient to ensure the large nitrogen volumes needed in LC/MS techniques.

Improved safety: Nitrogen is produced at low pressure and room temperature eliminating the risks related to high pressure gas bottle use and the hazards associated with liquid nitrogen.

Simple installation: A plug and play approach.
The wall-mounted installation saves precious bench space!

N_2 Mini Whisper Generators

Based upon the Whisper generator, the Mini Whisper Nitrogen generator provides the same high purity nitrogen, but at a lower flow rate. It is ideally suited to ELSD applications as well as LC/MS analysis.

The simple yet high efficiency membrane technology allows the separation of nitrogen from the other components of the compressed air inlet.

The low pressure drop allows the unit to be connected to an existing dry and oil-free compressed air source in the lab.



N_2 Mini Whisper Generator



N_2 Whisper Generator

Technical Specifications

Description	Whisper	Mini Whisper
Purity (based on outlet flow)	> 98 – 99.5%	> 98 – 99.5%
Outlet Pressure	7 bar	7 bar
Height	115 cm (45.3 in.)	73.5 cm (28.9 in.)
Width	48 cm (19 in.)	34.8 cm (13.7 in.)
Depth	26 cm (10.2 in.)	35 cm (13.8 in.)
Weight	15 kg (33 lbs) ; 18 kg (39 lbs); 21 kg (46 lbs)	8 kg (18 lbs)
Operating Temperature	+10 °C to +35 °C (+50 °F to +95 °F)	+10 °C to +35 °C (+50 °F to +95 °F)
Air Compressor Supplied	NO	NO
Electrical Requirements	None	None
Background Noise	None	None
Connections	1/4 G	1/4 G

Description	Flow Rate	Part No.
Whisper	40 L/min	**N9306285**
	80 L/min	**N9306286**
	120 L/min	**N9306287**
Mini Whisper	12 L/min	**N9306288**

Membrane Nitrogen Generators

PerkinElmer offers customers a new line of nitrogen generators to meet the growing need for cost effective and pure nitrogen. Membrane Nitrogen Generators are designed to supply single or multiple LC/MS instruments with dry nitrogen at purities of 98% to 99.5%. The generator can also be used for solvent evaporation as well as supplying dry nitrogen to analytical instruments.

Nitrogen is produced by utilizing a combination of filtration and membrane separation technologies. A high efficiency pre-filtration system pre-treats the compressed air to remove all contaminants down to 0.01 micron. Hollow fiber membranes subsequently separate the clean air into a concentrated nitrogen output stream and an oxygen enriched permeate stream, which is vented from the system. The combination of these technologies produces a continuous on demand supply of pure nitrogen.

LC/MS Nitrogen Generators with Integrated Compressors

Description	Specification
Purity	>98%
Min/Max Operating Pressure	101.5 psi/g
Height	70.1 cm (27.8 in.)
Width	51.1 cm (20.1 in.)
Depth	58.2 cm (22.9 in.)
Weight	135.2 kg (298 lbs)
Operating Temperature	+5 °C to +40 °C (+41 °F to +104 °F)
Port Connection Outlet	1/4 in. Compression Fitting
Electrical Requirements	120 V/60 Hz or 230 V/50 – 60 Hz ± 10%
Air Compressor	Yes
Flow Rates	30 L/min
Part No.	**N9303223 (120 V) ; N9303224 (230 V)**



Technical Specifications

Description	Low Flow NitroFlow Lab with built in compressor	N_2-22 Mid Flow	N_2-35 Mid Flow	N_2-45 High Flow
Purity	94.0 – 99.5%	95.0 – 99.5%	95.0 – 99.5%	95.0 – 99.5%
Min/Max Operating Pressure	8 bar (116 bar)	60/145 psig (4.0/10 barg)	60/145 psig (4.0/10 barg)	60/145 psig (4.0/10 barg)
Height	70 cm (27.6 in.)	13 cm (5.1 in.)	13 cm (5.1 in.)	140 cm (55.1 in.)
Width	31 cm (12.2 in.)	45 cm (17.8 in.)	45 cm (17.8 in.)	61 cm (24.0 in.)
Depth	90 cm (35.4 in.)	41 cm (16.1 in.)	41 cm (16.1 in.)	50 cm (20.0 in.)
Weight	127.4 kg (280 lbs)	36 kg (80 lbs)	41 kg (90 lbs)	114 kg (250 lbs)
Operating Temperature	+10 °C to +35 °C (+50 °F to +95 °F)	+15 °C to +35 °C (+60 °F to +95 °F)	+15 °C to +35 °C (+60 °F to +95 °F)	+15 °C to +35 °C (+60 °F to +95 °F)
Electrical Requirements	120 V/60 Hz, 20 Amp Nema 5	None	None	None
Air Compressor	Yes	No	No	No
Flow Rates	32 L/min	100 psi inlet – 20 L/min output – 99.0% purity	100 psi inlet – 30 L/min output – 99.0% purity	100 psi inlet – 53 L/min output – 99.0% purity
Part No.	**N9306213 (120 V) N9306214 (230 V)**	**N9306210**	**N9306211**	**N9306212**

NitroFlowLab; Integrated N_2 Generator and Compressor

Features and Benefits

- Complete 'Plug and Play' system
- Phthalate-free, no organic vapors
- 8,000 hours compressor warranty or two years
- Special design ensures quiet operation
- Dual oil-less air compressors

Ambient Temperature Range	50 °F – 95 °F (10 °C – 35 °C)
Ambient Pressure Range	103 mbar
Electrical Requirements	Standard with 115 V/60 Hz: 20 A/125 VAC; NEMA 5 – 20 straight blade. 230 V/50 Hz can be mounted locally as to local requirements
Power Conditioner	1400 Watts
Port Connections: Outlet Port	1/4 in. NPT



Model	Part No.	Flow Rate L/min	Purity %	Hydrocarbon Content (excluding methane) ppm	Delivery Pressure psig	Height (H) ins/cm	Width (W) ins/cm	Depth (D) ins/cm	Weight lbs/kg
NitroFlowLab 120 V/60 Hz	**N9306213**	10 – 30	94.0 – 99.5	<2	116	27.6/70	12.2/90	35.4/31	205/92.5
NitroFlowLab 230 V/50 Hz	**N9306214**	10 – 30	94.0 – 99.5	<2	116	27.6/70	12.2/90	35.4/31	205/92.5

N_2-45 High Flow

Features and Benefits

- Eliminates the need for costly, dangerous, inconvenient nitrogen cylinders in the laboratory
- Requires no electricity
- Compact design frees up valuable laboratory floor space
- Phthalate-free, no organic vapors

Ambient Temperature Range	72 °F (22 °C)
Max Recommended Inlet Air Temperature	110 °F (43 °C)
Inlet Air Temperature Range	60 °F – 95 °F (15 °C – 35 °C)
Electrical Requirements	None
Port Connections:	
Outlet Port	1/4 in. NPT
Inlet Port	1/4 in. NPT



Model	Part No.	Flow Rate L/min	Purity %	Min/Max Operating Pressure	Atmospheric Dewpoint	Height (H) ins/cm	Width (W) ins/cm	Depth (D) ins/cm	Weight (Empty) lbs/kg
N_2-45	**N9306212**	33 – 106	95.0 – 99.5	60 – 145	-58/-50	67/140	24/61	20/50	250/114

N_2-22 Mid Flow

Features and Benefits

- Eliminates the need for costly, dangerous, inconvenient nitrogen cylinders in the laboratory
- Requires no electricity
- Compact design frees up valuable laboratory floor space
- Phthalate-free, no organic vapors

Ambient Temperature Range	60 °F – 95 °F (15 °C – 35 °C)
Max Recommended Inlet Air Temperature	110 °F (43 °C)
Inlet Air Temperature Range	60 °F – 95 °F (15 °C – 35 °C)
Electrical Requirements	None
Port Connections:	
Outlet Port	1/4 in. NPT
Inlet Port	1/4 in. NPT



Model	Part No.	Flow Rate L/min	Purity %	Min/Max Operating Pressure psig	Atmospheric Dewpoint °F/°C	Height (H) ins/cm	Width (W) ins/cm	Depth (D) ins/cm	Weight (Empty) lbs/kg
N_2-22	**N9306210**	13 – 38	95.0 – 99.5	60 – 145	-58/-50	51.5/130	18 / 45	16.2/41	80/36

N_2-35 Mid Flow

Features and Benefits

- Eliminates the need for costly, dangerous, inconvenient nitrogen cylinders in the laboratory
- Requires no electricity
- Compact design frees up valuable laboratory floor space
- Phthalate-free, no organic vapors

Ambient Temperature Range	60 °F – 95 °F (15 °C – 35 °C)
Max Recommended Inlet Air Temperature	110 °F (43 °C)
Inlet Air Temperature Range	60 °F – 95 °F (15 °C – 35 °C)
Electrical Requirements	None
Port Connections:	
Outlet Port	1/4 in. NPT
Inlet Port	1/4 in. NPT



Model	Part No.	Flow Rate L/min	Purity %	Min/Max Operating Pressure	Atmospheric Dewpoint °F/°C	Height (H) ins/cm	Width (W) ins/cm	Depth (D) ins/cm	Weight (Empty) lbs/kg
N_2-35	**N9306211**	20 – 44	95.0 – 99.5	60 – 145	-58/-50	51.5/130	18/45	16.2/41	80/36

Ultra Clean Gas Filters for LC/MS

Wrenches to change filters is a thing of the past. There is no longer a need for loosening and tightening fittings every time a trap is changed, which may contaminate your system during the process. Cartridge systems make changing gas filters quick and easy. A base plate allows cartridges to be exchanged without introducing ambient air. Spring-loaded check valves seal when a filter is removed and open only when a new filter has been locked in place.

Carrier Gas Purity

Carrier gas should contain less than 1 ppm of oxygen, moisture, or other trace contaminants to prevent column degradation, increase column lifetime, and decrease stationary phase bleed. The expense of using high purity gases in combination with carrier gas line purifiers will be offset by longer column lifetime and less GC maintenance.

Contaminants cause ghost peaks to appear during temperature programming and degrade the validity of analytical data. Make-up gas also should be contaminant-free, or baseline fluctuations and excessive detector noise can occur. Detector gases should be free of water and hydrocarbons, or excessive baseline noise can result. Gas purifiers remove these contaminants from gas sources, thereby improving system performance.

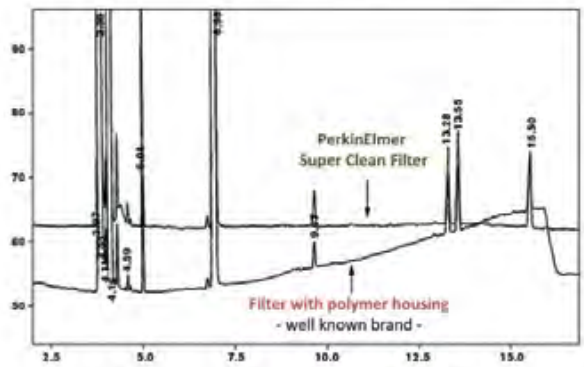
When the easy to read indicators change color it is a signal on a major gas carrier problem; a major leak upstream or downstream, a high concentration of contaminants or to late replacement or filter replacement is overdue. This is the time to swap a filter. To prevent contamination or saturation issues, the filter should be swapped every 12 months, as a minimum, regardless the indicator has changed color or not. Some high throughput applications may need the filter changing every 6 months.



Features and Benefits

- High purity output insures 99.9999% pure gas
- No tool replacement of filter cartridges, no need to shut gas flow off with quick disconnect base plate
- Easy to read indicators to determine replacement interval
- Helium and Hydrogen specific cartridges available: operational with 15 minute purge after installation
- Safety shielding of glass filter with plastic cover
- Serial numbered for ease of tracking

Figure 6: Comparing baseline performance with PerkinElmer SuperClean filters vs. a competitive polymer housed filter.



Ultra Clean Gas Filters and Kits for LC/MS

To meet the high flow needs of the LC/MS system, the hydrocarbon or moisture filled cartridges are positioned and placed in parallel. The incoming gas stream is split equally between the cartridges and the two streams are re-joined after purification but before the gas exits the base plate. Get up and running with speed and benefit from increased sensitivity by removing unwanted moisture and hydrocarbons.

Ultra-High Capacity Hydrocarbon Filter Bundle

Up to 20 L/min of hydrocarbon-free nitrogen per minute.

Capacity	
HC	24 g (as *n*-butane)
Description	**Specification**
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	20 L/min
Usable For	Nitrogen
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Estimated Lifetime	3 to 6 months
Part No.	**N9306823**



Ultra-High Capacity Moisture Filter Bundle

High Flow moisture filters are ideal for central purifying solutions. Moisture in carrier gas lines will prematurely degrade oxygen and hydrocarbon traps and increase detector noise. As a precaution, we highly recommend installing a moisture trap before the hydrocarbon and oxygen traps on all carrier gas lines.

Capacity	
H_2O	14.4 g
Description	**Specification**
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	20 L/min
Usable For	Inert carrier gas, He, H_2, N_2, Ar, Air
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Estimated Lifetime	3 to 6 months
Part No.	**N9306824**



Ultra Clean Filter Kits for LC/MS

Description	Qty.	Part No.
Ultra Clean 2 High Flow Hydrocarbon Filter Kit – 1/4 in. Brass: Includes (1) 2 position high flow base plate with 1/4 in. Brass inlet/outlet fittings, (2) High Flow Hydrocarbon Traps, and a 1/4 in. Brass Particle Filter	Kit	**N9306840**
Ultra Clean 2 High Flow Hydrocarbon Filter Kit – 1/4 in. Stainless Steel: Includes (1) 2 position high flow base plate with 1/4 in. Stainless Steel inlet/outlet fittings, (2) High Flow Hydrocarbon Traps, and a 1/4 in. Brass Particle Filter	Kit	**N9306841**



Ultra Clean Filter Base Plates for GC/MS

Description	Qty.	Part No.
Ultra Clean Base plate 1 Position – 1/4 in. Brass	1	**N9306800**
Ultra Clean Base plate 1 Position – 1/8 in. Brass	1	**N9306801**
Ultra Clean Base plate 1 Position – 1/4 in. Stainless Steel	1	**N9306802**
Ultra Clean Base plate 1 Position – 1/8 in. Stainless Steel	1	**N9306803**
Ultra Clean Base plate 2 Position – 1/4 in. Brass	1	**N9306804**
Ultra Clean Base plate 2 Position – 1/8 in. Brass	1	**N9306805**
Ultra Clean Base plate 2 Position – 1/4 in. Stainless Steel	1	**N9306806**
Ultra Clean Base plate 2 Position – 1/8 in. Stainless Steel	1	**N9306807**
Ultra Clean Base plate 3 Position – 1/4 in. Brass	1	**N9306810**
Ultra Clean Base plate 3 Position – 1/8 in. Brass	1	**N9306811**
Ultra Clean Base plate 3 Position – 1/4 in. Stainless Steel	1	**N9306812**
Ultra Clean Base plate 3 Position – 1/8 in. Stainless Steel	1	**N9306813**



Replacement Filter Bundles for LC/MS

Description	Qty.	Part No.
Ultra Clean High Flow Hydrocarbon Filter Bundle: Includes (2) High Flow Hydrocarbon Filters	1 bundle of 2 cartridges	**N9306823**
Ultra Clean High Flow Moisture Filter Bundle: Includes (2) High Flow Moisture Filters	1 bundle of 2 cartridges	**N9306824**



Ultra Clean Replacement Individual Cartridge Filters for GC and GC/MS

Description	Qty.	Part No.
Ultra Clean Moisture Filter	1	**N9306814**
Ultra Clean Oxygen Filter	1	**N9306815**
Ultra Clean Hydrocarbon Filter	1	**N9306816**
Ultra Clean Combi (Hydrocarbon/Moisture) Filter	1	**N9306818**
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Filter	1	**N9306819**
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Helium-specific Filter	1	**N9306820**
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Hydrogen-specific Filter	1	**N9306822**



Base Plates

Ultra Clean High Flow Base Plates for LC/MS

Description	Qty.	Part No.
Ultra Clean High Flow base plate 2 position – 1/4 in. Brass: Includes 1/4 in. Stainless Steel particle filter	1	**N9306808**
Ultra Clean High Flow base plate 2 position – 1/4 in. Brass: Includes 1/4 in. Stainless Steel particle filter	1	**N9306809**



Accessories

Particle Filter for LC/MS

Description	Qty.	Part No.
Ultra Clean 0.5 Micron Particle Filter – 1/4 in. Brass	1	**N9306856**
Ultra Clean 0.5 Micron Particle Filter Cup Replacement Pack	12	**N9306857**



Ultra Clean Base Plate Fittings for LC/MS

Description	Qty.	Part No.
Ultra Clean High Flow Connector Set – 1/4 in. Brass	6	**N9306850**
Ultra Clean High Flow Connector Set – 1/4 in. Stainless steel	6	**N9306851**



Ultra Clean Base Plate Flush Cap Replacement Set for LC/MS

Description	Qty.	Part No.
Ultra Clean High Flow Flush Cap Replacement Set	2	**N9306853**



Wall Mounting Bracket for All Cartridge Base Plates

Description	Qty.	Part No.
Ultra Clean Wall-mounting Bracket Set	1	**N9306855**



Replacement O-Rings for All Cartridge Base Plates

Description	Qty.	Part No.
Ultra Clean Base plate O-Ring Replacement Set	20	**N9306854**



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 L/min with 200 psi maximum operating pressure.

A polycarbonate shield surrounding 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.



Features and Benefits

- Two indicators – for oxygen and moisture
- High capacity and efficiency in a single, easy to replace, cartridge
- Double-seal construction for safety
- Check valves protect gas lines during replacement
- Includes mounting hardware for bench or wall

Description	Part No.
Advanced Filter System	**N9303963**
Replacement Cartridge for Oxygen, Water and Hydrocarbons	**N9303964**
Manifold and Mounting Hardware	**N9303139**

Description	Capacity	Efficiency
Oxygen	850 cc	<5 ppb
Water	12 g	<20 ppb
Hydrocarbons	8 g	<5 ppb

Ultra Clean Gas Filters

Wrenches to change filters is a thing of the past. There is no longer a need for loosening and tightening fittings every time a trap is changed, which may contaminate your system during the process. Cartridge systems make changing gas filters quick and easy. A base plate allows cartridges to be exchanged without introducing ambient air. Spring-loaded check valves seal when a filter is removed and open only when a new filter has been locked in place.



Features and Benefits

- High purity output insures 99.9999% pure gas
- No tool replacement of filter cartridges, no need to shut gas flow off with quick disconnect base plate
- Easy to read indicators to determine replacement interval
- Helium and Hydrogen specific cartridges available: operational with 15 minute purge after installation
- Safety shielding of glass filter with plastic cover
- Serial numbered for ease of tracking

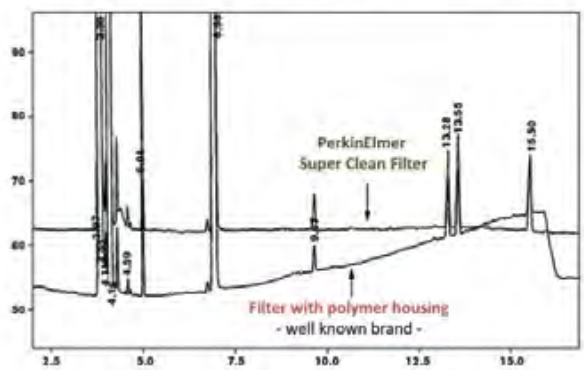
Carrier Gas Purity

Carrier gas should contain less than 1 ppm of oxygen, moisture, or other trace contaminants to prevent column degradation, increase column lifetime, and decrease stationary phase bleed. The expense of using high purity gases in combination with carrier gas line purifiers will be offset by longer column lifetime and less GC maintenance.

Contaminants cause ghost peaks to appear during temperature programming and degrade the validity of analytical data. Make-up gas also should be contaminant-free, or baseline fluctuations and excessive detector noise can occur. Detector gases should be free of water and hydrocarbons, or excessive baseline noise can result. Gas purifiers remove these contaminants from gas sources, thereby improving system performance.

When the easy to read indicators change color it is a signal on a major gas carrier problem; a major leak upstream or downstream, a high concentration of contaminants or to late replacement or filter replacement is overdue. This is the time to swap a filter. To prevent contamination or saturation issues, the filter should be swapped every 12 months, as a minimum, regardless the indicator has changed color or not. Some high throughput applications may need the filter changing every 6 months.

Figure 5: Comparing baseline performance with PerkinElmer SuperClean filters vs. a competitive polymer housed filter.



Ultra Clean Gas Filter Kits for GC and GC/MS

Available with different sized fittings, (1/8 in. or 1/4 in.) in brass or stainless steel, these complete filter kits contain everything you need to quickly and easy install into your analytical system; instantly assuring you of a continual high purity gas supply. A full listing of individual replacement cartridges is listed from page 162.

Triple Filter Kit for MS/ECD/NPD

The triple combination filter kit is ideal for purifying GC/MS carrier gases. It contains oxygen, moisture and hydrocarbon scrubbers in one easy to change economical cartridge. There is of a range of brass and stainless steel base plate fittings and options for hydrocarbon trap to be helium or hydrogen specific, in addition to the general carrier gas.

Description	Qty.	Part No.
PerkinElmer Triple (Oxygen/Moisture/Hydrocarbon) Filter Kit – 1/4 in. Brass Kit: Includes (1) 1 position base plate with 1/4 in. Brass inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap	Kit	**N9306828**
PerkinElmer Triple (Oxygen/Moisture/Hydrocarbon) Filter Kit – 1/8 in. Brass kit: Includes (1) 1 position base plate with 1/8 in. Brass inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap	Kit	**N9306829**
PerkinElmer Triple (Oxygen/Moisture/Hydrocarbon) Filter Kit – 1/4 in. Stainless Steel kit: Includes (1) 1 position base plate with 1/4 in. Stainless Steel inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap	Kit	**N9306830**
PerkinElmer Triple (Oxygen/Moisture/Hydrocarbon) Filter Kit – 1/8 in. Stainless Steel kit: Includes (1) 1 position base plate with 1/8 in. Stainless Steel inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap	Kit	**N9306831**
PerkinElmer Triple filter (Oxygen/Moisture/Hydrocarbon)	1	**N9306819**
PerkinElmer Triple filter (Oxygen/Moisture/Hydrocarbon): Helium specific filter	1	**N9306820**
PerkinElmer Triple filter (Oxygen/Moisture/Hydrocarbon): Hydrogen specific filter	1	**N9306822**



Configuration	Benefit
GC/MS	Higher data accuracy and less maintenance
GC/ECD	Greater sensitivity
GC/TCD	Greater sensitivity and less maintenance

Complete Triple Filter Bundle Kit for FID

This complete filter kit is the perfect all-in-one solution for purifying Flame Ionization Detector (FID) fuel gases together with the carrier gas. The triple filter simultaneously hydrocarbons, moisture and oxygen are removed from the carrier gas and combi filter removes both moisture and hydrocarbons from the hydrogen and air fuel gases. The kit consists of one triple filter and two combi filters (hydrogen and air) together with one three position base plate. There are a range of base plate fittings options available.

Description	Qty.	Part No.
PerkinElmer 3 Filters Kit – 1/4 in. Brass: Includes (1) 3 position base plate with 1/4 in. Brass inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	Kit	**N9306842**
PerkinElmer 3 Filters Kit – 1/8 in. Brass: Includes (1) 3 position base plate with 1/8 in. Brass inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	Kit	**N9306843**
PerkinElmer 3 Filters Kit – 1/4 in. stainless steel: Includes (1) 3 position base plate with 1/4 in. stainless steel inlet/outlet fittings and (1) Oxygen/ Moisture/ Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	Kit	**N9306844**
PerkinElmer 3 Filters Kit – 1/8 in. stainless steel: Includes (1) 3 position base plate with 1/8 in. stainless steel inlet/outlet fittings and (1) Oxygen/Moisture/Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	Kit	**N9306845**
PerkinElmer triple filter – (Oxygen/Moisture/Hydrocarbon)	1	**N9306819**
PerkinElmer Combi (Hydrocarbon/Moisture) Filter	1	**N9306818**
PerkinElmer Filter Bundles: Includes (1) Oxygen/Moisture/Hydrocarbon Trap and (2) Hydrocarbon/Moisture Traps	3	**N9306826**



Configuration	Benefit
GC/FID	Improved reproducibility and sensitivity

Ultra Clean Gas Filters for GC and GC/MS

The easy to use leak-tight cartridge system enables rapid change of exhausted cartridges without interrupting supply or system operation. A wide range of individual cartridges or combination cartridges are available to suit a variety of applications.

Ultra-High Capacity Moisture Filter

Moisture in carrier gas lines will prematurely degrade oxygen and hydrocarbon traps and increase detector noise. As a precaution, we highly recommend installing a moisture trap before the hydrocarbon and oxygen traps on all carrier gas lines.

Capacity	
H_2O	7.2 g
Description	**Specification**
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H_2, N_2, Ar, Air
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	**N9306814**



Ultra-High Capacity Oxygen Filter

Oxygen is a column killer – it is present even in UHP gases. Because oxygen can enter a gas line at any fitting or during gas bottle exchange, the oxygen trap should be the last connection before the gas line enters the chromatograph.

Capacity	
O_2	150 mL
Description	**Specification**
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H_2, N_2, Ar
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	**N9306815**



Ultra-High Capacity Hydrocarbon Filter

Use a hydrocarbon trap if your gas has a potential source of hydrocarbon contaminants or if you suspect you are observing carrier gas ghost peaks. Install the hydrocarbon trap after the moisture trap, to prevent moisture from degrading the hydrocarbon-trapping ability of the activated carbon in the hydrocarbon trap.

Capacity	
HC	12 g (as *n*-butane)
Description	**Specification**
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H_2, N_2, Ar, Air
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	**N9306816**



High Capacity Combi Filter

This filter is perfect for purifying Flame Ionization Detector (FID) fuel gases, removing both moisture and hydrocarbons. Using this filter for FID hydrogen and air will produce a stable baseline, improving overall reproducibility and sensitivity. Ideal for use in combination with a zero air generator.

Capacity	
H_2O	3.5 g
HC	6 g (as *n*-butane)
Description	**Specification**
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H_2, N_2, Ar, Air
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	**N9306818**



High Capacity Triple Filter

The triple trap is ideal for purifying carrier gas. It contains oxygen, moisture and hydrocarbon scrubbers in one easy to change economical cartridge.

Capacity	
H_2O	1.8 g
O_2	75 mL
HC	4 g (as *n*-butane)
Description	**Specification**
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	Inert carrier gas, He, H_2, N_2, Ar
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	**N9306819**



High Capacity Triple Filter Helium Specific

The helium-specific triple trap is ideal for purifying helium in GC/MS systems. This trap is packed and purged under helium and contains oxygen, moisture and hydrocarbon scrubbers in one cartridge.

Capacity	
H_2O	1.8 g
O_2	75 mL
HC	4 g (as *n*-butane)
Description	**Specification**
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	He
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	**N9306820**



High Capacity Triple Filter Hydrogen Specific

The hydrogen-specific triple trap is ideal for purifying hydrogen in GC/MS systems. This trap is packed and purged under hydrogen and contains oxygen, moisture and hydrocarbon scrubbers in one cartridge.

Capacity	
H_2O	1.8 g
O_2	75 mL
HC	4 g (as *n*-butane)
Description	**Specification**
Outlet Gas Quality (%)	> 99.9999
Maximum Pressure	11 bar (160 psi)
Maximum Flow	7 L/min
Usable For	H_2
Dimensions	24 cm x Ø 4.4 cm
Weight	0.26 Kg
Part No.	**N9306822**



Ultra Clean Replacement Individual Cartridge Filters for GC and GC/MS

Description	Qty.	Part No.
Ultra Clean Moisture Filter	1	**N9306814**
Ultra Clean Oxygen Filter	1	**N9306815**
Ultra Clean Hydrocarbon Filter	1	**N9306816**
Ultra Clean Combi (Hydrocarbon/Moisture) Filter	1	**N9306818**
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Filter	1	**N9306819**
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Helium-Specific Filter	1	**N9306820**
Ultra Clean Triple (Oxygen/Moisture/Hydrocarbon) Hydrogen-Specific Filter	1	**N9306822**



Accessories

Ultra Clean Base Plate Flush Cap Replacement Set for GC/MS

Description	Qty.	Part No.
Ultra Clean Flush Cap Replacement Set	2	**N9306852**



Wall Mounting Bracket for All Cartridge Base Plates

Description	Qty.	Part No.
Ultra Clean Wall-Mounting Bracket Set	1	**N9306855**



Replacement O-Rings for All Cartridge Base Plates

Description	Qty.	Part No.
Ultra Clean Base Plate O-Ring Replacement Set	20	**N9306854**



Ultra Clean Base Plate Fittings for LC/MS

Description	Qty.	Part No.
Ultra Clean Connector Set – 1/4 in. Brass	6	**N9306846**
Ultra Clean Connector Set – 1/8 in. Brass	6	**N9306847**
Ultra Clean Connector Set – 1/4 in. Stainless Steel	6	**N9306848**
Ultra Clean Connector Set – 1/8 in. Stainless Steel	6	**N9306849**



Click-On Inline Super Clean Purifiers

Using the Click-On Connectors lets you change the trap without introducing contaminants 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 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
- No open gas line when changing the trap
- Helium Specific Glass Indicating Triple Trap is ideal for GC/MS



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**

Stainless Steel Trap Kits

Description	Connector (Qty.)	Part No.
Combination: Oxygen/Moisture Trap	1/8 in. Brass (2)	**N9306108**
Combination: Oxygen/Moisture Trap	1/8 in. Stainless Steel (2)	**N9306109**
Combination: Moisture/Hydrocarbons Trap	1/8 in. Brass (2)	**N9306117**
Combination: Moisture/Hydrocarbons Trap	1/8 in. Stainless Steel (2)	**N9306118**
Triple: Oxygen/Moisture/Hydrocarbons Trap	1/8 in. Brass (2)	**N9306110**
Triple: Oxygen/Moisture/Hydrocarbons Trap	1/8 in. Stainless Steel (2)	**N9306111**
Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8 in. Brass (2)	**N9306112**
Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8 in. Stainless Steel (2)	**N9306113**

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

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 in. 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	Not Included	**N9306107**
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8 in. Brass (2)	**N9306114**
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8 in. Stainless Steel (2)	**N9306116**

Product Specifications

Purifier Type	Gas Quality*	Max Pressure	Max Flow	Use For	H_2O	Capacity O_2	Hydrocarbons	Est. Lifetime
Moisture	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas He, Air, H_2	21 g	–	–	> 3 years
Oxygen	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas	–	3,000 mL	–	> 3 years
Hydrocarbons	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas Air, H_2	–	–	36 g (as *n*-butane)	> 3 years
Combination Moisture/ Hydrocarbons	100.00%	11 bar, 160 psi	25 L/min	Inert carrier gas He, Air, H_2	10 g	–	18 g (as *n*-butane)	> 2 years
Indicating Triple Moisture/ Oxygen/Hydrocarbons	100.00%	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	100.00%	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

Hydrocarbon Trap



Description	Part No.
Hydrocarbon Trap	N9301192

Use our activated charcoal in-line trap to remove gaseous hydrocarbons (C5 and heavier) from nitrogen, hydrogen and inert carrier gas supplies. Recommended for use with purge and trap apparatuses, high-sensitivity FID operations and with GC carrier gases for trace analyses. Frits in each end prevent particulates from entering the gas stream. Trap is shipped filled with helium. Maximum pressure is 1000 psi (69 bar). Dimensions are 5 x 37 cm including fittings. Weight is 1.0 kg.

High Capacity Hydrocarbon Trap



Description	Part No.
High Capacity Hydrocarbon Trap	N9301208

- Eliminates potential hydrocarbon background to insure best LC/MS results
- Contains 750 cc of preconditioned activated charcoal
- Stainless steel body. 1/4 in. brass compression fittings with ferrules for installation
- Maximum pressure 200 psi
- Recommended flow rate up to 2 Liters/minute
- Will remove hydrocarbon impurities (50 ppm or less) from inert gases, nitrogen and hydrogen at room temperature to low ppb range
- Capacity of 67 g. of hydrocarbons C5 and heavier
- 10 µm stainless steel porous frits protect gas stream from particulates
- Individually helium leak tested. Shipped filled with helium
- 2 in. OD x 20 in. L (including fittings)
- Weight 3.5 lb/1.6 kg

Indicating Oxygen Trap



Description	Part No.
Indicating Oxygen Trap	N9301191

This high-efficiency indicator trap reduces oxygen to less than 0.1 ppm. Changes color from bright green to gray when adsorption capacity is depleted. Oxygen capacity for this compact unit is 0.05 g at STP. The non-contaminating, heavy-wall inner glass tube of adsorbent is protected from breakage by the outer plastic tube. Maximum pressure is 100 psi (6.9 bar). Dimensions are 3.2 x 26 cm including fittings. Weight is 0.2 kg.

Oxygen Trap



Description	Part No.
Oxygen Trap	N9301179

This high-capacity, high-efficiency trap is used for long-term protection of capillary column stationary phases against oxidation at GC operating temperatures. Can remove 3.5 g of oxygen and has an output efficiency of less than 10 ppb oxygen concentration at the outlet. Effective at removing sulfur compounds, such as hydrogen sulfide and mercaptans. Intended for use with non-oxidizing gases such as He, Ar, N_2, H_2 or CH_4, containing less than 1% oxygen. The trap is filled with 500 cc of active oxygen adsorbent that binds covalently with oxygen; no gas is generated from this reaction. Maximum pressure is 1000 psi (69 bar). Dimensions are 5 x 37 cm including fittings, weight is 1.2 kg.

Safe Glass Moisture Trap



Description	Part No.
Safe Glass Moisture Trap	N9301193

Gas contacts only glass, metal and the adsorbents for purity. The Drierite® indicator and molecular sieve 5A are packed in glass protected by an outer plastic tube in the event that the glass breaks. Unique loading design allows operation in any orientation without channeling. Designed for GC detectors that require high purity gases and recommended for ELCD and ECD systems where moisture and contamination are a problem. Maximum pressure is 100 psi (6.9 bar). Dimensions are 3.2 x 26 cm including fittings. Weight is 0.3 kg.

Gas In-line Filter



Description	Part No.
Gas In-line Filter	N9301178

The Gas In-line Filter Trap removes moisture, oil and dust from nitrogen or inert supply gases. It has 400 cc total volume of molecular sieve 5A and an indicator in a clear acrylic tube. The indicating Drierite® changes color at low relative humidity indicating that the packing must be changed. Base-plate version is available for free-standing orientation. Maximum pressure is 100 psi (6.9 bar). Dimensions are 6 x 43 cm including fittings. Weight is 1.0 kg.

Gas Generators – Simply a Smarter Choice

Analytical gas generators can remove the requirement for high-pressure cylinder gases and are typically placed next to the instrument they are servicing. This removes any need for extended gas lines and negates any associated problems impacting on purity, cost and convenience.

The latest gas generators from PerkinElmer utilise new technologies in adsorbents, catalysts, and specialist micro dryers to produce a continual supply of ultra-high purity gases to your instrumentation. This all but eliminates the introduction of impurities, which can be reduced further by the installation of in-line gas purifiers.

Hydrogen Generators

PerkinElmer offer a range of hydrogen generators to cater for the varying configurations of gas supply required across different laboratories and applications.

Hydrogen Generator Options and Capabilities

Model	GC Detector Gas Applications	GC, GC/MS Carrier Gas Applications	Zero Air	Automatic Cascading Capability	Desiccant Cartridge to Replace
PG Plus	■			■	
NM Plus	■	■		■	
FID Gas station Plus	■	■	■		
High Purity	■				■
Ultra High Purity	■	■			

PG-H_2 Plus Hydrogen Generators

The PG (Pure Gas) hydrogen generators 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 which can affect the purity of the hydrogen.



A Safe Source of Hydrogen

The PG-H_2 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. They are CE CSA FCC certified.

Applications

This series of generators are ideal for use with GC detectors such as FID, NPD, TCD and FPD.

Technical Specifications for PG-H_2 Plus Models

Description	Specification
Purity	99.999%/hydrocarbon free < 0.1 ppm
Delivery Pressure	20 – 160 psig/1.4-11 barg
Height	43 cm (16.9 in.)
Width	23 cm (9.1 in.)
Depth	36 cm (14.2 in.)
Weight	20 kg (44 lbs)
Ambient Temperature Range	-20 °C to + 60 °C (-4 °F to + 140 °F)
Water Quality	Deionized or distilled <10 uS conductivity
Supply Voltage Range	230 V/50 – 60 Hz – 110 V/60 Hz – 100 V/60 Hz
Fitting	1/8 in. for the H_2 outlet

PG-H_2 Plus Generator Models

Flow Rate	Part No.
100 mL/min	**N9308577**
160 mL/min	**N9308578**
250 mL/min	**N9308579**
500 mL/min	**N9308580**

PG-H_2 Plus Generator Replacement Parts

Description	Part No.
Deionizer Bag	**N9307097**

NM-H_2 Plus Hydrogen Generators

The NM (No Maintenance) series of hydrogen generators 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. The generators offer silent operation and require only deionized or distilled water with no caustic solutions which can affect the purity of the hydrogen.

No Maintenance

The proprietary auto drying technology has facilitated a design that does not require a desiccant cartridge, yet produces a constant supply of dry, ultra-high purity hydrogen. As the PG-H_2 and the NM 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.

Applications

The NM-H_2 Hydrogen Pure Gas Generators enhances the high performance of the PG Plus series, with the addition of a unique no maintenance purification system. It provides a stream of ultra-high purity hydrogen for both carrier gas and detector gas applications, including MS.

Robust Supply – 100% Up Time

Multiple generators can be set up in parallel to spread the load of gas generation, known as cascading. Building in a level of spare capacity with a master/slave set up ensures that there is no interruption in supply.

The NM-H_2 generators are the only generators on the market that automatically cascade, no lab personal intervention is required ensuring the smooth running of your laboratory around the clock.



Technical Specifications for NM-H_2 Plus Models

Description	Specification
Purity	99.9999%/hydrocarbon free < 0.1 ppm
Delivery Pressure	20 – 160 psig/1.4 – 11 barg
Height	43 cm (16.9 in.)
Width	23 cm (9.1 in.)
Depth	36 cm (14.2 in.)
Weight	20 kg (44 lbs)
Ambient Temperature Range	-20 °C to + 60 °C (-4 °F to + 140 °F)
Water Quality	Deionized or distilled <10 uS conductivity
Supply Voltage Range	230 V/50 – 60 Hz – 110 V/60 Hz – 100 V/60 Hz
Fitting	1/8 in. for the H_2 outlet

NM-H_2 Plus Generator Models

Flow Rate	Part No.
100 mL/min	**N9308581**
160 mL/min	**N9308582**
250 mL/min	**N9308583**
500 mL/min	**N9308584**
1000 mL/min	**N9308585**

PG-H_2 Plus NM-H_2 Plus Generator Accessories

Description	Part No.
I/O Board	**N9307094**
Cable for Cascading*	**N9307093**
Remote Control RS-232 (includes converter, cables and software)*	**N9307095**
Auto Refill *	**N9307096**

* Requires I/O Board

NM-H_2 Plus Generator Replacement Parts

Description	Part No.
Deionizer Bag	**N9307097**

High Purity Hydrogen Generators

Our high purity hydrogen gas generators offer the optimum combination of safe operation, reliability and performance. Utilizing field proven PEM cell technology, hydrogen is produced on demand from deionized water and electricity at low pressure and with minimal stored volume. Innovative control software allows unrivalled operational safety and reliability. These models ideally supply fuel gas to all known GC combustion detectors used in today's laboratory workflows.



Features and Benefits

- Ultra safe operation
- >99.999% purity
- High purity guaranteed, 24/7
- Class leading PEM cell featuring 2-year warranty as standard
- CE, UL and CSA approved
- Low life cycle cost, excellent return on investment
- Large capacity water tank with optional Auto Water Fill

Technical Specifications

Description	Specification
Purity	99.999%
Delivery Pressure	5 – 100 psi/g
Height	46 cm (17.9 in.)
Width	35 cm (13.5 in.)
Depth	44 cm (17.2 in.)
Weight	20 kg (44.1 lbs)
Ambient Temperature Range	+5 °C to +40 °C (+41 °F to +104 °F)
Water Quality	Deionized, ASTM® II, >1MΩ, <1 µS, filtered to <100 µm
Supply Voltage Range	Universal 120/230 V ± 10% (60/50 Hz)
Fitting	Hydrogen Outlet: 1/8 in. compression fitting Water Drain: quick release push in fitting

High Purity Generator Models

Flow Rate	Part No.
160 mL/min (20H Model)	**N9303225**
250 mL/min (40H Model)	**N9303226**
500 mL/min (60H Model)	**N9303227**
1000 mL/min	**Not Available**

Ultra High Purity Hydrogen Generators

Our ultra high purity hydrogen gas generators offer the optimum combination of safe operation, reliability and performance. Utilizing field proven PEM cell technology, hydrogen is produced on demand from deionized water and electricity at low pressure and with minimal stored volume. Innovative control software allows unrivalled operational safety and reliability. These models ideally supply fuel gas to all known GC combustion detectors used in today's laboratory workflows.



Features and Benefits

- Ultra safe operation
- >99.9999% purity
- High purity guaranteed, 24/7
- Class leading PEM cell featuring 2-year warranty as standard
- CE, UL and CSA approved
- Low life cycle cost, excellent return on investment
- Large capacity water tank with optional Auto Water Fill

Technical Specifications

Description	Specification
Purity	99.99995%
Delivery Pressure	10 – 100 psi/g
Height	46 cm (17.9 in.)
Width	35 cm (13.5 in.)
Depth	47 cm (18.5 in.)
Weight	21 kg (45.2 lbs)*
Ambient Temperature Range	+5 °C to +40 °C (+41 °F to +104 °F)
Water Quality	Deionized, ASTM® II, >1MΩ, <1 µS, filtered to <100 µm
Supply Voltage Range	Universal 120/230 V ± 10% (60/50 Hz)
Fitting	Hydrogen Outlet: 1/8 in. compression fitting Water Drain: quick release push in fitting

* 1100 mL/min model is 24 kg (51.8 lbs)

Ultra High Purity Generator Models

Flow Rate	Part No.
160 mL/min (20H-MD Model)	**N9303201**
250 mL/min (40H-MD Model)	**N9303202**
500 mL/min (60H-MD Model)	**N9303203**
1100 mL/min (110H-MD Model)	**N9303204**

FID Gas Station

NEW

The FID gas station is a novel system that combines the reliability of the high purity PG or ultrahigh purity NM hydrogen generators with the superior performance of the zero air generators into a single compact instrument. Designed with space saving in mind, it sits directly under the GC to conserve bench space. You can also apply the FID gas station to GCMS systems with the simple addition of a drawer tray for the MS to rest on. If you want to benefit from the space saving design, but only require a H_2 generator than that is also an option.



Features and Benefits

- H_2 flow rate from 100-1000 mL/min
- H_2 pressure up to 11 bar
- Zero air flow rates 5 L/min
- Zero air purity <0.1 ppm
- Minimal maintenance
- CE, CSA, FCC certified

Technical Specifications

Description	Capability	Flow Rate	Part No.
FID Station PG Plus	H_2	150 mL/min	**N9300023**
FID Station PG Plus	H_2	260 mL/min	**N9300024**
FID Station NM Plus	H_2	150 mL/min	**N9300020**
FID Station NM Plus	H_2	350 mL/min	**N9300021**
FID Station NM Plus	H_2	650 mL/min	**N9300022**
FID Station PG Plus	H_2 and Air	150 mL/min + Air 1500 mL/min	**N9300018**
FID Station PG Plus	H_2 and Air	260 mL/min + Air 1500 mL/min	**N9300019**
FID Station NM Plus	H_2 and Air	150 mL/min + Air 1500 mL/min	**N9300015**
FID Station NM Plus	H_2 and Air	350 mL/min + Air 1500 mL/min	**N9300016**
FID Station NM Plus	H_2 and Air	650 mL/min + Air 1500 mL/min	**N9300017**
FID station NM Plus extension drawer			**N9308567**

Zero and Ultra Air Generators

The Zero and 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 hydrocarbon 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 hydrocarbon pollutants to less than 0.1 ppm, and NOx contaminants to 1 ppm. Carbon dioxide is also removed to about 1 ppm levels. They are CE CSA FCC certified.



Wall Mountable

Specifications for Zero and Ultra Zero Air

Description	Specification
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 in. NPT
Outlet Port	1/8 in. NPT

Ultra Zero Air Generators

Features and Benefits

- Purity: < 0.1 ppm hydrocarbon; < 0.1 ppm CO; < 1 ppm NOx; < 5 ppm CO_2
- 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
- All models come without a compressor. An oil free compressor is required
- CE, CSA certified

Specifications for Zero Air

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

Specifications for Ultra Zero Air

Outlet Ultra Zero Air	Outlet Carbon Dioxide Concentration	Outlet Nitrogen Oxides Concentration	Outlet Dewpoint (°C)	Electrical Requirements	Part No.
1.5 L/min	< 5 ppm	< 0.1 ppm	< -70	230/115 VAC 270 W max	**N9307081**
3.0 L/min	< 10 ppm	< 1 ppm	< -50	230/115 VAC 270 W max	**N9307082**
6.0 L/min	< 10 ppm	< 1 ppm	< -50	230/115 VAC 270 W max	**N9307083**
15.0 L/min	< 10 ppm	< 1 ppm	< -50	230/115 VAC 500 W max	**N9307080**

Zero Air Generators

Our Zero Air Gas Generators produce zero grade air from compressed air through catalytic oxidation. This zero air is used as an oxidant supply to GC-FIDs and as a zero-grade gas supply/zero reference gas for process analytical instruments. These generators produce zero-grade air with less than 0.05 ppm hydrocarbon content, measured as methane, enabling a more stable baseline as compared to conventional sources of fuel air.

Features and Benefits

- High performance heated platinum catalyst
- High efficiency filtration
- Modular and stackable with all PerkinElmer hydrogen generators
- CE, UL and CSA approved
- Low life cycle cost, excellent return on investment
- Superior resolution and lower limits of detection
- Safe and sustainable



Technical Specifications

Description	Specification
Size	17.9 in. H x 13.4 in. W x 16.7 in. D
Weight	31.3 lbs.
Organic Purity (ppm)	<0.1
Delivery Pressure (psi/g)	58–145
Ambient Temperature Range	41–104 °F
Required Inlet Air Quality	Clean dry compressed air ISO8573-1:2001 Class 3.2.1
Supply Voltage Range	120 V/60 Hz or 230 V/50 – 60 Hz ±10%
Port Connections	
Outlet (**N9303205** and **N9303206**)	1/8 in. Compression Fitting
Inlet (**N9303205** and **N9303206**)	1/8 in. Compression Fitting
Outlet (**N9303207** – **N9303212**)	1/4 in. Compression Fitting
Inlet (**N9303207** – **N9303212**)	1/4 in. Compression Fitting

Model	Flow Rate (L/min)	Air Inlet @ 58–145 psig (L/m)	Voltage	Part No.
UHP-35ZA-S	3.5	4.2	120	**N9303206**
UHP-35ZA-S	3.5	4.2	230	**N9303205**
UHP-35ZA-S	5	6	120	**N9303208**
UHP-35ZA-S	5	6	230	**N9303207**
UHP-35ZA-S	15	18	120	**N9303210**
UHP-35ZA-S	15	18	230	**N9303209**
UHP-35ZA-S	30	35	120	**N9303212**
UHP-35ZA-S	30	35	230	**N9303211**

Ultra Quiet Analytical Compressor

NEW

Compressors are typically used in conjunction with a gas or zero air generator. A durable standalone compressor system provides on point supply of air of known quality, good quality. Be sure to eliminate any moisture or oil in the air to protect your analytical instrumentation and ensure results are not impacted.

We have expanded our product offering in order to provide our customers the most dependable, trouble-free and quietest system for use with our instruments. This oil-free compressor system is capable of continuous use and incorporates features to provide years of reliability required in laboratory applications.

Features and Benefits

- Market leading 2 year warranty with premium component construction and JUN-AIR quality
- Automatic drain system and pressure switch control for trouble free operation
- High pressure (8 bar/120 psi) for continuous operation regardless of variable voltage supply
- Electrostatically powder coated receiver and plated fittings for maximum corrosion resistance
- Dual air filtration for clean air every time
- Optimized compressor seal and bearing design capable of up to 10 times the life of comparable competitive compressor systems
- 2 year system warranty/5 year tank warranty
- 100% oil-free and 5 µm filter regulator ensure clean air



Technical Specifications

Description	Specification
Horse Power	0.50
Power Requirements	230/50 Hz 120/60 Hz
(VAC)	230/60 Hz
Output (CFM)	2.9 (50 Hz) 3.2 (60 Hz)
Output	82 L/min (50 Hz) 91 L/min (60 Hz)
Max Pressure	120 psi, 8 bar
Operating Pressure	87-116 psi
Operating Pressure	6-8 bar
Noise Level	55-63 dB(A)
Tank Size (Gallon)	6.6
Tank Size	25 L
Dimensions (L x W x H)	15 x 17 x 24 in.
Weight	59 lbs, (50 Hz) 70 lbs (60 Hz)
Packed Dimensions (L x W x H)	16 x 16 x 25 in.
Packed Weight	64 lbs (50 Hz) 75 lbs (60 Hz)

Flow Rate	Part No.
120 V/60 Hz – UL approved and US cord	**N9306243**
230 V/50 Hz – CE approved and EU cord	**N9306244**
230 V/60 Hz – UL approved and US cord	**N9306245**
Basic Service Kit Should be performed annually or 2000 hours, whichever comes first Includes filters, spacers, springs and O-Rings	**N9306341**
Comprehensive Service Kit Should be performed every two years or 8000 hours, whichever comes first Includes the same as basic plus cups, valves, cylinders and screws	**N9306342**
Replacement Drain Bottle Replace as needed, includes the bottle and mounting hardware	**N9306343**

Compressors

PerkinElmer's GC Quiet Oil Free Compressor

This industrial ultra quiet compact oil free 6 gallon compressor that can be utilized in the immediate laboratory area for the supply of clean air.



Technical Specifications

Description	Specification
Horse Power	0.6
Power Requirements	115 V/220 V/50 – 60 Hz
Output	2.5 CFM, 67 L/min
Max Pressure	120 psi, 8 bar
Operating Pressure psi	80 – 100
Operating Pressure Bar	6 – 8
Noise Level	62 db/A
Tank Size	24 L, 6.0 Gal.
Weight	54 lbs., 25 kg
Packed Weight	58 lbs., 26 kg
Packed Dimensions	19 x 18 x 23
Dimensions	16 x 16 x 20 in.

Features and Benefits

- Ultra quiet for use in the laboratory area
- Compact size and light weight
- Industrial grade, durable long life design
- 2 Year warranty on workmanship
- 5.0 micron pre-filter and regulator prevents moisture in the gas line
- Internally powder coated air tank to prevent rust
- Automatic condensate tank drain ensures continuous operation

Flow Rate	Part No.
115 V 60 Hz	**N9306291**
220 V 50 Hz – 60 Hz	**N9306293**

Ultra Quiet Compact Oil-free Compressor



PerkinElmer is expanding its product portfolio in response to customer requests for an industrial ultra quiet compact oil-free compressor that can be utilized in the immediate laboratory area for the supply of clean dry air. As with all PerkinElmer products, this 110 liter per minute air compressor has been rigorously tested to meet or exceed our industry leading standards.

Technical Specifications

Description	Specification
Horse Power	0.75
Power Requirements	115 V/220 V/50 – 60 Hz
Output	4.4 CFM, 110 L/min
Max Pressure	100 psi, 7 bar
Operating Pressure psi	80 – 100
Operating Pressure Bar	6 – 7
Noise Level	57 db/A
Tank Size	6 L, 1.57 Gal.
Weight	103 lbs., 46.7 kg
Packed Weight	125 lbs., 56.7 kg
Packed Dimensions	38 x 15 x 25
Dimensions	34.7 x 13.4 x 22.4 in.

Features and Benefits

- Features a built-in desiccant dryer providing clean, dry, and particle free air at -40° F dew point
- Excellent for Gas Chromatography instrument applications with air generators applications
- Ultra quiet for use in the laboratory area
- Ease-of-use with built-in rolling casters and convenient handle
- Commercial/Industrial Grade
- 1 year warranty on workmanship

Flow Rate	Part No.
115 V/60 Hz	**N9306350**
220 V/50 Hz	**N9306351**
220 V/60 Hz	**N9306352**

GC Startup Kits

Description	Part No.
GC Startup Kit 1/8 in. Tubing and Fitting for (3) Gases	**N9306304**
Description	**Qty.**
1/8 in. Tubing x 50 foot coil Copper Special Cleaning	1
1/8 in. Compression Brass Tee Two Piece Ferrule Brass	3
Tee 1/8 in. Com x 1/8 in. Comp x 1/4 in. fnpt Brass	3
Adjustable Safety Relief Valve Brass 50 – 150 psi	3
1/4 in. fnpt x 1/8 in. Comp Fitting Brass	3
1/8 in. Port Connector Brass	3
1/8 in. Ferrule Brass	3
1/8 in. Compression Brass Nut	3
1/8 in. Compression Brass Fitting Cap	3
Tubing Cutter 1/8 in. Tubing	1
PTFE Tape	1

Description	Part No.
GC Startup Kit 1/8 in. Tubing and Fitting with One Single Stage Regulator	**N9306305**
Description	**Qty.**
1/8 in. Tubing x 50 foot coil Copper Special Cleaning	1
1/8 in. Compression Brass Tee Two Piece Ferrule Brass	3
Tee 1/8 in. Com x 1/8 in. Comp x 1/4 in. fnpt Brass	3
Adjustable Safety Relief Valve Brass 50 – 150 psi	3
1/4 in. fnpt x 1/8 in. Comp Fitting Brass	3
1/8 in. Port Connector Brass	3
1/8 in. Ferrule Brass	3
1/8 in. Compression Brass Nut	3
1/8 in. Compression Brass Fitting Cap	3
Tubing Cutter 1/8 in. Tubing	1
PTFE Tape	1
Single Stage Analytical 0 – 100 psig delivery, CGA 350 (H_2,Carbon Monoxide, Ethylene)	1

Description	Part No.
GC Startup Kit 1/8 in. Tubing and Fitting With One Dual Stage Regulator	**N9306306**
Description	**Qty.**
1/8 in. Tubing x 50 foot coil Copper Special Cleaning	1
1/8 in. Compression Brass Tee Two Piece Ferrule Brass	3
Tee 1/8 in. Com x 1/8 in. Comp x 1/4 in. fnpt Brass	3
50 – 150 psi	3
1/4 in. fnpt x 1/8 in. Comp Fitting Brass	3
1/8 in. Port Connector Brass	3
1/8 in. Ferrule Brass	3
1/8 in. Compression Brass Nut	3
1/8 in. Compression Brass Fitting Cap	3
Tubing Cutter 1/8 in. Tubing	1
PTFE Tape	1
Dual Stage Analytical 0 – 100 psig delivery, CGA 580 (N_2, Argon, He)	1

Regulators



Pressure Regulators

Ideally suited for chromatographic carrier gas applications including FID, TCD,ECD, HID, and non-corrosive gas mixtures for analytical instrumentation.

Technical Specifications

Specifications	Single Stage – Stainless Steel (Thread-less Seat) Part No. N9306353	Single Stage – Brass Nickel-plated (Thread-less Seat) Part No. N9306354
Max Rated Inlet Pressure	1,250 psig	1,200 psig
Outlet Pressure Ranges	0– 30, 0– 60, 0– 100, 0– 250 psig	0– 25, 0– 50, 0– 100, 0– 250 psig
Flow capacity	Cv=0.066	Cv=0.15
Ambient Operating Temp	-40° F to +165° F	-40° F to +165° F
Designed Leak Rate	2 x10-8 ccs (helium)	Bubble-tight (helium)
Weight	2 lbs	2.4 lbs
Ports (4)	¼ in. FNPT	¼ in. FNPT
Fittings	1/8 in.	1/8 in.
Inlet	1/8 in. FNPT	1/8 in. FNPT
Outlet	1/8 in. FNPT	1/8 in. FNPT
Decay Inlet Characteristic	–	0.23/100 psi
Materials		
Body	316 Stainless Steel	Nickel-Plated Brass
Bonnet	Nickel Plated Brass	Nickel Plated Brass
Seat	PCTFE®	PTFE
Diaphragm	Hastelloy C-22	316 Stainless Steel
Diaphragm Hastelloy C-22 Gauge	2½ in. Stainless Steel	–
Filter	316 Stainless Steel	316 Stainless Steel
Trim	316 Stainless Steel	Nickel Plated Brass
Gauges	–	2½ in. Stainless Steel
Valve Stem	–	316 Stainless Steel
Valve Spring	–	316 Stainless Steel



High Purity Brass Regulators

PerkinElmer regulators are constructed of high purity brass barstock and have stainless steel diaphragms and metal-to-metal seals. They are suitable for use with high purity (>99.995% pure) non-corrosive gases. Regulators terminate in a 1/4 in. NPT Swagelock fitting.

Features and Benefits

- Barstock body construction
- Stainless steel diaphragms
- Metal-to-metal seals
- Use with high purity carrier gas

High Purity Brass Regulators (Dual Stage)

CGA Fitting	Delivery Pressure Use	Delivery Pressure Range (psig)	Cylinder Pressure Gauge (psig)	Gauge (psig)	Part No.
CGA-350	H_2 and Ar/CH_4	4 – 100	0 – 200	0 – 4,000	**09907128**
CGA-580	He, Ar, N_2	4 – 100	0 – 200	0 – 3,000	**09907127**

High Purity Brass Regulators (Single Stage)

CGA Fitting	Delivery Pressure Use	Delivery Pressure Range (psig)	Cylinder Pressure Gauge (psig)	Gauge (psig)	Part No.
CGA-350	CO, H_2 and Ar/CH_4 Mixes	4 – 100	0 – 150	0 – 4,000	**00230091**
CGA-350	CO, H_2	10 – 200	0 – 400	0 – 4,000	**00230253**
CGA-590*	Air	10 – 200	0 – 400	0 – 4,000	**00230090**

*Supplied with 590-580 Adapter

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

Description	Specification
Battery	Rechargeable Ni-MH internal battery pack (6 hours normal operation)
Universal Power Adapter Set	US, UK, European, Australian plugs included
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

MiniTemp MT4 Technical Specifications

Description	Specification
Temperature Range	-18 to 400 °C (0 to 750 °F)
Distance to Spot Size (D:S)	08:01
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**

Digital Bubble Flow Meter



The PerkinElmer Model 520 is a volumetric flow meter. It can measure the flow rate of any gas or combination of gases, such as air, without adjustment. The flow meter has a digital display and a single push-button input. It is made of stainless steel and anodized aluminum. It comes with a certificate of calibration, and is accurate to ± 3%. The Model 520 can measure flow rates of 0.5 to 500 mL/min.

Features and Benefits

- B 0.5 to 500 mL/min flow rate with digital display
- Volumetric flow measurement
- Accurate to ± 3% of measured flow rate

Description	Part No.
Digital Bubble Flow Meter	**N9302974**
Replacement Glass for Digital Bubble Flow Meter	**N9303429**

Soap Bubble Flow Meters

The glass soap bubble flow meters are calibrated in 1 and 10 mL two-stage or 1, 10 and 100 mL three-stage for easy flow reading. Bubble meters come complete with liquid soap, rubber squeeze bulb, miscellaneous-sized plastic tube pieces to adapt to various fittings, and instructions.

Description	Part No.
Two-stage	**00230522**
Three-stage	**N9300081**

PerkinElmer FlowMark Electronic Flowmeter



PerkinElmer's FlowMark™ flowmeter is specifically designed for use with gas chromatography (GC) instruments. The probe is applied directly to the gas flow stream and the measured flow rate is presented on the LCD screen. Units of flow are measured in mL/min. This unit provides continuous real-time measurements of gas streams ranging from 0.50 mL/min to 500 mL/min. Because the technology uses volumetric flow measurement, the unit is compatible with all laboratory gases. The flowmeter is designed to measure clean, dry, non-corrosive gases.

Features and Benefits

- Measures volumetric flow for all gases across a range of 0.5–500 mL/min
- NIST traceable calibration
- Explosion-proof rating for flammable and explosive gas atmospheres
- Accuracy of ± 2% of flow or ± 0.2 mL/min, whichever is greater
- Over range indicator
- Auto shut-off feature
- Ergonomic design and side grips for comfort
- Measures most gas types
- Convenient storage case included
- CE, Ex (Compliance: WEEE, RoHS) certified
- Uses 2-AA batteries
- Data output via USB port
- Re-calibration service available
- Designed to measure clean, dry, non-corrosive gases
- 1 year warranty

Description	Part No.
FlowMark Electronic Flowmeter	**N9307086**
Recailibration Service for FlowMark Flowmeter	**N9307085**
Soft Carrying Case	**N9306142**

PerkinElmer Flowmeter Plus

NEW

The PerkinElmer Flowmeter Plus is a valuable tool for troubleshooting detector problems. Measuring gas volumetrically eliminates there is no need to select gas type. Highly accurate, identifying leaks by differences in thermal conductivity, it offers a minimum detection limit of 0.0005 mL/min hydrogen and helium.



Hassle Free Recalibration

Offering a much simpler and more efficient work flow, the annual recalibration is simply replacing a NIST certified calibration cartridge. Each flowmeter cartridge is individually factory calibrated and can easily be replaced directly by customers. There is no need to return the flowmeter to us; saving you time and money.

The cartridge calibration is valid for a period of one year from its first use. A new, calibrated cartridge can be ordered in advance, and then installed when necessary.

Features and Benefits

- Simply replace a NIST certified cartridge for revalidation, no need to return the flowmeter
- Flow range 0.5 to 750 mL/min (auto-ranging)
- Operating temperature range 0 °C to 45°C
- Accurate to ± 2% of reading or ± 0.2 mL/min, whichever is greater
- Compact size (201 mm x 88 mm x 48 mm)
- Portable operation, uses 3 AA batteries (or USB power)

Description	Part No.
Flowmeter Plus	**N9307088**
Replacement NIST certified calibration cartridge	**N9307084**

Basic Tool Kit

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.

Description	Part No.
Tools Come in a Tool Box for Easy Storage and Use	**N9301327**

Deluxe Tool Kit

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 (4-3⁄8 inches), Needle File Set (6 pc.), Allen Key Set (11 pc. imperial sizes), and Allen Key Set (9 pc. metric sizes).

Description	Part No.
Shipped in a Plastic Tool Box for Convenient Storage	**N9301328**



BETTER GC FOR THE MOST CRITICAL APPLICATIONS—YOURS



Clarus® 590/690 GC Systems

PerkinElmer®
For the Better

Standards

PerkinElmer offers a wide selection of superior quality products designed to work with your PerkinElmer instruments. Our precision designed products deliver the peace of mind that comes from knowing that you'll get the results you need.

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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.



8000 Series Solid and Hazardous Waste Methods

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 PCBs, either as individual congeners or Aroclors by GC/ECD.



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.

Standards Solutions

Description	Part No.
Test Mix	
LC Gradient Test Mix	**N9334010**
Universal Test Mix for Reversed-phase (5 mL/pkg.)	**00890893**
Standards	
HPLC SV Calibration Mix No.5/610 PAH	**00891542**
HPLC 610 Calibration Mix A	**00891543**
HPLC 610 Calibration Mix B	**00891544**

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 and 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 and T Methanol	**N9331042**
Internal Standard for Method 8260B 1.2 mL @ 2,000 µg/mL in P and T Methanol	**N9331041**

Ketones for Method 8260B

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

Mix B Purgeable Gases for Methods 8260B/524.2

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

8000 Series Solid and Hazardous Waste Methods

Resource Conservation and Recover Act (Rcra) Under Sw-846, 'Test Methods For Evaluating Solid Waste'

Features and Benefits

- 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 PCBs, either as individual congeners or Aroclors by GC/ECD

Method 8082 PCBs (polychlorinated biphenyls) Standards Kit

Method 8082 is used to determine the concentration of PCBs either as individual congeners or Aroclors. A Clarus 600 GC with a capillary column is used to perform the separation. To detect the eluent, an 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 @ 1,000 µg/mL in Hexane	**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**, **N9331063**.

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 and T Methanol	**N9331064**
Mix A for Method 624 1.2 mL @ 2,000 µg/mL in P and T Methanol	**N9331060**
Purgeable Gases Mix B for Method 624 1.2 mL @ 2,000 µg/mL in P and T Methanol	**N9331061**
Mix C for Method 624 1.2 mL @ 2,000 µg/mL in P and T Methanol	**N9331062**
Mix D for Method 624 1.2 mL @ 2,000 µg/mL in P and T Methanol	**N9331063**

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**

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