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Table of Contents

Atomic Absorption 14-33

ICP-OES 34-47

ICP-MS 48-59

Atomic Spectroscopy General 60-97

Sample Preparation 100-121

Liquid Chromatography 122-171

Gas Chromatography 172-245

FT-IR 248-267

UV/Visible 268-282

Polarimetry 283

Fluorescence 284-289

Thermal and Elemental Analysis 290-299

Part Number Index 300-331

Alphabetical Index 332-341

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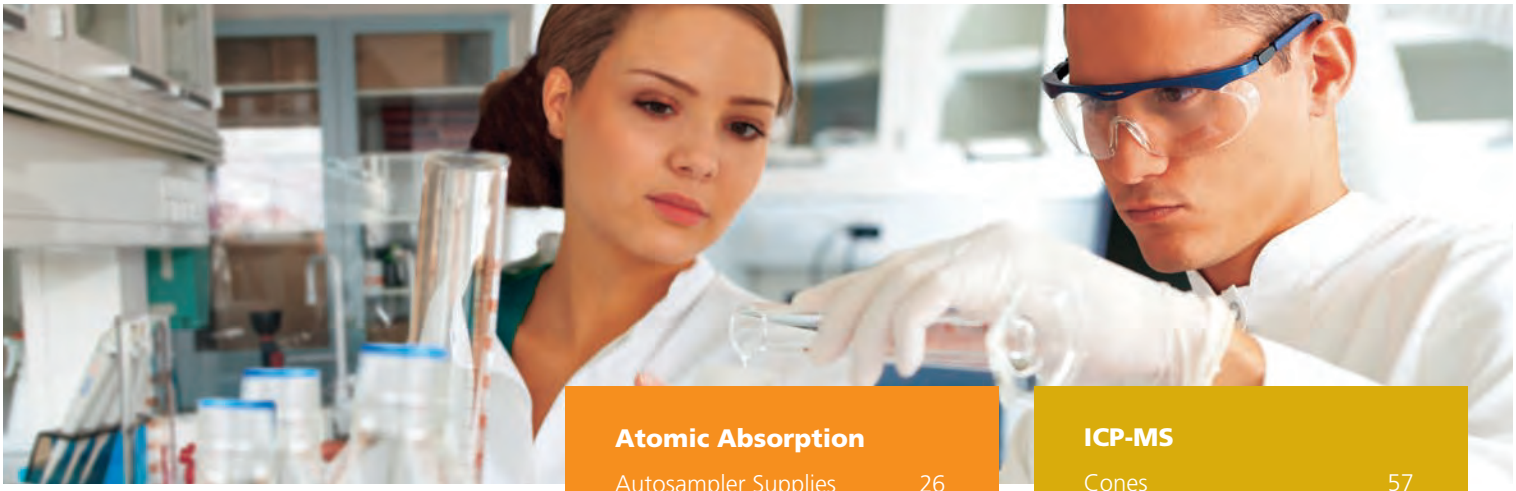

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PerkinElmer is the world leader in atomic spectroscopy solutions for atomic absorption (AA), inductively coupled plasma optical emission spectroscopy (ICP-OES) and inductively coupled plasma mass spectrometry (ICP-MS). With instruments that are the industry standard worldwide, PerkinElmer accessories, consumables, methods and application support meet the most demanding requirements and are the preferred choice in thousands of laboratories globally.

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Atomic Absorption

Autosampler Supplies	26
Burner System Components	20-21
Compressors	27
Graphite	28-32
Lamps	14-19
Mercury Analyzer Supplies	33
Nebulizers	22-25

ICP-OES

Benches and Carts	47
Compressors	46
Injectors and Adapters	44
Load Coils and Purge Components	45
Nebulizers	34-37
Sample Introduction Kits	41
Spray Chambers	38-39
Torch Modules and Torches	40, 42-43

ICP-MS

Cones	57
Detectors	56
Injectors and Adapters	54
Load Coils	55
Mass Spectrometer Hardware	56
Nebulizers	48-50
Sample Introduction Systems	58-59
Spray Chambers	51-53
Torches	55
Vacuum Pump Supplies	56

Atomic Spectroscopy/ General

Autosampler Supplies	63-65
Benches and Carts	47
Cooling Systems	87
Filters and Regulators	90-91
Flow Injection Supplies (FIAS/FIMS)	66-67
Internal Standards Kits	61
Mercury Analyzer Supplies	33
Microwave Sample Preparation	95-97
Noise Enclosures	88
Power Conditioners and UPS Systems	89
Pump Tubing	60-62
Sample Preparation	92-94
Standards	68-86
Trays and Racks	64

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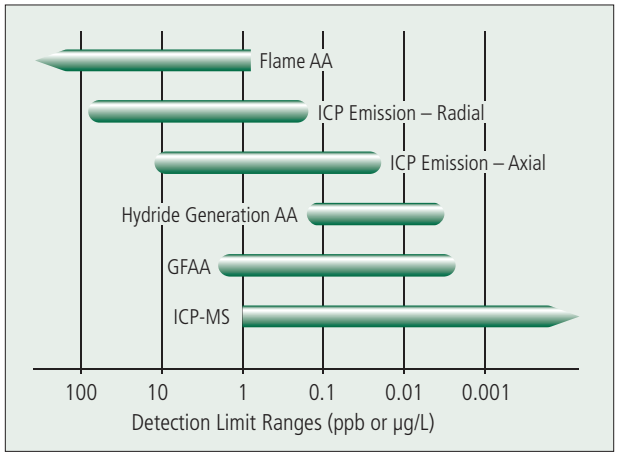

Typical detection limit ranges for the major atomic spectroscopy techniques.

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- Choice of Deuterium or longitudinal Zeeman background correction
- TubeView™ color furnace camera simplifies autosampler tip alignment and sample dispensing
- Proven Syngistix™ software offering both ease-of-use and exceptional flexibility

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- PlasmaCam™ Viewing Camera – offers continuous viewing of the plasma, simplifying method development and enabling remote diagnostic capabilities for maximum uptime.

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- Ideal for applications that require fast transient signal analysis, such as speciation and laser ablation
- Complete characterization of nanoparticles

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Triple cone interface produces the most tightly focused ion beam in the industry, reducing build-up on internal components so maintenance and cleaning are minimized.

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PERKINELMER HAS 40 YEARS OF EXPERTISE DESIGNING AND MANUFACTURING HOLLOW CATHODE LAMPS.

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- Testing: Every lamp is thoroughly tested before leaving the factory
- Quality: Carefully selected materials used in the manufacturing of our lamps avoid spectral interference
- Design: Our design provides you with the low detection limits needed for your most difficult determinations
- Selection: PerkinElmer offers a wide selection of single-element and multi-element lamps
- Easy To Order: It's easy to find the right lamp for your analytical needs — simply use the selection charts on this page or visit our website for a complete listing
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Aluminum	Al	**N3050103**	**N3050303**
Antimony	Sb	**N3050170**	**N3050370**
Arsenic	As	**N3050105**	**N3050305**
Barium	Ba	**N3050109**	**N3050309**
Beryllium	Be	**N3050110**	**N3050310**
Bismuth	Bi	**N3050111**	**N3050311**
Boron	B	**N3050108**	**N3050308**
Cadmium	Cd	**N3050115**	**N3050315**
Calcium	Ca	**N3050114**	**N3050314**
Chromium	Cr	**N3050119**	**N3050319**
Cobalt	Co	**N3050118**	**N3050318**
Copper	Cu	**N3050121**	**N3050321**
Dysprosium	Dy	**N3050122**	**N3050322**
Erbium	Er	**N3050123**	**N3050323**
Europium	Eu	**N3050124**	**N3050324**
Gadolinium	Gd	**N3050129**	**N3050329**
Gallium	Ga	**N3050128**	**N3050328**
Germanium	Ge	**N3050130**	**N3050330**
Gold	Au	**N3050107**	**N3050307**
Hafnium	Hf	**N3050133**	**N3050333**
Holmium	Ho	**N3050135**	**N3050335**
Indium	In	**N3050137**	**N3050337**
Iridium	Ir	**N3050138**	**N3050338**
Iron	Fe	**N3050126**	**N3050326**
Lanthanum	La	**N3050141**	**N3050341**
Lead	Pb	**N3050157**	**N3050357**
Lithium	Li	**N3050142**	**N3050342**
Magnesium	Mg	**N3050144**	**N3050344**
Manganese	Mn	**N3050145**	**N3050345**
Mercury	Hg	**N3050134**	**N3050334**
Molybdenum	Mo	**N3050146**	**N3050346**
Neodymium	Nd	**N3050150**	**N3050350**
Nickel	Ni	**N3050152**	**N3050352**
Niobium	Nb	**N3050149**	**N3050349**
Palladium	Pd	**N3050158**	**N3050358**
Phosphorus	P	**N3050155**	**N3050355**
Platinum	Pt	**N3050162**	**N3050362**
Potassium	K	**N3050139**	**N3050339**
Praseodymium	Pr	**N3050161**	**N3050361**
Rhenium	Re	**N3050165**	**N3050365**
Rhodium	Rh	**N3050166**	**N3050366**

Chart continues on next page

Element Name	Element Symbol	Lumina Lamp Part No.	Lumina Lamp with Intensitron® Adapter Part No.
Ruthenium	Ru	**N3050168**	**N3050368**
Samarium	Sm	**N3050174**	**N3050374**
Scandium	Sc	**N3050171**	**N3050371**
Selenium	Se	**N3050172**	**N3050372**
Silicon	Si	**N3050173**	**N3050373**
Silver	Ag	**N3050102**	**N3050302**
Sodium	Na	**N3050148**	**N3050348**
Strontium	Sr	**N3050176**	**N3050376**
Tantalum	Ta	**N3050177**	**N3050377**
Tellurium	Te	**N3050180**	**N3050380**
Terbium	Tb	**N3050178**	**N3050378**
Thallium	Tl	**N3050183**	**N3050383**
Thulium	Tm	**N3050184**	**N3050384**
Tin	Sn	**N3050175**	**N3050375**
Titanium	Ti	**N3050182**	**N3050382**
Tungsten	W	**N3050187**	**N3050387**
Vanadium	V	**N3050186**	**N3050386**
Ytterbium	Yb	**N3050190**	**N3050390**
Yttrium	Y	**N3050189**	**N3050389**
Zinc	Zn	**N3050191**	**N3050391**
Zirconium	Zr	**N3050192**	**N3050392**

PERKINELMER EXCLUSIVE 6/24 WARRANTY*

Lumina™ Hollow Cathode Lamps

1. We warrant that during the first six months or after 5,000 milliampere-hours of operation, whichever comes first, from initial date of shipment, the lamps will meet or exceed the intensity and absorption specifications to which all new lamps are tested.
2. All our hollow cathode lamps are warranted to light and emit the spectra of the element indicated for two years or 5,000 milliampere-hours of operation from the date of the shipment, whichever comes first.
3. If any lamp fails before the expiration of the warranty period, it will be replaced free of charge.

*The lamp warranty is void for lamps which sustain physical damage or are operated at power levels substantially above or below the power level recommended on the lamp label. The lamp warranty may vary in different countries.

Lumina Multi-Element Hollow Cathode Lamps

Element Name	Element Symbol	Lumina Lamp Part No.	Lumina Lamp with Intensitron® Adapter Part No.
Two-element Lamps			
Silver, Gold	Ag, Au	**N3050201**	**N3050401**
Calcium, Magnesium	Ca, Mg	**N3050202**	**N3050402**
Calcium, Zinc	Ca, Zn	**N3050203**	**N3050403**
Potassium, Sodium	K, Na	**N3050204**	**N3050404**
Platinum, Ruthenium	Pt, Ru	**N3050205**	**N3050405**
Tin, Tellurium	Sn, Te	**N3050206**	**N3050406**
Three-element Lamps			
Calcium, Magnesium, Zinc	Ca, Mg, Zn	**N3050208**	**N3050408**
Copper, Iron, Nickel	Cu, Fe, Ni	**N3050209**	**N3050409**
Four-element Lamps			
Copper, Iron, Manganese, Zinc	Cu, Fe, Mn, Zn	**N3050212**	**N3050412**
Five-element Lamps			
Silver, Chromium, Copper, Iron, Nickel	Ag, Cr, Cu, Fe, Ni	**N3050213**	**N3050413**
Cobalt, Chromium, Copper, Manganese, Nickel	Co, Cr, Cu, Mn, Ni	**N3050214**	**N3050414**
Six-element Lamps			
Cobalt, Chromium, Copper, Iron, Manganese, Nickel	Co, Cr, Cu, Fe, Mn, Ni	**N3050217**	**N3050417**
Seven-element Lamps			
Aluminum, Calcium, Copper, Iron, Magnesium, Silicium, Zinc	Al, Ca, Cu, Fe, Mg, Si, Zn	**N3050218**	**N3050418**

MAXIMUM INTENSITY, LONG LIFE

EDLS PROVIDE GREATER LIGHT OUTPUT AND LONGER LIFE THAN CORRESPONDING HCLS

For certain elements such as Arsenic and Selenium, EDLs will also provide improved sensitivity and lower detection limits. System 2 electrodeless discharge lamps provide the optimized spectral output needed to get the maximum performance from PerkinElmer atomic absorption spectrometers.

ELECTRODELESS DISCHARGE LAMPS FOR GREATER BRIGHTNESS

EDLs are typically much brighter and, in some cases, provide better sensitivity than comparable HCLs. EDLs are preferred for certain volatile elements. They offer better precision and lower detection limits for analyses that are "noisy" due to weak hollow cathode emission. PerkinElmer System 2 EDLs consist of the element or a salt of the element sealed in a quartz bulb containing an inert gas atmosphere. When an RF field of sufficient power is applied, the inert gas is ionized and the coupled energy vaporizes the element and excites the atoms inside the bulb, resulting in the emission of the characteristic spectrum.

PerkinElmer's System 2 EDLs consist of a driver and a lamp sleeve. Depending on the instrument, one or two EDL lamps can be on at the same time. The driver connects to the instrument's RF power supply (if applicable), or the external power supply if needed. The lamp sleeve contains the pre-aligned bulb for the element of interest. The sleeve has the same exterior dimensions as the PerkinElmer HCLs, allowing System 2 EDLs to be used in the same lamp mounts and turrets.

The locking pin on the lamp driver prevents operation without the lamp sleeve correctly installed on the driver.

Electrodeless Discharge Lamps are an ideal source for determining volatile elements.

Electrodeless Discharge Lamps

Element Name	Element Symbol	System 2 EDL with Coded Adapter Part No.	AAnalyst Coded Adapter Part No.
Antimony	Sb	**N3050670**	**N3050869**
Arsenic	As	**N3050605**	**N3050860**
Bismuth	Bi	**N3050611**	**N3050861**
Cadmium	Cd	**N3050615**	**N3050862**
Cesium	Cs	**N3050620**	**N3050863**
Germanium	Ge	**N3050630**	**N3050864**
Lead	Pb	**N3050657**	**N3050867**
Mercury	Hg	**N3050634**	**N3050865**
Phosphorus	P	**N3050655**	**N3050866**
Rubidium	Rb	**N3050664**	**N3050868**
Selenium	Se	**N3050672**	**N3050870**
Tellurium	Te	**N3050680**	**N3050872**
Thallium	Tl	**N3050683**	**N3050873**
Tin	Sn	**N3050675**	**N3050871**
Zinc	Zn	**N3050691**	**N3050874**

EDL Driver Assembly required (see right page).

Features and Benefits

- Brightness: EDLs are much brighter and, in some cases, provide better sensitivity than comparable hollow cathode lamps
- Precision: EDLs offer lower detection limits and are preferred for analyses that are "noisy" due to weak hollow cathode emission
- Long Life: System 2 EDLs are long-lived for exceptional cost-effectiveness
- Automation: PerkinElmer coded lamps allow automatic set-up on systems with automated turret
- Quality: Carefully selected materials used in the manufacturing of our lamps avoid spectral interference
- Testing: Every lamp is thoroughly tested
- Design: Our design provides you with the low detection limits needed for your most difficult determinations
- Warranty: The performance of every PerkinElmer lamp is fully warranted*

THE PERKINELMER EXCLUSIVE WARRANTY*

System 2 Electrodeless Discharge Lamps

1. We warrant that during the first six months or after 500 hours of operation, whichever comes first, from initial date of shipment, the lamps will meet or exceed the intensity and absorption specifications to which all new lamps are tested.
2. All our Electrodeless Discharge Lamps are warranted to light and emit the spectra of the element indicated for two years or 1,000 hours of operation from the initial date of shipment, whichever comes first.
3. If any lamp fails before the expiration of the warranty period, it will be replaced free of charge.

* The lamp warranty is void for lamps that sustain physical damage or are operated at power levels substantially above or below the power level recommended on the lamp label. The lamp warranty may vary in different countries.

EDL ASSEMBLIES AND COMPONENTS

EDL Driver Assemblies

Description	Part No.
For AAnalyst™ 200/400	**N3150131**
System 2 EDL driver with a short cable. For use with all instruments that have a built in EDL power supply. Adapter N3150303 is also needed if used on the AAnalyst 200/400.	**03030997**
Driver with a long cable. For use with the external power supply, but has the same plug connector as 03030997. Requires adapter N3150303 if used with the AAnalyst 200/400.	**03030793**

EDL Driver Components

Description	Part No.
Driver Assembly Adapter Cable Allows System 2 EDL Drivers (03030793 and 03030997) to be used on an AAnalyst 200/400.	**N3150303**
Extension cable for 03030997 if a longer length is needed.	**03030998**

1.5 INCH LAMPS DESIGNED FOR NON-PERKINELMER INSTRUMENTS

ATOMAX™ 1.5" AA LAMPS FROM PERKINELMER, THE WORLD LEADER IN ATOMIC ABSORPTION

Atomax 1.5" hollow cathode lamps are crafted to the same high standards that have made PerkinElmer 2" Lumina™ hollow cathode lamps the best in the industry. Drawing on more than 40 years of HCL design and manufacturing expertise, Atomax lamps now offer laboratories around the world a dependable, top-quality lighting source, regardless of the brand of AA instruments used.

Value-Priced and Fully Compatible with 1.5" Format AA Instruments

PerkinElmer two pin non-coded Atomax lamps are designed to fit most commercially available atomic absorption instruments including Agilent®, Thermo®, Shimadzu®, GBC®, Analytic Jena®, Hitachi® and many more. Combining affordability and industry-wide compatibilty allows users of other brands of AAs to benefit from PerkinElmer's proven lamp performance. Each lamp is thoroughly tested to ensure that it will stand up to the most demanding requirements. Atomax lamps represent an exceptional value, and our money-back guarantee means you can order with complete confidence.

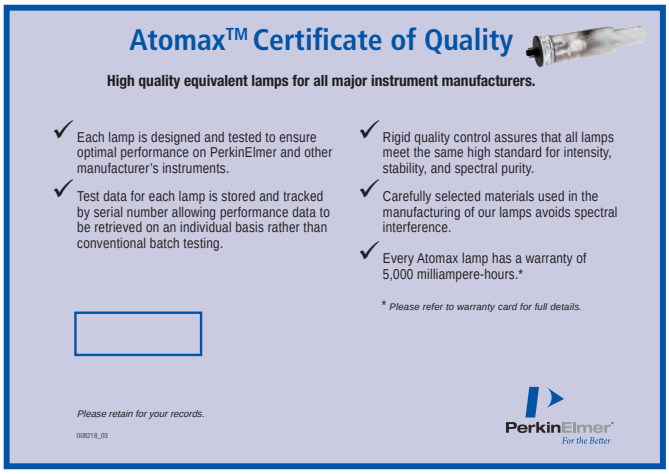
Tested and Validated for Highest Quality Performance

All 1.5" Atomax hollow cathode lamps are thoroughly tested to ensure maximum light output and spectral purity. Comparative results show that Atomax lamps provide equal or better performance than other AA lamps in the market. Precision engineered for high sensitivity, stable light output, low noise, and long life, you can rely on Atomax lamps for the accurate results you need.

Features and Benefits

- Experts: Expertise designing and manufacturing quality lamps for over 40 years. A brand you can trust
- Compatibility: Compatible with other manufacturer's instruments — tested and approved
- Lifetime: Long lifetime and performance. As the world's leading AA supplier, we know how to build lamps that provide maximum light output and spectral purity for optimum performance
- Quality: Every lamp ships with Certificate of Quality
- Testing: Lamps are thoroughly tested before leaving the factory
- Raw Materials: Carefully selected materials used in the manufacturing of our lamps avoid spectral interference
- Clean: Lamps are built to stringent specifications in a state-of-the-art lamp manufacturing facility. Great quality every time
- Design: Our design provides you with the low detection limits needed for your most difficult determinations
- Value: Equivalent or better performance than your current lamp at a great price

Every Atomax lamp includes a certificate of quality, our promise of outstanding performance levels from the leader in AA.



Atomax™ Certificate of Quality

High quality equivalent lamps for all major instrument manufacturers.

- ✓ Each lamp is designed and tested to ensure optimal performance on PerkinElmer and other manufacturer's instruments.
- ✓ Test data for each lamp is stored and tracked by serial number allowing performance data to be retrieved on an individual basis rather than conventional batch testing.
- ✓ Rigid quality control assures that all lamps meet the same high standard for intensity, stability, and spectral purity.
- ✓ Carefully selected materials used in the manufacturing of our lamps avoids spectral interference.
- ✓ Every Atomax lamp has a warranty of 5,000 milliampere-hours.*

* *Please refer to warranty card for full details.*

Please retain for your records.

008218_03

PerkinElmer® *For the Better*

PERKINELMER EXCLUSIVE 6/24 WARRANTY* ATOMAX™ HOLLOW CATHODE LAMPS

1. We warrant that during the first six months for 5,000 milliampere-hours of operation, whichever comes first, from initial date of shipment, the lamps will meet or exceed the intensity and absorption specifications to which all new lamps are tested.
2. All of our hollow cathode lamps are warranted to light and emit the spectra of the element indicated for two years or 5,000 milliampere hours of operation from the date of the shipment, whichever comes first.
3. If any lamp fails before the expiration of the warranty period, it will be replaced free of charge.

** The lamp warranty is void for lamps which sustain physical damage or are operated at power levels substantially above or below the power level recommended on the lamp label. The lamp warranty may vary in different countries.*

Element	Symbol	Part No.
Aluminum	Al	**N2025301**
Antimony	Sb	**N2025347**
Arsenic	As	**N2025302**
Barium	Ba	**N2025305**
Beryllium	Be	**N2025306**
Bismuth	Bi	**N2025307**
Boron	B	**N2025304**
Cadmium	Cd	**N2025309**
Calcium	Ca	**N2025308**
Cesium	Cs	**N2025312**
Chromium	Cr	**N2025311**
Cobalt	Co	**N2025310**
Copper	Cu	**N2025313**
Dysprosium	Dy	**N2025314**
Erbium	Er	**N2025315**
Europium	Eu	**N2025316**
Gadolinium	Gd	**N2025319**
Gallium	Ga	**N2025318**
Germanium	Ge	**N2025320**
Gold	Au	**N2025303**
Hafnium	Hf	**N2025321**
Holmium	Ho	**N2025323**
Indium	In	**N2025324**

Element	Symbol	Part No.
Iridium	Ir	**N2025325**
Iron	Fe	**N2025317**
Lanthanum	La	**N2025327**
Lead	Pb	**N2025339**
Lithium	Li	**N2025328**
Lutetium	Lu	**N2025329**
Magnesium	Mg	**N2025330**
Manganese	Mn	**N2025331**
Mercury	Hg	**N2025322**
Molybdenum	Mo	**N2025332**
Neodymium	Nd	**N2025335**
Nickel	Ni	**N2025336**
Niobium	Nb	**N2025334**
Osmium	Os	**N2025337**
Palladium	Pd	**N2025340**
Phosphorus	P	**N2025338**
Platinum	Pt	**N2025342**
Potassium	K	**N2025326**
Praseodymium	Pr	**N2025341**
Rhenium	Re	**N2025344**
Ruthenium	Ru	**N2025346**
Rhodium	Rh	**N2025345**
Rubidium	Rb	**N2025343**

Element	Symbol	Part No.
Samarium	Sm	**N2025351**
Scandium	Sc	**N2025348**
Selenium	Se	**N2025349**
Silicon	Si	**N2025350**
Silver	Ag	**N2025300**
Sodium	Na	**N2025333**
Strontium	Sr	**N2025353**
Tantalum	Ta	**N2025354**
Terbium	Tb	**N2025355**
Tellurium	Te	**N2025356**
Thallium	Tl	**N2025359**
Thorium	Th	**N2025357**
Thulium	Tm	**N2025360**
Tin	Sn	**N2025352**
Titanium	Ti	**N2025358**
Tungsten	W	**N2025362**
Vanadium	V	**N2025361**
Ytterbium	Yb	**N2025364**
Yttrium	Y	**N2025363**
Zinc	Zn	**N2025365**
Zirconium	Zr	**N2025366**

Graphite for Non-PerkinElmer Instruments can be found in the graphite section.

EXPERIENCE OPTIMAL EFFICIENCY

An efficient burner system is essential for obtaining optimal performance from your AA instrument, and proper maintenance is required to obtain precise and accurate determinations.

Features & Benefits

- 100% titanium burner heads, an exclusive PerkinElmer feature that provides maximum corrosion resistance when analyzing any type of sample
- Burner chambers constructed of inert, wettable plastic to allow for proper drainage of excess sample and minimize sample carryover of previous analyses
- Multivaned flow spoilers remove large sample droplets from the nebulized spray and reduce susceptibility to analytical interference
- Gaskets designed for use with aqueous and organic samples. Choose from synthetic rubber gaskets for aqueous solutions and Corkprene or KALREZ gaskets for organic solutions
- PinAAcle uses the same Burner Heads as AAnalyst series. The latest design has a hole on the rim for ease of rotation during operation. The handle is provided with the instrument

Single-slot Nitrous Oxide-acetylene 5 cm

The 5 cm nitrous oxide burner head is required for nitrous oxide-acetylene operation. This burner head can also be used with air-acetylene or rotated to provide reduced sensitivity.

Description	Part No.
Single-slot Nitrous Oxide-acetylene 5 cm	**N0400100**

Single-slot Air-acetylene 10 cm

The 10 cm burner head is designed to be used with the air-acetylene flame. Because of its long burner path length, it provides the best sensitivity for air-acetylene elements.

Description	Part No.
Single-slot Air-acetylene 10 cm	**N0400102**

Single-slot Air-acetylene 5 cm

A 5 cm air-acetylene burner head is available for applications in which reduced sensitivity is required. It can be rotated to provide further sensitivity reduction, and it has a wide slot to prevent clogging.

Description	Part No.
Single-slot Air-acetylene 5 cm	**N0400101**

Three-slot Air-acetylene 10 cm

The three-slot burner head is designed to be used when analyzing samples with high concentrations of dissolved solids. The three-slot burner head is not compatible with some older gas control systems.

Description	Part No.
Three-slot Air-acetylene 10 cm	**N0400103**

Single-slot Nitrous Oxide-acetylene 5 cm

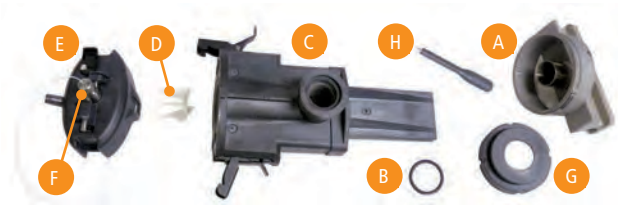
Single-slot Air-acetylene 5 cm

Single-slot Air-acetylene 10 cm

Three-slot Air-acetylene 10 cm

PinAAcle Burner Chamber Assembly

- A Burner Head
- B Burner head o-ring
- C Spray chamber
- D Flow spoiler
- E End Cap Assembly
- F Stainless Steel Nebulizer
- G Retaining ring
- H Burner head adjustment tool



PinAAcle Burner Chamber Assembly

Burner Heads

Description	Length	Flame Type	*PinAAcle 900* Part No.	*AAnalyst 100/200/300/400/700/800* Part No.
Single-slot	5 cm	Nitrous Oxide-Acetylene	**N0400100**	**N0400100**
Single-slot*	10 cm	Air-Acetylene	**N0400102**	**N0400102**
Three-slot	10 cm	Air-Acetylene	**N0400103**	**N0400103**
Single-slot	5 cm	Air-Acetylene	**N0400101**	**N0400101**
Burner Head Adjustment Tool Burner for burner heads with adjustment tool hole			**N3161040**	**N3161040**

* Standard burner head shipped with PinAAcle instrument.

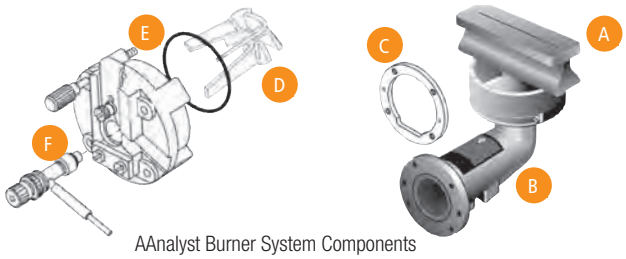
Burner System Components

Description	*PinAAcle 900* Part No.	*AAnalyst 100/200/300/400/700/800* Part No.
Viton Burner Head O-Ring Kit, 0.984 x 0.139 09200079 O-ring (3), 09200078 Super O-Lube (1), 09936731 (1)	**09902219**	**09902219**
Burner Mixing Chamber Assembly	**N3160506**	**00570948**
Burner Chamber Holder Assembly	**N3160809**	
Clamping Ring		**N0401171**
Flow Spoiler	**00572561**	**00572561**
End Cap O-Ring 0.312 x 0.070 (qty. 4 required)	**09200253**	
End Cap Viton O-Ring Standard	**09902147**	**09902147**
End Cap O-Ring Organics (Corkprene)		**00472014**
End Cap O-Ring Organics/Aqueous (KALREZ®)		**09921044**
End Cap Assembly (for use with metal body nebulizers)	**N3160505**	**00570984**
End Cap Assembly (for use with plastic body nebulizers)	**N3160511**	**N0370392**
End Cap Assembly Impact Bead (for use with metal body nebulizers)	**N3160546**	
Burner Gasket Kit for End Cap Assembly 00570984 00472014 (5), 09902147 (3), 09902219 (1), 09902236 (3), 09902240 (3), 09938527 (1)		**00470988**
Drain Tubing - Tygon Tubing with FEP lining	**02507987**	**02507987**
Seal Plug for the (00572615) Pyrex Impact Bead used with (00570984) end cap		**00572624**
O-Ring (1/4 in 6mm i.d.) for seal plug in the end cap 00570984		**09902240**
O-Ring (1/8 in 3mm i.d.) for seal plug in the end cap 00570984 and N3160545	**09902236**	**09902236**
Burner Drain Assembly for Organic Solutions	**N3150232*** **	**N3150230***
Burner Drain Assembly (includes tubing and drain interlock, drain bottle 09904991 not included)		**N2011074***
Burner Drain Assembly (includes tubing and drain interlock, drain bottle 09904991 not included)	**N0400058*** **	**N0400058*** **
Burner Head Cleaner	**03031573**	**03031573**
Burner Head Adjustment Tool for burner heads with adjustment tool hole	**N3161240**	**N3161240**
Wide Mouth 15L Natural Bottle	**09904991**	**09904991**
10L Wide Mouth Bottle for Organics	**09200122**	**09200122**

*For AAnalyst 700/800 **For AAnalyst 200/400 ***For AAnalyst 100/200/300/400

AAnalyst Burner System Components

- A Burner Head
- B Burner Mixing Chamber
- C Clamping Ring
- D Flow Spoiler
- E End Cap O-Ring
- F End Cap Assembly



AAnalyst Burner System Components

WIDE VARIETY OF HIGH PERFORMANCE NEBULIZERS

PinAAcle 900 Removable Burner Assembly allows switching between analytical techniques in a matter of seconds on flame/furnace combination instruments

High-Sensitivity Nebulizer with Pt/Ir Capillary

PinAAcle High-Sensitivity Nebulizer
Part No. N3160144

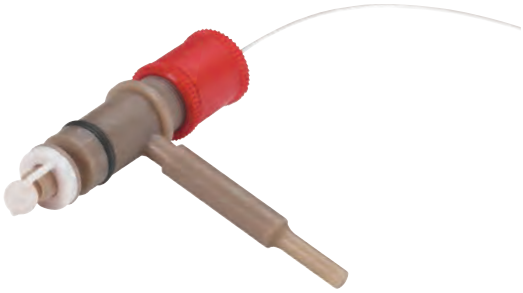
THE NEBULIZER IS ONE OF THE MOST IMPORTANT COMPONENTS IN A FLAME AA SPECTROMETER

Sample solutions, with differing physical properties, must be converted into an aerosol of small, similarly-sized droplets. This places great demands on the design of the nebulizer.

All PerkinElmer nebulizer assemblies are adjustable for optimized performance and include easily-interchanged capillary assemblies for simple, reduced-cost maintenance. PerkinElmer nebulizers are manufactured to exacting tolerances to provide maximum sensitivity. Universal, or, "standard" nebulizers are less expensive than the corresponding high-sensitivity nebulizers and provide a lower level of sensitivity. The universal, or, "standard" nebulizers typically provide better precision and reduced "carryover" interference when used with solutions that contain high dissolved solids content of higher analyte concentrations.

HIGH-SENSITIVITY NEBULIZER WITH PT/IR CAPILLARY

Our high-precision nebulizer maximizes stability and sensitivity, even for the toughest matrices. The nebulizer is adjustable so a wide variety of sample matrices — aqueous or organic, acidic or basic, diluted or concentrated — can be analyzed under optimum conditions. This high-sensitivity nebulizer is fabricated with inert plastic materials for maximum performance and corrosion resistance.



High-Sensitivity Nebulizer

- Provides maximum sensitivity, precision and freedom from analytical interferences
- The high-sensitivity nebulizer with platinum/iridium capillary is for most solutions, but not for precious metal samples containing aqua regia
- High-sensitivity nebulizer with tantalum capillary used for solutions containing aqua regia

Metal Body Corrosion-Resistant Nebulizers

- For all solutions containing hydrofluoric acid or aqua regia
- For all solutions containing high concentrations of dissolved solids
- All internal components in contact with solutions are constructed of plastic to resist corrosion from concentrated acids
- Reduced performance compared with stainless steel or platinum/rhodium nebulizers

Metal Body Platinum Alloy Nebulizers

- Recommended for most concentrated acids containing >5% acid
- Includes a platinum alloy needle assembly and a tantalum venturi
- Provides maximum chemical resistance
- Not suitable for use with aqua regia or hydrofluoric acid

Plastic Body GemTip™ Nebulizers

- Corrosion-resistant and can be used to aspirate almost all solutions, even those solutions containing a high percentage of acids
- Designed to obtain optimum sensitivity, detection limits and precision with flame atomic absorption for both air-acetylene and nitrous oxide-acetylene flames

Metal Body Stainless Steel Nebulizers

- For most solutions containing <5% acid, providing exceptional performance and durability
- Excellent performance (precision and signal-to-noise ratio)

Plastic Body Nebulizers

Description	PinAAcle 900 Part No.	AAnalyst 200/400 Part No.	AAnalyst 100/300/700/800 Part No.
High-Sensitivity Nebulizer with Pt/Ir Capillary			
Nebulizer Assembly	**N3160144**	**N3150188***	**B0505480****
Flame Burner Assembly (includes N3160144)	**N3160179**		
Impact Bead	**B0505086**	**B0505086**	**B0505086**
O-Ring	**09902015**	**09902015**	**B0190672**
O-Ring	**09926126**	**09926126**	**B0506143**
O-Ring 9.25 X 1.78			**B0174378**
Needle Assembly	**B3150525**	**B3150525**	**B0505983**
Spring	**09920483**	**09920483**	**B0165332**
End Cap	**N3160511**	**N0370392**	**N0370392**
Spacer	**B3150531**	**B3150531**	
Sample Tube	**B3150458**	**B3150458**	**09908265**
High-Sensitivity Nebulizer with Tantalum Capillary			
Nebulizer Assembly			**B0505590**
Impact Bead			**B0505086**
O-Ring 1.78 X 1.02			**B0190672**
O-Ring 4.47 X 1.78			**B0506143**
O-Ring 9.25 X 1.78			**B0174378**
Spring			**B0165332**
End Cap			**N0370392**
GemTip™ Nebulizers			
GemTip Nebulizer Assembly			**N0370394**
High-Sensitivity Nebulizer Assembly			**N0370393**
Impact Bead			**B0505086**
Spring			**09902473**
End Cap			**N0370392**

*May also be used with AAnalyst 100/300/700/800
**May also be used with AAnalyst 200/400

Metal Body Nebulizers

Description	PinAAcle 900 Part No.	AAnalyst 200/400 Part No.	AAnalyst 100/300/700/800 Part No.
Stainless Steel Nebulizer			
Nebulizer Assembly (Aqueous)	**N3160143**	**03030352**	**03030352**
Nebulizer Assembly (Organics)	**N3160158**		
Flame Burner Assembly (includes N3160143)	**N3160182**		
Impact Bead	**00572615**	**00572615**	**00572615**
Capillary Assembly	**03030354**	**03030354**	**03030354**
O-Ring Kit (Includes O-Rings in Neb Assembly)		**N9300065**	**N9300065**
O-Ring 0.176 ID x 0.070 WD	**09902005**	**09902005**	**09902005**
O-Ring 0.364 ID x 0.070 WD	**09902015**		
O-Ring 0.208 ID x 0.070 WD	**09902239**	**09902239**	**09902239**
Spring	**03031806**	**03031806**	**03031806**
End Cap	**N3160505**	**00570984**	**00570984**
Corrosion-Resistant Nebulizer			
Nebulizer Assembly		**03030404**	**03030404**
Capillary Assembly		**03030402**	**03030402**
O-Ring Kit (Includes O-Rings in Neb Assembly)		**N9300065**	**N9300065**
Spring		**03031806**	**03031806**
End Cap		**00570984**	**00570984**
Platinum Alloy Nebulizer			
Nebulizer Assembly		**03030299**	**03030299**
Capillary Assembly		**03030433**	**03030433**
O-Ring Kit (Includes O-Rings in Neb Assembly)		**N9300065**	**N9300065**
Spring		**03031806**	**03031806**
End Cap		**00570984**	**00570984**

O-Rings for Sampling Accessories

Description	Kalrez material Organic/Aqueous Part No.	Non-Kalrez material Aqueous Only Part No.
Nebulizer, End Cap, and Burner Head O-Ring Kit for Plastic Nebulizer for PinAAcle AA. Include: 09200369 (2), 09200276 (2), 09200272 (1)	**N3160157**	
Nebulizer, End Cap, and Burner Head O-Ring Kit for Stainless Steel Nebulizer for PinAAcle AA. Includes: 09200271 (1), 09200273 (2), 09200274 (1), 09200276 (2)	**N3160156**	
Nebulizer O-Ring Kit for Stainless Steel Nebulizer for PinAAcle AA. Includes: 09200271 (1), 09200273 (2), 09200274 (1), 09200276 (2)	**N3160192**	
Nebulizer O-Ring Kit, Stainless Steel: 09200271 (1), 09200273 (2), 09200274 (1)	**N2010247**	**N2010247**
Nebulizer O-Ring Kit for Plastic Nebulizer for PinAAcle AA. Includes: 09200369 (2), 09200276 (2), 09200272 (1)	**N3160193**	
Nebulizer O-ring Kit for AA200/400. Includes: 09200369 (2), 09200340 (1), 09200276 (2), 09200272 (1)	**N2010246**	
End Cap O-Ring Kit for PinAAcle AA. Includes: 09200275 (4), 09200277 (1)	**N3160194**	
End Cap Accessory, O-Ring Kit09200277 (1), 09200341 (2), 09200342 (2)	**N2010245**	**N2010245**
Metal Body Nebulizer Assembly for PinAAcle (Organics)	**N3160158**	**N3160143**
High Sensitivity Plastic Nebulizer Assembly for PinAAcle (Organics)	**N3160159**	**N3160144**
O-Ring (2) 9.25 X 1.78 MM for (Metal Body/Plastic) Nebulizer Assembly	**09200276**	**09902015**
O-Ring (1) 1.80 X 1.00 MM for Metal Body Nebulizer for PinAAcle AA	**09200271**	**09926083 & 09902102**
O-Ring (1) 2.00 X 1.00 MM for High sensitivity Plastic Nebulizer Assembly	**09200272**	**09926127**
O-Ring (2) 4.47 X 1.78 MM for Metal Body Nebulizer for PinAAcle AA	**09200273**	**09902005**
O-Ring (1) 5.28 X 1.78 MM for Metal Body Nebulizer for PinAAcle AA	**09200274**	**09902239**
O-Rings (4) 7.65 X 1.78 MM for End Cap Assembly for PinAAcle AA	**09200275**	**09200253**
O-Ring (1) 47.29 X 2.62 MM for End Cap Assembly for PinAAcle AA	**09200277**	**09902147**
Burner Head O-Ring (1) 24.99 X 3.53 MM for PinAAcle/AAnalyst AA	**09200278**	**09200079**
O-Rings 1.42 x 1.52 mm for High Sensitivity Plastic Nebulizer (Capillary kit) 1.42 x 1.52 mm	**09200369**	
O-Ring Viton 4.47 X 1.78 MM for Burner Connector		**09200360**

PinAAcle Nebulizers and Assemblies Quick Reference

Description	Type	Needle	O-Ring Type	Complete Assembly	End Cap Assembly	Replacement Needle Assembly
Plastic High Sensitivity (standard)	Aqueous	Platinum/Iridium	Viton	**N3160144**	**N3160511**	**B3150525**
Plastic High Sensitivity	Aqueous or Organics	Platinum/Iridium	Kalrez	**N3160159**	**N3160189**	**N3160154**
Plastic High Sensitivity (suitable for aqua regia in addition to organics)	Aqueous or Organics	Tantalum	Kalrez	**N3160152**	**N3160189**	**N3160146**
Stainless Steel (standard)	Aqueous	Stainless	Viton	**N3160143**	**N3160505**	**03030354**
Stainless Steel	Aqueous or Organics	Stainless	Kalrez	**N3160158**	**N3160188**	**N3160153**
Stainless Steel	Aqueous	Plastic	Viton		**N3160505**	**03030402**
Stainless Steel	Aqueous	Platinum Alloy	Viton		**N3160505**	**03030133**
Description	**Type**			**Burner Drain Assembly**	**Drain Bottle**	
Drain Assembly	Aqueous			**N0400058**	**09904991**	
Drain Assembly	Organics			**N3150232**	**09200122**	

AA200/400 Nebulizers and Assemblies Quick Reference

Description	Type	Needle	O-Ring Type	Complete Assembly	End Cap Assembly	Replacement Needle Assembly
Plastic High Sensitivity (suitable for aqua regia in addition to organics)	Aqueous or Organics	Tantalum	Kalrez	**N2010250**		**N3160146**
Nebulizer, Plastic	Aqueous or Organics	Tantalum	Kalrez	**N2010250**	**N2010245**	**N3160146**

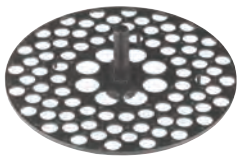
Nebulizer Accessories

Description	Part No.
Capillary Tubing	**09908265**
Nebulizer Cleaning Wires Pkg. 5	**03030135**
Nebulizer Grease	**03030405**

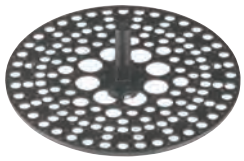
Nebulizer Capillary Tubing

Nebulizer Cleaning Wires

Nebulizer Grease



88-Position Tray



148-Position Tray

Furnace Autosampler Trays

For a quick change to another series of samples, a second sample tray is recommended.

For Model AS-800/AS-900

Description	Part No.
88-Position Tray, Polypropylene 80 sample locations for 2.0, 2.5 or 3.5 mL sample cups. Each sample tray also has eight positions for 7.0 mL reagent containers.	**B3001507**
148-Position Tray, Polypropylene 132 sample locations for 1.2 mL sample cups and eight locations for 2.5 or 3.5 mL sample cups. Each sample tray also has eight positions for 7.0 mL reagent containers. One is provided with the autosampler.	**B3001506**
Cover	**B3001505**
Pipette Arm	**B3002046**

Furnace Sampling Probe

Made of PTFE, these are capable of pipetting a variety of corrosive matrices and organic solutions.

Features and Benefits

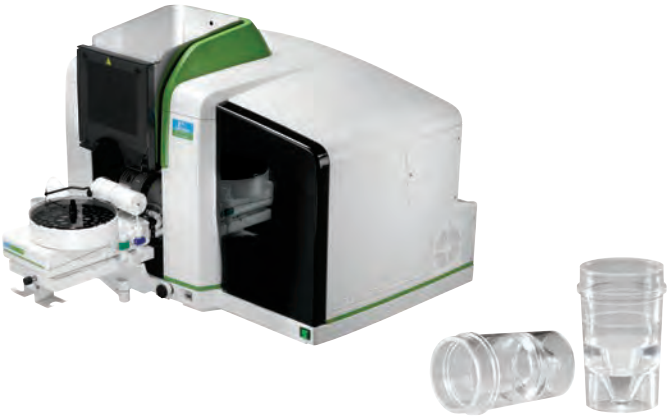
- Works well with solvent and acid-resistant sampling components
- PTFE pipette tips and capillaries reduce contamination
- Easy replacement

Description	Part No.
For Models AS-60/AS-70/AS-71/AS-72/AS-800/AS-900	**B0129258**

Reagent Containers

For blank solutions, reagent solutions or matrix modifiers.

Description	Part No.
Round Reagent Containers For Models AS-40/AS-60/AS-70/AS-71/AS-72. 25 mL polypropylene. Suitable for organic solutions.	**B0101164**
30 mL Polystyrene – Not for organic solutions.	**B0102332**
Cloverleaf-shaped Reagent Containers For Models AS-60/AS-70/AS-71/AS-72. 30 mL polypropylene.	**B0132799**



GRAPHITE FURNACE AUTOSAMPLER CUPS

Sample cups are of heavy-duty construction to prevent cracking or tipping. Their conical design allows for use of nearly the entire sample.

Your choice of materials:

- **Polystyrene** – Clear, recommended for use with most aqueous solutions
- **Polyethylene** – Translucent, low-density, recommended for use with most aqueous solutions
- **PTFE** – Recommended for use with most concentrated acids including HF, and for analyses where the lowest detection levels are required
- **Polypropylene** – Translucent; preferred for most solvents

Volume	Compostition	Qty.	Part No.
1.2 mL*	Polypropylene	2,000	**B0510397**
2.0 mL	Polyethylene	1,000	**B0087056**
2.0 mL	Polystyrene	1,000	**B0119079**
2.0 mL	PTFE	30	**B0087600**
2.5 mL	Polypropylene	1,000	**B3001566**
3.5 mL	Polystyrene	100	**B0129303**
7.0 mL**	Polypropylene	100	**B3001567**

* For use with AS-71/72/800/900 ** For use with AS-800/AS-900

Pliers and Accessories

Description	Part No.
For 1.2 mL sample cups.	**B0510398**
Drain Bottle without Cap 2L	**B0104344**
Rinse Bottle	**B0104281**

Check Valves

Description	Aqueous Part No.	Organics Part No.
Check Valve Inlet	**B3002007**	**B0105973**
Check Valve Outlet	**B3002006**	**B0105974**
Inlet and Outlet Kit	**B3001485**	

QUIET, OIL-LESS AND CLEAN

AA ULTRA QUIET OIL-LESS AIR COMPRESSOR

PerkinElmer is expanding its compressor product portfolio to include an industrial grade, quiet, oil-less compressor for dependable and clean air supply. With the addition of a water separator with a 5 micron particle filter, no liquid transfers into the air supply, providing you with contaminant free air. Each quiet, vibration free compressor comes standard with an internally and externally coated air tank with top drain. The AA Ultra Quiet Oil-Less Air Compressor features a low operating sound level of 60 dB and comes completely outfitted to operate the PerkinElmer Atomic Absorption (AA) Spectrometers.

Features and Benefits:

- Completely quiet oil-less operation
- Delivers clean and dry instrument grade air
- Water separator with 5 micron particle filter and auto drain assures no liquid transfer
- Specialty coated cylinders and high temperature piston rings for long service life
- Durable air tank with top drain and internal/external coating
- Low annual operating costs
- A complete compressed air station incorporating an outlet pressure regulator, tank and outlet pressure gauge, shut off ball valve, ASME safety valve, and pressure switch allowing for complete automatic operation

Specifications	
Horse Power	1 HP
Output CFM	4.2 CFM
Output L.	120 L./min
Max Pressure PSI	120 PSI
Max Pressure Bar	8 bar
Max Current 110V	7.8 Amps
Max Current 220V	3.8 Amps
Noise Level	60 db/A
Tank Size Gal.	6
Tank Size Liters	24
Dimensions	16″ x 16″ x 21″
Weight	53.8 Lbs.
Packed Dimensions	20″ x 20″ x 25″
Packed Weight	65.8 Lbs.

Description	Part No.
Compressor 115V/60Hz	**N9306345**
Compressor 220V/50-60Hz	**N9306346**

Description	Part No.
Replacement Air Intake Filter	**N0777870**
Micron Dryer Filter Element	**N0777871**

ISO 9001-2008 Certified

ISO 13485-2008 Certified

EXCLUSIVE DESIGN
ENSURES EVEN HEATING

NEW!
THGA GRAPHITE TUBES WITH ADVANCED PLATFORM™

The exclusive and patented Advanced Platform design offers an alternative to our Standard Integrated Platform design. With the current Integrated Platform design, the platform attaches to the tube wall along a single side that runs the length of the platform. The new Advanced Platform design suspends the platform in the tube using three small pins in a triangular layout. This has the advantage of minimizing wall contact and reducing thermal conduction from the tube walls resulting in even and rapid heating almost exclusively from thermal radiation, an ideal platform.

Advanced Platform Features:

- Even and rapid heating
- Improved sensitivity for some applications
- Improved batch to batch reliability
- Exclusive and patented design - only from PerkinElmer!

Advanced Platform™ THGA Graphite Tubes NEW!

Description	Advanced Platform Part No.	Advanced Platform w/End Caps Part No.
5-pack	**N9307830**	**N9307832**
20-pack	**N9307831**	**N9307833**

STANDARD THGA GRAPHITE TUBES

Today's analysts expect exceptional analytical performance from their graphite furnace atomic absorption spectrometers. That performance must be reproducible from day to day with respect to sensitivity (characteristic mass), accuracy and precision.

The graphite tube, the heart of the graphite furnace, plays a vital role in the overall stability of an analysis. In order to assure stable analytical conditions from one atomization cycle to the next, and from graphite tube to graphite tube, all graphite parts — contacts, tubes and platforms — must be subject to strict quality control by both the instrument manufacturer and the graphite manufacturer.

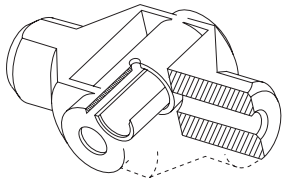
PerkinElmer's unique, transversely-heated graphite tube includes an integrated platform. The exceptionally uniform temperature distribution obtained with transverse heating significantly reduces or eliminates condensation of the sample matrix components and "memory" effects, and improves the atomization efficiency for refractory elements.

Standard THGA Graphite Tubes

Description	Part No.
5-pack	**B3000641**
20-pack	**B0504033**
100-pack	**N3110147**

Standard THGA Graphite Tubes with End Caps

For improved characteristic mass with volatile and medium refractory elements such as Ag, As, Cd, Co, Cr, Cu, Pb, Se and Tl, the THGA graphite tubes with end caps are recommended. Note: THGA graphite tubes with end caps are not recommended for refractory elements such as V or Ba.



Features and Benefits

- Improved detection limits for volatile and medium refractory elements
- Faster drying for complex matrices due to enlarged dosing hole

Standard THGA Graphite Tubes with End Caps

Description	Part No.
5-pack	**B3000653**
20-pack	**B3000655**

UltraClean THGA Graphite Tubes

For the lowest possible detection limits, residual contaminant levels may not be low enough to meet your requirements. For the most demanding analyses, PerkinElmer offers UltraClean THGA graphite tubes — delivering exceptionally low levels of contamination due to advanced high-temperature gas-phase cleaning procedures. UltraClean graphite tubes offer unmatched analytical advantages for special applications such as the determination of extremely low traces of Na, Ca, Fe, Cr and Ni in ultra-clean reagents used in the semiconductor industry, and ultra-trace analyses of environmental, clinical, or food samples.

Features and Benefits

- UltraClean THGA graphite tubes have the lowest possible contamination levels due to extensive high-temperature gas-phase cleaning procedures
- UltraClean THGA graphite tubes are tested and specified for blank levels of Cr, Ni, V, Mo, Ti (<0.003 integrated absorbance units) and Na, Fe, Al, Si, Ca (<0.0005 integrated absorbance units)

UltraClean THGA Graphite Tubes

Description	Part No.
5-pack	**B3140361**
20-pack	**B3140362**

THGA Instrument Mirror

Used to optimize drying temperatures and times.

Description	Part No.
THGA Instrument Mirror	**B0851900**

THGA Contact Cylinders

These graphite contact cylinders are engineered for a precise fit so that variations in electrical contact — which might affect the analytical performance — are reduced to a minimum. Contact cylinders with a modified injection port area help to minimize condensation and improve analytical performance with difficult matrices.

Standard THGA Graphite Contact Cylinders

Description	Part No.
1 pair	**B0504035**
5 pairs	**B0504036**

Modified THGA Contact Cylinders

Description	Part No.
1 pair	**B3002103**
5 pairs	**B3002102**

Accessories and Spare Parts

Description	Part No.
O-Ring (behind Contact Cylinder, front and back)	**B0500748**
Contact Cylinder Removal Tools	**B3120405**
THGA Filter Cartridge AA600 Fume Extractor qty. 50.	**B0509065**
Spare Graphite Tip for fume extraction system	**B0506722**
Pliers	**09907925**
THGA Quartz Window	**B0198005**
THGA Quartz Window O-Ring	**B0501236**

Matrix Modifiers for Graphite Furnace AA

PerkinElmer provides you with the maximum performance and the lowest possible detection limits with our high-quality matrix modifiers.
PerkinElmer matrix modifiers thermally stabilize the analyte, allowing higher pyrolysis temperatures to be used, reducing background absorption, and eliminating potential interferences.

Features and Benefits

- High-purity compounds minimize the risk of contamination
- Optimum graphite furnace program can be used due to reduced analyte volatility

Matrix Modifiers

Modifiers	Concentration	Volume	Part No.
$Mg(NO_3)_2$	1% Mg (as nitrate)	100 mL	**B0190634**
Pd	1% Pd (as nitrate)	50 mL	**B0190635**
$NH_4H_2PO_4$	10% $NH_4H_2PO_4$	100 mL	**N9303445**

MANUFACTURED TO THE HIGHEST QUALITY SPECIFICATIONS

The production of high-quality graphite components requires stringent quality control. To ensure high quality and consistency, a specific grade of high-density base graphite material has been developed for PerkinElmer's exclusive use. This base graphite material is used for the manufacturing of all PerkinElmer graphite tubes.

Selection and careful control of raw materials are extremely important. The composition and the microstructure of the base graphite material determine the specific resistivity of the tube and its heating characteristics.

When you purchase graphite supplies from PerkinElmer, you get the results of our many years of experience with quality graphite parts.

The proper performance, maintenance, and serviceability of our graphite furnace systems can be assured only through the use of genuine PerkinElmer graphite components.

PYROCOATED GRAPHITE TUBES

Grooved Pyrocoated Graphite Tubes

Internally grooved to accept L'vov platforms. Does not include platform.

Description	Part No.
5-pack	**B0137111**
10-pack	**B0121092**
20-pack	**B3001254**
100-pack	**N3110146**

Pyrocoated Graphite Tubes*

Description	Part No.
5-pack	**B0105197**
10-pack	**B0135653**
20-pack	**B3000342**
20-pack (Forked Platform)	**B0505057**
50-pack	**B0091504**

*Not compatible with L'vov platforms

PYROCOATED GRAPHITE TUBES WITH INTEGRATED PLATFORMS

Proven in labs throughout the world, graphite tubes with integrated platforms provide superior performance and are easy to use. Graphite tubes with integrated platforms are machined from one piece of graphite and are totally pyrocoated, providing exceptional tube-to-tube reproducibility. The spherically-shaped platform accommodates up to 50 µL of sample.

Features and Benefits

- Provide STPF conditions for volatile and nonvolatile refractory elements due to the significantly higher heating rates of tube and platform, which can be used for all elements
- Offer an extra measure of convenience versus manually inserting a separate platform
- Provide longer life with many aggressive sample matrices, such as concentrated acids

Pyrocoated Graphite Tubes with Integrated Platforms

Description	Part No.
5-pack	**B3001262**
20-pack	**B3001264**
40-pack	**N9300651**

Uncoated Graphite Tubes*

Description	Part No.
20-pack	**B3001253**
50-pack	**B0070699**

*Not compatible with L'vov platforms

NEW!

PYROCOATED ADVANCED PLATFORM GRAPHITE TUBES

The exclusive and patented Advanced Platform design offers an alternative to our Standard Integrated Platform design. With the current Integrated Platform design, the platform attaches to the tube wall along a single side that runs the length of the platform. The new Advanced Platform design suspends the platform in the tube using three small pins in a triangular layout. This has the advantage of minimizing

wall contact and reducing thermal conduction from the tube walls resulting in even and rapid heating almost exclusively from thermal radiation, an ideal platform.

Advanced Platform Features:

- Even and rapid heating
- Improved sensitivity for some applications
- Improved batch to batch reliability
- Exclusive and patented design - only from PerkinElmer!

Graphite Tubes with Advanced Platform **NEW!**

Description	Part No.
5-pack	**N9307834**
20-pack	**N9307835**

L'VOV PLATFORMS

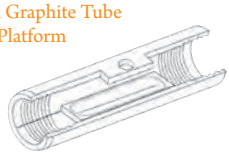
The L'vov platform is a small plate of solid pyrocoated graphite that is inserted into the graphite tube. It has a slight depression in the center, which can accommodate up to 50 µL of solution. The function of the L'vov platform is to isolate the sample from the tube walls to allow more reproducible atomization of the sample through indirect heating. The platform heats primarily by the radiation given off from the tube walls. Sample vaporization and atomization occur after the tube reaches a steady-state temperature.

Use of the L'vov platform provides:

- Vaporization into a higher temperature gas atmosphere producing more free atoms, which reduce interferences
- Longer tube life because aggressive samples are only in contact with the solid pyrolytic graphite platform

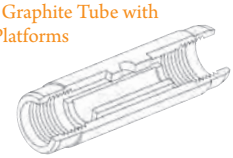
Description	Part No.
20-pack	**B3001256**
100-pack	**N3110145**

Pyrocoated Graphite Tube with L'vov Platform



Cross-section of the PerkinElmer HGA graphite tube with manually inserted L'vov platform shown.

Pyrocoated Graphite Tube with Integrated Platforms



Cross-section of the PerkinElmer HGA graphite tube with integrated platform shown.

CONTACT CYLINDERS

The graphite contact cylinders used in the HGA Graphite Furnace are engineered for a precise fit so that variations in electrical contact — which might affect the analytical performance — are reduced to a minimum. The graphite contacts are shaped so that they completely encase the graphite tube. Thus, the graphite tube is located in a defined inert environment, which ensures uniform heating conditions and long tube lifetime.

Contact Cylinders

For HGA-900/850/800/700/600/300/PinAAcle H Furnaces

- Includes left-hand Contact, right-hand Contact, Shield Ring

Description	Part No.
1 set	**B0128495**
5 sets	**B3130086**

HGA Contact Removal Tool

Description	Part No.
HGA 900/AA 700/800/PinAAcle 900	**B3121301**

HGA Instrument Mirror

Used to optimize drying temperatures and times.

Description	Part No.
HGA Instrument Mirror	**B0080259**

Matrix Modifiers for Graphite Furnace AA

PerkinElmer provides you with the maximum performance and the lowest possible detection limits with our high-quality matrix modifiers.

PerkinElmer matrix modifiers thermally stabilize the analyte, allowing higher pyrolysis temperatures to be used, reducing background absorption, and eliminating potential interferences.

Modifiers	Concentration	Volume	Part No.
$Mg(NO_3)_2$	1% Mg (as nitrate)	100 mL	**B0190634**
Pd	1% Pd (as nitrate)	50 mL	**B0190635**
$NH_4H_2PO_4$	10% $NH_4H_2PO_4$	100 mL	**N9303445**

AA GRAPHITE FOR NON-PERKINELMER INSTRUMENTS

PerkinElmer supplies a wide range of graphite tubes for non-PerkinElmer instrumentation. Graphite tubes are made with the highest quality material guaranteed to work for your AA instrument.

Use the convenient tables below to identify the compatible graphite furnace tube for your AA instrument.

GBC Instruments

Description	Qty/pack	GBC Part No.	Part No.
Standard tube, pyrolytically coated	10	**99-0059-00**	**N9304600**
Platform, pyrolytically coated	10	**99-0060-00**	**N9304601**
Standard tube, coated, with Omega-platform	10	**99-0342-00**	**N9304602**
Electrode contacts	2	**99-0061-00**	**N9304603**
Shroud	1	**45-0004-00**	**N9304604**

Hitachi® Instruments

Description	Qty/pack	Hitachi® Part No.	Part No.
Standard tube, pyrolytically coated	10	**180-7444**	**N9304600**
Standard tube, uncoated	10	**180-7400**	**N9304601**
Standard platform, pyrolytically coated	10	**180-7404**	**N9304602**
Tube for extented injection volume, pyrolytically coated	10	**190-6003**	**N9304603**
Contacts, AD 20 mm	2	**180-7401**	**N9304604**
Zeeman contacts, AD 18 mm	2	**172-8805**	**N9304610**
Omega Tube	10	**N/A**	**N9304611**

Shimadzu® Instruments

Description	Qty/pack	Shimadzu® Part No.	Part No.
Standard tube, pyrolytically coated (90° contact cone)	10	**206-50588**	**N9304612**
Standard tube, uncoated (90° contact cone)	10	**206-50587**	**N9304613**
Tube with built-in platform, coated (90° contact cone)	10	**206-5887-02RI**	**N9304614**
Left Electrode with housing (90° cone)	1	**206-50602**	**N9304615**
Right Electrode (90° cone)	1	**206-50603**	**N9304616**

Thermo® Instruments

Description	Qty/pack	Thermo® Part No.	Part No.
Partridged tube, uncoated	10	**9423 393 95031**	**N9304617**
Partridged tube, coated	10	**9423 393 95071**	**N9304618**
Partridged tube, coated (extended lifetime)	10	**9423 393 95041**	**N9304619**
Zeeman Electrode Contact	2	**9423 393 95161**	**N9304620**
Standard Electrode Contact	2	**9423 393 95011**	**N9304621**
Omega Tube	10	**9423 490 20101**	**N9304622**

Agilent® Instruments

Description	Qty/pack	Agilent Part No.	Part No.
Plateau tube, pyrolytically coated	10	**63-100011-00**	**N9304623**
Bone platform,pyrolytically coated (for use in plateau tubes)	10	**63-100013-00**	**N9304624**
Partition tube, pyrolytically coated	10	**63-100012-00**	**N9304625**
Partition tube, uncoated	10	**63-100015-00**	**N9304626**
Partition tube, pyrolytically coated extended life	10	**63-100012-EL**	**N9304627**
Omega-platform tube	10	**63-100037-00**	**N9304628**
Shroud	1	**63-100018-00**	**N9304629**
Electrode	2	**63-100016-00**	**N9304630**
Zeeman Shroud	1	**63-100019-00**	**N9304631**
Zeeman Electrode (Older Instruments)	2	**63-100017-00**	**N9304632**
Zeeman Electrode (Newer Instruments)	2	**63-100035-00**	**N9304633**
Zeeman Shroud GTA120, pyrocoated	1	**63-100036-00**	**N9304634**

See Atomax 1.5" hollow cathode lamps for non-PerkinElmer instruments on page 19.

PerkinElmer SMS 100 Mercury Analyzer

The SMS 100 is a dedicated mercury analyzer for the determination of total mercury in solid and liquid samples using the principle of thermal decomposition, amalgamation and atomic absorption described in U.S. EPA Method 7473.

The SMS 100 uses a decomposition furnace to release mercury vapor instead of the chemical reduction step used in traditional liquid-based analyzers. Both solid and liquid matrices can be loaded onto the instrument's autosampler and analyzed without acid digestion or sample preparation prior to analysis. Some of the many sample matrices applicable to SMS 100 technology include sludges, sediments, soils, wastewaters, effluents, coal, fly ash, minerals, ores, fertilizers, various foodstuffs, blood, urine and hair.

Amalgamator Tube

Catalyst Tube

Nickel Boat

SMS 100 Consumables and Supplies

Description	Part No.
Nickel Boats (Qty. 42)	**N9309017**
Quartz Combustion Boats (Qty. 10)	**N9309032**
Replacement Carbon 500 g	**N9309035**
Catalyst Tube (Packed)	**N9309036**
Autosampler Boat Shuttle	**N9309019**
Exhaust Tubing Assembly	**N9309006**
Amalgamator Tube	**N9309007**
Mercury Lamp	**N9309010**
Hg Vapor Trap Kit with Carbon Material	**N9309011**
Nafion® Drying Tube	**N9309021**
Sample Substrate 250 mL	**N9309103**
Oxygen Two Stage Regulator	**N9309004**
Oxygen, Nitrogen, Argon Supply	**N9309009**
Autosampler Boat Shuttle	**N9309019**
UV Windows ½ d x 1/16 t 10–20 w (Qty. 2)	**N9309024**
O-Ring 1/16 i.d. x 1/16 w Viton	**N9309025**
O-Ring Amalgamator ¼ i.d., ⅜ o.d. Viton	**N9309026**
O-Ring Injector ⅝ i.d., o.d. ¾	**N9309027**
O-Ring Catalyst Front Viton	**N9309028**
O-Ring .414D Catalyst Rear	**N9309030**
O-Ring Kit for SMS 100	**N9309029**
High Sensitivity Absorption Cell 5 inch	**N9309033**
Low Sensitivity Absorption Cell 1 inch	**N9309034**

Spares Kits

Description	Qty	Part No.
Basic Spares Kit		**N9309109**
Kit Includes:		
Amalgamator Tube	1	**N9309007**
Mercury Source Lamp	1	**N9309010**
Nafion® Drying Tube	1	**N9309021**
O-Ring Kit	1	**N9309029**

Description	Qty	Part No.
Extended Spares Parts Kit		**N9309110**
Kit Includes:		
Amalgamator Tube	2	**N9309007**
Sample Gas Tubing Assembly	1	**N9309008**
Mercury Source Lamp	1	**N9309010**
Injector Fork Assembly	1	**N9309012**
CVAAS Tubing Kit	1	**N9309013**
Amalgamator Heater Coil	1	**N9309066**
6 g Krytox® Tube Grease	1	**N9309108**
Nafion® Drying Tube	1	**N9309021**
Quartz Windows	6	**N9309024**
O-Ring Kits	2	**N9309029**
Window End Caps	8	**N9309031**
5 inch Optical Cells	2	**N9309033**
1 inch Optical Cell	1	**N9309034**

CONCENTRIC NEBULIZERS FOR A WIDE VARIETY OF APPLICATIONS

MEINHARD® NEBULIZERS

The MEINHARD® concentric glass nebulizers reflect exacting standards in design and manufacturing. They provide excellent sensitivity and precision for aqueous solutions and samples with few dissolved solids (less than 1%). Meinhard nebulizers for Optima include Standard Nebulizer Solution Fitting, 0.5 mm PTFE (N0777414) and PFA Gas Quick Connect (N8121036).

Nebulizer Solution Fitting (N0777414)

Nebulizer Clip (N0777460)

PFA Gas Quick Connect (N8121036)

For Optima 2x00/3x00/4x00/5x00/7x00/8x00

Type	Ar Flow Rate	Uptake Rate	Part No.
Type A3	1 L/min	3 mL/min	**00472020**
Type C1**	1 L/min	1 mL/min	**00472022**
Type K3	0.7 L/min	3 mL/min	**N0681574**
Type K1*	1 L/min	1 mL/min	**N0777707**
Standard nebulizer solution fitting, 0.5 mm PTFE. 0.5mm x 70 cm capillary			**N0777414**
Nebulizer Clip for Meinhard Nebulizers, Qty. 1			**N0777460**
PFA Gas Quick Connect			**N8121036**

*Standard with Optima 8x00 instrument.
**Standard for Optima 2x00/4x00/5x00/7x00 Instrument

End Cap for Concentric Nebulizers

End cap to fit any concentric nebulizer onto a Scott Spray Chamber.

ICP Model	Part No.
Optima 2x00/3x00/4x00/5x00/7x00/8x00	**N0680504**

MIRA MIST® NEBULIZERS

For Optima 2x00/3x00/4x00/5x00/7x00/8x00

Description	Uptake Rate	Part No.
PEEK Mira Mist Excellent mist, and can handle high level of particulates in sample.	0.2 to 2.5 mL/min	**N0775330**
PTFE Mira Mist For samples with high HF, Sulphuric, and some other solvents that attack Peek.	0.2 to 2.5 mL/min	**N0777031**
Ari Mist Very Low Sample Flow	0.050 to 1.0 mL/min	**N0777032**
T2100 For high levels of undissolved solids such as oil samples, geologic samples, and slurries.	0.5 to 3.0 mL/min	**N0777033**

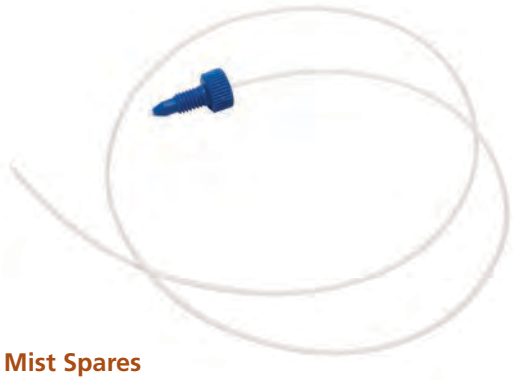
Shown with UniFit Connector

MICROMIST™ NEBULIZERS

The MicroMist micro-uptake glass concentric nebulizer offers high performance for limited sample volumes. MicroMists with sample uptakes 0.2 – 0.6 mL/min are fitted with a UniFit connector with 1.3 mm o.d. x 0.50 mm i.d. x 700 mm long sample tubing (N0777513). MicroMists with sample uptakes 0.05 – 0.1 mL/min are fitted a UniFit connector with 1.3 mm o.d. x 0.25 mm i.d. x 700 mm long sample tubing (N0777514). EzyLok Connector Kit (N0777413) included. Material: Borosilicate glass.

For Optima 2x00/3x00 XL/3x00 DV/3000 SCX/4x00/5x00/7x00/8x00

Ar Flow Rate	Uptake Rate	Part No.
0.7 L/min	0.05 mL/min	**N0775349**
0.7 L/min	0.1 mL/min	**N0775348**
0.7 L/min	0.2 mL/min	**N0775347**
0.7 L/min	0.6 mL/min	**N0775346**



Mira Mist Spares

Description	Pkg.	Part No.
0.5 meters 0.44" OD x .018" ID	1	**N0777111**
0.5 meters 0.44" OD x .018" ID	10	**N0777112**
2 mm gas line with upchurch fittings	1	**N0777113**
Mira Mist Quick Release	1	**N0777114**
1/4" Adapter	1	**N0777115**
0.44" OD x .018" ID polyethylene tubing 3M	1	**N0777116**
0.44" OD x .018" ID polyethylene tubing 30M	1	**N0777117**

SEASPRAY™ NEBULIZERS

The SeaSpray concentric nebulizer is ideal for samples with high dissolved solids and offers outstanding nebulization efficiency for trace level analyses. It offers freedom from clogging while nebulizing solutions to the limit of solubility of most mineral salts and conferring significant sensitivity gains. Includes UniFit Connector with 0.75 mm ID x 1.3mm OD x 700 mm long tubing (N0777512) and EzyLok Connector Kit (N0777413). Material: Borosilicate glass.

For Optima 2x00/3x00 XL/3x00 DV/3000SCX/4x00/5x00/7x00/8x00

Ar Flow Rate	Uptake Rate	Part No.
0.7 L/min	2 mL/min	**N0775345**

For Optima 3000/3000 SCR/3x00 RL

Ar Flow Rate	Uptake Rate	Part No.
1.0 L/min	2 mL/min	**N0775340**

Conikal™ Nebulizer

Ideal for samples containing only moderate concentrations of dissolved salts, no particulates, and no hydrofluoric acid. Material: Borosilicate glass.

For Optima 2x00/3x00 XL/3x00 DV/3000SCX/4x00/5x00/7x00/8x00

Uptake Rate	Part No.
2 mL/min	**N0777487**

Slurry™ Nebulizer

Ideal for the analysis of used engine oils for wear metals. A sample which consists of small particulates in liquid matrix is a slurry and is suited to this nebulizer. Material: Borosilicate glass.

For Optima 2x00/3x00 XL/3x00 DV/3000SCX/4x00/5x00/7x00/8x00

Uptake Rate	Part No.
4 mL/min	**N0777488**

Ceramic VeeSpray™ Nebulizer

The Ceramic VeeSpray nebulizer is made from alumina ceramic, making it ideal for HF analyses. It provides reproducible performance when working with samples containing large particulates. Material: 99.8% Alumina Ceramic.

For Optima 2x00/3x00 XL/3x00 DV/3000SCX/4x00/5x00/7x00/8x00

Uptake Rate	Part No.
0.6 - 3.0 mL/min	**N0777489**

PolyCon™ Nebulizer

For routine high precision analyses involving samples digested in HF and are not high in dissolved solids. Material: HF Resistant Polyimide.

For Optima 2x00/3x00 XL/3x00 DV/3000SCX/4x00/5x00/7x00/8x00

Uptake Rate	Part No.
2 mL/min	**N0777490**

DuraMist™ Nebulizer

The DuraMist is an economical nebulizer for high precision analyses involving samples digested in HF. Recommended for samples containing up to 5% HF. For samples with higher concentrations of HF, the OpalMist PFA nebulizer is recommended. Material: HF Resistant PEEK

For Optima 2x00/3x00 XL/3x00 DV/3000SCX/4x00/5x00/7x00/8x00

Ar Flow Rate	Uptake Rate	Part No.
0.7L/min	0.4 mL/min	**N0777713**
0.7L/min	1.0 mL/min	**N0777714**

OpalMist™ Nebulizer

For high precision analyses requiring the highest chemical resistancy of HF, alkalis and organics. The OpalMist is capable of aspirating high concentrations of dissolved solids without clogging. An ideal nebulizer to handle geochemical samples which are typically dissolved in HF and are high is dissolved solids. Material: PFA.

For Optima 2x00/3x00 XL/3x00 DV/3000SCX/4x00/5x00/7x00/8x00

AR Flow Rate	Uptake Rate	Part No.
0.7 L/min	0.6 mL/min	**N0777735**
0.7 L/min	0.05 mL/min	**N0777738**
0.7 L/min	0.1 mL/min	**N0777737**
0.7 L/min	0.2 mL/min	**N0777736**
0.7 L/min	2 mL/min	**N0777734**

The Eluo™ Nebulizer Cleaner

The Eluo is designated to efficiently deliver a cleanser through the nebulizer capillary to dislodge particle build-up and thoroughly clean the nebulizer. One simple action does it all. No more messy procedures, waiting overnight or shattered nebulizers in ultrasonic baths.

Description	Part No.
For Newer OpalMist, PolyCon, DuraMist, Meinhard, other Glass Nebulizers.	**N0777712**
For OLD style OpalMist or PolyCon Nebulizers	**N0775358**

Connectors for MicroMist and SeaSpray Nebulizers

Description	Pkg.	Part No.
UniFit		
0.25 mm ID x 1.3 mm OD x 700 mm long	10	**N0777514**
0.50 mm ID x 1.3 mm OD x 700 mm long	10	**N0777513**
0.75 mm ID x 1.3 mm OD x 700 mm long	10	**N0777512**
1.30 mm OD X 0.75 mm ID x 700 mm long	3	**N0774077**
1/16 inch OD x 0.25 mm ID x 700 mm	10	**N0777845**
1/16 inch OD x 0.50 mm ID x 700 mm	10	**N0777846**
1/16 inch OD x 0.75 mm ID x 700 mm	10	**N0777847**
1/16 inch OD X 0.75 mm ID x 700 mm long	3	**N0774080**
UniFit-EzyFit Sample Tube	6	**N0777061**
EzyFit		
0.25 mm ID x 1.27 mm OD x 700 mm long	10	**N0777437**
0.50 mm ID x 1.27 mm OD x 700 mm long	10	**N0777436**
0.75 mm ID x 1.27 mm OD x 700 mm long	10	**N0777435**
0.25 mm ID x 1/16" OD x 700 mm long	10	**N0777464**
0.50 mm ID x 1/16" OD x 700 mm long	10	**N0777463**
0.50 mm ID x 1/16" OD x 700 mm long Twin	6	**N0777462**
UniFit-EzyFit Sample Tube	6	**N0777061**

EzyLok Kit for Nebulizer Gas Side Arm

Description	Part No.
EzyLok Kit - Includes: EzyLok Connector for 4mm Tubing, EzyLok 6mm Hose Adaptor, Nebulizer Hose Clip	**N0777413**

Description	Part No.
Nebulizer Pressure Hose Clips (standard)	**N0773197**
Nebulizer Clip for Meinhard Nebulizers	**N0777460**

PFA Nebulizer Obstruction Removal Kit

While naturally resistant to obstructions, PFA nebulizers may occasionally require maintenance. Use this kit to safely remove obstructions in all PFA-ST nebulizers for long-term high performance.

Description	Part No.
Nebulizer Obstruction Removal Kit	**N8145236**

HIGH EFFICIENCY MICROFLOW NEBULIZERS

MicroFlow nebulizers are resistant to clogging, reliably self-aspirated or pumped to produce a fine aerosol for high transport efficiency and high sensitivity.

PFA-ST Nebulizer

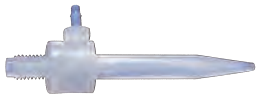
The PFA-ST MicroFlow nebulizer is made from high purity, HF resistant PFA. It has an exchangeable external sample uptake capillary. The sample uptake rate is controlled by the diameter of the external capillary or probe.

Features:

- Chemically resistant—ideal for strong acids, alkalis and organics
- Can be pumped from < 0.1 mL/min to 3.0 mL/min
- Direct analysis of volatile and non-volatile organic solvents

Description	Part No.
PFA-ST Nebulizer	**N0777049**

PolyPro-ST Nebulizer



The PolyPro-ST Nebulizer is an HF resistant alternative to the PFA nebulizers but has the same high efficiency aerosol generation. It is a robust nebulizer that can self aspirate with an exchangeable external sample uptake capillary or be used with a peristaltic pump.

Description	Part No.
PolyPro-ST Nebulizer	**N0777219**

PFA-ST3 Nebulizer

The PFA-ST3 Nebulizer is designated for superior clog resistance and higher sensitivity compared to the standard PFA nebulizer.

Description	Part No.
PFA-ST3 Nebulizer	**N0777676**

Sample Capillaries for ST Nebulizers

I.D.	Self-aspiration rate I.D. (@1L/m Ar)	Part No.
0.15 mm	20 µL/min (red)	**N8122382**
0.2 mm	50 µL/min (purple)	**N8145135**
0.25 mm	100 µL/min (green)	**N8122383**
0.3 mm	200 µL/min (yellow)	**N8145136**
0.5 mm	400 µL/min (orange)	**N8122384**
0.8 mm	700 µL/min (blue)	**N8145137**
1.0 mm	1 mL/min (gray)	**N8145138**

GemCone™ Low-Flow Nebulizers

Low-flow GemCones permit lower nebulizer gas flow rates, useful for spectral lines with high excitation energies and for providing a more robust plasma. GemCone Nebulizers require an end cap for use with Scott Spray Chambers.

ICP Model	Part No.
2x00/4x00/5x00/7x00/8x00	**N0770358**

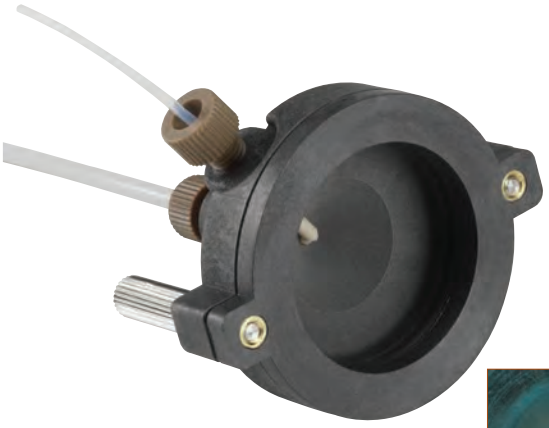
GemCone High Dissolved Solids Nebulizer

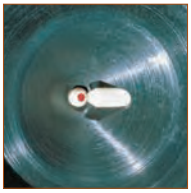
High solids GemCones are for samples with high dissolved solids (up to 20%). This conespray nebulizer allows you to analyze samples with higher solids concentration than is possible with a Cross-Flow nebulizer. GemCone nebulizers require an end cap for use with Scott Spray Chambers.

Description	Part No.
GemCone High Dissolved Solids Nebulizer	**N0690670**

GemCone Nebulizer Accessories

Description	Part No.
GemCone Sample Capillary Adapter	**N0371505**
End Cap for GemCone Nebulizers	**N0680504**
Quick Disconnect Tubing with Swagelock	**N0770336**
Quick Disconnect Tubing without Swagelock	**N0770610**
Capillary Tubing (10 ft.)	**09908265**
PTFE Capillary Tubing (1 FT.)	**09985708**





GemTip Cross-Flow II Nebulizers

Excellent general purpose nebulizer for the analysis of strong mineral acids (including HF) and samples with less than 5% dissolved solids. It can routinely handle 50% (v/v) solutions of HCl, HNO_3, H_2SO_4, H_2PO_4, 20% (v/v) HF and 30% (v/v) NaOH. Up to 20% NaCl can be aspirated by the nebulizer for 1 hour without clogging. Uses chemically resistant GemTips made of sapphire and ruby in a chemically resistant end cap.

ICP Model	Part No.
8x00	**N0780546**
2x00/4x00/5x00/7x00	**N0770546**

GemTip Cross-Flow II Nebulizer Tip Kits

The Tip Kit includes a clear sapphire sample tip and a red ruby argon tip. The tips are constructed of PEEK with the gem inserts noted for maximum corrosion resistance.

ICP Model	Part No.
8x00	**N0780676**
2x00/4x00/5x00/7x00	**N0690676**
O-Ring for GemTip II Tips qty. 1	**09921045**

Argon Humidifier with Bypass

The Argon Humidifier is commonly used in ICP analyses of samples with very high dissolved solids concentration. Helping to prevent salt build-up inside the sample introduction system, the Argon Humidifier allows uninterrupted and maintenance-free operation. The Argon Humidifier combines ease of operation, high performance and safety.

ICP Model	Part No.
Optima 2x00/4x00/5x00/7x00/8x00	**N0775331**

Standard Cyclonic Spray Chamber Part No. N0776052

Cyclonic O-Ring Free Part No. N0775351

Cinnabar Spray Chamber Part No. N0777494

MAXIMUM SENSITIVITY AND EFFICIENCY

Cyclonic Spray Chambers

The spray chamber is an integral part of the sample introduction system responsible for filtering the sample mist to permit the appropriate droplet size distribution to reach the plasma.

Save Time and Expense

- Decreased sample introduction system installation and optimization time due to the preset nature of the spray chamber/nebulizer combination
- More samples per hour due to minimal dead volume and efficient draining

Unique Design Characteristics

- The nebulizer port is oversized so that sample solution cannot build up around the nebulizer as it will in other cyclonic designs. This translates to less carryover, faster washout times and greater productivity from your Optima
- Each spray chamber incorporates a precisely-machined ridge along the inside top of the spray chamber. Both the angle and depth of the ridge are critical to performance. The result is efficient draining of sample waste and the elimination of large droplets being swept into the plasma. This eliminates the periodic "spiking" that adversely affects precision and fosters faster washout times

Standard and 0-Ring Free glass cyclonic spray chambers can be used with either GemCone or concentric glass nebulizers. HF resistant cyclonic spray chambers should be used with GemCone, SeaSpray or MicroMist nebulizers.

ICP Model	Type	Part No.
2x00/4x00/5x00/7x00/8x00	Standard*	**N0776052**
2x00/4x00/5x00/7x00/8x00	O-Ring Free	**N0775351**
2x00/4x00/5x00/7x00/8x00	O-Ring Free with Easy-Seal Threaded	**N0772017**

*Standard Cyclonic Spray Chamber (N0776052) with Adapter (N0770614): Spray Chamber Kit with Mount Part No. N0770605

See Sample Introduction Kits for complete spares kits.

Cinnabar™ 20mL Glass Cyclonic Spray Chamber

The Cinnabar spray chamber is a mini-cyclonic spray chamber which gives good sensitivity at very low uptakes. The Cinnabar's design and low volume is ideal for the reduction of memory and matrix effects and very fast washout. Volume 20 mL.

ICP Model	Type	Part No.
2x00/4x00/5x00/7x00/8x00	O-Ring Free	**N0777494**

Part No. N0770600 Part No. N0770614

Accessories and Drain Parts

Description.	Part No.
Cyclonic Spray Chamber Adapter	**N0770614**
Mounting Block only	**N0770600**
Drain Adapter Assembly for Scott Spray Chamber Includes the spray chamber fitting and tubing to pump out the waste solution from the spray chamber (does not include the peristaltic pump tubing)	**N0770613**
Carboy, 15 L	**09904991**
Drain Cap Assembly	**N0690271**

Part No. N0777438

Part No. N0777439

Connectors and Spares

Description	Pkg.	Part No.
EzyLok Connector for Jacketed Spray Chamber	4	**N0774101**
Helix Locking Screw	1	**N0777438**
Helix Seal	4	**N0777439**
Nebulizer Adaptor Plug 16/6 for N0776052 Spray Chamber		**N0776006**
O-Ring Set for Nebulizer Adaptor Plug 16/6		**N0776007**
O-ring kit for Tracey TFE Spray Chamber (N0777496) with Helix		**N0777844**

Oxygen Port Spray Chamber
Part No. N0777731

Baffled Cyclonic Spray Chambers

The Baffled Cyclonic Spray Chamber features a central transfer tube which acts as a secondary particle separator, helping to separate larger aerosol particles from the sample. This reduces solvent load in the plasma without compromising detection limits.

Features and Benefits

- The distance between the bottom of the baffle and the chamber wall is carefully controlled so that droplets cannot form on the bottom of the baffle. The advantage is smooth draining and improved precision
- The baffle is cut at a sharp angle so that a large cross-section of the spray chamber is sampled as opposed to a straight cut which would have a very small sampling cross-section. The advantage is more representative sampling and reduced matrix effect

ICP Model	Type	Part No.
2x00/4x00/5x00/7x00 DV/8x00	Standard	**N0776053**
2x00/4x00/5x00/7x00 DV/8x00	O-Ring Free	**N0775352**
2x00/4x00/5x00/7x00 DV/8x00 20mL	O-Ring Free	**N0777495**
2x00/4x00/5x00/7x00 DV/8x00 for Oil Analysis (4 mm baffle)	Standard	**N0776090**
2x00/4x00/5x00/7x00 DV/8x00 for Oil Analysis (4 mm baffle)	O-Ring Free	**N0775355**
2x00/4x00/5x00/7x00 DV/8x00 for Oil Analysis (4 mm baffle) with Oxygen Port	O-Ring Free	**N0777731**
4300V/5300V/7300V	Standard	**N0771501**
4300V/5300V/7300V	O-Ring Free	**N0775356**

Metal Ball Joint Clip

Used to connect spray chamber and torch. Includes tension screw for 4300V/5300V/7300V instrument.

Description	Part No.
Metal Ball Joint Clip	**N0773114**

HF Spray Chamber
Part No.
N0777497

HF Spray Chamber
Part No.
N0777496

HF Resistant Spray Chambers

ICP Model	Type	Part No.
4300/5300/7300V TFE PTFE, 50mL	O-Ring Free	**N0777497**
2x00/4x00/5x00/7x00 DV/8x00 TFE PTFE, 50mL	O-Ring Free	**N0777496**
O-ring kit for N0777496 Spray Chamber		**N0777844**

Scott Spray Chamber
Part No. N0770357

Scott Spray Chambers

The Scott Spray Chamber is made from corrosion-resistant material, which is inert to most mineral acids including HF, aqua regia and all organic solvents normally used in ICP analyses. The Scott-type design minimizes pulsations from the peristaltic pump. The Type II, two-piece design ensures leak-free performance. The removable inner tube allows the chamber to be easily disassembled for cleaning.

ICP Model	Part No.
2x00/4x00/5x00/7x00/8x00	**N0770357**
3000/3000 SCR/3x00 RL	**N0690640**
3x00 DV/XL/3000 SCX	**N0690720**

See Sample Introduction Kits for complete spares kits.

QUICK-CHANGE FOR MAXIMUM EFFICIENCY

Quick-Change Torch Module with Cyclonic Spray Chamber and Concentric Nebulizer

Complete torch and sample introduction module including complete Single-Slot Demountable Torch, mounting block, 2 mm Alumina Injector, Cyclonic Spray Chamber and MEINHARD® Concentric Nebulizer.

ICP Model	Part No.
8x00	**N0780607**
2x00/4x00/5x00/7x00	**N0770607**

Mounting Block

Mounting block only. Does not include torch, injector, spray chamber or nebulizer.

ICP Model	Part No.
Optima 2x00/4x00/5x00/7x00/8x00	**N0770600**

Quick-Change Torch Module for HF Analysis

Description	ICP Model	Part No.
HF-Resistant Analysis Includes GemCone High Dissolved Solids Nebulizer, Alumina 2.0 mm Injector, Quartz 3-Slot Torch, HF-Resistant Baffled Cyclonic Spray Chamber	Optima 4300V/5300V/7300V	**N0770911**

Quick-Change Torch Module for Oil Analysis

Description	ICP Model	Part No.
Used Oil Analysis Includes GemCone Nebulizer, Alumina 1.2 mm Injector, Quartz 3-Slot Torch, Baffled Cyclonic Spray Chamber	Optima 4300V/5300V/7300V	**N0770910**

Quick-Change Torch Module with Scott Spray Chamber and GemTip Cross-Flow II Nebulizer

Complete torch and sample introduction module including Demountable Single-Slot Torch, mounting block, 2 mm Alumina Injector, Scott Spray Chamber and GemTip Cross-Flow II Nebulizer. Useful when a separate sample introduction is required for running different sample types.

ICP Model	Part No.
8x00	**N0780606**
2x00/4x00/5x00/7x00 DV	**N0770606**
3000/3000 SCR/3x00 RL	**N0690610**
3x00 DV	**N0690812**
3x00 XL/3000 SCX	**N0690712**

Quick-Change Torch Module Support Stand

A free-standing support stand to hold your spare Quick-Change Torch Module or as a means of conveniently holding your module when working inside the sample compartment.

ICP Model	Part No.
2x00/4x00/5x00/7x00 DV/8x00	**N0770609**

OPTIMA™ ICP-OES
SAMPLE INTRODUCTION KITS

Description	Part No.
Cyclonic/Concentric Kit 8x00	**N0780617**
1 Slot Quartz Torch	**N0780130**
2.0 mm i.d. Alumina Injector	**N0781014**
Glass Cyclonic Spray Chamber	**N0776052**
Meinhard® Type K1 Nebulizer	**N0777707**
Quartz Torch Copper Ignitor Tape – Qty. 50 pcs.	**N0781097**

Description	Part No.
Cyclonic/Concentric Kit 2x00/4x00/5x00/7x00 DV	**N0770730**
1 Slot Quartz Torch	**N0770338**
Quartz Bonnet	**N0775289**
2.0 mm i.d. Alumina Injector	**N0775177**
Glass Cyclonic Spray Chamber	**N0776052**
Meinhard® Type C High Dissolved Solids Nebulizer	**00472022**
Quartz Torch Copper Ignitor Tape – Qty. 120 pcs.	**N0775297**

Description	Part No.
Scott/Cross-Flow II Kit 8x00	**N0780616**
1 Slot Quartz Torch	**N0780130**
2.0 mm i.d. Alumina Injector	**N0781014**
Scott Spray Chamber	**N0770357**
GemTip™ Cross-Flow II Nebulizer	**N0780546**
Quartz Torch Copper Ignitor Tape – Qty. 50 pcs.	**N0781097**

Description	Part No.
Scott/Cross-Flow II Kit 2x00/4x00/5x00/7x00 DV	**N0770731**
1 Slot Quartz Torch	**N0770338**
Quartz Bonnet	**N0775289**
2.0 mm i.d. Alumina Injector	**N0775177**
Scott Spray Chamber	**N0770357**
GemTip™ Cross-Flow II Nebulizer	**N0770546**
Quartz Torch Copper Ignitor Tape – Qty. 120 pcs.	**N0775297**

Description	Qty	Part No.
Organics Kit 8x00		**N0780608**
3 Slot Quartz Torch	2	**N0780132**
1.2 mm i.d. Alumina Injector	2	**N0781007**
Baffled Cyclonic Spray Chamber 4 mm	1	**N0776090**
Gemcone™ Low-Flow Nebulizer	1	**N0770358**
Cyclonic Spray Chamber Adapter	1	**N0770614**
Injector Adapter Washer	1	**N0776014**
Injector Adapter	1	**N0776091**
Injector Adapter Nut	1	**N0776025**
O-Ring	1	**09902207**
O-Ring 8.74 ID 1.78 WD	2	**09921028**

Description	Qty	Part No.
Organics Kit 2x00/4x00/5x00/7x00 DV		**N0770420**
3 Slot Quartz Torch	1	**N0772005**
1.2 mm i.d. Alumina Injector	1	**N0776093**
Baffled Cyclonic Spray Chamber 4 mm	1	**N0776090**
Gemcone™ Low-Flow Nebulizer	1	**N0770358**
Cyclonic Spray Chamber Adapter	1	**N0770614**
Injector Adapter Washer	1	**N0776014**
Injector Adapter Nut	1	**N0776025**
Injector Adapter	1	**N0776091**
O-Ring	1	**09902207**
O-Ring 8.74 ID 1.78 WD	2	**09921028**

Description	Part No.
Organics Kit 4300 V/5300 V/7300 V	**N0770732**
3 Slot Quartz Torch	**N0771500**
Quartz Bonnet	**N0775289**
1.2 mm i.d. Alumina Injector	**N0771531**
Baffled Cyclonic Spray Chamber	**N0771501**
GemCone™ Low-Flow Nebulizer	**N0770358**
Quartz Torch Copper Ignitor Tape – Qty. 120 pcs.	**N0775297**

Description	Qty	Part No.
DV Oxygen Addition Kit 2x00/4x00/5x00/7x00/8x00 DV		**N0770689**
Baffled Cyclonic Spray Chamber 4mm for Oils w/Oxygen Port	1	**N0777731**
Tygon Tubing	25 ft.	**02506516**
Insert	4	**09903094**
Tube Fitting	2	**09903150**
Mass Flow Controller	1	**N0772006**
Adapter for Cyclonic Spray Chamber	1	**N0770614**

Description	Qty	Part No.
V Oxygen Addition Kit 4300 V/5300 V/7300 V		**N0770965**
Torch Adapter with auxiliary oxygen port	1	**N0774070**
Tygon Tubing Per lc/0.3M	25 ft.	**02506516**
Insert	4	**09903094**
Tube Fitting	2	**09903150**
Mass Flow Controller	1	**N0772006**

Flat Plate Torch
Part No. N0780130

DEMOUNTABLE QUARTZ TORCHES

Demountable design using one-piece quartz tubing for plasma and auxiliary gas flow. Torches without slots are recommended for organic solvents. 1-slot torches are the standard torch for aqueous solutions. 3-slot torches are typically used for organic analysis.

ICP Model	Number of Slots	Part No.
8x00	0	**N0780133**
8x00 (Standard)	1	**N0780130**
8x00	3	**N0780132**
2x00/4x00/5x00/7x00 DV	0	**N0770343**
2x00/4x00/5x00/7x00 DV (short ver.)	0	**N0770344**
2x00/4x00/5x00/7x00 DV	1	**N0770338**
2x00/4x00/5x00/7x00 DV	3	**N0772005**
2x00/4x00/5x00/7x00 DV Organics Torch	3	**N0772008**
4300V/5300V/7300V	3	**N0771500**
7300 V Organics Torch	3	**N0771561**
3x00 DV	1	**N0691662**
3000 SCX/3x00 XL	0	**N0695379**
3000/3000 SCR/3x00 RL	1	**N0690568**
3000/3000 SCR/3x00 RL	3	**N0681690**

Torch O-Rings

ICP Model	Dimensions	Part No.
8x00 Complete O-Ring Kit Includes: 09200078 (1), 09902131 (1), 09902223 (2), 09921061 (1), 09921062 (1)		**N0780437**
2x00/4x00/5x00/7x00 DV Complete O-Ring Kit Includes: 09902045 (1), 09902131 (1), 09902223 (2), 09921061 (1), 09921062 (1)		**N0770437**
4300V/5300V/7300V Complete O-Ring Kit		**N0770916**
2x00/4x00/5x00/7x00 DV/8x00 (Viton)	1.171 i.d., 0.139 w.d.	**09902131**
2x00/4x00/5x00/7x00 DV/8x00 (Viton)	0.799 i.d., 0.103 w.d.	**09902223**
2x00/4x00/5x00/7x00 DV/8x00	1.109 i.d., 0.139 w.d.	**09921061**
2x00/4x00/5x00/7x00 DV/8x00	1.046 i.d., 0.139 w.d.	**09921062**
2x00/4x00/5x00/7x00 DV/8x00	0.801 i.d., 0.070 w.d.	**09902045**
4300V/5300V/7300V (For Ball Joint)	0.301 i.d., 0.070 w.d.	**09926070**
3x00 XL/3x00 DV/3000 SCX	0.239 i.d., 0.070 w.d.	**09902006**
3x00 XL/3x00 DV/3000 SCX	0.364 i.d., 0.070 w.d.	**09902015**
3x00 XL/3x00 DV/3000 SCX	8.74 i.d., 1.78 w.d.	**09921028**
3x00 XL/3x00 DV/3000 SCX/4300V/5300/7300V (Inside)	0.239 i.d., 0.070 w.d.	**09902207**
3x00 XL/3x00 DV/3000 SCX/4300V/5300/7300V (Outside)	0.301 i.d., 0.070 w.d.	**09902247**
All, O-Ring Lube 2 grams		**09200078**

Torch Bonnets

The torch bonnet is used as a spacer between the torch and RF load coil.

ICP Model	Part No.
2x00/4x00/5x00/7x00	**N0775289**
3000/3000 SCR/3x00 RL (for instruments manufactured BEFORE 9/21/94)	**N0695295**
3000/3000 SCR/3x00 RL (for instruments manufactured AFTER 9/21/94)	**N0695456**
3X00 XL/3x00 DV	**N0691664**

Copper Ignitor Tape

ICP Model	Qty.	Part No.
8x00	50	**N0781097***
2x00/4x00/5x00/7x00	120	**N0775297**

*Ignitor tape for Quartz and HybridXLT Torch.

EXPECT MORE FROM YOUR TORCH

ONLY FROM PERKINELMER!

Ceramic Quartz Torch

PerkinElmer's HybridXLT™ torch is the latest addition to the family of PerkinElmer genuine sample introduction components. The new ceramic/quartz hybrid design provides the highest performance for your Optima® ICP-OES 8x00 spectrometer. Available only from PerkinElmer, this new torch has an extended lifetime of up to 10x your current quartz torch, increasing instrument uptime and decreasing maintenance costs.

Features and Benefits

- Extended Torch Lifetime – up to 10x improvement
- Viewable plasma compared to a full ceramic design
- Ideal for all sample types, except organic solvents
- Increased instrument uptime
- Lower cost per analysis
- Exclusive patented design
- Lower cost than full ceramic torches

ICP Model	Number of slots	Part No.
8x00	1	**N0780128**

Ceramic D-Torch™

The ceramic outer tube is of particular benefit for the analysis of wear metals in engine oils, where quartz outer tubes often suffer from short lifetime. It is also beneficial for Si determinations, where quartz outer tubes may produce high background signals.

D-Torch
Part No. N0777840

Ceramic Outer Tube
Part No. N0777880

Features and Benefits

- Analysis of high-matrix solutions (i.e. fusion samples, samples with high- dissolved solids, samples with high-acid content) which can cause early devitrification or sample deposition when using quartz

Ceramic D-Torch™ and Replacement Parts

	ICP Model	Description	Part No.
	8x00	D-Torch Assembly including Quartz Outer Tube	**N0777840**
	8x00	Ceramic Outer Tube (optional)	**N0777880**
	8x00	Base and Inner Tube	**N0777841**
	8x00	Quartz Outer Tube	**N0777842**
	2x00/4x00/5x00/7x00*	DV D-Torch Quartz including Outer Tube	**N0777508**
	2x00/4x00/5x00/7x00	DV Base and Inner Tube	**N0777509**
	2x00/4x00/5x00/7x00	DV Quartz Outer Tube	**N0777510**
	4300/5300/7300V	D-Torch with Quartz Outer Tube	**N0777051**
	4300/5300/7300V	Quartz Outer Tube	**N0777053**
	4300/5300/7300V	Ceramic Outer Tube	**N0777052**
	4300/5300/7300V	Base and Inner Tube	**N0777054**
		Retaining Ring for Outer Tube	**N0777055**
		Copper Tape for D-Torch Outer Tube	**N0777843**
	2x00/4x00/5x00/7x00/8x00	O-Ring Kit	**N0777715**
	4300/5300/7300V	Torch Adapter with Auxiliary Port	**N0774070**

*Ceramic outer tube is not available for this model.

FULL SELECTION OF INJECTORS AND ADAPTERS

ALUMINA INJECTORS

Alumina injectors are corrosion-resistant to all mineral acids including HF and aqua regia. They are also used with less volatile organic solvents, e.g., xylene. The 2.0 mm i.d. Alumina injector is shipped standard with all PerkinElmer ICP-OES instruments. A variety of sizes are available as an alternative to the standard injector.

Alumina Injectors

ICP Model	Dimensions	Part No.
8x00	0.80 mm i.d.	**N0781009**
8x00	1.2 mm i.d.	**N0781015**
8x00 (1.2 mm entire length of tube)	1.2 mm i.d.	**N0781007**
8x00	2.0 mm i.d.	**N0781014**
2x00/4x00/5x00/7x00 DV	0.80 mm i.d.	**N0775227**
2x00/4x00/5x00/7x00 DV	1.2 mm i.d.	**N0775228**
2x00/4x00/5x00/7x00 DV (1.2 mm entire length of tube)	1.2 mm i.d.	**N0776093**
2x00/4x00/5x00/7x00 DV	2.0 mm i.d.	**N0775177**
4300V/5300V/7300V	1.2 mm i.d.	**N0771531**
3000/3000 SCR/3x00 RL	0.85 mm i.d.	**N0582186**
3000/3000 SCR/3x00 RL	1.5 mm i.d.	**N0582185**
3000/3000 SCR/3x00 RL	2.0 mm i.d.	**N0582184**
3x00 XL/3x00 DV/ 3000 SCX/4300V/5300V/7300V	2.0 mm i.d.	**N0695362**

Sapphire Injectors

Features and Benefits

- Sapphire injectors are ideal for silicon applications

ICP Model	Dimensions	Part No.
8x00	2.0 mm i.d.	**N0781008**
2x00/4x00/5x00/7x00 DV Sapphire in PFA base, (connects directly to ESI spray chambers)	1.8 mm i.d.	**N0777044**
2x00/4x00/5x00/7x00 DV	2.0 mm i.d.	**N0775247**
3000/3000 SCR/3x00 RL	2.0 mm i.d.	**N0695495**
3x00 XL/3x00 DV 3000 SCX/4300V/5300V/7300V	2.0 mm i.d.	**N0695494**

Quartz Injectors

Features and Benefits

- Quartz injectors are designed for organic solvents and non-HF matrices

ICP Model	Dimensions	Part No.
8x00	0.80 mm i.d.	**N0781018**
8x00	1.2 mm i.d.	**N0781019**
8x00 (1.2 mm entire length of tube)	1.2 mm i.d.	**N0781013**
8x00	1.6 mm i.d.	**N0781016**
8x00	2.0 mm i.d.	**N0781050**
8x00	3.0 mm i.d.	**N0781017**
2x00/4x00/5x00/7x00 DV	0.80 mm i.d.	**N0775225**
2x00/4x00/5x00/7x00 DV	1.2 mm i.d.	**N0775226**
2x00/4x00/5x00/7x00 DV	1.6 mm i.d.	**N0775223**
2x00/4x00/5x00/7x00 DV	2.0 mm i.d.	**N0775014**
2x00/4x00/5x00/7x00 DV	3.0 mm i.d.	**N0775224**
3x00 XL/3x00 DV/ 3000 SCX/4300V/5300V/7300V	0.8 mm i.d.	**N0695461**
3x00 XL/3x00 DV/ 3000 SCX/4300V/5300V/7300V	1.2 mm i.d.	**N0695460**
3x00 XL/3x00 DV/ 3000 SCX/4300V/5300V/7300V	1.6 mm i.d.	**N0695449**
3x00 XL/3x00 DV/ 3000 SCX/4300V/5300V/7300V	2.0 mm i.d.	**N0695442**

Injector Support Adapters

ICP Model	Spray Chamber	Part No.
2x00/4x00/5x00/7x00 DV 8x00	All	**N0770603**
2x00/4x00/5x00/7x00 DV 8x00*	All	**N0776091**
4300V/5300V/7300V (bottom)	Cyclonic	**N0771526**
4300V/5300V/7300V (top)	Cyclonic	**N0771527**

*For 1.2 mm entire length injectors N0776093 and N0781007

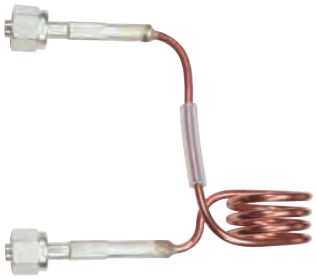
Injector Support Adapter O-Ring Kits

ICP Model	Part No.
2x00/4x00/5x00/7x00 DV/8x00	**N0770438**
3000/3000 SCR/3X00 RL	**N0690269**
3x00 XL/3x00 DV/3000 SCX	**N0690769**

ESI Injectors for Optima 8x00

Description	Part No.
1.5 mm Sapphire injector	**N0782004**
1.8 mm Sapphire injector	**N0782005**
1.8 mm Sapphire injector for Optima 8000 Series with adapter for 7x00	**N0782006**
1 mm Quartz injector	**N0782007**
1.5 mm Quartz injector	**N0782008**
2 mm Quartz injector	**N0782009**
2.5 mm Quartz injector	**N0782010**

GENUINE SAMPLE
INTRODUCTION SUPPLIES



RF LOAD COILS*

ICP Model	Part No.
2x00/4x00/5x00/7x00 DV	**N0775300**
4300V/5300V/7300V	**N0771536**
3x00 XL/3x00 DV	**N0690772**
3000/3000 SCR/3x00 RL (For instruments manufactured AFTER 9/21/94)	**N0690668**

* Installation by PerkinElmer Service is required, but not included.

RF Load Coil Accessories

Description	Part No.
Igniter Spark Gap Assembly for Type II Demountable Torch	**N0680275**
Nylon Igniter Standoff	**09989859**

Purge Component Replacement Parts

For 5x00/7100/7200/7300 DV/8300

Description	Part No.
O-Ring (for Dual View Radial Purge Tube)	**09200064**
O-Ring (for Dual View Axial Purge Window)	**09902143**
O-Ring (for Torch Clamp on Vertical Torch Module)	**09902155**
DV Axial Window Cap	**N0773084**
DV Axial Window Holder	**N0773090**

For Optima 2100/7000/8000

Description	Part No.
O-Ring (for Dual View Radial Purge Tube)	**09921036**
O-Ring (for Dual View Axial Purge Window)	**09921062**
Purge Outlet O-Ring	**09921057**

Purge Extension Windows

The Axial View Purge Extension Window is a replaceable quartz window that slides into the purge extension between the torch and the optics. The Radial View Purge Extension Window Tube is a replaceable quartz tube that slides into the mount between the torch and the optics for the radial view.

ICP Model	View	Part No.
2x00/7000/8000	DV Axial	**09992731**
2x00/7000/8000	DV Radial	**N0690672**
2X00 (long tube)	Radial	**B0810377**
3x00/4x00/5x00/7100/ 7200/7300 DV/8300	DV Axial	**N0771116**
5x00/7100/ 7200/7300 DV/8300	DV Radial	**N0770944**
3x00 DV (tube)	DV Axial	**N0691678**
3x00 DV (long tube) (38 mm/1.5 in)	DV Radial	**N0691689**
3000 SCX/3x00 XL	Axial	**09992731**
3000/3000 SCR/3x00 RL 4300V/5300V/7300V	Radial	**N0581497**
4x00 DV/5x00 DV**	DV Radial	**N0770322**

** Pre November 2004

Ceramic Purge Extension

ICP Model	Part No.
3000/3000 SCR/ 3x00 RL/4300V/5300V/7300V	**N0581455**

Ceramic Interface Cone

The Ceramic Interface Cone includes the Ceramic Cone, the Purge Window (09992731) and the Clamp. The Ceramic Cone is used between the plasma and the spectrometer.

ICP Model	Part No.
3x00 XL/3000 SCX	**N0690666**

QUIET AND OIL-FREE

ICP-OES OIL-LESS AIR COMPRESSORS

PerkinElmer is expanding its product portfolio to include an industrial grade quiet oil-less compressor for dependable, clean and dry air supply. Each compressor comes assembled on an internally and externally coated air tank and includes optional self-purging regenerative air dryer with aftercooler and 5 micron particle filters. One version includes a silencing cabinet resulting in a compressor operating at a very quiet noise level of less than 60dB. All models are equipped with ASME rated pressure tanks and safety valves, line pressure regulator, gauges, and line ball valve for a complete turn key compressor station.

Specifications		
Horse Power		1.5 HP
Output CFM/Output L.		6.0 CFM/170 L/min
Max Pressure PSI/Max Pressure Bar		120 PSI/8 bar
Noise Level		72 dB/A, with Enclosure 55 dB/A
Tank Size Gal./Tank Size L		13 Gallons/50 Liters
Dimensions	without Enclosure with Enclosure	25" x 18" x 29" 29" x 23" x 32"
Weight	without Enclosure with Enclosure	97 Lbs. 207 Lbs.
Packed Dimensions	without Enclosure with Enclosure	28" x 21" x 29" 33" x 28" x 39"

Compressors

Description	115V/60Hz	220V/50Hz	220V/60Hz
Air Compressor	**N0777881**	**N0777882**	**N0777883**
Air Compressor with Dryer	**N0777602**	**N0777603**	**N0777604**
Air Compressor with Dryer in Silencing Cabinet	**N0777605**	**N0777606**	**N0777607**

Product meets both U.S. and Canadian CSA standards. ASME® certified tank.
Please note: Silencing cabinet cannot be sold separately.

Replacement parts

Description	Part No.
Replacement Air Intake Filter	**N0777608**
Micron Dryer Filter Element	**N0777609**
Replacement Piston Assembly	**N0777610**
Replacement Reed Valve	**N0777611**
Replacement Head Gasket	**N0777612**

INSTRUMENT BENCHES AND ACCESSORY CARTS

Optima
Basic Bench

Optima
Advanced Bench

NexION Bench with
Optional Monitor Arm

A CUSTOMIZED APPROACH

Lab space is precious and it can be a challenge to find room for a new instrument or accessory. To make the transition easier, we've customized every bench we offer for your instrument and accessory configuration, enabling you to use your lab space to its full potential. Whether you're making room for a new instrument or replacing an old system, we have a bench solution for you.

Ordering Information

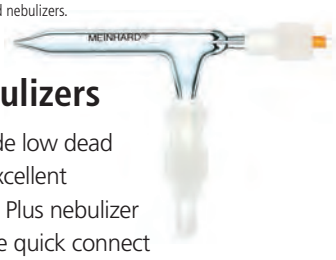
Dimensions (Depth x Width x Height)	Description	Product Line	Part No.
30" x 60" x 34"	PinAAcle Bench	AA	**N0777783**
30" x 60" x 35"	Optima Basic Bench	ICP-OES	**N0773106**
33" x 21"	Large Shelf for Optima Basic Bench (Shelf Only)	ICP-OES	**N0777930**
30" x 60" x 35"	Optima Advanced Bench	ICP-OES	**N0771725**
30" x 60" x 29"	NexION Bench with Vacuum Pump Dolly	ICP-MS	**N8141230**
	NexION Vacuum Pump Dolly Only	ICP-MS	**N8121069**
26"	Monitor Arm for Optima Advanced or NexION Bench	ICP-OES/ICP-MS	**N0771726**
32" x 30" x 29"	Titan MPS Bench	AA/ICP-OES/ICP-MS	**N0777900**
16" x 19" x 34"	Accessory Cart	Various	**N0777784**
16" x 22" x 34"	Accessory Cart	Various	**N0777785**

Meinhard Nebulizers

The MEINHARD® Concentric Nebulizer reflects exacting standards in design and manufacturing. Its advantages include simplicity of design and operation, reproducible and self-aligning aerosol, and close fabrication control. They provide excellent sensitivity and precision for aqueous solutions and samples with few dissolved solids (less than 1%). MEINHARD® Nebulizers are self-aspirating and not to be used with solutions containing hydrofluoric acid. Nebulizers require an end cap (N0680504) for use with Scott Spray Chambers.

Type	Material	AR Flow Rate	Uptake Rate	Part No.
Type C3	Glass	1.0 L/min	3 mL/min	**N8102011**
Type K3	Glass	1.0 L/min	3 mL/min	**N0681574**
Type A3	Quartz	1.0 L/min	3 mL/min	**WE024371**
Type A0.5 (NexION)	Quartz	1.0 L/min	0.5 mL/min	**N8145011**
Type C0.5 (NexION)	Glass	1.0 L/min	0.5mL/min	**N8145012**

*Liquid Connector WE024372 not included with Meinhard nebulizers.



MEINHARD® Plus Nebulizers

MEINHARD® Plus Nebulizers provide low dead volume and high sensitivity with excellent detection imits and washout. Each Plus nebulizer includes the FitKit+ gas and sample quick connect fittings. The connections are made with high-purity PFA, minimizing the chance of contamination during backflow events. The gas connection fits snugly over the maria on the sidearm of the nebulizer.

Description	Material	AR Flow Rate	Uptake Rate	Part No.
SilQ+ Ultra-high Purity	Quartz	1.0 L/min	0.5 mL/min	**N8122460**
TQ+ High Sensitivity	Quartz	1.0 L/min	0.5 mL/min	**N8122461**
TQ+ High Sensitivity	Quartz	1.0 L/min (30 psi)	0.5 mL/min	**N8142098**
TR+ High Sensitivity	Glass	1.0 L/min	0.5 mL/min	**N8122462**

*Includes FG Gas Quick Connect (N8121036) and F2 Quick Connect (N8121039) with 0.5 mm i.d. (orange marker) capillary, 70 cm.

Liquid Connector

Low dead volume PEEK connector for use with MEINHARD® Concentric Nebulizers. Requires 0.062 in (1.59 mm) o.d. tubing (WE024375). Standard on ELAN DRCs. Not required for PFA PTFE Nebulizers.

ICP-MS Model	Part No.
ELAN (solution fitting, 0.7 mm ETFE)	**WE024372**
NexION (solution fitting, 0.5 mm PTFE)	**N8145016**

Connectors and Nebulizer Spares

	Description	Part No.
	Nebulizer Clip for Meinhard Nebulizers	**N0777460**
	Nebulizer Liquid Connector Kit 4 mm (solution fitting, 0.5 mm PTFE with adapter) (NexION)	**N8145016**
	PFA FG Gas Quick Connect	**N8121036**
	F2 Standard Integrated Capillary (0.5 mm i.d. orange 70 cm long)	**N8121039**
	F0 Encapsulated Micro Tubing (0.25 mm i.d. green 70 cm long)	**N8121038**
	F1 Detachable Capillary (0.80 mm i.d. blue 70 cm long)	**N8121037**
	Spray Chamber Drain Fitting	**N8145015**
	Male Barb CTFE Fitting (Part of N8145016)	**N8145017**
	Female Barb CTFE Fitting (Part of N8145016)	**N8145018**
	PTFE Sample Capillary 0.062 o.d. x 0.020 i.d.	**WE024375**
	Liquid-End Nebulizer Connector (ELAN)	**WE024372**

End Cap for Concentric Nebulizers

End cap to fit any concentric nebulizer onto a Scott Spray Chamber.

Description	Part No.
End Cap for Concentric Nebulizers	**N0680504**

GemClean Cross-Flow II Nebulizer

Complete chemically inert Cross-Flow II nebulizer assembly for ICP-MS. Specially processed to reduce BEC levels below 1 ppb. Contains an end cap with a GemTip clear sapphire sample tip and a GemTip red ruby argon tip optimized for ICP-MS.

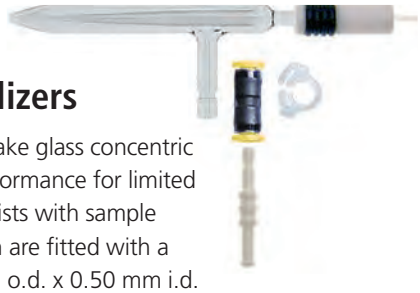
Description	Part No.
GemClean Cross-Flow II Nebulizer	**N8120516**

Cross-Flow Replacement GemTips and Spares

Includes a clear sapphire sample tip and a red ruby argon tip optimized for ICP-MS. The tips are constructed of PEEK for maximum corrosion resistance. Used in all GemClean Cross-Flow II nebulizers produced after September, 1998.

Description	Part No.
Cross-Flow II Replacement GemTips	**N8120515**
Cross-Flow II Nebulizer Argon Ferrule	**09920515**
Cross-Flow II Nebulizer Ferrule Kit*	**N0680612**
Cross-Flow II Nebulizer End Cap	**N8122239**
Cross-Flow II Nebulizer Sample Ferrule	**09920518**
GemTip II O-Ring	**09921045**
End Cap O-Ring	**09902033**
Sample Tubing	**09985708**
Argon Tubing	**09985723**

*Includes 09920515 and 09920518.



MicroMist Nebulizers

The MicroMist micro-uptake glass concentric nebulizer offers high performance for limited sample volumes. MicroMists with sample uptakes 0.2 – 0.4 mL/min are fitted with a UniFit connector with 1.3 o.d. x 0.50 mm i.d. x 700 mm long sample tubing. MicroMists with sample uptakes 0.05 – 0.1 mL/min are fitted with a UniFit connector with 1.3 o.d. x 0.25 mm i.d. x 700 mm long sample tubing. All MicroMist nebulizers glass are supplied with the EzyLok argon connector.

AR Flow Rate	Uptake Rate	Part No.
1.0 L/min	0.4 mL/min	**N0775341**
1.0 L/min	0.2 mL/min	**N0775342**
1.0 L/min	0.1 mL/min	**N0775343**
1.0 L/min	0.05 mL/min	**N0775344**

SeaSpray Nebulizers

The SeaSpray Concentric Nebulizer is ideal for samples with high dissolved solids and offers outstanding nebulization efficiency for trace level analysis. It offers freedom from clogging while nebulizing solutions near the limit of solubility of most mineral salts, and conferring significant sensitivity gains. All SeaSpray Nebulizers are supplied with the EzyLok Argon connector.

AR Flow Rate	Uptake Rate	Part No.
1.0 L/min	2 mL/min	**N0775340**
1.0 L/min	1 mL/min	**N0774069**
1.0 L/min Quartz	1 mL/min	**N0774069**
1.0 L/min	0.4mL/min	**N0777484**

DuraMist Nebulizers

The DuraMist concentric nebulizer is an economical nebulizer for high precision analyses involving samples digested in HF. The DuraMist nebulizer is recommended for samples containing up to 5% HF. For samples with higher concentrations of HF, the OpalMist PFA nebulizer is recommended.

AR Flow Rate	Uptake Rate	Part No.
1.0 L/min	0.4 mL/min	**N8121046**
1.0 L/min	1.0 mL/min	**N8121045**

Connectors for MicroMist and SeaSpray Nebulizers

Description	Pkg.	Part No.
UniFit		
0.25 mm ID x 1.27 mm OD x 700 mm long	10	**N0777514**
0.50 mm ID x 1.27 mm OD x 700 mm long	10	**N0777513**
0.75 mm ID x 1.27 mm OD x 700 mm long	10	**N0777512**
1.30 mm OD X 0.75 mm ID x 700 mm long	3	**N0774077**
1/16 inch OD X 0.75 mm ID x 700 mm long	3	**N0774080**
UniFit-EzyFit Sample Tube	6	**N0777061**
EzyFit		
0.25 mm ID x 1.27 mm OD x 700 mm long	10	**N0777437**
0.50 mm ID x 1.27 mm OD x 700 mm long	10	**N0777436**
0.75 mm ID x 1.27 mm OD x 700 mm long	10	**N0777435**
0.25 mm ID x 1/16" OD x 700 mm long	10	**N0777464**
0.50 mm ID x 1/16" OD x 700 mm long	10	**N0777463**
0.50 mm ID x 1/16" OD x 700 mm long Twin	6	**N0777462**
1/16 inch OD x 0.25mm ID x 700mm	10	**N0777845**
1/16 inch OD x 0.50mm ID x 700mm	10	**N0777846**
1/16 inch OD x 0.75mm ID x 700mm	10	**N0777847**
UniFit-EzyFit Sample Tube	6	**N0777061**

OpalMist Nebulizers

The OpalMist is ideal for the geochemistry & semiconductor industry. The OpalMist PFA concentric nebulizer is for high precision analyses involving analyses requiring high chemical resistancy to HF, alkalis and organics. It also provides excellent results for trace analyses.

AR Flow Rate	Uptake Rate	Part No.
1.0 L/min	0.4 mL/min	**N0777485**
1.0 L/min	0.1 mL/min	**N0777486**
1.0 L/min	0.2 mL/min	**N8121056**
1.0 L/min	0.05 mL/min	**N8121057**
1.0 L/min	2 mL/min	**N8121061**

The Eluo™ Nebulizer Cleaner

The Eluo is designated to efficiently deliver a cleanser through the nebulizer capillary to dislodge particle build-up and thoroughly clean the nebulizer. One simple action does it all. No more messy procedures, waiting overnight or shattered nebulizers in ultrasonic baths.

Description	Part No.
For Newer OpalMist, PolyCon, DuraMist, Meinhard, other Glass Nebulizers.	**N0777712**
For OLD style OpalMist or PolyCon Nebulizers.	**N0775358**

HIGH EFFICIENCY MICROFLOW NEBULIZERS

MicroFlow nebulizers are constructed entirely from chemically resistant fluoropolymers, ideal for strong acids, alkalis, organics, high salt solutions and high solid concentrations. They are resistant to clogging, are reliably self-aspirated or pumped and produce a fine aerosol for high transport efficiency and high sensitivity.

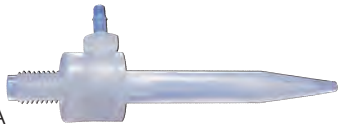
PFA-ST Nebulizer

The PFA-ST nebulizer features high purity, HF-resistance, and high performance, along with an exchangeable external sample uptake capillary. The sample uptake rate is controlled by the dimension of the external capillary or probe. For use with autosamplers. Requires a CTFE union (N8122355) to connect to the UltraClean autosampler probe. All-PTFE construction, chemically inert. Chemically resistant–ideal for strong acids, alkalis, organics. Resistant to clogging – reliably self-aspirated or pumped. Low, spike-free background for important elements such as:

- Fe and Ca. Produces a fine aerosol for high transport efficiency and high sensitivity
- Analyze all sample types with a single introduction system Direct analysis of volatile and non-volatile organic solvents

Description	Part No.
PFA-ST Nebulizer	**N8122192**

PolyPro-ST Nebulizer



The PolyPro-ST Nebulizer is an HF resistant alternative to the PFA nebulizer. The PolyPro has lower chemical resistance than the PFA nebulizer but has the same high efficiency aerosol generation. A robust nebulizer that can self aspirate with an exchangeable external sample uptake capillary or used with a peristaltic pump.

Description	Part No.
PolyPro-ST Nebulizer	**N0777220**

PFA-ST3 Nebulizer

Designed for superior clog resistance and higher sensitivity. PFA-ST3 nebulizer with external threaded connector is a high performance, clog resistant and chemically inert nebulizer for ICP-MS.

Description	Part No.
PFA-ST3 Nebulizer	**N8145101**

PFA Nebulizer Obstruction Removal Kit

Obstruction Removal Kit while naturally resistant to obstructions, PFA nebulizers may occasionally require maintenance. Use this kit to safely remove obstructions in all PFA-ST nebulizers for long-term high performance.

Description	Part No.
Nebulizer Obstruction Removal Kit	**N8145236**

PTFE Sample Capillaries

For use with ST Nebulizers.

I.D.	Self-Aspiration Rate	Part No.
0.15 mm Red	20 µL/min	**N8122382**
0.2 mm Purple	50 µL/min	**N8145135**
0.25 mm Green	100 µL/min	**N8122383**
0.3 mm Yellow	200 µL/min	**N8145136**
0.5 mm Orange	400 µL/min	**N8122384**
0.8 mm Blue	700 µL/min	**N8145137**
1.0 mm Gray	1 mL/min	**N8145138**

Sample Introduction Kits for NexION

Complete high purity sample introduction system for NexION. All wetted surfaces are PTFE and Pt. Used by a majority of semiconductor labs worldwide for the analysis of semiconductor grade chemicals and Si wafer samples. Includes 2 PFA MicroFlow Nebulizers, PureCap PFA endcap with additional gas port, PFA spray chamber, Pt injector, Pt Shield and quartz torch.

Description	Part No.
PFA-Platinum HF-Resistant Sample Introduction Kit	**N8142001**

Complete HF-resistant sample introduction system for NexION. All wetted surfaces are PTFE and Sapphire. Provides a chemically inert and clean introduction system. Includes a PFA-ST Nebulizer, PureCap PFA endcap with additional gas port, PFA spray chamber, Sapphire injector, Pt Shield and quartz torch.

Description	Part No.
PFA-Sapphire HF-Resistant Sample Introduction Kit	**N8142002**
HF Sample Introduction Kit Consists of a Scott spray chamber with a Cross-Flow II nebulizer, a 2 mm alumina injector, injector support adapter, O-rings, tubing and connectors.	**N8140507**

Cyclonic Spray Chambers

- The Cyclonic Spray Chamber relies on momentum to efficiently and quickly remove the larger droplets from the sample mist decreasing any opportunity for occlusion or agglomeration of the smaller droplets. The result is higher efficiency, better precision and faster washouts than other spray chamber designs
- Decreased sample introduction system installation and optimization time due to the preset nature of the spray chamber/ nebulizer combination
- More samples per hour due to minimal dead volume and efficient draining

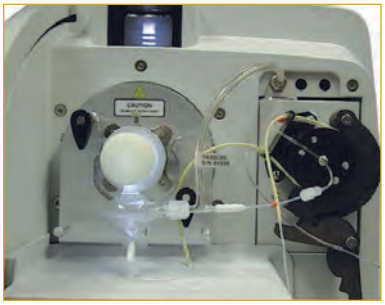
Unique design characteristics:

- The nebulizer port is oversized so that sample solution cannot build up around the nebulizer as it will in other cyclonic designs
- The nebulizer port angle is tightly controlled so that the nebulizer mist impacts on the same chamber wall area in each and every spray chamber
- Each spray chamber incorporates a precisely machined ridge a long the inside top of the spray chamber. This eliminates the periodic "spiking" that adversely affects precision and fosters faster washout times

Baffled Cyclonic Spray Chambers

Part No. WE025221

The spray chamber is an integral part of the sample introduction system responsible for filtering the sample mist to permit the appropriate droplet size distribution to reach the plasma. The baffled cyclonic spray chamber features a central transfer tube which acts as a secondary particle separator helping separate larger aerosol particles from the sample. This reduces solvent load in the plasma without compromising detection limits. The distance between the bottom of the baffle and the chamber wall is carefully controlled so that droplets cannot form on the bottom of the baffle. The advantage is smooth draining and improved precision.



Baffled Quartz Cyclonic Spray Chambers

Part No. N8145013

Baffled Quartz Spray Chamber (PTFE O-Ring type) with ball joint.

ICP-MS Model	Part No.
NexION*	**N8145013**
ELAN DRC/DRCplus/DRC II	**WE025221**
O-Ring for Baffled Quartz Cyclonic Spray Chamber	**09210011**

*O-Ring free

Baffled Glass Cyclonic Spray Chambers

Part No. N8145014

The Cyclonic Spray Chamber relies on momentum to efficiently and quickly remove the larger droplets from the sample mist decreasing any opportunity for occlusion or agglomeration of the smaller droplets. The result is higher efficiency, better precision and faster washouts than other spray chamber designs. For use with ball joint injectors.

ICP-MS Model	Part No.
NexION (Standard with NexION Q/X/D)**	**N8145014**
ELAN	**N0773196**

**O-Ring free

Part No. N0777034

ELAN Baffled Quartz Cyclonic PC³ Spray Chambers

7 mm baffle, aux. gas port, drain line included and connects directly to ESI injectors. An adapter is needed to connect to other injectors. All-purpose for non-HF samples. Provides excellent sensitivity and stability with low background. For use with PC³.

Description	Part No.
With Auxillary Gas Port	**N0777034**
Without Auxillary Gas Port	**N0777035**

Part No. N8122188

Part No. N0775350

Glass Cyclonic Spray Chamber Kit

Contains one Glass Cyclonic Spray Chamber, mounting hardware and instructions. Requires, but does not include, a concentric nebulizer.

Description	Part No.
For ELAN 9000/6x00/5x00/DRC-e	
Glass Cyclonic Spray Chamber Kit	**N8120150**
Glass Cyclonic Spray Chamber Only	**N8122188**
O-Ring Free Glass Cyclonic Spray Chamber	**N0775350**

Part No. N8145120

Part No. N8145122

NexION O-Ring Free Baffled Cyclonic PC³ Spray Chambers

Feature o-ring free connections to the nebulizer and torch injector, secure, leak-free threaded drain port, internal baffle and threaded auxiliary port for addition gas.

Description	Part No.
High Purity Quartz Cyclonic Spray Chamber provides excellent sensitivity and stability with low background	**N8145120**
Micro Cyclonic Spray Chamber provides the fastest washout at low-flow rates compared to larger versions	**N8145121**
Borosilicate Glass Spray Chamber	**N8145119**
PFA Cyclonic Spray Chamber	**N8145122**

Connectors and Spares

Part No. N8141420

Part No. N0777438

Part No. N0777439

Description	Pkg.	Part No.
Helix Locking Screw	1	**N0777438**
Helix Seal	4	**N0777439**
PFA 6 mm Short Length Secure Replacement Nut for Quartz Cyclonic Spray Chambers	1	**N8141420**
PFA 6 mm Long Length Secure Replacement Nut for Quartz Cyclonic Spray Chambers	1	**N8145321**

Part No. N8120124

Scott Spray Chambers

Complete HF-resistant Scott Spray Chamber
Includes (1) large O-Ring (WE013060), (1) Retaining Ring (WE014081) and (1) Right-Angled Drain Connector (WE013119).

Description	Part No.
For NexION/ELAN 9000/6x00/5000/DRC-e	
Scott Spray Chamber	**N8120124**
Scott Spray Chamber Large O-Ring	**WE013060**
Scott Spray Chamber Retaining Ring	**WE014081**
End-cap for Concentric Nebulizer. Ryton endcap to fit nebulizer onto Scott Spray Chamber	**N0680504**

Part No. N8142000

PFA PTFE Scott Spray Chamber

UltraClean, low volume 47 mm Scott Spray Chamber. For use with concentric nebulizers. Requires a PFA injector assembly and the PFA End Cap (N8122357).

Description	Part No.
PFA PTFE Scott Spray Chamber	**N8122356**
PFA Spray Chamber with PFA End Cap for NexION*	**N8142000**

* Requires PFA body injector N8122411 or N8122412 or N8122413.

Part No. N8145099

Part No. N8142003

PC³ Peltier Coolers for NexION

The PC³ is a small and robust Peltier cooler for ICP-MS cyclonic spray chambers. The cyclonic spray chamber offers the advantages of low memory effects, fast rinseout and high sample transport efficiency. The PC³ cools the outer walls of the cyclonic spray chamber to a constant temperature, enhancing long-term signal stability, reducing polyatomic interferences such as oxides, and reducing solvent loading when volatile organic solvents are analyzed. The PC³ has 2 preset temperatures +2 °C / -5 °C and is ideal for analysis of aqueous or aqueous/organic mixtures. The PC³-LT operates at -20 °C to reduce the solvent load on the plasma for analysis of 100% volatile organic solvents.

Description	Injector Size	Temperature	Additional Gas Port	Part No.
PC³ Sample Introduction Kit*	1.5 mm	+2 °C / -5 °C	Yes	**N8142003**
HF PC³ Sample Introduction Kit*	1.5 mm	+2 °C / -5 °C	Yes	**N8145309**
PC³-LT Organic Sample Introduction Kit*	1.0 mm	+2 °C / -20 °C	Yes	**N8145099**
HF PC³-LT Organic Sample Introduction Kit*	1.5 mm	+2 °C / -20 °C	Yes	**N8145310**

* All PC³ kits include a PFA-ST nebulizer (N8122192).

PC³ˣ Peltier Controlled Heated or Cooled Cyclonic Chamber for NexION

The PC³ˣ is a compact Peltier heated or cooled inlet system that controls the spray chamber temperature and improves long-term stability. In cooling mode, water or solvent is removed from the aerosol, reducing water or solvent loading on the plasma. In heating mode, sensitivity is increased and volatility-related sample transport effects can be reduced or eliminated.

- Variable temperature control from -10 °C to +80 °C
- Thermal stabilization of spray chamber improves long-term stability
- Last set temperature saved for stand alone operation
- USB or Bluetooth connectivity
- Remote monitoring and control

Description	Part No.
PC³ˣ thermally stabilized inlet system	**N8145340**

PC³ Peltier Coolers for ELAN

The PC³ is a small and robust Peltier cooler for ICP-MS cyclonic spray chambers. The cyclonic spray chamber offers the advantages of low memory effects, fast rinse-out and high sample transport efficiency. The PC³ cools the outer walls of the cyclonic spray chamber to a constant temperature, enhancing long-term signal stability, reducing polyatomic interferences such as oxides, and reducing solvent loading when volatile organic solvents are analyzed. The PC³ has two present temperatures +2 °C / -5 °C and is ideal for analysis of aqueous or aqueous/organic mixtures. The PC³-LT operates at +2 °C / -20 °C to reduce the solvent load on the plasma for analysis of 100% volatile organic solvents.

ICP-MS Model	Part No.
ELAN Cassette Torch Mount	**N8122410**
ELAN Twist Type Torch Mount	**N8122389**
ELAN PC³-LT	**N8122452**

IsoMist Programmable Temperature Spray Chambers

The IsoMist Programmable Temperature Spray Chamber lets you select any temperature between -10 °C and +60 °C in 1 °C increments to provide the optimum conditions for any application. The rapid response of the Peltier device allows a spray chamber temperature of -5 °C to be reached within 15 minutes. The spray chamber temperature can be monitored through a temperature versus time plot on your PC screen. And, for regulatory compliance, the temperature versus time data file can be saved with your results. If these features are not required, once the temperature has been programmed, the IsoMist can be run in stand-alone mode without a PC connection.

- Temperature range: -10 °C to +60 °C
- Temperature set in 1 °C increments
- Temperature stability: +/- 0.1 °C

ICP-MS Model	Part No.
ELAN	**N0777364**
NexION	**N8141426**

INJECTORS AND ADAPTERS

Alumina Injectors

Alumina injectors are compatible with twist type and cassette torch mounts. They are vacuum baked to reduce contamination.

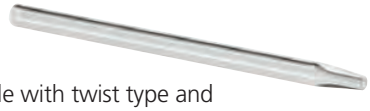
Features and Benefits

- 2.0 mm i.d. for use with HF-resistant sample introduction system. Standard injector for aqueous solutions and less volatile organic solvents
- 0.85 mm i.d. for use with volatile organic solutions on the HF-resistant sample introduction system

Alumina Injectors for NexION/ELAN DRC-e/9000/6x00/5000/500

Dimension	Part No.
2.0 mm i.d.	**N8126041**
1.5 mm i.d.	**N8126040**
0.85 mm i.d.	**N8126039**

Quartz Injectors



Quartz Injectors are compatible with twist type and cassette torch mounts. The ELAN DRC II uses a specially designed all-quartz sample introduction system to minimize background contamination levels. The standard 2.0 mm i.d. quartz injector is held by a specially designed pass-through, injector support assembly to minimize contact with materials that could cause sample contamination, a must for determinations made at the parts-per-trillion level.

Quartz Injectors

For the NexION/ELAN DRC-e/9000/6x00/5000 when using the HF-Resistant Sample Introduction System (WE024782).

Description	Recommended Use	Part No.
1.2 mm i.d.	Organic Solvents	**N0681631**
1.6 mm i.d.	Organic Solvents	**00473292**
2.0 mm i.d.	Clinical Samples	**N8125029**

Quartz Ball Joint Injectors

For NexION/ELAN DRC/DRCplus/DRC II. For use with Pass-Through Ball Joint Injector Support Adapters (WE023951 or W1012406).

Description	Recommended Use	Part No.
0.85 mm i.d.*	Volatile Organics	**WE027030**
1.5 mm i.d.*	Organics	**WE027005**
2.0 mm i.d.	General Purpose	**WE023948**

*For reduced sample loading.

Sapphire Injectors

Sapphire Injector Tube, 2.0 mm i.d.

Demountable injector for use with the HF-resistant sample introduction system. Not for use with PFA sample introduction system.

Dimension	Part No.
NexION/ELAN DRC-e/9000/6x00/5000	**N0695495**

PFA Injector Assemblies

PFA/Quartz Torch Injector Assembly

Description	Dimension	Part No.
PFA/Quartz Twist Type	1.5 mm i.d.	**N8122394**
PFA/Quartz Cassette	1.5 mm i.d.	**N8122413**

PFA/Sapphire Torch Injector Assembly

Description	Dimension	Part No.
PFA/Sapphire Twist Type	1.8 mm i.d.	**N8122358**
PFA/Sapphire Cassette	1.8 mm i.d.	**N8122411**

PFA/Platinum Torch Injector Assembly

Description	Dimension	Part No.
PFA/Platinum Twist Type	2.0 mm i.d.	**N8122359**
PFA/Platinum Cassette	2.0 mm i.d.	**N8122412**

Injector Support Adapters

ICP-MS Model	Part No.
ELAN DRC/DRCplus/DRC II	
Ball Joint Twist Type Torch Injector Support Adapter	**WE023951**
ELAN DRC II	
Ball Joint Cassette Torch Injector Support Adapter	**W1012406**
ELAN 9000/6x00/5000/DRC-e	
Twist Type Torch Injector Support Adapter	**N8122007**
Twist Type Torch Injector Support Adapter (Assembled with O-Rings)	**N8120116**
NexION/ELAN 9000/6x00/5000/DRCs	
Injector Support Adapter O-Ring Kit	**N8120100**
Cassette Torch Injector Support Adapter For Non-Ball Joint Injectors	**W1013266**
Cassette Torch Injector Support Adapter For Ball Joint Injectors	**W1012406**

Injector Support Adapter O-Rings

Position	Torch Type	Part No.
Internal	Twist/Cassette	**09210011**
External (large)	Cassette	**W1013545**
External	Twist/Cassette	**09210012**
Internal	Cassette (non-Ball Joint only)	**N8122010**
Internal	Twist (non-Ball Joint)	**WE013060**

Injector Adapter Kits and O-Rings can be found on the next page.

Injector Adapter Kits and O-Rings

Description	Qty	Part No.
For NexION Injector Adapter Kit (Includes items listed below)		**N8140360**
Adapter	1	**W1012406**
O-Ring 3/8 inch i.d. x 1/16 inch	1	**W1008572**
O-Ring 1/4 inch i.d. x 1/16 inch	1	**W1008573**
Injector Spacer	1	**W1012409**
Injector Nut	1	**W1012408**
For NexION Injector Adapter Kit 2 (Includes items listed below)		**N8140527**
Injector O-Ring 0.239 i.d. x 0.070 WD	1	**09210011**
O-Ring 0.551 i.d. x 0.070 WD	1	**N8122010**
O-Ring 3/8 inch i.d. x 1/16 inch	1	**W1008572**
Adapter	1	**W1012406**
Injector Nut	1	**W1012408**
Injector Spacer	1	**W1012409**
O-Ring 5/8 inch i.d. x 1/8 inch WD	1	**W1013545**
For ELAN Cassette O-Ring Kit for Injector Support (Includes items listed below)		**N8120100**
Injector O-Ring 0.239 i.d. x 0.070 WD	2	**09210011**
Torch O-Ring 0.364 i.d. x 0.070 WD	2	**09210012**
O-Ring 0.551 i.d. x 0.070 WD	1	**N8122010**
O-Ring 5/8 inch i.d. x 1/8 inch WD	1	**W1013545**

Demountable Quartz Torch

The EasyGlide™ torch mount and alignment system used in the ELAN and NexION ICP-MS system. It is a demountable design that incorporates a quartz torch with a fully replaceable sample injector made of fused alumina, quartz or sapphire.

ICP-MS Model	Part No.
NexION/ELAN	**N8122006**

High Efficiency Demountable Quartz Torch

Demountable Quartz Torch only. Operates at 25% reduced argon gas flows compared to the Demountable Quartz Torch (N8122006).The ELAN 9000 and 6x00 require the High Efficiency Torch Kit (W1007468) for first time installation.

ICP-MS Model	Part No.
ELAN 9000/6x00/DRCs	**W1008384**
NexION	**N8145318**

High Efficiency Torch Kit

Includes the High Efficiency Torch (W1008384) and flow restrictors required for use with the ELAN 9000 and 6x00.

ICP-MS Model	Part No.
ELAN 9000 and 6x00	**W1007468**

O-Ring-Free Demountable Quartz Torch

Demountable quartz torch for o-ring-free injectors. Use with ESI o-ring-free injectors.

ICP-MS Model	Part No.
ELAN/NexION	**N8145106**

Part No. N0777415

Part No. N0777419

Ceramic D-Torch

The D-Torch is a revolutionary new demountable torch design. With the D-Torch, you need only replace the outer tube with interchangeable quartz and ceramic outer tubes.

Description	Part No.
D-Torch complete with Quartz Outer Tube	**N0777419**
D-Torch complete with Ceramic Outer Tube	**N0777415**
Base and Inner Tube	**N0777416**
Ceramic Outer Tube	**N0777417**
Quartz Outer Tube	**N0777420**
Retaining Ring	**N0777055**

Torch Alignment Tool

Used to align the torch in the load coil.

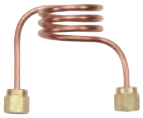
ICP-MS Model	Part No.
NexION/ELAN 9000/6x00/DRCs	**WE015554**

Cassette Torch Mount

The Cassette Torch Mount is an innovative torch design that is fully modular, demountable, rugged and easy to maintain.

ICP-MS Model	Part No.
NexION	**W1037485**
ELAN DRC II	**W1020672**
ELAN 9000/DRC-e	**W1020668**

Does not include Demountable Quartz Torch or Injector.



RF Load Coil Assemblies

ICP-MS Model	Part No.
NexION/ELAN 9000/6x00/DRCs	**WE021816**
ELAN 5000	**WE012411**

Power Amplifier Tube (Ceramic)

ICP-MS Model	Part No.
NexION/ELAN 9000/6x00/DRCs and ELAN 5000As manufactured after September, 1992	**N0695477**

NexION SimulScan Dual-Stage Detector

The dual-stage detector is an integral part of the NexION 300 ICP-MS SimulScan™ system. This electron multiplier measures both high- and low-level analytes simultaneously. This conserves valuable or limited samples, eliminates the need to perform time consuming sample dilutions and allows you to quickly characterize unknown samples.

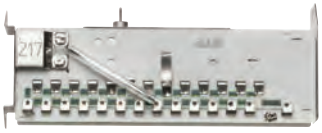
ICP-MS Model	Part No.
NexION*	**N8145000**

Original SimulScan Dual-Stage Detector

The original dual-stage detector is an integral part of the ELAN SimulScan™ system. This electron multiplier measures both high- and low-level analytes simultaneously. This conserves valuable or limited samples, eliminates the need to perform time-consuming sample dilutions and allows you to quickly characterize unknown samples.

ICP-MS Model	Part No.
ELAN 9000/6x00/DRCs* manufactured prior to April, 2005	**N8125001**

Improved SimulScan Dual-Stage Detector



The improved Dual-Stage Detector is designed for better stability and longer lifetime than its predecessor. ELAN instruments produced after April, 2005 have the proper electronics to accept this detector without modification. ELAN instruments manufactured before April, 2005 will require a one-time upgrade to the Detector Electronics (W1013195). Using this detector in an instrument without the upgraded electronics will result in higher noise levels and shorter lifetime.

ICP-MS Model	Part No.
ELAN 9000/6x00/DRCs*	**N8125050**

Detector Electronics Upgrade Kit

Boosts detector life at least 20%.

ICP-MS Model	Part No.
ELAN 9000/6x00/DRCs* manufactured prior to April, 2005	**W1013195**

* Service installation is required, but not included.

Ion Optics

PerkinElmer offers the industry's only single-ion lens with the exclusive SwiftMount™ II cassette lens mount. No tools are required as the design incorporates a clean capture-and-release concept.

Ion Lens

Description	ICP-MS Model	Part No.
Cassette Ion Lens Upgrade Kit	ELANs manufactured before April, 2005	**W1017871**
Series II Ion Lens	ELAN 9000/6x00/DRCs manufactured after January, 1998	**WE018034**
Ion Lens	ELAN 6000s manufactured before January, 1998	**WE014777**
Series II Lens Removal Tool	ELAN 9000/6x00/DRCs manufactured between January,1998 and April, 2005	**W1010620**

Series II Ion Lens

Series II ShadowStop

ShadowStop

Description	ICP-MS Model	Part No.
Cassette Lens ShadowStop	ELAN 9000/DRCs manufactured after April, 2005	**W1013361**
Series II ShadowStop	ELAN 9000/6X00/DRCs manufactured between January, 1998 and April, 2005	**WE029011**

Vacuum Pump Fluid for ELAN

For use with roughing pumps.

Pump Model	Part No.
Leybold	**N8122004**
Varian	**N8122308**

Fomblin (PFPE) Vacuum Pump Fluid

For use with NexION ICP-MS only. One liter Fomblin GV80 fluid (perfluoro polyether). 1L required per pump.

Description	Part No.
NexION Vacuum Pump Fluid	**N8145003**

High Vacuum Silicon Grease

For lubrication of vacuum system O-Rings.

Description	Part No.
High Vacuum Silicon Grease	**09905147**

TESTED AND APPROVED

NexION Cones

ELAN Cones

Sampler and Skimmer Cones

Precision-designed and manufactured, large-orifice sampler and skimmer cones provide superior long-term stability and resist clogging, allowing analysis under both high and low sample-uptake conditions. Nickel is a very rugged, long-lasting material for the majority of sample types, while platinum is the material of choice for more corrosive samples. The ELAN sampler cone, with a 1.1 mm orifice diameter, and the skimmer cone, with a 0.9 mm orifice diameter, are the largest in the industry. They have been designed to maximize signal stability and to minimize clogging during extended runs of samples containing high dissolved solids. The sampler cone, which is continually exposed to the plasma and the sample, utilizes a threadless pop-in, pop-out design for rapid removal.

Nickel Sampler and Skimmer Cones

ICP-MS Model	Type	Part No.
NexION	Sampler	**W1033612**
NexION	Skimmer	**W1026356**
ELAN 9000/6x00/DRC	Sampler	**WE021140**
ELAN 9000/6x00/DRC	Skimmer	**WE021137**

Platinum Sampler and Skimmer Cones*

ICP-MS Model	Type	Part No.
NexION	Sampler	**W1033614**
NexION	Skimmer	**W1026907**
ELAN 9000/6x00/DRC	Sampler	**WE027802**
ELAN 9000/6x00/DRC	Skimmer	**WE027803**

* Prices subject to change based on volatile precious metal prices.

Hyper Skimmer Cone and Spares

Description	ICP-MS Model	Part No.
Hyper Skimmer Cone	NexION	**W1033995**
Hyper Skimmer O-Ring	NexION	**09902123**
Hyper Skimmer Screw	NexION	**WE027484**
Hyper Skimmer Sampler Gasket	NexION	**W1040148**

Sampler and Skimmer Cone O-Rings

ICP-MS Model	Type	Qty.	Part No.
ELAN 9000/6x00/DRC	Sampler	5	**N8120511**
ELAN 9000/6x00/DRC	Skimmer	5	**N8120512**

Cone Removal Tool

ICP-MS Model	Part No.
NexION	**W1034694**
ELAN 9000/6x00/DRC	**WE017142**

Part No. N8145319

Part No. N8145320

ConeGuard Thread Protector

When cleaning cones which have a screw thread, it is important that the thread is not contacted by any corrosive solution. If the thread gets corroded, the cone may not seal correctly or it may bond to the base and be difficult to remove.

ICP-MS Model	Type	Part No.
NexION	Sampler ConeGuard	**N8145319**
NexION	Skimmer ConeGuard	**N8145320**
ELAN	Skimmer ConeGuard	**N8121086**

Glass Cyclonic Sample Introduction System for ELAN

Description	Part No.
Glass Cyclonic Sample Introduction System	**N8120518**
Kit includes (1 of each):	
Baffled Glass Cyclonic Spray Chamber O-Ring Free	**N0775352**
Cyclonic Spray Chamber Mount	**WE014034**
MicroMist Micro-uptake Glass Concentric Nebulizer 0.2 mL/min.	**N0775342**
Quartz Injector 2.0 mm i.d.	**N8125029**
Tygon Tubing (1 foot)	**02506516**
Insert	**09903094**
¼ in. Front Ferrule	**09903456**
Fitting	**09903464**
Tube Fitting	**09903465**
Red/Red Standard PVC Tubing 1.14 mm i.d. (Pkg. 12)	**09908585**
Green/Yellow Flared End PVC Tubing 0.44 mm i.d. (Pkg. 6)	**N0773113**

Quartz Cyclonic Sample Introduction System for ELAN

Description	Part No.
Quartz Cyclonic Sample Introduction System	**N8120519**
Kit includes (1 of each):	
Baffled Quartz Cyclonic Spray Chamber Baffled Quartz Spray Chamber (PTFE O-Ring Type) with Ball Joint.	**WE025221**
MicroMist Micro-uptake Glass Concentric Nebulizer Offers High Performance for Limited Sample Volumes. Fitted with an EzyFit Connector with 1.3 o.d. x 0.50 mm i.d. x 700 mm Long Sample Tubing.	**N0775342**
Quartz Ball Injector 2.0 mm i.d.	**WE023948**
Tygon Tubing (1 foot)	**02506516**
Insert	**09903094**
¼ in. Front Ferrule	**09903456**
Fitting	**09903464**
Tube Fitting	**09903465**
Red/Red Standard PVC Tubing 1.14 mm i.d. (Pkg. 12)	**09908585**
Green/Yellow Flared End PVC Tubing 0.44 mm i.d. (Pkg. 6)	**N0773113**
Ball Joint Cassette Torch Injector Support Adapter	**W1012406**
UV Safety Shield	**W1020996**
Connector 1A	**B0199233**

ELAN® DRC-e/9000 Spares Kit

Description	Qty	Part No.
ELAN® DRC-e/9000 Spares Kit		**N8120610**
Kit Includes: Demountable Quartz Torch	1	**N8122006**
RF Coil Assembly	1	**WE021816**
Alumina Injector 2.0 mm i.d.	1	**N8126041**
Cross-Flow II Replacement GemTips™	1	**N8120515**
Series II Ion Lens	1	**WE018034**
Nickel Sampler Cones	2	**WE021140**
Nickel Skimmer Cones	2	**WE021137**
Sampler Cone O-Rings (Pkg. 5)	1	**N8120511**
Skimmer Cone O-Rings (Pkg. 5)	1	**N8120512**

ELAN® DRC II Spares Kit

Description	Qty	Part No.
ELAN® DRC II Spares Kit		**N8120611**
Kit Includes: Demountable Quartz Torch	1	**N8122006**
RF Coil Assembly	1	**WE021816**
Quartz Ball Joint Injector 2.0 mm i.d.	1	**WE023948**
Series II Ion Lens	1	**WE018034**
Platinum Sampler Cone	1	**WE027802**
Platinum Skimmer Cone	1	**WE027803**
Sampler Cone O-Rings (Pkg. 5)	1	**N8120511**
Skimmer Cone O-Rings (Pkg. 5)	1	**N8120512**
Skimmer Cone O-Rings (Pkg. 5)	1	**N8120512**

NexION 300/350Q/X/D Consumables Kit

Typical one year's supply of consumables.

Description	Qty	Part No.
NexION 300/350Q/X/D Consumables Kit		**N8140513**
Kit Includes:		
Demountable Quartz Torch	2	**N8122006**
Load Coil	1	**WE021816**
Quartz Ball Joint Injector 2.0 mm i.d.	2	**WE023948**
Cassette Torch Injector Support Adapter for Ball Joint Injectors	1	**W1012406**
Glass Cyclonic Spray Chamber	1	**N8145014**
Nickel Skimmer Cone	2	**W1026356**
Nickel Sampler Cone	2	**W1033612**
Hyper Skimmer Cone	1	**W1033995**
Sampler Cone Gasket	3	**W1040148**
Hyper Skimmer O-Ring	2	**09902123**
Hyper Skimmer Screw	2	**09919737**
Santoprene® 1.30 mm Gray/Gray Pump Tubing	4	**N0777444**
Flared PVC 0.38 mm Green/Orange Pump Tubing	4	**N0777042**
Drain Tubing (feet)	6	**02506495**
Sample Uptake Tubing (cm)	12	**WE024375**
Instrument Filter (left)	2	**W1036712**
Instrument Filter (back right)	2	**W1036713**
Spray Chamber Drain Fitting	2	**N8145015**
Nebulizer Fitting	2	**N8145016**
Male Barb CTFE Fittting	2	**N8145017**
Female Barb CTFE Fitting	2	**N8145018**

NexION 300/350S Consumables Kit

Typical one year's supply of consumables.

Description	Qty	Part No.
NexION 300/350S Consumables Kit		**N8140514**
Kit Includes:		
Demountable Quartz Torch	2	**N8122006**
Load Coil	1	**WE021816**
Quartz Ball Joint Injector 2.0 mm i.d.	2	**WE023948**
Cassette Torch Injector Support Adapter for Ball Joint Injectors	1	**W1012406**
Quartz Cyclonic Spray Chamber	1	**N8145013**
Platinum Skimmer Cone	1	**W1026907**
Platinum Sampler Cone	1	**W1033614**
Hyper Skimmer Cone	1	**W1033995**
Sampler Cone Gasket	3	**W1040148**
Hyper Skimmer O-Ring	2	**09902123**
Hyper Skimmer Screw	2	**09919737**
Santoprene® 1.30 mm Gray/Gray Pump Tubing	4	**N0777444**
Flared PVC 0.38 mm Green/Orange Pump Tubing	4	**N0777042**
Drain Tubing (feet)	6	**02506495**
Sample Uptake Tubing (cm)	12	**WE024375**
Instrument Filter (left)	1	**W1036712**
Instrument Filter (back right)	1	**W1036713**
Spray Chamber Drain Fitting	2	**N8145015**
Nebulizer Fitting	2	**N8145016**
Male Barb CTFE Fittting	2	**N8145017**
Female Barb CTFE Fitting	2	**N8145018**

NexION Spares

Description	Part No.
Metal Spill Tray for vacuum pump	**N8145022**
UV Shield/Spray Chamber Nut	**W1037267**
Instrument Filter (left)	**W1036712**
Instrument Filter (back right)	**W1036713**
NexION Sample Tray	**N8141206**
Sample Spill Tray	**W5005586**

ENSURE INSTRUMENT REPRODUCIBILITY

Two-Stop Peristaltic Pump Tubing

PerkinElmer offers a wide range of high-quality peristaltic pump tubing for all of your ICP-OES and ICP-MS applications. Remember to replace your tubing frequently and always keep spares on hand.

Two-Stop Peristaltic Pump Tubing

i.d. (mm)	Stop Colors	Standard PVC (Pkg 12)	Flared PVC (Pkg 12)	Solvent Flex (Pkg 12)	Viton® (Pkg 12)	Santoprene® (Pkg 12)	Silicone (Pkg 6)
0.19	orange / red	N0695476	N0773111				
0.25	orange / blue	N0773117	N0773112				
0.38	orange / green	N0777110	N0777042	N0777874			
0.44	green / yellow		N0773113				
0.51	orange / yellow		N0777476		N0777446		
0.64	orange / white		N0777711				
0.76	black / black	09908587	N0777043	00473550	N0773118		00473552
1.02	white / white				N0777442		N0777441
1.14	red / red	09908585		09923037	N0773115	N0773119	N0691595
1.30	grey / grey				N0777445	N0777444	N0777443
1.42	yellow / yellow	N0777521					
1.52	yellow / blue	09923536					
1.65	blue / blue				N0777447		
1.85	green / green	N0777518				N0773116	
2.06	purple / purple	N0777561					
2.79	purple / white			02508080			09923448
3.18	black / white	N8122012					

Internal Standard Kits

In-line Standard Additions kits, one which includes a glass mixing chamber/combiner for solutions which do not contain HF and another which includes an inert mixing chamber/combiner. Both kits are completely modular so that damaged or worn components can easily be replaced. The heart of the kit is the mixing chamber/combiner. It is designed for zero dead volume on the input ends which accommodate the sample and addition lines. The output end is designed with a small mixing chamber so that the sample and added reagent are intimately mixed prior to introduction to the nebulizer. All connections to the mixing chamber/combiner use EzyFit connectors. A sampling probe for the reagent addition bottle is included so that it remains well anchored in the bottle. Inline addition of internal standards and ionization buffers provides an efficient means of accurately and precisely dosing all of your samples without extra effort or the risk of error or contamination. Internal standardization is often used to compensate for physical and mass-space interferences in ICP spectrometry. In many cases, it also enhances short-term and long-term reproducibility.

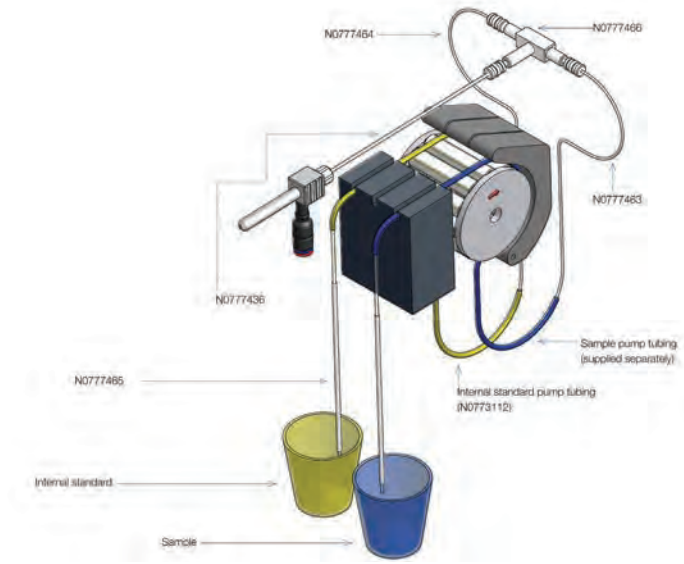
HF-Resistant Internal Standard Kit

Description	Part No.
HF-Resistant Internal Standard Kit	**N0774067**
Includes:	
HF Mixing T-piece	**N0777466**
Internal Standard Sample Probe 0.25 mm ID	**N0777465**
EzyFit Sample Tube 0.5 mm ID	**N0777463**
EzyFit with 1/16 inch OD x 0.50 mm ID x 700 mm Long Sample Tube	**N0777436**
EzyFit Internal Standard Tube 0.25 mm ID	**N0777464**
Vitex® Gripper Paper - Qty. 6	**N0777848**
Orange-Blue Flared End PVC Tubing 0.25 mm ID – Qty. 12	**N0773112**

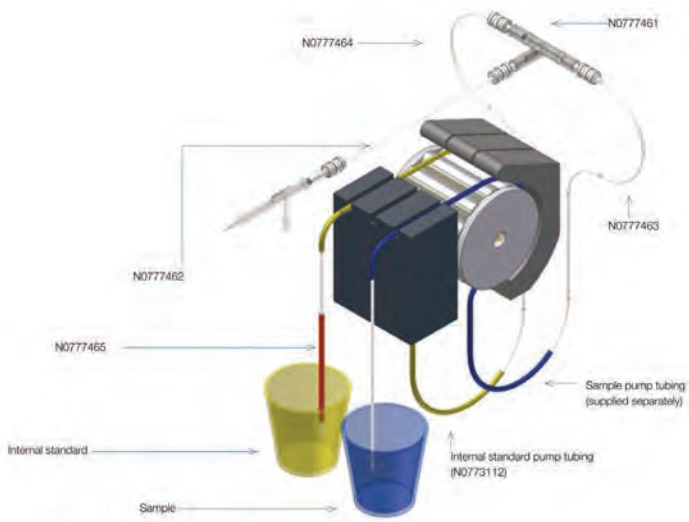
Non HF-Resistant Internal Standard Kit

Description	Part No.
Non HF-Resistant Internal Standard Kit	**N0774068**
Includes:	
HF Mixing T-piece	**N0777466**
Internal Standard Sample Probe 0.25 mm ID	**N0777465**
EzyFit Sample Tube 0.5 mm ID	**N0777463**
EzyFit with 1/16 inch OD x 0.50 mm ID x 700 mm Long Sample Tube	**N0777436**
EzyFit Internal Standard Tube 0.25 mm ID	**N0777464**
Vitex® Gripper Paper - Qty. 6	**N0777848**
Orange-Blue Flared End PVC Tubing 0.25 mm ID – Qty. 12	**N0773112**

HF-Resistant Internal Standard Kit



Non HF-Resistant Internal Standard Kit

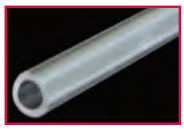


ESI MP² Two-Stop Peristaltic Pump Tubing

			Non-Flared			Flared*	
i.d. (mm)	Stop Colors	Calibration Slope (µL/min per RPM)	PVC 2-stop	Santoprene 2-stop	Solva 2-stop	PVC 2-stop	Solva 2-stop
0.13	orange / black	0.6	N8145145			N8145194	N8145208
0.19	orange / red	1.3	N8145146			N8145195	N8145209
0.27	orange / blue	2.7	N8145147			N8145196	N8145210
0.38	orange / green	4.7	N8145148	N8145171		N8145197	N8145211
0.44	green / yellow	7.6	N8145149			N8145198	N8145212
0.51	orange / yellow	9.5	N8145150			N8145199	N8145213
0.57	white / yellow	11	N8145151			N8145200	N8145214
0.64	orange / white	14	N8145152			N8145201	N8145215
0.76	black / black	19	N8145153	N8145172	N8145176	N8145202	N8145216
0.89	orange / orange	24	N8145154		N8145177	N8145203	N8145217
0.95	white / black	28	N8145155		N8145178	N8145204	N8145218
1.02	white / white	31	N8145156		N8145179	N8145205	N8145219
1.09	white / red	33	N8145157		N8145180	N8145206	N8145220
1.14	red / red	35	N8145158		N8145181	N8145207	
1.22	red / grey	46	N8145159		N8145182		
1.30	grey / grey	47	N8145160	N8145173	N8145183		
1.42	yellow / yellow	50	N8145161		N8145184		
1.52	yellow / blue	51	N8145162	N8145174	N8145185		
1.65	blue / blue	55	N8145163		N8145186		
1.75	blue / green	58	N8145164		N8145187		
1.85	green / green	61	N8145165		N8145188		
2.06	purple / purple	64	N8145166		N8145189		
2.20	purple / black	65	N8145167		N8145190		
2.54	purple / orange	67	N8145168		N8145191		
2.79	purple / white	69	N8145169		N8145192		
3.17	black / white	70	N8145170	N8145175	N8145193		
Bridge Length			72 mm	72 mm	72 mm	72 mm	72 mm

* For easy insertion of PFA capillaries i.d. = internal diameter

Non-Flared



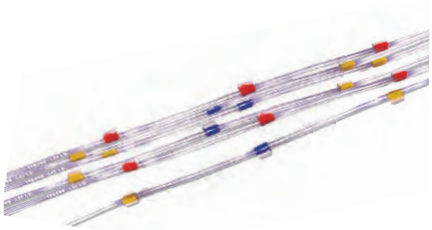
PVC

Santoprene

SOLVA

Three-Stop Peristaltic Pump Tubing

i.d. (mm)	Stop Colors	Standard PVC Clear (Pkg 12)	Pharmed Tan (Pkg 12)	Solvent Resistant Yellow (Pkg 12)
1.65	black / black / black	B0506058		
1.75	white / white / white			B0507692
1.85	red / red / red	B0193160	*B3140730	
2.06	yellow / blue / yellow	B0193161		
2.20	purple / purple / purple	B0199034		
2.54	purple / white / purple		*B3140721	
2.79	black / white / black	B0508310		
0.51	orange / yellow / orange	B0506737		



* Used for S10 and AS9X autosamplers

AUTOSAMPLER PROBES AND COMPONENTS

PerkinElmer AS-90/90A/90*plus*/91/93*plus*/S10 Sampling Probe Assemblies

S10 Autosampler

Stainless Steel

Description	Part No.
Flame Sampling Probe Assembly, 0.6 mm i.d. Includes Stainless Steel Sampling Probe and Screw Fitting (B3000152) and Flame Capillary (B3000157 – replaces B0196963) Tubing Assembly.	**B3000159**
FIAS™ Sampling Probe Assembly, 0.6 mm i.d. Includes Stainless Steel Sampling Probe and Screw Fitting (B3000152) and FIAS Capillary Tubing Assembly (B3000158 – replaces B0196966).	**B3000160**
FIAS Standard Sampling Probe Assembly, 1.0 mm i.d. Includes Stainless Steel Sampling Probe and Screw Fitting (B3000152) and FIAS Capillary Tubing Assembly (B0191060 – replaces B0501044).	**B3000161**

Corrosion-Resistant

Corrosion-resistant probes are suitable for inorganic acids and most organic solvents, except NMP.

Description	Part No.
Flame Sampling Probe Assembly, 0.6 mm i.d.* Includes Sampling Probe with FEP Tube and Screw Fitting (B3000055) and Capillary Tubing Assembly (B3000157). Standard with AS93plus/S10.	**B3001770**
FIAS Sampling Probe Assembly, 0.6 mm i.d.* Includes Sampling Probe with FEP Tube and Screw Fitting (B3000055) and FIAS Capillary Tubing Assembly (B3000158).	**B3001771**
FIAS Standard Sampling Probe Assembly, 1.0 mm i.d.* Includes Sampling Probe with FEP Tube and Screw Fitting (B3001769) and Capillary Tubing Assembly (B0191060).	**B3001772**

*This probe cannot be used with AS-90s, with the older sampling probe holder.

Sampling Probe Assembly Components

Description	Part No.
Stainless Steel Sampling Probe with Screw Fitting Requires, but does not include, one of the capillary tubing assemblies described below.	**B3000152**
Flame Capillary Tubing Assembly 1 m length, 0.6 mm i.d., one fitting (red)	**B3000157**
FIAS Capillary Tubing Assembly 1 m length, 0.6 mm i.d., two fittings (red)	**B3000158**
FIAS Capillary Tubing Assembly 1 m length, 1.0 mm i.d., two fittings (blue)	**B0191060**

Description	Part No.
Corrosion-Resistant Probe only 0.6 mm	**B3000055**
Corrosion-Resistant Probe only 01.0 mm	**B3001769**
O-Ring to hold Probe	**B0172053**
Probe Holder (white plastic)	**B3000151**

ESI Autosampler Probes

Description	Part No.
Autosampler Probes	
Autosampler Probe, 0.15 mm	**N0777221**
Autosampler Probe, 0.20 mm	**N0777222**
Autosampler Probe, 0.25 mm	**N0777223**
Autosampler Probe, 0.30 mm	**N0777224**
Autosampler Probe, 0.50 mm	**N0777225**
Autosampler Probe, 0.80 mm	**N0777226**
Sample Probes	
High Flow, Carbon Fiber Support, 0.8 mm i.d. (blue)	**N0777285**
Low Flow, Carbon Fiber Support, 0.8 mm i.d. (blue)	**N0777266**
Sample Probe Line Holder	**N0777227**
Carrier Probes	
High Flow, Carbon Fiber Support, 0.5 mm i.d. (orange)	**N0777286**
Low Flow, Carbon Fiber Support, 0.5 mm i.d. (orange)	**N0777267**

Cetac Carbon Fiber Autosampler Probes

Probes reinforced with rigid carbon fiber to ensure probe accuracy without the use of a guide plate when mounted to a Z-drive with double probe clamps.

Description	Part No.
0.5 Blue 0.5 mm ID x 108 in - Teflon	**N0777547**
1.0 2 Blue 1.0 mm ID x 75 in - Teflon	**N0777568**

Cetac Ultem Autosampler Probes

Probes made with Ultem brand polyetherimide resin are more flexible than the carbon fiber reinforced probes. Use of a Z-drive-mounted guide plate is required.

Description	Part No.
0.5 mm Blue 0.5 mm ID x 108 in - Teflon	**N0774088**
1.0 mm 2 Blue 1.0 mm ID x 75 in - Teflon	**N0777565**

Cetac Stainless Steel Autosampler Probe

Description	Part No.
Steel probe with screen tip (100 mesh) designed for oil analysis.	**N0771529**

PerkinElmer
S10 Autosampler

PerkinElmer Sample Trays

AS-93*plus*/S10 Sample Trays

Description/Capacity	Sample Vessel Size	Part No.
Tray F – 9/29*[1]	50 mL/15 mL	**B3001647**
Tray E – 90[2]	4.5 mL, 6 mL, 8 mL	**B3140617**
Tray H & Tray F – 60[3]	15 mL, 16 mL	**B3140618**
Tray E, H & Tray G – 21[4]	50 mL	**B3140621**

* AS-93plus/S10 sample trays are polypropylene.

[1] Rack B3001647 (rinsing-port rack) with rinsing port location (location 0), 8 locations for 50 mL solution containers (calibration and/or test sample solutions), and 29 locations for 15 mL solution containers (test sample solutions).

[2] Rack B3140617 each with 90 locations for 6 mL and 8 mL solution containers (test sample solutions).

[3] Rack B3140618 with 60 locations for 15 mL solution containers (test sample solutions).

[4] Rack B3140621 with 21 locations each for 50 mL solution containers (calibration and/or test sample solutions). Location 0 in the first rack is for the rinsing port.

AS-90/90A/90*plus* Sample Trays

Description/Capacity	Sample Vessel Size	Part No.
Tray A – 144	4.5 mL, 6 mL, 8 mL	**B3000133**
Tray B – 98*	15 mL, 16 mL	**B3000132**
Tray C – 36	50 mL	**B3000135**
Blank Tray		**B0501056**

*Polypropylene sample tray.

AS-91 Sample Trays

Description/Capacity	Sample Vessel Size	Part No.
Tray E – 218	4.5 mL, 6 mL, 8 mL	**B0509554**
8 - 50 mL spots & Tray F – 152 / 8 (160)	15 mL, 16 mL	**B0509555**
Tray G – 55	50 mL	**B0508520**

Trays A, C, E, F and G are powder-coated, corrosion-resistant aluminum.

AS-93*plus*/S10 Rinsing Kit

Description/Capacity	Part No.
AS-93*plus*/S10 Rinsing Kit	**B3140236**
Spare Parts	
Rinsing Port	**B3140622**
Adapter M	**B0507919**
Pump Tube – 2.79 mm i.d. (pkg. 6) purple-white	**B3140721**
Pump Tube – 1.14 mm i.d. (pkg. 6)	**B3140730**
Tygon® Drain Tube – 2 m red-red-red	**B0018283**
PVC Rinse Liquid Feed Tube – 1 m	**B0048139**
Connector	**B3140715**

Cetac Autosampler Racks

Racks

Rack	Vial Size	Part No.
21-Position, 30.5 mm square opening	50 mL	**N0777152**
24-Position, 25.2 mm square opening	30 mL	**N0777151**
40-Position, 20.6 mm square opening	20 mL	**N0777150**
30-Position Tall Rack, square opening	14 mL	**N0777062**
40-Position	20 mL	**N0777169**
40-Position/Gilson 29	20 mL	**N0777155**
45-Position/120 cc Sample Rack (oils)		**N0777298**
60-Position, 17.0 mm square opening	14 mL or 15mL	**N0777149**
80-Position Collection Metal for Oil	15mL	**N0774085**
90-Position, 13.5 mm square opening	7 mL or 8 mL	**N0777148**
90-Position, 13.3 mm round opening	7 mL or 8 mL	**N0777153**
90-Position Collection Metal for Oil	8 mL	**N0777154**

ESI Autosampler Racks

Racks and Rack Covers

Description	Size	Diameter	Part No.
Standard Racks			
10-Position		28 mm	**N0777228**
24-Position	4 x 6	14 mm	**N0777234**
Adapter Plate**			**N0777235**
Micro Racks			
21-Position	3 x 7	14 mm	**N0777229**
40-Position	4 x 10	14 mm	**N0777230**
60-Position	5 x 12	8 mm	**N0777231**
90-Position	5 x 12		**N0777232**
Cover for Micro Racks			**N0777233**
Large Racks			
21-Position	3 x 7	30 mm	**N0777242**
40-Position	4 x 10	20 mm	**N0777243**
60-Position	5 x 12	16 mm	**N0777244**
90-Position	6 x 15	13 mm	**N0777245**
Super Racks			
10-Position***	2 x 5	61 mm	**N0777253**
12-Position	2 x 6	50 mm	**N0777252**
21-Position	3 x 7	22 mm	**N0777251**
21-Position	3 x 7	28 mm	**N0777250**
21-Position	3 x 7	30 mm	**N0777249**
27-Position	3 x 9	28 mm	**N0777248**
80-Position	5 x 16	16 mm	**N0777247**
120-Position	6 x 20	13 mm	**N0777246**

**For Gemetec/Cetac ASX-100's racks

***Holds 205 mL bottles.

Polypropylene Autosampler Tubes

PerkinElmer translucent polypropylene tubes are designed to provide excellent chemical resistance. PerformR™ 15 mL and 50 mL conical tubes are designed for your routine everyday applications and storage needs. SuperClear™ tubes are made from a unique medical grade resin. PerformR and SuperClear tubes are available with either a flat cap with a two stage seal, or a plug style cap that includes a very deep sealing area.

Round Bottom Tubes

Description	Type	Size	Pack	Qty	Part No.
5 mL without caps	Standard	12 mm x 75 mm	Bulk	500	**B0193235**
8 mL without caps	Standard	13 mm x 100 mm	Bulk	1200	**N0777156**
8 mL without caps	Standard	13 mm x 100 mm	250/bag	1000	**N0777159**
8 mL without caps	Standard	13 mm x 100 mm	Bulk	1000	**B0508901**
14 mL without caps	Standard	17 mm x 100 mm	Bulk	1000	**N0777940**
14 mL with Dual Position, Polyethylene Caps included	Standard	17 mm x 100 mm	Bulk	1000	**N0777941**
Dual Position Caps for 14 mL, N0777940 Tubes (clear) Caps Only	Standard		Bulk	1000	**N0777942**
14 mL without caps	Standard	17 mm x 100 mm	250/bag	1000	**N0777168**
15 mL without plugs	Standard	17 mm x 100 mm	Bulk	1200	**N0777167**
Plugs for 15 mL N0777167 Tubes, (blue) Plugs Only	Standard		Bulk	1200	**N0777599**
15 mL **Graduated** without plugs	Standard	17 mm x 100 mm	Bulk	2000	**N0777071**
Plugs for 15 mL N0777071 Tubes, (white) Plugs Only	Standard		Bulk	1000	**N0777072**
16 mL without caps	Standard	17 mm x 100 mm	250/bag	1000	**N9301205**

Conical Bottom Tubes with Graduation

Description	Type	Size	Pack	Qty	Part No.
15 mL with Red Flat Caps attached, (Standard PerkinElmer S10 Tubes)	Standard	17 mm x 120 mm	50/bag	500	**B0193233**
15 mL Sterile Tubes, with Teal Flat Caps attached	Sterile	17 mm x 118 mm	50/bag	500	**N0774095**
15 mL Metal Free Sterile Tubes Racked with White Flat Caps	Sterile	17 mm x 118 mm	25/Rack	500	**N0776118**
15 mL with Teal Flat Caps attached	SuperClear	17 mm x 118 mm	50/bag	500	**N0777701**
15 mL with Teal Flat Caps attached	SuperClear	17 mm x 118 mm	Racked 50/bag	500	**N0777702**
15 mL with Teal Flat Caps attached	SuperClear	17 mm x 118 mm	Bulk	500	**N0777703**
15 mL with Teal Flat Caps attached	SuperClear	17 mm x 118 mm	50/bag	500	**N0777704**
15 mL with Teal Flat Caps attached	SuperClear		Racked 50/bag	500	**N0777705**
15 mL with Teal Plug Caps	SuperClear	17 mm x 118 mm	Bulk	500	**N0777706**
50 mL with Red Flat Caps attached, (Standard PerkinElmer S10 Tubes), Freestanding	Standard	28 mm x 115 mm	25/bag	500	**B0193234**
50 mL with Red Flat Caps attached	Standard	28 mm x 114 mm	25/bag	300	**N0777901**
50 mL with Teal Flat Caps attached, Freestanding	PerformR	30 mm x 116 mm	50/bag	500	**N0777697**
50 mL with Teal Flat Caps attached, Freestanding	PerformR	30 mm x 116 mm	Bulk	500	**N0777698**
50 mL with Teal Plug Caps attached, Freestanding	PerformR	30 mm x 116 mm	50/bag	500	**N0777699**
50 mL with Teal Plug Caps included, Freestanding	PerformR	30 mm x 116 mm	Bulk	500	**N0777700**
50 mL Sterile Tubes with Teal Flat Caps attached	Sterile	29 mm x 115 mm	50/bag	500	**N0774096**
50mL Metal Free Sterile Tubes Racked with White Flat Caps	Sterile	30 mm x 116 mm	25/Rack	500	**N0776116**
50 mL with Teal Flat Caps attached	SuperClear	29 mm x 115 mm	50/bag	500	**N0777691**
50 mL with Teal Flat Caps attached	SuperClear	29 mm x 115 mm	Racked 50/bag	500	**N0777692**
50 mL with Teal Flat Caps included	SuperClear	29 mm x 115 mm	Bulk	500	**N0777693**
50 mL with Teal Plug Caps attached	SuperClear	29 mm x 115 mm	50/bag	500	**N0777694**
50 mL with Teal Plug Caps attached	SuperClear	29 mm x 115 mm	Racked 50/bag	500	**N0777695**
50 mL with Teal Plug Caps included	SuperClear	29 mm x 115 mm	Bulk	500	**N0777696**

PIONEERED THE USE OF FLOW INJECTION TECHNIQUES

FIMS

FIAS

The use of flow injection saves time, money and manpower — while at the same time, extending your analytical flexibility and capabilities.

PerkinElmer carries a wide selection of genuine supplies and accessories for your FIMS-100, FIMS-400, FIAS-100 or FIAS-400. Keeping your system in good working order by using only the best replacement parts is the first step in assuring quality analytical performance. Regular maintenance and/or replacement of consumables such as tubing, connectors and adapters will maximize the lifetime and productivity of your PerkinElmer flow injection system.

Adapters with Internal Thread

¼ in (6.4 mm) Internal Screw Thread

Type*	Description	Part No.
A B	A 1.8 mm o.d. nipple	B0193342
	B 3.3 mm o.d. nipple	B0506716
C	4 mm o.d. nipple	B0196850
E	For the quartz cell	B0196857
F	0.7 mm o.d. Pt/Ir capillary nipple	B0193873
G	Two nipples to connect tubes to the pre-concentration accessory	B0501580

Connectors

Type*	Description	Part No.
IA	Connector with nipples for 1.7 to 3.2 mm i.d. tubes	B0199233
IB	Connector with nipples for 2.4 to 3.2 mm i.d. tubes	B0196882
II	Connector with 1/4 in (6.4 mm) internal screw thread	B0196704
IIIA	T-piece with nipples for 1.5 to 2.5 mm i.d. tubes	B0199035
IIIB	T-piece with nipples for 3.5 to 4.5 mm i.d. tubes	B0198201

Adapters with External Thread

¼ in (6.4 mm) External Screw Thread

Type*	Description	Part No.
K L	K 1.8 mm o.d. nipple	B0507918
	L 2.8 mm o.d. nipple	B0507920
M	4 mm o.d. nipple	B0507919
N	0.7 mm o.d. Pt/Ir capillary nipple	B0507949
	Screw Plug	B0507921

*Type designation refers to diagrams in instrument manuals.

FIAS/FIMS Cell Replacement Parts

Description	Part No.
Complete FIAS Cell and Windows	B0507486
FIAS Cell only (no windows)	B0507487
Quartz Windows for FIAS or FIMS	B0066549
FIMS Complete Cell and Windows	B0510334
FIMS Cell Only (no windows)	B0510370
FIMS Hg Lamp	B3000243
FIMS Hg Filter Replacement for Hg Scrubber	B3000274

Mixing/Separation Assembly

Complete modular unit, consisting of two mixing manifolds with tubing adapters, a gas liquid separator with a PTFE membrane, five spare PTFE membranes, one PTFE tube (110 mm long) and one PTFE tube (300 mm long).

Description	Part No.
Mixing/Separation Assembly	**B0507957**

Mixing Block

Modular "building block" type mixing manifold with one mixing channel and three connections, two inlet and one outlet. Made from chemically-resistant plastic. Several of these blocks can be "plugged" together easily to create a single unit with enhanced mixing capabilities.

Description	Part No.
Mixing Block	**B0507962**

Gas/Liquid Separator

Modular "building block" type gas-liquid separator made from chemically-resistant plastic. An exchangeable PTFE membrane in the screw cap of the separator prevents liquid from being carried into the quartz cell when working with strong foaming samples.

Description	Part No.
Gas/Liquid Separator	**B0507959**
Glass Gas/Liquid Separator	**B0193772**
Gas/Liquid Separator Holder for Glass Separator	**B0509479**
PTFE Membrane (pkg. 50)	**B0508306**
Mixing Manifold for Glass Gas/Liquid Separator	**B0187258**

Tool, Screw Connectors

Description	Part No.
Tool, Screw Connectors	**B0501315**

Flow Injection Furnace Supplies

Description	Part No.
FIAS-Furnace Sample Transfer Tube	**B0509612**
Quartz Pipette Tip/20 mm (pkg. 1)	**B0510032**
Silicone Tube	**B0029796**

Sample Loops

Description	Part No.
200 µL	**B0194048**
500 µL	**B0194049**
1,000 µL	**B0501000**

Tubing

Standard PVC clear peristaltic pump tubing has a wall thickness of 0.84 mm.

Three-Stop Peristaltic Pump Tubing, Pkg. 12

Tubing i.d.	Color Code	Part No.
0.76 mm	Black/black	**B0506058**
1.14 mm	Red/red	**B0193160**
1.52 mm	Yellow/blue	**B0193161**
2.06 mm	Violet/violet	**B0199034**
3.18 mm	Black/white	**B0508310**

Solvent Resistant Yellow Peristaltic Pump Tubing, Pkg. 12

Tubing i.d.	Color Code	Part No.
1.02mm	White/white	**B0507692**

PTFE Tubing

Tubing i.d.	Length	Part No.
0.35 mm	1 m	**B0506060**
0.5 mm	1 m	**B0507020**
0.7 mm	1 m	**B0507021**
1.0 mm	1 m	**B0029792**
1.75 mm	1 m	**B0017998**

PTFE Tubing Assemblies

Tubing i.d.	Screw Fittings Color	Length	Part No.
0.35 mm	White	60 mm	**B0501594**
1.0 mm	Blue	110 mm	**B0191058**
1.0 mm	Blue	300 mm	**B0198097**
1.0 mm	Blue	700 mm	**B0191059**
1.0 mm	Blue	1,000 mm	**B0191060**
1.75 mm	Black	250 mm	**B0198099**
1.75 mm	Black	450 mm	**B0198100**
3-dimensional reactor 0.35 mm (two flanged ends)			**B0501595**

PVC Tubing

Description	Part No.
3 mm i.d. with 1 mm wall thickness, no fittings	**B0048139**

Price per meter.

Silicone Tubing

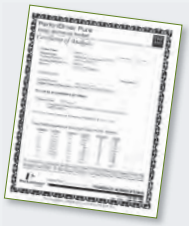
Description	Part No.
1 m x 5 mm i.d., no fittings	**B0018283**
1 m x 3 mm i.d.	**B0070126**
For FIMS Cell Exhaust Outlet, 3 m	**B0046948**

EXPERIENCE RELIABLE, ACCURATE RESULTS

Inorganic Aqueous Standards

PerkinElmer offers a complete selection of atomic spectroscopy aqueous standards. Each solution is supplied with a comprehensive Certificate of Analysis that documents the quality and reliability.

Pure Grade Standards for AA and ICP-OES



- Analyzed by ICP-OES
- Analyzed by Classical Wet Assay
- 32 trace impurities analyzed by ICP-MS of the final solution and reported on the certificate
- Impurities reported at ppm level
- All Standards are prepared and certified under ISO Guide 34 and ISO 17025

Pure Plus Grade Standards for ICP-MS

- Analyzed by ICP-OES
- Analyzed by Classical Wet Assay
- 67 trace impurities analyzed by ICP-MS of the final solution and reported on the certificate
- Impurities reported at ppb level
- All Standards are prepared and certified under ISO Guide 34 and ISO 17025

Single-Element Standards – 1,000 µg/mL

Element	Symbol	Matrix	Pure Grade 125 mL Part No.	Pure Grade 500 mL Part No.	Pure Plus Grade 125 mL Part No.
Aluminum	Al	2% HNO_3	**N9300184**	**N9300100**	**N9303726**
Antimony	Sb	2% HNO_3	**N9300207**	**N9300101**	**N9303750**
Arsenic	As	2% HNO_3	**N9300180**	**N9300102**	**N9303727**
Barium	Ba	2% HNO_3	**N9300181**	**N9300103**	**N9303729**
Beryllium	Be	2% HNO_3	**N9300172**	**N9300104**	**N9303730**
Bismuth	Bi	10% HNO_3	**N9303761**	**N9300105**	**N9303731**
Boron	B	H_2O		**N9303760**	**N9300106**
Cadmium	Cd	2% HNO_3	**N9300176**	**N9300107**	**N9303734**
Calcium	Ca	2% HNO_3	**N9303763**	**N9300108**	**N9303733**
Carbon	C	H_2O		**N9303762**	**N9300109**
Cerium	Ce	2% HNO_3	**N9303765**	**N9300110**	
Cesium	Cs	2% HNO_3	**N9303767**	**N9300111**	
Chromium	Cr	2% HNO_3	**N9300173**	**N9300112**	**N9303736**
Cobalt	Co	2% HNO_3	**N9303766**	**N9300113**	**N9303735**
Copper	Cu	2% HNO_3	**N9300183**	**N9300114**	**N9303737**
Dysprosium	Dy	2% HNO_3	**N9303768**	**N9300115**	
Erbium	Er	2% HNO_3	**N9303769**	**N9300116**	
Europium	Eu	2% HNO_3	**N9303770**	**N9300117**	
Gadolinium	Gd	2% HNO_3	**N9303773**	**N9300118**	
Gallium	Ga	2% HNO_3	**N9303772**	**N9300119**	
Germanium	Ge	H_2O/0.16% F-	**N9303774**	**N9300120**	**N9303739**
Gold	Au	10% HCl	**N9303759**	**N9300121**	**N9303728**
Hafnium	Hf	2% HCl		**N9303775**	**N9300122**
Holmium	Ho	2% HNO_3	**N9303776**	**N9300123**	
Indium	In	2% HNO_3	**N9303777**	**N9300124**	**N9303741**

Single-Element Standards – 1,000 µg/mL (con't)

Element	Symbol	Matrix	Pure Grade 125 mL Part No.	Pure Grade 500 mL Part No.	Pure Plus Grade 125 mL Part No.
Iridium	Ir	10% HCl	**N9303778**	**N9300125**	
Iron	Fe	2% HNO_3	**N9303771**	**N9300126**	**N9303738**
Lanthanum	La	2% HNO_3	**N9303780**	**N9300127**	
Lead	Pb	2% HNO_3	**N9300175**	**N9300128**	**N9303748**
Lithium	Li	2% HNO_3	**N9303781**	**N9300129**	
Lutetium	Lu	2% HNO_3	**N9303782**	**N9300130**	
Magnesium	Mg	2% HNO_3	**N9300179**	**N9300131**	**N9303743**
Manganese	Mn	2% HNO_3	**N9303783**	**N9300132**	**N9303744**
Mercury	Hg	10% HNO_3	**N9300174**	**N9300133**	**N9303740**
Molybdenum	Mo	H_2O	**N9303784**	**N9300134**	**N9303745**
Neodymium	Nd	2% HNO_3	**N9303787**	**N9300135**	
Nickel	Ni	2% HNO_3	**N9300177**	**N9300136**	**N9303747**
Niobium	Nb	H_2O/0.4% HF	**N9303786**	**N9300137**	
Palladium	Pd	10% HCl	**N9303789**	**N9300138**	
Phosphorus	P	H_2O	**N9303788**	**N9300139**	
Platinum	Pt	10% HCl	**N9303791**	**N9300140**	
Potassium	K	2% HNO_3	**N9303779**	**N9300141**	**N9303742**
Praseodymium	Pr	2% HNO_3	**N9303790**	**N9300142**	
Rhenium	Re	H_2O	**N9303793**	**N9300143**	
Rhodium	Rh	10% HCl	**N9303794**	**N9300144**	**N9303749**
Rubidium	Rb	2% HNO_3	**N9303792**	**N9300145**	
Ruthenium	Ru	10% HCl	**N9303795**	**N9300146**	
Samarium	Sm	2% HNO_3	**N9303800**	**N9300147**	
Scandium	Sc	2% HNO_3	**N9303798**	**N9300148**	**N9303751**
Selenium	Se	2% HNO_3	**N9300182**	**N9300149**	**N9303752**

Single-Element Standards – 1,000 µg/mL (con't)

Element	Symbol	Matrix	Pure Grade 125 mL Part No.	Pure Grade 500 mL Part No.	Pure Plus Grade 125 mL Part No.
Silicon	Si	H_2O	**N9303799**	**N9300150**	
Silver	Ag	2% HNO_3	**N9300171**	**N9300151**	**N9303725**
Sodium	Na	2% HNO_3	**N9303785**	**N9300152**	**N9303746**
Strontium	Sr	2% HNO_3	**N9303802**	**N9300153**	
Sulfur	S	H_2O	**N9303796**	**N9300154**	
Tantalum	Ta	H_2O/0.8% HF	**N9303803**	**N9300155**	
Tellurium	Te	5% HNO_3	**N9303805**	**N9300156**	
Terbium	Tb	2% HNO_3	**N9303804**	**N9300157**	**N9303753**
Tin	Sn	20% HCl	**N9303801**	**N9300161**	**N9303838**
Thallium	Tl	2% HNO_3	**N9300170**	**N9300158**	**N9303755**
Thorium	Th	2% HNO_3	**N9303842**		
Thulium	Tm	2% HNO_3	**N9303807**	**N9300160**	
Titanium	Ti	H_2O/0.24% F-	**N9303806**	**N9300162**	**N9303754**
Tungsten	W	H_2O	**N9303809**	**N9300163**	
Uranium	U	2% HNO_3	**N9303844**		
Vanadium	V	2% HNO_3	**N9303808**	**N9300165**	**N9303756**
Ytterbium	Yb	2% HNO_3	**N9303811**	**N9300166**	
Yttrium	Y	2% HNO_3	**N9303810**	**N9300167**	**N9303757**
Zinc	Zn	2% HNO_3	**N9300178**	**N9300168**	**N9303758**
Zirconium	Zr	2% HNO_3	**N9303812**	**N9300169**	

Single-Element Standards – 1 µg/mL

Element	Symbol	Matrix	Pure Grade 125 mL Part No.
Aluminum	Al	2% HCl	**N9304200**
Aluminum	Al	2% HNO_3	**N9304201**
Antimony	Sb	2% HCl	**N9304202**
Antimony	Sb	H_2O/Tr.HNO_3/Tr.Tart	**N9304203**
Arsenic	As	2% HCl	**N9304204**
Arsenic	As	2% HNO_3	**N9304205**
Barium	Ba	2% HCl	**N9304206**
Barium	Ba	2% HNO_3	**N9304207**
Beryllium	Be	2% HNO_3	**N9304208**
Bismuth	Bi	2% HNO_3	**N9304209**
Boron	B	H_2O	**N9304210**
Cadmium	Cd	2% HCl	**N9304211**
Cadmium	Cd	2% HNO_3	**N9304212**
Calcium	Ca	2% HCl	**N9304213**
Calcium	Ca	2% HNO_3	**N9304214**
Carbon	C	H_2O	**N9304215**
Cerium	Ce	2% HNO_3	**N9304216**
Cesium	Cs	2% HNO_3	**N9304217**
Chromium	Cr	2% HCl	**N9304218**
Chromium	Cr	2% HNO_3	**N9304219**
Chromium	Cr	H_2O	**N9304220**

Single-Element Standards – 1 µg/mL (con't)

Element	Symbol	Matrix	Pure Grade 125 mL Part No.
Cobalt	Co	2% HCl	**N9304221**
Cobalt	Co	2% HNO_3	**N9304222**
Copper	Cu	2% HCl	**N9304223**
Copper	Cu	2% HNO_3	**N9304224**
Dysprosium	Dy	2% HNO_3	**N9304225**
Erbium	Er	2% HNO_3	**N9304226**
Europium	Eu	2% HNO_3	**N9304227**
Gadolinium	Gd	2% HNO_3	**N9304228**
Gallium	Ga	2% HNO_3	**N9304229**
Germanium	Ge	H_2O	**N9304230**
Gold	Au	2% HCl	**N9304231**
Hafnium	Hf	2% HCl	**N9304232**
Holmium	Ho	2% HNO_3	**N9304233**
Indium	In	2% HNO_3	**N9304234**
Iridium	Ir	2% HCl	**N9304235**
Iron	Fe	2% HCl	**N9304236**
Iron	Fe	2% HNO_3	**N9304237**
Lanthanum	La	2% HNO_3	**N9304238**
Lead	Pb	2% HNO_3	**N9304239**
Lithium	Li	2% HCl	**N9304240**
Lithium	Li	2% HNO_3	**N9304241**
Lutetium	Lu	2% HNO_3	**N9304242**
Magnesium	Mg	2% HCl	**N9304243**
Magnesium	Mg	2% HNO_3	**N9304244**
Manganese	Mn	2% HNO_3	**N9304245**
Potassium	K	2% HCl	**N9304247**
Potassium	K	2% HNO_3	**N9304248**
Molybdenum	Mo	H_2O	**N9304249**
Niobium	Nb	H_2O/tr HF	**N9304250**
Neodymium	Nd	2% HNO_3	**N9304251**
Nickel	Ni	2% HNO_3	**N9304252**
Palladium	Pd	2% HCl	**N9304253**
Phosphorus	P	H_2O	**N9304254**
Platinum	Pt	2% HCl	**N9304255**
Praseodymium	Pr	2% HNO_3	**N9304256**
Rubidium	Rb	2% HNO_3	**N9304257**
Rhenium	Re	H_2O	**N9304258**
Rhodium	Rh	2% HCl	**N9304259**
Ruthenium	Ru	2% HCl	**N9304260**
Samarium	Sm	2% HNO_3	**N9304261**
Scandium	Sc	2% HNO_3	**N9304262**
Selenium	Se	2% HNO_3	**N9304263**
Silicon	Si	H_2O/tr HF	**N9304264**
Silver	Ag	2% HNO_3	**N9304265**
Sodium	Na	2% HCl	**N9304266**

Single-Element Standards – 1 µg/mL (con't)

Element	Symbol	Matrix	Pure Grade 125 mL Part No.
Sodium	Na	2% HNO_3	**N9304267**
Strontium	Sr	2% HCl	**N9304268**
Strontium	Sr	2% HNO_3	**N9304269**
Sulfur	S	H_2O	**N9304270**
Tantalum	Ta	H_2O/tr HF	**N9304271**
Tellurium	Te	5% HCl	**N9304272**
Tellurium	Te	2% HNO_3	**N9304273**
Terbium	Tb	2% HNO_3	**N9304274**
Thallium	Tl	2% HNO_3	**N9304275**
Thorium	Th	2% HNO_3	**N9304276**
Thulium	Tm	2% HNO_3	**N9304277**
Tin	Sn	5% HCl	**N9304278**
Tin	Sn	2% HNO_3/tr HF	**N9304279**
Titanium	Ti	H_2O/tr HF	**N9304280**
Tungsten	W	2% HNO_3/tr HF	**N9304281**
Tungsten	W	H_2O	**N9304282**
Uranium	U	2% HNO_3	**N9304283**
Vanadium	V	2% HCl	**N9304284**
Vanadium	V	2% HNO_3	**N9304285**
Ytterbium	Yb	2% HNO_3	**N9304286**
Yttrium	Y	2% HNO_3	**N9304287**
Zinc	Zn	2% HCl	**N9304288**
Zinc	Zn	2% HNO_3	**N9304289**
Zirconium	Zr	2% HCl	**N9304290**
Zirconium	Zr	2% HNO_3	**N9304291**

Single-Element Pure Plus Standards - 10 µg/mL

Element	Symbol	Matrix	Pure Plus Grade 125 mL Part No.
Bismuth	Bi	2% HNO_3	**N9303731**
Germanium	Ge	H_2O tr HF	**N9303739**
Indium	In	2% HNO_3	**N9303741**
Rhodium	Rh	2% HCl	**N9303749**
Scandium	Sc	2% HNO_3	**N9303751**
Terbium	Tb	2% HNO_3	**N9303753**
Yttrium	Y	2% HNO_3	**N9303757**

Single-Element Pure Standards - 10,000 µg/mL

Element	Symbol	Matrix	Pure Grade 125 mL Part No.	Pure Grade 500 mL Part No.
Aluminum	Al	5% HNO_3	**N9304111**	**N9304110**
Antimony	Sb	20% HCl		**N9304292**
Antimony	Sb	H_2O/Tartaric Acid/Tr HNO_3	**N9304294**	
Arsenic	As	5% HNO_3	**N9304295**	**N9304296**

Single-Element Pure Standards - 10,000 µg/mL (con't)

Element	Symbol	Matrix	Pure Grade 125 mL Part No.	Pure Grade 500 mL Part No.
Barium	Ba	5% HNO_3	**N9304297**	**N9304298**
Beryllium	Be	5% HNO_3	**N9304299**	**N9304300**
Boron	B	H_2O	**N9304301**	**N9304302**
Cadmium	Cd	5% HNO_3	**N9304303**	**N9304304**
Calcium	Ca	5% HNO_3	**N0691581**	**N9303764**
Cerium	Ce	5% HNO_3	**N9304305**	**N9304306**
Cesium	Cs	5% HNO_3	**N9304307**	**N9304308**
Chromium	Cr	2% HNO_3	**N9304309**	**N9304311**
Chromium	Cr	5% HCl		**N9304310**
Chromium	Cr	H_2O		**N9304312**
Cobalt	Co	5% HNO_3	**N9304313**	**N9304314**
Copper	Cu	5% HNO_3	**N9304112**	**N9300283**
Erbium	Er	5% HNO_3		**N9304315**
Gadolinium	Gd	5% HNO_3	**N9304316**	**N9304317**
Iron	Fe	5% HNO_3	**N9304113**	**N9307117**
Lanthanum	La	5% HNO_3	**N9304318**	**N9304319**
Lead	Pb	5% HNO_3	**N9304321**	**N9304320**
Lithium	Li	5% HCl		**N9304322**
Lithium	Li	5% HNO_3	**N9304323**	**N9304324**
Magnesium	Mg	5% HNO_3	**N0691745**	**N9304114**
Manganese	Mn	5% HNO_3	**N9304115**	
Mercury	Hg	10% HNO_3	**N9304325**	**N9304326**
Molybdenum	Mo	H_2O	**N9304327**	**N9304328**
Nickel	Ni	5% HNO_3	**N9304117**	**N9304116**
Niobium	Nb	H_2O		**N9304329**
Niobium	Nb	H_2O/tr HF	**N9304330**	
Phosphorus	P	H_2O	**N9304119**	**N9304118**
Potassium	K	5% HNO_3	**N9304121**	**N9304120**
Rubidium	Rb	2% HNO_3	**N9304331**	**N9304332**
Scandium	Sc	2% HNO_3	**N9304333**	
Scandium	Sc	5% HNO_3	**N9304334**	
Selenium	Se	5% HNO_3	**N9304335**	**N9304336**
Silicon	Si	H_2O/4% F-	**N9304122**	
Silver	Ag	5% HNO_3	**N9304337**	**N9304338**
Sodium	Na	5% HNO_3	**N9304124**	**N9304123**
Strontium	Sr	5% HCl	**N9304339**	
Strontium	Sr	5% HNO_3	**N9304340**	**N9304341**
Sulfur	S	H_2O	**N9304126**	**N9304125**
Tantalum	Ta	H_2O		**N9304342**
Tantalum	Ta	H_2O/tr HF	**N9304343**	
Tin	Sn	HNO_3/2% HF		**N9304344**
Tin	Sn	20% HCl	**N9304345**	**N9304346**
Titanium	Ti	40% HCl		**N9304347**
Titanium	Ti	H_2O	**N9304348**	**N9304349**
Tungsten	W	2% HNO_3/5% HF		**N9304350**

Single-Element Pure Standards - 10,000 µg/mL (con't)

Element	Symbol	Matrix	Pure Grade 125 mL Part No.	Pure Grade 500 mL Part No.
Tungsten	W	H_2O	**N9304351**	**N9304352**
Uranium	U	5% HNO_3	**N9304353**	**N9304354**
Vanadium	V	15% HCl		**N9304355**
Vanadium	V	15% HNO_3	**N9304356**	**N9304357**
Yttrium	Y	5% HNO_3	**N9304128**	**N9304127**
Zinc	Zn	5% HNO_3	**N9304129**	
Zirconium	Zr	10% HCl		**N9304358**
Zirconium	Zr	5% HNO_3	**N9304359**	**N9304360**

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Multi-Element Standards

Matrix	Contents	Vol.	Part No.
Multi-Element Solution			
5% HNO_3	1,000 µg/mL: Al, Ca, Fe, Mg	500 mL	**N9307113**
Multi-Element Solution			
5% HNO_3	1,000 µg/mL: K, Na, P	500 mL	**N9307114**
Multi-Element Solution			
5% HNO_3	1,000 µg/mL: Mo, Sb, Sn, W, Zr	500 mL	**N9307115**
Multi-Element Solution			
5% HNO_3	1,000 µg/mL: As, Ba, Be, Cd, Cr, Co, Cu, La, Pb, Li, Mn, Ni, Sc, Sr, V, Y, Zn	500 mL	**N9307116**
5% HNO_3/ trace HF	100 µg/mL: Ge, Mo, S, Si, Ti	125 mL	**N9308541**
20% HCl/ 1% HNO_3	100 µg/mL: Au, Cr, Sb, Sn, Te	125 mL	**N9308542**
5% HNO_3	100 µg/mL: Ag, As, B, Ba, Be, Bi, Ca, Cd, Co, Cu, Fe, K, Li, Mg, Mn, Na, Ni, P, Pb, Se, Sr, Tl, U, V, Zn	125 mL	**N9308543**
Multi-Element Solution 1			
2% HNO_3	10 µg/mL: Be, Bi, Ce, Co, In, Mg, Ni, Pb, U	125 mL	**N9300231**
Multi-Element Solution 2			
5% HNO_3	10 µg/mL: Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Th, Tm, Y, Yb	125 mL	**N9300232**

Multi-Element Standards (con't)

Matrix	Contents	Vol.	Part No.
Multi-Element Solution 3			
5% HNO_3	10 µg/mL: Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, Hg*, In, K, Li, Mg, Mn, Na, Ni, Pb, Rb, Se, Sr, Tl, U, V, Zn *Supplied in separate bottle.	125 mL	**N9300233**
Multi-Element Solution 3 without Mercury			**N9301720**
Multi-Element Solution 4			
10% HCl/1% HNO_3	10 µg/mL: Au, Hf, Ir, Pd, Pt, Rh, Ru, Sb, Sn, Te	125 mL	**N9300234**
Multi-Element Solution 5			
H_2O/tr HF/ tr HNO_3	10 µg/mL: B, Ge, Mo, Nb, P, Re, S, Si, Ta, Ti, W, Zr	125 mL	**N9300234**
Set of Multi-Element Solutions			
Includes: (1 bottle of each)			**N9300236**
	Multi-Element Solution 2	125 mL	**N9300232**
	Multi-Element Solution 3	125 mL	**N9300233**
	Multi-Element Solution 4	125 mL	**N9300234**
	Multi-Element Solution 5	125 mL	**N9300235**
	Water Blank	125 mL	**N9303814**
	Hydrochloric Acid Blank	125 mL	**N9300238**
	2% Nitric Acid Blank	125 mL	**N9300239**
PerkinElmer Pure I			
5% HNO_3	400 µg/mL: Tl 200 µg/mL: Bi, In, Pb 150 µg/mL: Ga 100 µg/mL: Al 50 µg/mL: Ag, Ni 25 µg/mL: Cr 20 µg/mL: Cd, Co, Cu, Zn 15 µg/mL: B, Fe 5 µg/mL: Ba, Mn 1 µg/mL: Be, Sr	125 mL	**N9303940**
PerkinElmer Pure IV (Quality Control Standard 23)			
10% HNO_3	1,000 µg/mL: Ag, Al, B, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, In, K, Li, Mg, Mn, Na, Ni, Pb, Sr, Tl, Zn	125 mL	**N9303941**
PerkinElmer Pure VIII			
5% HNO_3	100 µg/mL: Al, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, Li, Mg, Mn, Na, Ni, Pb, Se, Sr, Te, Tl, Zn	125 mL	**N9303942**
PerkinElmer Pure IX			
5% HNO_3	100 µg/mL: As, Be, Pb, Cd	125 mL	**N9303943**
PerkinElmer Pure X			
2% HNO_3	35,000 µg/mL: Ca 15,000 µg/mL: Mg 8,000 µg/mL: Na 3,000 µg/mL: K 100 µg/mL: B, Fe, Mo, Sr 50 µg/mL: As, Ba, Ni, V, Zn 30 µg/mL: Mn 25 µg/mL: Co, Pb 20 µg/mL: Be, Cd, Cr, Cu 10 µg/mL: Bi, Se, Tl 8 µg/mL Mercury in 5% HNO_3	125 mL	**N9303944**

Multi-Element Standards (con't)

Matrix	Contents	Vol.	Part No.
8 µg/mL Mercury in 5% HNO_3			
5% HNO_3	8 µg/mL: Hg	125 mL	**N9303954**
PerkinElmer Pure XI			
5% HNO_3	2,500 µg/mL: Zn 900 µg/mL: Cr, Pb 800 µg/mL: Cu 200 µg/mL: Ni 10 µg/mL: Cd	125 mL	**N9303945**
5 µg/mL Mercury in 5% HNO_3			
5% HNO_3	5 µg/mL: Hg in 5% HNO_3	125 mL	**N9303949**
PerkinElmer Pure XIII			
5% HNO_3	500 µg/mL: Al 250 µg/mL: V 100 µg/mL: As, Be, Co, Cr, Cu, Fe, Mn, Ni, Pb, Zn 25 µg/mL: Cd, Se	125 mL	**N9303946**
PerkinElmer Pure XVI (Quality Control Standard, 21 Elements)			
5% HNO_3/ tr Tartaric Acid/ tr HF	100 µg/mL: As, Be, Ca, Cd, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sr, Ti, Tl, V, Zn	125 mL	**N9300281**
PerkinElmer Pure XVII			
15% HCl/ trace HF	100 µg/mL: Hf, Ir, Sb, Sn, Ta, Tl, Zr	125 mL	**N9303948**
PerkinElmer Pure VI			
1 mol/L HNO_3/ tr Tartaric Acid	10 µg/mL: Ag, Al, Ba, Bi, Cd, Co, Cr, Cu, Ga, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Rb, Sr, Te, Tl, U, V 100 µg/mL: As, B, Be, Fe, Se, Zn 1000 µg/mL: Ca	125 mL	**N9307741**

Mixed Calibration Standards

Matrix	Contents	Vol.	Part No.
Mixed Calibration Standard			
2% HNO_3	50 µg/mL: As, K 10 µg/mL: La, Li, Mn, Ni, Sr, Zn 1 µg/mL: Ba, Mg	500 mL	**N0691579**
Mixed Calibration Standard 1			
2% HNO_3	500 µg/mL: Pb 200 µg/mL: Se 150 µg/mL: Cd, Zn 100 µg/mL: Mn 50 µg/mL: Be	125 mL	**N9300200**
Mixed Calibration Standard 2			
5% HNO_3	10,000 µg/mL: Fe 100 µg/mL: Ba, Co, Cu, V	125 mL	**N9300201**
Mixed Calibration Standard 3			
2% HNO_3/ tr HF	500 µg/mL: As 100 µg/mL: Mo, Si	125 mL	**N9300202**
Mixed Calibration Standard 4			
5% HNO_3	1,000 µg/mL: Ca 400 µg/mL: K 200 µg/mL: Al, Na 20 µg/mL: Cr, Ni	125 mL	**N9300203**

Mixed Calibration Standards (con't)

Matrix	Contents	Vol.	Part No.
Mixed Calibration Standard 5			
5% HNO_3 tr Tartaric Acid/ tr HF	1,000 µg/mL: Mg 200 µg/mL: Sb, Tl 100 µg/mL: B 50 µg/mL: Ag	125 mL	**N9300204**

Spike Standards

Matrix	Contents	Vol.	Part No.
Spike Sample Standard I			
5% HNO_3 tr Tartaric Acid/ tr HF	200 µg/mL: Al, As, Ba, Se, Tl 100 µg/mL: Fe 50 µg/mL: Co, Mn, Ni, Pb, Sb, V, Zn	125 mL	**N9300230**
Spike Sample Standard I (water)			
5% HNO_3 tr Tartaric Acid/ tr HF	500 µg/mL: Fe 250 µg/mL: Ba, Zn 100 µg/mL: Co, Cr, Cu, Mn, Ni, Sb, V 50 µg/mL: As, Pb 25 µg/mL: Ag, Be, Cd, Se, Tl	125 mL	**N9303839**
Spike Sample Standard 2 (soil)			
5% HNO_3 tr Tartaric Acid/ tr HF	250 µg/mL: Ba, Cr, Cu, Zn 150 µg/mL: V 125 µg/mL: Ni 100 µg/mL: Co, Pb, Sb 50 µg/mL: As, Cd 25 µg/mL: Ag, Be, Se, Tl	125 mL	**N9303840**
Spike Sample Standard 3 (for ILM 05.2)			
5% HNO_3 tr Tartaric Acid/ tr HF	200 µg/mL: Al, Ba 50 µg/mL: Co, Mn, Ni, V, Zn 25 µg/mL: Cu 20 µg/mL: Cr 10 µg/mL: Sb 5 µg/mL: Ag, Be, Cd, Tl 4 µg/mL: As 2 µg/mL: Pb 1 µg/mL: Se	125 mL	**N9303841**

Quality Control Standards

Matrix	Contents	Vol.	Part No.
Quality Control Standard 1A			
5% HNO_3/tr Tartaric Acid HF	1,000 µg/mL: Sb, Ti	125 mL	**N9304130**
Quality Control Standard 1B			
10% HNO_3	1,000 µg/mL: As, Be, Ca, Cd, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Se, Sr, Ti, Tl, V, Zn	125 mL	**N9304131**
Quality Control Standard, 21 Elements Pure (Pure XVI)			
5% HNO_3/ tr Tartaric Acid/ tr HF	100 µg/mL: As, Be, Ca, Cd, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sr, Ti, Tl, V, Zn	125 mL	**N9300281**
Quality Control Standard, 21 Elements Pure Plus			
5% HNO_3/ tr Tartaric Acid/ tr HF	100 µg/mL: As, Be, Ca, Cd, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sr, Ti, Tl, V, Zn	125 mL	**N9303837**
Quality Control Standard, 7A Elements			
5% HNO_3/ tr HF	1,000 µg/mL: K 500 µg/mL: Si 100 µg/mL: Al, B, Ba, Na 50 µg/mL: Ag	125 mL	**N9300280**

MATRIX
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GFAAS Mixed Standard

Matrix	Contents	Vol.	Part No.
5% HNO_3 w/trace HF	100 µg/mL: Al, As, Pb, Sb, Se, Tl 50 µg/mL: Ba, Co, Cu, Ni 20 µg/mL: Cr, Fe, Mn 10 µg/mL: Ag 5 µg/mL: Be, Cd	125 mL	**N9300244**

AA Test Mix

Matrix	Contents	Vol.	Part No.
2% HCl	50 µg/mL: Ca, Cr, Cu, Fe, Ni 20 µg/mL: K 10 µg/mL: Na, Zn	125 mL	**02900540**

Matrix Modifiers for Graphite Furnace AA

Matrix	Contents	Vol.	Part No.
$Mg(NO_3)_2$	1% Mg $(NO_3)_2$ (as nitrate)	100 mL	**B0190634**
Pd	1% Pd (as nitrate)	50 mL	**B0190635**
$NH_4H_2PO_4$	10% $NH_4H_2PO_4$	100 mL	**N9303445**

Reagents

Description	Vol.	Part No.
Triton® X-100 Wetting Agent	100 mL	**N9300260**
Antifoaming Silicone Emulsion	500 mL	**B0507226**
Glycerol	1 L	**B3141064**

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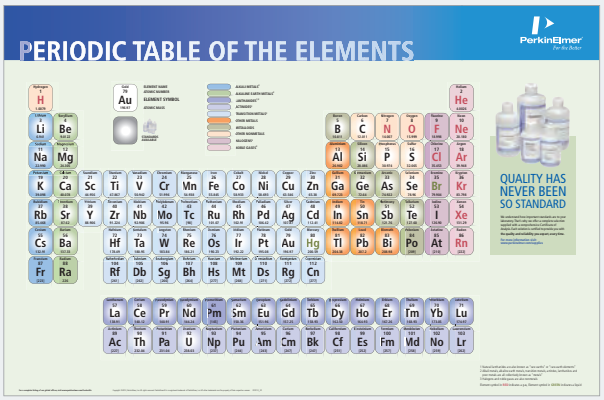

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Environmental Method Sets

Matrix	Contents	Vol.	Part No.
Environmental Standard Kit for NexION Standard Mode			**N9307118**
1 bottle each:			
5% HNO_3	1,000 µg/mL: Ca, K, Mg, Na	125 mL	**N9307805**
5% HNO_3	1,000 µg/mL: Al, Fe	125 mL	**N9307806**
5% HNO_3/ tr Tartaric Acid/ tr HF	100 µg/mL: Ag, Al, As, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn	125 mL	**N9301721**
2% HNO_3	100 µg/mL: B, Th, U	125 mL	**N9307807**
5% HNO_3	10 µg/mL: Hg	125 mL	**N9300253**
2% HNO_3	50 µg/mL: Sc, Ge 10 µg/mL: Rh, In, Tb	125 mL	**N9308591**
Environmental Standard Kit for NexION KED/DRC Mode			**N9307119**
1 bottle each:			
5% HNO_3	1,000 µg/mL: Ca, K, Mg, Na	125 mL	**N9307805**
5% HNO_3	1,000 µg/mL: Al, Fe	125 mL	**N9307806**
5% HNO_3/ tr Tartaric Acid/ tr HF	100 µg/mL: Ag, Al, As, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn	125 mL	**N9301721**
2% HNO_3	100 µg/mL: B, Th, U	125 mL	**N9307807**
5% HNO_3	10 µg/mL: Hg	125 mL	**N9300253**
2% HNO_3	100 µg/mL: Sc 50 µg/mL: Ge 1 µg/mL: Rh, In, Tb	125 mL	**N9308592**

Environmental Method Sets (con't)

Matrix	Contents	Vol.	Part No.
Environmental Standard Kit for ELAN non-DRC/ Standard ICP-MS Instruments			**N9307111**
1 bottle each:			
5% HNO_3	1,000 µg/mL: Ca, K, Mg, Na	125 mL	**N9307805**
5% HNO_3	1,000 µg/mL: Al, Fe	125 mL	**N9307806**
5% HNO_3/ tr Tartaric Acid/ tr HF	100 µg/mL: Ag, Al, As, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn	125 mL	**N9301721**
2% HNO_3	100 µg/mL: B, Th, U	125 mL	**N9307807**
5% HNO_3	10 µg/mL: Hg	125 mL	**N9300253**
Internal Standard Mix			
5% HNO_3/ tr HCL	50 µg/mL: Sc 20 µg/mL: Ge 10 µg/mL: In, Ir, Li6, Rh, Tb, Y	125 mL	**N9307808**
Environmental Standard Kit for ELAN DRC Instruments			**N9307112**
1 bottle each:			
5% HNO_3	1,000 µg/mL: Ca, K, Mg, Na	125 mL	**N9307805**
5% HNO_3	1,000 µg/mL: Al, Fe	125 mL	**N9307806**
5% HNO_3/ tr Tartaric Acid/ tr HF	100 µg/mL: Ag, Al, As, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn	125 mL	**N9301721**
2% HNO_3	100 µg/mL: B, Th, U	125 mL	**N9307807**
5% HNO_3	10 µg/mL: Hg	125 mL	**N9300253**
5% HNO_3/ tr HCL	Internal Standard Mix 200 µg/mL: Sc 20 µg/mL: Ga 10 µg/mL: In, Ir, Rh, Tm	125 mL	**N9307738**
Contract Lab Program Modification Set			**N9307103**
1 bottle each:			
2% HNO_3/ 5% HCl	10 µg/mL: Ba, Be, Ce, Co, In, Li, Mg, Pb, Rh, Tl, U, Y	125 mL	**N9303843**
2% HNO_3/ tr Tartaric Acid/	20 µg/mL: Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Th, Tl, U, V, Zn	125 mL	**N9303816**
5% HNO_3/ tr Tartaric Acid/ tr HF	100 µg/mL: Ag, Al, As, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn	125 mL	**N9301721**
5% HNO_3/ tr Tartaric Acid	500 µg/mL: Ca, K, Mg, Na 20 µg/mL: Al, Ba 10 µg/mL: Fe 6 µg/mL: Sb 5 µg/mL: Co, V 4 µg/mL: Ni 2.5 µg/mL: Cu 2 µg/mL: Zn 1.5 µg/mL: Mn 1 µg/mL: Ag, As, Cr, Tl 0.5 µg/mL: Be, Cd, Se 0.3 µg/mL: Pb	125 mL	**N9303819**
2% HNO_3/ tr Tartaric Acid/ tr HF	10 µg/mL: Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Se, Tl, V, Zn	125 mL	**N9303821**
5% HNO_3	10 µg/mL: Hg	125 mL	**N9300253**
2% HNO_3	200 µg/mL: Ca, Fe, K, Mg, Na		**N9303822**
2% HNO_3	10 µg/mL: Mo, Th, U		**N9303823**
2% HNO_3/ tr HF	10 µg/mL: Mo, Sn, Sr, Ti	125 mL	**N9303824**

Environmental Method Sets (con't)

Matrix	Contents	Vol.	Part No.
5% HNO_3/ tr HF	21,215 µg/mL: Cl 3,000 µg/mL: Ca 2,500 µg/mL: Fe, Na 2,000 µg/mL: C 1,000 µg/mL: Al, K, Mg, P, S 20 µg/mL: Mo, Ti	125 mL	**N9303827**
2% HNO_3	20 µg/mL: Co, Cr, Cu, Mn, Ni, V 10 µg/mL: As, Cd, Se, Zn 5 µg/mL: Ag	125 mL	**N9303829**
5% HNO_3/ tr Tartaric Acid/ tr HF	500 µg/mL: Fe 250 µg/mL: Ba, Zn 100 µg/mL: Co, Cr, Cu, Mn, Ni, Sb, V 50 µg/mL: As, Pb 25 µg/mL: Ag, Be, Cd, Se, Tl	125 mL	**N9303839**
5% HNO_3/ tr Tartaric Acid/ tr HF	250 µg/mL: Ba, Cr, Cu, Zn 150 µg/mL: V 125 µg/mL: Ni 100 µg/mL: Co, Pb, Sb 50 µg/mL: As, Cd 5 µg/mL: Ag, Be, Se, Tl	125 mL	**N9303840**
5% HNO_3	1,000 µg/mL: Al, Ca, Fe, K, Mg, Na 20 µg/mL: Ag, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Se, Tl, V, Zn	125 mL	**N9303835**
H_2O/tr HF	7,200 µg/mL: Cl 2,000 µg/mL: C 1,000 µg/mL: P, S 20 µg/mL: Mo, Sb, Ti	125 mL	**N9303836**
Calibration Standards Set for Method 6010			**N9307104**
1 bottle each:			
5% HNO_3	5,000 µg/mL: Ca, K, Mg, Na	125 mL	**N9300218**
5% HNO_3	400 µg/mL: Ni 200 µg/mL: Zn 150 µg/mL: Mn 100 µg/mL: Ag, Cr	125 mL	**N9300219**
5% HNO_3	2,000 µg/mL: Al, Ba 1,000 µg/mL: Fe 500 µg/mL: Co, V 250 µg/mL: Cu 50 µg/mL: Be	125 mL	**N9300220**
5% HNO_3	100 µg/mL: As, Tl 50 µg/mL: Cd, Pb, Se	125 mL	**N9300221**
H_2O/tr HF	10 µg/mL: B, Ge, Mo, Nb, P, Re, S, Si, Ta, Ti, W, Zr	125 mL	**N9300235**
2% HNO_3	1,000 µg/mL: Li	500 mL	**N9300129**
2% HNO_3	1,000 µg/mL: Sb	500 mL	**N9300101**
2% HNO_3	1,000 µg/mL: Sr	500 mL	**N9300153**
20% HNO_3	1,000 µg/mL: Sn	500 mL	**N9300161**
2% HNO_3	1,000 µg/mL: Cr	500 mL	**N9300112**
2% HNO_3	1,000 µg/mL: Cu	500 mL	**N9300114**
2% HNO_3	1,000 µg/mL: Mn	500 mL	**N9300132**
2% HNO_3	1,000 µg/mL: Ni	500 mL	**N9300136**
H_2O/tr HF	1,000 µg/mL: Ti	500 mL	**N9300162**
2% HNO_3	1,000 µg/mL: V	500 mL	**N9300165**
2% HNO_3	1,000 µg/mL: Al	500 mL	**N9300100**
2% HNO_3	1,000 µg/mL: Ca	500 mL	**N9300108**
2% HNO_3	1,000 µg/mL: Fe	500 mL	**N9300126**
2% HNO_3	1,000 µg/mL: Mg	500 mL	**N9300131**

Environmental Method Sets (con't)

Matrix	Contents	Vol.	Part No.
Internal Standard Set for Method 6010 & 200.7			**N9307105**
1 bottle each:			
2% HNO_3	1,000 µg/mL: Y	500 mL	**N9300167**
2% HNO_3	1,000 µg/mL: Sc	500 mL	**N9300148**
Interference Solutions for Method 6010			**N9307106**
1 bottle each:			
2% HNO_3	1,000 µg/mL: Al	125 mL	**N9300184**
2% HNO_3	1,000 µg/mL: Ca	500 mL	**N9300108**
2% HNO_3	1,000 µg/mL: Mg	125 mL	**N9300179**
2% HNO_3	1,000 µg/mL: Fe	500 mL	**N9300126**
2% HNO_3	1,000 µg/mL: K	500 mL	**N9300141**
2% HNO_3	1,000 µg/mL: Na	500 mL	**N9300152**
2% HNO_3	1,000 µg/mL: Cr	500 mL	**N9300112**
2% HNO_3	1,000 µg/mL: Cu	500 mL	**N9300114**
2% HNO_3	1,000 µg/mL: Mn	500 mL	**N9300132**
2% HNO_3	1,000 µg/mL: Ni	500 mL	**N9300136**
H_2O/tr HF	1,000 µg/mL: Ti	500 mL	**N9300162**
2% HNO_3	1,000 µg/mL: V	500 mL	**N9300165**
5% HNO_3	5,000 µg/mL: Al, Ca, Mg 2,000 µg/mL: Fe	500 mL	**N9300226**
5% HNO_3/ tr Tart-HF	100 µg/mL: Cd, Ni, Zn 60 µg/mL: Sb 50 µg/mL: Ba, Be, Co, Cr, Cu, Mn, V 20 µg/mL: Ag 10 µg/mL: As, Tl 5 µg/mL: Pb, Se	125 mL	**N9300227**
5% HNO_3	1,000 µg/mL: Cr, Cu, Mn, Ni, Ti, V	500 mL	**N9300228**
5% HNO_3/ tr Tartaric Acid/ tr HF	100 µg/mL: Al, As, B, Mo, Na, Sb, Se, Tl 10 µg/mL: Ca, Fe, Mg, Si	125 mL	**N9300229**
Calibration Standards for Method 200.7			**N9307107**
5% HNO_3	5,000 µg/mL: Ca, K, Mg, Na	125 mL	**N9300218**
5% HNO_3	400 µg/mL: Ni 200 µg/mL: Zn 150 µg/mL: Mn 100 µg/mL: Ag, Cr	125 mL	**N9300219**
5% HNO_3	2,000 µg/mL: Al, Ba 1,000 µg/mL: Fe 500 µg/mL: Co, V 250 µg/mL: Cu 50 µg/mL: Be	125 mL	**N9300220**
5% HNO_3	100 µg/mL: As, Tl 50 µg/mL: Cd, Pb, Se	125 mL	**N9300221**
H_2O/tr HF	10 µg/mL: B, Ge, Mo, Nb, P, Re, S, Si, Ta, Ti, W, Zr	125 mL	**N9300235**
2% HNO_3	1,000 µg/mL: Li	500 mL	**N9300129**
2% HNO_3	1,000 µg/mL: Sb	500 mL	**N9300101**
2% HNO_3	1,000 µg/mL: Sr	500 mL	**N9300153**
20% HNO_3	1,000 µg/mL: Sn	500 mL	**N9300161**

Environmental Method Sets (con't)

Matrix	Contents	Vol.	Part No.
Interference Solutions for Method 200.7			**N9307108**
2% HNO_3	1,000 µg/mL: Al	125 mL	**N9300184**
2% HNO_3	1,000 µg/mL: Ca	500 mL	**N9300108**
2% HNO_3	1,000 µg/mL: Mg	125 mL	**N9300179**
2% HNO_3	1,000 µg/mL: Fe	500 mL	**N9300126**
2% HNO_3	1,000 µg/mL: K	500 mL	**N9300141**
2% HNO_3	1,000 µg/mL: Na	500 mL	**N9300152**
5% HNO_3	5,000 µg/mL: Al, Ca, Mg 2,000 µg/mL: Fe	500 mL	**N9300226**
5% HNO_3/ tr Tart-HF	100 µg/mL: Cd, Ni, Zn 60 µg/mL: Sb 50 µg/mL: Ba, Be, Co, Cr, Cu, Mn, V 20 µg/mL: Ag 10 µg/mL: As, Tl 5 µg/mL: Pb, Se	125 mL	**N9300227**
Environmental EPA Set 1			**N9307110**
2% HNO_3	500 µg/mL: Pb 200 µg/mL: Se 150 µg/mL: Cd, Zn 100 µg/mL: Mn 50 µg/mL: Be	125 mL	**N9300200**
5% HNO_3	10,000 µg/mL: Fe 100 µg/mL: Ba, Co, Cu, V	125 mL	**N9300201**
2% HNO_3/ tr HF	500 µg/mL: As 100 µg/mL: Mo, Si	125 mL	**N9300202**
5% HNO_3	1,000 µg/mL: Ca 400 µg/mL: K 200 µg/mL: Al, Na 20 µg/mL: Cr, Ni	125 mL	**N9300203**
5% HNO_3/ tr Tart-HF	1,000 µg/mL: Mg 200 µg/mL: Sb, Tl 100 µg/mL: B 50 µg/mL: Ag	125 mL	**N9300204**
5% HNO_3	20,000 µg/mL: K 1,000 µg/mL: As, Pb, Tl 500 µg/mL: Se 300 µg/mL: Ag, Ba, Cd, Co, Cr, Cu, Ni, V, Zn 200 µg/mL: Mn 100 µg/mL: Be	125 mL	**N9300205**
5% HNO_3	100 µg/mL: Hg	125 mL	**N9300223**
5% HNO_3	6,000 µg/mL: Ca 5,000 µg/mL: Fe 3,000 µg/mL: Mgs 1,200 µg/mL: Al 1,000 µg/mL: Na	125 mL	**N9300208**
H_2O/tr HNO_3/ 0.6% Tartaric Acid	1,000 µg/mL: Sb	125 mL	**N9300207**
5% HNO_3	ASTM® Type I Water	500 mL	**N9307809**
5% HCl	ASTM® Type I Water	500 mL	**N9307810**
Environmental EPA Set 2			**N9307109**
2% HNO_3	500 µg/mL: Pb 200 µg/mL: Se 150 µg/mL: Cd, Zn 100 µg/mL: Mn 50 µg/mL: Be	125 mL	**N9300200**
5% HNO_3	10,000 µg/mL: Fe 100 µg/mL: Ba, Co, Cu, V	125 mL	**N9300201**
2% HNO_3/ tr HF	500 µg/mL: As 100 mg/mL: Mo, Si	125 mL	**N9300202**
5% HNO_3	1,000 µg/mL: Ca 400 µg/mL: K 200 µg/mL: Al, Na 20 µg/mL: Cr, Ni	125 mL	**N9300203**
5% HNO_3/ tr Tart-HF	1,000 µg/mL: Mg 200 µg/mL: Sb, Tl 100 µg/mL: B 50 µg/mL: Ag	125 mL	**N9300204**
5% HNO_3	20,000 µg/mL: K 1,000 µg/mL: As, Pb, Tl 500 µg/mL: Se 300 µg/mL: Ag, Ba, Cd, Co, Cr, Cu, Ni, V, Zn 200 µg/mL: Mn 100 µg/mL: Be	125 mL	**N9300205**
5% HNO_3	6,000 µg/mL: Ca 5,000 µg/mL: Fe 3,000 µg/mL: Mgs 1,200 µg/mL: Al 1,000 µg/mL: Na	125 mL	**N9300208**
H_2O/tr HNO_3/ 0.6% Tartaric Acid	1,000 µg/mL: Sb	125 mL	**N9300207**
5% HNO_3	ASTM® Type I Water	500 mL	**N9307809**
5% HCL	ASTM® Type I Water	500 mL	**N9307810**

Water Pollutant Standards

Matrix	Contents	Vol.	Part No.
Primary Drinking Water Metals			
2% HNO_3	100 µg/mL: Ba 10 µg/mL: Ag, As, Cr, Hg*, Pb 5 µg/mL: Cd, Se	125 mL	**N9300216**
Secondary Drinking Water Metals			
2% HNO_3	500 µg/mL: Zn 100 µg/mL: Cu 30 µg/mL: Fe 5 µg/mL: Mn	125 mL	**N9300217**
Trace Metals I			
5% HNO_3	500 µg/mL: Al 250 µg/mL: V 100 µg/mL: As, Be, Co, Cr, Cu, Fe Mn, Ni, Pb, Zn 25 µg/mL: Cd, Se 10 µg/mL: Hg* *Supplied in separate bottle.	125 mL	**N9300211**
Trace Metals II			
2% HNO_3	20 µg/mL: Sb, Tl 10 µg/mL: Ag	125 mL	**N9300212**
Trace Metals III			
2% HNO_3	500 µg/mL: Ba, Ca, Mo, Na 100 µg/mL: K, Mg	125 mL	**N9300213**
Alternate Metals I			
2% HNO_3	20 µg/mL: Al, Fe, V 10 µg/mL: Co, Cu, Mn, Ni, Zn 5 µg/mL: Be, Sb, Tl	125 mL	**N9300214**
Alternate Metals II			
2% HNO_3	500 µg/mL: Ca, Na 100 µg/mL: K, Mg	125 mL	**N9300215**
Alternate Metals II			
2% HNO_3	500 µg/mL: Ca, Na 100 µg/mL: K, Mg	500 mL	**N9303952**

Toxicity Characteristic Leachate Procedure (TCLP) Standard

Matrix	Contents	Vol.	Part No.
TCLP Standard 1			
2% HNO_3	500 µg/mL: Ba 25 µg/mL: Ag, As, Cr, Pb 100 µg/mL: Hg* 5 µg/mL: Cd, Se *Supplied in separate bottle.	500 mL	**N9300241**

PHARMACEUTICAL ANALYSIS STANDARDS

USP Standards

As a part of our United States Pharmacopeia (USP) compliant offering, we provide calibration and check standards for the analysis of metals in drugs, pharmaceutical substances and raw materials to verify Oral Daily Dose PDE, Parenteral Component Limit and Parenteral Daily Dose PDE.

Our trace metal USP standards can be used to calibrate Arsenic, Cadmium, Lead and Mercury, the four toxic metals as part of the USP regulations. When you couple our accurate and reliable USP standards with your ICP-MS you will remain compliant with the new and changing regulations.

ICH Standards

In conjunction with our United States Pharmacopeia (USP) calibration standards, we offer six calibration standards for the analysis of metals in pharmaceutical materials and products following the International Conference on Harmonization (ICH) guidelines.

The ICH standards verify Elemental Impurities, Precious Metals Impurities and Parenteral Elemental Impurities. Couple our accurate and reliable ICH standards with your ICP-MS and you will remain compliant with the new and changing regulations.

USP AND ICH STANDARDS

Description	Matrix	Contents	Vol.	Part No.
USP Oral Elemental Impurities A (Big 4)	5% HNO_3	25 mg/kg: Cd 15 mg/kg Hg 5 mg/kg Pb 1.5 mg/kg As	125 mL	**N9304150**
USP Precious Metal Impurities B (with Os)	15% HCl	100 mg/kg: Ir, Pd, Pt, Rh, Ru, Os	125 mL	**N9304151**
USP Precious Metals Impurities B	15% HCl	100 mg/kg: Ir, Pd, Pt, Rh, Ru	125 mL	**N9304152**
USP Oral /Parenteral Elemental Impurities C	5% HNO_3	1000 mg/kg: Cu 500 mg/kg Ni 100 mg/kg Mo, V	125 mL	**N9304153**
USP Parenteral Elemental Impurities D (Big 4)	5% HNO_3	5 mg/kg: Pb 2.5 mg/kg Cd 1.5 mg/kg As, Hg	125 mL	**N9304154**
USP Dietary Supplement Metal Impurities	5% HNO_3	15 mg/kg: As 5 mg/kg Pb 2.5 mg/kg Cd 1.5 mg/kg Hg	125 mL	**N8145322**
USP Inhalation Metal Impurities A	5% HNO_3	1.5 mg/kg: As, Cd, Hg, 5 mg/kg Pb,	125 mL	**N8145323**
USP Inhalation Metal Impurities B	5% HNO_3	250 mg/kg: Mo 70 mg/kg Cu 30 mg/kg V 25 mg/kg Cr, 1.5 mg/kg Ni	125 mL	**N8145324**
ICH Oral Elemental Impurities A (Big 4)	5% HNO_3	25 mg/kg: Cd 15 mg/kg Hg 5 mg/kg Pb 1.5 mg/kg As	125 mL	**N9304155**
ICH Precious Metal Impurities B (with Os)	15% HCl	100 mg/kg: Ir, Pd, Pt, Rh, Ru, Os	125 mL	**N9304156**
ICH Precious Metals Impurities B	15% HCl	100 mg/kg: Ir, Pd, Pt, Rh, Ru	125 mL	**N9304157**
ICH Parenteral Elemental Impurities D (Big 4)	5% HNO_3	5 mg/kg: Pb 2.5 mg/kg Cd 1.5 mg/kg As, Hg	125 mL	**N9304158**
Global/ICH Elemental Impurities E	5% HNO_3	2500 mg/kg: Mn 1000 mg/kg Cu 250 mg/kg Cr, Ni 100 mg/kg Co, Mo, V	125 mL	**N9304159**
Global/ICH Elemental Impurities F	5% HNO_3	13,000 mg/kg: Fe, Zn	125 mL	**N9304160**

GOLD NANOPARTICLE STANDARDS

Description	Diam (nm)	Number of Particles/mL	Vol. (mL)	Part No.
30 nm Spherical Au Nanoparticle in DI Water	30	2.00E+11	25	**N8142300**
40 nm Spherical Au Nanoparticle in DI Water	40	8.70E+10	25	**N8142301**
50 nm Spherical Au Nanoparticle in DI Water	50	4.50E+10	25	**N8142302**
60 nm Spherical Au Nanoparticle in DI Water	60	2.60E+10	25	**N8142303**
70 nm Spherical Au Nanoparticle in DI Water	70	1.60E+10	25	**N8142304**
80 nm Spherical Au Nanoparticle in DI Water	80	1.10E+10	25	**N8142305**
90 nm Spherical Au Nanoparticle in DI Water	90	7.80E+09	25	**N8142306**
100 nm Spherical Au Nanoparticle in DI Water	100	5.70E+09	25	**N8142307**

INSTRUMENT SET-UP AND CALIBRATION STANDARDS

From instrument installation to instrument calibration, we provide quality set-up, check and calibration standards to ensure instrument performance.

Instrument Calibration Standards

Matrix	Contents	Vol.	Part No.
Instrument Calibration Standard 1			
5% HNO_3/ tr Tartaric Acid	20 µg/mL: Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Th, Tl, U, V, Zn	125 mL	**N9303816**
Instrument Calibration Standard 2			
5% HNO_3/ tr Tartaric Acid/ tr HF	100 µg/mL: Ag, Al, As, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn	125 mL	**N9301721**
Instrument Calibration Standard 3			
5% HNO_3	1,000 µg/mL: Ca, Fe, K, Mg, Na	125 mL	**N9303818**
Initial Calibration Verification Standard 1			
5% HNO_3/ tr Tartaric Acid	1,000 µg/mL: Ca, Fe, K, Mg, Na, Sr 10 µg/mL: Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn, Th, U	125 mL	**N9303825**
Initial Calibration Verification Standard 2			
2% HNO_3/ tr HF	10 µg/mL: Sn, Ti	125 mL	**N9303826**
ELAN® 6100 DRC Setup/Stab/Masscal Solution			
0.5% HNO_3	10 µg/L: Ba 1 µg/L: Al, Cd, Ce, Cr, Cu, In, Pb, Mg, Mn, Rh, Th	1,000 mL	**N8125035**
ELAN DRC/DRCplus/DRC II Solution Kit			
Solution Kit (Includes items listed below)			**N8120541**
	2 x 1,000 mL: Setup/Stability/Masscal Solution		**N8125035**
	2 x 250 mL: Wash Solution		**N8125033**
	1 x 250 mL: Sensitivity/Detection Limit Solution		**N8125034**
	1 x 125 mL: Methanol Blank Solution		**N8125037**
	1 x 125 mL: Chromium in Methanol Solution		**N8125038**

Instrument Calibration Standards (con't)

Matrix	Contents		Part No.
ELAN 9000/6100 Solution Kit			**N8120522**
	2 x 1,000 mL: Setup/Stability/Masscal Solution		**N8125030**
	1 x 125 mL: Dual-Detector		**N8125010**
	1 x 1,000 mL: Wash Solution		**N8122038**
	1 x 250 mL: Detection Limit Solution		**N8125031**
ELAN 9000/6100 Setup/Stability/Masscal Solution			
1% HNO_3	10 µg/L: Ba, Cd, Ce, Cu, In, Pb, Mg, Rh, U	1,000 mL	**N8125030**
ELAN 9000/6x00 Dual-Detector Calibration Solution			
1% HNO_3	200 µg/L: Cd, Cu, Pb, Mg, Rh	125 mL	**N8125032**
ELAN 6000/5000 Plasma Setup Solution			
2% HNO_3	10 µg/L: Ba, Cd, Ce, Cu, Ge,Rh, Sc, Pb, Mg, Rh, Sc, Tb, Tl	1,000 mL	**N8122014**
ELAN 5000 Detection Limit Solution			
2% HNO_3	10 µg/L: Be, Co, Ge, In, Tl, U	125 mL	**N8122017**

SmartTune Standards

Matrix	Contents	Vol.	Part No.
SmartTune Solution for Standard ELANs/DRC-e			
1% HNO_3	10 µg/L: Ba, Be, Ce, Co, In, Pb, Mg, Rh, U	1,000 mL	**N8125040**
SmartTune Solution for DRC/DRCplus/DRC II			
0.5% HNO_3	10 µg/L: Ba 1 µg/L: Be, Ce, Co, In, Fe, Pb, Mg, Th, U	1,000 mL	**N8125041**
Tuning Solution 1			
2% HNO_3/ 5% HCL	10 µg/mL: Ba, Be, Ce, Co, In, Li, Mg, Pb, Rh, Tl, U, Y	125 mL	**N9303843**
NexION Setup Solution			
1% HNO_3	1 µg/L: Be, Ce, Fe, In, Li, Mg, Pb, U	500 mL	**N8145051**
1% HNO_3	10 µg/L: Be, Ce, Fe, In, Li, Mg, Pb, U	500 mL	**N8145284**

Instrument Setup Solutions

Matrix	Contents	Vol.	Part No.
Vis Wavecal Solution			
2% HNO_3	50 µg/mL: K 10 µg/mL: La, Li, Mn, Na, Sr 1 µg/mL: Ba, Ca	250 mL	**N9302946**
UV Wavecal Solution			
5% HCL	100 µg/mL: K, P, S 20 µg/mL: As, La, Li, Mn, Mo, Na, Mo, Na, Ni, Sc	250 mL	**N0681470**
5% HCL	100 µg/mL: K, P, S 20 µg/mL: As, La, Li, Mn, Mo, Na, Ni, Sc 1 µg/mL: Ca	500 mL	**N0582152**
Low UV Standard			
2% HNO_3	10 µg/mL: Al, P, S	250 mL	**N0691580**
Calcium Stray Light Standard			
H_2O	10,000 µg/mL: Ca	125 mL	**N0691581**
1% HNO_3	10 µg/L: Be, Ce, Fe, In, Li, Mg, Pb, U	500 mL	**N8145284**

Initial Calibration Verification Standards

Matrix	Contents	Vol.	Part No.
5% HNO_3/ tr Tartaric Acid	500 µg/mL: Ca, K, Mg, Na 200 µg/mL: Al, Ba 100 µg/mL: Fe 60 µg/mL: Sb 50 µg/mL: Co, V 40 µg/mL: Ni 25 µg/mL: Cu 20 µg/mL: Zn 15 µg/mL: Mn 10 µg/mL: Ag, As, Cr, Tl 5 µg/mL: Be, Cd, Se 3 µg/mL: Pb	500 mL	**N9300224**
5% HNO_3/ tr Tartaric Acid	500 µg/mL: Ca, K, Mg, Na 200 µg/mL: Al, Ba 100 µg/mL: Fe 60 µg/mL: Sb 50 µg/mL: Co, V 40 µg/mL: Ni 25 µg/mL: Cu 20 µg/mL: Zn 15 µg/mL: Mn 10 µg/mL: Ag, As, Cr, Tl 5 µg/mL: Be, Cd, Se 3 µg/mL: Pb	125 mL	**N9303953**

Instrument Calibration Standards for CLP

Matrix	Contents	Vol.	Part No.
Instrument Calibration Standard 1			
5% HNO_3	5,000 µg/mL: Ca, K, Mg, Na	125 mL	**N9300218**
Instrument Calibration Standard 2			
5% HNO_3	400 µg/mL: Ni 200 µg/mL: Zn 150 µg/mL: Mn 100 µg/mL: Ag, Cr	125 mL	**N9300219**
Instrument Calibration Standard 3			
5% HNO_3	2,000 µg/mL: Al, Ba 1,000 µg/mL: Fe 500 µg/mL: Co, V 250 µg/mL: Cu 50 µg/mL: Be	125 mL	**N9300220**
Instrument Calibration Standard 4			
5% HNO_3	100 µg/mL: As, Tl 50 µg/mL: Cd, Se 30 µg/mL: Pb	125 mL	**N9300221**

Instrument Check Standards

Matrix	Contents	Vol.	Part No.
Instrument Check Standard 1			
2% HNO_3/ tr Tartaric Acid/ tr HF	10 µg/L: Ba 1 µg/L: Be, Ce, Co, In, Fe, Pb, Mg, Co, Cr, Cu, Mn, Ni, Pb, Sb, Se, Tl, V, Zn	125 mL	**N9303821**
Instrument Check Standard 3			
2% HNO_3	200 µg/mL: Ca, Fe, K, Mg, Na	125 mL	**N9303822**
Instrument Check Standard 4			
2% HNO_3	10 µg/mL: Mo, Th, U	125 mL	**N9303823**
Instrument Check Standard 5			
2% HNO_3/ tr HF	10 µg/mL: Mo, Sn, Sr, Ti	125 mL	**N9303824**

Interference Check Standards

Matrix	Contents	Vol.	Part No.
Interference Check Standard 1			
H_2O/tr HNO_3/ 0.6% Tartaric Acid	1,000 µg/mL: Sb	125 mL	**N9300207**
Interference Check Standard 5			
5% HNO_3	6,000 µg/mL: Ca 5,000 µg/mL: Fe 3,000 µg/mL: Mg 1,200 µg/mL: Al 1,000 µg/mL: Na	125 mL	**N9300208**
Interference Check Standard 18			
5% HNO_3	20,000 µg/mL: K 1,000 µg/mL: As, Pb, Tl 500 µg/mL: Se 300 µg/mL: Ag, Ba, Cd, Co, Cr, Cu, Ni, V, Zn 200 µg/mL: Mn 100 µg/mL: Be, Hg*	125 mL	**N9300205**
Interferents A			
5% HNO_3	5,000 µg/mL: Al, Ca, Mg 2,000 µg/mL: Fe	500 mL	**N9300226**
Alternate Interferents A			
5% HNO_3	1,000 µg/mL: Cr, Cu, Mn, Ni, Ti, V	500 mL	**N9300228**
Analytes B			
5% HNO_3/ tr Tartaric Acid/ tr HF	100 µg/mL: Cd, Ni, Zn 60 µg/mL: Sb 50 µg/mL: Ba, Be, Co, Cr, Cu, Mn, V 20 µg/mL: Ag 10 µg/mL: As, Tl 5 µg/mL: Pb, Se	125 mL	**N9300227**
Alternate Analytes B			
5% HNO_3/ tr Tartaric Acid/ tr HF	100 µg/mL: Al, As, B, Mo, Na, Sb, Se, Tl 10 µg/mL: Ca, Fe, Mg, Si	125 mL	**N9300229**
Interference Check Standards			
H_2O/tr HNO_3/ 0.6% Tartaric Acid	1,000 µg/mL: Sb	500 mL	**N9303797**
Interference Check Solution 1 (for SW-846 & ILM 05.2)			
5% HNO_3/ tr HF	10,000 µg/mL: Cl 2,000 µg/mL: C 1,000 µg/mL: Al, Ca, Fe, K, Mg, Na, P, S 20 µg/mL: Mo, Ti	125 mL	**N9303828**
Interference Check Solution 2 (for SW-846)			
2% HNO_3	10 µg/mL: Ag, As, Cd, Co, Cr, Cu, Mn, Ni, Zn	125 mL	**N9303830**
Analytes C (for ILM 05.2)			
2% HNO_3/ tr Tartaric Acid/ tr HF	2 µg/mL: Ag, As, Ba, Be, Cd, Co, Cr, Cu, Hg*, Mn, Ni, Pb, Sb, Se, Tl, V, Zn	125 mL	**N9303831**

*Supplied in separate bottle.

Internal Standard Solutions

Matrix	Contents	Vol.	Part No.
Multi-Element Internal Standard			
2% HNO_3	10 µg/mL: Bi, Ho, In, Li6, Sc, Tb, Y	125 mL	**N9303834**
Internal Standard Mix			
5-10% HNO_3	10 µg/mL: Bi, Ge, In, Li6, Sc, Tb, Y	125 mL	**N9303832**
Internal Standard Mix			
5-10% HNO_3	10 µg/mL: Bi, Ge, In, Li6, Sc, Tb, Y	125 mL	**N9303833**

Contract Required Detection Limits (CRDL)

Matrix	Contents	Vol.	Part No.
5% HNO_3/ tr Tartaric Acid/ tr HF	120 µg/mL: Sb 100 µg/mL: Co, V 80 µg/mL: Ni 50 µg/mL: Cu 40 µg/mL: Zn 30 µg/mL: Mn 20 µg/mL: Ag, As, Cr, Tl 10 µg/mL: Be, Cd, Se 6 µg/mL: Pb	125 mL	**N9300225**

Performance Verification Standards

Matrix	Contents	Vol.	Part No.
Methanol Blank Solution			
1% Semiconductor Grade	10 µg/mL: Cr	125 mL	**N8125037**
Chromium in Methanol Solution			
1% Semiconductor Grade Methanol	10 µg/mL: Cr	125 mL	**N8125038**
Selenium Solution			
5% HNO_3	10 µg/mL: Se	250 mL	**N8125039**
NexION® 300Q Solution Kit – Non-Cell			
Solution Kit (Includes items listed below)			**N8140503**
1% HNO_3	1 x 250 mL NexION Wash Solution		**N8145050**
	1 X 500 mL NexION Setup Solution		**N8145051**
	1 X 500 mL NexION 300Q Non-cell Stability Solution		**N8145053**
	1 x 100 mL NexION Standard/ DRC Mode Detection Limit Blank Solution		**N8145055**
	1 X 100 mL NexION Standard/ DRC Mode Detection Limit Solution		**N8145056**
	1 x 100 mL NexION Dual Detector Solution		**N8145059**
NexION 300 X/D/S Solution Kit – Cell Instruments			
Solution Kit (Includes items listed below)			**N8140504**
1% HNO_3	1 x 250 mL NexION Wash Solution		**N8145050**
	1 X 500 mL NexION Setup Solution		**N8145051**
	1 x 250 mL NexION KED Setup Solution		**N8145052**
	1 x 500 mL NexION 300X/D/S Cell Stability Solution		**N8145054**
	1 x 100 mL NexION Standard/DRC Mode Detection Limit Blank Solution		**N8145055**
	1 x 100 mL NexION Standard/DRC Mode Detection Limit Solution		**N8145056**

Instrument Calibration Standards (con't)

Matrix	Contents	Vol.	Part No.
	1 x 100 mL NexION KED Mode Detection Limit Blank Solution		**N8145057**
	1 x 100 mL NexION KED Mode Detection Limit Solution		**N8145058**
	1 x 100 mL NexION Dual Detector Solution		**N8145059**
NexION Setup Solution			
1% HNO_3	1 µg/L: Be, Ce, Fe, In, Li, Mg, Pb, U	500 mL	**N8145051**
1% HNO_3	10 µg/L: Be, Ce, Fe, In, Li, Mg, Pb, U	500 mL	**N8145284**
NexION KED Setup Solution			
1% HNO_3	10 µg/mL: Be, Ce, Fe, In, Li, Mg, Pb, U	500 mL	**N8145289**
1% HCL	10 µg/L: Co 1 µg/L: Ce	250 mL	**N8145052**
NexION 300Q Non-cell Stability Solution			
1% HNO_3	1 µg/L: Cd, Cu, Mg, Pb	500 mL	**N8145053**
NexION 300X/D/S Cell Stability Solution			
1% HNO_3	1 µg/L: Cd, Cr, Fe, In, Mg, Pb 10 µg/L: Co, Cu, Se	500 mL	**N8145054**
NexION 300X/D Internal Standard Stock Solution			
2% HNO_3	100 µg/mL: Sc 50 µg/mL: Ge 1 µg/mL: Rh, In, Tb	125 mL	**N9308592**
NexION 300Q Internal Standard Stock Solution			
2% HNO_3	50 µg/mL: Sc, Ge 10 µg/mL: Rh, In, Tb	125 mL	**N9308591**
NexION Standard/DRC Mode Detection Limit Blank Solution			
0.5% HNO_3		100 mL	**N8145055**
NexION Standard/DRC Mode Detection Limit Solution			
0.5% HNO_3	1 µg/L: Be, Ca, Co, Fe, In, U	100 mL	**N8145056**
NexION KED Mode Detection Limit Blank Solution			
1% HCl		100 mL	**N8145057**
NexION KED Mode Detection Limit Solution			
1% HCl	10 µg/L: V, As, Se	100 mL	**N8145058**
NexION Dual Detector Solution			
2% HNO_3	200 µg/L: Al, Ba, Ce, Co, ,Cu, In, Li, Mg, Mn, Ni, Pb, Tb, U, Zn	100 mL	**N8145059**
NexION AFT Single-Element Solution			
2% HNO_3	2 µg/L: Fe	100 mL	**N8145060**
NexION AFT Multi-Element Solution			
2% HNO_3	2 µg/L: Ag, Al, As, Ba, Be, Bi, Be, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, In, K, Li, Mg, Mn, Na, Ni, Pb, Rb, Se, Sr, Tl, U, V, Zn	100 mL	**N8145061**

Universal Data Acquisition Standards Kit

Our Universal Data Acquisition Standards Kit includes 5 standards solutions in bottles of 125 mL.

Universal Data Acquisition Standards Kit

Matrix	Contents	Vol.	Part No.
Solution Kit (Includes items listed below)			
Solution Kit (Includes items listed below)			**N9306225**
5% HNO_3	10 µg/mL: Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sm, Sc, Tb, Th, Tm, Y, Yb	125 mL	**N9300232**
5% HNO_3	10 µg/mL: Al, Ag, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, Hg*, In, K, Li, Mg, Mn, Na, Ni, Pb, Rb, Se, Sr, Tl, U, V, Zn	125 mL	**N9300233**
10% HCL/ 1% HNO_3	10 µg/mL: Au, Hf, Ir, Pd, Pt, Rh, Ru, Sb, Sn, Te	125 mL	**N9300234**
5% HNO_3	10 µg/mL: Hg	125 mL	**N9300253**
H_2O/tr HF /tr HNO_3	10 µg/mL: B, Ge, Mo, Nb, P, Re, S, Si, Ta, Ti, W, Zr	125 mL	**N9300235**

*Supplied in separate bottle.

Isotope Standard

The PerkinElmer ICP and ICP-MS isotope standard comes in a 125 mL bottle and is supplied with a comprehensive Certificate of Analysis.

Isotope Standard

Matrix	Contents	Vol.	Part No.
Lithium 6 Standard			
2% HNO_3	100 µg/mL: Li6	125 mL	**N9303955**

Matrix Blanks and Wash Standards

We offer wash standards and matrix blanks for your application needs.

Wash Standards

Matrix	Vol.	Part No.
ELAN DRC Wash Solution		
0.5% HNO_3	250 mL	**N8125033**
ELAN 9000/6X00/DRC-e Wash Solution		
1% HNO_3	1,000 mL	**N8122038**
NexION Wash Solution		
1% HNO_3	250 mL	**N8145050**

Matrix Blanks

Matrix	Vol.	Part No.
Water Blank		
ASTM® Type I Water, 18 megohm	125 mL	**N9303814**
ASTM® Type I Water, 18 megohm	250 mL	**N9303813**
Hydrochloric Acid Blanks		
2% HCl in ASTM® Type I Water	125 mL	**N9300238**
5% HNO_3 in ASTM® Type I Water	500 mL	**N9308571**
Nitric Acid Blanks		
1% HNO_3 in ASTM® Type I Water	125 mL	**N9303732**
2% HNO_3 in ASTM® Type I Water	125 mL	**N0773120**
5% HNO_3 in ASTM® Type I Water	500 mL	**N9308571**

METALLO-ORGANIC STANDARDS

PerkinElmer Metallo-Organic Standards provide a comprehensive solution to your application needs.

Our product offering includes:

- Single and multi-element standards for the analysis of wear metals and metal additives in oil
- Reference materials for used oil analysis of fuel, soot, water, acid number, base number, or viscosity
- Sulfur standards made from polysulfide oil
- High purity matrix oils and solvents
- Proficiency testing standards with instant feedback

Each product is shipped with a comprehensive Certificate of Analysis.

Our Metallo-Organic Standards have been designed to give you the confidence you need when analyzing difficult samples.

Lubricants Guide

For more information on our Lubricants consumables offering visit **www.PerkinElmer.com/lubricants**. You'll find everything from application notes to a comprehensive guide of consumables for all your Lubricants analysis needs.

Single-Element, Metallo-Organic Standards

Element Name	Symbol	Matrix	Size	Part No.
Aluminum 1000 µg/g	Al	hydrocarbon oil	50 g	**N9308200**
Antimony 1000 µg/g	Sb	hydrocarbon oil	50 g	**N9308201**
Arsenic 1000 µg/g	As	hydrocarbon oil	50 g	**N9308202**
Barium 1000 µg/g	Ba	hydrocarbon oil	50 g	**N9308203**
Beryllium 1000 µg/g	Be	hydrocarbon oil	50 g	**N9308204**
Bismuth 1000 µg/g	Bi	hydrocarbon oil	50 g	**N9308205**
Boron 1000 µg/g	B	hydrocarbon oil	50 g	**N9308206**
Cadmium 1000 µg/g	Cd	hydrocarbon oil	50 g	**N9308207**
Calcium 1000 µg/g	Ca	hydrocarbon oil	50 g	**N9308208**
Calcium 5000 µg/g	Ca	hydrocarbon oil	50 g	**N9308322**
Chromium 1000 µg/g	Cr	hydrocarbon oil	50 g	**N9308209**
Cobalt 1000 µg/g	Co	hydrocarbon oil	50 g	**N9308210**
Copper 1000 µg/g	Cu	hydrocarbon oil	50 g	**N9308211**
Iron 1000 µg/g	Fe	hydrocarbon oil	50 g	**N9308212**
Lanthanum 1000 µg/g	La	hydrocarbon oil	50 g	**N9308213**
Lead 1000 µg/g	Pb	hydrocarbon oil	50 g	**N9308214**
Lithium 1000 µg/g	Li	hydrocarbon oil	50 g	**N9308215**
Magnesium 1000 µg/g	Mg	hydrocarbon oil	50 g	**N9308216**
Manganese 1000 µg/g	Mn	hydrocarbon oil	50 g	**N9308217**
Mercury 1000 µg/g	Hg	hydrocarbon oil	50 g	**N9308218**
Molybdenum 1000 µg/g	Mo	hydrocarbon oil	50 g	**N9308219**
Nickel 1000 µg/g	Ni	hydrocarbon oil	50 g	**N9308220**
Phosphorus 1000 µg/g	P	hydrocarbon oil	50 g	**N9308221**
Potassium 1000 µg/g	K	hydrocarbon oil	50 g	**N9308222**
Scandium 1000 µg/g	Sc	hydrocarbon oil	10 g	**N9308255**
Scandium 1000 µg/g	Sc	hydrocarbon oil	50 g	**N9308223**
Selenium 1000 µg/g	Se	hydrocarbon oil	50 g	**N9308224**
Silicon 1000 µg/g	Si	hydrocarbon oil	50 g	**N9308225**
Silver 1000 µg/g	Ag	hydrocarbon oil	50 g	**N9308226**
Sodium 1000 µg/g	Na	hydrocarbon oil	50 g	**N9308227**
Strontium 1000 µg/g	Sr	hydrocarbon oil	50 g	**N9308228**
Sulfur 10 µg/g	S	hydrocarbon oil	50 g	**N9308229**
Sulfur 100 µg/g	S	hydrocarbon oil	50 g	**N9308230**
Sulfur 1000 µg/g	S	hydrocarbon oil	50 g	**N9308231**
Thallium 1000 µg/g	Tl	hydrocarbon oil	50 g	**N9308232**
Tin 1000 µg/g	Sn	hydrocarbon oil	50 g	**N9308233**
Titanium 1000 µg/g	Ti	hydrocarbon oil	50 g	**N9308234**
Vanadium 1000 µg/g	V	hydrocarbon oil	50 g	**N9308235**
Yttrium 1000 µg/g	Y	hydrocarbon oil	50 g	**N9308236**
Yttrium 5000 µg/g	Y	hydrocarbon oil	50 g	**N9308323**
Zinc 1000 µg/g	Zn	hydrocarbon oil	50 g	**N9308237**
Zirconium 1000 µg/g	Zr	hydrocarbon oil	50 g	**N9308238**

V-21 Wear Metal Standards

Includes: Ag, Al, B, Ba, Ca, Cd, Cr, Cu, Fe, Mg, Mn, Mo, Na, Ni, P, Pb, Si, Sn, Ti, V, Zn

Description	Matrix	Size	Part No.
V-21 Wear Metals Standard 10 µg/g	hydrocarbon oil	100 g	**N9308300**
V-21 Wear Metals Standard 10 µg/g	hydrocarbon oil	200 g	**N9308301**
V-21 Wear Metals Standard 10 µg/g	hydrocarbon oil	400 g	**N9308324**
V-21 Wear Metals Standard 30 µg/g	hydrocarbon oil	100 g	**N9308302**
V-21 Wear Metals Standard 30 µg/g	hydrocarbon oil	200 g	**N9308303**
V-21 Wear Metals Standard 30 µg/g	hydrocarbon oil	400 g	**N9308325**
V-21 Wear Metals Standard 50 µg/g	hydrocarbon oil	100 g	**N9308304**
V-21 Wear Metals Standard 50 µg/g	hydrocarbon oil	200 g	**N9308305**
V-21 Wear Metals Standard 50 µg/g	hydrocarbon oil	400 g	**N9308326**
V-21 Wear Metals Standard 100 µg/g	hydrocarbon oil	100 g	**N9308306**
V-21 Wear Metals Standard 100 µg/g	hydrocarbon oil	200 g	**N9308307**
V-21 Wear Metals Standard 100 µg/g	hydrocarbon oil	400 g	**N9308327**
V-21 Wear Metals Standard 300 µg/g	hydrocarbon oil	100 g	**N9308308**
V-21 Wear Metals Standard 300 µg/g	hydrocarbon oil	200 g	**N9308309**
V-21 Wear Metals Standard 300 µg/g	hydrocarbon oil	400 g	**N9308328**
V-21 Wear Metals Standard 500 µg/g	hydrocarbon oil	100 g	**N9308310**
V-21 Wear Metals Standard 500 µg/g	hydrocarbon oil	200 g	**N9308311**
V-21 Wear Metals Standard 500 µg/g	hydrocarbon oil	400 g	**N9308329**
V-21 Wear Metals Standard 900 µg/g	hydrocarbon oil	100 g	**N9308312**
V-21 Wear Metals Standard 900 µg/g	hydrocarbon oil	200 g	**N9308313**
V-21 Wear Metals Standard 900 µg/g	hydrocarbon oil	400 g	**N9308330**

V-21+K Wear Metal Standards

Includes: Ag, Al, B, Ba, Ca, Cd, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, P, Pb, Si, Sn, Ti, V, Zn

Description	Matrix	Size	Part No.
V-21+K Wear Metals Standard 10 µg/g	hydrocarbon oil	100 g	**N9308355**
V-21+K Wear Metals Standard 10 µg/g	hydrocarbon oil	200 g	**N9308356**
V-21+K Wear Metals Standard 30 µg/g	hydrocarbon oil	100 g	**N9308357**
V-21+K Wear Metals Standard 30 µg/g	hydrocarbon oil	200 g	**N9308358**
V-21+K Wear Metals Standard 30 µg/g	hydrocarbon oil	400 g	**N9308371**
V-21+K Wear Metals Standard 50 µg/g	hydrocarbon oil	100 g	**N9308359**
V-21+K Wear Metals Standard 50 µg/g	hydrocarbon oil	200 g	**N9308360**
V-21+K Wear Metals Standard 50 µg/g	hydrocarbon oil	400 g	**N9308372**
V-21+K Wear Metals Standard 100 µg/g	hydrocarbon oil	100 g	**N9308361**
V-21+K Wear Metals Standard 100 µg/g	hydrocarbon oil	200 g	**N9308362**
V-21+K Wear Metals Standard 100 µg/g	hydrocarbon oil	400 g	**N9308373**
V-21+K Wear Metals Standard 300 µg/g	hydrocarbon oil	100 g	**N9308363**
V-21+K Wear Metals Standard 300 µg/g	hydrocarbon oil	200 g	**N9308364**
V-21+K Wear Metals Standard 500 µg/g	hydrocarbon oil	100 g	**N9308365**
V-21+K Wear Metals Standard 500 µg/g	hydrocarbon oil	200 g	**N9308366**
V-21+K Wear Metals Standard 500 µg/g	hydrocarbon oil	400 g	**N9308374**
V-21+K Wear Metals Standard 900 µg/g	hydrocarbon oil	100 g	**N9308367**
V-21+K Wear Metals Standard 900 µg/g	hydrocarbon oil	200 g	**N9308368**

V-23 Wear Metal Standards

Includes: Ag, Al, B, Ba, Ca, Cd, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Si, Sn, Ti, V, Zn

Description	Matrix	Size	Part No.
V-23 Wear Metals Standard 10 µg/g	hydrocarbon oil	100 g	**N9308239**
V-23 Wear Metals Standard 10 µg/g	hydrocarbon oil	200 g	**N0776109**
V-23 Wear Metals Standard 10 µg/g	hydrocarbon oil	400 g	**N9308315**
V-23 Wear Metals Standard 30 µg/g	hydrocarbon oil	100 g	**N9308241**
V-23 Wear Metals Standard 30 µg/g	hydrocarbon oil	200 g	**N9308242**
V-23 Wear Metals Standard 30 µg/g	hydrocarbon oil	400 g	**N9308316**
V-23 Wear Metals Standard 50 µg/g	hydrocarbon oil	100 g	**N9308243**
V-23 Wear Metals Standard 50 µg/g	hydrocarbon oil	200 g	**N0776104**
V-23 Wear Metals Standard 50 µg/g	hydrocarbon oil	400 g	**N9308317**
V-23 Wear Metals Standard 100 µg/g	hydrocarbon oil	100 g	**N9308245**
V-23 Wear Metals Standard 100 µg/g	hydrocarbon oil	200 g	**N0776105**
V-23 Wear Metals Standard 100 µg/g	hydrocarbon oil	400 g	**N9308318**
V-23 Wear Metals Standard 300 µg/g	hydrocarbon oil	100 g	**N9308247**
V-23 Wear Metals Standard 300 µg/g	hydrocarbon oil	200 g	**N9308248**
V-23 Wear Metals Standard 300 µg/g	hydrocarbon oil	400 g	**N9308319**
V-23 Wear Metals Standard 500 µg/g	hydrocarbon oil	100 g	**N9308249**
V-23 Wear Metals Standard 500 µg/g	hydrocarbon oil	200 g	**N0776106**
V-23 Wear Metals Standard 500 µg/g	hydrocarbon oil	400 g	**N9308320**
V-23 Wear Metals Standard 900 µg/g	hydrocarbon oil	100 g	**N9308251**
V-23 Wear Metals Standard 900 µg/g	hydrocarbon oil	200 g	**N9308252**
V-23 Wear Metals Standard 900 µg/g	hydrocarbon oil	400 g	**N9308321**

Internal Standards

Description	Matrix	Size	Part No.
Cobalt (Co) Internal Standard, 6%	mineral spirits	200 g	**N0776107**
Cobalt (Co) Internal Standard, 6%	mineral spirits	400 g	**N9308334**
Cobalt (Co) Internal Standard, 5000 µg/g	hydrocarbon oil	50 g	**N9308258**
Cobalt Sulfur-Free Metallo-Organic Concentrate: Co @ approx 3%	hydrocarbon oil	400 g	**N9304168**

Metal Additive Standards

Description	Matrix	Size	Part No.
Metal Additive Standard 3: Ca @ 5000 µg/g; P, Zn @ 1600 µg/g	hydrocarbon oil	100 g	**N9308369**
Metal Additive Standard 3: Ca @ 5000 µg/g; P, Zn @ 1600 µg/g	hydrocarbon oil	200 g	**N9308370**
Metal Additive Standard 3: Ca @ 5000 µg/g; P, Zn @ 1600 µg/g	hydrocarbon oil	400 g	**N9308552**
Metal Additive Standard 4: Ca @ 5000 µg/g; Mg, P, Zn @ 1600 µg/g	hydrocarbon oil	100 g	**N9308259**
Metal Additive Standard 4: Ca @ 5000 µg/g; Mg, P, Zn @ 1600 µg/g	hydrocarbon oil	200 g	**N0776108**
Metal Additive Standard 4: Ca @ 5000 µg/g; Mg, P, Zn @ 1600 µg/g	hydrocarbon oil	400 g	**N9308333**

V-Solv™ ICP Solvent 1 Gallon

V-Solv ™ ICP Solvent 5 Gallon

V-Solv™ ICP Solvent is a proprietary solvent that is used for diluting oil and other organic liquids for analysis by ICP and ICP-MS. Use V-Solv™ as a matrix blank and as a diluent for your calibration standards and samples for outstanding nebulization characteristics.

Citrajet cleaner is ideal for use in labware washers, manual and ultrasonic cleaning. Use on glassware, metals, plastics, ceramics, porcelain, rubber and fiberglass. Corrosion inhibiting formula removes metal oxides, scale, salts, inorganic residues, trace metals and amphoteric proteins. Suitable for acid washing and rinsing.

Matrix Oils and Solvents

Description	Matrix	Size	Part No.
Hydrocarbon Oil	75 cSt oil	500 mL	**N0776103**
Hydrocarbon Oil	75 cSt oil	1 Gal.	**N9308262**
Mineral Oil (low sulfur)	20 cSt mineral oil	500 mL	**N9308263**
Mineral Oil (low sulfur)	20 cSt mineral oil	1/2 Gal.	**N9308264**
V-Solv™ ICP Solvent	hydrocarbon oil	1 Gal.	**N9308265**
V-Solv™ ICP Solvent	hydrocarbon oil	5 Gal.	**N9308378**
Citrajet® Liquid Acid Cleaner		1 Gal.	**N0777063**
Citrajet® Liquid Acid Cleaner		5 Gal.	**N0777064**

Fuel Dilution Standards

Description	Matrix	Size	Part No.
Blank for Diesel Fuel Dilution Standard	75 cSt hydrocarbon oil	100 mL	**N9308266**
2% (v/v) Devolatilized Diesel Fuel in Hydrocarbon Oil	75 cSt hydrocarbon oil	100 mL	**N9308267**
4% (v/v) Devolatilized Diesel Fuel in Hydrocarbon Oil	75 cSt hydrocarbon oil	100 mL	**N9308297**
5% (v/v) Devolatilized Diesel Fuel in Hydrocarbon Oil	75 cSt hydrocarbon oil	100 mL	**N9308268**
10% (v/v) Devolatilized Diesel Fuel in Hydrocarbon Oil	75 cSt hydrocarbon oil	100 mL	**N9308269**
Blank for Gas Fuel Dilution Standard	75 cSt hydrocarbon oil	100 mL	**N9308270**
2% (v/v) Devolatilized Gasoline in Hydrocarbon Oil	75 cSt hydrocarbon oil	100 mL	**N9308271**
5% (v/v) Devolatilized Gasoline in Hydrocarbon Oil	75 cSt hydrocarbon oil	100 mL	**N9308272**
10% (v/v) Devolatilized Gasoline in Hydrocarbon Oil	75 cSt hydrocarbon oil	100 mL	**N9308273**
Blank	20 cSt hydrocarbon oil	100 mL	**N9308274**

Acid Number Standards

Description	Matrix	Size	Part No.
Acid Number (AN) Reference Material, 0.1 mg KOH/g	hydrocarbon Oil	100 g	**N9308160**
Acid Number (AN) Reference Material, 0.1 mg KOH/g	hydrocarbon Oil	400 g	**N9308161**
Acid Number (AN) Reference Material, 1 mg KOH/g	hydrocarbon Oil	100 g	**N9308162**
Acid Number (AN) Reference Material, 1 mg KOH/g	hydrocarbon Oil	400 g	**N9308163**
Acid Number (AN) Reference Material, 1.5 mg KOH/g	hydrocarbon Oil	100 g	**N9308164**
Acid Number (AN) Reference Material, 1.5 mg KOH/g	hydrocarbon Oil	400 g	**N9308165**
Acid Number (AN) Reference Material, 0.5 mg KOH/g	hydrocarbon Oil	100 g	**N9308166**
Acid Number (AN) Reference Material, 0.5 mg KOH/g	hydrocarbon Oil	400 g	**N9308167**
Acid Number (AN) Reference Material, 3 mg KOH/g	hydrocarbon Oil	50 g	**N9308168**
Acid Number (AN) Reference Material, 3 mg KOH/g	hydrocarbon Oil	400 g	**N9308169**
Acid Number (AN) Reference Material, 2 mg KOH/g	hydrocarbon Oil	50 g	**N9308170**

Base Number Standards

Description	Matrix	Size	Part No.
Base Number (BN) Reference Material, 10 mg KOH/g	hydrocarbon Oil	50 g	**N9308555**
Base Number (BN) Reference Material, 10 mg KOH/g	hydrocarbon Oil	400 g	**N9308173**
Base Number (BN) Reference Material, 15 mg KOH/g	hydrocarbon Oil	50 g	**N9308174**
Base Number (BN) Reference Material, 30 mg KOH/g	hydrocarbon Oil	50 g	**N9308176**
Base Number (BN) Reference Material, 30 mg KOH/g	hydrocarbon Oil	400 g	**N9308177**
Base Number (BN) Reference Material, 40 mg KOH/g	hydrocarbon Oil	50 g	**N9308178**
Base Number (BN) Reference Material, 6 mg KOH/g	hydrocarbon Oil	50 g	**N9308554**
Base Number (BN) Reference Material, 6 mg KOH/g	hydrocarbon Oil	400 g	**N9308181**
Base Number (BN) Reference Material, 70 mg KOH/g	hydrocarbon Oil	50 g	**N9308182**

Karl Fischer Standards

Nominal Water Concentration (%)	Matrix	Size	Part No.
Karl Fischer Water in Oil, Blank	10W30 motor oil	50 g	**N9308278**
Karl Fischer Water in Oil, 0.1%	10W30 motor oil	400 g	**N9308279**
Karl Fischer Water in Oil, 0.5%	10W30 motor oil	50 g	**N9308280**
Karl Fischer Water in Oil, 1.0%	10W30 motor oil	50 g	**N9308281**

Soot Content Standards

Nominal Water Concentration (%)	Matrix	Size	Part No.
Nominal Soot Content Range: Blank	15W40 diesel oil	50 mL	**N9308282**
Nominal Soot Content Range: 0.5-2%	15W40 diesel oil	50 mL	**N9308283**
Nominal Soot Content Range: 2-4%	15W40 diesel oil	50 mL	**N9308284**
Nominal Soot Content Range: 4-6%	15W40 diesel oil	50 mL	**N9308285**

Biodiesel Standards

Description	Matrix	Size	Part No.
Biodiesel Blank	B100 biodiesel	100 mL	**N9308286**
Biodiesel Blank	B100 biodiesel	500 mL	**N9308287**
Sulfur @ 20 µg/g in Biodiesel	B100 biodiesel	100 mL	**N9308288**
Metals in Biodiesel – Ca, K, Mg, Na, P @ 20 µg/g	B100 biodiesel	100 g	**N9308289**
Metals in Biodiesel - Ca, K, Mg, Na, P @ 5µg/g	B100 Biodiesel	100 g	**N9308726**

Coolant Standards

Description	Matrix	Size	Part No.
Custom HI 1A: Al @ 10µg/mL; Mg @ 20µg/mL; Ca @ 32µg/mL; Cu, Fe, Pb, Zn @ 50µg/mL; B @ 1000µg/mL; P @ 2000µg/mL; K @ 5000µg/mL; Na @ 10,000µg/mL 3% HNO3 (v/v)		500mL	**N9308341**
Custom QC 1A: Al, Cu @ 5µg/mL; Mg @ 10µg/mL; Zn @ 20µg/mL; Fe, Pb @ 25µg/mL; Ca @ 50µg/mL; B @ 250µg/mL; P @ 1000µg/mL; K @ 2500µg/mL; Na @ 5000µg/mL 3% HNO3 (v/v)		500mL	**N9308342**
Custom LO 1A: Al, Cu @ 2µg/mL; Mg, Zn @ 4µg/mL; Fe @ 5µg/mL; Ca, Pb @ 10µg/mL; B @ 50µg/mL; P @ 400µg/mL; K, Na @ 1000µg/mL 3% HNO3 (v/v)		500mL	**N9308343**
Custom QC 1B: Sn @ 10µg/mL; Si @ 30µg/mL; Mo @ 50µg/mL 3% HNO3 (v/v)/tr HF 500mL		500mL	**N9308344**
Custom LO 1B: Sn @ 5µg/mL; Si @ 10µg/mL; Mo @ 20µg/mL 3% HNO3 (v/v)/tr HF		500mL	**N9308345**
Custom HI 1B: Sn @ 20µg/mL; Mo, Si @ 100µg/mL 3% HNO3 (v/v)/tr HF		500mL	**N9308346**

Sulfur Standards

Description	Matrix	Size	Part No.
Polysulfide Oil Blank	13 cSt Mineral Oil	500 mL	**N9308390**
Sulfur @ 500 µg/g, from Polysulfide Oil	13 cSt Mineral Oil	500 mL	**N9308391**
Sulfur @ 1000 µg/g, from Polysulfide Oil	13 cSt Mineral Oil	500 mL	**N9308392**
Sulfur @ 5000 µg/g, from Polysulfide Oil	13 cSt Mineral Oil	500 mL	**N9308393**
Sulfur @ 1 wt%, from Polysulfide Oil	13 cSt Mineral Oil	500 mL	**N9308394**
Sulfur @ 5 wt%, from Polysulfide Oil	13 cSt Mineral Oil	500 mL	**N9308395**
Sulfur @ 0 µg/g (Blank)	#2 Diesel Fuel	500 mL	**N9308714**
Sulfur @ 5 µg/g, from Polysulfide Oil	#2 Diesel Fuel	500 mL	**N9308715**
Sulfur @ 10 µg/g, from Polysulfide Oil	#2 Diesel Fuel	500 mL	**N9308716**
Sulfur @ 15 µg/g, from Polysulfide Oil	#2 Diesel Fuel	500 mL	**N9308717**
Sulfur @ 20 µg/g, from Polysulfide Oil	#2 Diesel Fuel	500 mL	**N9308718**
Sulfur @ 25 µg/g, from Polysulfide Oil	#2 Diesel Fuel	500 mL	**N9308719**
Sulfur @ 50 µg/g, from Polysulfide Oil	#2 Diesel Fuel	500 mL	**N9308720**
Sulfur @ 100 µg/g, from Polysulfide Oil	#2 Diesel Fuel	500 mL	**N9308721**
Sulfur @ 500 µg/g, from Polysulfide Oil	#2 Diesel Fuel	500 mL	**N9308722**
Sulfur @ 1000 µg/g, from Polysulfide Oil	#2 Diesel Fuel	500 mL	**N9308723**
Sulfur @ 1500 µg/g, from Polysulfide Oil	#2 Diesel Fuel	500 mL	**N9308724**

OilExpress Standards

Description	Matrix	Size	Part No.
In-Service Lubricants FT-IR Control Standard	15W40 Diesel Oil	100 g	**N9308350**
In-Service Lubricants FT-IR Control Standard	15W40 Diesel Oil	500 g	**N9308375**
OilExpress 4 Test Oil 120 cSt	PAO Oils	500 g	**N9308351**
OilExpress 4 Test Oil 360 cSt	PAO Oils	100 g	**N9308352**
OilExpress 4 System Liquid Detergent Additive		100 g	**N9308354**
OilExpress 4 System Liquid Detergent Additive		500 mL	**N9308376**
OilExpress 4 System Liquid Detergent Additive		1 Gal.	**N9308380**
Pathlength Calibration Fluid (Squalane)		50 mL	**N9308377**
OilExpress 4 Installation Kit (includes N9308350, N9308351, N9308352, N9308354, and N9308377)		Kit	**N9300850**

Biodiesel Blends for IR

Description	Matrix	Size	Part No.
100% High Cetane Diesel	High Cetane Diesel Fuel	20 mL	**N9308290**
2% (v/v) Biodiesel	High Cetane Diesel Fuel	20 mL	**N9308291**
5% (v/v) Biodiesel	High Cetane Diesel Fuel	20 mL	**N9308292**
10% (v/v) Biodiesel	High Cetane Diesel Fuel	20 mL	**N9308293**
15% (v/v) Biodiesel	High Cetane Diesel Fuel	20 mL	**N9308294**
20% (v/v) Biodiesel	High Cetane Diesel Fuel	20 mL	**N9308295**
100% (v/v) Biodiesel	B100 biodiesel	20 mL	**N9308296**

Viscosity Reference Standards

Viscosity Reference Standards

Description	Matrix	Size	Part No.
Viscosity Standard Reference Kit	Hydrocarbons	5 x 500 mL	**N5316000**
Nominal Viscosity: 4.5 cSt at 40 °C, and 1.6 cSt at 100 °C	Hydrocarbons	500 mL	**N9307740**
Nominal Viscosity: 10 cSt at 40 °C, and 2.7 cSt at 100 °C	Hydrocarbons	500 mL	**N5316001**
Nominal Viscosity: 30 cSt at 40 °C, and 5.3 cSt at 100 °C	Hydrocarbons	500 mL	**N5316002**
Nominal Viscosity: 30 cSt at 40 °C, and 5.3 cSt at 100 °C	Hydrocarbons	1 Gal.	**N5316025**
Nominal Viscosity: 100 cSt at 40 °C, and 16.8 cSt at 100 °C	Hydrocarbons	500 mL	**N5316003**
Nominal Viscosity: 100 cSt at 40 °C, and 16.8 cSt at 100 °C	Hydrocarbons	1 Gal.	**N5316024**
Nominal Viscosity: 360 cSt at 40 °C, and 42 cSt at 100 °C	Hydrocarbons	500 mL	**N5316004**
Nominal Viscosity: 930 cSt at 40 °C, and 82 cSt at 100 °C	Hydrocarbons	500 mL	**N5316005**

Proficiency Testing Standards

Proficiency Testing Standards

Proficiency Testing Program

The Proficiency Testing Program offered by PerkinElmer has been designed to provide laboratories with a method of monitoring their analytical performance as measured against Certified Reference Materials (CRMs).

1. Analyze a sample
2. Report the results online
3. Receive an instant response to submitted values

Confirm the accuracy of your analytical results, quickly, easily, and definitively.

Description	Size	Part No.
PTP Standard for Elemental Analysis of Oils	25 g	**N9308314**

Note: Analyze a sample for up to 23 common elements and report the concentrations in µg/g (ppm). Enter all elements or only those that are of interest to you. Results are color-coded pass/fail indications in green (pass), yellow (borderline), and red (fail).

Description	Size	Part No.
Sample for Particle Count Analysis	125 mL	**N9308725**

Note: Particle Count PTP test standard includes 8 channels (4, 6, 8, 14, 21, 38, 50 and 70 µm). One bottle for ISO 11171 only.

Description	Size	Part No.
Viscosity PTP Test Standard	50 mL	**N9308540**

Note: Report viscosity values in cSt at 40 °C, 100 °C, or both.

PolyScience® WhisperCool™ Refrigerated Chiller

The PolyScience® WhisperCool® Refrigerated Chiller is designed to deliver quiet and reliable performance over a broad range of operating temperatures and conditions. Extremely dependable and energy efficient, it features a -10 to 40 °C operating temperature range, built-in process and equipment protection, and highly intuitive user interface. This chiller is designed for use on both ICP-OES and ICP-MS instruments.

Key Advantages

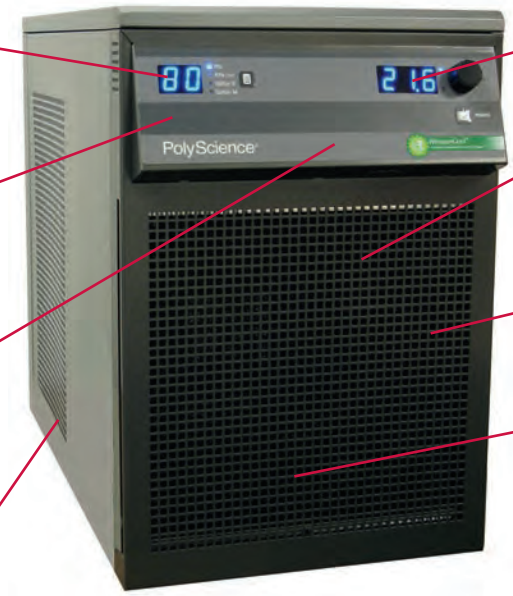
- 50% quieter operation than comparable models (62 dB*)
- 2900 watts (9889 BTU/hour) cooling capacity
- Built-in temperature, pressure, and flow rate alarms

* WhisperCool® environmental control reduces operational noise (62 dB)

Ordering Information

Part No.		N0772046	N0772045
Electrical Requirements		208-230 V, 60 Hz, 12.2 A	240 V, 50 Hz, 12.2 A
Operating Temperature Range		-10 to 40 °C	-10 to 40 °C
Temperature Stability		±0.1 °C (±1.8 °F)	±0.1 °C (±1.8 °F)
Cooling Capacity	at 20 °C at 10 °C at 0 °C	2900 Watts (9889 BTU/hr) 1925 Watts (6574 BTU/hr) 1000 Watts (3410 BTU/hr)	2650 Watts (9889 BTU/hr) 1900 Watts (6574 BTU/hr) 1200 Watts (3410 BTU/hr)
Compressor		1.0 HP	1.0 HP
Reservoir Capacity		4.2 L	4.2 L
Pump Type		Turbine	Turbine
Maximum Pump Pressure		90 PSI	83 PSI
Maximum Pump Flow		13.2 LPM	13.2 LPM
Dimensions		22 5/8 x 14 1/2 x 27 5/8 in / 57.6 x 36.8 x 70.2 cm	
Shipping Weight		189 lb / 85.7 kg	
Replacement Air Filter		**N0777095** (Air Filter with Frame, 13 x 14 in)	
ICP Chiller Coolant Mix		**N0776099** (Five Half-gallon bottles)	
ICPMS Chiller Coolant Mix		**WE016558** (1 liter bottles) for ELAN/NexION	
Stainless Steel Strainer for Reservoir		**N0691907**	

ICP Chiller Coolant Mix
Part No: N0776099



At-a-glance access to pressure and flow rate information

Adaptive environmental technology optimizes compressor and evaporator performance to reduce overall energy consumption

Smart electronics control fan speed based on cooling demand, reducing operating noise by as much as 50%

Louvered side and rear vents for added noise dampening

±0.1 °C temperature stability

High performance turbine pump with vibration isolators for quiet fluid flow

Compact portable design

Washable air filter removes quickly for easy cleaning

Heat Exchanger System

Cooling systems for the ELAN 9000/DRC II/e/NexION systems. Air cooled recirculator without refrigeration. Not to be placed in areas with temperatures above 30 °C (86 °F). Requires the use of Coolant Fluid (WE016558).

ICP-MS Power Requirement	Part No.
120 V, 60 Hz	**N8122248**
220/250 V, 50/60 Hz	**N8122247**

NOISE ENCLOSURES

For NexION® Leybold SV40 Vacuum Pump

External Dimensions	Centimeters	Inches
Depth	67.4	26.5
Width	45.6	17.95
Height	55	21.65
Height with oil tray	64.6	25.39
Weight	**Kilograms**	**Pounds (lbs)**
Enclosure	14	30.8
Oil tray	8	16.75

Description	Part No.
Noise enclosure (dolly not included)	**N8121068**
Noise enclosure with Built-in Overheating Temperature Alarm (dolly not included)	**N8145407**
Noise enclosure dolly (option)	**N8121069**
Noise reduction cover (dolly not included)	**MZ321146**
Noise reduction cover dolly (option)	**MZ321147**

Vacuum Pump
Noise Enclosure

Vacuum Pump
Noise Reduction Cover

Noise Enclosures for Vacuum Pumps and Chillers

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.

Our noise reduction enclosures are designed specifically for your instrument. They provide noise reduction performance from -12 db(A) up to -20 db(A), equivalent to a 75% reduction in noise perception! Thick 50 mm Polyurethane acoustic open cell foam covers the interior part of the enclosure, delivering good noise absorption. The wave shape of the foam multiplies the absorption capacity, providing you with a quieter, safer lab. Each noise enclosure has efficient air circulation, is easy-to-install and maintain and is compatible with all electrical outlets worldwide.

Chiller Noise Enclosure Key Advantages

- Performance: average sound level decrease is - 15 dB(A) (equivalent to a 75% reduction in noise perception).
- Environment friendly noise adsorbing material, oil and water resistant.
- Heat exchange controlled by six internal silent fans.
- Worldwide electrical compatibility-enclosures are delivered with European, US, Japan, and UK plugs.
- Easy access to front monitor and switch (the transparent window can be opened).
- Easy water level check (window on the back panel).
- Includes Overheating temperature alarm.
- The noise reduction is in conformity with the European directive related to low voltage equipment(2006/95/EC) and electromagnetic compatibility (2004/108/EC).
- Power supply Csa, Ce and Ccc

For Model: Polyscience 6000 Series

External Dimensions	Centimeters	Inches
Depth	88	34.7
Width	57	23.7
Height	71	30.7

Description	Part No.
Chiller Enclosure	**N0777920**

POWER CONDITIONERS AND UPS SYSTEMS

Damaged or compromised components, disrupted processes, lack of reliability – they all add up to frustration, broken schedules and costly downtime. The problem is caused by a host of power disturbances – some visible and many invisible – that threaten your equipment's operation every year. Power "disturbances" are simply those large and small variations in the quality of the electric power you use day in and day out. Some come from your local utility company, but most are created within your own facility as a result of the distribution and use of electrical power. These variations include high-energy voltage transients, sags and swells, electrical noise, and common mode voltage, as well as the power outages everyone witnesses when the lights go out.

Power Conditioners

Instrument Model	Description	Frequency (Hz)	Part No.
ATOMIC ABSORPTION			
AAnalyst™ 100/200/300/400	520 VA	60	**N9307504**
AAnalyst 100/200/300/400/PinAAcle™ 900 F	750 VA	50	**N9307521**
AAnalyst 600/800	5.8 kVA	60	**N9307511**
AAnalyst 600/800	6.0 kVA	50	**N9307523**
AAnalyst 700	3.8 kVA	60	**N9307509**
AAnalyst 700	3.6 kVA	50	**N9307522**
PinAAcle 900 H/T/Z	5.8 kVA	60	**N9307760**
PinAAcle 900 H/T/Z	6.0 kVA	50	**N9307523**
PinAAcle 900F	720 VA	60	**N9307515**
ICP-OES			
Optima™ 2x00/4x00/5x00/7x00/8x00	3.8 kVA	60	**N9307512**
Optima 2x00/4x00/5x00/7x00/8x00	3.6 kVA	50	**N9307522**
ICP-MS			
ELAN® 6x00/9000 Controller Side	3.8 kVA	60	**N9307519**
ELAN 6x00/9000 Controller Side	3.6 kVA	50	**N9307522**
AAnalyst 600/800/ELAN 6x00/9000 RF Generator Side	5.8 kVA	60	**N9307511**
ELAN 6x00/9000/NexION® RF Generator Side	6.0 kVA	50	**N9307523**
NexION	5.0 kVA	60	**N0777690**
TITAN MPS™			
Titan MPS	2.0 kVA	60	**N9306758**
Titan MPS	2.0 kVA	50	**N9306755**

On-Line Conditioned 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 insures that the output remains continuous and regulated.

UPS Systems

Instrument Model	Description	Frequency (Hz)	Part No.
ATOMIC ABSORPTION			
PinAAcle 900F/AAnalyst 100/200/300/400	800 VA	60	**N0777681**
PinAAcle 900F/AAnalyst 100/200/300/400	800 VA	50	**N0777689**
AAnalyst 700/HGA 900	5.2 kVA	50/60	**N9308150**
PinAAcle 900 T/H/Z	10 kVA	50/60	**N9306757**
AAnalyst 600/800	10 kVA	50/60	**N0777613**
ICP-OES			
Optima 2x00/4x00/5x00/7x00/8x00	5.2 kVA	50/60	**N0777511**
ICP-MS			
NexION	8.0 kVA	50/60	**N0777682**
ELAN	12 kVA	50/60	**N0777719**

TESTED AND APPROVED

Acetylene Regulator

For AA labs, this regulator includes an adapter so that the pressure regulator can be connected to cylinders requiring either CGA 300 or CGA 510 fittings and a connector for attaching the fuel hose assembly supplied with the instrument. Includes hose assembly.

Description	Part No.
Max Inlet Pressure: 400 psig	**03030106**

Air Regulator

For AA labs. Regulator to cylinder CGA no. 590. Includes hose assembly.

Description	Part No.
Max Inlet Pressure: 3,000 psig	**03030264**

Nitrous Oxide Regulator

For use in AA labs with gas cylinders with a CGA 326 connection. Provides pressure control from 350–520 kPA (50–75 psig) and contains an integral thermostatted heater to prevent freezing of the regulator diaphragm.

Description	Part No.
115 V	**03030204**
220 V	**03030349**

Argon/Nitrogen Regulator

For AA and ICP, this regulator can be used with argon or nitrogen and has a CGA 580 fitting. A color-coded hose with ¼" SWAGELOK® fittings is also included.

Description	Part No.
Max Inlet Pressure: 3,000 psig	**03030284**

Matheson Flashback Arrestor

Because acetylene is an extremely unstable gas, users can experience flashbacks at the instrument burner head. The flash arrestor prevents these potentially dangerous flashbacks from reaching the regulator or cylinder.

Description	Part No.
Acetylene Max Operating Pressure: 15 psig	**N9300068**

Hose Assemblies

Hose assemblies for connecting fuel, air and nitrous oxide from supply to instrument.

Description	Part No.
Acetylene, Red Neoprene, 3.7 m (12 ft)	**00570559**
Air/Argon, Black, 3.7 m (12 ft)	**00570567**
Nitrous Oxide, Blue, 3.7 m (12 ft)	**00470258**

Blower and Vent Assembly for AA and ICP

A venting system is required to remove fumes and vapors from the torch of ICP emission spectrometers. A vent is recommended for use over the power supply unit of most ICP spectrometers for removal of dissipated heat. Use exhaust venting to:

- Protect lab personnel from toxic vapors
- Protect your instrument from corrosive vapors
- Improve stability of the ICP torch

Includes Exhaust Hood, Adapter and Blower. Does not include ducting. PerkinElmer service engineers are not permitted to install this unit.

Description	Part No.
110 V	**03030447**
230 V	**03030448**

Parker Balston® 73-099 AA Gas Purifier

For AA labs, this wall-mounted system designed to purify the compressed air and acetylene gases used in atomic absorption. It consists of two independent filtration systems, one for compressed air and one for acetylene. The unit also has a flashback arrestor on the acetylene line and a pressure regulator on the compressed air line.

The 2-stage air filtration assembly consists of a Balston Grade DX coalescing filter and a Balston Grade BX coalescing filter. Together these filters remove oil, water and particulate contamination (99.99% at 0.01 micron) from the compressed air supply.

Description	Part No.
Parker Balston 73-099 AA Gas Purifier	**N9301398**

Parker Balston® Replacement Filters

Description	Cartridges Part No.	Seal Sets Part Part No.
1st Air Filter	**N9301710**	**N9301712**
2nd Air Filter	**N9301711**	**N9301712**
Acetylene Filter	**N9301714**	**N9301715**

Balston® 95A Acetylene Filter

For your AA lab, this filter includes a Balston Grade BQ filter cartridge to remove liquid and solid contaminants from the acetylene supply to 99.99% at 0.01 micron. Max working pressure: 15 psig.

Description	Part No.
Acetylene Filter	**N9301399**
Replacement Acetylene Filter Cartridge	**N9301714**

Balston® Air Filter Assembly Type A-82

For AA and ICP labs, this filter is specifically designed to remove water, oil and dirt particles down to 0.6 microns in diameter from compressed air lines. It is recommended for use with oil-type compressors and for removing moisture and dirt particles from air supplied by oil-less compressors. Also recommended to filter argon for the PinAAcle furnace.

Description	Part No.
Air Filter Assembly	**N0580531**
Replacement Filter Cartridge Element	**N0582251**

Air Dryer Filter Assembly with R250 Regulator

To filter compressed air for AA and ICP instrumentation. Replaces 00470652 and N0770198.

Description	Part No.
Air Dryer Filter Assembly with R250 Regulator	**N0775325**
Replacement Filter Element	**N9306067**
Float Assembly	**N0777710**
Bowl O-Ring	**N0777328**

Wilkerson® Air Dryer Filter Accessories*

Description	Pre-Filter Part Part No.	Final Filter Part No.
Filter Elements	**09923464**	**09907120**
Filter Bowls	**N9302199**	**N9302199**
Bowl O-Ring Kit, Final Filter	**N9302197**	**N9301715**

* For Wilkerson Filter PerkinElmer (00470652)

ICP Filter Replacement Parts

ICP Model	Filter Element	Part No.
2x00/3x00/4x00/5x00/7x00 /8x00	Air filter in front of spectrometer fan	**09995098**
2x00/3x00/4x00	Water Filter	**09904845**
2x00/3x00/4x00	Cartridge for Water Filter	**09904846**
2x00/4x00/5x00/7x00/8x00	Air Filter for the RF Generator Inlet	**N0775220**
3x00	Washable Air Filter for the RF Generator Inlet	**02509115**
3x00	Disposable Air Filter for the RF Generator Inlet	**09923517**

Instrument Filters

Description	Part No.
For AAnalyst 100/300/PinAAcle 900	**09995097**
For AAnalyst 200/400/600/700/800	**B0501696**
For AAnalyst 600/700/800 (80x80)	**B0502706**
For Optima 2x00/3x00/4x00/5x00/7x00/8x00	**09995098**
For NexION (left)	**W1036712**
For NexION (back right)	**W1036713**

Polyscience Replacement Air Filters

Description	Part No.
Polyscience Air Filter	**N0777359**
Polyscience Air Filter with Frame	**N0777095**
Heat Exchanger Air Filter	**N0777360**

SAMPLE PREPARATION BLOCK SYSTEMS

PerkinElmer offers a variety of sample preparation blocks and accessories for your lab needs.

Better laboratory practices demand modern techniques in sample preparation. In the past, hot plates were used to digest samples where common digestion problems involved rusting, cross contamination of digestion system to sample, and poor sample temperature control.

With no exposed metal components and an outer shell manufactured from acid-resistant thermoplastic, the SPB blocks reduce the chances of sample contamination. Each system is constructed with a solid, PTFE-coated, graphite block where a flat heater covers 95% of the block's base. This guarantees temperature uniformity and eliminates hot spots found in hot plates.

All PerkinElmer sample preparation blocks are manufactured to specific tolerances which operates under a Quality Management System that is certified ISO 9001:2008.

Features and Benefits

- Ideal for any digestion/heating method which requires a temperature below 180 °C.
- Provides uniform temperature (±1.0 °C across the block).
- Delivers even sample evaporation results.
- PTFE-coated graphite block resists aggressive, corrosive attack.
- Choose from 8 different SPB blocks.

"The major advantage of the PerkinElmer Sample Preparation Block is its ability to provide me with accurate temperature across the entire block.

With every run, I am confident that I have excellent recovery rates from my samples and there is no chance of contamination – which is critical when I'm conducting lead testing on my ICP-AES."

Michigan Department of Community Health
Mark Knottnerus
Trace Metals Manager

Sample Preparation Blocks

The SPB series of block digestion systems offers the latest in graphite block technology in many different packages. Graphite blocks are PTFE-coated to resist aggressive corrosive attack for guaranteed long life in harsh laboratory environments.

Our sample blocks operate with either a SPB Digital Controller or SPB Touch Controller*. Please select a controller below and the appropriate Start Up Kit* which includes RackLock DigiTUBE®s, disposable watch glasses, DigiFILTER™s and much more. Each SPB Block includes one set of racks.

Sample Preparation Blocks

Description	Capacity	Part No.
SPB 15-40, (115 V/230 V)	40 Tubes/15 mL	**N9308709**
SPB 15-108, (115 V/230 V)	108 Tubes/15 mL	**N9308710**
SPB 50-24, (115 V/230 V)	24 Tubes/50 mL	**N9308019**
SPB 100-12, (115 V/230 V)	12 Tubes/100 mL	**N9308010**
SPB 50-48, (115 V/230 V)	48 Tubes/50 mL	**N9308004**
SPB 100-30, (115 V/230 V)	30 Tubes/100 mL	**N9308012**
SPB 50-72, (230 V)	72 Tubes/50 mL	**N9308005**
SPB 100-42, (230 V)	42 Tubes/100 mL	**N9308014**

*sold seperately.

Controllers

The user friendly SPB Digital Controller includes programmable features such as: temperature set-point to 0.1 °C, even sample heating and evaporation results, timer shutdown option, and programmable alarm for end of cycle.

The SPB Touch Controller includes all of the SPB Digital Controller features and more. Added features include: a graphical representation of the heating profile in real-time to identify the current stage of the method heating program. Safety features include the ability of the controller to monitor the heating cycle of the block to prevent run away situations. The controller allows for the SPB Probe to be calibrated to meet your SOP requirements.

The SPB Probe, used with either the Digital or Touch models, can directly monitor and control the block's heating rate via sample temperature feedback to the controller.

Controllers

Description	Part No.
SPB Digital Controller	**N9308006**
SPB Touch Controller	**N9308007**

Start Up Kits

PerkinElmer's SPB Start Up kits contain all consumable items required to operate the system including: RackLock DigiTUBE®s and Caps, disposable Watch Glasses, DigiFILTER™s, RackLock Racks and Storage Racks.

Start Up Kits

Description	DigiTUBE®s/ Caps	Watch Glasses	Racks	Part No.
Start Up Kit for SPB 15-40	540		2	**N9308704**
Start Up Kit for SPB 15-108	540		2	**N9308706**
Start Up Kit for SPB 50-24	500	1000	1	**N9308017**
Start Up Kit for SPB 100-12	200	500	1	**N9308011**
Start Up Kit for SPB 50-48	500	1000	2	**N9308002**
Start Up Kit for SPB 100-30	200	500	2	**N9308013**
Start Up Kit for SPB 50-72	500	1000	3	**N9308025**
Start Up Kit for SPB 100-42	200	500	2	**N9308015**

DigiFILTER™

The vacuum assisted DigiFILTER™ assembly provides a quick and easy way to filter samples prior to analysis. Increase lab productivity by filtering particulates from digested samples in a matter of seconds directly from the digestion tube. Available with a 0.45 or 1.0 micron hydrophilic PTFE membrane. Field Filtration Kit conforms to Item 8.2 in the EPA 200.7, 200.8 and 200.9 Methods.

DigiFILTERs™

Description	Quantity	Part No.
DigiFILTER™ 0.45 micron for 50 mL DigiTUBE®s	100	**N9308031**
DigiFILTER™ 1.0 micron for 50 mL DigiTUBE®s	100	**N9308032**
Field Filtration Kit 0.45 for 50 mL DigiTUBE®s*	1	**N9308033**
DigiFILTER™ Manifold	1	**N9308034**

*Contains: 25 DigiFILTER™s, 30 DigiTUBE®s, 1x 6 mL eyedropper bottle to dispense 2 to 3 drops of (1+1) PlasmaPURE® Nitric acid, 1 storage rack, 1 Sharpie® pen and 2x 60 mL plastic syringes to create a vacuum to filter samples from the collection vessel to the sample tube.

Tubes, Caps and Watch Glasses

Why use a thermometer to monitor and manually adjust sample temperature when a SPB Probe will automatically do the job? The SPB Probe provides direct control and monitoring of actual sample temperature via a corrosion-resistant, PFA-coated temperature probe. Available with different holders in a 6″ configuration for use with 50 and 100 mL DigiTUBE®s. Each probe is supplied with 5 Probe Watch Glasses and a probe holder.

Tubes, Caps and Watch Glasses

Description	Quantity	Part No.
Tubes		
DigiTUBE®s 15 mL with RackLock (incl. caps)	1620	**N9308711**
DigiTUBE®s 15 mL with RackLock (no caps)	1620	**N9308712**
DigiTUBE®s 15 mL with RackLock (incl. caps)	540	**N9308713**
DigiTUBE®s 50 mL with RackLock (incl. caps)	750	**N9308008**
DigiTUBEs 50 mL with RackLock (no caps)	750	**N9308340**
DgiTUBE®s 50 mL with non-RackLock (incl. caps)	750	**N9308037**
DigiTUBE®s 100 mL with RackLock (incl. caps)	300	**N9308016**
DigiTUBE®s 100 mL with non-RackLock (incl. caps)	300	**N9308066**
PTFE Digestion Tube 50 mL (incl. blue caps)	6	**N9308024**
Tube, Quartz, 62.5 mL, Uncalibrated	6	**N9308048**
Tube, Borosilicate, 62.5 mL, Uncalibrated	6	**N9308049**
Tube, Borosilicate, 62.5 mL, Calibrated at 50 mL	6	**N9308050**
Caps		
Screw Caps, Blue, for 15 mL DigiTUBE®s	540	**N9308705**
Screw Caps, Clear, for 15 mL DigiTUBE®s	540	**N9308708**
Screw Caps, Orange, for 50 mL DigiTUBE®s	250	**N9308058**
Screw Caps, Red, for 50 mL DigiTUBE®s	250	**N9308059**
Screw Caps, Clear, for 50 mL DigiTUBE®s	250	**N9308060**
Screw Caps, Yellow, for 50 mL DigiTUBE®s	250	**N9308056**
PTFE Screw Cap for PTFE 50 mL, N9308024 replaces blue caps supplied	6	**N9308027**
Watch Glasses		
Disposable Watch Glasses, 50 mL	1000	**N9308003**
Disposable Watch Glasses, 100 mL	500	**N9308030**

DigiTUBE® Dimensions

Tube	Outside	Inside
15 mL DigiTUBE®	1.2 cm	1.1 cm
50 mL DigiTUBE®	30 mm	28 mm
100 mL DigiTUBE®	46 mm	44 mm

Temperature Probes

Why use a thermometer to monitor and manually adjust sample temperature when a SPB Probe will automatically do the job? The SPB Probe provides direct control and monitoring of actual sample temperature via a corrosion-resistant, PFA-coated temperature probe. Available with different holders in a 6″ configuration for use with 50 and 100 mL DigiTUBE®s. Each probe is supplied with 5 Probe Watch Glasses and a probe holder.

Temperature Probes

Description	Quantity	Part No.
SPB Probe 6″ for 15 mL Tubes	1	**N9308707**
SPB Probe 6″ for 50 mL Tubes	1	**N9308018**
SPB Probe 6″ for 100 mL Tubes	1	**N9308009**
SPB Probe Watch Glass (replacement) for 50 mL Tubes	25	**N9308041**
SPB Probe Watch Glass (replacement) for 100 mL Tubes	25	**N9308073**
SPB Probe Holder for DigiTUBES 15 mL	1	**N9308703**
SPB Probe Holder for DigiTUBES 50 mL	1	**N9308044**
SPB Probe Holder for DigiTUBES 100 mL	1	**N9308045**

Racks

For busy labs, additional acid resistant, polycarbonate Racks are available for all SPB systems. Exclusive RackLock feature locks DigiTUBE®s in position within the rack allowing for easy, one-handed closure of screw cap.

SPB Block Racks

Description	Quantity	Part No.
40 Position Rack for SPB 15-40, 15 mL	1	**N9308700**
54 Position Rack for SPB 15-108, 15 mL	1	**N9308701**
12 position Rack for SPB-100-12, 100 mL	1	**N9308067**
15 position Rack for SPB-100-30, 100 mL	1	**N9308068**
21 position Rack for SPB-100-42, 100 mL	1	**N9308069**
24 position Rack for SPB-50-24, 50 mL	1	**N9308070**
24 position Rack for SPB-50-48 and SPB-50-72, 50 mL	1	**N9308042**

Storage Racks

Description	Quantity	Part No.
Foam Storage Rack 15 mL	5	**N9308702**
Plastic Storage Rack 50 mL	5	**N9308381**
Foam Storage Rack 100 mL	5	**N9308382**

Automatic Shut-Off System

Designed to shut-off SPB systems with no lab supervision. Ideal for overnight digestions and evaporations where samples require volume reductions (volume control ±2.5 mL). Increase lab efficiency by automatically digesting samples off-hours. Select appropriate Probe for Tube use.

Controllers

Description	Quantity	Part No.
TempSET, without Probe	1	**N9308020**
TempSET Probe for 50 mL Tubes	1	**N9308023**
TempSET Probe for 100 mL Tubes	1	**N9308029**
TempSET Probe Holder for 100 mL Tubes	1	**N9308065**

Fume Hoods and Accessories

The bench top fume hoods for SPB systems are the right choice for trace-metal digestions. Made from clear, acid resistant polycarbonate with a solid surface material base, the fume hood eliminates the risk of trace-metal contamination common with traditional fume hoods. HEPA® filters ensure clean input air. The fume hood can be connected to an in-house laboratory exhaust system or used with the SPB blower unit (N9308022). Fume hoods come flatpacked to save transport costs and can be assembled in minutes without tools.

Fume Hoods and Accessories

Description	Part No.
Fume Hood for SPB 50-24/100-12, 50-48/100-30	**N9308000**
Fume Hood for SPB 50-72/100-42 - Filter for SPB Fume Hoods N9308078	**N9308001**
Fume Hood II for AutoSampler	**N9308036**
DigiVAC™ Evacuation Hood, mounts directly on SPB 50-48/SPB 100-30	**N9308021**
SPB Blower Unit, for use with all systems	**N9308022**

GREAT RESULTS BEGIN WITH GOOD PREPARATION

Titan MPS™ Microwave Sample Preparation System

PerkinElmer offers the Titan MPS microwave sample preparation systems, consumables and accessories for your lab needs.

Microwave digestion provides the high-temperature, high-pressure digestion needed to deliver quick, complete sample digestion of the most difficult samples and allow for total elemental analysis. Using ultra-clean sealed digestion vessels, the Titan MPS avoids loss of volatile analytes and prevents sample contamination from the working environment. With its high performance, microwave digestion is ideal for nearly any sample including those from the challenging mining/geologic, metallurgical, environmental, petrochemical and pharmaceutical industries.

The Titan MPS microwave sample preparation system delivers the instrument-ready solutions you need for high throughput and reliable results. Using our Direct Pressure Control™ (DPC) and Direct Temperature Control™ (DTC) sensing technologies, the Titan MPS system accurately monitors digestion reactions and the sample temperature in each digestion vessel to provide outstanding reaction control and deliver consistent digestion results.

With the Titan MPS microwave sample preparation system, we're delivering on the promise of a simple, safe, cost-effective microwave – one that provides the quick return on investment that labs are looking for in these times of constrained budgets. And it's backed by PerkinElmer, the one-stop, go-to resource for all things atomic spectroscopy. With a team of support individuals who understand, in a deep-seated way, the science behind the goals your lab is trying to achieve.

The Titan MPS microwave sample preparation system. Yes, it's a microwave. But we think it's a whole lot more.

Features:

- A top-loading system that allows the easy loading and removal of vessels.
- The DTC and DPC optical temperature and pressure reaction monitoring technologies and a cylindrical oven chamber ensure the most reproducible results.
- Vessels are reusable and guaranteed for one year, for considerable savings on consumables.
- Integrated gas collection system efficiently vents the oven chamber to keep it free of gas or acidic vapors.
- Color touch-screen controller simplifies programming, data storage, and reaction control.
- The PFA-coated stainless steel body and lid, safety interlocks and unique vessels deliver the highest level of operator safety and unprecedented corrosion resistance.

Titan MPS Systems

Before you prepare your first sample, you'll notice the difference: The Titan MPS is a top-loading microwave sample preparation system protected by hardware interlocks to ensure safety during operation. And it's simple to load and unload samples, which keeps everyone more productive – and saves your lab time and money.

Titan MPS 16 Position

Includes: 16 position turntable, gas containment manifold, 16 standard pressure 75 mL digestion vessels, 15 vessel caps without pressure sensor, 1 vessel cap with pressure sensor, a lip seal forming tool, exhaust hose, consumables kit, and power cord (US)
Weight: 53 kg
Dimensions (WxDxH): 21 in. x 25 in. x 17 in.

Description	Part No.
Titan MPS 16 Position, (230V 50/60Hz)	**N3130100**

Titan MPS 8 Position

Includes: 8 position turntable, gas containment manifold, 8 high pressure 100 mL digestion vessels, 8 TFM sample vessel inserts, 8 ceramic pressure jackets, 7 Vessel Caps without pressure sensor, 1 vessel cap with pressure sensor, a vessel opening station, a lip seal forming tool, exhaust hose, consumables kit, and power cord (US)
Weight: 53 kg
Dimensions (WxDxH): 21 in. x 25 in. x 17 in.

Description	Part No.
Titan MPS 8 Position, (230V 50/60Hz)	**N3130110**

System Accessories

External Exhaust System

Optional accessory for exhausting Titan MPS oven cavity in laboratories that do not have exhaust systems.
Includes: one 1.5 m exhaust tube. ID = 76 mm, OD = 82 mm. and power cord (US)

Description	Part No.
External Exhaust System 230V 50/60 Hz	**N3131009**

Exhaust Tubes

Description	Part No.
Exhaust Tube 1.5 m (one included with Titan)	**N3134015**
Exhaust Tube 3 m (optional if longer is required)	**N3134064**

Titan MPS Bench

The Titan MPS bench is a heavy-duty Chemsurf laminated rolling cart. The top working surface is constructed with durable Chemsurf material, a chemically-resistant laminate specifically designed for applications in laboratories with routine exposure to chemicals. A full lower shelf with durable Chemsurf laminate provides storage space for digestion vessels and other Titan MPS spares and accessories. Locking 4″ diameter casters provide stability and easy movement.
Dimensions: 32″D x 30″W x 29″H

Description	Part No.
Titan MPS Bench	**N0777900**

Turntables

Description	Part No.
16 Position	
16 position turntable with Standard 75 mL (40 Bar) Digestion Vessels, with DPC (complete)	**N3131010**
16 position turntable with Standard 75 mL (40 Bar) Digestion Vessels, without DPC (complete)	**N3131005**
16 position turntable for Standard 75 mL (40 Bar) Digestion Vessels (turntable only)	**N3131006**
8 Position	
8 position turntable with High Pressure 100 mL (100 Bar) Digestion Vessels, with DPC (complete)	**N3131011**
8 position turntable with High Pressure 100 mL (100 Bar) Digestion Vessels, without DPC (complete)	**N3131007**
8 position turntable for High Pressure 100 mL (100 Bar) Digestion Vessels (turntable only)	**N3131008**

Vessels and Spares

Description	Part No.
Standard (All Part No. Quantities are 1)	
Standard 75 mL (40 Bar) Digestion Vessel without DPC Consists of: Pressure seal, Vessel cap, Rupture disc and Vessel base	**N3132009**
Standard 75 mL (40 Bar) Digestion Vessel with DPC (Complete) Consists of: Pressure seal, Vessel cap with DPC, Rupture disc and Vessel base	**N3132010**
Standard 75 mL (40 Bar) Digestion Vessel TFM Base (base only)	**N3132011**
TFM Cap for Standard 75 mL (40 Bar) Digestion vessels without pressure sensor	**N3132012**
TFM DPC Cap for Standard 75 mL (40 Bar) Digestion vessels with pressure sensor	**N3132013**
High Pressure (All Part No. Quantities are 1)	
High Pressure 100 mL (100 Bar) Digestion Vessel without DPC (complete) Consists of: Pressure seal, Vessel cap, Rupture disc, TFM Vessel insert, Ceramic pressure jacket and Vessel base	**N3133012**
High Pressure 100 mL (100 Bar) Digestion Vessel with DPC (complete) Consists of: Pressure seal, Closure cap with DPC, Rupture disc, TFM Vessel insert, Ceramic pressure jacket and Vessel base	**N3133013**
High Pressure 100 mL (100 Bar) Digestion Vessel Base (base only)	**N3133014**
TFM Cap for High Pressure 100 mL (100 Bar) Digestion Vessels without pressure sensor	**N3133015**
TFM DPC for high pressure 100 mL (100 Bar) Digestion Vessels with pressure sensor	**N3133016**

Consumable Kits

Description	Part No.
Consumable Kit for Standard 75 mL Digestion Vessels	
Consumable Kit for Standard 75 mL (40 Bar) Digestion Vessels	**N3132000**

Includes: 10 Pressure Seals (N3132002), 4 Rupture Cap Discs (N3132001), and 5 Lip Seal Rings of the Gas Containment Manifold (N3134000)

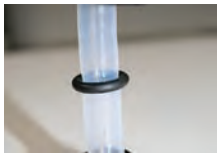
Description	Part No.
Consumable Kit for High Pressure 100 mL Digestion Vessels	
Consumable Kit for High Pressure 100 mL (100 Bar) Digestion Vessels	**N3133024**

Includes: 10 Pressure Seals (N31330203), 7 Rupture Cap Discs (N3133022), 50 PEEK Ring Nuts (N3133011), and 5 Lip Seal Rings of the Gas Containment Manifold (N3134000)

Spares and Replacement Parts

Description	Part No.
Rupture Disc for Standard 75 mL (40 Bar) Digestion Vessels Made of aluminum, set of 25 pcs	**N3132001**
Pressure Seal for Standard 75 mL (40 Bar) Digestion Vessels Made of TFM, set of 10 pcs	**N3132002**
DPC Glass-Ring for Standard 75 mL (40 Bar) Digestion Vessel	**N3132003**
DPC Glass Prism for Standard 75 mL (40 Bar) Digestion Vessel	**N3132004**
DPC Polarization foil for Digestion Vessel caps with pressure control for Standard 75 mL (40 Bar) and High Pressure 100 mL (100 Bar) Digestion Vessel, set of 24 pcs	**N3132005**
DPC TFM Cap Insert for Standard 75 mL (40 Bar) Digestion Vessel	**N3132006**
DPC Clamp Screw for Glass Prism for Standard 75 mL (40 Bar) Digestion Vessel	**N3132007**
DPC Viton O-Ring (25 x 3 mm) for Digestion Vessel caps with pressure control for Standard 75 mL (40 Bar) Digestion Vessel, qty 1. Two are required per vessel cap	**N3132008**
Rupture Disc for High Pressure 100 mL (100 Bar) Digestion Vessels Made of titanium, set of 10 pcs	**N3133022**
Pressure Seal for High Pressure 100 mL (100 Bar) Digestion Vessels Made of TFM, set of 5 pcs	**N3133023**
DPC Glass-Ring for High Pressure 100 mL (100 Bar) Digestion Vessel	**N3133003**
DPC Glass Prism for High Pressure 100 mL (100 Bar) Digestion Vessel	**N3132004**
DPC TFM Cap Insert for High Pressure 100 mL (100 Bar) Digestion Vessel	**N3133006**
DPC Clamp Screw for Glass Prism for High Pressure 100 mL (100 Bar) Digestion Vessel	**N3133007**
DPC O-Ring for Digestion Vessel Caps with pressure control for High Pressure 100 mL (100 Bar) Digestion Vessel, qty 1. Two are required per vessel cap	**N3133008**
DPC Polarization foil for Digestion Vessel caps with pressure control for Standard 75 mL (40 Bar) and High Pressure 100 mL (100 Bar) Digestion Vessel, set of 24 pcs	**N3132005**

TFM Sample Vessel Insert for High Pressure 100 mL (100 Bar) Digestion Vessel	**N3133009**
Ceramic Pressure Jacket for High Pressure 100 mL (100 Bar) Digestion Vessel	**N3133010**
PEEK Ring Nut for High Pressure 100 mL (100 Bar) Digestion Vessel closure cap. (Left handed threads)	**N3133011**
PEEK Ring Nut Removal Tool for 100 mL	**N3133021**



Gas Containment Manifold Spares

Description	Part No.
End Cap Plug for Gas Containment Manifold Sealing plug for 8 and 16 position Gas Containment Manifold to seal the gas collection system at unused vessel positions	**N3134004**
Clamping Screw (PTFE) for the top seal of the 8 and 16 position Gas Containment Manifold	**N3134002**
Lip Seal Ring of the Gas Containment Manifold PTFE Sealing Ring for use with 8 and 16 position Gas Containment Manifolds Seals the top PFA gas tube to the Gas Containment Manifold	**N3134000**
Tube for connection of vessel to Gas Containment Manifold (PTFE) PTFE connecting tube for connection to digestion vessels with 8 and 16 position Gas Containment Manifold	**N3134005**
PTFE connector for use with 8 and 16 position Gas Containment Manifold	**N3134007**
Gas Containment Manifold PFA Vent Line 1M (O-Ring in picture not included)	**N3134014**
Gas Containment Manifold Vent Line replacement O-Ring (Qty. 2)	**N3134072**

Accessories

Description	Part No.
Single lip seal forming tool for Standard 75 mL (40 Bar) Digestion Vessel pressure seals	**N3132015**
Eight position lip seal forming tool for Standard 75 mL (40 Bar) Digestion Vessel pressure seals Forms up to 8 seals simultaneously	**N3132014**
Vessel cap disassembly tools for Standard 75 mL (40 Bar) Digestion Vessel	**N3134011**
High Pressure 100 mL (100 Bar) Digestion Vessel opening station	**N3133017**
Eight position lip seal forming tool for High Pressure 100 mL (100 Bar) Digestion Vessel pressure seals	**N3133018**
Single lip seal forming tool for High Pressure 100 mL (100 Bar) Digestion Vessel pressure seals Forms 1 seal	**N3133019**
Vessel cap disassembly tools for High Pressure 100 mL (100 Bar) Digestion Vessel	**N3134012**
PTFE 2 mL sample weighing cup for use in Standard 75 mL (40 Bar) or High Pressure 100 mL (100 Bar) Digestion Vessel, qty. 1	**N3134009**
PTFE 2 mL sample weighing cup for use in Standard 75 mL (40 Bar) or High Pressure 100 mL (100 Bar) Digestion Vessel, qty. 16	**N3134010**
Turntable Base Ring	**N3134013**

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Engineered around the industry's most sensitive, long-lasting Clarifi™ detector and a unique SMARTsource™, the revolutionary Clarus SQ 8 has leapt to the front of the pack in GC/MS. No other instrument comes close to its detection limits, mass range or long-term stability. Nothing delivers greater confidence in your results, or greater productivity in your lab. Visit www.perkinelmer.com/ClarusGCMS. And take a giant leap forward with the Clarus SQ 8.

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PerkinElmer®
For the Better

CHROMATOGRAPHY

PerkinElmer has been a leading provider of Chromatography solutions for over 50 years. Our team of dedicated Chromatography Specialists has an expertise that boasts years of knowledge in understanding a laboratory's product requirements. This knowledge allows us to give you a focused consumables portfolio to fit your applications. From colored inlet liners that help you easily identify the correct liner for your application to gas purification systems that remove up to 99.99% of contaminants, our precision-designed, genuine tested and approved consumables will provide you with solid, reliable support, giving you all you need to succeed. But our solutions don't stop there.

At PerkinElmer, we're committed to providing you with the best selection of solutions for all your Chromatography needs, regardless of make, model or manufacturer. We have invested heavily in growing our portfolio, at your request, to bring you the best performing and productivity enhancing consumables and accessories for all your gas chromatograph systems.

Our consumables can be depended upon to meet the most demanding performance and throughput needs for today's analytical, process monitoring and quality control facilities.

Sample Preparation

Crimping Tools and Vial Accessories	121
QuEChERS Dispersive SPE	110-111
Solid Phase Extraction (SPE)	101-109
Syringes	112
Syringe Filters	100
Vials, Caps and Septa	113-120

Liquid Chromatography

Autosamplers and Accessories	164-165
Columns - Cartridge	144-153
Columns - Cartridge Holders	153
Columns - Conventional	127-141
Columns- Conventional Guard Columns	142-143
Columns - SPP	124-126
Detector Lamps	155
Fittings	162
Flexar Consumables and Accessories	122-123
Flexar Supplies and Accessories	166-168
Flow Cells and Pump Accessory Kits	154
Injection Valves and Rotor Seals	163
Nitrogen Generators	169-171
Pumps	158-160
Sample Loops and Tubing	161
Vacuum Degassing Kits	156-157

Gas Chromatography

Autosampler Parts and Accessories	228
Capillary Columns	172 - 196
Capillary Columns - Arnel Analyzers	198
Capillary Columns - Cross Reference	174-175
Capillary Columns - General Purpose	176-188
Capillary Columns - Specialty Phase	189-195
Calibration Gas Blends - Arnel Analyzers	199
Custom Packed Columns	197
Detectors	214-220
Ferrules and Connectors	200
Fittings	201
Gas Management - Compressors	240
Gas Management - Filters	229-233
Gas Management - Flow Meters	243
Gas Management - Hydrogen Generators	234-237
Gas Management - Leak Detectors	242
Gas Management - Regulators	241
Gas Management - Zero Air Generators	238-239
Injection Port Septum	213
Injectors	204-209
Liners	210-211
Marathon Filament	221
Organic Standards	244-245
SMARTSource	222-223
Swafer	202-203
Syringes	212
Thermal Desorber Consumables	224-227

TESTED AND APPROVED

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.

Our superior premium 17 and 30 mm filters are suitable for coarse/crude samples or higher detection limit applications (such as food, beverage, or environmental analysis). 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	Pack Size	Color	0.22 µm Particle Part No.	0.45 µm Particle Part No.
4 mm	200	Clear	**02542900**	**02542901**
13 mm	100	Purple	**02542902**	**02542903**
17 mm	100	Yellow	**02542881**	**02542880**
25 mm	100	Purple	**02542904**	**02542905**
30 mm	100	Yellow	**02542883**	**02542882**

PTFE (Hydrophobic) Syringe Filters

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

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

PVDF (Hydrophobic Polyvinylidene Fluoride) Syringe Filters

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

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

PTFE (Hydrophylic) Syringe Filters

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

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

SUPERIOR REPRODUCIBILITY SUPERIOR RESULTS

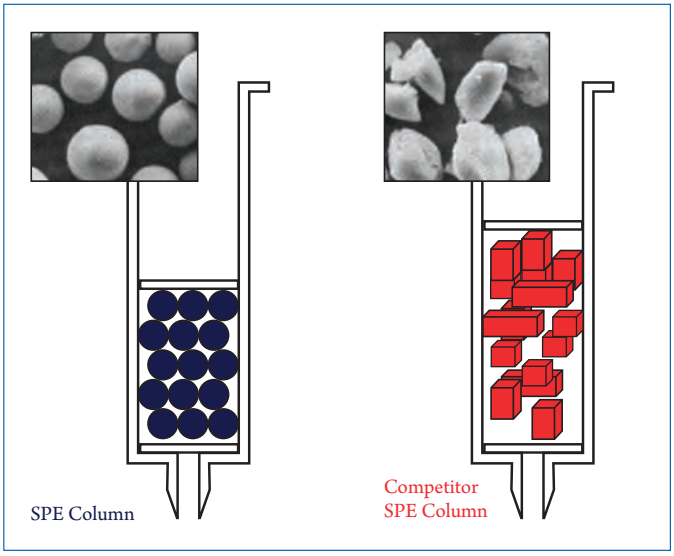
Supra-Clean and Supra-Poly SPE Solutions

Manufactured for guaranteed reproducibility and superior performance, this innovative line of SPE solutions includes the Supra-Clean® silica based and Supra-Poly® polymer based line of spherical media SPE cartridges and columns.

Both utilize Precise Bed Technology® 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.

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

Each finished product is delivered with an individual quality certificate.



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

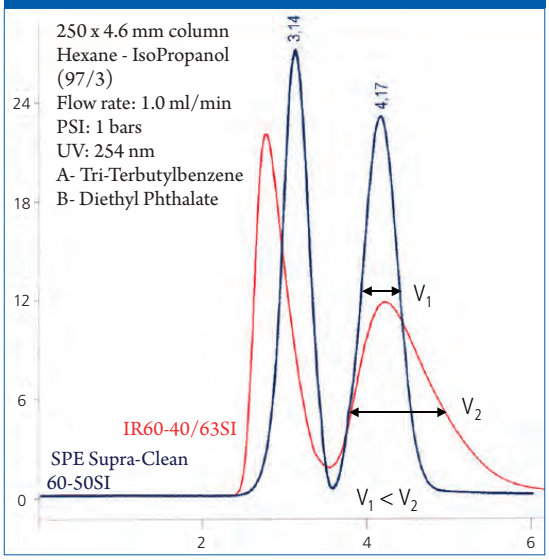
SPE Manifolds, Selection Kits and Application Packs

For greater method development simplicity and sample throughput, PerkinElmer offers a variety of pre-prepared column selection kits as well as application kits for you to choose from.

SPE Manifolds:

- Allow you to process up to 24 samples simultaneously
- Seamlessly integrate with columns to extend the system's performance and reproducibility
- Feature polypropylene or stainless steel needle valves and tips with minimum dead volume
- Rugged stopcocks are reusable and provide independent flow control

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.

A WIDE ARRAY OF COLUMNS FOR A BROAD RANGE OF APPLICATIONS

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 (NH2-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				
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 (m2/g)	Particle Size (um)	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	NA	NA	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 soluable 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	NA	NA	200	Standard grade. Alternative to silica for viscous matrices due to large particle size.
Pesticides	2-8	No	NA	NA	200	High purity pesticide grade. Alternative to silica for viscous matrices
Aromatic and natural products; Flavones, Chalkones, Anthraquinones	2-8	No	NA	NA	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
Drugs and drug metabolites biological fluids	0-14	No	NA	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 & 60	Hydrophilic-lipophilic-balanced reversed-phase sorbent for acids, bases and neutrals

Supra-Clean Columns, Cartridges and 96 Well Plates:

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

Supra-Clean C18

Columns

Media Weight	Volume	Quantity	Part No.
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**

* Not end-capped

96 Well Plates

Media Weight	Volume	Quantity	Part No.
25 mg	2 ml	1	**N9306566**
50 mg	2 ml	1	**N9306567**
100 mg	2 ml	1	**N9306568**

Cartridges

Media Weight	Volume	Quantity	Part No.
390 mg		50	**N9306587**
910 mg		50	**N9306588**
1690 mg		50	**N9306589**

Supra-Clean REC18

Columns

Media Weight	Volume	Quantity	Part No.
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**

96 Well Plates

Media Weight	Volume	Quantity	Part No.
25 mg	2 ml	1	**N9306563**
50 mg	2 ml	1	**N9306564**
100 mg	2 ml	1	**N9306565**

Supra-Clean Strong Anion Exchange (SAX)

Columns

Media Weight	Volume	Quantity	Part No.
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**

96 Well Plates

Media Weight	Volume	Quantity	Part No.
25 mg	2 ml	1	**N9306581**
50 mg	2 ml	1	**N9306582**
100 mg	2 ml	1	**N9306583**

Supra-Clean 300Å C4

Columns

Media Weight	Volume	Quantity	Part No.
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 Strong Cation Exchange (SCX)

Columns

Media Weight	Volume	Quantity	Part No.
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**

96 Well Plates

Media Weight	Volume	Quantity	Part No.
25 mg	2 ml	1	**N9306575**
50 mg	2 ml	1	**N9306576**
100 mg	2 ml	1	**N9306577**

Supra-Clean Weak Cation Exchange (WCX)

Columns

Media Weight	Volume	Quantity	Part No.
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 Mixed-Mode (MM1)

Columns

Media Weight	Volume	Quantity	Part No.
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**

96 Well Plates

Media Weight	Volume	Quantity	Part No.
25 mg	2 ml	1	**N9306578**
50 mg	2 ml	1	**N9306579**
100 mg	2 ml	1	**N9306580**

Supra-Clean Mixed-Mode (MM2)

Columns

Media Weight	Volume	Quantity	Part No.
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)

Columns

Media Weight	Volume	Quantity	Part No.
500 mg	6 ml	30	**N9306649**

Supra-Clean Florisil (FL-S)

Columns

Media Weight	Volume	Quantity	Part No.
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**

Supra-Clean Florisil (FL-S) Pesticide Grade

Columns

Media Weight	Volume	Quantity	Part No.
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)

Columns

Media Weight	Volume	Quantity	Part No.
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**

Cartridges

Media Weight	Volume	Quantity	Part No.
300 mg		50	**N9306584**
700 mg		50	**N9306585**
1300 mg		50	**N9306586**

Supra-Clean Cyano (CN-S)

Columns

Media Weight	Volume	Quantity	Part No.
500 mg	3 ml	50	**N9306645**
500 mg	6 ml	30	**N9306644**

Supra-Clean Amino (NH2-S)

Columns

Media Weight	Volume	Quantity	Part No.
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**

96 Well Plates

Media Weight	Volume	Quantity	Part No.
25 mg	2 ml	1	**N9306572**
50 mg	2 ml	1	**N9306573**
100 mg	2 ml	1	**N9306574**

Supra-Clean Polyamine (P6)

Columns

Media Weight	Volume	Quantity	Part No.
500 mg	3 ml	50	**N9306518**
500 mg	6 ml	30	**N9306434**

Supra-Clean Phenyl (PH-S)

Columns

Media Weight	Volume	Quantity	Part No.
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**

96 Well Plates

Media Weight	Volume	Quantity	Part No.
25 mg	2 ml	1	**N9306569**
50 mg	2 ml	1	**N9306570**
100 mg	2 ml	1	**N9306571**

Supra-Clean LCC

Columns

Media Weight	Volume	Quantity	Part No.
500 mg	3 ml	50	**N9306643**
500 mg	6 ml	30	**N9306641**

Supra-Poly HLB Columns and 96 Well Plates:

- 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

30 µm Columns

Media Weight	Volume	Quantity	Part No.
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**

* Glass columns ** LRC columns

60 µm Columns

Media Weight	Volume	Quantity	Part No.
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**

* Glass columns ** LRC columns

30 µm 96 Well Plates

Media Weight	Volume	Quantity	Part No.
30 mg	2 ml	1	**N9306698**
50 mg	2 ml	1	**N9306699**
60 mg	2 ml	1	**N9306700**

60 µm 96 Well Plates

Media Weight	Volume	Quantity	Part No.
30 mg	2 ml	1	**N9306695**
50 mg	2 ml	1	**N9306696**
60 mg	2 ml	1	**N9306697**

Supra-Poly Columns and 96 Well Plates:

- 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 m2/g (XC)

Columns

Media Weight	Volume	Quantity	Part No.
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

Media Weight	Volume	Quantity	Part No.
30 mg	2 ml	1	**N9306557**
50 mg	2 ml	1	**N9306558**
60 mg	2 ml	1	**N9306559**

Supra-Poly Extra Wide Particle 1200 m2/g (XWP)

Columns

Media Weight	Volume	Quantity	Part No.
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

Media Weight	Volume	Quantity	Part No.
30 mg	2 ml	1	**N9306560**
50 mg	2 ml	1	**N9306561**
60 mg	2 ml	1	**N9306562**

Supra-Poly Environmental (AEV)

Columns

Media Weight	Volume	Quantity	Part No.
100 mg	3 ml	50	**N9306648**

Supra-Poly Hydrophilic (ATH)

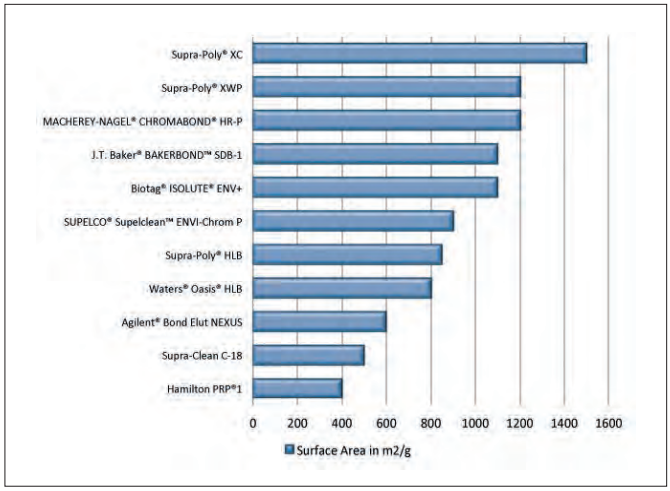
Columns

Media Weight	Volume	Quantity	Part No.
100 mg	3 ml	50	**N9306646**
200 mg	3 ml	50	**N9306638**
200 mg	6 ml	30	**N9306636**

Supra-Poly Lipophilic (ATL)

Columns

Media Weight	Volume	Quantity	Part No.
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 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	Quantity	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 KITS

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

Description	Media Weight	Volume	Quantity	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.

Description	Qty	12 Position Part No.	Qty	24 Position Part No.
Vacuum Manifold	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 115V	60 L/min 115V	17 L/min 230V	58 L/min 230V
Vacuum Pumps	1	**N9308035**	**N9308063**	**N9308331**	**N9308332**

AS EASY AS ONE, TWO, SPE

Supra-d QuEChERS Dispersive SPE

Our Supra-d dispersive 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. Add our Supra-d dispersive SPE to your family of sample preparation products.

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

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.

QUECHERS SIMPLE TWO-STEP PROCEDURE:

Step 1: Extraction

Homogenize sample and place10 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 the most 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.

Extraction Kits

Method	Vol.	Qty.	MgSO4	Na Acetate	Na Citrate	Na Citrate Sesquihydrate	NaCL	Part No.	Empty Tube Part No.	Powder Pack Part No.	Powder Pack (500/pk) Part No.
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**

AOAC 2007.01 Clean-up Kits

Description	Vol.	Qty.	MgSO41	PSA2	C183	PGC4	Part No.
Fruit & Vegetables	2 mL	100	150 mg	50 mg			**N9306908**
Fruit & Vegetables	15 mL	50	1200 mg	400 mg			**N9306909**
Fruit & Vegetables with Fats and Waxes	2 mL	100	150 mg	50 mg	50 mg		**N9306910**
Waxed Fruit & Vegetables	15 mL	50	1200 mg	400 mg	400 mg		**N9306911**
Pigmented Fruit & Vegetables	15 mL	50	1200 mg	400 mg		400 mg	**N9306912**
Fruit & Vegetables with Pigments and Fats	2 mL	100	150 mg	50 mg	50 mg	50 mg	**N9306913**
Fruit & Vegetables with Pigments and Fats	15 mL	50	1200 mg	400 mg	400 mg	400 mg	**N9306914**

EN 15662 Clean-up Kits

Description	Vol.	Qty.	MgSO41	PSA2	C183	PGC4	Part No.
Fruit & Vegetables	2 mL	100	150 mg	25 mg			**N9306920**
Fruit & Vegetables	15 mL	50	900 mg	150 mg			**N9306921**
Fruit & Vegetables with Fats and Waxes	2 mL	100	150 mg	25 mg	25 mg		**N9306922**
Waxed Fruit & Vegetables	15 mL	50	900 mg	150 mg	150 mg		**N9306923**
Pigmented Fruit & Vegetables	15 mL	50	900 mg	150 mg		15 mg	**N9306924**
Pigmented Fruit & Vegetables	2 mL	100	150 mg	25 mg		2.5 mg	**N9306925**
High Pigmented Fruit & Vegetables	2 mL	100	150 mg	25 mg		7.5 mg	**N9306926**
High Pigmented Fruit & Vegetables	15 mL	50	900 mg	150 mg		45 mg	**N9306927**

Clean-up Kit

Description	Method	Vol.	Qty.	MgSO41	PSA2	C183	PGC4	Part No.
Clean-up Kit	Original	15 mL	50	900 mg	300 mg		150 mg	**N9306933**

[1] MgSO4 removes excess water

[2] PSA removes sugars, fatty acids, organic acids, and anthocyanine pigments

[3] C18 removes nonpolar interferences

[4] PGC (carbon) removes pigments, sterols, and nonpolar interferences

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	Pack Size	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**

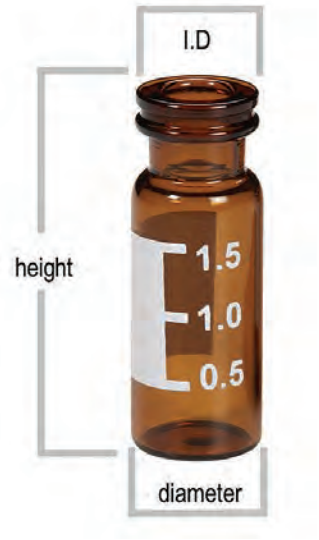
Ultramicro Volume Syringes

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	O.D.	I.D.	Tip Description	Pack Size	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	261	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

OPTIMIZE SAMPLE THROUGHPUT



The Quality You Need From A Partner You Trust

A broad variety of glass and plastic vials are essential to keeping all of your GC, LC and Headspace instruments running smoothly. Not only are the vial's dimensional qualities important for trouble-free runs, but the physical properties, like being free of contaminants, are equally important in order for your analysis to be accurate.

We're proud to offer you an expanded product selection which includes additional glass and plastic vial types, new caps and matching septa. All tested for the highest quality to meet both your application requirements and are guaranteed for fit and compatibility.

Why Choose PerkinElmer? One Word – Quality

Features and Benefits:

- Vials are made from Type I Borosilicate Glass. This glass 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 labeled with "LC Clean" include an additional certificate of analysis

How to choose a Vial:

1. **Choose a size. Vials come in a variety of sizes.**

   You measure a vial by looking at the:

   a. Volume (example is 2 mL)

   b. Diameter and height (example is 12 mm x 32 mm)

   c. I.D. of the neck (example is 11 mm)

   d. Finish (example is a snap top vial)

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 polyethelene. If you are analyzing a material that has proteins, you may want to consider using a polyethelene vial.

How to choose a Seal:

1. **Choose a septa material.**

   Temperature, resistance to coring, storage shelf time, the material you are analyzing – all of these variables should be taken into consideration when choosing your septa material. Look to page 119 for an outline on which septa is best for you.

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.**

Do you need anything else?

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

Autosampler Vials

PerkinElmer vials are manufactured to specific tolerances that are guaranteed to fit and perform with PerkinElmer and non-PerkinElmer instruments. Our vials are manufactured from Type I Borosilicate Glass, which meets all USP, JP, and EP Pharmacopeia requirements. The glass performs excellent 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.

Waste and Wash Vials, Caps and Septa for GC

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

*N9302682 is packaged 500/pack

2 mL Vials (12 x 32 mm):

		Crimp Top		Screw Top		Snap Top	
I.D. Size	Vial Description	Part No. 100/pack	Part No. 1000/pack	Part No. 100/pack	Part No. 1000/pack	Part No. 100/pack	Part No. 1000/pack
8 mm	Clear Glass	**N9301069***				**N9302945**	
9 mm	Clear Glass					**N9306201**	
	Clear Glass with Write-on Patch and Fill Lines					**N9307801**	
	Clear Glass with Write-on Patch and Fill Lines (Silanized)					**N9304139**	
	Clear Polyethelene					**N9301733**	
	Clear Polyethelene (300 µL capacity)					**N9301732**	
	Amber Glass					**N9306220**	
	Amber Glass with Write-on Patch and Fill Lines					**N9307802**	
	Amber Glass with Write-on Patch and Fill Lines (Silanized)					**N9304140**	
	Amber Polyethelene					**N9301734**	
10 mm	Clear Glass with Write-on Patch and Fill Lines					**N9306053**	
	Amber Glass with Write-on Patch and Fill Lines					**N9306057**	
11 mm	Clear Glass	**N9301385**		**N9303418**			
	Clear Glass with Write-on Patch and Fill Lines	**N9306223**		**N9306207****			**N9307017**
	Clear Glass with Write-on Patch and Fill Lines (Silanized)	**N9304135**		**N9304137**			
	Amber Glass	**N9302680**					
	Amber Glass with Write-on Patch and Fill Lines	**N9302679**		**N9306208****		**N9307018**	
	Amber Glass with Write-on Patch and Fill Lines (Silanized)	**N9304136**		**N9304138**			

'* N9301069 is packaged 200/pack ; ** Also includes grade levels

Autosampler Fused Vials And Vial Inserts

For easy sampling, try our vials with fused sample inserts. A variety of volumesare available in either clear or amber glass. Polyethelene option available also.

			Crimp Top		Screw Top		Snap Top	
I.D. Size	Capacity	Vial Type	Part No. 100/Pack	Part No. 500/Pack	Part No. 100/Pack	Part No. 1000/Pack	Part No. 100/Pack	Part No. 1000/Pack
8 mm	100 µL	Clear Glass					**N9300713**	
8 mm	100 µL	Amber Glass					**N9300714**	
8 mm	200 µL	Clear Glass		**N9302136***				
9 mm	300 µL	Clear Glass					**N9300715**	
9 mm	300 µL	Amber Glass					**N9300716**	
10 mm	300 µL	Clear Glass					**N9300717**	
10 mm	300 µL	Amber Glass					**N9300718**	
11 mm	300 µL	Clear Glass	**N9300709**		**N9300711**			
11 mm	300 µL	Amber Glass	**N9300710**		**N9300712**			
11 mm	600 µL	Clear Polyethelene		**N9302130**				

'*N9302136 should be used with Glass Vial Support Sleeve (N9307027)

Autosampler Vial Inserts

Our vial inserts are made from the same Type 1, Class A borosilicate glass as our vials and can be used for maximum sample extraction. Vial inserts compatible with the following vials.

				Crimp Top		Screw Top		Snap Top	
Capacity	Dimensions	Qty.	Vial Insert Part No.	Part No. 100/Pack	Part No. 500/Pack	Part No. 100/Pack	Part No. 1000/Pack	Part No. 100/Pack	Part No. 1000/Pack
150 µL	5 x 29 mm Spring (insert only fits 8 mm vial)	100/Pack	**N9300705**					**N9302945**	
200 µL	5 x 32 mm Flat Bottom (insert only fits 8 mm vial)	100/Pack	**N9300706**					**N9302945**	
250 µL	6 x 29 mm Spring (this insert fits any 9, 10 or 11 mm vial)	100/Pack	**N9300703**	**N9301385**		**N9303418**	**N9307018**	**N9304139**	**N9307017**
				N9302679		**N9304137**		**N9304140**	
				N9302680		**N9304138**		**N9306053**	
				N9304135		**N9306207**		**N9306057**	
				N9304136		**N9306208**		**N9306201**	
				N9306223				**N9306220**	
				N9306231				**N9307801**	
								N9307802	
400 µL	6 x 31 mm Flat Bottom (this insert fits any 9, 10 or 11 mm vial)	100/Pack	**N9300704**	**N9301385**		**N9303418**	**N9307018**	**N9304139**	**N9307017**
				N9302679		**N9304137**		**N9304140**	
				N9302680		**N9304138**		**N9306053**	
				N9304135		**N9306207**		**N9306057**	
				N9304136		**N9306208**		**N9306201**	
				N9306223				**N9306220**	
				N9306231				**N9307801**	
								N9307802	

Autosampler Caps And Septa

PerkinElmer offers a variety of caps and septa to fulfill 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 resealability and multiple injection capability. No adhesives are used in this process, bonding the cap and septa at the molecular level of plastic and rubber. 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.

			Crimp Top		Screw Top		Snap Top	
I.D. Size	Septa Type	Cap Type (Pre-Assembled)	Part No. 100/Pack	Part No. 1000/Pack	Part No. 100/Pack	Part No. 1000/Pack	Part No. 100/Pack	Part No. 1000/Pack
8 mm	PTFE	Aluminum Cap		**N9302140**				
	PTFE/Red Rubber	Aluminum Cap		**03300806**				
	PTFE/Silicone	Black Flanged Cap					**N9303449**	
	PTFE/Silicone (Pre-Slit)	Polyethelyne Cap with Slit				**N9302141**		
9 mm	PTFE/Red Rubber	Blue Cap					**N9306200**	
	PTFE/Silicone	Blue Cap					**N9306360**	**N9306361**
	PTFE/Silicone (ultra-low bleed)	Blue Cap					**N9306362**	
	PTFE/Silicone (Pre-Slit)	Blue Cap					**N9306203**	**N9306363**
	PTFE/Silicone (ultra-low bleed and Pre-Slit)	Blue Cap					**N9306364**	**N9306365**
10 mm	PTFE/Red Rubber	Black Cap					**N9306206**	
	PTFE/Silicone	Black Cap					**N9306205**	
	PTFE/Silicone (Pre-Slit)	Black Cap					**N9306052**	
11 mm	PTFE/Red Rubber	Aluminum Cap (Silver)	**N9306015***					
	PTFE/Red Rubber	Aluminum Cap (Blue)	**N9302686**					
	PTFE/Red Rubber	Aluminum Cap (Green)	**N9302684**					
	PTFE/Red Rubber	Aluminum Cap (Red)	**N9302685**					
	PTFE/Silicone (white/red)	Aluminum Cap (Silver)	**N9307823**					
	PTFE/Silicone (white/white)	Aluminum Cap (Silver)	**N9306228**					
	PTFE/Silicone (white/red)	Clear Plastic Cap			**N9303419**			
	PTFE/Silicone - pre-slit (white/red)	Clear Plastic Cap			**N9303416**			
	PTFE/Silicone/PTFE	Aluminum Cap (Silver)	**N9306229**					
	PTFE/Silicone/PTFE	Gold Magnetic Cap	**N6356473**					
	PTFE/Silicone/PTFE	Clear Plastic Cap			**N9303417**			
	Aluminum/PTFE	Aluminum Cap (Silver)		**N9302139****				
	Black Viton	Aluminum Cap (Silver)		**N9302784**				

* Same as part number N9306230 ; **N9302139 is packaged 500/pack

			Crimp Top		Screw Top		Snap Top	
I.D. Size	Septa Type	Cap Type (Un-Assembled)	Part No. 100/Pack	Part No. 1000/Pack	Part No. 12/Pack	Part No. 500/Pack	Part No. 100/Pack	Part No. 1000/Pack
8 mm	PTFE/Buytl						**N9303442**	
		Phenolic Cap					**N9303441**	
11 mm	PTFE/Silicone				**00091357**			
	PTFE/Silicone (Pre-Slit)					**N9307021**		
		Clear Plastic Cap with Slit				**N9307023**		
		Clear Plastic Cap with Slit				**04978532**		

Autosampler 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.

				Screw Top	
I.D. Size	Septa Type	Cap Type	Vial Type	Part No. 100/Pack	Part No. 500/Pack
8 mm	PTFE/Silicone	Black Cap	Clear Glass	**N9301945**	
9 mm	PTFE/Red Rubber	Blue Cap	Clear Glass	**N9300699**	
9 mm (certified)	PTFE/Silicone	Blue Cap	Amber Glass	**N9300719**	
9 mm	PTFE/Silicone	Blue Cap	Clear Glass	**N9300700**	
9 mm (certified)	PTFE/Silicone	Blue Cap	Clear Glass	**N9300707**	
9 mm	PTFE/Silicone (Pre-Slit)	Blue Cap	Amber Polyethelene	**N9301735**	
9 mm (certified)	PTFE/Silicone (Pre-Slit)	Gray Cap	Amber Glass	**N9300720**	
9 mm	PTFE/Silicone (Pre-Slit)	Blue Cap	Clear Polyethelene	**N9301736**	
9 mm	PTFE/Silicone (Pre-Slit)	Blue Cap	Clear Polyethelene (300 µL capacity)		**N9306080**
9 mm (certified)	PTFE/Silicone (Pre-Slit)	Gray Cap	Clear Glass	**N9300708**	
9 mm	PTFE/Silicone (Pre-Slit)	Blue Cap	Clear Glass	**N9300701**	
10 mm	PTFE/Silicone (Pre-Slit)	Black Cap	Clear Glass	**N9300695**	**N9300650**
10 mm	PTFE/Silicone (Pre-Slit)	Black Cap	Amber Glass	**N9300696**	

* Same as part number N9306230 ; **N9302139 is packaged 500/pack

				Crimp Top		Snap Top	
I.D. Size	Septa Type	Cap Type	Vial Type	Part No. 100/Pack	Part No. 500/Pack	Part No. 100/Pack	Part No. 1000/Pack
11 mm	PTFE/Red Rubber	Aluminum Cap	Clear Glass	**N9300502**	**N9300503**		
11 mm	PTFE/Silicone	Aluminum Cap	Clear Glass	**N9300500**			
11 mm	PTFE/Silicone	Clear Plastic Cap	Clear Glass			**N9300702**	
11 mm	PTFE/Silicone (Pre-Slit)	Clear Plastic Cap	Clear Glass			**N9300697**	
11 mm	PTFE/Silicone/PTFE	Aluminum Cap	Clear Glass	**N9300501**			
11 mm	PTFE/Silicone/PTFE	Clear Plastic Cap	Clear Glass			**N9300698**	

Autosampler Vial, Cap And Septa Starter Kits

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

		Autosampler Starter Kit	GC Educational Consumables Kit with Electronic Crimper	GC Educational Consumables Kit with Manual Crimper
Kits Include:	Part No.	Part No. N6120105	Part No. N6500570	Part No. N6500571
Manual Hand Crimper with 11 mm Jaws	**00090699**	1		1
Manual Hand Decapper with 11 mm Jaws	**N9301390**	1		
Electronic Hand Crimper with 11 mm Jaws	**N9304500**		1	
2 mL, 11 mm Clear, Crimp Vials	**N9301385**	100	200	200
2 mL, 11 mm Amber, Crimp Vials	**N9302680**	100		
11 mm Aluminum Crimp Caps (Silver) with PTFE/Red Rubber Septa	**N9306015**	100	200	200
11 mm Aluminum Crimp Caps (Green) with PTFE/Red Rubber Septa	**N9302684**	100		
11 mm Aluminum Crimp Caps (Red) with PTFE/Red Rubber Septa	**N9302685**	100		
11 mm Aluminum Crimp Caps (Blue) with PTFE/Red Rubber Septa	**N9302686**	100		
11 mm Silicone Septa (no cap)	**N9302780**	100		
11 mm Vial Rack - 50 Vial Capacity	**N9301303**	1	2	1
Syringe 9000 5.0 µL 0.63 mm o.d.	**N6101390**	1	2	2
Elite 5 Column - 30 M x 0.25 mm x 0.25 µm	**N9316076**		1	1

Headspace Vials

PerkinElmer offers a variety of GC headspace vials, caps and septa to fulfill 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.

22 mL Vial Description (23 mm x 75.5 mm)

Description	Crimp Top Part No. 100/Pack	Crimp Top Part No. 1000/Pack	Screw Top Part No. 100/Pack	Screw Top Part No. 1000/Pack
Clear Glass with "P" logo (Radius Botton)		**B0104236**	**N9306075**	**N9306078**
Clear Glass with Write-on Patch and Fill Lines (Radius Bottom)			**N9306240**	**N9306241**

20 mL Vial Description (23 mm x 75.5 mm)

Description	Crimp Top Part No. 100/Pack	Crimp Top Part No. 1000/Pack	Screw Top Part No. 100/Pack	Screw Top Part No. 1000/Pack
Clear Glass (no logo) (Radius Bottom)		**N9306216**		
Clear Glass with "P" logo (Radius Bottom)	**N6356471***			
Clear Glass with Write-on Patch and Fill Lines (Radius Bottom)	**N9303349**	**N9303348**		
	N6356472*	**N9303351***	**N9306242***	
Clear Glass with Write-on Patch and Fill Lines (Flat Bottom)		**N9303352***		

*For use with CTC headspace (actual size = 22.6 x 75.5mm)

10 mL Vial Description (21.75 mm x 46 mm)

Description	Crimp Top Part No. 100/Pack	Crimp Top Part No. 1000/Pack	Screw Top Part No. 100/Pack	Screw Top Part No. 1000/Pack
Clear Glass (Radius Bottom)	**N6356478**		**N6356479**	

6 mL Vial Description (22 mm x 38 mm)

Description	Crimp Top Part No. 125/Pack	Crimp Top Part No. 1000/Pack	Screw Top Part No. 100/Pack	Screw Top Part No. 1000/Pack
Clear Glass (Radius Bottom)	**N9302134***			

*Use with Low-Volume Vial Adapter N6120110 in order to fit TurboMatrix 16, TurboMatrix 40, HS 40 (XL), HS 100 or HS 101.
Note: this vial and adaptor will not work with the TurboMatrix 110 headspace sampler. This vial replaces part number B0104235.

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.)

		Crimp Top		Screw Top	
Septa Type	Aluminum Caps (Pre-Assembled)	Part No. 100/Pack	Part No. 1000/Pack	Part No. 100/Pack	Part No. 1000/Pack
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) Ultra Bleed	Aluminum, Skived Pressure Relief		**N9302975**		
PTFE/Silicone (white) Ultra Bleed	Aluminum, Skived (non-Pressure Relief)		**N9302977**		
PTFE/Silicone (natural) Extreme Bleed	Aluminum, Skived (non-Pressure Relief)		**N9302976**		
Aluminum/Silicone	Aluminum Cap, Star Spring and Septa	**N9304145**	**B4000028**		
Septa Type	Steel Magnetic Caps (Pre-Assembled)				
Butyl (gray)	Steel Magnetic Cap	**N6356561**			
PTFE/Butyl (red)	Steel Magnetic Cap			**N9306076**	
PTFE/Butyl (gray)	Steel Magnetic Cap	**N6356560**		**N6356477**	
PTFE/Butyl (blue)	Bi-Metal Magentic Cap	**N6356565**			
PTFE/Butyl (Pharma Fix Septa)	Steel Magnetic Cap	**N6356562**			
PTFE/Silicone (red)	Steel Magnetic Cap			**N6356474**	
PTFE/Silicone (white)	Steel Magnetic Cap			**N9306077**	
PTFE/Silicone (natural)	Steel Magnetic Cap	**N6356558**			
PTFE/Silicone (blue)	Steel Magnetic Cap	**N6356559**		**N6356475**	
PTFE/Silicone (blue) SPME Liner	Steel Magnetic Cap	**N6356564**			
PTFE/Silicone (blue)	Bi-Metal Magentic Cap	**N6356566**			
Aluminum/Silicone	Steel Magnetic Cap	**N6356563**			
Septa Type	Aluminum Caps (Un-Assembled)				
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**		
Butyl (gray) Stopper		**B0038137**			
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**		

Cap and Septa Compatibility

Temperature Range	Aluminum/Silicone Up to 220 °C	PTFE/Silicone up to 210 °C	PTFE/Red Rubber up to 160 °C	PTFE/Butyl (Red or Gray) up to 130 °C	Red or Gray Butyl 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

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.

Septa Type	Cap Type	Vial Type	Crimp Top Part No. 100/Pack	Crimp Top Part No. 500/Pack
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**	

Septa Type	Cap Type	Vial Type	Screw Top Part No. 100/Pack
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 72/pack

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/Butyle (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

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.

Headspace Crimper and Decapper Tools

Description	Quantity	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**

Autosampler Crimper and Decapper Tools

Description	Quantity	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) - 11mm	1	**N6621036**

Vial Racks

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

VERIFY QUANTIFY SIMPLIFY

The Flexar SQ 300 MS

Ideal for a variety of analyses, this single quadrupole detector brings the unsurpassed sample insight of mass spectrometry to liquid chromatography applications. The Flexar SQ 300 MS™ is an integral part of the powerful and flexible Flexar LC product line. It features a revolutionary interchangeable probe and unique multi-stage ion path for exceptional sensitivity.

Measuring has never been easier with the Flexar SQ 300 MS. It provides the simplest route to exactly the information you need — quickly. As part of the Flexar LC platform, labs can expect exceptional chromatography coupled with an innovative rugged single quadrapole mass spectrometer that offers:

- Exceptional front-end chromatographic separation capabilities
- Flexible, modular components to suit any LC/MS analytical need
- The widest selection of operating pressures to address throughput needs

The Flexar SQ 300 MS has three ion source options that allow you to specifically address your analytical needs:

- Ultraspray™ Electrospray Interface (ESI)
- Dual-probe Ultraspray2™ (ESI)
- Atmospheric Pressure Chemical ionization (APCI)

Powered by the PerkinElmer Chromera® software, instrument control and data acquisition are faster and easier than ever.

Calibration Vials and Caps

Description	Quantity	Part No.
50ML Polypropylene Calibration Vial	Each	**MZ108391-5001**
50ML Polypropylene Calibration Vial Cap	Each	**MZ108391-5002**

Tuning and Calibration Reagents

Description	Size	Part No.
ESI Tuning and Calibration Reagent (Required for AxION TOF)	100 mL	**ZG2421A**
ESI Tuning and Calibration Reagent - low concentration (For AxION TOF)	100 mL	**ZG196985000**
APCI Tuning and Calibration Reagent (Required for APCI or DSA Sources with AxION TOF)	100 mL	**MZ331300**
APCI Tuning and Calibration Reagent - low concentration (For APCI, not recommended for DSA)	100 mL	**MZ331301**

Calibration Solutions

Description	Part No.
Calibration Mix LC/MS (+) ION Mix	**MZ301198**
Calibration Mix LC/MS (-) ION Mix	**MZ301199**

Test Kits

Description	Part No.
SQ300 Installation Performance Test Kit	**MZ300061**
SQ300 Customer Performance Test Kit	**MZ300085**
Caffeine Quantitative Test Kit	**MZ300095**
SQ300 ESI Positive and Negative Test Kit	**MZ300096**

Spare Syringes and Needles (for Syringe Pump)

Description	Part No.
Hamilton 500uL Gas Tight Syringe (No Needle)	**09220120**
Hamilton Replacement 6-pack of Needles	**09220122**

AxION Separation Probes

The innovative separation probes and holders facilitate chromatography directly at the ionization source. This minimizes dead volume effects in the system for superior signal-to-noise ratios, enhanced sensitivity and narrower peaks. Compatible with LC/MS systems using Flexar SQ300 or AxION 2 TOF MS.

Description	Quantity	Part No.
Probe Column - 2.1 mm x 5 mm	Each	**N9304550**
Probe Column - 2.1 mm x 10 mm	Each	**N9304551**
Probe Column - 2.1 mm x 50 mm	Each	**N9304554**
Probe Column - 2.1 mm x 100 mm	Each	**N9304556**
Probe Holder - 5 mm	Each	**N9304552**
Probe Holder - 10 mm	Each	**N9304553**
Probe Holder - 50 mm	Each	**N9304555**
Probe Holder - 100 mm	Each	**N9304557**

Spare Probe Assemblies / Dielectric Capillary

Description	Part No.
ESI Probe and Capillary Entrance Cone Kit	**MZ300503**
Capillary Entrance Cone	**MZ105094**
ESI Probe	**MZ109197**
Dielectric Capillary	**MZ105057-60180**
Quartz Tube for APCI	**MZ109004**
Corona Needle for APCI	**MZ301193**
ESI needle (tube) 0.006 ″	**MZ101903-17**

LC/MS Filtration System

High Capacity Hydrocarbon Trap

- Contains 750 cc of preconditioned activated charcoal.
- Stainless steel body. ¼″ brass compression fittngs with ferrules for installation.
- Maximum pressure 200 psi.
- Recommended flow rate up to 2 L per 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 µ stainless steel porous frits protect gas stream from particulates.
- Individually helium leak tested. Shipped filled wth helium.

Description	Part No.
LC/MS Filtration System	**N9301208**

Custom Benches

Description	Part No.
120V Bench with Ventilated, Sound Dampened Pump Enclosure	**N2911197**
120V Bench with Monitor/Keyboard Arm, Side Shelf and Ventilated, Sound Dampened Pump Enclosure	**N2911196**
230V Bench with Ventilated, Sound Dampened Pump Enclosure	**N2911199**
230V Bench with Monitor/Keyboard Arm, Side Shelf and Ventilated, Sound Dampened Pump Enclosure	**N2911198**
Roughing Pump Box with Acoustically Insulated Pump Enclosure	**N8141230**
Uninterrupted Power Supply (UPS)	**N0777511**

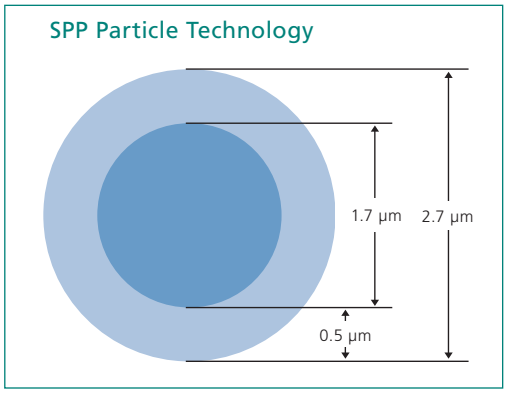
LC/MS Consumables and Accessories

Description	Pkg	Part No.
Certified LC Clean™ Non-Slit, Screw Top Cap/Vial Convenience Kit (Clear)	100	**N9300707**
Certified LC Clean™ Pre-Slit, Scew Top Cap/Vial Convenience Kit (Clear)	100	**N9300708**
Certified LC Clean™ Non-Slit, Screw Top Cap/Vial Convenience Kit (Amber)	100	**N9300719**
Certified LC Clean™ Pre-Slit, Scew Top Cap/Vial Convenience Kit (Amber)	100	**N9300720**
96-well 7 mm Pre-slit Silicone Plate Mat/Seal	10	**N9302555**
96-well 'Deep-well' Microtiter Polypropylene Plate	5	**N9302560**
96-well Microtiter Polypropylene Plate	1	**N9302562**
Barcode labels (25 sheets; 270 labels/sheet)	25	**09410105**
Edwards Rough Pump Oil (1 liter). Note: pump oil change requires 2 liters	1	**MZ109017**

LC/MS Caps

Description	Part No.
100 pg/µl Caffeine Standard	**MZ301236**
Sampling Screen	**MZ305382**
Capillary Sample Tubes (100/pkg)	**MZ305385**

INNOVATION TO THE CORE



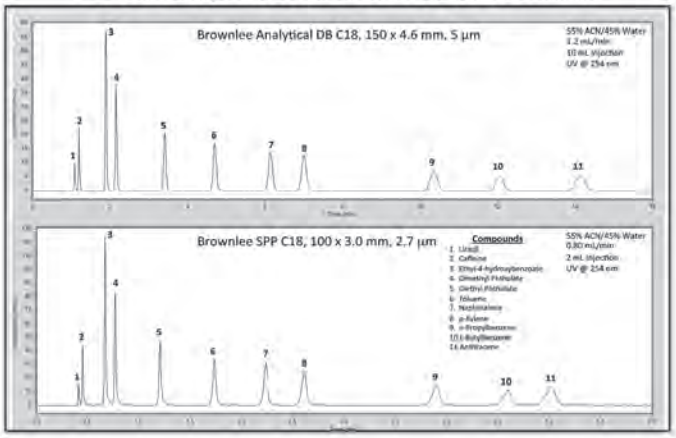
Smaller in size and innovative in design, superficially porous particles are made by fusing a porous silica layer to a solid inner core.

Brownlee SPP 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.

Get the speed and efficiency of sub-2 mm UHPLC columns at ~ 50% the backpressure with Brownlee 2.7 µm SPP columns.



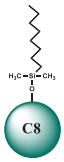
Brownlee SPP Phases and Applications

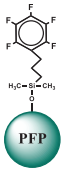
UHPLC Phases*	PoreSize (Å)	Coverage (µmol/m^2)	pH Range	Temp Limit (°C)	Applications	Chromatographic Properties
C18	90	3.5	2 to 9	60	General Purpose Octadecyl phase for reversed phase separations.	A high-purity column that exhibits excellent peak shape for a wide range of compounds.
C8	90	3.7	2 to 9	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	N/A	2 to 8	60	General purpose bare silica column for normal phase and HILIC applications.	High purity silica substrate.
Peptide ES-C18**	160	2.0	1 to 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 Angstrom 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-phenylpropyl)	90	3.6	2 to 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 to 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 to 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.

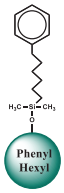
* Maximum pressure 9,000 p.s.i. for all columns. All particle sizes are 2.7 µm.
**Not end-capped. All others end-capped.

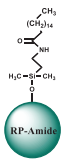
PERFORMANCE FOR EVERY PHASE

Brownlee SPP Columns









Phase	Length (mm)	2.1 mm i.d. Part No.	3.0 mm i.d. Part No.	4.6 mm i.d. Part No.
C18	20	**N9308400**	**N9308406**	**N9308412**
	30	**N9308401**	**N9308407**	**N9308413**
	50	**N9308402**	**N9308408**	**N9308414**
	75	**N9308403**	**N9308409**	**N9308415**
	100	**N9308404**	**N9308410**	**N9308416**
	150	**N9308405**	**N9308411**	**N9308417**
Peptide ES-C18	30	**N9308450**	**N9308455**	**N9308460**
	50	**N9308451**	**N9308456**	**N9308461**
	75	**N9308452**	**N9308457**	**N9308462**
	100	**N9308453**	**N9308458**	**N9308463**
	150	**N9308454**	**N9308459**	**N9308464**
C8	20	**N9308418**		**N9308429**
	30	**N9308419**	**N9308424**	**N9308430**
	50	**N9308420**	**N9308425**	**N9308431**
	75	**N9308421**	**N9308426**	**N9308432**
	100	**N9308422**	**N9308427**	**N9308433**
	150	**N9308423**	**N9308428**	**N9308434**
PFP	20	**N9308465**		
	30	**N9308466**	**N9308471**	**N9308476**
	50	**N9308467**	**N9308472**	**N9308477**
	75	**N9308468**	**N9308473**	**N9308478**
	100	**N9308469**	**N9308474**	**N9308479**
	150	**N9308470**	**N9308475**	**N9308480**
Phenyl Hexyl	20	**N9308481**		
	30	**N9308482**	**N9308487**	**N9308492**
	50	**N9308483**	**N9308488**	**N9308493**
	75	**N9308484**	**N9308489**	**N9308494**
	100	**N9308485**	**N9308490**	**N9308495**
	150	**N9308486**	**N9308491**	**N9308496**
RP-Amide	20	**N9308497**		
	30	**N9308498**	**N9308503**	**N9308508**
	50	**N9308499**	**N9308504**	**N9308509**
	75	**N9308500**	**N9308505**	**N9308510**
	100	**N9308501**	**N9308506**	**N9308511**
	150	**N9308502**	**N9308507**	**N9308512**
HILIC	30	**N9308435**	**N9308424**	**N9308430**
	50	**N9308420**	**N9308425**	**N9308431**
	75	**N9308421**	**N9308426**	**N9308432**
	100	**N9308422**	**N9308427**	**N9308433**
	150	**N9308423**	**N9308428**	**N9308434**

SPP Guard Columns (3 Packs)*

Phase	Length (mm)	2.1 mm i.d. Part No.	3.0 mm i.d. Part No.	4.6 mm i.d. 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 p.s.i. for all columns. All particle sizes are 2.7 µm.

THE TECHNOLOGY YOU NEED TO SEPARATE FROM THE PACK

Brownlee Instrument Optimizaton Kits

Brownlee SPP columns can be used to enhance the performance of virtually any PerkinElmer, Agilent®, or other manufacturer's HPLC or UHPLC system. Our SPP columns deliver resolution and speed similar to sub-2 µm UHPLC columns, but generate only 40% to 50% of the backpressure. By combining high efficiency and lower backpressure, Brownlee SPP columns make it possible to get "UHPLC-like" performance from your HPLC system.

PerkinElmer has created, tested and made the following PerkinElmer and Agilent® optimization kits available. Our OneSource Service Engineers are certified on all leading manufacturer instruments and can help optimize your instrument's performance.

Benefits:

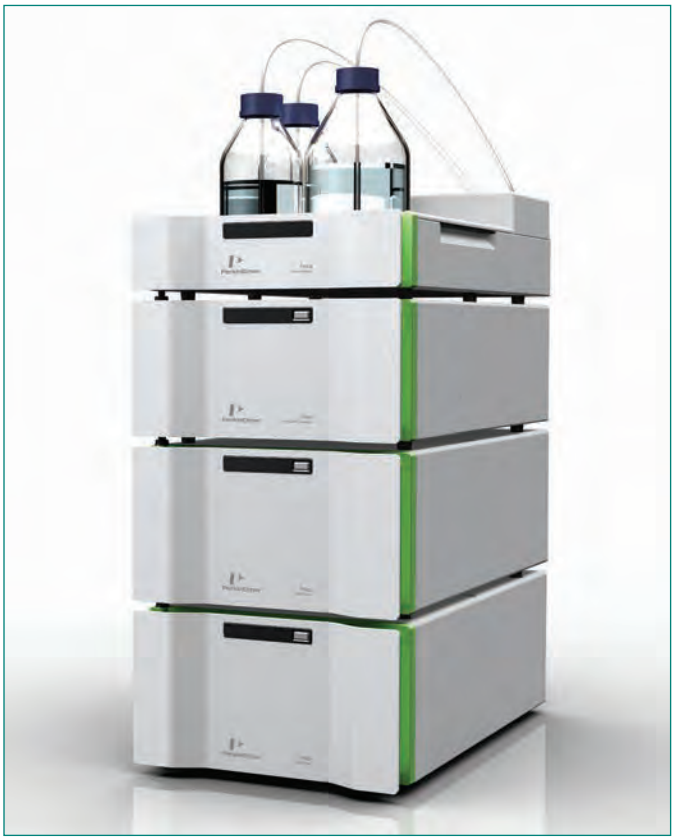
- Generate UHPLC like separations on your standard HPLC system
- Achieve ultra fast performance and efficiency on your UHPLC system
- Run samples in a fraction of the time
- Experience significant savings through faster method development, column longevity and use of less mobile phase solvent

PerkinElmer Optimization Kits

Description	Part No.
Series 200 LC or Flexar UHPLC systems with UV/Vis detector	**N2920191**
Series 200 LC or Flexar UHPLC systems with PDA detector	**N2920193**

Agilent® Optimization Kits

Description	Part No.
Extra column volume (ECV) - STD Autosampler and Variable Wavelength Detector (VWD) Optimization Kit	**ZECVSTDVWD**
ECV - STD Well Plate Autosampler and Diode Array Detector/Multiple Wave-length Detector (DAD/MWD)	**ZECVSTDWPDADMWD**
ECV - STD Autosampler sand DAD/ MWD	**ZECVSTDDADMWD**
ECV - STD Well Plate Autosampler and VWD	**ZECVSTDWPVWD**
Ultra Low ECV - STD Autosampler and VWD	**ZULECVSTDVWD**
Ultra Low ECV - STD Well Plate Autosampler and DAD/MWD	**ZULECVSTDWPDADMWD**
Ultra Low ECV - STD Autosampler and DAD/MWD	**ZULECVSTDDADMWD**
Ultra Low ECV - STD Well Plate Autosampler and VWD	**ZULECVSTDWPVWD**



SELECT THE BEST COLUMN

Which Column Do I Need?

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

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

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

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

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

Brownlee Conventional Columns

Brownlee Columns provide a wide range of options for HPLC analysis. Our conventional columns (non-cartridge) use standard compression end fittings compatible with all HPLC instrumentation. These columns do not require MPLC holders.

Features and Benefits

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

Conventional columns do not require MPLC holders

Brownlee MPLC cartridges and holders

NewGuard cartridge coupled directly to 220 mm cartridge column

Brownlee Conventional Columns

Brownlee analytical and semi-prep scale cartridge columns are available in several phases, lengths and diameters. The Brownlee cartridge system holders are designed with finger-tight assembly for simplicity and the standard 1/16″ o.d. capillary tubing fittings allow them to be used in virtually any manufacturers HPLC systems. Additionally the cartridge holder system can incorporate guard columns that are directly coupled to the analytical column for a zero dead volume connection. Specific column holders are required different column lengths but the analytical holders will work with both the 4.6 mm and 2.1 mm diameter cartridges. Column hardware, especially the end fittings, is a significant percentage of the cost in HPLC columns. With Brownlee cartridge holders the end fittings are reusable so the column cartridges are less expensive than conventional columns resulting in lower cost operation over the long term. The pressure rating on Brownlee cartridge holders are 7000 psi for silica based columns.

Features and Benefits

- Quality: Columns are manufactured under stringent ISO-9001 certified quality control standards. Individual test chromatograms are included with each cartridge > 30 mm length
- Flexible: Same reuseable holder for 4.6 mm and 2.1 mm i.d. cartridges. Compatible with all HPLC instruments
- Economical: Cartridges are less expensive than conventional columns
- Experience: Over 35 years of manufacturing experience since Bob Brownlee introduced the first finger-tight cartridge system in 1977

Brownlee Conventional Column Options:

Brownlee Analytical

This is PerkinElmer's all-purpose HPLC column line for conventional as well as high speed LC separations. The (110 Å) silica is equivalent to the Hypersil. Columns are available in 3 or 5 µ and lengths ranging from 30 – 250mm, in 2.1 and 4.6 i.d. The Brownlee Analytical family includes Amino, Biphenyl, C18, C8, Cyano, Phenyl, Silica, and PAH phases.

Brownlee Analytical DB and HRes

These columns allow 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 to basic compounds. These (140 Å) silica columns are excellent replacements for Hypersil® BDS columns. Columns are available in 1.9, 3 or 5 µ.

Brownlee Aquapore® and Bio

This is a wide-pore (300 Å, 7, and 20 µm), silica-based support suitable for the separation of large biomolecules such as peptides and proteins. Columns are available in 5 µ and lengths ranging from 30 – 250mm, in 2.1 and 4.6 i.d. in C8 and C18 phases.

Brownlee CHOICE™

This line of columns is made of (60 Å) silica which results in large surface area, high carbon loads, and high retention compounds. Columns are available in 3 or 5 µm and lengths ranging from 30 – 250 mm, in 2.1 and 4.6 i.d. The Brownlee CHOICE family includes the Basix, C18, Organic Acids, and PFP Propyl phases.

Brownlee Spheri-5®

This is a small-pore (80 Å, 5 µm), silica based sorbent for separating small molecules. Both monofunctional (comb-pre) and polyfunctional (polymerized loop-type) C8 and C18 sorbents available.

Brownlee Validated™

These columns are made on high-purity, Type B silica with inherent low silanophilic activity. It exhibits excellent peak shape for a wide range of compounds while also having a wide number of phases. The Brownlee Validated columns are the best choice for pharmaceutical applications that deal with a lot of basic or multi-functional compounds. Columns are available in 3 or 5 µ and lengths ranging from 30 – 250mm, in 2.1 and 4.6 i.d., and include Amino, C18, C8, Carbamate, Cyano, IBD (intrinsically base-deactivated), PFP (pentafluorophenyl) and phenyl phases.

Guard Columns and Cartridges

To protect your column investment, we offer a complete line of guard columns in our direct connect guard cartridges. These can be attached to any column offered above. You can easily select the phase type to the appropriate guard column packing to ensure a correct silica match.

Brownlee Sorbents

Brownlee offers a wide selection of sorbents based on both silica and polymer supports.

Aquapore® is a wide-pore (300 Å, 7, and 20 µm), silica-based support suitable for the separation of large biopolymers.

Spheri-5® is a small-pore (80 Å, 5 µm), silica-based sorbent for separating small molecules. Both monofunctional (comb-type) and polyfunctional (polymerized loop-type) C8 and C18 sorbents are available.

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

Validated™ is a small-pore (100 Å, 5 µm) silica-based C18 sorbent for small molecules, specifically for consistent pharmaceutical assays.

Pecosphere™ is a small-pore (80 Å, 3, 5, and 10 µm) silica-based sorbent for HPLC of small molecules.

Brownlee
Columns and Holders

Reduced Activity is a small-pore, base-deactivated (100 Å, 3, and 5 µm) silica-based, reversed-phase sorbent (C18 or C8) developed for HPLC of basic analytes and pharmaceuticals.

CHOICE™ is a small-pore, base-deactivated (100 Å, 3 µm C18) silica-based, reversed-phase sorbent (C18) developed for LC/MS separations.

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 30 – 250 mm in 2.1 and 4.6 mm i.d. The Brownlee Analytical family includes classic phases like C18, C8, Phenyl, Cyano, Amino and bare Silica (HILIC) plus uniquely selective phases like Biphenyl and PAH.

Features and Benefits

- Type A, 110 Å pore size silica equivalent to classic Hypersil® silica
- Good choice when analyzing neutral and acidic analytes
- Available in classic phases and unique phases like biphenyl and PAH

Material Characteristics

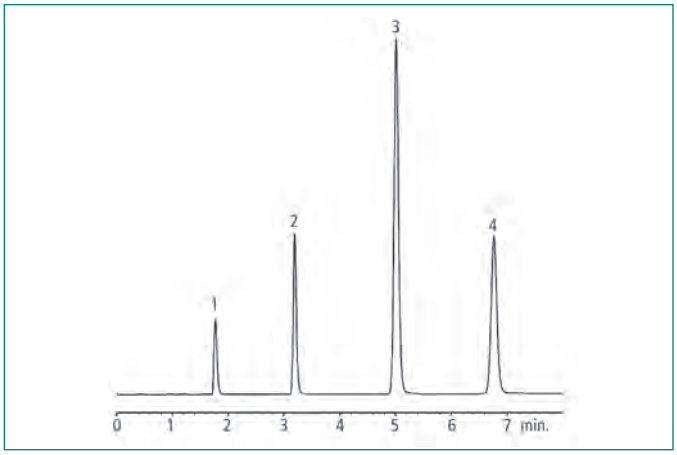
Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit	USP Code
C18	3.0, 5.0	110	13%	Yes	2.5 – 7.5	80 °C	L1
C8	5.0	110	7%	Yes	2.5 – 7.5	80 °C	L7
Cyano	5.0	110	4%	Yes	2.5 – 7.5	80 °C	L10
Amino	3.0, 5.0	110	2%	No	2.5 – 7.5	80 °C	L8
Phenyl	5.0	110	6%	Yes	2.5 – 7.5	80 °C	L11
Biphenyl	5.0	110	*	Yes	2.5 – 7.5	80 °C	L11
PAH	4.0	110	*	Yes	2.5 – 7.5	80 °C	
Silica	5.0	110		No	2.5 – 7.5	80 °C	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	30	4.6	**N9303509**
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**



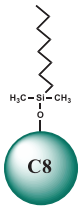
Column: Brownlee Analytical C18
Dimensions: 150 x 4.6 mm
Part Number: N9303508
Mobile Phase: 20:80, Water:Methanol
Flow Rate: 1.0 mL/min
Detector: UV @ 254 nm
Peak List:

1. Uracil
2. Benzene
3. Naphthalene
4. Biphenyl

Brownlee Analytical C8

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.

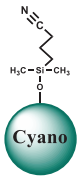
Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	30	4.6	**N9303521**
5.0	100	4.6	**N9303515**
5.0	150	4.0	**N9303516**
5.0	150	4.6	**N9303517**
5.0	200	4.6	**N9303518**
5.0	250	4.0	**N9303519**
5.0	250	4.6	**N9303520**



Brownlee Analytical Cyano

The Analytical Cyano is a traditional monomeric cyanopropylsilane stationary phase that can be used in normal-phase, reverse-phase and HILIC modes. Use mobile phase pH between 5 and 7 for the best performance in reverse-phase mode. The cyano phase is often considered to have orthogonal selectivity to C8 & C18 that can be used for confirmatory analysis. Suitable for analysis of a wide range of compounds from acidic to slightly basic and is an excellent choice for analysis of protonated bases.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	150	4.6	**N9303522**
5.0	200	4.6	**N9303523**



Brownlee Analytical Amino

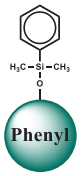
The Analytical Amino is a normal-phase, monomeric aminopropylsilane stationary phase that is a popular for routine sugar analysis. This phase is suitable for mono- and disaccharide analysis using a refractive index (RI) or evaporative light scattering detector (ELSD). Isocratic elution (e.g., 75:25, acetonitrile:water) must be used with an RI detector but gradient elution can be utilized for higher efficiency separations when using an ELSD or MS detector.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
3.0	50	4.6	**N9303502**
3.0	100	4.6	**N9303500**
3.0	150	4.6	**N9303501**
5.0	50	4.6	**N9303506**
5.0	100	4.6	**N9303503**
5.0	150	4.6	**N9303504**
5.0	250	4.6	**N9303505**

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.

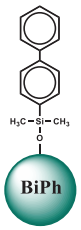
Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	150	4.6	**N9303524**



Brownlee Analytical Biphenyl

The Analytical Bipenyl is a unique phase that offers more dispersive (Van Der Waals) interactions and a higher degree of polarizability than the phenyl phase. With the higher degree of dispersive and polar interactions, this column exhibits increased retention for dipolar, unsaturated and conjugated analytes. It also exhibits enhanced selectivity when using methanolic mobile phases.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	150	4.6	**N9303931**
5.0	200	4.6	**N9303932**



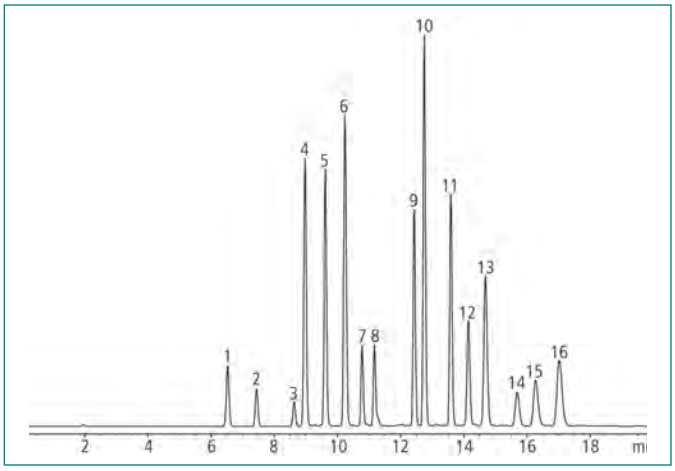
Brownlee Analytical Silica

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 PAH

The Analytical PAH column was specifically developed for the 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. Each lot of Analytical PAH material is tested to ensure baseline resolution all 16 PAHs.



Peak List Concentration (µg/mL)

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

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
4.0	100	4.6	**N9303527**
4.0	150	3.2	**N9303430**
4.0	150	4.6	**N9303529**
4.0	200	4.6	**N9303528**
4.0	250	2.1	**N9303530**
4.0	250	4.6	**N9303531**

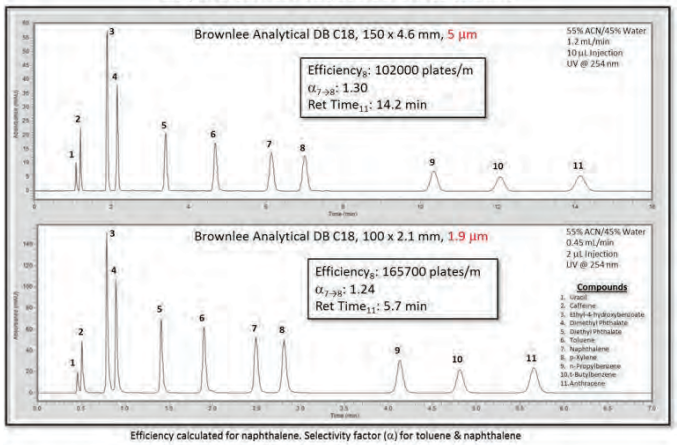
Brownlee Analytical DB Columns for HPLC and UHPLC

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 & 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 & 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. These columns are excellent replacements for Hypersil® BDS columns.

Features and Benefits

- Conventional and sub-2 µm particles sizes for HPLC and UHPLC systems
- Base-deactivated silica optimized for UHPLC performance from acidic to basic analytes
- All silica prepared by the same process for true HPLC to UHPLC method scalability

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



Efficiency calculated for naphthalene. Selectivity factor (α) for toluene & naphthalene

Material Characteristics

Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit	USP Code
C18	1.9, 3.0, 5.0	140	11%	Yes	2.5 – 8.0	80 °C	L1
Aq C18	1.9, 3.0, 5.0	140	6%	*	2.5 – 8.0	80 °C	L1
IBD	1.9	140	*	Yes	2.5 – 8.0	80 °C	L68
Cyano	1.9, 5.0	140	4%	No	2.5 – 8.0	80 °C	L10
Biphenyl	1.9, 3.0, 5.0	140	8%	Yes	2.5 – 8.0	80 °C	L11
PFP Propyl	1.9, 3.0, 5.0	140	6%	Yes	2.5 – 8.0	80 °C	L43
Silica	1.9	140		No	2.5 – 8.0	80 °C	L3
PAH	1.9	140	*	Yes	2.5 – 8.0	80 °C	

* Proprietary

Brownlee Analytical DB C18

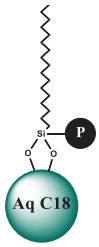
C18 is a good general purpose phase for the analysis of compounds ranging from acid to slightly basic. This is an excellent replacement for very basic compounds. They will have excellent peak shape on these columns with the addition of ion pairing agents to the mobile phase.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
1.9	30	2.1	**N9303911**
1.9	50	2.1	**N9303912**
1.9	100	2.1	**N9303913**
3.0	30	4.6	**N9303887**
3.0	50	4.6	**N9303888**
3.0	100	4.6	**N9303889**
5.0	50	4.6	**N9303890**
5.0	150	4.6	**N9303891**
5.0	250	4.6	**N9303892**

Brownlee Analytical DB Aqueous C18

The Aqueous C18 contains a propriatary 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 compatability with a wide variety of mobile phases including 100% aqueous mobile phases.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
1.9	30	2.1	**N9303917**
1.9	50	2.1	**N9303918**
1.9	100	2.1	**N9303919**
3.0	30	4.6	**N9303903**
3.0	50	4.6	**N9303904**
3.0	100	4.6	**N9303905**
5.0	50	4.6	**N9303906**
5.0	150	4.6	**N9303907**
5.0	250	4.6	**N9303908**



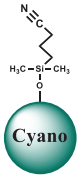
Brownlee Analytical DB IBD

The IBD (intrinsically base-deactivated) is an alkyl phase with a proprietary polar group embedded in the hydrocarbon chain. This phase provides unique retention and selectivity for acidic compounds while the base-deactivation gives symmetrical peak shapes for strong bases that results in one of the most versitile phases available. The IBD can be used in reverse phase mode and is compatible with 100% aqueous mobile phase or in HILIC mode with highly organic mobile phases for improved retention of polar ionic compounds.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
1.9	30	2.1	**N9303920**
1.9	50	2.1	**N9303921**
1.9	100	2.1	**N9303922**

Brownlee Analytical DB Cyano

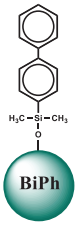
The Analytical DB and HRes Cyano is a traditional monomeric cyanopropylsilane stationary phase that can be used in normal-phase, reverse-phase and HILIC modes. Use mobile phase pH between 5 and 7 for the best performance in reverse-phase mode. Suitable for analysis of a wide range of compounds from acidic to basic. It is an excellent choice for analysis of protonated bases.



Particle Size (µm)	Length (mm)	ID (mm)	Part No.
1.9	30	2.1	**N9303973**
1.9	50	2.1	**N9303974**
1.9	100	2.1	**N9303975**
5.0	50	4.6	**N9303869**
5.0	150	4.6	**N9303870**
5.0	250	4.6	**N9303871**

Brownlee Analytical DB Biphenyl

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

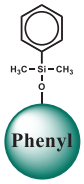


Particle Size (µm)	Length (mm)	ID (mm)	Part No.
1.9	30	2.1	**N9303911**
1.9	50	2.1	**N9303912**
1.9	100	2.1	**N9303913**
3.0	30	4.6	**N9303887**
3.0	50	4.6	**N9303888**
3.0	100	4.6	**N9303889**
5.0	50	4.6	**N9303890**
5.0	150	4.6	**N9303891**
5.0	250	4.6	**N9303892**

Brownlee Analytical DB PFP Propyl

The Pentafluorophenyl Propyl phase is uniquely selective for compounds containing basic functional groups and organohalogens. Unlike the cyano pahses, PFP Propyl is a better choice for LC/MS analysis because it is reliable and efficient with acidic mobile phases like formic acid and it is very versitile because it can be used with highly aqueous mobile phases as well as HILIC separations. These columns are recommended for the analysis of nucleotides, nucleosides, pyrimidines, purines and halogenated compounds.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
1.9	30	2.1	**N9303914**
1.9	50	2.1	**N9303915**
1.9	100	2.1	**N9303916**
3.0	30	4.6	**N9303895**
3.0	50	4.6	**N9303896**
3.0	100	4.6	**N9303897**
5.0	50	4.6	**N9303898**
5.0	150	4.6	**N9303899**
5.0	250	4.6	**N9303900**



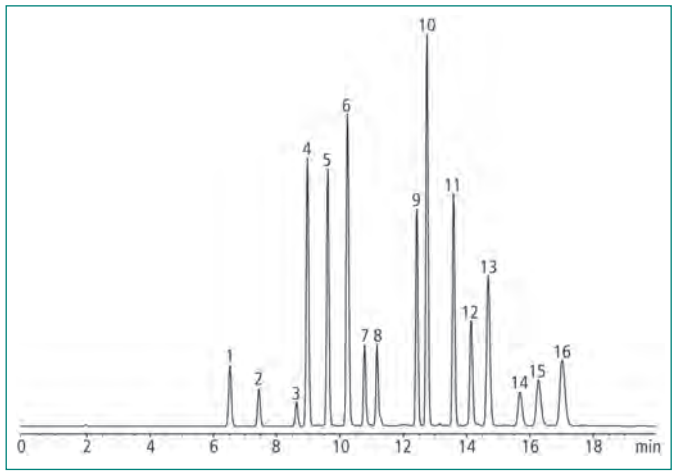
Brownlee Analytical DB Silica

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

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
1.9	30	2.1	**N9303970**
1.9	50	2.1	**N9303971**
1.9	100	2.1	**N9303972**
5.0	50	4.6	**N9303879**
5.0	150	4.6	**N9303880**
5.0	250	4.6	**N9303981**

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

Brownlee Aquapore and Bio columns are built on large pore 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 Aquapore columns are based on 7 µm silica while the Bio columns are based on 5 µm silica for increased plate counts.

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	USP Code
AP OD-300 (C18)	7.0	300	10%	Yes	2.5 – 8.0	60 °C	L1
AP RP-300 (C8)	7.0	300	5%	Yes	2.5 – 8.0	60 °C	L7
AP AX-300†	7.0	300			2.0 – 8.0	60 °C	
AP CX-300‡	7.0	300			2.0 – 8.0	60 °C	
Bio C18	5.0	300	9%	Yes	2.5 – 8.0	80 °C	L1
Bio C8	5.0	300	5%	Yes	2.5 – 8.0	80 °C	L7

* AP = Aquapore; † AX = Weak Anion Exchange; ‡ CX = Weak Cation Exchange

Brownlee Aquapore 7 µm Columns

Brownlee Aquapore conventional columns built on a 7 µm, 300 Å pore size silica. The OD-300 and RP-300 are reverse-phase silicas modified with C18 and C8, respectively. AX-300 is a weak anion exchanger that is composed of a crosslinked polyethyleneimine phase bonded on the silica surface. CX-300 is a weak cation exchanger that is composed of a polyamide coating containing carboxymethyl groups phase bonded on the silica surface. The reverse-phase columns are also available in microbore (1.0 mm i.d) for increased sensitivity and better compatibility with LC/MS interfaces.

ID (mm)	Length (mm)	OD-300 (C18) Part No.	RP-300 (C8) Part No.	AX-300 Part No.	CX-300 Part No.
1.0	50		**07120070**		
1.0	100	**07120099**	**07120096**		
1.0	250		**07120097**		
2.1	30	**07110234**	**07110056***	**07110074**	
2.1	100	**07110233**	**07110058**	**07110076**	
2.1	220	**07110236**	**07110060**		
4.6	30	**07110235**	**07110055**	**07110073**	
4.6	100	**07110232**	**07110057**	**07110075**	
4.6	220	**07110231**	**07110059**	**07110077**	
4.6	250	**07120073**	**07120033**	**07120040**	**07120043**

Brownlee Bio 5 µm Columns

Brownlee Bio C18 and C8 are reverse-phase columns built on a 5 µm particle size, 300 Å pore size silica. The C8 should be used for very hydrophobic analytes because it is less retentive than the C18. They are available in lengths from 50 to 250 mm lengths in 4.6 and 2.1 mm i.d.

	C18		C8	
Length (mm)	2.1 mm ID Part No.	4.6 mm ID Part No.	2.1 mm ID Part No.	4.6 mm ID Part No.
50	**N9303654**	**N9303655**	**N9303664**	**N9303665**
100	**N9303646**	**N9303647**	**N9303656**	**N9303657**
150	**N9303648**	**N9303649**	**N9303658**	**N9303659**
200	**N9303650**	**N9303651**	**N9303660**	**N9303661**
250	**N9303652**	**N9303653**	**N9303662**	**N9303663**

Brownlee CHOICE Columns

Brownlee CHOICE HPLC columns are packed with 60 Å pore size, high purity Type B silica with high surface area allowing for dense ligand bonding, high carbon load stationary phases. This results in our most retentive stationary phases which require stronger organic mobile phases. Although these columns can be used with any HPLC system, the high organic mobile phases required for elution make these columns an excellent choice when using MS and ELSD detectors which require efficient mobile phase evaporation for optimum sensitivity. CHOICE columns are available in a 5 µm particle size, 30 – 250 mm column lengths, 4.6 and 2.1 mm ID. The 2.1 mm ID columns are the best fit for MS and ELSD since they require lower flow rates for efficient performance.

Features and Benefits

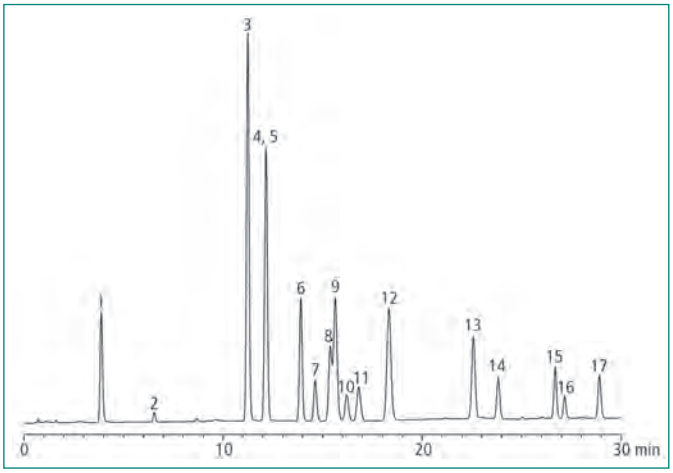
- Highly retentive, small pore (60 Å), high carbon load columns built on high purity Type B silica
- Require stronger organic mobile phase than any other Brownlee columns
- An excellent Choice for MS and ELSD detectors

Material Characteristics

Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit	USP Code
C18	5.0	60	27%	Yes	2.5 – 8.0	80 °C	L1
Aq C18	5.0	60	*	No	2.5 – 8.0	80 °C	L1
Basix	5.0	60	12%	Yes	2.5 – 8.0	80 °C	L10
Biphenyl	5.0	60	23%	No	2.5 – 8.0	80 °C	L11
PFP Propyl	3.0, 5.0	60	17%	Yes	2.5 – 8.0	80 °C	L43
Organic Acids	5.0	60	*	Yes	2.5 – 8.0	80 °C	
AK	5.0	60	*	No	2.5 – 8.0	80 °C	

* Proprietary

Pesticides on Brownlee Choice C18



Peak List

1. desisopropyl atrazine
2. desethyl atrazine
3. simazine
4. terbuthylazine desethyl
5. cyanazine
6. methabenzthiazuron
7. chlortoluron
8. atrazine
9. secbumeton
10. isoproturon
11. diuron
12. terbumeton
13. terbuthylazine
14. linuron
15. flusilazole
16. ethofumesate
17. neburon

Brownlee Choice C18

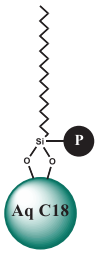
The Choice C18 is the most retentive alkyl phase in our product line. The high density bonding and high carbon load of this phase is made possible by the high surface area of the base silica. These end-capped columns provide excellent peak shapes for a wide range of analytes.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	50	2.1	**N9303626**
5.0	100	2.1	**N9303625**
5.0	150	2.1	**N9303627**
5.0	250	2.1	**N9303629**
5.0	150	4.6	**N9303628**
5.0	250	4.6	**N9303630**

Brownlee Choice Aqueous C18

This is a polar embedded C18 that has improved retention and selectivity for polar analytes compared to the standard C18. This phase is highly base deactivated to improve peak shape by reducing silanol activity and can be operated with a 100% aqueous mobile phase. This is an excellent choice for the analysis of a wide variety of compounds by LC/MS screening.

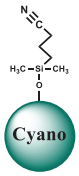
Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	50	4.6	**N9303935**
5.0	150	4.6	**N9303936**
5.0	250	4.6	**N9303937**



Brownlee Choice Basix

This is a highly retentive phenyl cyano phase especially suited for the separation of basic compounds containing amines.

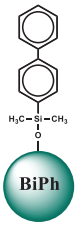
Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	50	2.1	**N9303615**
5.0	100	2.1	**N9303613**
5.0	150	2.1	**N9303617**
5.0	50	4.6	**N9303616**
5.0	100	4.6	**N9303614**
5.0	150	4.6	**N9303618**
5.0	250	4.6	**N9303619**



Brownlee Choice Biphenyl

This is a highly retentive phase for aromatic and unsaturated compounds with improved selectivity when compared to standard phenyl phases. This phase is an excellent choice for separation of unsaturated compounds such as steroids, tetracyclines and explosives.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	50	4.6	**N9303940**
5.0	100	4.6	**N9303941**
5.0	150	4.6	**N9303942**



Brownlee Choice PFP Propyl

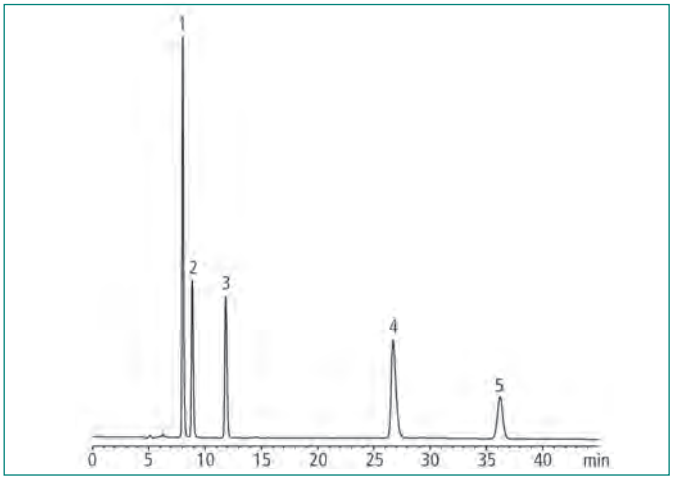
A phase of pentafluorophenyl with a propyl spacer that is highly retentive for basic analytes, this phase is ideal for the separation of basic drugs prior to MS detection. This bonded phase has been shown to efficiently separate basic drugs in a 90% acetonitrile/ water mobile phase, eliminating the need for ion-pairing reagents and ion-suppressing reagents normally used for these separations on C18. This phase is well suited for the separation of tricyclic antidepressants, halogenated compounds and beta-blockers as well as nucleotides, nucleosides, pyrimidines and purines.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
3.0	50	2.1	**N9303635**
3.0	50	4.6	**N9303636**
3.0	100	4.6	**N9303637**
5.0	30	2.1	**N9303640**
5.0	50	2.1	**N9303641**
5.0	100	2.1	**N9303638**
5.0	150	2.1	**N9303643**
5.0	50	4.6	**N9303642**
5.0	100	4.6	**N9303639**
5.0	150	4.6	**N9303644**
5.0	250	4.6	**N9303645**

Brownlee Choice Organic Acids

The Choice Organic Acids columns are uniquely designed for enhanced retention and selectivity to resolve organic acids in food such as tartaric and quinic acids on a single 30 cm column using the conditions specified in AOAC method 986.13. Retentions times are very stable on this column even using 100% aqueous mobile phase.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	250	2.1	**N9303632**
5.0	150	4.6	**N9303631**
5.0	250	4.6	**N9303633**
5.0	300	4.6	**N9303634**



Peak List
1. tartaric acid
2. quinic acid
3. malic acid
4. citric acid
5. fumaric acid

Brownlee Choice AK

The Choice AK column is specifically designed for the separation of DNHP derivatized aldehydes and ketones for environmental methods such as US EPA TO-11 and the California Air Resources Board (CARB) Method 1004. This column is specifically designed to separate the thirteen carbonyl compounds specified in CARB 1004 in under 15 minutes using a simple acetonitrile/water gradient.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	200	3.2	**N9303884**
5.0	200	4.6	**N9303885**

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. Choice columns are available in a 3 and 5 µm particle sizes, 30 – 250 mm column lengths in 4.6 and 2.1 mm ID.

Features and Benefits

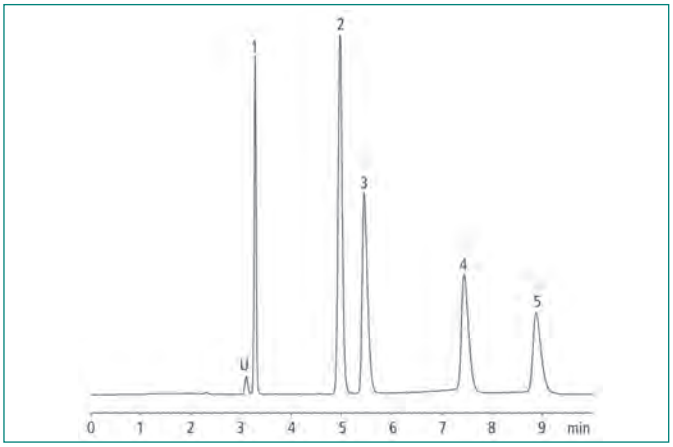
- Built on high purity, Type B silica for excellent peak shape for a wide range of compounds
- Available in the most choices in stationary phases
- Recommended for pharmaceutical applications with basic and multi-functional compounds

Material Characteristics

Phase	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit	USP Code
C1	5.0	100	5%		2.5 – 8.0	80 °C	L13
C4	5.0	100	9%	Yes	2.5 – 8.0	80 °C	L26
C8	5.0,0	100	12%	Yes	2.5 – 8.0	80 °C	L7
C18	3.0, 5.0	100	20%	Yes	2.5 – 8.0	80 °C	L1
Aq C18	3.0, 5.0	100	15%	No	2.5 – 8.0	80 °C	L1
IBD	3.0, 5.0	100	12%	No	2.5 – 8.0	80 °C	L68
PFP Propyl	5.0	100	11%	Yes	2.5 – 8.0	80 °C	L43
Phenyl	3.0, 5.0	100	10%	Yes	2.5 – 8.0	80 °C	L11
Cyano	5.0	100	8%	Yes	2.5 – 8.0	80 °C	L10
Amino	3.0, 5.0	100	2%	No	2.5 – 8.0	80 °C	L8
Carbamate	3.0, 5.0	100	*	*	2.5 – 8.0	80 °C	
Quat	5.0	100	*	*	2.5 – 8.0	80 °C	

* Proprietary

Acetominophen and Narcotic Analgesics on Brownlee Validated C18



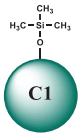
Peak List
1. morphine sulfate
2. acetominophen
3. codeine phosphate
4. oxycodone HCL
5. hydrocodone bitartrate

Recommended Guard Cartridge	N9303694
Recommended Guard Holder	N9303713

Brownlee Validated C1

The Validated C1 is an exceptionally stable C1 phase. This is the least retenetive reversed-phase packing.

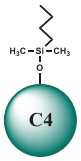
Particle Size (µm)	Length (mm)	ID (mm)	Part No.
5.0	150	4.6	**N9303718**
5.0	250	4.6	**N9303719**



Brownlee Validated C4

The Validated C4 is exceptionally stable packing that is base deactivated with a high bonding coverage. C4 is a less retentive reverse-phase than C8 or C18.

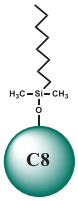
Particle Size (µm)	Length (mm)	ID (mm)	Part No.
3.0	150	4.6	**N9303851**
5.0	150	4.6	**N9303720**
5.0	250	4.6	**N9303721**



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 ia 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	2.1	**N9303564**
5.0	150	2.1	**N9303566**
5.0	150	4.0	**N9303848**
5.0	100	4.6	**N9303565**
5.0	150	4.6	**N9303567**
5.0	250	4.6	**N9303568**



Brownlee Validated C18

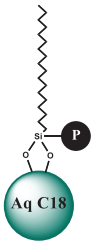
The Validated C18 is a good general purpose reverse-phase column with moderate to high retention for hyphobic compounds. The high purity, Type B silica has low silanol activity resulting in excellent peak shapes even for basic analytes. This phase is more retentive than C8 and recommended for a wide 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	50	**N9303562**	**N9303563**
5.0	100	**N9303553**	**N9303554**
5.0	150	**N9303557**	**N9303558**
5.0	200		**N9303559**
5.0	250	**N9303560**	**N9303561**

Brownlee Validated Aqueous C18

The Aqueous C18 contains a propriatary 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 reproducability and compatability 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.

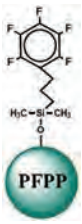
Particle Size (µm)	Length (mm)	2.1 mm ID Part No.	4.6 mm ID Part No.
3.0	30	**N9303540**	
3.0	50	**N9303541**	**N9303542**
3.0	100	**N9303537**	**N9303538**
3.0	150	**N9303539**	
5.0	30		**N9303550**
5.0	100	**N9303543**	**N9303544**
5.0	150	**N9303545**	**N9303546**
5.0	200		**N9303547**
5.0	250	**N9303548**	**N9303549**



Brownlee Validated PFP Propyl

The pentafluorophenyl propyl phase is a great choice for retention and selectivity of charged bases, amine containing compounds and electronegative compounds. Unlike the cyano phases, PFP Propyl is a better choice for LC/MS analysis because it is reliable and efficient with acidic mobile phases like formic acid and it is very versitile because it can be used with highly aqueous mobile phases as well as HILIC separations. These columns are recommended for the analysis of nucleotides, nucleosides, pyrimidines, purines and halogenated compounds.

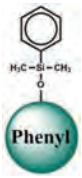
Particle Size (µm)	Length (mm)	2.1 mm ID Part No.	4.6 mm ID Part No.
5.0	50	**N9303601**	
5.0	100	**N9303598**	
5.0	150		**N9303598**
5.0	150		**N9303599**
5.0	250		**N9303600**



Brownlee Validated Phenyl

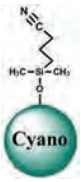
The Validated Phenyl is a high-purity, highly retentive, base-deactivated phase with alternate selectivity to straight chain hydrocarbon phases, especially for aromatic compounds.

Particle Size (µm)	Length (mm)	2.1 mm ID Part No.	4.6 mm ID Part No.
3.0	30	**N9303604**	
3.0	50	**N9303602**	**N9303603**
5.0	100	**N9303605**	**N9303606**
5.0	150		**N9303607**



* N9303604 actual size is 100mm x 1.0mm

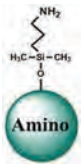
Brownlee Validated Cyano



The Validated Cyano is a traditional monomeric cyanopropylsilane stationary phase that can be used in normal-phase, reverse-phase and HILIC modes. Use mobile phase pH between 5 and 7 for the best performance in reverse-phase mode. Suitable for analysis of a wide range of compounds from acidic to basic, it is an excellent choice for analysis of protonated bases.

Particle Size (µm)	Length (mm)	2.1 mm ID Part No.	4.6 mm ID Part No.
5.0	30		**N9303578**
5.0	100	**N9303572**	**N9303573**
5.0	150	**N9303574**	**N9303575**
5.0	220		**N9303576**
5.0	250		**N9303577**

Brownlee Validated Amino



The Validated Amino is a normal-phase, monomeric aminopropylsilane stationary phase that is a popular for routine sugar analysis. This phase is suitable for mono- and disaccharide analysis using a refractive index (RI) or evaporative light scattering detector (ELSD). Isocratic elution (e.g., 75:25, acetonitrile:water) must be used with an RI detector but gradient elution can be utilized for higher efficiency separations when using an ELSD or MS detector.

Particle Size (µm)	Length (mm)	ID (mm)	Part No.
3.0	150	3.2	**N9303847**
5.0	100	2.1	**N9303532**
5.0	150	2.1	**N9303533**
5.0	150	4.6	**N9303534**
5.0	220	4.6	**N9303535**
5.0	250	4.6	**N9303536**

Brownlee Validated Carbamate

The Validated Carbamate is a proprietary phase specifically designed for carbamate analysis. This unique stationary phase is capable of separating the 10 target carbamates injust over 10 minutes. The column is capable of analyzing as many as three sample per hour as opposed to less than two per hour on a conventional C18 column. These columns are compatible with both LC/MS and fluorescence detection with post-column derivitization.

		4.6 mm I.D.
Particle Size (µm)	Length (mm)	Part No.
3.0	50	**N9303570**
3.0	100	**N9303569**
5.0	250	**N9303571**

Brownlee Validated Quat

The Validated Quat is a proprietary, highly retentive, high-purity, base-deactivated, reverse phase specifically designed for the analysis of paraquat, diquat and other quaternary amines.

		4.6 mm I.D.
Particle Size (µm)	Length (mm)	Part No.
5.0	150	**N9303886**

Brownlee Spheri-5® and Spheri-10® Columns

Brownlee Spheri columns are built on small pore (80 Å) silica in 5 and 10 µm particle sizes for analysis of small molecules. These columns are available in three different reverse-phases (C2, C8, C18) and the silica normal phase covers a range of analyte polarities. The Spheri C18 is the most retentive reverse-phase in this family while the C8 is less retentive and can be used for more basic small molecules. Spheri-5 C18 is also available in a monofunctional (comb type) and polyfunctional (ODS) bonding for different analyte selectivities. All Spheri conventional columns are only available in 250 mm length and 4.6 mm i.d.

Features and Benefits

- Small pore (80 Å), 5 & 10 mm, 250 x 4.6 mm columns for small molecule analysis
- C18, C8 and C2 reverse-phases for a range of analyte polarities

Material Characteristics

Phase	Particle Sizes (µm)	Carbon Load	End Capping	USP Code	Part No.
Spheri-10 C2	10		No	L16	**07120005**
Spheri-5 C8	5	6%	Yes	L7	**07120012**
Spheri-5 C18	5	11%	Yes	L1	**07120016**
Spheri-10 C18	10	11%	Yes	L1	**07120001**
Spheri-5 C18 ODS (Polyfunctional)	5	14%	Yes	L1	**07120019**
Spheri-5 Silica	5			L3	**07120023**

High Pressure Pre-Filter
Part No. N9303711

Filter Frit Cap

Female Inlet Fitting | Guard Fitting | Guard Cartridge | PEEK Tip | Outlet Fitting

Assembled Guard Holder with Filter
Part No. N9303713

Installed on Column

Brownlee Conventional 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**

Brownlee Analytical Guard Cartridges

Length: 10 mm Particle Size: 5 µm Quantity: 3/pkg

Phase	2.1 mm ID Part No.	4.0 mm ID Part No.
Amino	**N9303674**	**N9303675**
C18	**N9303676**	**N9303677**
C8	**N9303678**	**N9303679**
Cyano	**N9303680**	**N9303681**
PAH	**N9303682**	**N9303683**
Phenyl	**N9303684**	**N9303685**
Silica	**N9303686**	**N9303687**

Brownlee Analytical Guard Cartridges

Length: 10 mm Particle Size: 5 µm Quantity: 3/pkg

Phase	4.0 mm ID Part No.
C18	**N9303867**
Aq C18	**N9303909**
Cyano	**N9303872**
Biphenyl	**N9303893**
Phenyl	**N9303877**
PFP Propyl	**N9303901**
Silica	**N9303882**

Brownlee Analytical DB and HRes Guard Cartridges

Length: 20 mm Particle Size: 5 µm Quantity: 3/pkg

Phase	4.0 mm ID Part No.
C18	**N9303868**
Aq C18	**N9303910**
Cyano	**N9303873**
Biphenyl	**N9303894**
Phenyl	**N9303878**
PFP Propyl	**N9303902**
Silica	**N9303883**

Brownlee Choice Guard Cartridges

Length: 10 mm Particle Size: 5 µm Quantity: 3/pkg

Phase	2.1 mm ID Part No.	4.0 mm ID Part No.
Basix	**N9303666**	**N9303667**
C18	**N9303668**	**N9303669**
Aq C18		**N9303938***
Organic Acids	**N9303670**	**N9303671**
PFP Propyl	**N9303672**	**N9303673**
Biphenyl		**N9303943****

*This column is also available in 20mm x 4.0mm under Part No. N9303937
** This column is also available in 20mm x 4.0mm under Part No. N9303944

Brownlee Bio DB Guard Cartridges

Length: 10 mm Particle Size: 5 µm Quantity: 3/pkg

Phase	2.1 mm ID Part No.	4.0 mm ID Part No.
C18	**N9303708**	**N9303707**
C8	**N9303709**	**N9303710**

Brownlee Validated Guard Cartridges

Length: 10 mm Particle Size: 5 µm Quantity: 3/pkg

Phase	2.1 mm ID Part No.	4.0 mm ID Part No.
Amino	**N9303688**	**N9303689**
Aq C18	**N9303690**	**N9303691**
C1		**N9303722**
C4		**N9303723**
C8	**N9303695**	**N9303696**
C18	**N9303693**	**N9303694***
Carbamate	**N9303697**	**N9303698**
Cyano	**N9303699**	**N9303700**
IBD	**N9303701**	**N9303702**
PFP Propyl	**N9303703**	**N9303704**
Phenyl	**N9303705**	**N9303706**

*This column is also available in 10µm under Part No. N9303692

Brownlee Sorbents

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

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

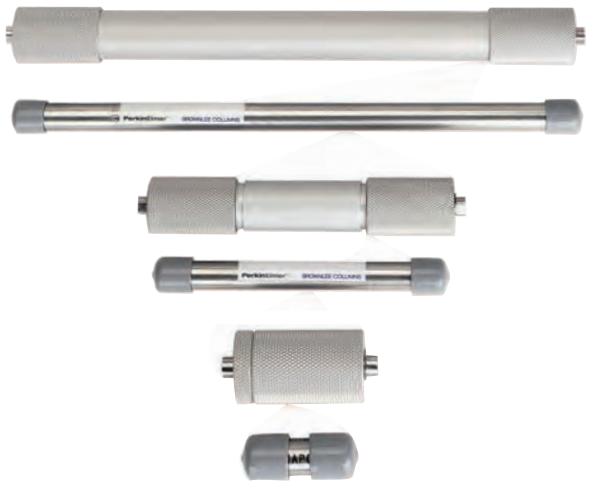
Spheri-5® – is a small-pore, silica-based solvent for separating small molecules. Both monofunctional (comb-type) and polyfunctional (polymerized loop-type) C8 and C18 sorbents are available.

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

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

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

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



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

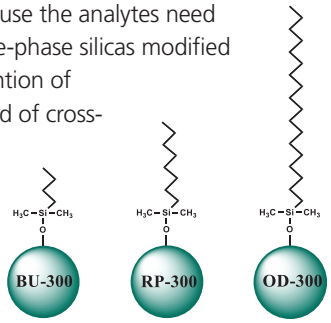
Peco HCODS – is especially suited for reversed-phase separation of proteins and peptides.

Brownlee Cartridge Columns

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

Brownlee Aquapore Columns

Brownlee Aquapore columns are built on large pore 300 Å, 7 µm particle size 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 OD-300, RP-300 and BU-300 are reverse-phase silicas modified with C18, C8 and C4, respectively. The longer alkyl chains in the stationary phase result in stronger retention of hydrophopic molecules (i.e. retention C18 > C8 > C4). The AX-300 is a weak anion exchanger composed of cross-linked polyethyleneimine coated on the silica surface.



Features and Benefits

- Rugged, spherical silica particles with 300 Å pore size
- Excellent choice for separation of peptides, proteins and other large molecules
- Available in ion-exchange and reverse-phases

Material Characteristics

Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit	USP Code
BU-300 (C4)	7.0	300	3%	Yes	2.5 – 8.0	60 °C	L26
RP-300 (C8)	7.0	300	5%	Yes	2.5 – 8.0	60 °C	L7
OD-300 (C18)	7.0	300	10%	Yes	2.5 – 8.0	60 °C	L1
AX-300*	7.0	300			2.5 – 8.0	60 °C	L14

* Weak Anion Exchange

			2.1 mm i.d.	4.6 mm i.d.	Column Holder Code *	
Phase	Length (mm)	Quantity	Part No.	Part No.	w/o Guard	w/ Guard
BU-300	30	2 Pack	**07110062**	**07110061**	A	A + K + L
	100	Each	**07110064**		C	D
	220	Each	**07110066**		G	H
RP-300	30	2 Pack	**07110056**	**07110055**	A	A + K + L
	100	Each	**07110058**	**07110057**	C	D
	220	Each	**07110060**	**07110059**	G	H
OD-300	30	2 Pack	**07110234**	**07110235**	A	A + K + L
	100	Each	**07110233**	**07110232**	C	D
	220	Each	**07110236**	**07110231**	G	H
AX-300	30	2 Pack	**07110074**	**07110073**	A	A + K + L
	100	Each	**07110076**	**07110075**	C	D
	220	Each		**07110077**	G	H

* See Page 153 for column holder codes and part numbers

Brownlee Spheri-5® and Spheri-10® Cartridge 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. Spheri-5 columns are available in both reverse phases (RP-8, RP-18, ODS & Phenyl) and polar normal phases (amino, cyano & silica). 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
- Available in ion-exchange and reverse-phases

Material Characteristics

Phase*	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	pH Stability	Temp. Limit	USP Code
RP-8	5.0, 10.0	80	6%	Yes	2.5 – 8.0	60 °C	L7
RP-18	5.0, 10.0	80	11%	Yes	2.5 – 8.0	60 °C	L1
ODS	5.0	80	14%	Yes	2.5 – 8.0	60 °C	L1
Phenyl	5.0	80	6%	Yes	2.5 – 8.0	60 °C	L11
Amino	5.0	80	3%	No	2.5 – 8.0	60 °C	L8
Cyano	5.0	80	4%	No	2.5 – 8.0	60 °C	L10
Silica	5.0	80			2.5 – 8.0	60 °C	L3

				2.1 mm i.d.	4.6 mm i.d.	Column Holder Code *	
Phase	Length (mm)	Particle Size	Qty	Part No.	Part No.	w/o Guard	w/ Guard
Spheri-5 RP-8	30	5 µm	2 Pack	**07110002**	**07110001**	A	A + K + L
	100	5 µm	Each	**07110004**	**07110003**	C	D
	220	5 µm	Each	**07110006**	**07110005**	G	H
Spheri-5 RP-18	30	5 µm	2 Pack	**07110014**	**07110013**	A	A + K + L
	100	5 µm	Each	**07110016**	**07110015**	C	D
	220	5 µm	Each	**07110018**	**07110017**	G	H
Spheri-5 ODS	30	5 µm	2 Pack	**07110020**	**07110019**	A	A + K + L
	100	5 µm	Each	**07110022**	**07110021**	C	D
	220	5 µm	Each	**07110024**	**07110023**	G	H
Spheri-5 Phenyl	30	5 µm	2 Pack		**07110025**	A	A + K + L
	100	5 µm	Each	**07110028**	**07110027**	C	D
	220	5 µm	Each		**07110029**	G	H
Spheri-5 Amino	30	5 µm	2 Pack		**07110037**	A	A + K + L
	100	5 µm	Each		**07110039**	C	D
	220	5 µm	Each	**07110042**	**07110041**	G	H
Spheri-5 Cyano	30	5 µm	2 Pack	**07110044**	**07110043**	A	A + K + L
	100	5 µm	Each	**07110046**	**07110045**	C	D
	220	5 µm	Each		**07110047**	G	H
Spheri-5 Silica	30	5 µm	2 Pack	**07110032**	**07110031**	A	A + K + L
	100	5 µm	Each	**07110034**	**07110033**	C	D

* See Page 153 for column holder codes and part numbers

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 in many laboratories because of the economical price and reliable performance. The Pecosphere cartridges are also available 83 mm long "3 x 8" and 150 mm long "3 x 150" columns (4.6 mm ID) for the separation of more complex mixtures.

Pecosphere columns are packed with rugged, high purity silica in 3 µm and 5 µm particle sizes. These columns are available in 80 Å pore size particles with standard end-capping for the analysis of acidic and neutral analytes and a special end-capped Reduced Activity (RA) version that is especially suited for the analysis basic analytes. There is a large pore (300 Å), non-end-capped, polyfunctional C18 version (HCODS) for the separation of peptides and proteins. 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.

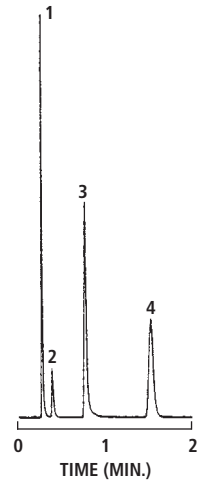
Features and Benefits

- The Pecosphere "3 x 3" column is the world's first fast HPLC column introduced in the 1980's
- Reduced Activity C18 & C8 with low silanol activity for the analysis of basic compounds
- 300 Å pore size Peco HCODS for the separation of peptides and proteins

Analysis of an Analgesic Tablet Using Fast LC

Peak Identification

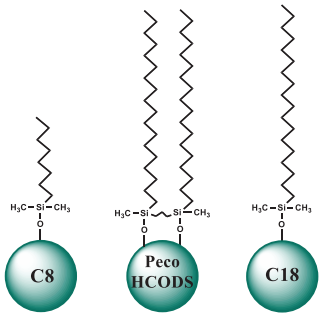
1. Acetaminophen
2. Caffeine
3. Salicylamide
4. Acetylsalicylic Acid



Part No.
02580164

CHROMATOGRAPHIC CONDITIONS

Column	Detection	Mobile Phase	Flow Rate	Sample
Pecosphere 3x3 C18 (33 x 4.6 mm)	UV at 240 nm	015% CH_3CN in H_20	2.0 mL/min.	1 µL of the tablet extract



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
Peco HCODS	5.0	300	9%	90	No	2.5 – 8.0	L1
C18 Scavenger	10.0	80	11%	170	Yes	2.0 – 8.0	L1

Phase	Length (mm)	Particle Size	Qty	4.6 mm i.d. Part No.	Column Holder*
Aquapore Octyl (C8)	33	3 µm	5 Pack	**02580164**	T
	83	3 µm	Each	**02580166**	U
	150	5 µm	Each	**02580169**	F
Red. Act. C18	33	3 µm	5 Pack	**02580195**	T
	83	3 µm	Each	**02580194**	U
	150	5 µm	Each	**N9303396**	F
Red. Act. C8	33	3 µm	5 Pack	**02580191**	T
	83	3 µm	Each	**02580192**	U
	150	5 µm	Each	**02580168**	F

Phase	Length (mm)	Particle Size	Qty	4.6 mm i.d. Part No.	Column Holder*
HCDOS	150	3 µm	Each	**02580213**	F
C18 Scavenger	33	10 µm	5 Pack	**02580202**	T
Silica Scavenger	33	10 µm	5 Pack	**02580203**	
C18 Scavenger Kit†	33	10 µm	Each	**02580204**	

* See Page 153 for column holder codes and part numbers
† Scavenger kit includes C18 cartridge (02580202) and holder (07150028)

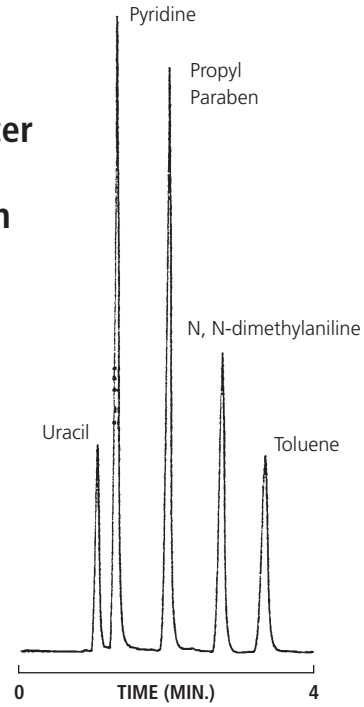
Brownlee Validated Cartridge Columns

The Brownlee Validated C18 sorbent is derived from a neutral "Type B" silica with inherent low silanophilic activity. Each sorbent lot is tested to meet stringent specifications for the separation of basic, neutral, and acidic test probes. Column lifetime studies and additional selectivity evaluations using real samples are also conducted. A high-temperature bonding technique is coupled with an exhaustive end-capping procedure to ensure maximum coverage of the silica surface. A proprietary treatment step is used to further eliminate any trace residual metals in the silica that create active adsorptive sites. The result is a highly deactivated column which yields excellent peak shape for difficult basic analytes, pharmaceuticals, and small peptides.

Features and Benefits

- Base deactivated compatible with acids, bases and neutrals
- Guaranteed batch-to-batch reproducibility
- Test chromatogram and Certificate of Compliance shipped with each column (except NewGuard® and 30 mm columns)

Validated C18 (100 x 4.6 mm), 75/25 MeOH/Water 1 mL/min., 30 °C, 230 nm detection



Performance of Validated Column with basic, acidic, and neutral test probes.

Part No.
00402241

Material Characteristics

Phase	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	Surface Area (m2/g)	pH Stability	Temp. Limit	USP Code
Validated C18	5.0	100	18%	Yes	350	2.5 – 8.0	60 °C	L1

Phase	Length (mm)	Particle Size	Quantity	2.1 mm i.d. Part No.	4.6 mm i.d. Part No.	Column Holder Code * w/o Guard	w/ Guard
Validated C18	30	5 µm	Each		**00402239**	A	A + K + L
	100	5 µm	Each	**00402240**	**00402241**	C	D
	150	5 µm	Each		**00403053**	F	F + K + L
	220	5 µm	Each		**00402243**	G	H

* See Page 131 for column holder codes and part numbers

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	USP Code
Polypore® CA	10.0	Microporous	1 - 14	90 °C	L19
Polypore® H	10.0	Microporous	1 - 14	90 °C	L17

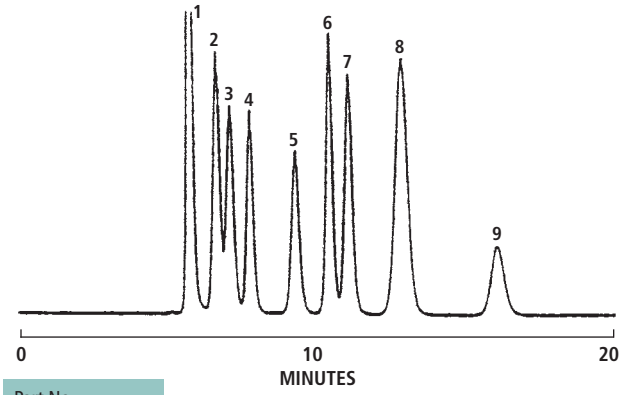
Phase	Length (mm)	Particle Size	Quantity	4.6 mm i.d. Part No.	Column Holder*
Polypore® H	30	10 µm	2 Pack	**07110085**	A
	100	10 µm	Each	**07110087**	C
	220	10 µm	Each	**07110089**	G
Polypore® CA	30	10 µm	2 Pack	**07110091**	A
	100	10 µm	Each	**07110093**	C
	220	10 µm	Each	**07110095**	G

* See Page 153 for column holder codes and part numbers

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



Part No.
07110089

CHROMATOGRAPHIC CONDITIONS

Column	Detection	Mobile Phase	Flow Rate	Temperature
Polypore H (220 x 4.6 mm i.d.)	210 nm	0.01 N H_2SO_4	0.15 mL/min.	25 °C

Brownlee Prep-10 Semi-Preparative Cartridge Columns

The Brownlee Prep-10 columns are 10 mm i.d. cartridges packed with 20 µm particle size, 300 Å pore size Aquapore® sorbents for easy scale up from our 7 µm analytical Aquapore® columns. These unique 100 mm and 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.

Features and Benefits

- Rugged, spherical silica particles with 300 Å pore size
- Excellent choice for separation of peptides, proteins and other large molecules
- Available in ion-exchange and reverse-phases

Material Characteristics

Phase	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	Surface Area (m_2/g)	pH Stability	Temp. Limit	USP Code
Aquapore Octyl (C8)	20.0	300	5%	Yes	100	2.5 – 8.0	60 °C	L7
Aquapore ODS (C18)	20.0	300	10%	Yes	100	2.5 – 8.0	60 °C	L1

Phase	Length (mm)	Particle Size	Quantity	4.6 mm i.d. Part No.	Column Holder*
Aquapore Octyl (C8)	100	20 µm	Each	**07110165**	R
	250	20 µm	Each	**07110166**	S

Phase	Length (mm)	Particle Size	Quantity	4.6 mm i.d. Part No.	Column Holder*
Aquapore ODS (C18)	100	20 µm	Each	**07110114**	R
	250	20 µm	Each	**07110163**	S

* See Page 131 for column holder codes and part numbers

Brownlee CHOICE Cartridge Columns for LC/MS

The Brownlee CHOICE cartridge columns are specifically designed in column dimensions for high throughput LC/MS analysis. These cartridges are available in three reverse phases (C8, C18 and PFPP) with particle sizes of 3 µm and 5 µm. The smaller internal diameter columns offer high sensitivity even with lower sample concentrations. The pentafluorophenyl propyl (PFPP) phase is ideal for the analysis of basic drugs. This phase has been shown to efficiently separate basic drugs in a 90% acetonitrile/water mobile phase eliminating the need for ion suppression agents commonly used with C18 column for the analysis of these types of compounds.

Features and Benefits

- Suitable for high throughput LC/MS analysis
- PFPP phase for basic drugs

Material Characteristics

Phase	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	Surface Area (m2/g)	pH Stability	Temp. Limit	USP Code
CHOICE C8	3.0	100	7%	Yes	350	2.5 – 8.0	60 °C	L7
CHOICE C18	3.0, 5.0	100	12%	Yes	350	2.5 – 8.0	60 °C	L1
CHOICE PFPP	5.0	100	5%	Yes	350	2.5 – 8.0	60 °C	L43

Phase	Length (mm)	Particle Size	Quantity	2.1 mm i.d. Part No.	3.21 mm i.d. Part No.	4.6 mm i.d. Part No.	Column Holder*
CHOICE® C8	30	3 µm	Each	**N2580012**			A
	50	3 µm	Each		**N2580013**		B
CHOICE® C18	30	3 µm	Each		**N2580003**		A
	30	5 µm	Each			**N2580020**	A
	50	5 µm	Each		**N2580022**	**N2580021**	B
CHOICE® PFPP	30	5 µm	Each	**N2580042**			A

* See Page 153 for column holder codes and part numbers

Brownlee VeloSep® Cartridge Columns

Brownlee VeloSep® columns are 3.2 mm i.d. cartridges packed with 3 µm reverse phase silica stationary phases for high throughput analysis.

Features and Benefits

- 3.2 mm i.d. improves sensitivity while reducing mobile phase consumption
- Available in 3 µm C8 and C18 sorbents in 40 mm and 100 mm column lengths

Material Characteristics

Phase	Particle Sizes (µm)	Pore Size (Å)	Carbon Load	End Capping	Surface Area (m2/g)	pH Stability	Temp. Limit	USP Code
VeloSep RP-8 (C8)	3.0	100	7%	Yes	170	2.5 – 8.0	60 °C	L7
VeloSep RP-18 (C18)	3.0	100	14%	Yes	170	2.5 – 8.0	60 °C	L1

Phase	Length (mm)	Particle Size	Quantity	4.6 mm i.d. Part No.	Column Holder*
VeloSep RP-8	40	3 µm	2 Pack	**07110189**	A
	100	3 µm	Each	**07110190**	C
VeloSep RP-18	40	3 µm	2 Pack	**07110191**	A
	100	3 µm	Each	**07110192**	C

* See Page 153 for column holder codes and part numbers

NewGuard Columns

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

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)

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

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

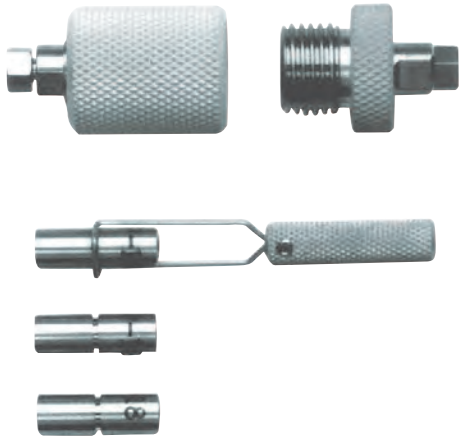
* Requires holder (07150001)

Note: Actual bed length of NewGuard is about 13 mm

Standards Solutions

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**

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



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

NewGuard Accessories

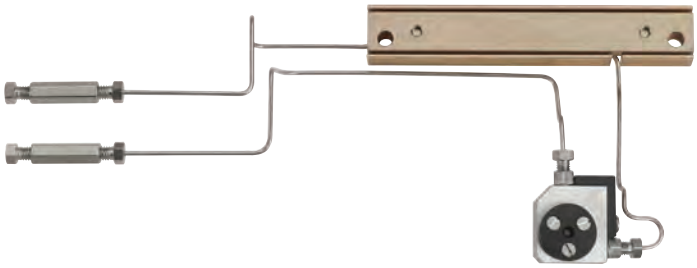
Replacement Seals for MPLC and Prep-10 Holders

Description	Part No.
Prep-10 Inlet Seal	
One each (Prep-10 Seal Replacement Kit Tools Required)	**07150012**
Prep-10 Outlet Seal	
One each (Prep-10 Seal Replacement Kit Tools Required)	**07150026**
Seals for MPLC Holders	
Two 7,000 psi seals (Seal Replacement Kit Tools Required)	**07150024**
Seal Replacement Kit for MPLC Holders	
Tools and Two 7,000 psi Seals	**07150023**

Finger-Tight Holders

	Code	Name	Description	Part No.
MPLC Cartridge Holders				
	A	30 mm Holder	Single 30 mm holder for MPLC cartridges	**07150013**
	B	50 mm Holder	Single 50 mm holder for MPLC cartridges	**N2580030**
	C	100 mm Holder	Single 100 mm holder for MPLC cartridges	**07150014**
	D	100 mm NewGuard System Holder	MPLC holder for directly coupling a NewGuard and a 100 mm cartridge	**07150016**
	E	130 mm System Holder	Holder for directly coupling a 30 mm and 100 mm MPLC cartridge	**07150032**
	F	150 mm Holder	Single 150 mm holder for MPLC cartridges	**07150030**
	G	220 mm Holder	Single 220 mm holder for MPLC cartridges	**07150015**
	H	220 mm NewGuard System Holder	MPLC holder for directly coupling a NewGuard and a 220 mm cartridge	**07150017**
	I	250 mm Holder	Single 250 mm holder for MPLC cartridges	**07150031**
	J	NewGuard Holder	Holder for a single, stand-alone NewGuard cartridge	**07150001**
	K	Union	For direct coupling of two cartridge holders or a NewGuard to any cartridge holder. (NewGuard end assembly required)	**07150018**
	L	NewGuard End Assembly	Used with union to couple a NewGuard to any cartridge holder	**07150002**
	M	End Assembly	End assembly for any MPLC holder body	**07150019**
	N	30 mm Holder Body	Holder body for 30 mm MPLC cartridge	**07150020**
	O	100 mm Holder Body	Holder body for 100 mm MPLC cartridge	**07150021**
	P	220 mm Holder Body	Holder body for 220 mm MPLC cartridge	**07150022**
	Q	Universal Holder Kit	Includes 100 mm and 220 mm holder bodies, 2 end assemblies, 1 union and 1 NewGuard end assembly	**07150025**
Prep-10 Cartridge Holders				
	R	100 mm Prep-10 Holder	Holder for a single 100 mm Prep-10 MPLC cartridge	**07150005**
	S	250 mm Prep-10 Holder	Holder for a single 250 mm Prep-10 MPLC cartridge	**07150006**
Pecosphere Cartridge Holders				
	T	33 mm Pecosphere Holder	Holder for a 33 mm fast LC Pecosphere cartridge. (Not for use with MPLC cartridges)	**07150028**
	U	83 mm Pecosphere Holder	Holder for a 83 mm fast LC Pecosphere cartridge. (Not for use with MPLC cartridges)	**07150029**
	V	100 mm Pecosphere Holder	Holder for a 100 mm fast LC Pecosphere cartridge. (Not for use with MPLC cartridges)	**02580225**

INTERCHANGEABLE FOR YOUR SAMPLE



Bio Conversion Kits

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

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

Pump Seal Kits

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

Detector Backpressure Regulator

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

Description	Material	Part No.
40 psi inline 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.

UV/Vis, PDA, FL and LC-135/235 FLOWCELLS

Description	Size	Part No.
Flowcells for Flexar FX-UV/Vis UHPLC Detectors		
Flowcell	6 mm x 2.4 µL	**N2925090**
Flowcell Kit (includes flowcell & detector head plate w/ gasket)	6 mm x 2.4 µL	**N2920070**
Flowcells for Flexar FX-UV/Vis UHPLC Detectors		
Flowcell Kit (includes flowcell w/ heat exchanger and zdv unions)	10 mm x 15 µL	**N2920070**
Flowcell	10 mm x 15 µL	**N2920124**
Flowcell Assembly (w/ zdv unions)	6 mm x 2.4 µL	**29000544**
Prep Flowcell Assembly (w/ zdv unions)	3 mm x 1.7 µL	**29000545**
Flowcells for 785A UV/Vis Detectors		
Flowcell	8 mm x 12 µL	**29000542**
Flowcell Assembly (w/ heat exchanger and zdv unions)	8 mm x 12 µL	**N2920117**
Flowcells for Flexar FX-PDA UHPLC and Series 275 PDA Detectors		
Flowcell (dual-lensed)	6 mm x 2.4 µL	**N2920128**
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**
Flowcell	4.5 mm x 5 µL	**N2922030**
FL 3 µL Flowcell w/ Assembly		**N2922211**
Flowcells for LC-135/235 PDA Detectors		
Flowcell Assembly (w/ heat exchanger)	10 mm x 8 µL	**N2350211**
Flowcell	10 mm x 8 µL	**N2350162**

FOR OUTSTANDING PERFORMANCE

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

Components	Part No.
Flexar Series/Series 200/785A 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/Series 200/200s Refractive Index, with its deflection-type design, allows sensitive detection of these compounds with low noise and drift characteristics.

Components	Part No.
Series 200/200a	
Refraction Index (RI) Lamp	**02712273**

Photo Diode Array Detector Lamps

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

Components	Part No.
Flexar/Series 200 EP	
Deuterium Lamp	**N2925030**
Tungsten Lamp	**N2922011**
Series 200	
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**
Flexar/Series 200/200a	
Xenon Lamp	**L2251157**
Festoon Lamp	**04969486**

ENHANCE PUMP PERFORMANCE

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

Contents	Part No.
1x5 Liter Bottle with Cap and PTFE Insert, 2 Meters PTFE ⅛" Tubing and 1x10 µm SS Solvent Frit	**N2601610**
1x2 Liter Bottle with Cap and PTFE Insert 1 Meter PTFE ⅛" Tubing and 1x10 µm SS Solvent Frit	**N2601611**
1x1 Liter Bottle with Cap and PTFE Insert 1 Meter PTFE ⅛" Tubing and 1x10 µm SS Solvent Frit	**N2601612**
1x0.5 Liter Bottle with Cap and PTFE Insert 1 Meter PTFE 1/16" Tubing and 1x40 µm SS Solvent Frit	**N2601613**
1 Cap with PTFE Insert 1 Meter PTFE ⅛" Tubing and 1x10 µm SS Solvent Frit	**N2601614**
1 Cap with PTFE Insert 1 Meter PTFE 1/16" Tubing and 1x40 µm SS Solvent Frit	**N2601615**
1x0.5 Liter Bottle with Cap and Dual PTFE Insert 2 pcs of 2 Meter PTFE ⅛" Tubing (Piston Wash Function)	**N2601616**
1 Cap with Dual PTFE Insert 2 pcs of 2 Meter PTFE ⅛" Tubing and 1x10 µm SS Solvent Frit (Piston Wash Function)	**N2601617**

Replacement Vacuum Degasser Bottles

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

Degassing Kits - Helium

Helium degassing solvent packages are available in a choice of three solvent configurations. Each kit contains a manifold, bottles, and all required tubing and fittings. The helium manifold has been designed to prevent accidental over-pressurization and to eliminate the possibility of solvent migrating back into the helium supply lines. The glass bottles supplied with the kits are specially coated to ensure safety and prevent solvent leakage if accidentally dropped or otherwise broken.

Description	Part No.
Isocratic Solvent Package Includes: one 2 L glass bottle kit, with cap assembly, and a helium manifold	**N2600491**
Quaternary Solvent Package Includes: two 1 L glass bottle kits and two 2 L glass bottle kits, with cap assemblies, one helium manifold, and a solvent organizer accessory	**N2600506**

Degassing System Spares - Helium

Description	Size	Part No.
1 L Glass Bottle		**N2600497**
2 L Glass Bottle		**N2600498**
2 L Glass Bottle Kit		**N2600457**
5 L Glass Bottle		**N2600499**
5 L Glass Bottle Kit		**N2600458**
Autosampler Flush Bottle Kit		**N2600459**
Bottle Cap Assembly For 1 L and 2 L glass bottles. Includes: sparger (10 µm), solvent filter (10 µm), connecting fittings		**N2600495**
Bottle Cap Assembly For 5 L glass bottle		**N2600496**
Helium Manifold Kit 5 psi regulator		**N2600284**
Kel-F Ferrule	1/8 in	**09903771**
Tefzel Nut	1/8 in.	**N2601189**

Supply Connectors - Helium

Each solvent reservoir system requires high-purity helium, either to pressurize or to degas the solvents. The helium pressure regulator with shut-off valve can deliver from 5 to 180 psi of pressure from an external tank. We offer all the fittings needed to connect a helium source to your solvent reservoir system. Refer to your operator's manual for step-by-step installation instructions.

Description	Part No.
1 L Glass Bottle Reduces 1/4 to 1/8 in.	**09903906**
Regulator 5 to 180 psi with outlet shut-off valve	**00230090**
Teflon Tubing Helium and Solvent Supply, per 1 ft. length 1/8 in. o.d. x .06 in. i.d.	**02506483**

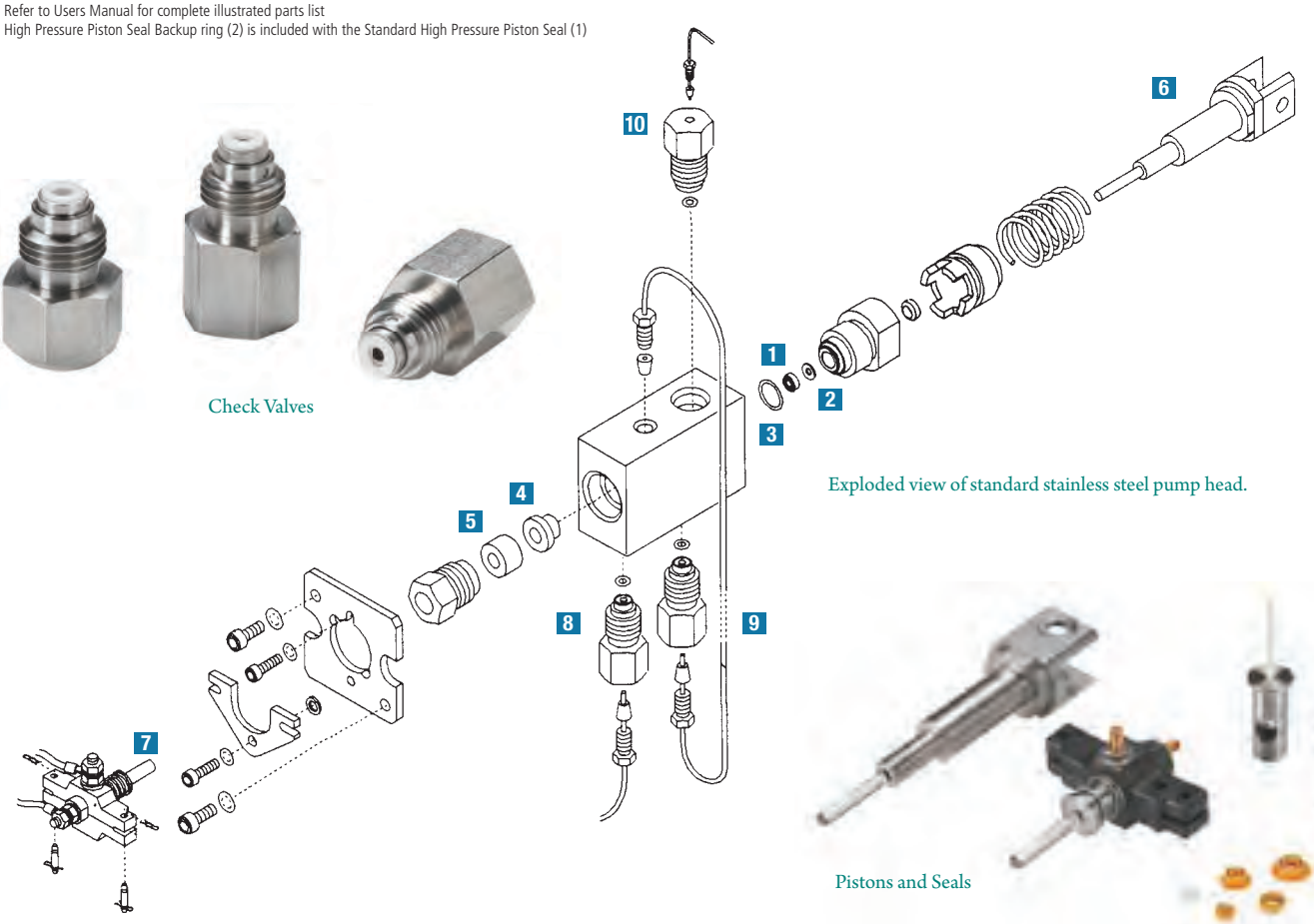
SEALS, PISTONS, AND CHECK VALVES

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.

		Flexar LC or Series 200 (6000 psi)			FX-10
		Standard Stainless Steel	Micropump Stainless Steel	Biocompatible Titanium	Micropump Stainless Steel
	Description	Part No.	Part No.	Part No.	Part No.
1	Standard High Pressure Piston Seal	**09908324**	**09923367†**	**09907338**	**09923367†**
1	High Pressure Piston with 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	**09907339**	**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	**N2600104**	**N2910512**	**N2600104**	**N2910515**
8	Intel 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
† High Pressure Piston Seal Backup ring (2) is included with the Standard High Pressure Piston Seal (1)

Check Valves

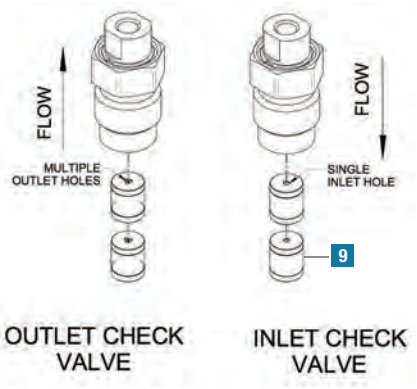


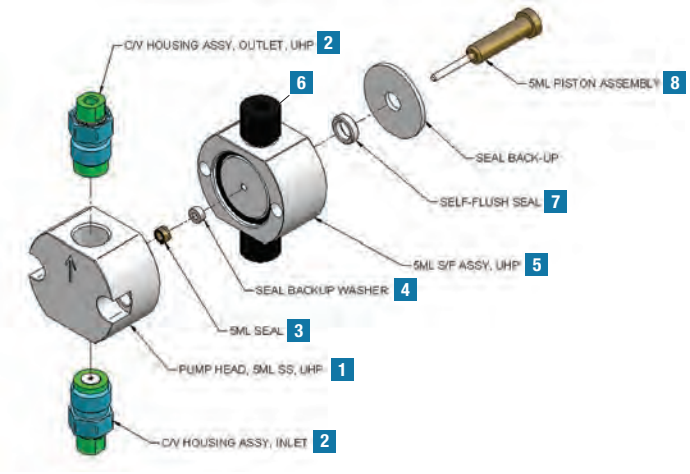
Exploded view of standard stainless steel pump head.

Pistons and Seals

FLEXAR FX-15 & FX-20 PUMP HEAD

Check Vale Assemblies





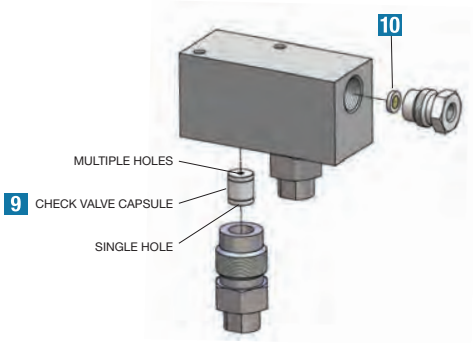
	Description	FX-15 Standard Stainless Steel Part No.	FX-20 Standard Stainless Steel Part No.	FX-20 Biocompatible Titanium Part No.
1	Pump Head (SS - 2 Pack, Titanium - Each)	†	N2911251	N2911244
2	Inlet/Outlet Check Valve Kit (1 inlet & 1 outlet)	N2911220	N2911220	NA
3	High Pressure Piston Seal	*	*	*
4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

* 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)	N2918536
FX-20 PM Seal Kit (4 Heads)	N2911250

Tee Valve Assembly



Bio Conversion Kit

For the Series 200 Pump and Series 200 Autosampler. The kit contains all of the parts necessary to convert the pump and the autosampler for Bio applications.

Description	Part No.
Bio Conversion Kit	**N2910035**

Maintenance Kits and Tools

Description	Part No.
Biocompatible Piston Seal Replacement Kit Includes: four seals, backup rings, and O-Rings	**N2910385**
Check Valve Torque Wrench	**02540871**
Diaphragm for Pulse Compensator	**N2601316**
High Pressure Piston Seal Replacement Kit Includes: four seals, backup rings, and O-Rings	**N2910383**
Insertion Tool	**N2601503**
Micropump Piston Seal Replacement Kit	**N2910384**
Pulse Compensator Repair Kit Includes: diaphragm, elastomer plug, and seal	**N2600313**
Seal Removal Tool	**N2601295**
Series 200 Bio LC Pump Maintenance Kit Includes: fuses, seals, O-Rings, and seal tools	**N2910346**
Series 200 Pump Maintenance Kit Includes: fuses, seals, O-Rings, and seal tools	**N2910345**

Manuals and Accessories

Description	Part No.
Pump 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 (5 pack)		**02580202**
LC System Accessories		
Solvent waste cup		**N2916019**
Drain Cup		**N2916085**
90° Elbow Adapter, ¼" 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**

Series 200 Pump Solvent Upgrade Kits

The unique design of the PerkinElmer 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.
Series 200 Binary to Quaternary Upgrade Kit	**N2910344**
Series 200 Isocratic to Binary Upgrade Kit	**N2910342**
Series 200 Isocratic to Quaternary Upgrade Kit	**N2910343**

Stainless Steel Sample Loops

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

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

High Pressure Stainless Steel Sample Loops

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

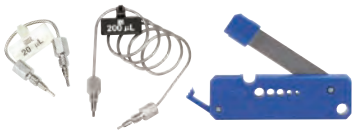
PEEK Sample Loops

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-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	Length	Part No.
1/16 in O.D. x 0.007 in I.D.	5 ft	**N9302678**
1/16 in O.D. x 0.010 in I.D.	5 ft	**N9302650**
1/16 in O.D. x 0.004 in I.D. (Black)	50 cm	**N2916200**
1/16 in O.D. x 0.005 in I.D. (Red)	50 cm	**N2916059**
Connector Tubing, Flexar/FX Mixer to Injector, SS		**N2916211**
Connector Tubing, Flexar ISO/Binary/ Quaternary Pump to Autosampler, SS		**N2916210**

Stainless Steel Tubing

Features and Benefits

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

SS-316 Tubing

Description	Size	Part No.
1/16 in. o.d. x .043 in. i.d.	6 ft	**00873035**
1/16 in. o.d. x .015 in. i.d.	6 ft	**00873036**
1/16 in. o.d. x .007 in. i.d.	3 ft	**02540838**
1/16 in. o.d. x .007 in. i.d.	20 cm	**02711441**
1/16 in. o.d. x .007 in. i.d.	50 cm	**00891480**

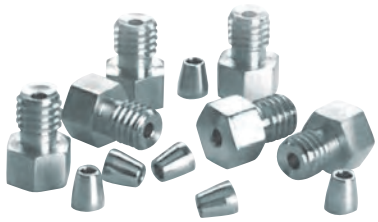
Tefzel Tubing

Description	Size	Part No.
1/16 in. o.d. x .030 in. i.d.	10 ft	**N9301029**

High-performance Fingertight® fittings for the most demanding applications

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

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



Fittings, Nuts and Ferrules

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

Stainless Steel Fittings

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

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

ONE-PIECE, EASY-TO-USE

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 toolless installation. Zero-dead-volume unions are also included. In addition, you receive varying lengths of stainless steel tubing in 0.007 and 0.010 inch i.d., as well as 0.30 inch i.d 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**

Flom Analytical Injection Valve

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

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

Injector Valve Rotor Seals

For both Series 200 Autosampler and manual injectors.

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

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

Rheodyne™ 9725 PEEK Bio Injection Valve

Model 9725 is inert and well-suited to the chromatography of biological molecules, including applications with aggressive mobile phases. This valve is useful in all applications in which metal contact with the mobile phase and or sample should be avoided. This valve uses PEEK vent lines and a 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**

INJECT WITH GREATER PRECISION

Flexar Autosamplers

Best-in-class cycle time. Wide injection volume range. Excellent injection reproducibility. Precisely what you need to increase your sample throughput and efficiency.

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
- 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. All Flexar autosamplers 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 (10/pkg)	**N2936003**
Flexar/225 Biocompatible Upgrade Kit (w/valve)	**N2930675**
1/16" OD x 0.038" 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**

	Part No.
NEW Flexar UHPLC (18000 psi) Autosampler Valve Upgrade Kit	**N2932000**
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**

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, SS	**N2911200**
150 µL In-Line High Pressure Mixer Assembly, SS	**N2911201**
250 µL In-Line High Pressure Mixer Assembly, SS	**N2911202**
350 µL In-Line High Pressure Mixer Assembly, SS	**N2911205**
500 µL In-Line High Pressure Mixer Assembly, SS	**N2911203**
150 µL High Pressure Binary High Pressure Mixing-T, SS	**N2911206**
10 µL Binary Mixing-T, SS	**N2911170**
Binary High Pressure T-Mixer, SS, 50 µL	**N2911212**
Binary High Pressure T-Mixer, SS, 350 µL	**N2911210**
Binary High Pressure T-Mixer, SS, 500 µL	**N2911211**
T-connector, SS	**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**

FX-15, FX-20 UHPLC Pump Accessories

Description	Part No.
Replacement 0.5 µm Filter Frits for FX-15 (4-pack)	**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	Part No.
ID PEEK Tubing			
0.004"	Black	50 cm	**N2916200**
0.005"	Red	50 cm	**N2916056**
0.004"	Black	76 cm	**N2916260**
0.005"	Red	66 cm	**N2916262**
Connector Tubing, Stainless Steel			
Flexar ISO/Binary/Quaternary Pump to Autosampler			**N2916210**
Dual Mixer Connection (≤ 250 µL)			**N2916216**
Dual Mixer Connection (³350 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 (5-pack)			**02580202**
30 mL Priming Syringe			**09904849**
FX-15 C18 Scavenger Column Kit			**N2910765**
FX-15 C18 Scavenger Columns (2/pkg)			**02580223**

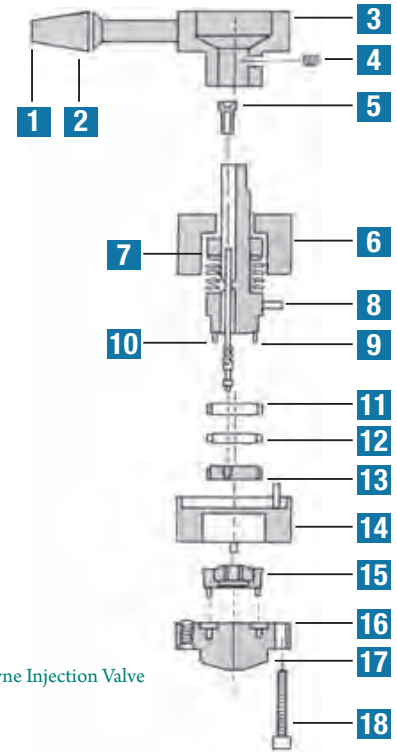
Microsyringes (For Manual Injection)

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**

Rheodyne Valves Spare Parts

	Description	Model 9725 Part No.	Model 7725 Part No.
1	Handle Screw		
2	Handle		
3	Knob Assembly		
4	Set Screws		
5	Needle Guide S200 Autosampler	N2931054	N2931054
	Manual Valve ISS-100	09904800	09904800
6	Body		
7	Thrust Bearing		
8	Rotor Pin		
9	Seal Pins		
10	Needle Port Tube	09904805	09904805
11	Bearing Ring		
12	Isolation Seal		
13	Rotor Seal Vespel	09904802	09904802
	Tefzel	N9302677	N9302677
	PEEK	N9306044	N9306044
14	Stator Ring		
15	Stator Face Assembly PEEK and Ceramic	N9306047	N9306047
16	Set Screws		
17	Stator PEEK	N9306046	
	Stainless Steel Titanium		N9306045
18	Stator Screws		



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.

Sample Loops

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

SS Loop for model 7725

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 Models 7725/9725

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

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**

Description	Part No.
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 (1mL)	**N9302560**
96-well Plate Cover/Mat	**N9302563**
96-well Shallow (200 µL)	**N9302562**
96-well Mid (500 µL)	**N9302561**
96-well Plate Cover/Mat	**N9302563**
96-well Shallow (200 µL)	**N9302562**
96-well Mid (500 µL)	**N9302561**
96-well Plate Cover/Mat	**N9302563**
384-well Plate (200 µL)	**N9302564**
384-well Plate Cover/Mat	**N9302565**

UHPLC – General Starter Kit

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

Contents	Qty/Pack	Part No.
Open-End Wrench	2	**09907233**
Adjustable Wrench	1	**N9301326**
Reversible Screw Driver	1	**N9301480**
Parker-Hannifin ZDV SS Union	1	**09903289**
Parker-Hannifin Medium-Stem SS Nuts	10	**09903980**
1/16" Parker-Hannifin SS Ferrules	10	**00873032**
1/16" Valco SS Ferrules	6	**09903891**
Finger-Tight Fittings, PEEK, 5.5K psi Max. (5/pk)	1	**N9307822**
Optimize Technologies EZP (Hand-Tight Fitting to 13K psi, Wrench-tight to 20K psi)	1	**N9306301**
1/16" Tefzel Nuts	2	**09920381**
1/16" Tefzel Reverse Ferrules	2	**09920382**
1/8" Tefzel Nuts	4	**N2601189**
1/8" Tefzel Reverse Ferrules	4	**09903771**
PEEK Tubing Cutter (Includes 5 Extra Blades)	1	**N9307820**
50 cm x 0.005" ID 1/16" SS Tubing	3	**02507060**
5' x 0.004" ID 1/16" PEEK Tubing, Black	1	**N2916261**
5' x 0.005" ID 1/16" 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; 100/pk	1	**N9300695**
Cable/Tubing Organizer Clip	3	**NX598006**

HPLC – General Starter Kit

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

Contents	Qty/Pack	Part No.
Open-End Wrench	2	**09907233**
Adjustable Wrench	1	**N9301326**
Reversible Screw Driver	1	**N9301480**
Parker-Hannifin ZDV SS Union	1	**09903289**
Parker-Hannifin Medium-Stem SS Nut	10	**09903980**
1/16" Parker-Hannifin SS Ferrule	10	**00873032**
1/16" Valco SS Ferrules	6	**09903891**
Rheodyne SS Nut, Short Stem	2	**09904956**
Rheodyne SS Nut, Long Stem	2	**09904974**
1/16" Rheodyne SS Ferrule	4	**09904947**
1/16" Tefzel Nuts	2	**09920381**
1/16" Tefzel Reverse Ferrules	2	**09920382**
1/8" Tefzel Nuts	4	**N2601189**
1/8" 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" ID 1/16" SS Tubing	1	**02507060**
50 cm x 0.007" ID 1/16" SS Tubing	2	**00891480**
5' x 0.007" ID 1/16" PEEK Tubing, Yellowish-Tan	1	**N9302650**
5' x 0.005" ID 1/16" 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; 100/pk	1	**N9300695**
Cable/Tubing Organizer Clip	3	**NX598006**

Autosampler Syringes

Description	Pkg.	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

EVO N_2 Nitrogen Generators

Technical Specifications for EVO N_2 Nitrogen Models

Description	Specification
Purity	> 98% (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	10A for 230V ; 15A for 110V
Heat Dissipation	Approx 2700 Btu/h

Flow Rate	Voltage	Part No.
25 L/min	115V	**N9308587**
	220V	**N9308573**
35 L/min	115V	**N9308588**
	220V	**N9308574**
60 L/min	115V	**N9308589**
	220V	**N9308575**

EVO N_2 Hybrid Nitrogen Generators

The EVO Nitrogen hybrid gas generators was specifically designed to meet the flow, purity and pressure requirements of the LC/MS 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. Selective molsieves (CMS) adsorb remaining Oxygen and traces of humidity.

Technical Specifications for EVO N_2 Hybrid Nitrogen Models

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	10A for 230V ; 15A for 110V
Heat Dissipation Approx	2700 Btu/h

Flow Rate	Voltage	Part No.
Up to 10 L/min +/- 1.5 L/min (at atmospheric pressure)	115V	**N9308590**
	220V	**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 from analytical instruments: The constant purity of nitrogen improves system stability and ensures reproducible results.
Better lab efficiency: Gas cylinders are insufficient to ensure the large nitrogen volumes needed in LC/MS techniques.

Cost savings: Initial investment can normally be paid back in less than a year. No plumbing is required to transfer gas from the storeroom to the lab.

Improved safety: Nitrogen produced at low pressure and room temperature eliminates the risks related to high pressure gas bottle use and the hazards associated with liquid nitrogen.

Simple installation: The Whisper nitrogen generator is very easy to install. Simply plug the unit into a 200V 60Hz/50Hz outlet. The exclusive "Split System" design allows the section containing the compressor to be installed separately from the nitrogen production assembly, which can be wall-mounted to save precious space!

Technical Specifications

Description	Specification
Purity (based on outlet flow)	> 98 - 99.5%
Outlet Pressure	7 bar
Height	115 cm (45.3 in)
Width	48 cm (19 in)
Depth	26 cm (10.2 in)
Weight	15 kg (33 lbs) ; 18 kg (39 lbs); 21 kg (46 lbs)
Operating Temperature	+10 °C to +35 °C (+50 °F to +95 °F)
Air Compressor Supplied	NO
Electrical Requirements	None
Background Noise	None
Connections	1/4 G

Flow Rate	Part No.
40 L/min	**N9306285**
80 L/min	**N9306286**
120 L/min	**N9306287**

N_2 Mini Whisper Generators

The Mini Whisper Nitrogen generator has been developed to meet specific requirements in terms of flow, purity and pressure on some LC/MS interfaces as well as on light scattering evaporative detector.

The simple 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.

Technical Specifications

Description	Specification
Purity (based on outlet flow)	> 98 - 99.5%
Outlet Pressure	7 bar
Height	73.5 cm (28.9 in)
Width	34.8 cm (13.7 in)
Depth	35 cm (13.8 in)
Weight	8 kg (18 lbs)
Operating Temperature	+10 °C to +35 °C (+50 °F to +95 °F)
Air Compressor Supplied	NO
Electrical Requirements	None
Background Noise	None
Connections	1/4 G

Flow Rate	Part No.
8 L/min	**N9306288**

Parker Domnick Hunter 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.

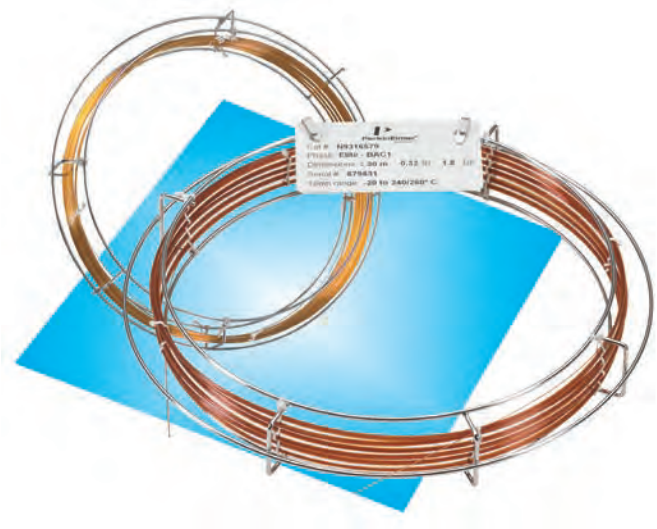
Technical Specifications

Description	Low Flow NitroFlow Lab	N2-22 Mid Flow	N2-35 Mid Flow	N2-45 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	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	90 cm (35.4 in)	45 cm (17.8 in)	45 cm (17.8 in)	61 cm (24.0 in)
Depth	31 cm (12.2 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	10 - 50 lpm	100 psi inlet - 13 lpm output - 99.5% purity	100 psi inlet - 20 lpm output - 99.5% purity	100 psi inlet - 39 lpm output - 99.5% purity
		125 psi inlet - 16 lpm output - 99.5% purity	125 psi inlet - 25 lpm output - 99.5% purity	125 psi inlet - 55 lpm output - 99.5% purity
		100 psi inlet - 20 lpm output - 99.0% purity	100 psi inlet - 30 lpm output - 99.0% purity	100 psi inlet - 53 lpm output - 99.0% purity
		125 psi inlet - 25 lpm output - 99.0% purity	125 psi inlet - 37 lpm output - 99.0% purity	125 psi inlet - 74 lpm output - 99.0% purity
		100 psi inlet - 30 lpm output - 98.0% purity	100 psi inlet - 45 lpm output - 98.0% purity	100 psi inlet - 73 lpm output - 98.0% purity
		125 psi inlet - 38 lpm output - 98.0% purity	125 psi inlet - 57 lpm output - 98.0% purity	125 psi inlet - 106 lpm output - 98.0% purity
Part No.	**N9306213 (120V) N9306214 (230V)**	**N9306210**	**N9306211**	**N9306212**

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)

Description	Specification
Operating Temperature	+5 °C to +40 °C (+41 °F to +104 °F)
Port Connection Outlet	1/4" 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 (120V) ; N9303224 (230V)**



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 i.d.

Quick Phase Cross Reference Chart*

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

* For a more detailed cross reference chart, see page 174-175.

PROTECTION WITHOUT THE CONNECTION

Innovative Integrated Guard Columns

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

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

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.

The Integrated Guard column is so economical that we challenge you to compare our price against that of a conventional connection, even if you assemble it yourself.

Elite-1

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

Elite-5

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

Elite-5 ms II

ID	df (mm)	Temp Limits (°C)	Integra-Guard	15 m Part No.	30 m Part No.
0.25 mm	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 mm	0.25	-60 to 330/350	5 m		**N9305617**
	1.00	-60 to 330/350	5 m		**N9305618**

Elite-5 ms

ID	df (mm)	Temp Limits (°C)	Integra-Guard	30 m Part No.	60 m Part No.
0.25 mm	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 mm	0.50	-60 to 330/350	5 m		**N9305625**
	1.00	-60 to 330/350	5 m		**N9305626**

Elite-624

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

Elite-1301

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

Elite-1701

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

Elite-WAX ETR

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

COLUMN CROSS REFERENCE CHART

Cross Reference Chart by Phase

PerkinElmer	Phase Composition	USP	Agilent®	Alltech®
Elite-1, Elite-M1	dimethyl polysiloxane	G1, G2, G38	HP-1, DB-1, CP-Sil 5 CB	007-1AT-1, EC-1
Elite-1HT	dimethyl polysiloxane		DB-1ht	AT-1ht
Elite-1ms	dimethyl polysiloxane (low bleed)		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		DB-5ht ,VF-5ht	
Elite-5ms	1,4-bis(dimethylsiloxy)phenylene dimethyl polysiloxane		DB-5ms, DB-5msUI, VF-5ms, 8 CG MS	
Elite-5ms II	diphenyl dimethyl polysiloxane		HP-5, HP-5ms, DB-5, Ultra-2, CP-Sil 8 CB	
Elite-17	(low bleed)	G3	DB-17	AT-50
Elite-17ht	phenyl methyl polysiloxane		DB-17ht	
Elite-17ms	phenyl methyl polysiloxane		HP-50+, DB-17, DB-17ht, DB-608, CP Sil 24 CB	
Elite-17ms+	diphenyl dimethyl polysiloxane		DB-17ms, VF-17ms, CP-Sil 24 CB	
Elite-35	Unique Phase	G42	HP-35, DB-35	AT-35, AT-35ms
Elite-35MS	diphenyl dimethyl polysiloxane		DB-35ms, DB35msUI	
Elite-200	Uunique 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-1301ms, VF-624ms, CP-1301	AT-624, AT-1301
Elite-624 MS	Cyanopropylphenyl dimethyl polysiloxane		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	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-502	Volatile analytes by EPA Method 502.2	DB-502.2		
Elite-608	Semivolatile pesticides by EPA Method 608	DB-608, HP-608		
Elite-VRX	Volatile analytes by EPA Methods 502.2, 601, 602, 8010, 8020	DB-VRX		
Elite-PONA	Detailed analysis of petroleum naphtha	HP-PONA, DB-Petro, CP Sil PONA CB		
Elite-SimDist	Simulated Distillation & Hydrocarbons - ASTM 2887	DB-2887	AT-2887	
Elite-FFAP	Free fatty acids	HP-FFAP, DB-FFAP, VF-DA, CP WAX58 CB, CP-FFAP CB	AT-AquaWax DA, AT-1000	PERMABOND FFAP, OPTIMA FFAP, OPTIMA FFAP Plus
Elite-2560	cis/transFAMEs	HP-88		
Elite-2330	cis/trans FAMEs & Dioxins	VF-23ms	AT-Silar90	
Elite-XLB	Polychlorinated biphenyl analytes by EPA Methods 8082, 6008, PCB congeners	DB-XLB, VF-XMS		
Elite-VMS	Volatiles Organic Pollutants by GC-MS for EPA Methods 8260,624,524	Unique Phase		
Elite-BAC 1 Advantage	Blood Alcohol Testing	DB-ALC1		
Elite-BAC 2 Advantage		DB-ALC2		
Elite-CLPesticides	Organochlorine pesticides by EPA Methods 505, 508, 608, 8081, 8082	DB-CLP1		
Elite-CLPesticides2		DB-CLP2		

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

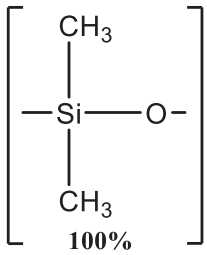
Ohio Valley®	Phenomenex®	Quadrex®	Restek®	SGE®	Supelco®
			Rtx-502.2		VOCOL
		007-608			SPB-608
			Rtx-DHA	BP1PONA	Petrocol DH
			Rtx-2887		Petrocol 2887, Petrocol EX2887
OV-351	ZB-FFAP		Stabilwax-DA	BP-21	Nukol
			Rt-2560		SPB-2560
		007-23		BPX70	SP-2330, SP-2331, SP-2380
	MR1, ZB-XLB		Rxi-XLB		
	ZB-BAC1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

Elite-1, Elite-1ms, Elite-1ht: 100% Dimethyl Polysiloxane

The Elite-1 100% dimethyl polysiloxane columns is a highly versatile, non-polar, crosslinked general purpose phase that is rugged, exhibiting long column lifetime, low bleed, and high maximum operating temperatures. The Elite-1ms is engineered for extremely low bleed for MS detectors. The Elite-1ht (High-Temp) is designed for reduced bleed when operating at higher temperature (up to 380 °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/400 °C
- Equivalent to USP G1, G2, and G38 phases

Elite-1

ID	df (mm)	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 mm	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 mm	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 mm	0.13	-60 to 340/360		**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 mm	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	df (mm)	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 mm	0.05	-60 to 330/350	**N9316056**				
	0.20	-60 to 330/350	**N9316057**				
0.10 mm	0.10	-60 to 330/350	**N9316058**				
	0.40	-60 to 320/340			**N9316061**		
0.18 mm	0.18	-60 to 330/350	**N9316001**		**N9316003**		
	0.40	-60 to 320/340	**N9316002**		**N9316004**		**N9316005**[2]
0.20 mm	0.33	-60 to 330/350		**N9316062**		**N9316063**	**N9316064**

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

NEW

Elite-1ms (Mass Spectrometry)

ID	df (mm)	Temp Limits (°C)	15 m Part No.	20 m Part No.	30 m Part No.	60 m Part No.
0.18 mm	0.18	-60 to 330/350		**N9305635**		
	2.00	-60 to 330/350		**N9305636**		
0.25 mm	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 mm	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**	

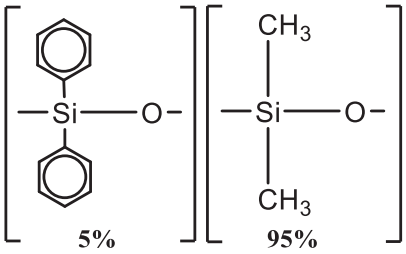
Elite-1ht (High Temperature)

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

Elite-5, Elite-5 Amine & Elite-5ht: 5% Diphenyl / 95% Dimethyl Polysiloxane

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. The Elite-5 is available in a standard version stable up to 350 °C, a high temperature version stable up to 400 °C and an Amine version engineered for analysis of amines and other basic compounds.

Elite-5 Structure



Features and Benefits

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

Elite-5

ID	df (mm)	Temp Limits (°C)	5 m Part No.	15 m Part No.	30 m Part No.
0.25 mm	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 mm	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 mm	0.13	-60 to 340/360			**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 mm	0.50	-60 to 310/330	**N9316099**	**N9316102**	
	1.50	-60 to 310/330	**N9316098**	**N9316100**	**N9316103**
	5.00	-60 to 270/290		**N9316101**	

ID	df (mm)	Temp Limits (°C)	10 m Part No.	20 m Part No.	40 m Part No.
0.05 mm	0.05	-60 to 325/350	**N9316104**		
	0.20	-60 to 325/350	**N9316105**		
0.10 mm	0.10	-60 to 330/350		**N9316108**	
	0.40	-60 to 320/340		**N9316109**	
0.18 mm	0.18	-60 to 330/350	**N9316066**	**N9316068**	
	0.4	-60 to 320/340	**N9316067**	**N9316069**	**N9316071**
0.20 mm	0.33	-60 to 330/350	**N9316110**[1]	**N9316111**[1]	**N9316112**[1]

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

Elite-5 Amine

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

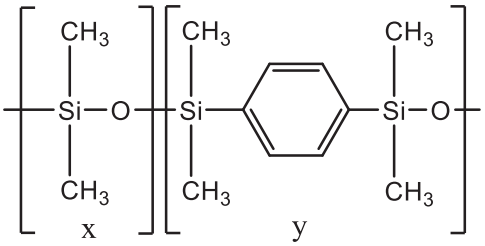
Elite-5ht (High Temperature)

ID	df (mm)	Temp Limits (°C)	15 m Part No.	30 m Part No.
0.25 mm	0.10	-60 to 400	**N9316272**	**N9316273**
0.32 mm	0.10	-60 to 400	**N9316374**	**N9316275**

Elite-5ms: Extremely Low Bleed and Inertness

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 & organophosphorus pesticides, drugs and solvent impurities.

Elite-5ms Structure



Features and Benefits

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

Elite-5ms

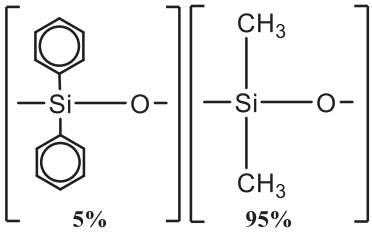
ID	df (mm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.18 mm	0.18	-60 to 325/340		**N9316276**[1]	**N9316277**[1]
0.20 mm	0.33	-60 to 330/350	**N9316301**[2]	**N9316302**[2]	**N9316303**[2]
0.25 mm	0.25	-60 to 330/350	**N9316279**	**N9316282**	**N9316286**
	0.50	-60 to 330/350		**N9316284**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

[1] The lenghts 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: Tested for Low Bleed Performance

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 & G36 phases

NEW

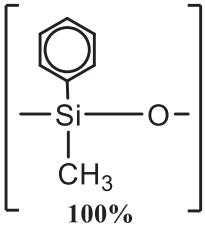
Elite-5ms II

ID	df (mm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.25 mm	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 mm	0.10	-60 to 330/350	**N9305666**	**N9305667**	**N9305668**
	0.25	-60 to 330/351	**N9305669**	**N9305670**	**N9305671**
	0.50	-60 to 330/350		**N9305672**	**N9305673**
	1.00	-60 to 325/350	**N9305674**	**N9305675**	**N9305698**

Elite-17: (50%-phenyl)-methylpolysiloxane

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 320 °C
- Equivalent to USP G3 phase

Elite-17

ID	df (mm)	Temp Limits (°C)	5 m Part No.	15 m Part No.	30 m Part No.	60 m Part No.
0.25 mm	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 mm	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 mm	0.85	40 to 270/290		**N9316131**	**N9316132**	**N9316133**
	1.70	40 to 260/280	**N9316130**			
0.53 mm	1.00	40 to 260/280		**N9316135**	**N9316136**	**N9316137**
	2.00	40 to 250/270	**N9316134**			

ID	df (mm)	Temp Limits (°C)	10 m Part No.	20 m Part No.
0.05 mm	0.05	40 to 280/300	**N9316138**	
	0.10	40 to 280/300	**N9316139**	
0.10 mm	0.02	40 to 280/300	**N9316141**	
	0.10	40 to 280/300	**N9316140**	**N9316142**
	0.20	40 to 280/300		**N9316143**
0.18 mm	0.18	40 to 310/330	**N9316113**	**N9316115**
	0.3	40 to 300/320	**N9316114**	**N9316116**

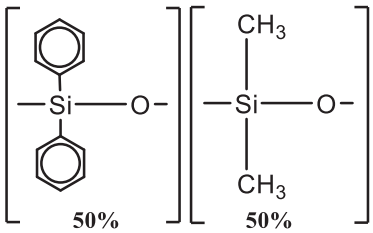
Elite-17ht (High Temperature)

ID	df (mm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.25 mm	0.15	40 to 300/320	**N9316263**	**N9316264**	
0.32 mm	0.15	40 to 300/320	**N9316265**	**N9316266**	**N9316267**

Elite-17ms: Mid-polarity, Very Low Bleed

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 °C
- Equivalent to USP G3 phase

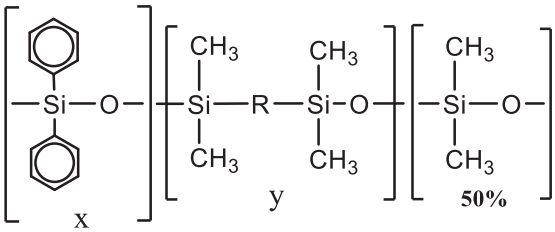
Elite-17ms

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

Elite-17ms+: High Temperature, Extremely Low Bleed

The new Elite-17ms+ columns are general purpose, mid-polarity columns that 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

NEW

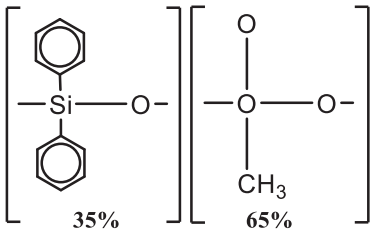
Elite-17ms+

ID	df (mm)	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 mm	0.15 mm	40 to 340/360	**N9305677**		**N9305678**		
0.18 mm	0.18 mm	40 to 340/360			**N9305679**		
	0.36 mm	40 to 340/360			**N9305680**		
0.25 mm	0.25 mm	40 to 340/360		**N9305681**		**N9305682**	**N9305685**
0.32 mm	0.25 mm	40 to 340/360		**N9305683**		**N9305684**	

Elite-35: (35%-diphenyl)-dimethylpolysiloxane

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.

Elite-35 Structure



Features and Benefits

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

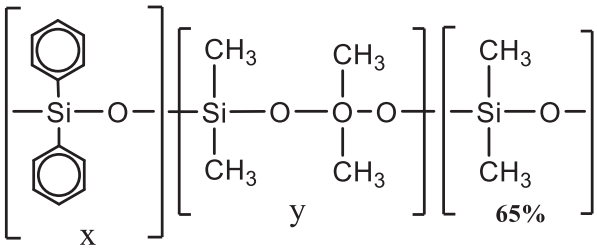
Elite-35

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

Elite-35ms: High Temperature, Extremely Low Bleed

The Elite-35ms columns are general purpose, mid-polarity columns that 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 °C/360 °C
- Equivalent to USP G42 phase

NEW

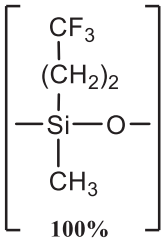
Elite-35ms

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

Elite-200: (Trifluoropropyl)-methylpolysiloxane

Elite-200 columns contain 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 °C
- Equivalent to USP G6 phase

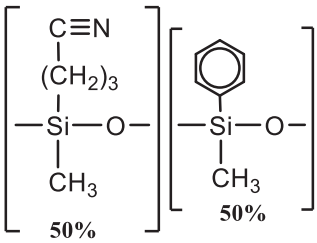
Elite-200

ID	df (mm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.25 mm	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 mm	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 mm	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: (50%-cyanopropylmethyl)-phenylmethylpolysiloxane

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 240 °C
- Equivalent to USP G7, G19 phases

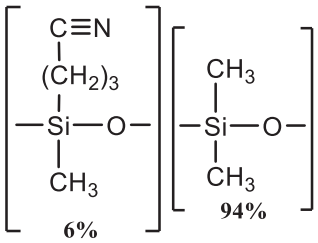
Elite-225

ID	df (mm)	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 mm	0.05	45 to 220/240	**N9316186**				
0.10 mm	0.10	45 to 220/240			**N9316187**		
0.18 mm	0.2	45 to 220/240	**N9316172**		**N9316173**		
0.25 mm	0.15	45 to 220/240		**N9316174**		**N9316176**	**N9305631**
	0.25	45 to 220/240		**N9316175**		**N9316177**	
0.32 mm	0.15	45 to 220/240		**N9316178**		**N9316180**	
	0.25	45 to 220/240		**N9316179**		**N936181**	
0.45 mm	0.85	40 to 200/220		**N9316182**		**N9316183**	
0.53 mm	1.00	40 to 200/220		**N9316184**		**N9316185**	

Elite-1301: (6%-cyanopropylphenyl)-methylpolysiloxane

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. 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

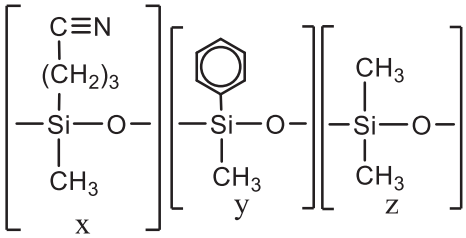
Elite-1301

ID	df (mm)	Temp Limits (°C)	15 m Part No.	30 m Part No.	60 m Part No.
0.18 mm	0.40	-20 to 280	**N9316211**		
0.25 mm	0.25	-20 to 280	**N9316212**	**N9316214**	**N9316216**
	1.00	-20 to 260/280	**N9316213**	**N9316215**	**N9316217**
0.32 mm	0.25	-20 to 280	**N9316218**	**N9316220**	**N9316222**
	1.00	-20 to 260/280	**N9316219**	**N9316221**	**N9316223**
0.45 mm	0.85	-20 to 260/280	**N9316224**	**N9316225**	
0.53 mm	1.00	-20 to 260/280	**N9316226**	**N9316227**	

Elite-1701: (14%-cyanopropylphenyl)-methylpolysiloxane

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. 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-35or 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

Elite-1701

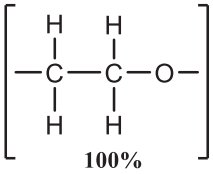
ID	df (mm)	Temp Limits (°C)	15 m Part No.	30m Part No.	50 m Part No.	60 m Part No.
0.25 mm	0.15	-20 to 280	**N9316230**			**N9316236**
	0.25	-20 to 280	**N9316231**	**N9316234**		**N9316237**
	1.00	-20 to 260/280	**N9316232**	**N9316235**		**N9316238**
0.32 mm	0.15	-20 to 280	**N9316239**	**N9316242**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

ID	df (mm)	Temp Limits (°C)	10 m Part No.	20 m Part No.
0.05 mm	0.05	-20 to 280	**N9316257**	
	0.20	-20 to 280	**N9316258**	
0.10 mm	0.10	-20 to 280		**N9316259**
	0.40	-20 to 270/280		**N9316250**
0.18 mm	0.4	-20 to 270/280	**N9316228**	**N9316229**

Elite-WAX: Polar Polyethylene glycol (PEG)

The Elite-WAX 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® column s 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

Elite-WAX

ID	df (mm)	Temp Limits (°C)	15 m Part No.	30m Part No.	60 m Part No.
0.25 mm	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 mm	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 mm	0.42	20 to 250	**N9316420**	**N9316422**	
	0.85	20 to 240/250	**N9316419**	**N9316421**	**N9316423**
	1.70	50 to 230	**N9316418**		
0.53 mm	0.50	20 to 250	**N9316426**	**N9316428**	
	1.00	20 to 240/250	**N9316425**	**N9316427**	**N9316429**

Elite-MWAX: Metal Column

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

Elite-WAX ETR: Extended Temperature Range WAX

The Elite-WAX ETR 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 to USP G14, G15, G16, G20 and G39 phases

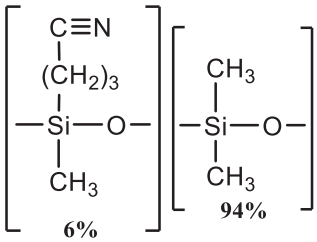
Elite-WAX ETR

			5 m	15 m	30m	50 m	60 m
ID	df (mm)	Temp Limits (°C)	Part No.	Part No.	Part No.	Part No.	Part No.
0.25 mm	0.25	40 to 250		**N9316547**	**N9316549**		**N9316551**
	0.50	40 to 250		**N9316548**	**N9316550**		
0.32 mm	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 mm	0.85	40 to 240		**N9316563**	**N9316564**		**N9316565**
	1.70	40 to 230/250	**N931656**				
0.53 mm	1.00	40 to 240/250		**N9316567**	**N9316569**		**N9316571**
	2.00	40 to 220/230	**N9316566**	**N9316568**	**N9316570**		

Elite-624: EPA Volatile Organic Pollutants

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

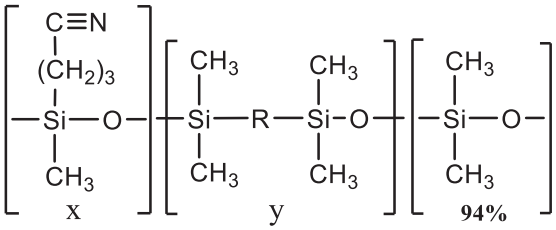
Elite-624

ID	df (mm)	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 mm	1.00	-20 to 240	**N9316200**				
0.20 mm	1.12	-20 to 240		**N9316209**			
0.25 mm	1.40	-20 to 240			**N9316201**	**N9316202**	
0.32 mm	1.80	-20 to 240			**N9316203**	**N9316204**	
0.45 mm	2.55	-20 to 240			**N9316205**		**N9316206**
0.53 mm	3.00	-20 to 240			**N9316207**		**N9316208**

Elite-624ms: Low Bleed, High Thermal Stability

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.

Elite-624ms Structure



Features and Benefits

- Temperature Range: -20 °C to 320 °C
- Similar to USP 43 phase

NEW

Elite-624ms

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

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 column chemistry ensures longer column lifetime and consistent results
- Stable to 260 °C

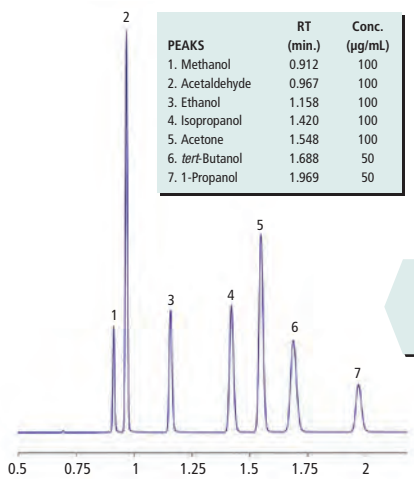


Figure 1. Elite-BAC 1 Advantage.

- Clear baseline resolution
- Symmetrical peaks
- Run time under 2 min

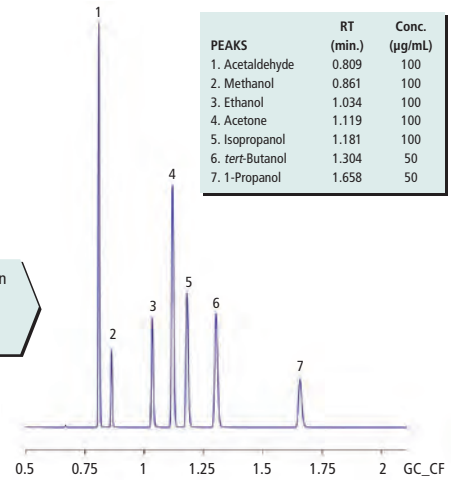


Figure 2. Elite-BAC 2 Advantage.

NEW

Elite-BAC Advantage

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

Elite-VMS: Volatile Organic Pollutants by GC/MS

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.

Features and Benefits

- Temperature Range: -40 °C to 240/260 °C
- No known equivalent phases

Elite-VMS

			30 m	60 m	75 m
ID	df (mm)	Temp Limits (°C)	Part No.	Part No.	Part No.
0.18 mm	1.00	-40 to 240/260	**N9316650**[1]	**N9316651**[1]	
0.25 mm	1.40	-40 to 240/260	**N9316652**	**N9316653**	
0.32 mm	1.80	-40 to 240/260	**N9316654**	**N9316655**	
0.45 mm	2.55	-40 to 240/260	**N9316656**	**N9316657**	
0.53 mm	3.00	-40 to 240/260	**N9316658**	**N9316659**	**N9316660**

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

Elite-XLB: Exceptionally Low Bleed for GC/MS

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

Elite-XLB

			15 m	30 m	60 m
ID	df (mm)	Temp Limits (°C)	Part No.	Part No.	Part No.
0.18 mm	0.18	40 to 340/360		**N9316480**[1]	
0.20 mm	0.33	40 to 340/360	**N9316496**[2]	**N9316497**[2]	
0.25 mm	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 mm	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 mm	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: Volatile Organic Compounds

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

Elite-Volatiles

ID	df (mm)	Temp Limits (°C)	30 m Part No.	60 m Part No.	75 m Part No.
0.25 mm	1.40	-20 to 240	**N9316388**	**N9316389**	
0.32 mm	0.10	-20 to 240	**N9316390**	**N9316391**	
0.45 mm	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

Elite-CLPesticides for Chlorinated Pesticides

Column Type	ID	df (mm)	Temp Limits (°C)	10 m Part No.	30 m Part No.
Elite-CLPesticides	0.25 mm	0.25	-60 to 320/340	**N9316661**	**N9316662**
	0.32 mm	0.50	-60 to 320/340	**N9316663**	**N9316664**
	0.53 mm	0.50	-60 to 300/320	**N9316665**	**N9316666**
Elite-CLPesticides 2	0.25 mm	0.20	-20 to 240/260	**N9316667**	**N9316668**
	0.32 mm	0.25	-20 to 240/260	**N9316669**	**N9316670**
	0.53 mm	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	df (mm)	Temp Limits (°C)	60 m Part No.	75 m Part No.	105 m Part No.
0.25 mm	1.40	0 to 250/270	**N9316498**		
0.45 mm	2.55	0 to 250/270		**N9316188**	**N9316189**
0.53 mm	3.00	0 to 250/270			**N9316190**

Elite-RX: Drugs of Abuse

Application: Analysis of drugs of abuse

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

Elite-Betecylodextrin: Chiral Separations

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

Column Type	ID	df (mm)	Temp Limits (°C)	30 m Part No.
Elite-Betacydex	0.25 mm	0.25	40 to 230	**N9316319**
Elite-Cyclosil B	0.25 mm	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	df (mm)	Temp Limits (°C)	60 m Part No.	75 m Part No.	105 m Part No.
0.32 mm	0.50	40 to 290/310		**N9316191**	
0.45 mm	0.42	40 to 270/290	**N9316194**	**N9316195**	**N9316189**
	0.70	40 to 260/280	**N9316192**	**N9316193**	**N9316190**
0.53 mm	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	df (mm)	Temp Limits (°C)	10 m Part No.
0.45 mm	2.55	-60 to 360	**N9316261**
0.53 mm	3.00	-60 to 360	**N9316262**

Elite-SimDist HT (High Temp)

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

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

Elite-MTBE

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

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

Elite-TPH

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

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

Elite-2560

Application: Application-specific column for cis/trans FAMEs
Phase: Biscyanopropylpolysiloxane, Highlty Polar

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

Elite-PONA

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

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

Elite-FFAP

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

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

Elite-23

Application: Analysis of cis/trans isomers in FAMEs and dioxins.
Equivalent to USP G8, G48.
Phase: (5%-cyanopropylphenyl)-biscyanopropylpolysiloxane

ID	df (mm)	Temp Limits (°C)	50 m Part No.	100 m Part No.
0.25 mm	0.15			**N9316507**
	0.25		**N9316506**	**N9316508**

Elite-Alumina/KCl* PLOT

Inner Diameter (mm i.d.)	Length (mm)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.53	50		up to 200	**N9316544**

* Lower Polarity than Elite Alumina.

Elite-Alumina PLOT Phase for Analysis of Light Hydrocarbons

Inner Diameter (mm i.d.)	Length (mm)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.53	30		-60 to 200	**N9316304**
0.53	50		-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

Inner Diameter (mm i.d.)	Length (mm)	Film Thickness (µm)	Temperature 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

Inner Diameter (mm i.d.)	Length (mm)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.53	30	N/A	-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

Inner Diameter (mm i.d.)	Length (mm)	Film Thickness (µm)	Temperature Limits (°C)	Part No.
0.32	30		-60 to 250	**N9316359**
0.53	30		-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.

Velocity-1, Velocity-5, and Velocity-Wax

PerkinElmer Velocity columns are excellent for standard daily test applications. They combine quality and affordability with reproducible results.

Features and Benefits

- Excellent results for theoretical plates, selectivity, & tailing factor tests
- Robust column cage
- Low baseline noise

Velocity-1 — 100% Dimethyl Polysiloxane

General purpose columns with a highly versatile phase that is extremely rugged, exhibiting long column lifetime, and high operating temperatures. 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, and hydrocarbons. Thermal stability up to 350 °C.

Description	Dimensions	Part No.
Velocity-1	15 M x 0.25 mm x 0.25 µm	**N9306319**
Velocity-1	15 M x 0.25 mm x 1.00 µm	**N9306310**
Velocity-1	30 M x 0.25 mm x 0.25 µm	**N9306312**
Velocity-1	30 M x 0.25 mm x 1.00 µm	**N9306323**
Velocity-1	30 M x 0.32 mm x 0.25 µm	**N9306318**
Velocity-1	30 M x 0.32 mm x 1.00 µm	**N9306321**
Velocity-1	30 M x 0.32 mm x 3.00 µm	**N9306329**
Velocity-1	60 M x 0.25 mm x 0.25 µm	**N9306320**
Velocity-1	60 M x 0.25 mm x 1.00 µm	**N9306328**
Velocity-1	60 M x 0.32 mm x 1.00 µm	**N9306324**

Velocity-5 — 5% Diphenyl and 95% Dimethyl Polysiloxane

This column is ideal for general purpose analysis of drugs, pesticides, hydrocarbons, essential oils and semi-volatiles and solvent impurities. Low polarity phase with thermal stability up to 350°C.

Description	Dimensions	Part No.
Velocity-5	15 M x 0.32 mm x 0.25 µm	**N9306325**
Velocity-5	30 M x 0.25 mm x 0.25 µm	**N9306311**
Velocity-5	30 M x 0.32 mm x 0.25 µm	**N9306313**
Velocity-5	30 M x 0.32 mm x 1.00 µm	**N9306316**
Velocity-5	30 M x 0.53 mm x 0.50 µm	**N9306326**
Velocity-5	30 M x 0.53 mm x 1.50 µm	**N9306327**

Velocity-Wax — Polyethylene Glycol

This column is ideal for intermediate to high polarity compounds. Thermal stability up to 250 °C.

Description	Dimensions	Part No.
Velocity-Wax	30 M x 0.32 mm x 0.25 µm	**N9306314**
Velocity-Wax	30 M x 0.25 mm x 0.25 µm	**N9306315**
Velocity-Wax	30 M x 0.32 mm x 0.50 µm	**N9306317**
Velocity-Wax	30 M x 0.53 mm x 1.00 µm	**N9306322**

ROBUST
RELIABLE
REPRODUCIBLE

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

Replacement Column Sets For Standard 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.

Replacement Column Sets for Standard Arnel Refinery Gas Analyzers

Description	For Standard Model	Part No.
Replacement column set for the Arnel RGA	1015	**N6107032**
Replacement column set for the Arnel RGA	1116	**N6107033**
Replacement column set for the Arnel RGA	1115	**N6107033**
Replacement column set for the Arnel RGA	1117	**N6107033**
Replacement column set for the Arnel RGA	1215	**N6107032**
Replacement column set for the Arnel RGA	1315	**N6107033**
Replacement column set for the Arnel RGA	1317	**N6107033**
Replacement column set for the Arnel RGA	1515	**N6107033**

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

Replacement Column Sets for Standard Arnel Natural Gas Analyzers

Description	For Standard Model	Part No.
Replacement column set for the Arnel NGA	2001	**N6107040**
Replacement column set for the Arnel NGA	2002	**N6107048**
Replacement column set for the Arnel NGA	2003	**N6107052**
Replacement column set for the Arnel NGA	2006	**N6107056**
Replacement column set for the Arnel NGA	2008	**N6107060**
Replacement column set for the Arnel NGA	2101	**N6107041**
Replacement column set for the Arnel NGA	2103	**N6107053**
Replacement column set for the Arnel NGA	2106	**N6107057**
Replacement column set for the Arnel NGA	2108	**N6107061**
Replacement column set for the Arnel NGA	2201	**N6107040**
Replacement column set for the Arnel NGA	2203	**N6107052**
Replacement column set for the Arnel NGA	2206	**N6107056**
Replacement column set for the Arnel NGA	2208	**N6107060**
Replacement column set for the Arnel NGA	2301	**N6107041**
Replacement column set for the Arnel NGA	2303	**N6107053**
Replacement column set for the Arnel NGA	2306	**N6107057**
Replacement column set for the Arnel NGA	2406	**N6107056**
Replacement column set for the Arnel NGA	2501	**NR002500**
Replacement column set for the Arnel NGA	2503	**NR002503**

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

Replacement Column Sets for Other Standard Arnel Analyzers

Description	For Standard Model	Part No.
Replacement column set	4001	**N6107070**
Replacement column set	4002	**N6107070**
Replacement column set	4003	**N6107072**
Replacement column set	4004	**N6107073**
Replacement column set	4005	**N6107073**
Replacement column set	4012	**N6107216**
Replacement column set	4013	**N6107218**
Replacement column set	4016	**N6107221**
Replacement column set	4017	**N6107222**
Replacement column set	4019	**N6107224**
Replacement column set	4020	**N6107075**
Replacement column set	4021	**N6107225**
Replacement column set	4022	**N6107076**
Replacement column set	4024	**N6107226**
Replacement column set	4025	**N6107208**
Replacement column set	4027	**N6107208**
Replacement column set	4028	**N6107208**
Replacement column set	4029	**N6107208**
Replacement column set	4030	**NR004030**
Replacement column set	4031	**NR004031**
Replacement column set	4032	**N6107227**
Replacement column set	4033	**N6107228**
Replacement column set	4034	**N6107229**
Replacement column set	4035	**N6107230**
Replacement column set	4036	**N6107230**
Replacement column set	4037	**N6107232**
Replacement column set	4038	**NR004038**
Replacement column set	4040	**NR004040**
Replacement column set	4041	**NR004041**
Replacement column set	4043	**NR004043**
Replacement column set	4044	**NR004044**
Replacement column set	4045	**NR004045**
Replacement column set	4046	**NR004046**
Replacement column set	4083	**NR004083**
Replacement column set	4086	**NR004086**
Replacement column set	4087	**NR004087**
Replacement column set	4227	**N6107208**
Replacement column set	4425	**N6107208**
Replacement column set	4428	**N6107208**
Replacement column set	4429	**N6107208**
Replacement column set	4430	**NR004030**
Replacement column set	4431	**NR004031**
Replacement column set	4438	**NR004038**
Replacement column set	4629	**NR004229**

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

Unless otherwise noted all columns are available for the Clarus, AutoSystemXL and AutoSystem GC.

Calibration Gas Blends

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.

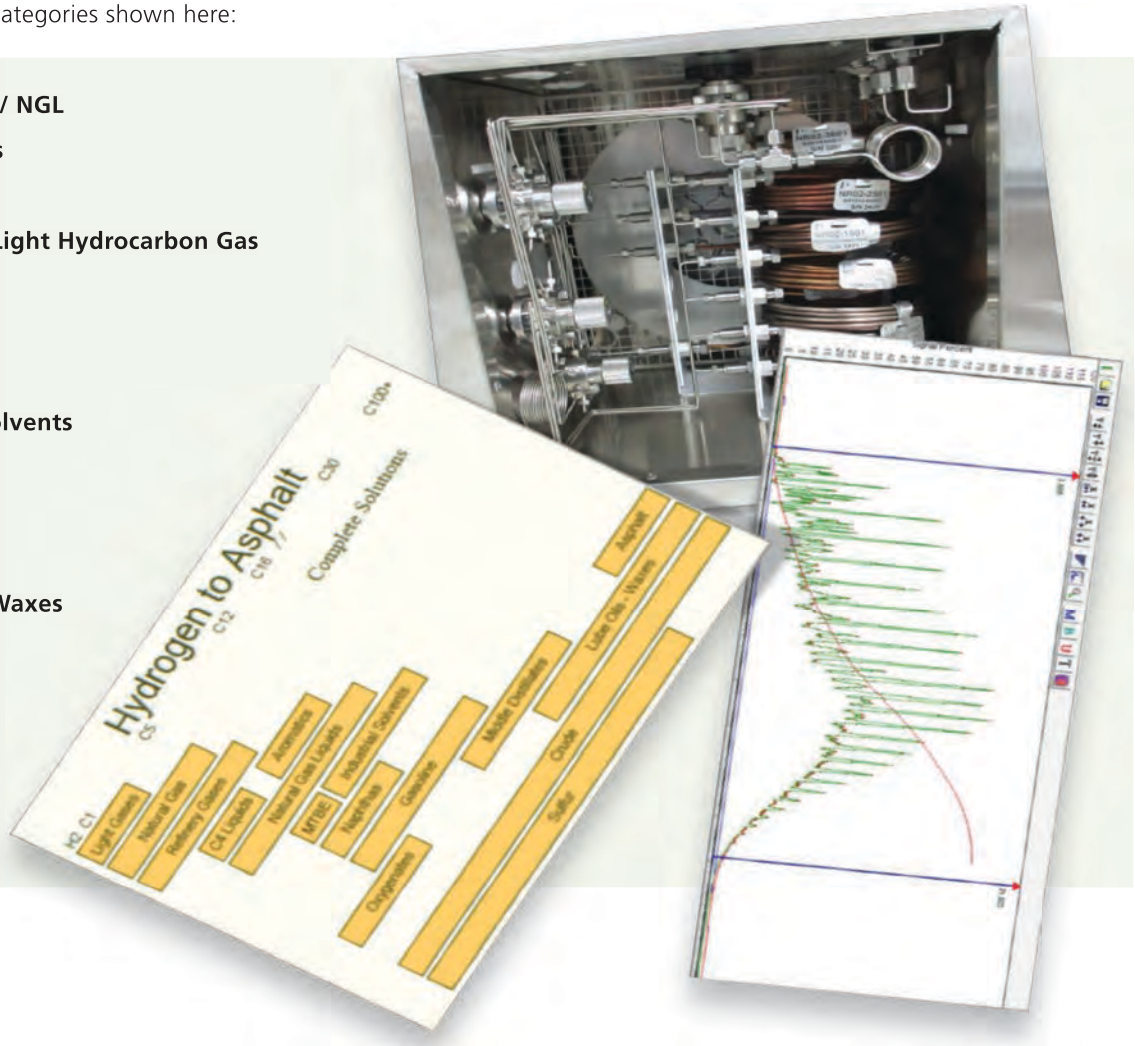
Description	Part No.
RGA Calibration Blend With Syringe Adapter; 14L Cylinder @ 120 psi	**N6107198**
RGA Calibration Blend Without Adapter; 14L Cylinder @ 120 psi	**N6107199**
NGA Calibration Blend With Syringe Adapter; 14L Cylinder @ 240 psi	**N6107200**
NGA Calibration Blend Without Adapter; 14L Cylinder @ 240 psi	**N6107201**

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
Refineray / Light Hydrocarbon Gas
Olefins
Aromatics
Oxygenates
Industrial Solvents
Naphthas
Gasoline
Distillates
Lube Oils / Waxes
Crude Oils
Asphalt
Bulk Gases
Trace Gases
TOGA



Ask Your Local PerkinElmer Sales Rep about our Product Catalog!

SilTite™ metal ferrules

Provide a continuous leak-free connection and are perfect for connecting your column to a GC/MS.

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

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

* 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.

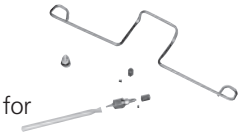
Vespel®

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

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

** 2-hole

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 inch fitting, wide-bore glass liner and column support hanger.

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

Universal connectors

Dimension	Part No.
Universal Connector (pkg. 5)	**N9302149**
Metal Universal Connectors: 0.25 mm i.d. (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.

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

Swagelok™ Fittings

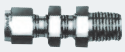
Swagelok fittings from PerkinElmer are available in brass and stainless steel.

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.

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		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**	

REFINE YOUR GC PATH

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, ect.), 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 New 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**

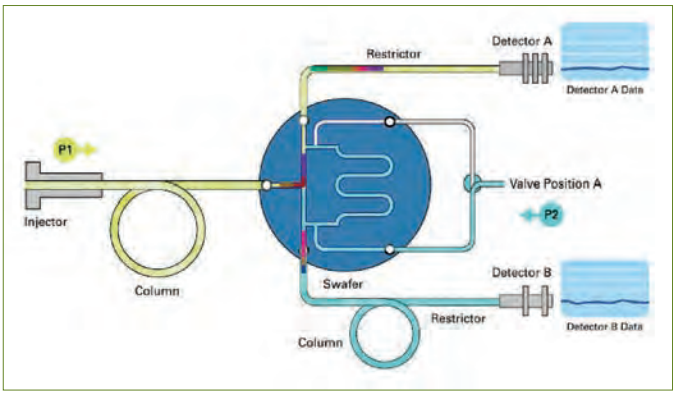
Swafer Kits and Accessories for Existing Clarus GC Systems

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**

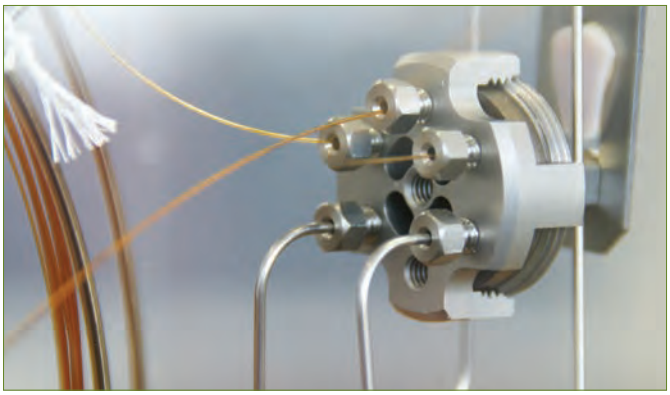
HOW CAN THE SWAFER HELP YOU?

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.) for additional sample information	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

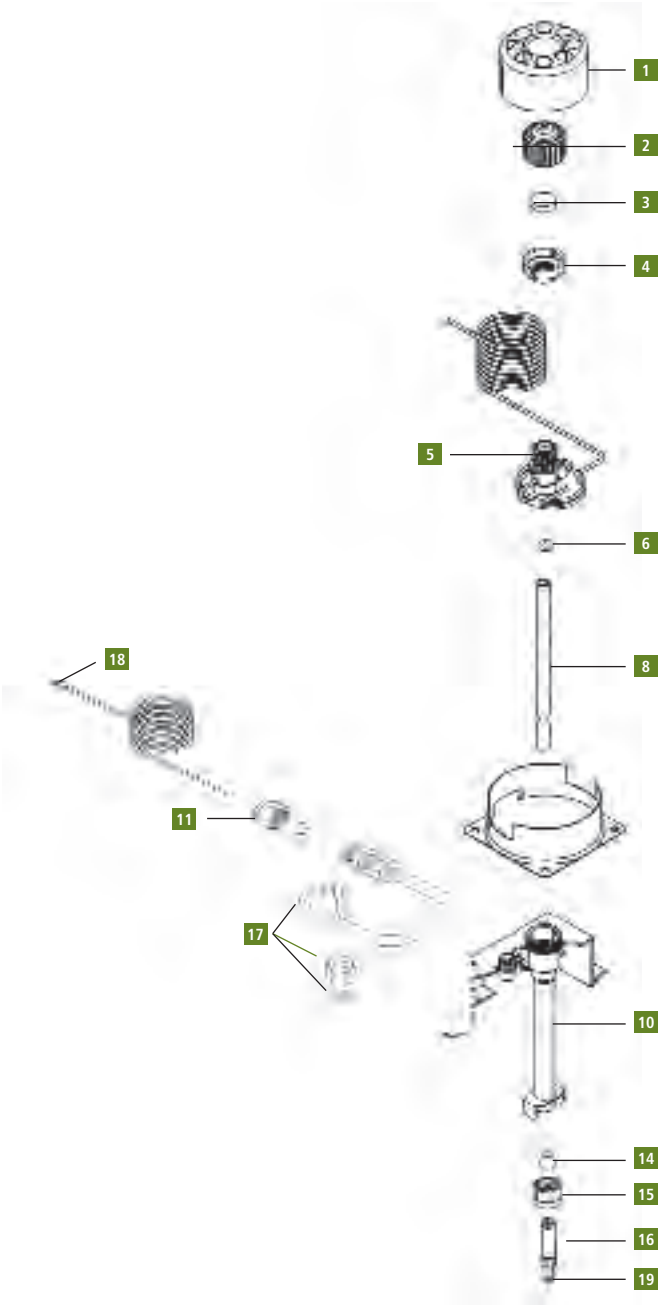


Heartcutting (D-Swafer) allows separation of selected peaks within a complex sample matrix.



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

Manual Gas Control



Injector Replacement Parts

	Component	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**
8	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**
10	Injector Body	**N6100047**
11	1/8 in. Swagelok™ Nut Brass (pkg. 5)	**N9300056**
12	Restrictor*	**N6101034**
13	1/8 in. Graphite/Vespel Ferrule (pkg. 10)*	**09920301**
14	1/4 in. Graphite Ferrule (pkg. 10)	**09920140**
15	1/4 in. Swagelok Nut, Stainless Steel (pkg. 5)	**N9300055**
16	Injector Adapter	**N6100157**
17	Charcoal Trap	**N6100275**
	Charcoal Trap for PPC Version**	**N6100331**
18	Split Vent Tube	**N6100159**
19	Column Nut 1/16 in. Long length for reversed ferrule (pkg. 5)	**09903392**

** Not shown

Miscellaneous Accessories

Component	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.

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.

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.

Voltage	Part No.
120 V	**N6120050**

Split/Splitless Injector Starter Kit for Manual Gas Control

Includes: 2 mm i.d. quartz liner, 4 mm i.d. 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).

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

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

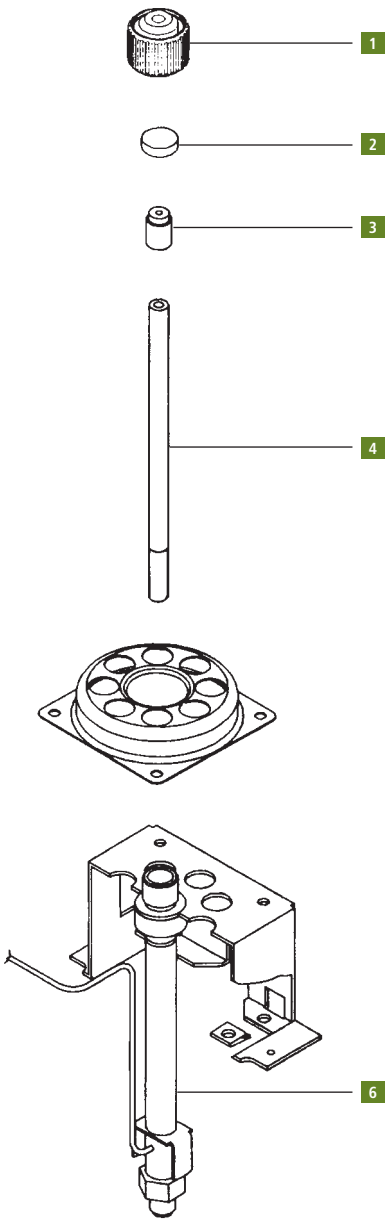
Includes glass liner, needle guide, green septa (50), untreated quartz wool, and packing rod.

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

*Service installation suggested

Injector Replacement Parts

	Description	Part No.
1	Septum Cap	**N6100153**
2	PerkinElmer Green Injection Septum (50/pack)	**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**

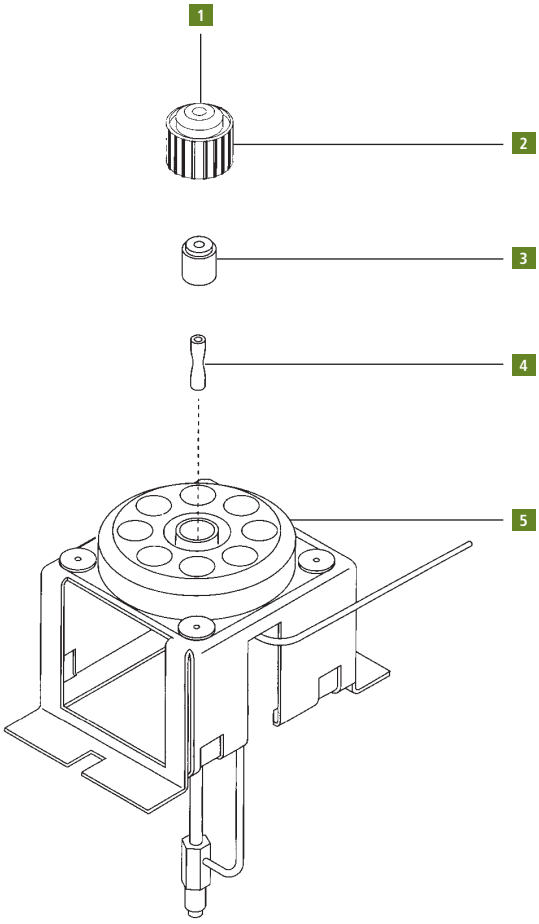
Contents	Pkg.	Qty.	Part No.
5.0 µL Autosampler Syringe		1	**N6101390**
Vial Locator (dongle)		2	**N6101182**
PSS Injector Viton o-rings (250 deg)	10	1	**N6101747**
PSS Injector Kelrez o-rings (350 deg)	1	10	**09921004**
PSS Split/Splitless Injector, 2 mm, No Wool		2	**N6121004**
Graphite/Vespel Ferrules, for 0.25 mm Columns	10	2	**09920104**
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	**N6100448**

Contents	Pkg.	Qty.	Part No.
5.0 µL Autosampler Syringe		1	**N6101390**
Vial Locator (Dongle)		2	**N6101182**
CAP Injector Viton o-rings (250 deg)		10	**N9302783**
CAP Injector Kelrez o-rings (350 deg)		10	**N9302782**
CAP Split/Splitless Injector, 4 mm, No Wool		2	**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**

POC Replacement Parts

	Components	Part No.
1	Septum Cap	**N6100153**
2	PerkinElmer Green Injection Septum (50/pack)	**N6621028**
3	Needle Guide	**N6101702**
4	Liner/Hour Glass	**N6101703**
5	Body Assembly	**N6100256**



Programmed-Temperature On-Column Injector System

Packed Column Injector Kit with Manual Pneumatics

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

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

Zero Dilution Liners

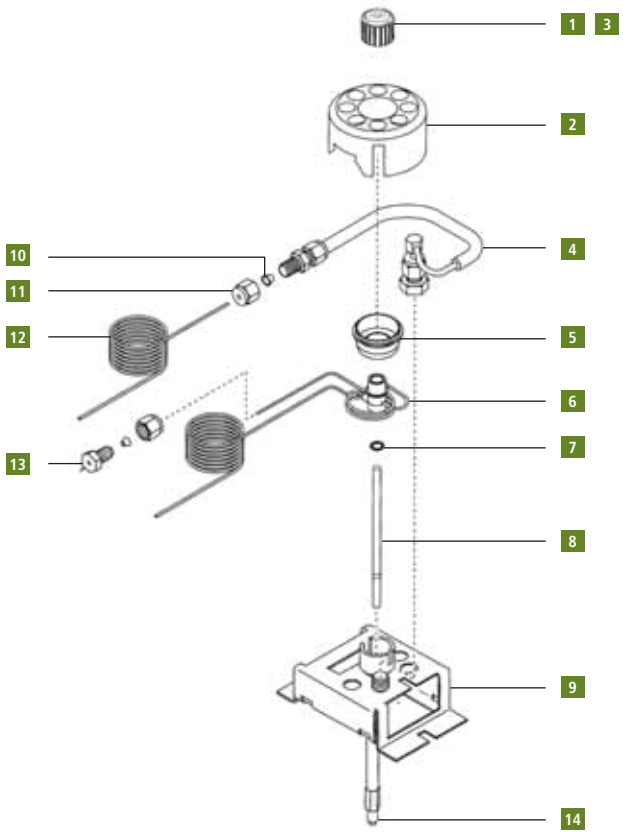
Used together as set.

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

* Service installation suggested.

PSS Replacement Parts

	Components	Part No.
1	Septum Cap	**N6100153**
2	Injector Cover	**N6101482**
3	PerkinElmer Green Injection Septum (pkg. 50)	**N6621028**
4	Trap, Charcoal – non PPC version PPC version (not shown)	**N6100275**
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**

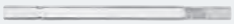
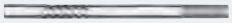
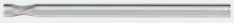


Glass Inlet Liners

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

	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**

Programmed Temperature Split/Splitless (PSS) Injector Liners

	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**
	NEW! 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**
	NEW! 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**
	NEW! 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

	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**
	NEW! 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**
	NEW! Gooseneck Drilled Uniliner (hole on top) – Use for trace, active samples, high recovery and linearity	4	6.2	92.1	5	**N6502014**
	NEW! Gooseneck Drilled Uniliner (hole on bottom) – Use for trace, active samples, high recovery and linearity	4	6.2	92.1	5	**N6502015**
	NEW! 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**
	NEW! 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

	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 splitless deactivated glass liners with deactivated wool	4	6.2	92.1	5	**N9306233**
	Capillary splitless deactivated glass liners with deactivated wool	4	6.2	92.1	1	**N9306234**
	Capillary splitless deactivated glass liners with deactivated wool	4	6.2	92.1	5	**N9306235**
	Capillary 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 with deactivated wool 5/pk	1.25	4	86.2	5	**N9306237**

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 o.d. Needle	**N6101760**
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm o.d. Needle	**N6101390**
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm o.d. Needle BLUE Barrel (pack of 5 syringes)	**N6103240**
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm o.d. Needle BLUE Barrel (pack of 10 syringes)	**N6103241**
5 µL Syringe, Metal Plunger 0.63 mm o.d Needle	**N6101251**
5 µL On-column Syringe Metal Plunger 0.47 mm o.d Needle	**N6101380**
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.63 mm o.d. Needle	**N6101252**
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm o.d. Needle BLUE Barrel (pack of 5 syringes)	**N6103242**
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm o.d. Needle BLUE Barrel (pack of 10 syringes)	**N6103243**
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.47 mm o.d. 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

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**

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	Pack Size	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.

11 MM MOLDED GREEN AND ORANGE INJECTION PORT SEPTA

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**

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.

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

Injector Septa

- 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.

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.

Note: AutoSystem XL GCs shipped prior to January 1997 require a new detector cover. Installation by PerkinElmer Service is required, but not included.

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

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.

Note: AutoSystem XL GCs shipped prior to January 1997 require a new detector cover (N6103151).

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

FID Amplifier

Required for use with FID Detector Add-On Kit.

Dimension	Part No.
FID Amplifier	**N6120162**

Auto-Ignite FID Replacement Parts

	Description	Part No.
1	Collector Head Assembly	**N6100357**
	Silicone Rubber O-Ring* (not shown)	**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**

Detector Series Operation Kit

TCD/FID Series Operation Kit

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

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

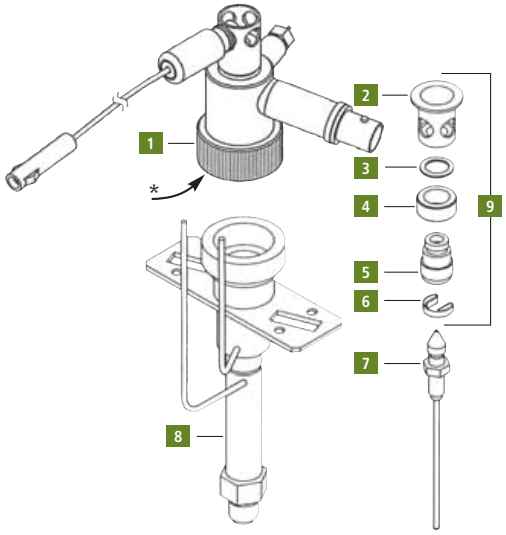
PID/FID Series Operation Kit

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

Dimension	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**



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**

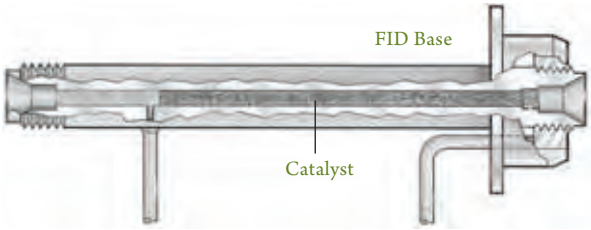
Auto-Ignite FID Catalytic Reactor Accessory

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

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	**N6100102**

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**

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 i.d. 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**

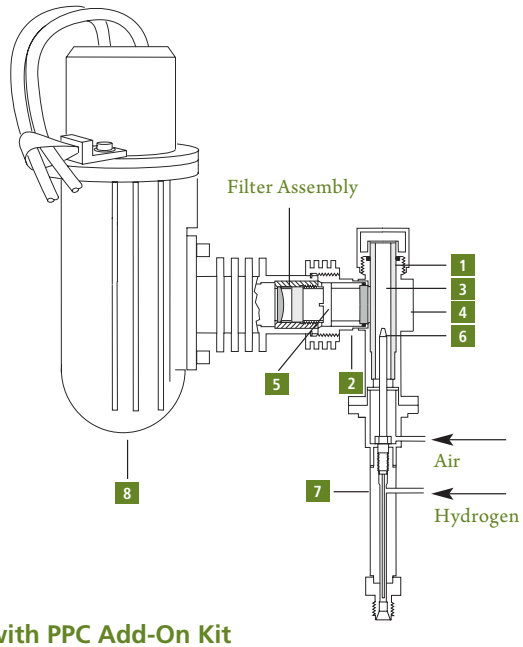
FPD Amplifier

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

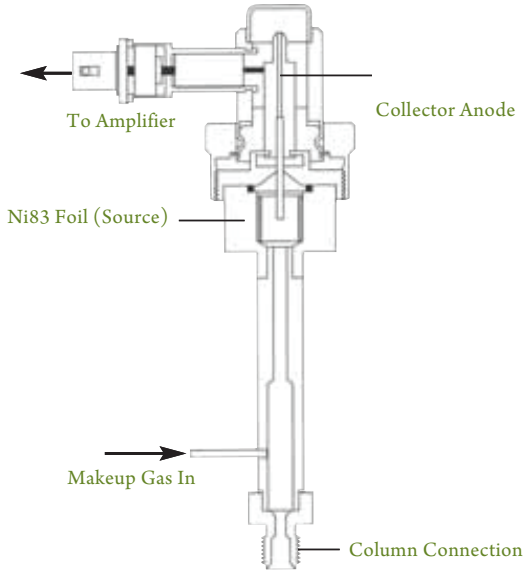
1/8 to 1/4 in. adapter for use with 1/4 in. packed columns.

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

Add-On Kit

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

Capillary 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	**N6000986**

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.
PID/ECD Series Operation Kit	**00091667**

Add-On Kit

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

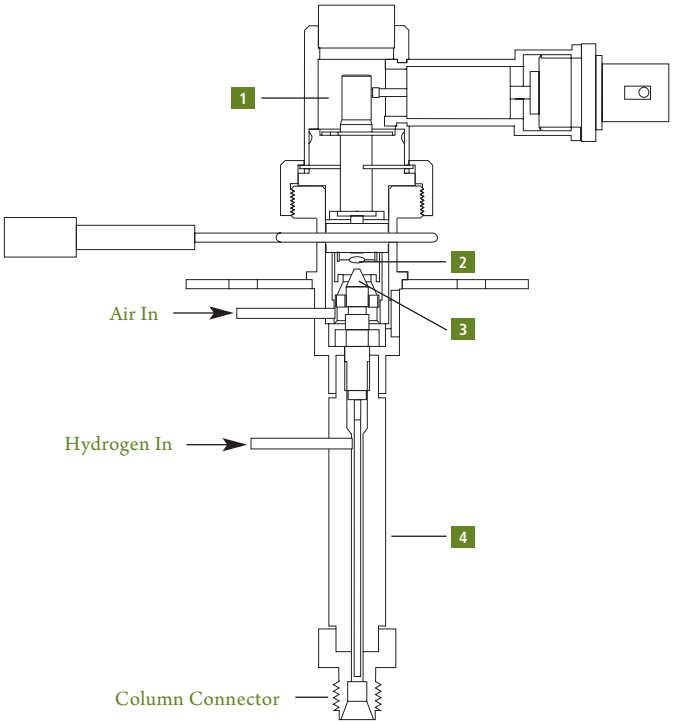
1/4 in. Packed Column Adapter

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**

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**



Add-On Kit

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

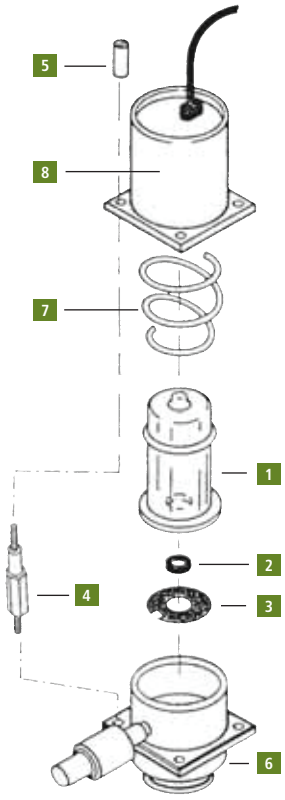
Description	Part No.
PID/FID, PID/ECD Series kit for directing effluent from a PID to an FID or an ECD	**N6120059**

Miscellaneous Accessories

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

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 PID Lamp (9.5eV), Improved selectivity for multiple ring aromatic, sulfur compounds	**03303599** **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**



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 i.d. 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**

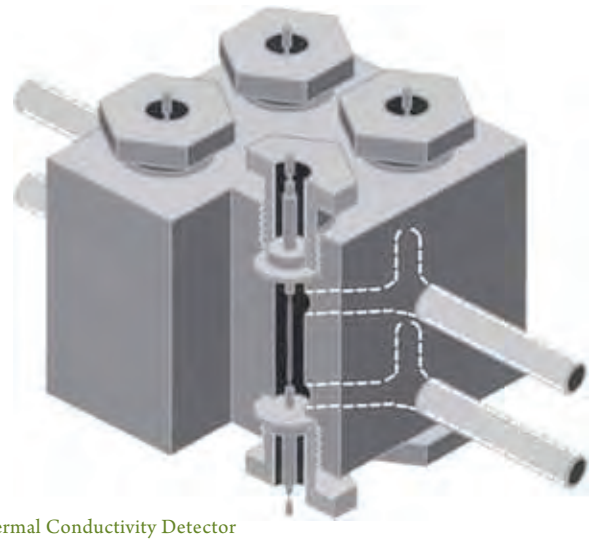
TCD with PPC Makeup Gas Kit

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

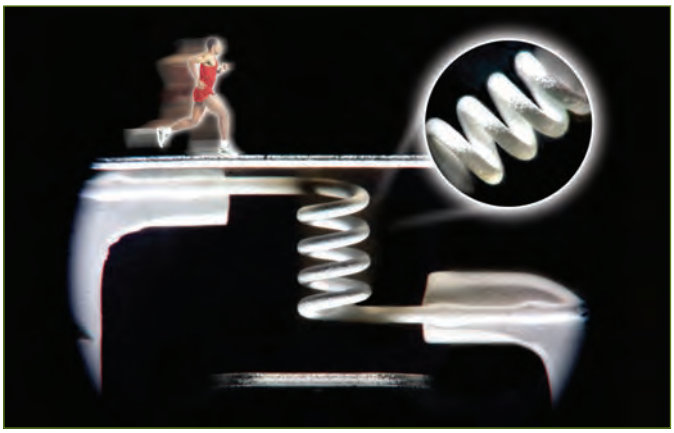
TCD and FID series operation kit for directing effluent from a TCD to an FID.

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 i.d. and recommended when using 0.32 mm i.d. 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**



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:
www.perkinelmer.com/MarathonFilament

SIMPLE FLEXIBLE PRODUCTIVE

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.

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

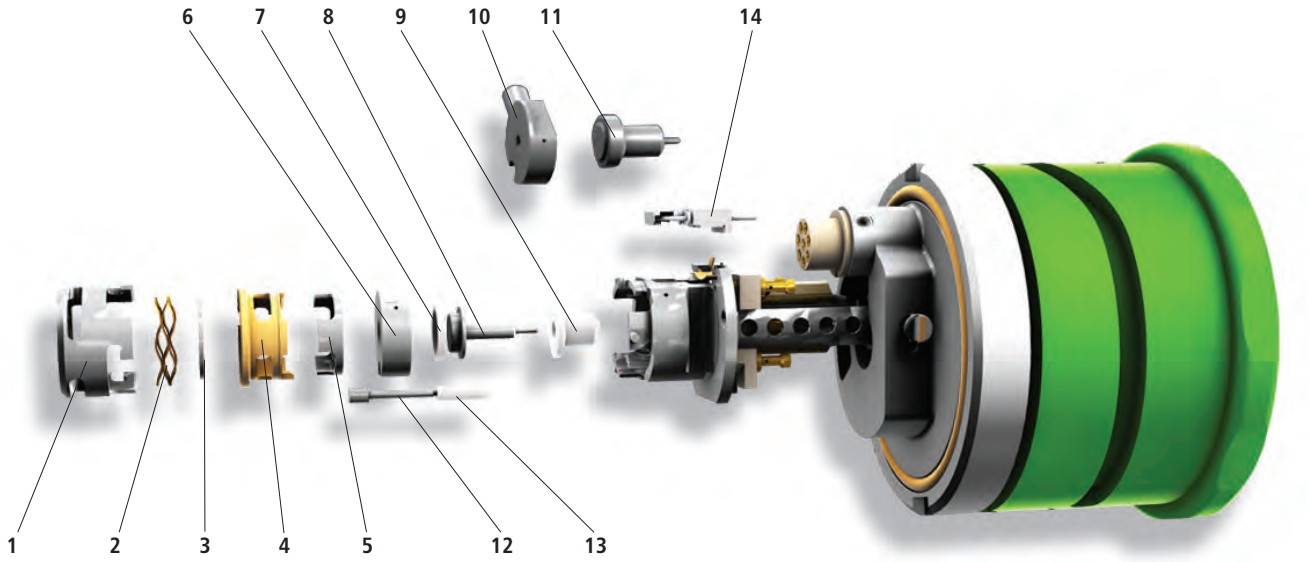
Take the guesswork out of setting your column depth. Our Handle Assembly allows for precise alignment of the column within the SMARTsource every time.

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

Number	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**

Number	Description	Part No.
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**

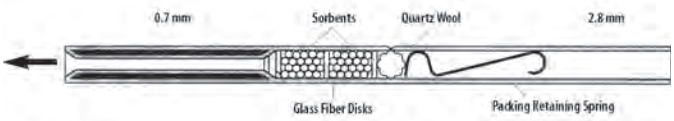
SMARTsource Kits

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
SPECIFICALLY DESIGNED 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

Cold Traps

TurboMatrix Thermal Desorption Trap Supplies

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

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

Cold Traps Fittings and Accessories

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

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	**M0413541**

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	1	1	**L1003006**
O-ring, Viton	1	1	**L1003008**
Packing Gauze	100	1	**L4071034**
PTFE Filter Discs	10	1	**L1003030**
PTFE Filter Discs - Large	10	1	**L1003029**
Retaining Spring	50	1	**L4071123**
Sample Tube - 5 mL	1	1	**04970673**
Stainless Steel Retaining Spring	2	1	**L6301054**
Stainless Steel Sample Tubes - Capped	10	1	**M0413595**
Tenax TA 60/80, Mesh - 15 g	1	1	**04978064**
Trap Tube Nuts	2	1	**L4275009**
Trap Tubes	2	1	**M0410094**

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**	**N6710188**

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

* For full downloadable pdf format application notes,please visit: http://las.perkinelmer.com/applications
** Applicable to TurboMatrix 100/150/300/350 and 650 only

Thermal Desorber Caps and Accessories

Description	Pkg.	Part No.
Brass Long-Term Storage Caps Recommended for long-term storage, two required per tube. Also requires 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**

CONDITION TUBES FASTER AND EASIER

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.

PerkinElmer ATD Tube Conditioning Oven:

- 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 (120V)	**N9309160**
TurboMatrix TC 220 (230V)	**N9309161**

Specifications

Description	
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

Fully conditioned
Thermal Desorber tubes shown

Empty Sample Tubes with Plastic End Caps

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

Unconditioned Thermal Desorber Tubes

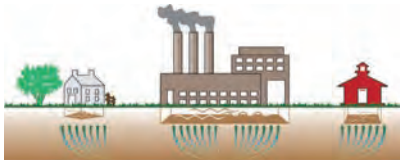
For your convenience, new low-cost thermal desorber tubes are offered in both stainless steel and glass. Each tube maintains its unique serial number which is etched for easy identification. Tubes are offered with a variety of sorbent packing materials for many GC applications including indoor and outdoor 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)

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

Empty Sample Tubes without Caps

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



SVI™ Soil Vapor Intrusion™ 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.

- 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.

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)

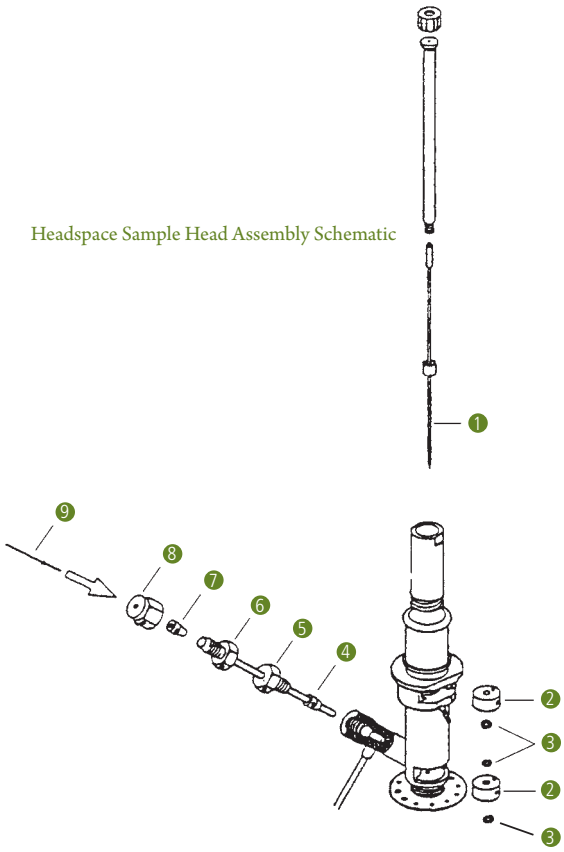
Sorbent	Stainless Steel Part No.	Glass Part No.
Air Toxics	**N9307001**	**N9307008**
Carbopack™ B60/80	**N9307002**	**N9307009**
Carbosieve™ SIII 60/80	**N9307003**	**N9307010**
Tenax™ GR 60/80	**N9307004**	**N9307011**
NEW PKI Tenax™ TA 60/80	**N9309130**	
Tenax™ TA 60/80	**N9307005**	**N9307012**
Chromasorb™ 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
1 Platinum/Iridium Needle, Small-bore	B0500959
1 Platinum/Iridium Needle, Jet	B0510364
1 Silcosteel Needle, for Headspace Trap Only	N6700130
1 Stainless Steel Needle, Wide-bore	B0131385
1 Stainless Steel Needle, Small-bore	B0500987
1 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
6 GLT Adapter Tube, Silcosteel	N6700113
7 Graphite/Vespel Ferrule 1/16 in. x 0.4 mm For use with 0.25 mm i.d. Transfer Line, pkg. 10	09920104
7 Graphite/Vespel Ferrule 1/16 in. x 0.5 mm For use with 0.32 mm i.d. Transfer Line, pkg. 10	09920105
8 Nut 1/16 in. Swagelok	N9300059
9 Fused-Silica Capillary Transfer Line: 0.25 mm i.d. x 5 m Length	N9301356
9 0.32 mm i.d. 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 i.d.	Length	Part No.
Siltek Deactivated Fused Silica	0.25 mm	5 m	N9316607
Siltek Deactivated Fused Silica	0.32 mm	5 m	N9316608

Miscellaneous Accessories

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

Cold Trap Options

Headspace Trap instruments only.

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

* Trap comes standard with the instrument.

HIGH QUALITY GAS FILTRATION SYSTEMS

Features and Benefits:

- Two indicators – for oxygen and moisture
- Gas contacts only metal, fluoroelastomer and glass
- High capacity and efficiency in a single cartridge
- Easy cartridge replacement with on/off knob
- Double-seal construction for safety
- Check valves protect gas lines during cartridge replacement
- Includes mounting hardware for bench or wall

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.

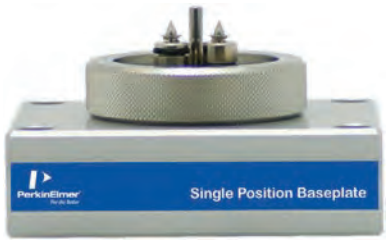
A polycarbonate shield surrounding the glass indicator section of the filter is sealed, unlike other gas filters, the gas flow is secure even if the glass should break. This redundant sealing system and robust construction provides a new level of security in gas filtration.

Advanced Filter System

Description	Part No.
Advanced Filter System	**N9303963**
Replacement Cartridge for Oxygen, Water and Hydrocarbons	**N9303964**
Manifold and Mounting Hardware	**N9303139**

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

HIGH CAPACITY AND HIGH PURITY



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.

Carrier Gas Purity

Carrier gas should contain less than 1ppm 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.

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

Base Plates

Description	1 Position Part No.	2 Position Part No.	3 Position Part No.
Ultra Clean Base Plate - Brass 1/8"	**N9306801**	**N9306805**	**N9306811**
Ultra Clean Base Plate - Brass 1/4"	**N9306800**	**N9306804**	**N9306810**
Ultra Clean Base Plate - Stainless Steel 1/8"	**N9306803**	**N9306807**	**N9306813**
Ultra Clean Base Plate - Stainless Steel 1/4"	**N9306802**	**N9306806**	**N9306812**

Description	2 Position Base Plate Part No.
Ultra Clean High Flow Base Plate - Brass 1/4"	**N9306808**
Ultra Clean High Flow Base Plate - Stainless Steel 1/4"	**N9306809**

Kits - Base Plate and Cartridges

Base Plate Description	Triple Filter Part No.	Triple filter with He Conditioning Part No.	Triple filter with H2 Conditioning Part No.
Ultra Clean Base Plate - Brass 1/8" (1 Position)	**N9306829**	**N9306833**	**N9306837**
Ultra Clean Base Plate - Brass 1/4" (1 Position)	**N9306828**	**N9306832**	**N9306836**
Ultra Clean Base Plate - Stainless Steel 1/8" (1 Position)	**N9306831**	**N9306835**	**N9306839**
Ultra Clean Base Plate - Stainless Steel 1/4" (1 Position)	**N9306830**	**N9306834**	**N9306838**

Kits - Base Plate and Cartridges (cont.)

Base Plate Description	Hydrocarbon Filter (2/pack) Part No.
Ultra Clean High Flow Base Plate - Brass 1/4" (2 Position)	**N9306840**
Ultra Clean High Flow Base Plate - Stainless Steel 1/4" (2 Position)	**N9306841**

Base Plate Description	Triple Filter (1/pack), Combi Filter (2/pack) Part No.
Ultra Clean Base Plate - Brass 1/8" (3 Position)	**N9306843**
Ultra Clean Base Plate - Brass 1/4" (3 Position)	**N9306842**
Ultra Clean Base Plate - Stainless Steel 1/8" (3 Position)	**N9306845**
Ultra Clean Base Plate - Stainless Steel 1/4" (3 Position)	**N9306844**

Cartridges - Replacements

Description	Part No.
Ultra Clean Moisture Filter	**N9306814**
Ultra Clean Oxygen Filter	**N9306815**
Ultra Clean Hydrocarbon Filter	**N9306816**
Ultra Clean Hydrocarbon Filter with AT indicator	**N9306817**
Ultra Clean Combi Filter (Moisture - Hydrocarbon)	**N9306818**
Ultra Clean Triple Filter (Oxygen - Moisture - Hydrocarbon)	**N9306819**
Ultra Clean Triple Filter (Oxygen - Moisture - Hydrocarbon) with AT indicator	**N9306821**
Ultra Clean Triple Filter (Oxygen - Moisture - Hydrocarbon) conditioned with He	**N9306820**
Ultra Clean Triple Filter (Oxygen - Moisture - Hydrocarbon) conditioned with H2	**N9306822**

Cartridges - Bundles

Description	Part No.
Ultra Clean High Flow Moisture Filter Bundle (2 High Flow Moisture Filters)	**N9306824**
Ultra Clean High Flow Hydrocarbon Filter Bundle (2 High Flow Hydrocarbon Filters)	**N9306823**
Ultra Clean High Flow Hydrocarbon Filter Bundle (2 High Flow Hydrocarbon Filters)	**N9306825**
Ultra Clean High Flow Hydrocarbon Filter Bundle (2 High Flow Hydrocarbon Filters) with AT indicators	**N9306825**
Ultra Clean Filter Bundle of 3 (1 Triple Filter, 2 Combi Filters)	**N9306826**
Ultra Clean Filter Bundle of 4 (1 Oxygen Filter, 1 Moisture Filter, 2 Hydocarbon Filters)	**N9306827**

Connectors

Description	Pkg.	Part No.
Ultra Clean Connector Set - 1/4" Brass 3 Sets of two Connectors (in- and outlet) for Base plate	6	**N9306846**
Ultra Clean Connector Set - 1/8" Brass 3 Sets of two Connectors (in- and outlet) for Base plate	6	**N9306847**
Ultra Clean Connector Set - 1/4" SS 3 Sets of two Connectors (in- and outlet) for Base plate	6	**N9306848**
Ultra Clean Connector Set - 1/8" SS 3 Sets of two Connectors (in- and outlet) for Base plate	6	**N9306849**
Ultra Clean High Flow Connector Set - Brass 1/4" 3 Sets of two Connectors (in- and outlet) for Base plate	6	**N9306850**
Ultra Clean High Flow Connector Set - 1/4" SS 3 Sets of two Connectors (in- and outlet) for Base plate	6	**N9306851**

Flush Caps

Description	Pkg.	Part No.
Ultra Clean Flush Cap Replacement Set 2 Flush Caps for Base Plate	2	**N9306852**
Ultra Clean High Flow Flush Cap Replacement Set 2 Flush Caps for High Flow Base Plate	2	**N9306853**

O-Rings

Description	Pkg.	Part No.
Ultra Clean Base Plate O-ring Replacement Set Two sets of 10 O-rings for Base plate	20	**N9306854**

Wall Mounting

Description	Part No.
Ultra Clean Wall-mounting Bracket Set Suitable for genuine Ultra Clean Base plates	**N9306855**

Particle Filters

Description	Part No.
Ultra Clean 0.5 Micron Particle Filter (1/4" Brass)	**N9306856**
Ultra Clean 0.5 Micron Particle Cup Filter Pack Replacement Filter Element - pack of 12	**N9306857**

SAVE TIME AND MONEY

Perkinelmer Click-On inline Super Clean™ purifiers reduce your maintenance system downtime

Using the Click-On Connectors lets you change the trap without introducing 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 Trap Kits

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

Stainless Steel Traps

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

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

This trap contains oxygen, moisture and hydrocarbons adsorbents in one trap and is packed and purged under helium.

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

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

Description	Connector (Qty)	Part No.
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/ Hydrocarbons	Not Included	**N9306107**
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/ Hydrocarbons	⅛" Brass (2)	**N9306114**
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/ Hydrocarbons	⅛" SS (2)	**N9306116**

Product Specifications

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

* Results @ 2 L/min

Hydrocarbon Trap

	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

	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" 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" OD x 20" L (including fittings)
- Weight 3.5 lb/1.6 kg

Indicating Oxygen Trap

	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

	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

	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

	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.

PGX-H_2 Plus Pure Gas Hydrogen Generators

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

Technical Specifications for PGX-H_2 Plus Models

Specifications	
Purity	99.999% / hydrocarbon free < 0.1 ppm
Delivery Pressure	20 - 1555 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	230V/50-60Hz - 110V/60Hz - 100V/60Hz
Fitting	1/8" for the H2 outlet

PGX-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**
1000 mL/min	Not Available

PGX-H_2 Plus Generator Replacement Parts

Description	Part No.
Desiccant Cartridge, Fitting and Refill Kit	**N9306064**
Desiccant Refill (sufficient for 3 cartridge refills)	**N9306065**
Deionizer Bag	**N9307097**

NM-H_2 Plus Pure Gas Hydrogen Generators

A Safe Source of Hydrogen

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

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

Technical Specifications for NM-H_2 Plus Models

Specifications	
Purity	99.9999% / hydrocarbon free < 0.1 ppm
Delivery Pressure	20 - 1555 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	230V/50-60Hz - 110V/60Hz - 100V/60Hz
Fitting	1/8" for the H2 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**

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 sofware)*	**N9307095**
Auto Refill *	**N9307096**

* Requires I/O Board

NM-H_2 Plus Generator Replacement Parts

Description	Part No.
Deionizer Bag	**N9307097**
Triangle Deionizer Bag	**N9307098**

High Purity Hydrogen Generators - Parker Domnick Hunter

The Parker Domnick Hunter 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.

Technical Specifications

Specifications	
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 (41.9 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" 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 - Parker Domnick Hunter

The Parker Domnick Hunter 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.

Technical Specifications

Specifications	
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" 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**

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

Specifications for Zero and Ultra Zero Air

Outlet Hydrocarbon Concentration	< 0.1 ppm
Outlet Carbon Monoxide Concentration	< 0.1 ppm
Outlet Particles < 0.5 Microns Removed	99.99%
Outlet Air Temperature	Ambient +15 °C
Max Inlet Hydrocarbon Concentration	100 ppm
Maximum Outlet Pressure	6.5 bar
Max Inlet Carbon Monoxide Concentration	50 ppm
Max Inlet Temperature	40 °C
Inlet Pressure Range (regulated to 7 bar)	4.5 – 10 bar
Inlet Port	¼" NPT
Outlet Port	⅛" NPT

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	N/A	**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**

Dimension	Part No.
1.5 L/min of Air (Without Compressor)	**N9307075**
3.0 L/min of Air (Without Compressor)	**N9307076**
6.0 L/min of Air (Without Compressor)	**N9307077**
15.0 L/min of Air (Without Compressor)	**N9307078**
30.0 L/min of Air (Without Compressor)	**N9307079**

WALL MOUNTABLE

Ultra Zero Air Generators

Features and Benefits

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

Specifications for Ultra Zero Air

Outlet Ultra Zero Air	Outlet Carbon Dioxide Concentration	Outlet Nitrogen Oxides Concentration	Outlet Dewpoint	Electrical Requirements	Part No.
1.5 L/min	< 5 ppm	< 0.1 ppm	< -70 °C	230/115 VAC 270 W max	**N9307081**
3.0 L/min	< 10 ppm	< 1 ppm	< -50 °C	230/115 VAC 270 W max	**N9307082**
6.0 L/min	< 10 ppm	< 1 ppm	< -50 °C	230/115 VAC 270 W max	**N9307083**
15.0 L/min	< 10 ppm	< 1 ppm	< -50 °C	230/115 VAC 500 W max	**N9307080**

Description	Part No.
1.5 L/min of Air (Without Compressor)	**N9307081**
3.0 L/min of Air (Without Compressor)	**N9307082**
6.0 L/min of Air (Without Compressor)	**N9307083**
15.0 L/min of Air (Without Compressor)	**N9307080**

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

Zero Air Generators - Parker Domnick Hunter

Parker 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.

Model	Flow Rate (L/min)	Air Inlet @ 58–145 psig (L/m)	Voltage	Part No. (120 V)
UHP-35ZA-S	3.5	4.2	120V	**N9303206**
UHP-35ZA-S	3.5	4.2	230V	**N9303205**
UHP-35ZA-S	5.0	6.0	120V	**N9303208**
UHP-35ZA-S	5.0	6.0	230V	**N9303207**
UHP-35ZA-S	15	18	120V	**N9303210**
UHP-35ZA-S	15	18	230V	**N9303209**
UHP-35ZA-S	30	35	120V	**N9303212**
UHP-35ZA-S	30	35	230V	**N9303211**

Size: 17.9" H x 13.4" W x 16.7" 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: 120V/60 Hz or 230 V/50-60 Hz ±10%
Port Connections
- Outlet (N9303205 and N9303206): 1/8" Compression Fitting
- Inlet (N9303205 and N9303206): 1/8" Compression Fitting
- Outlet (N9303207-N9303212): 1/4" Compression Fitting
- Inlet (N9303207-N9303212): 1/4" Compression Fitting

ULTRA QUIET OIL FREE

PerkinElmer's GC Quiet 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.

Horse Power: 0.60

Power Requirements: 115V/220V/50 – 60Hz

Output: 2.5 CFM

Output: 67 L/Min

Max Pressure: 100 PSI

Max Pressure: 7 bar

Operating Pressure PSI: 80 – 100

Operating Pressure Bar: 6 – 7

Noise Level: 62 db/A

Tank Size: 6.0 Gal.

Tank Size Liter: 24 L

Dimensions: 16 x 16 x 20 in.

Weight: 54 lbs.

Packed Dimensions: 19 x 18 x 23

Packed Weight: 58 lbs.

Features and Benefits:

- Ultra quiet for use in the laboratory area
- Compact size and light weight
- Commercial/Industrial grade
- 1 Year warranty on workmanship
- 5.0 micron pre-filter and regulator
- Internally powder coated air tank to prevent rust
- Pressure switch for automatic operation

Description	Part No.
115V 60Hz	**N9306291**
220V 60Hz	**N9306292**
220V 50Hz	**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.

Horse Power: 0.75

Power Requirements: 115V/220V/50 – 60Hz

Output: 4.4 CFM

Output: 110 L/Min

Max Pressure: 100 PSI

Max Pressure: 7 bar

Operating Pressure PSI: 80 – 100

Operating Pressure Bar: 6 – 7

Noise Level: 57 db/A

Tank Size: 1.57 Gal.

Tank Size Liter: 6 L

Dimensions: 34.7 x 13.4 x 22.4 in.

Weight: 103 lbs.

Packed Dimensions: 38 x 15 x 25

Packed Weight: 125 lbs.

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

Description	Part No.
115V 60Hz	**N9306350**
220V 50Hz	**N9306351**
220V 60Hz	**N9306352**

Pressure Regulators

Ideally suited for chromatographic carrier gas applications including FID, TCD,ECD, HID, and non-corrosive gas mixtures for analytical instrumentation.

Specifications	Single Stage – Stainless Steel (Thread-less Seat) N9306353	Single Stage – Brass Nickel-plated (Thread-less Seat) 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" FNPT	¼" FNPT
Fittings	⅛"	⅛"
Inlet	⅛" FNPT	⅛" FNPT
Outlet	⅛" FNPT	⅛" FNPT
Decay Inlet Characteristic	N/A	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" Stainless Steel	N/A
Filter	316 Stainless Steel	316 Stainless Steel
Trim	316 Stainless Steel	Nickel Plated Brass
Gauges	N/A	2½" Stainless Steel
Valve Stem	N/A	316 Stainless Steel
Valve Spring	N/A	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 ¼ 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	H2 and Ar/CH4	4 – 100	0 – 200	0 – 4,000	**09907128**
CGA-580	He, Ar, N2	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,H2 and Ar/CH4 Mixes	4 – 100	0 – 150	0 – 4,000	**00230091**
CGA-350	CO, H2	10 – 200	0 – 400	0 – 4,000	**00230253**
CGA-590*	Air	10 – 200	0 – 400	0 – 4,000	**00230090**

*Supplied with 590-580 Adapter.

GC Startup Kits

Description	Part No.
GC Startup Kit ⅛" Tubing and Fitting for (3) Gases	**N9306304**

Description.	Qty
⅛" Tubing x 50 foot coil Copper Special Cleaning	1
⅛" Compression Brass Tee Two Piece Ferrule Brass	3
Tee ⅛" Com x ⅛" Comp x ¼" fnpt Brass	3
Adjustable Safety Relief Valve Brass 50 – 150 PSI	3
¼" fnpt x ⅛" Comp Fitting Brass	3
⅛" Port Connector Brass	3
⅛" Ferrule Brass	3
⅛" Compression Brass Nut	3
⅛" Compression Brass Fitting Cap	3
Tubing Cutter ⅛" Tubing	1
PTFE Tape	1

Description	Part No.
GC Startup Kit ⅛" Tubing and Fitting With One Single Stage Regulator	**N9306305**

Description.	Qty
⅛" Tubing x 50 foot coil Copper Special Cleaning	1
⅛" Compression Brass Tee Two Piece Ferrule Brass	3
Tee ⅛" Com x ⅛" Comp x ¼" fnpt Brass	3
Adjustable Safety Relief Valve Brass 50 – 150 PSI	3
¼" fnpt x ⅛" Comp Fitting Brass	3
⅛" Port Connector Brass	3
⅛" Ferrule Brass	3
⅛" Compression Brass Nut	3
⅛" Compression Brass Fitting Cap	3
Tubing Cutter ⅛" Tubing	1
PTFE Tape	1
Single Stage Analytical 0 – 100 psig delivery, CGA 350 (H2,Carbon Monoxide, Ethylene)	1

Description	Part No.
GC Startup Kit ⅛" Tubing and Fitting With One Dual Stage Regulator	**N9306306**

Description.	Qty
⅛" Tubing x 50 foot coil Copper Special Cleaning	1
⅛" Compression Brass Tee Two Piece Ferrule Brass	3
Tee ⅛" Com x ⅛" Comp x ¼" fnpt Brass	3
Adjustable Safety Relief Valve Brass 50 – 150 PSI	3
¼" fnpt x ⅛" Comp Fitting Brass	3
⅛" Port Connector Brass	3
⅛" Ferrule Brass	3
⅛" Compression Brass Nut	3
⅛" Compression Brass Fitting Cap	3
Tubing Cutter ⅛" Tubing	1
PTFE Tape	1
Dual Stage Analytical 0 – 100 psig delivery, CGA 580 (N2, Argon, He)	1

Portable Gas Leak Detector

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

Detectable Gases

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

Battery: Rechargeable Ni-MH internal battery pack (6 hours normal operation)
Universal Power Adapter Set: US, UK, European, Australian plugs included
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.

ESSENTIAL GC LAB SUPPLIES

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

Specifications

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

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

Description	Part No.
MiniTemp MT4	**N9306074**

Basic Tool Kit

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**

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

- 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**

PerkinElmer Electronic Flowmeter 1000

The PerkinElmer Flowmeter 1000 allows for rapid real-time flow measurements. Flow rates measured in mL/min. (volumetric flow). The PerkinElmer Flowmeter 1000 can quickly calculate split ratios. Ratios are displayed in real time. Flowmeter not compatible with corrosive or flammable gases. Portable operation.

Features and Benefits

- Flow range 0.1–1,000 mL/min.
- Operating temperature 0 to 45 °C
- Traceable to NST primary standard
- Split ratio mode and accuracy ± 3%
- LCD alphanumeric display

Description	Part No.
PerkinElmer Electronic Flowmeter 1000	**N9307029**

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 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.

Method 8260B for Water and Solid Waste Matrices

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

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

Volatile Organics Combination Blend

Contains all analytes in Mixes A, C and D.

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

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

Method 8260B Standards

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

Ketones for Method 8260B

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

Mix B Purgeable Gases for Methods 8260B/524.2

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

NEW

8000 Series Solid and Hazardous Waste Methods

Resource Conservation And Recover Act (Rcra) Under Sw-846, "Test Methods For Evaluating Solid Waste"

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 PCB's, either as individual congeners or Aroclors by GC/ECD.

Method 8082 PCB's (polychlorinated biphenyls) Standards Kit

Method 8082 is used to determine the concentration of PCB's either as individual congeners or Aroclors. A Clarus 600 GC with a capillary column is used to perform the separation. 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 & T Methanol	**N9331064**
Mix A for Method 624	
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331060**
Purgeable Gases Mix B for Method 624	
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331061**
Mix C for Method 624	
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331062**
Mix D for Method 624	
1.2 mL @ 2,000 µg/mL in P & T Methanol	**N9331063**

Method 8100

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**

HUMAN HEALTH
ENVIRONMENTAL HEALTH

IR READY FOR ANY CHALLENGE

Reach new heights in IR with Frontier™. This innovative IR spectrometer combines superb sensitivity with optical flexibility, for superior performance in demanding applications. Offering optimized sampling options, Frontier satisfies any IR need and can be expanded as research goals develop. We've harnessed 65 years of expertise to create our most powerful, adaptable IR solution yet. Helping protect consumers and the environment more quickly and accurately than ever before.

www.perkinelmer.com/frontier

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For the Better

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MATERIALS
CHARACTERIZATION

From the measurement of DNA purity to characterization of the most advanced engineered materials, we provide the widest range of solutions available from one company. FT-IR, FT-NIR, UV, UV/Vis, Fluorescence, DSC, TGA, STA, TMA, DMA — we have solutions for every lab and every budget.

Our expertise in these technology means you can rely on us. Do you need a simple accessory that provides results with a push of a button, or a high-end lamp with unparalleled sensitivity? What about flexible sample sizes and reduced sample setup time? Higher lab productivity? No problem.

Whatever challenge you face in material characterization, we can help you solve it. After all, we created the first commercial IR and FT-IR systems over 60 years ago. Since then, we have continually pioneered the technologies, consumables and supplies to help you learn more about the performance and structure of the materials you analyze at the molecular level.

Define your challenge, and we will help you meet it.

Infrared Spectroscopy

Accessories Overview	248-249
Application Packs	266
ATR Accessories	250-253
Desiccant and Laser Kits	263
Diffuse Reflectance Accessories	254
FT-NIR Accessories	267
Imaging Accessories	264
Oil Express Consumables	262
Portability Packs	262
Presses	261
Reference Materials	263
Sampling and Starter Kits	265
Specular Reflectance Accessories	255
Transmission Accessories	256-260

UV/Visible and Fluorescence

Cells	270-274
Cell Changers	276
Cell Holders	275
General Purpose Optical Bench	282
Fiber Optics	282
Fluorescence	284-289
Integrating Spheres	280
Lamps	268
Polarimetry	283
Polarizers, Depolarizers, Sipper	281
Reference Materials	269
Specular Reflectance Accessories	279
Thermostatting Accessories	277-278

Thermal and Elemental Analysis

DMA Accessories and Supplies	296-297
DSC Supplies	290-292
Elemental Analysis Consumables	298-299
TGA / STA Supplies	294-295
TMA Supplies	293

IR READY FOR ANY SAMPLING CHALLENGE

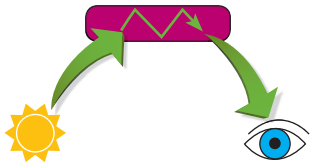
Accessories play an important role in FT-IR analysis. Selection of the correct accessory speeds your analyses, increases repeatability of results and minimizes errors. We manufacture a host of high quality, easy-to-use accessories and partner with leading industry providers of branded IR accessories to provide a full range of compatible tools to extend the scope and capabilities of your FT-IR instrument.

From simple transmission spectroscopy techniques to more advanced research analysis, our premium "plug-and-play" accessories, such as UATR and diffuse reflectance, offer ultimate performance with minimum set-up and calibration through their convenient auto-recognition set-up design.

With the widest range of both PerkinElmer designed and manufactured accessories and well-known brands of accessories from our global partners, our selection offers you the best solution for your laboratory's needs.

INFRARED SPECTROSCOPY SAMPLING TECHNIQUES

Attenuated Total Reflectance (ATR)

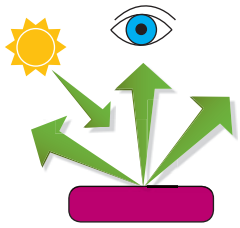


A sampling technique which requires little to no sample preparation. A beam of infrared light passes through the ATR crystal and is reflected off the surface of the sample. The reflection forms an evanescent wave which is collected by a detector.

SAMPLE TYPES: Solid, Liquid, Powder

APPLICATIONS: Identification of powders and polymers. Quantitative measurements for liquids, including aqueous solutions.

Diffuse Reflectance



Diffusely scattered light is collected when a beam of light reflects off a rough, matt surface e.g. powder or fiber.

SAMPLE TYPES:
Powders, Fibers, Solids with Rough Surface

APPLICATIONS:
Characterization of minerals and hard plastic materials.

Whatever your application or instrument, we have the right sampling accessory for you.

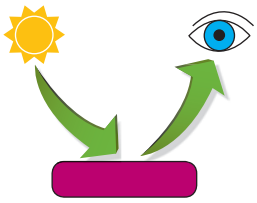
Not every accessory is ideal for every application. That's why we offer a complete line of sampling options for your Spectrum One/100/400/65, Spectrum Two or Frontier instruments. With three different levels of sampling accessories to choose from, we'll help you find the solutions that best suit your laboratory needs.

Premium: these top tier accessories offer you the most sampling flexibility. With "plug-and-play" accessory recognition and auto-alignment, you'll be able to quickly and easily analyze a wide range of sample types.

Branded: the quality of your instrument and that of the sampling accessory are equally important to your analysis. These mid-level accessories, manufactured by Specac, PIKE and others, have been tested and are approved for use on our PerkinElmer FT-IR systems.

Value: an affordable choice for laboratories that need a simple but effective sampling solution. With manual alignment, these accessories provide you with the performance you need to analyze most samples.

Specular Reflectance

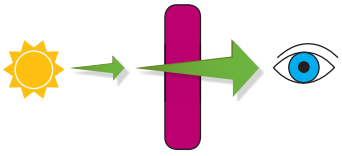


A mirror-like reflection occurs when a beam of light strikes a smooth, shiny surface such that the angle of incidence equals the angle of reflection.

SAMPLE TYPES: Thin Films on Substrates

APPLICATIONS: Analysis of coatings on metallic substrates, Langmuir Blodgett films and self-assembled monolayers.

Transmission



When radiation passes through a body a proportion of the energy is absorbed by the sample and the remainder travels on to the detector.

SAMPLE TYPES: Solid, Liquid, Gas

APPLICATIONS: Quantitative determination of fuel properties, e.g. biodiesel, high-resolution gas-phase spectroscopy

PerkinElmer UATR Accessory

PREMIUM

An excellent general accessory for the analysis of solids and liquids. The UATR produces high quality spectra through the use of a pressure arm allowing good contact of the sample with the diamond crystal. The pressure arm force indicator ensures first-class sample-to-sample and operator-to-operator reproducibility. The accessory is recognized when it is placed in the sample compartment, the optics are automatically optimized and the system is ready to be used without additional alignment.

Description	Spectrum One/100/ 400/65	Spectrum Two	Frontier
UATR Diamond/ZnSe ATR (Single Reflection)	**L1250050**	**L1600107**	**L1280301**
UATR Diamond/KRS-5 ATR (Single Reflection)	**L1250053**		**L1280304**
UATR Germanium ATR (Single Reflection)	**L1250054**		**L1280305**
UATR Diamond/ZnSe ATR (3 Reflection)	**L1250051**		**L1280302**
UATR Diamond/ZnSe ATR (9 Reflection)	**L1250052**		**L1280303**
Liquid UATR Diamond/ZnSe (9 Reflection)			**L1280069**
UATR Pressure Arm O-Ring id: 3 mm; 1.5 mm CS N70, PK/12	**L9004319**	**L9004319**	**L9004319**

PerkinElmer HATR Accessory

PREMIUM

Available in Premium and Value versions this accessory is supplied with a top-plate fitted with a 25-reflection, 45 degree, 50 mm ZnSe crystal, allowing simple sampling of solids, films and powders.

Description	Spectrum One/100/ 400/65	Spectrum Two	Frontier
Premium HATR with ZnSe Flat Top Plate	**L1200311**		**L1280308**
Premium HATR with ZnSe Trough Top Plate	**L1200312**		**L1280312**
Value HATR with ZnSe Flat Plate		**L1600113**	**L1280321**
Value HATR with ZnSe Trough Plate		**L1600109**	**L1280322**

ATR Miracle Accessory (PIKE)

A single reflection HATR accessory designed for the analysis of highly absorbing solid, semi-liquid and liquid samples. The sampling plate configuration features a small round crystal allowing reliable analysis of small sample volumes.

Description	Spectrum One/100/ 400/65	Spectrum Two	Frontier
Miracle Diamond ATR (Single Reflection)		**L1600114**	**L1272483**
Miracle ZnSe ATR (Single Reflection)	**L1272126**	**L1600115**	**L1272126**
Miracle Ge ATR (Single Reflection)	**L1272127**	**L1600116**	**L1272127**

Multiple (10) reflection HATR Accessory (PIKE)

Provides high sensitivity for analysis of low concentration components in liquid, solid, and polymer samples. Available with a selection of crystal materials and high temperature configurations.

Description	Spectrum Two	Frontier Part No.
Multiple (10) Reflection HATR with ZnSe flat and trough plate	**L1272337**	**L1272384**

ATR Quest™

The Quest ATR Accessory is a single-reflection ATR accessory from Specac designed for laboratory spectroscopic sample analysis in the mid- and far-infrared. With innovative optical design and durable monolithic diamond ATR crystal option.

Description	Frontier Part No.
Quest ATR accessory with diamond top-plate	**L1272503**
Quest ATR accessory with diamond (extended range) top-plate	**L1272504**
Quest ATR accessory with ZnSe top-plate	**L1272505**
Quest ATR accessory with Ge top-plate	**L1272506**

Additional Quest Top-Plates

Description	Part No.
Quest ATR Diamond Crystral top-plate	**L1272511**
Quest ATR Diamond Extended Range Crystal top-plate	**L1272512**
Quest ATR ZnSe Crystal top-plate	**L1272513**
Quest ATR Ge Crystal top-plate	**L1272514**

Golden Gate™ ATR Accessory (Specac)

A high performance single reflection monolithic diamond ATR product offer, featuring a Type IIIA diamond ATR element metal-bonded into a tungsten carbide mount to provide outstanding durability and exceptional chemical resistance. The robust design allows this ATR accessory to be used to achieve high-quality spectral data in the analysis of a broad range of materials including those that are abrasive, hard, reactive, or corrosive.

Description	Frontier
Golden Gate™ Diamond ATR (Single Reflection)	**L1272407**

Gateway™ HATR Accessory (Specac)

An entry-level multi-reflection (6) horizontal ATR accessory. The rugged design and simple optical layout ensures optimum performance.

Description	Spectrum Two	Frontier
Gateway™ HATR with ZnSe flat and trough top plates	**L1272330**	**L1272412**
Gateway™ HATR with ZnSe with electrical heating to 200 °C. Requires Gateway controller (territory dependent)	**L1272414**	**L1272414**

25 Reflection ATR Accessory (Specac)

A vertically mounted ATR crystal accessory capable of being operated for a crystal incidence angle of between 30° to 60°. 25 Reflections are achieved at the 45° angle. The large number of reflections and range of incident angles makes this accessory ideally suited for the enhancement of small bands in weakly absorbing samples.

Description	Spectrum Two	Frontier
25 Reflection ATR Accessory with KRS-5 crystal	**L1272372**	**L1272372**

The GladiATR Vision™ (PIKE)

A sampling tool which couples small area infrared analysis with simultaneous viewing. Samples are placed face down and positioned on the diamond crystal while its image is projected in real-time on the LCD screen. Analysis of thick or non-transparent samples is enhanced because viewing is through the diamond crystal. The 110X magnification of the sample image enables the positioning of small samples for optimized analysis.

Description	Frontier
GladiATR Vision/Video/PC connection	**L1272381**
GladiATR Diamond	**L1272423**

The Variable Angle ATR (VATR) Accessory (PIKE)

This accessory has the ATR crystal mounted vertically and an optical layout is based on an optimized Gilby configuration and allows continuous adjustment of the incident beam angle between 30 to 60 degrees. Suitable for the analysis of solids, films and coatings. A unique mirror adjustment mechanism which utilizes mirror placement and proportional pivoting allows precise and repeatable alignment.

Description	Frontier
Classic VATR (25mm). Choose a 25mm crystal	**L1272386**
Classic VATR(50mm). Choose a 50mm crystal	**L1272443**

Crystal Type	25mm Crystal	50mm Crystal
KRS-5, 45° Parallelogram	**L1272387**	**L1272388**
KRS-5, 60° Parallelogram	**L1272389**	**L1272390**
ZnSe, 45° Parallelogram	**L1272391**	**L1272392**
ZnSe, 60° Parallelogram	**L1272393**	**L1272394**
Ge, 45° Parallelogram	**L1272395**	**L1272396**
Ge, 30° Parallelogram	**L1272397**	**L1272398**
Ge, 60° Parallelogram	**L1272399**	**L1272400**
Si, 45° Parallelogram	**L1272401**	**L1272402**

PERKINELMER ATR TOP PLATE ACCESSORIES

PerkinElmer ATR Top Plates & Options

Description	Part No.	Spectrum One/100/400/65	Frontier
UATR Top Plate Diamond/ZnSe (1 Reflection)	**L1250240**	✓	✓
UATR Top Plate Diamond/ZnSe (3 Reflection)	**L1250241**	✓	✓
UATR Top Plate Diamond/ZnSe (9 Reflection)	**L1250242**	✓	✓
UATR Top Plate Diamond/KRS5 (1 Reflection)	**L1250046**	✓	✓
UATR Top Plate Ge (1 Reflection)	**L1250048**	✓	✓
UATR 3.0mm Sample Position Plate (for 1 and 3 reflection UATR's)	**L1202023**	✓	✓
UATR 7.0mm Sample Position Plate (for 1 and 3 reflection UATR's)	**L1202024**	✓	✓
UATR Polarization Accessory Diamond/ZnSe (1 Reflection Top-Plate and Pressure Arm)	**L1280064**		✓
UATR Polarization Accessory Diamond/ZnSe (3 Reflection Top-Plate and Pressure Arm)	**L1280065**		✓
UATR Polarization Accessory Diamond/ZnSe (9 Reflection Top-Plate and Pressure Arm)	**L1280066**		✓
UATR Heated Top plate 60°C (Requires Pike Miracle ATR/10 Reflection HATR USB Temperature Controller)	**L1272380**		✓
UATR Heated Top plate 130°C (Requires Pike Miracle ATR/10 Reflection HATR USB Temperature Controller)	**L1272433**		✓
Universal 0.5mm ATR Shoe With 1.5mm diameter tip (for 1 and 3 reflection UATR's)	**L1202049**	✓	✓
Universal 6.0mm ATR Shoe With 6.0mm flat end (for 1 and 3 reflection UATR's)	**L1202050**	✓	✓
UATR Cone Shoe (for 1 and 3 reflection UATR's)	**L1201980**	✓	✓
Premium HATR ZnSe 45 Degree Flat Plate	**L1200313**	✓	✓
Premium HATR ZnSe 45 Degree Trough Plate	**L1200314**	✓	✓
Premium HATR ZnSe 60 Degree Flat Plate	**L1200315**	✓	✓
Premium HATR ZnSe 60 Degree Trough Plate	**L1200316**	✓	✓
Premium HATR (Coated for extended lifetime) ZnSe 45 degree flat plate	**L1200323**	✓	✓
Premium HATR (Coated for extended lifetime) ZnSe 45 degree trough plate	**L1200324**	✓	✓
Premium HATR (Coated for extended lifetime) ZnSe 60 Degree Flat Plate	**L1200325**	✓	✓

Description	Part No.	Spectrum One/100/400/65	Frontier
Premium HATR Ge 30 Degree Flat Plate	**L1200337**	✓	✓
Premium HATR Ge 30 Degree Trough Plate	**L1200338**	✓	✓
Premium HATR Ge 45 Degree Flat Plate	**L1200333**	✓	✓
Premium HATR Ge 45 Degree Trough Plate	**L1200334**	✓	✓
Premium HATR Ge 60 Degree Flat Plate	**L1200335**	✓	✓
Premium HATR Ge 60 Degree Trough Plate	**L1200336**	✓	✓
Premium HATR AMTIR 45 Degree Flat Plate	**L1200343**	✓	✓
Premium HATR AMTIR 45 Degree Trough Plate	**L1200344**	✓	✓
Premium HATR AMTIR 60 Degree Flat Plate	**L1200345**	✓	✓
Premium HATR AMTIR 60 Degree Trough Plate	**L1200346**	✓	✓
Premium ATR Pressure Arm Kit	**L1200321**		✓
Premium Powder press	**L1201944**		✓
Premium Volatiles cover	**L1205436**		✓

Description	Part No.	Spectrum Two	Frontier
Value HATR ZnSe Trough Plate	**L1360266**	✓	✓
Value HATR ZnSe Flat Plate	**L1360267**	✓	✓
Value HATR Ge Trough Plate	**L1360268**	✓	✓
Value HATR Ge Flat Plate	**L1360269**	✓	✓
Value HATR AMTIR-1 Trough Plate	**L1360270**	✓	✓
Value HATR AMTIR-1 Flat Plate	**L1360271**	✓	✓
Value HATR KRS-5 Trough Plate	**L1360272**	✓	✓
Value HATR KRS-5 Flat Plate	**L1360273**	✓	✓
Value HATR Clamp Assembly	**L1360275**	✓	✓

Pike ATR Top Plates & Options

Description	Part No.	Spectrum One/100/400/65	Spectrum Two	Frontier
Miracle ZnSe Top Plate	**L1272130**	✓	✓	✓
Miracle Ge Top Plate	**L1272131**	✓	✓	✓
Miracle Si Top Plate	**L1272133**	✓	✓	✓
Miracle Diamond/ZnSe composite Top Plate	**L1272313**	✓	✓	✓
Miracle Heated 60°C Diamond/ZnSe Crystal Plate*	**L1272314**		✓	✓
Miracle Heated ZnSe Crystal Plate*	**L1272315**		✓	✓
Miracle Heated 130°C Ge Crystal Plate*	**L1272316**		✓	✓
Miracle Volatiles Cover	**L1272320**	✓	✓	✓
Miracle Liquid Retainer with Volatiles Cover	**L1272321**	✓	✓	✓
Miracle Flat tip for high pressure clamp	**L1272323**	✓	✓	✓
Miracle swivel tip for high pressure clamp	**L1272324**	✓	✓	✓
Miracle Concave tip for high pressure clamp	**L1272325**	✓	✓	✓
Multiple (10) Reflection HATR ZnSe Trough Plate	**L1272338**		✓	✓
Multiple (10) Reflection HATR ZnSe Flat Plate	**L1272339**		✓	✓
Multiple (10) Reflection HATR Ge Trough Plate	**L1272340**		✓	✓
Multiple (10) Reflection HATR Ge Flat Plate	**L1272341**		✓	✓
Multiple (10) Reflection HATR Heater with ZnSe Trough plate*	**L1272342**		✓	✓
GladiATR Heated ATR Diamond up to 210°C**	**L1272422**			✓
GladiATR Ge Crystal Plate	**L1272425**			✓
Miracle ATR/10 Reflection HATR USB Temperature Controller (220V, UK)	**L1272317**		✓	✓
Miracle ATR/10 Reflection HATR USB Temperature Controller (220V, Euro)	**L1272318**		✓	✓
Miracle ATR/10 Reflection HATR USB Temperature Controller (110V, 60Hz)	**L1272319**		✓	✓
GladiATR USB Temperature Controller (220V, UK)	**L1272426**			✓
GladiATR USB Temperature Controller (220V, Euro)	**L1272427**			✓
GladiATR USB Temperature Controller (110V, 60Hz)	**L1272428**			✓

* Requires L1272317, L1272318 or L1272319
** Requires L1272426, L1272427 or L1272428

Specac ATR Top Plates & Options

Description	Part No.	Spectrum One/100/400/65	Spectrum Two	Frontier
Silver Gate™ ZnSe Flat Top Plate (Single Reflection)	**L1272274**	✓	✓	✓
Silver Gate™ ZnSe Recessed Top Plate (Single Reflection)	**L1272276**	✓	✓	✓
Silver Gate™ Ge Flat Top Plate (Single Reflection)	**L1272275**	✓	✓	✓
Silver Gate™ Ge Recessed Top Plate (Single Reflection)	**L1272277**	✓	✓	✓
Gateway HATR ZnSe Electrically Heated Top Plate to 200°C (220V, UK)	**L1272331**		✓	
Gateway HATR ZnSe Electrically Heated Top Plate to 200°C (220V, Europe)	**L1272373**		✓	
Gateway HATR ZnSe Electrically Heated Top Plate to 200°C (110V, 60Hz)	**L1272374**		✓	
Gateway ZnSe 45 Degree Flat Top-Plate	**L1272332**		✓	✓
Gateway Ge 45 Degree Flat Top-Plate	**L1272333**		✓	✓
Gateway ZnSe 550µl Flow Through 45 Degree Top Plate	**L1272334**		✓	✓
Gateway ZnSe Thermocirculating 550µl flow through top plate	**L1272335**		✓	✓
Gateway ZnSe Water Heated/Cooled 45 Degree Top-plate	**L1272336**		✓	✓
Gateway™ UK Controller	**L1272484**			✓
Gateway™ Euro Controller	**L1272485**			✓
Gateway™ USA Controller	**L1272486**			✓
Gateway™ China Controller	**L1272487**			✓

Diffuse Reflectance Accessories

PREMIUM

PerkinElmer Diffuse Reflectance Accessory

Available in Premium and Value versions this accessory provides a convenient and sensitive method for analyzing opaque or highly scattering solid samples such as pharmaceuticals, food products, soap powders, coal, clay, soil, paper, painted surfaces, polymer foam and catalysts. The accessory allows for macro or micro sampling and only requires insertion into the sample compartment to be ready to use.

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
Premium Diffuse Reflectance Accessory			**L1280306**
Value Diffuse Reflectance Accessory	**L1200351**	**L1600111**	**L1280323**

EasyDiff Diffuse Reflectance Accessory (PIKE)

A reflectance accessory with pre-aligned optical components and micrometer controlled sample positioning for reproducible, high quality data.

Description	Spectrum Two
EasyDiff Diffuse Reflectance Accessory	**L1272344**

DiffusIR™ Diffuse Reflectance Accessory (PIKE)

A research grade diffuse reflectance accessory with a large, efficient optical design accommodating optional environmental chambers for thermodynamic studies.

Description	Frontier
DiffusIR Diffuse Reflectance Accessory	**L1272403**

Selector™ Diffuse Reflectance Accessory (Specac)

For analysis of powdered and solid samples. An environmental chamber option allows enhanced vacuum, temperature and pressure studies.

Description	Frontier
Selector Diffuse Reflectance Accessory	**L1272409**
Selector Diffuse Reflectance Accessory with Environmental Chamber	**L1272410**

Mid & NIR Integrating Spheres (PIKE)

Mid-IR and NIR sample compartment spheres for reflectance measurements. Samples are placed directly onto the sample port of the upward-looking sphere or over a thin infrared transmitting window. Measurement of diffuse transmission may also be done by placing the sample at the slide mount beam input port. Kits include base optics, MCT detector (MIR) or InGaAs detector (NIR), and base mount.

Description	Frontier
Mid-IR Integrating Sphere with ZnSe Windows	**L1272405**
NIR Integrating Sphere with KBr Windows	**L1272406**

Diffuse Reflectance Options

PerkinElmer Diffuse Reflectance Options

Description	Part No.	Spectrum One/100/400/65	Spectrum Two	Frontier
Diffuse Reflection Macrosample Cup	**L1201654**	✓	✓	✓
Diffuse Reflection Microsample Cup	**L1201655**	✓	✓	✓
Diffuse Reflection Multi-Purpose Sample Holder	**L1201865**	✓	✓	✓
Diffuse Reflection Metal-Coated Silicon Carbide Abrasive Pads, Pack of 100	**L1275106**	✓	✓	✓
Diffuse Reflection Non-Coated Silicon Carbide Abrasive Sticks, Pack of 100	**L1271021**	✓	✓	✓
Diffuse Reflection Metal-Coated Diamond Abrasive Sticks, Pack of 100	**L1275105**	✓	✓	✓
Diffuse Reflection Non-Coated Diamond Abrasive Sticks, Pack of 100	**L1275102**	✓	✓	✓

Pike Diffuse Reflectance Options

Description	Part No.	Spectrum Two	Frontier
EasyDiff Small Sample Cup, 2 Per Package	**L1272345**	✓	
EasyDiff Large Sample Cup, 2 Per Package	**L1272346**	✓	
EasyDiff Sample Slide	**L1272347**	✓	
EasyDiff Silicon Carbide Abrasive Disks, Pack of 100	**L1272348**	✓	
EasyDiff Diamond Abrasive Disks, Pack of 50	**L1272349**	✓	
EasyDiff Sample Cup Holder and Base	**L1272350**	✓	
EasyDiff EasiPrep Sample Preparation Kit	**L1272351**	✓	
EasyDiff Alignment Mirror	**L1272352**	✓	
EasyDiff Abrasion Kit	**L1272375**	✓	
DiffusIR Heating options. Requires DiffusIR Temperature Controller (territory dependent)	**L1272344**		✓
DiffusIR Environmental Chamber (900°C)	**L1272458**		✓
DiffusIR Environmental Chamber (500°C)	**L1272459**		✓
DiffusIR temperature controller for environmental chambers (220V, UK)	**L1272461**		✓
DiffusIR temperature controller for environmental chambers (220V, Euro)	**L1272462**		✓
DiffusIR temperature controller for environmental chambers (110V, 60Hz)	**L1272463**		✓

Specular Reflectance Accessories

PerkinElmer Fixed Angle Specular Reflectance Accessory

This accessory allows measurements on samples with glassy coatings and reflective surfaces. The sample is mounted horizontally and can be measured using 2, 5 or 10mm apertures (included).

Description	Spectrum One/100/ 400/65	Spectrum Two	Frontier
Fixed Angle (16 degree) Specular Reflectance Accessory	**01860796**	**L1600119**	**01860796**

PerkinElmer Variable Angle Specular Reflectance Accessory

This accessory allows measurement of reflectance spectra at angles of incidence between 15 and 80 degrees. Provides high-quality, non-destructive routine measurements of glossy, non-scattering flat surfaces or coatings on highly reflective substrates. At high angles, very thin films or coating may be measured.

Description	Frontier
Variable Angle Specular Reflectance Accessory	**01860954**

80Spec Grazing Angle Specular Reflectance Accessory (PIKE)

For the measurement of relatively thin films and mono-molecular layers. Samples are laid face down and the spectrum of the film is measured. Includes base optics, sample masks, polarizer mounts.

Description	Spectrum One/100/ 400/65	Spectrum Two	Frontier
80Spec Grazing Angle Specular Reflectance Accessory	**L1272248**	**L1272248**	**L1272248**

10Spec™ Specular Reflectance Accessory (PIKE)

Recommended to measure the reflectivity of glass per ASTM Standard E1585-93. May also be used to measure near-normal reflectivity of a wide variety of surfaces including military devices, reflecting optics, anti-reflective (AR) coated surfaces, and other reflecting and non-reflecting materials.

Description	Spectrum One/100/ 400/65	Spectrum Two	Frontier
10Spec Specular Reflectance Accessory	**L1272247**	**L1272361**	**L1272247**

VeeMAX™ II Variable Angle Accessory (PIKE)

Can be used as a specular reflectance or ATR accessory in both single and multiple reflection mode. The angle may be varied continuously from 30 to 80 degrees by the rotation of a single control. Has a built-in polarizer mount to permit selection of polarization angle without disturbing purge.

Description	Spectrum One/100/ 400/65	Frontier
VeeMAX II Variable Angle Specular Reflectance Accessory	**L1272240**	**L1272240**
VeeMAX II Variable Angle Specular Reflectance ATR Accessory		**L1272382**
ATRMax II Variable HATR accessory with 45 degree ZnSe Trough Plate		**L1272383**

Pike Specular Reflectance Options

Description	Part No.	Spectrum One/100/ 400/65	Spectrum Two	Frontier
80Spec/VeeMAX KRS-5 Polarizer	**L1272243**	✓	✓	✓
80Spec ZnSe Manual Polarizer	**L1272376**	✓	✓	✓
80Spec/10Spec Gold Reflectance Mirror	**L1272377**	✓	✓	✓
VeeMax ZnSe 45 degree flat plate	**L1272450**	✓		✓
VeeMax ZnSe 60 degree flat plate	**L1272451**	✓		✓
VeeMax Ge 45 degree flat plate	**L1272452**	✓		✓
VeeMax Ge 60 degree flat plate	**L1272453**	✓		✓
VeeMax Ge 65 degree flat plate	**L1272454**	✓		✓
ATRMax II Variable Angle Multiple reflection ATR, 45 deg ZnSe crystal	**L1272455**	✓		✓
ATRMax Ge 45 degree trough plate	**L1272456**	✓		✓
ATRMax Ge 45 degree flat plate	**L1272457**	✓		✓

WIDE SELECTION OF SAMPLING CELLS AND WINDOW MATERIALS

PerkinElmer offers a versatile product line of liquid sampling cells which utilize a specially designed Universal mount suitable for both FT-IR and dispersive instruments, and a wide variety of high-quality window materials to meet your analytical needs. These windows are polished to precise tolerances of flatness.

The first criteria to consider when selecting a window material is the wavelength range over which the spectrum must be measured.

Other important considerations include solubility, reactivity, and the refractive index of the window material with respect to the sample. Sometimes mechanical and thermal characteristics may also be important.

Selecting Window Materials

The following information may be helpful in selecting window materials:

- **Sodium Chloride (NaCl)** is one of the most versatile window materials available, due to its spectral range and low cost. Samples should not contain water because NaCl is hygroscopic. This will cause the windows to fog and become unusable. Store NaCl cells in a desiccator when not in use. NaCl withstands mechanical stress and can be used up to 400 °C.
- **Potassium Bromide (KBr)** has a slightly wider spectral range than NaCl but is more hygroscopic. Although able to provide good resistance to mechanical shock, KBr is easily cleaved. KBr can be used up to 300 °C.
- **Calcium Fluoride (CaF_2)** is extremely hard and stable. CaF_2 is not significantly affected by moisture and does not fog. While resistant to most acids and bases, CaF_2 should not be used with ammonium salts.
- **Barium Fluoride (BaF_2)** is a relatively hard material, similar to CaF_2. Though less resistant to water than CaF_2, BaF_2 has a wider spectral range. The useful temperature range extends to 500 °C. Also, BaF_2 should not be used with ammonium salts.
- **Thallium Bromide-Iodide (KRS-5)** has a broad spectral range and a high refractive index, making it ideal for internal reflectance accessories. KRS-5 is slightly soluble in water and bases but insoluble in acids; KRS-5 is toxic and should not be repolished.
- **Silver Bromide (AgBr)** is easily scratched and has a tendency to cold flow at room temperature. Although only minimally degraded by water, AgBr will corrode after prolonged contact with moisture and metals. Avoid exposure to ultraviolet lights, as the crystal has a tendency to darken.
- **Zinc Selenide (Irtran-4™)** is similar to Cleartran except that it is somewhat softer and more easily scratched. Irtran-4 is used in total reflectance accessories because of its high refractive index.

Window Material	Transmission Range µm	Transmission Range cm^{-1}	Refractive Index at 1,000 cm^{-1}	Solubility G/ 100 G H_2O at 20 °C
Sodium Chloride, NaCl	0.25 – 16	40,000 – 625	1.49	36.0
Potassium Bromide, KBr	0.25 – 26	40,000 – 385	1.52	65.2
Potassium Chloride, KCl	0.25 – 20	40,000 – 500	1.46	34.7
Cesium Iodide, CsI	0.30 – 50	33,000 – 200	1.74	160.0 (at 61 °C)
Fused Silica, SiO_2	0.20 – 4	50,000 – 2,500	1.42 (at 3,333 cm^{-1})	Insoluble
Calcium Fluoride, CaF_2	0.20 – 9	50,000 – 1,100	1.39 (at 2,000 cm^{-1})	1.51×10^{-3}
Barium Fluoride, BaF_2	0.20 – 13	50,000 – 770	1.42	0.12 (at 25 °C)
Thallium Bromide-Iodide, KRS-5	0.60 – 40	16,600 – 250	2.37	$< 4.76 \times 10^{-2}$
Silver Bromide, AgBr	0.50 – 35	20,000 – 285	2.00	12×10^{-6}
Zinc Sulfide, ZnS (Cleartran)	1.0 – 14	10,000 – 715	2.20	Insoluble
Zinc Selenide, ZnSe (Irtran-4)	1.0 – 19.5	10,000 – 515	2.41	Insoluble
Polyethylene (high-density)	16 – 333	625 – 30	1.54 (at 5,000 cm^{-1})	Insoluble

Crystal Polishing Kit

Fogged windows are quickly restored with the infrared crystal polishing kit. The kit contains everything necessary to repolish sodium chloride, potassium bromide, or cesium iodide windows, and includes a smoothing lap, polishing rouge, a sponge, an optical flat, a Selvyt cloth, and a booklet describing the repolishing technique.

Description	Part No.
Crystal Polishing Kit	**51001188**

Replacement Parts for the Crystal Polishing Kit

Description	Part No.
Selvyt Cloth (pkg. 5)	**51001324**
Glass Grinding Lap	**51001325**
Optical Lap	**51001326**
Cleaning Sponge (pkg. 2)	**51001327**
Tin Polishing Rouge, 56 g	**51001328**
Polishing Lap Glass Plate	**51001329**

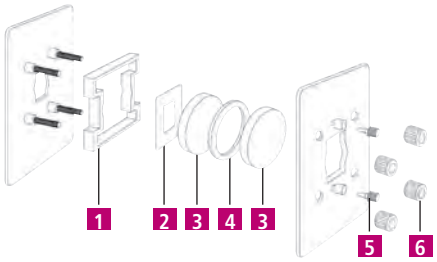
Demountable Cells and Windows

Demountable Cell

FOR MULLS, CAPILLARY FILMS, CAST FILMS, AND VERY VISCOUS LIQUIDS

Circular windows are used to construct a demountable cell where the sample is placed on one window and the second window is pressed lightly on top of the first. Spacers of various thicknesses can be used to vary the cell pathlength.

Description	Part No.
Universal Demountable Cell	**L1270986**
1 Window Aligner	**04821132**
2 Neoprene™ Gasket	**L1270512**
3 Circular Window (see below)	
4 Spacer (see below)	
5 PTFE Plugs (pkg. 6)	**04821008**
6 Quick Release Nut	**04821131**



Circular Demountable Cell Windows (Pair)

Window Material	Diameter	Thickness	Part No.
Sodium Chloride	25 mm	4 mm	**L1271102**
Potassium Bromide	25 mm	4 mm	**L1271202**
Calcium Fluoride	25 mm	4 mm	**L1271602**
Barium Fluoride	25 mm	4 mm	**L1272002**
Thallium Bromide-Iodide	25 mm	4 mm	**L1270665**
Silver Bromide	25 mm	2 mm	**L1272102**
Zinc Selenide	25 mm	2 mm	**L1270766**

Circular Spacers

Spacer Material	Thickness	Qty.	Part No.
Lead	0.025 mm	10	**L1271250**
PTFE*	0.05 mm	10	**51001135**
PTFE*	0.1 mm	6	**51001137**
PTFE*	0.2 mm	3	**51001140**
PTFE*	0.5 mm	3	**51001141**

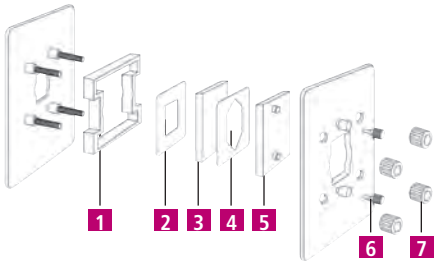
* PTFE spacers can be used for the analysis of less viscous samples.

Semi-demountable Cells and Windows

FOR HIGH-VISCOSITY LIQUIDS OR MULL SAMPLES

By using rectangular windows instead of circular windows, the demountable cell becomes a semi-demountable cell. The semi-demountable cell can be used either as a demountable cell or as a sealed cell for high-viscosity liquids or mull samples. To order a semi-demountable cell, order the Universal Demountable Cell (L1270986) and your choice of semi-demountable windows and spacers.

Description	Part No.
1 Window Aligner	**04821132**
2 Neoprene™ Gasket	**L1270512**
3 Undrilled Window (see below)	
4 Spacer (see below)	
5 Drilled Window (see below)	
6 PTFE Plugs (pkg. 6)	**04821008**
7 Quick Release Nut	**04821131**



Rectangular Semi-demountable Cell Windows (1 drilled; 1 undrilled)

Window Material	Thickness	Part No.
Sodium Chloride	4 mm	**L1271191**
Potassium Bromide	4 mm	**L1271192**
Calcium Fluoride	4 mm	**L1271193**
Barium Fluoride	4 mm	**L1271194**
Cesium Iodide	4 mm	**L1271195**
Zinc Selenide	2 mm	**L1270765**
Silver Bromide	2 mm	**L1270666**
Thallium Bromide-Iodide	2 mm	**L1270664**

Rectangular Spacers

Spacer Material	Thickness	Qty.	Part No.
Lead	0.025 mm	10	**L1270301**
PTFE	0.05 mm	6	**L1270402**
PTFE	0.1 mm	6	**L1270404**
PTFE	0.2 mm	3	**L1270408**
PTFE	0.5 mm	3	**L1270409**
PTFE	1 mm	3	**L1270410**
Assorted (2 of each)			**L1270421**

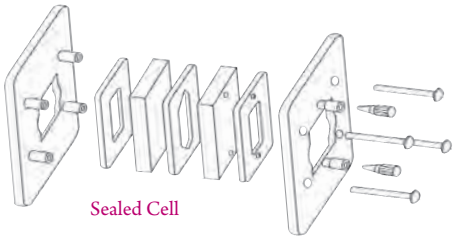
Sealed Liquid Cells

FOR HIGHLY VOLATILE SAMPLES AND QUANTITATIVE ANALYSIS

Sealed Cell

The sealed liquid cells have a corrosion-resistant construction making them ideal for highly volatile samples. The sealed liquid cells are ideal for quantitative analysis where you require an accurate reproducible cell thickness. These cells use a lead spacer which is amalgamated to the window material. The resultant bond forms a good leak-free seal which is effective in preventing evaporation and loss of sample. The sealed liquid cell is an integral unit and cannot be disassembled.

The sample filling orifice is compatible with Luer-Lok™ hypodermic syringes. Two syringes are recommended when cleaning the cell. Never use viscous materials which are difficult to remove from a sealed liquid cell. Instead, use a semi-demountable cell.


Sealed Cell

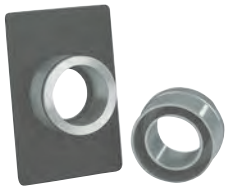
Rectangular Sealed Liquid Cells

Window Material	Pathlength	Part No.
Sodium Chloride	0.025 mm	**L1270941**
	0.05 mm	**L1270942**
	0.1 mm	**L1270944**
	0.2 mm	**L1270947**
	0.5 mm	**L1270948**
	1 mm	**L1270949**
Potassium Bromide	0.025 mm	**L1270951**
	0.05 mm	**L1270952**
	0.1 mm	**L1270954**
	0.2 mm	**L1270957**
	0.5 mm	**L1270958**
	1 mm	**L1270959**
Calcium Fluoride	0.025 mm	**L1270961**
	0.05 mm	**L1270962**
	0.1 mm	**L1270964**
	0.2 mm	**L1270967**
	0.5 mm	**L1270968**
	0.1 mm	**L1270969**
Zinc Selenide	0.1 mm	**L1270970**

Description	Part No.
Luer-Lok Syringe for Sealed Liquid Cells	**04967845**

Press-N-Lock Demountable Cell and Windows

FOR SIMPLE ANALYSIS OF MULLS, SMEARS, AND VISCOUS FILMS



The Press-N-Lock Demountable Cell lets you analyze mulls, smears, viscous films, etc., without the use of nuts, springs, or bolts to keep the cell together. You can use this cell on any PerkinElmer FT-IR spectrometer. The cell consists of a backplate with a Viton™ O-Ring that lets you slip the cover on and off with ease.

Description	Part No.
Press-N-Lock Demountable Cell	**N9302642**
O-Rings 25 mm (pkg. 12).	**N9302643**

Press-N-Lock Demountable Cell Windows (Pair)

Window Material	Diameter	Thickness	Part No.
NaCl	25 mm	4 mm	**L1271102**
KBr	25 mm	4 mm	**L1271202**
BaF_2	25 mm	4 mm	**L1272002**
ZnSe	25 mm	2 mm	**L1270766**
CaF_2	25 mm	4 mm	**L1271602**

FT-NIR Liquid Cells and Holders

A comprehensive range of FT-NIR cells are available for use with PerkinElmer FT-NIR's and can be found in the cells listing included in the UV section of this catalog.

Description	Lightpath	Part No.
Cylindrical cell holder	10 mm	**L1181303**
Cylindrical cell holder	50 mm	**N9302620**
Cylindrical cell holder	100 mm	**N9302640**
Rectangular cell holder	50 mm	**02200550**

Beam Condenser

Baseplate mounted for high performance transmission measurements of microsamples and gemstones. Horizontal sample platform for easy sample placement. Compatible with diamond anvil cell accessory. Includes a range of sample apertures 0.5 mm – 2.5 mm, and alignment tool.

Description	Part No.
Spectrum Two Beam Condenser	**L1600130**

Short path demountable gas cells

Used to monitor air pollutants, study vapor phase transitions in gas molecules and quantify impurities in gas samples. The Pyrex cells are supplied with a choice of windows. Please note that all require the Universal 10 cm gas cell mount for use.

Description	Spectrum One/100/ 400/65	Spectrum Two	Frontier
10cm Short-path Demountable Gas Cells with NaCl Windows	**51000634**	**51000634**	**51000634**
10cm Short-path Demountable Gas Cells with KBr Windows	**51000636**	**51000636**	**51000636**
10cm Short-path Demountable Gas Cells with CaF2 Windows	**51000638**	**51000638**	**51000638**
Universal 10cm Gas Cell Mount	**51000817**	**51000817**	**51000817**

DC-2 Diamond Compression Cell

Enables samples to be compressed to an ideal thickness for transmission experiments on an FTIR microscope stage or the Microfocus Beam Condenser. It uses two type IIIa diamond windows, each mounted into a Hastelloy plate. Used in combination with the Microfocus Beam Condenser, a high performance 4x beam condenser. The simple two lens linear optical system ensures easy alignment and high throughput over a wide working wavelength range.

Description	Spectrum One/100/ 400/65	Spectrum Two	Frontier
Microfocus Beam Condener with ZnSe Lenses. Requires but does not include DC-2 Diamond Compression Cell	**L1272283**	**L1272354**	**L1272283**
Microfocus Beam Condener with KRS-5 Lenses. Requires but does not include DC-2 Diamond Compression Cell	**L1272284**		**L1272284**
DC-2 Diamond Compression Cell	**L1272282**	**L1272355**	**L1272355**

Variable Temperature Cell

Used for the transmission study of solid or liquid samples at temperatures ranging from –190 °C to 250 °C for solids and -70°C to 250°C for liquids. Holder is supplied with NaCl external windows as standard.

Description	Spectrum One/100/ 400/65	Spectrum Two	Frontier
Variable Temperature Cell (220V, UK)	**L1272288**	**L1272356**	**L1272288**
Variable Temperature Cell (220V, Eur)	**L1272289**	**L1272357**	**L1272289**
Variable Temperature Cell (110V, 60Hz)	**L1272290**	**L1272358**	**L1272290**

The Tornado™ series of fixed, long pathlength gas cells

Designed for measuring the infrared spectra of gases and vapors at ambient temperatures and pressures. A range of pathlengths is available.

Description	Spectrum One/100/ 400/65	Spectrum Two	Frontier
Tornado™ T5 Gas Cell 5m FPL; glass body; KBr windows	**L1272301**	**L1272370**	**L1272301**
Tornado™ T10 Gas Cell 10m FPL; glass body; KBr windows	**L1272302**		**L1272302**
Tornado™ T20 Gas Cell 20m FPL; glass body; KBr windows	**L1272303**		**L1272303**

The Cyclone™ series of fixed and variable long pathlength gas cells

Designed for measuring the infrared spectra of gases and vapors at ambient temperatures and pressures. A range of pathlengths is available.

Description	Spectrum One/100/ 400/65	Frontier
Cyclone™ C2 gas cell 0.5 to 2.5m; glass body; CaF2 windows	**L1272470**	**L1272470**
Cyclone™ C2 gas cell 0.5 to 2.5m; metal body; CaF2 windows	**L1272471**	**L1272471**
Cyclone™ C5 Gas Cell 1-8m VPL; glass body; CaF2 windows	**L1272299**	**L1272299**
Cyclone™ C5 Gas Cell 1-8m VPL; metal body; CaF2 windows	**L1272300**	**L1272300**

The Storm Short Pathlength (10cm) Gas Cell

Ideal for routine gas and vapor spectroscopic analysis. The cell has a fixed 10 cm pathlength, and is available in Pyrex™ and stainless steel.

Description	Frontier Part No.
Storm Gas cell (Pyrex) with NaCl windows	**L1272472**
Storm Gas Cell (Pyrex) with KBr windows	**L1272473**
Storm Gas Cell (stainless steel) with NaCl windows	**L1272474**
Storm Gas Cell (stainless steel) with KBr windows	**L1272475**

The Oxford Instrument Optistat DN

A nitrogen reservoir cryostat providing a controlled low temperature exchange gas environment for samples. Designed to operate as an integral part of an optical measurement system.

Description	Frontier Part No.
MIR Optistat DN system (ZnSe windows)	**L1272480**
NIR Optistat DN system (Sapphire windows)	**L1272481**
FIR Optistat DN system (Polypropylene windows)	**L1272482**

The Gasera Photoacoustic PA301 FTIR accessory

For flexible, rapid analysis of solid, semi-solid, and liquid samples in any form without sample preparation. Specially recommended for black samples, in-depth sampling, no-sampling preparation, etc. Photoacoustic principle requires low FT-IR/NIR mirror velocity and PA301 is optimized for 2.5 kHz He-Ne laser modulation frequency (or less).

Description	Frontier Part No.
Photoacustic PA301 accessory	**L1272440**

Transmission Options

Description	Part No.	Spectrum One/100/400/65	Spectrum Two	Frontier
Sealed Liquid Cell for Variable Temperature Cell, KBr, 1.00mm pathlength	**L1272292**	✓	✓	✓
Sealed Liquid Cell for Variable Temperature Cell, KBr, 0.50mm pathlength	**L1272293**	✓	✓	✓
Sealed Liquid Cell for Variable Temperature Cell, KBr, 0.10mm pathlength	**L1272294**	✓	✓	✓
Solids Holder for Variable Temperature Cell (Sample size 12 – 30mm diameter and 0.1 – 0.8mm thick)	**L1272298**	✓	✓	✓
Variable Temperature Cell Holder Jacket KBr windows (pair)	**L1272291**	✓	✓	✓
Variable Temperature Cell Holder Flow Fittings Kit	**L1272359**	✓	✓	✓
Cyclone™ C5 Gas Cell Pressure Gauge	**L1272307**	✓	✓	✓
Cyclone™ C2 Gas Cell Heating Jacket and controller (220V, UK).	**L1272364**			✓
Cyclone™ C2 Gas Cell Heating Jacket and controller (220V, Europe)	**L1272365**			✓
Cyclone™ C2 Gas Cell Heating Jacket and controller (110V, 60Hz)	**L1272366**			✓
Cyclone™ C5 Gas Cell Heating Jacket and controller (220V, UK)	**L1272367**			✓
Cyclone™ C5 Gas Cell Heating Jacket and controller (220V, Europe)	**L1272368**			✓
Cyclone™ C5 Gas Cell Heating Jacket and controller (110V, 60Hz)	**L1272369**			✓
Tornado/Cyclone™ Vacuum/Gas Inlet and Outlet Taps	**L1272307**			✓

15 Ton Hydraulic Press

13 mm Evacuable Potassium Bromide Die

15 Ton Hydraulic KBr Press

This bench top easy-to-operate press allows creation of the highest quality KBr pellets. It is used with the Evacuable KBr die to prepare high quality 13 mm pellets. Requires, but does not include the Evacuable KBr Die (51001144), the KBr Pellet Holder (04810949), and the Adjustable Adapter (L1060351).

Description	Part No.
15 Ton Hydraulic KBr Press	**51004599**

Accessories for the 15 Ton Hydraulic KBr Press

Description	Part No.
Evacuable KBr Die	**51001144**
Plunger for Evacuable KBr Die	**51001152**
Set of upper and lower anvils for Evacuable KBr Die	**04820519**
Set of O-rings for Evacuable KBr Die	**04800514**
Perspex extractor ring	**04977042**
KBr Pellet Holder	**04810949**
Adjustable Adapter to mount KBr Pellet Holder	**L1060351**

2 Ton Hydraulic KBr Press

This portable KBr press is used to prepare high quality 7 mm KBr pellets. Requires but does not include the 7 mm pellet die and ring holder (L1272492) and 7 mm Disc holder with rectangular mount (L1272493)

Description	Part No.
2 Ton Hydraulic KBr Press	**L1272491**

2 Ton Hydraulic KBr Press Accessories

Description	Part No.
7 mm Pellet Die including pellet ring holder	**L1272492**
7 mm Spare Pellet Ring Holder (Qty. 2)	**L1272494**
7 mm Disc Holder with Rectangular Mount	**L1272493**

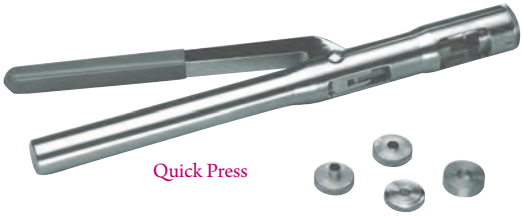
Evacuable KBr Mini-press

The Mini-press is designed for those situations where you occasionally need to make KBr pellets. This is the simplest solid sample device and is ideal for student use, where very low cost is an important factor. Two highly polished bolts turn against each other in a steel cylinder. The pellet is formed right inside the cylinder which becomes the sample holder. Once formed, the pellet cannot be removed from the cylinder without being destroyed. The Mini-press requires, but does not include, the holder (51002593).

Description	Part No.
Evacuable KBr Mini-Press	**51002592**
Holder for Evacuable KBr Mini-Press	**51002593**

KBr Pellet Quick Press

The Quick Press provides a fast and economical way to prepare good quality KBr pellets. Pellets with diameters of 1, 3 or 7 mm can be prepared, depending on the die sets used.



Quick Press

The Quick Press consists of a handpress, a 7 mm die set and a metal collar. Micropellets can be prepared in the Quick Press by purchasing the optional 1 or 3 mm die. The KBr pellet is formed in a metal collar that fits into a Pellet Holder (51002593; required, but not included).

Description	Qty.	Part No.
Quick Press with Die	7 mm	**01860436**
Optional Die	1 mm	**01862295**
Optional Die	3 mm	**01862292**
Spare Die	7 mm	**01862289**
Pellet Holder for Quick Press		**51002593**

Support Rings For KBr Pellets

Circular paper rings to reinforce your KBr disks. If the amount of sample is limited there are also paper microframes which reduce the size of the pellet to 11 x 2 mm.

Description	Qty.	Part No.
Paper Rings	100	**51001148**
Microframes	100	**51001149**

KBr Powder

Description	Part No.
KBr Powder (100g)	**04977043**

OilExpress Supplies

Description	Part No.
Insulation Block for Spectrum OilExpress	**L1200558**
Sample Probe for Spectrum OilExpress	**L1200555**
OilExpress Flowcell 0.1 mm pathlength, wedged Spacer, ZnSe Windows (one grooved), and two ports.	**L1250220**
ZnSe Windows for Spectrum OilExpress Flowcell	**L1191081**
Gaskets and Spacers for Spectrum OilExpress Flowcell	**L1191082**
Autosampler Oil Bottle Rack, 30-position, 4 oz bottle	**L1200551**
Autosampler Test Tube Rack, 16 x 6. For 17 x 100 mm tubes	**L1200589**
10 mL Syringe with Plunger for Spectrum OilExpress	**L1200552**
Seal Kit for Spectrum OilExpress (4 piston noses)	**L1200553**
Lubrication Kit for Syringe Pump Screw Drive for Spectrum OilExpress	**L1200559**
Clamps to prevent Syringe barrel from moving.	**L1200574**

Tubing

Description	Part No.
Spectrum OilExpress Waste Tubing	**L1200560**
Sample Needle Tubing for Spectrum OilExpress	**L1200587**
Flowcell to Syringe Tubing for Spectrum OilExpress	**L1200588**
Solvent to Syringe Tubing for Spectrum OilExpress (pkg. 2)	**L1200556**
Injection/Transfer Port to Flowcell Tubing for Spectrum OilExpress	**L1200557**

Tubes and Bottles

Description	Part No.
17 x 100 mm Polypropylene Tubes (15 ml), Pack of 1200	**N0777167**
Plug/Cap for 17 mm Tubes, Pack of 1200	**N0777599**
13 x 100 mm Polypropylene Tubes, Pack of 1000	**B0508901**
4 oz Clear Plastic Bottle with Lid (Safety Sealed), Case of 600	**N9308900**
2 oz Clear Plastic Bottle with Lid (Safety Sealed), Case of 800	**N9308901**

OilExpress 4 Supplies

Consumables

Description	Part No.
17mm Sampling Convenience, Pack of 4800	**N9308904**
Wide Bore Oil Disposable Tips - pre-loaded 1000µL wide, Pack of 960	**L1610022**
Wide Bore Oil Disposable Tips, Pack of 4800	**L1610023**
17mm OD x 100 mm Tall Tubes, Pack of 1200	**N0777167**
Plug/Cap for 17 mm OD Tubes, Pack of 1200	**N0777599**
16mm OD x 67 mm Tall Tubes, Pack of 100	**L1191079**
4 oz. Sample Bottle, Pack of 600	**N9308900**
2 oz. Sample Bottle, Pack of 600	**N9308901**
Used Tip Disposable Drip Tray for OilExpress 4 and OilExpress 4 XL	**L1610028**
Installation Test Oils Kit. Contains 1 x FT-IR In-Service Lubricants Control Oil (N9308350),1 x OilExpress 4 120cS Test Oil (N9308351) & 1 x OilExpress 4 360cS Test Oil (N9308352)	**N9300850**
FT-IR In-Service Lubricants Control Oil	**N9308350**
System Liquid Additive, 100 mL	**N9308354**
System Liquid Additive, 500 mL	**N9308376**
System Liquid Detergent Additive, 1 Gallon	**N9308380**
120cS Test Oil, 500 mL	**N9308351**
360cS Test Oil, 100 mL	**N9308352**

Description	Part No.
60 mL Trough, Pack of 25	**6008103**
60 mL Trough, Pack of 50	**6008104**

Spare Parts: Autosampler

Description	Part No.
Injection Station Tubing Kit	**L1600350**
Injection Station	**L1610021**
Hanging Tip Rack	**7607537**
VersaTip PLUS RoboRack Kit	**7002356**
System Liquid Filter Adapter Kit, kit includes - 4 x 40 micron filters (7005398), all necessary fittings and instructions to allow filters to be added to system liquid tubing	**7005397**
System Liquid Replacement Filter Kit, kit includes - 4 x 40micron filters for system liquid filters. Filters only. Assumes system liquid tubing has already been adapted using System Liquid Filter Adapter Kit (7005397)	**7005398**
5.0 mL 4-tip Maintenance Kit, kit includes - four (4) syringes, four (4) valves, one (1) tubing replacement kit, and one (1) tube of syringe pump lubrication fluid	**7005386**
80" x 30" Table, Fixed Height for OilExpress 4 and OilPrep 4, Table accommodates autosampler, FTIR, computer, monitor and keyboard	**5085685**

Spare Parts: FT-IR Flow Cell

Description	Part No.
ZnSe Flow Cell	**L1272490**
ZnSe Flow Cell, Refurbished	**L1272490R**
ZnSe Cell Windows Kit, kit includes pair of ZnSe windows (front and back)	**L1272496**
Flow Cell Gasket Set	**L1272498**
Flow Cell Maintenance Kit - includes replacement ZnSe windows (L1272496) and cell gasket kit (L1272498)	**L1272495**

Spare Parts: FT-IR Instruments

Description	Part No.
Spectrum Two Source Replacement Kit	**L1600243**
Spectrum Two Desiccant Replacement Kit	**L1600244**
Spectrum Two ZnSe Window Replacement Kit	**L1600242**
Spectrum Two KBr Window Replacement Kit	**L1600241**

Spectrum Two Portability Options

To allow for full portability the Spectrum Two portability pack (contains battery pack, car adaptor, Spectrum Two carry case and wireless router kit) should be ordered. Portability options may also be ordered individually.

Description	Part No.
Spectrum Two Portability Pack – includes UPS Battery Pack, Wireless Router and Spectrum Two Carry Case	**L1600238**
Battery Pack – portable/UPS (req. country power cord and incl. 12V car adaptor)	**L1600233**
Spectrum Two Carry Case	**L9004199**
Spectrum Two UATR Carry Case	**L9004200**
Spectrum Two Wireless Router Kit	**L1600246**
12V Car Adaptor	**L9004128**
Wireless USB Key	**L9004198**

Disposable Desiccant Kit

Desiccant Kits

These kits are required for all the PerkinElmer FT-IR Spectrometers to keep the optical path free from moisture. It is recommended that the desiccant is replaced every six months. Follow the instructions in the appropriate instrument manual to install the desiccant.

Disposable Desiccant Kit

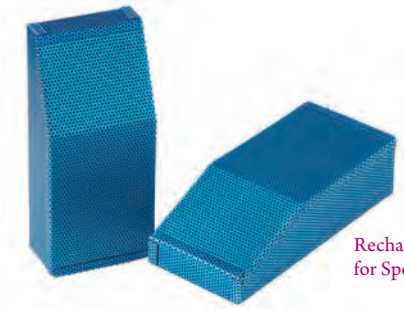
User-installable desiccant includes two desiccant packs. Four packs (two kits) required for each desiccant change. Six packs (three kits) required for use with Spectrum 65, Spectrum 100, Spectrum 100N and Spectrum 400.

Description	Part No.
For use with Model 1600, Paragon 500/1000, System 2000, Spectrum One/One NTS/400/1000/2000/BX/GX/RX/65/Frontier	**N0171159**
For use with Spectrum Two	**L1600244**

Rechargeable Desiccant Kits

The desiccant is contained in rigid metal cages which are user-installable. Depending on the instrument either one or two cages are required.

Description	Part No.
For Spectrum Spectrum 65/100/100N/400/Frontier Includes: four (4) Desiccant Packs, two to be used in the instrument and two spares for recharging.	**L1250311**
For Spectrum One/One NTS Includes: four (4) Desiccant Packs, two to be used in the instrument and two spares for recharging.	**L1200219**
For Spectrum 1000/BX/RX, Model 1600, Paragon 500/1000 Includes: one (1) Desiccant Pack. One pack required for each desiccant change.	**L1180480**
For Spectrum 400 Second Desiccant area Includes: one (1) Desiccant Pack. One required for each desiccant change.	**L1251840**



Rechargeable Desiccant Kit for Spectrum One/One NTS

Replacement Laser Head Kit and Sources

Description	Part No.
Laser Head (HeNe) and Laser Power Supply User-installable spare for Spectrum One 65/100/400/Frontier and Spectrum One NTS/100N systems.	**L1200253**
NIR Source Lamp for Spectrum One/65/100/400/Frontier	**L1240098**
Mid-IR Source Assembly for Spectrum One/100/400/Frontier	**L1200406**
Mid-IR Source Element for Spectrum One/65/100/400/Frontier	**L1200443**
Spectrum Two Source Replacement Kit	**L1600243**

Instrument Performance Validation (IPV) Kits

Instrument Performance Validation Kits are available for both Mid-IR and Near-IR FT-IR instruments. All the kits include a polystyrene Traceable Reference Material (TRM) for abscissa calibration valid for three years. The Mid-IR IPV kits also include NG11 Schott Glass Reference Material (RM) for checking the repeatability of ordinate measurement. Upgrade kits are available to replace the polystyrene TRM once the validity period has expired.

Description	Part No.
Mid Infrared IPV kit for Spectrum Software V.6 or lower	**L1250404**
Mid Infrared IPV upgrade kit for Spectrum Software V.6 or lower	**L1250474**
Mid Infrared IPV kit for Spectrum 10 Software	**L1250404**
Mid Infrared IPV upgrade kit for Spectrum 10 Software	**L1250474**
Near Infrared IPV kit for Spectrum Software V.6 or lower	**L1180479**
Near Infrared IPV upgrade kit for Spectrum Software V.6 or lower	**L1180490**
Near Infrared IPV kit for Spectrum 10 Software	**L1250425**
Near Infrared IPV upgrade kit for Spectrum 10 Software	**L1250475**
Polystyrene Test Film – 0.038 mm thickness (not traceable)	**L1202057**
Methane Test Sample for Manual AVI	**L1250462**
Spectralon Reference Material (for use with Remote Solid Sampling Systems)	**L1241446**

ATR IMAGING UPGRADE FOR SPOTLIGHT

ATR Imaging Upgrade for Spotlight Systems

Recommended option for the Spotlight 400 or 400N which allows convenient imaging of samples up to 10 mm thick. A large precision aligned crystal enables 400 µm areas to be collected to get more information from the sample quickly.

Description	Qty	Part No.
ATR Imaging Upgrade		**L1860319**
Spare Germanium Crystal	1	**L1860317**
ATR Imaging Sample Supports	10	**L1860318**

Large Area ATR Imaging Accessory

Recommended option for the Spotlight 400 which allows convenient Imaging of samples up to ca 8 mm thick. A large precision aligned crystal enables ca 1100 x 1100 micron areas to be collected to get more information from the sample quickly.

Description	Qty	Part No.
Large Area ATR Imaging Accessory		**L1860361**

Micro ATR Objective Upgrade Kit

This kit upgrades Spotlight 400 and Microscope Systems without ATR Objective to include micro ATR facility. Includes an ATR Objective consisting of a cassegrain, mount and Germanium micro ATR crystal with holder. It covers the range 5,500 – 600 cm^{-1}. A spare Germanium crystal and holder is provided.

Description	Part No.
Micro ATR Objective Upgrade for Spotlight 400 Systems	**L1860334**
Micro ATR Objective for AutoIMAGE Systems	**L1860275**
Micro ATR Objective for Multiscope Systems	**L1860298**
Optional/Spare Silicone Crystal with Holder	**L1860269**
Spare Germanium Crystal with Holder	**L1860268**

Hot Stage Accessory

Consists of a heating block, which accepts FT-IR windows and a temperature controller. The Hot Stage can heat samples up to 230 °C in 1° increments. The Hot Stage is held in the slide clip on the sample stage of a PerkinElmer FT-IR Microscope.

Power Requirement	Part No.
Hot Stage 100/120 V, 60 Hz	**N1870184**
Hot Stage 220/240 V, 50 Hz	**N1870188**

Microsampling Tools

PerkinElmer offers a range of tools which allow you to prepare and manipulate samples for infrared microspectroscopy.

Description	Part No.
Microsampling Tool Kit	**N1870151**
Includes:	
Dissecting Forceps	**N9302610**
Roller Knife	**N9302619**
Micro Specimen Tweezers	**N9302609**
Straight Micro Probe	**N9302605**
Aluminum Probe Handle	**N9302622**
Pin Vise	**N9302603**

Microscope Supplies

Description	Part No.
Holder for 13 mm Sampling Disks	**L1861634**
Holder for 13 mm Sampling Disks Includes gold mirror.	**L1860409**
Base Microscope Slides Optical quality glass, 1 x 3 in., 1 mm thick for visible observations (box of 72).	**N9302600**
Low-e Microscope Slides Optical quality with infrared reflective coating, 1 x 3 in., 1 mm thick for visible observations and infrared reflectance measurements (box of 25).	**L1272249**

Diamond Compression Cell

The cell consists of two Hastelloy plates containing a pair of diamond windows that enable samples to be compressed to an ideal thickness for transmission measurements.

Description	Part No.
Diamond Compression Cell	**L1272282**

Crystal Compression Cell

This is a device for flattening soft materials and holding specimens flat and in optical contact with salt windows. 1 and 2 mm thick windows of 13 mm outer diameter can be used with the cell. Two KBr windows (2 mm thickness) are included.

Description	Part No.
Crystal Compression Cell	**N1870185**

Infrared Windows

Infrared windows allow you to support microsamples for infrared analysis with the microscope.

Window Material	Dimensions	Part No.
Barium Fluoride	13 x 1 mm	**N9302611**
Barium Fluoride	13 x 2 mm	**N9302612**
Sodium Chloride	13 x 2 mm	**N9302614**
Potassium Bromide	13 x 2 mm	**N9302615**

FT-IR Sampling Kits

Two FT-IR Sampling Kits are available to help the newcomer to FT-IR spectroscopy choose the more frequently required items, and to simplify ordering and storage. KBr has been chosen for the transmitting material. The two kits are packaged in attractive storage and carrying cases.

Liquid and Mull FT-IR Sampling Kit

This kit will satisfy the needs of most new users of FT-IR spectroscopy and has been designed to provide all the necessary equipment for handling liquids and mulls. Includes Polystrene Film (0.038 mm), Nujol™ DD 057(100 mL), 10 cm Micro Spatula, 2mL Luer Syringe, Agate Pestle and Mortar, Magnetic Film Holder-Circular, Universal Demountable Cell Mount, Assorted Spacers, KBr Demountable Cell Windows (wo pairs), and KBr Semi-demountable Cell Windows (two pairs).

Description	Part No.
Liquid and Mull FT-IR Sampling Kit	**L1365311**

General Purpose FT-IR Sampling Kit

This kit includes all of the necessary equipment for handling liquids, mulls and KBr pellets. A laboratory press for making KBr pellets should be ordered. Includes Polystryrene Film (0.038 mm), Universal KBr Disk Holder, Nujol DD 057 (100 mL), 10 cm Micro Spatula, 2 mL Luer Syringe, Agate Pestle and Mortar, Magnetic Film Holder-Circular, KBr Powder (100 g), 13 mm KBr Die, Micro-disk Holder Accessory, Beam Condenser Accessory, 100µm Diameter Sample Holder Accessory, 500 µm Diameter Sample Holder Accessory, Universal Demountable Cell Mount, Assorted Spaces, KBr Demountable Cell Windows (two pairs), and KBr Semi-demountable Cell Windows (two pairs).

Description	Part No.
General Purpose FT-IR Sampling Kit	**L1365312**

Spectrum Two Educational Starter Pack

A convenient kit which will teach you how to make solid and gas transmission measurements. Includes a simple KBr pellet press and pellet holder as well as a 10 cm gas cell and holder. Potassium Bromide not included.

Description	Part No.
Spectrum Two Educational Starter Kit	**L1608022**

FT-IR Introductory Kit

This kit contains samples to rapidly familiarize you with sampling techniques such as Transmission, ATR and Diffuse reflectance, and preparing a cast thin film. The kit also provides familiarization with IR software including Basic Operation, Quality Checks and Spectral processing (Search and Compare). The samples included and experiments rapidly demonstrate good sampling technique, sampling accessory selection, managing atmospheric interferences, signal-to-noise ratio, resolution selection and more.

Description	Part No.
FT-IR Introductory Kit (1 User)	**L1608001**
FT-IR Introductory Kit (5 Users)	**L1608002**

Solid/Liquid/Gas Sampling Starter Packs

Description	Part No.
KBr Disc Starter Pack Includes Adjustable Adaptor, KBr Die (13 mm) and KBr Pellet Holder.	**L1272265**
KBr Disc Complete Starter Pack Includes Adjustable Adaptor, KBr Die (13 mm), KBr Pellet Holder, 15 ton press and KBr Powder (100 g).	**L1272266**
Gas Sampling Starter Pack Includes 10 cm short-pathlength demountable gas cell, Spare KBr windows (47 mm diameter) and Universal gas cell mount.	**L1272267**
Liquid Sampling Starter Pack Includes Universal Demountable Cell Mount, Circular KBr Windows (pair), Rectangular KBr Windows (pair), 0.1 mm Circular PTFE Spacers (contains 6) and Assorted Rectangular Spacers.	**L1272268**

FT-IR Sampling Kit Supplies

Description	Size.	Part No.
Nujol	100 mL	**04960691**
Flurolube	1 oz bottle	**01862301**
KBr Powder	100 g	**04977043**
KBr Random Cuttings	100 g	**N9300086**
Micro Spatula	10 cm	**04967843**
Luer Syringe	2 mL	**04967845**
Agate Pestle and Mortar		**04967854**

FT-IR APPLICATION PACKS

Application packs, described as resource packs or analysis packs depending on whether specific software/calibrations are included, help speed up application development and make your lab more efficient.

FT-IR Educational Resource Pack

For teaching FT-IR Spectroscopy to students and new users. Includes 15 experiments that can be used as part of a training curriculum.

Description	Part No.
FT-IR Educational Resource Pack	**L1608003**

FT-IR Pharmacopeia Compliance Resource Pack

Designed to assist the user in understanding and achieving compliance to pharmacopeia regulatory requirements in FT-IR analysis, using PerkinElmer Spectrum 10 software and PerkinElmer FT-IR instruments. The pack covers the requirements of seven key Pharmacopoeias (USP, BP, EP, IP, JP, CP and IntPhr).

Description	Part No.
FT-IR Pharmacopeia Compliance Resource Pack	**L1608004**

FT-IR Neutraceutical Compliance Resource Pack

This pack facilitates IR spectroscopy analysis for Nutraceutical and Traditional Medicine professionals. The pack covers the requirements of seven key Pharmacopoeias (USP, BP, EP, IP, JP, CP and IntPhr).The quality assessment of most of natural products is supported by an included nutraceutical starter set of spectra.

Description	Part No.
FT-IR Nutraceutical Compliance Resource Pack	**L1608005**

FT-IR Polymer Resource Pack

Designed for use in the rapid screening and identification of polymer materials using FT-IR Spectroscopy. The pack is designed to help in the measurement of good quality spectrum of polymers, identification of polymers, and interpretation of polymer spectra. Utilization of library spectra is illustrated for effective results.

Description	Part No.
FT-IR Polymer Resource Pack	**L1608013**

Environmental Hydrocarbons ASTM D7066-04 Application Pack

Contains accessories, consumables and application software to perform ASTM D7066-04 (extraction into hydrocarbon-free solvent and then transmission FT-IR). Includes cuvette holder, two Cuvette 10mm and Environmental Hydrocarbons Touch Application Software Kit.

Description	Part No.
Environmental Hydrocarbons ASTM D7066-04 Application Pack	**L1608006**

Environmental Hydrocarbons Cyclohexane Application Pack

Contains accessories, consumables and application software to perform oil in water measurements by extraction into cyclohexane then transmission FT-IR. Includes two Port Luer Lock %T Cell - CaF2 0.5mm, two 2ml Luer lock Syringe, Spare 0.5mm PTFE Spacer (pk 6), IR Liquid Cell Luer Connected Waste Tube, and Environmental Hydrocarbons Touch Application Software Kit.

Description	Part No.
Environmental Hydrocarbons Cyclohexane Application Pack	**L1608007**

Environmental Hydrocarbons ATR Application Pack for Spectrum Two

Contains accessories, consumables and application software to perform oil in water measurements by ATR. Includes Spectrum Two HATR, ZnSe 45 deg Top plate – Flat, 25um micro pipette, pipette tips, and Environmental Hydrocarbons Touch Application Software Kit.

Description	Part No.
Environmental Hydrocarbons ATR Application Pack for Spectrum Two	**L1608008**

In-Service Lubricants Application Pack

Contains accessories, consumables and application software to perform used oil analysis. Includes flow cell with ZnSe windows, wedged spacer and luer fittings for Used Oil Analyzer, 3ml luer lock plastic syringe Starter Pk 100, Torque screwdriver, HEX BIT 3.0mm, IR Liquid Cell Luer Connected Waste Tube, PTFE plugs (pk 6) plugs, and In-Service Lubricants Touch Application Software Kit.

Description	Part No.
In-Service Lubricants Application Pack	**L1608009**

IR Biodiesel Application Pack

Contains accessories, consumables and application software to perform Biodiesel analysis using IR. Includes 2 Port Luer Lock %T Cell - BaF2 0.1mm, 2 x 2ml Luer lock Syringe, Assorted PTFE Spacers, Torque screwdriver, HEX BIT 3.0mm, IR Liquid Cell Luer Connected Waste Tube, and Fuels FT-IR Touch Application Software Kit. Does not support ASTM D7371.

Description	Part No.
IR Biodiesel Application Pack	**L1608010**

IR Benzene in Gasoline ASTM D4053-04 Application Pack

Contains accessories, consumables and application software to measure Benzene in Gasoline by IR. Includes 2 Port Luer Lock %T Cell - KBr 0.05mm, 2 x 2ml Luer lock Syringe, Spare 0.05mm PTFE Spacer (pk 6), Torque screwdriver, HEX BIT 3.0mm, IR Liquid Cell Luer Connected Waste Tube, AVI Manaul Kit, FT-IR Fuels Touch Application Software Kit.

Description	Part No.
IR Benzene in Gasoline ASTM D4053 – 04 Application Pack	**L1608012**

Transfat Application Pack

Description	Part No.
Trans-Fat Application Pack	**L1608015**

ENSURING SAFETY AND AUTHENTICITY WITH EVERY SAMPLE

PerkinElmer's consumables and accessories for DairyGuard™ are designed to keep your system running at peak performance while screening for potential economic adulterants in milk powder. In addition, these accessories are ideal when the application is extended to monitor for protein, moisture and fat levels.

Consumables

Description	Part No.
90 mm Plastic Petri Dishes suitable for NIRA II 100 mm spinner, Pack of 600	**L9004575**
55 mm Plastic Petri Dishes suitable for NIRA II 60 mm spinner, Pack of 1620	**L9004578**
60 mm Soda Glass Petri Dishes suitable for NIRA II 60mm spinner, Pack of 10	**L9004574**
100 mm Soda Glass Petri Dishes suitable for NIRA II 100mm spinner, Pack of 10	**L9004573**
19 mm Glass Vials, 19 mm x 51 mm, Pack of 144	**L9004892**

Spare Parts and Miscellaneous

Description	Part No.
Spare NIR source , monkey NIR Frontier and Dual MIR / NIR Frontier	**L1242701**
Desiccant pack - Frontier, Spectrum 100 , Spectrum 400	**L0171159**
Barcode Reader, hand- held	**L9004196**
Transflectance ICRA Liquids Sampler Kit - includes five Petri Dish Liquid Reflectors and bases, NIRA Liquids Sampling procedure and user guide	**L1185153**

Reflectance Standards

PerkinElmer offers a variety of Reflectance Standards to help ensure the system is running optimally for milk powder analysis. Choose from various combinations of calibrated or uncalibrated reflectance that deliver optimum screening results.

Description	Part No.
99% Reflectance Polymer 60 mm, 8 mm x 58 mm, Uncalibrated	**L1281920**
99% Reflectance Polymer 100 mm, 8 mm x 98 mm, Uncalibrated	**L1281921**
99% Reflectance Standard 60 mm, 8 mm x 58 mm, Calibrated	**L1281922**
99% Reflectance Standard 100 mm, 8 mm x 98 mm, Calibrated	**L1281923**
50% Reflectance Standard 60 mm, 8 mm x 58 mm, Calibrated	**L1281924**
50% Reflectance Standard 100 mm, 8 mm x 98 mm, Calibrated	**L1281925**
Reflectance Standards, 60 mm, 8 mm x 58 mm, Calibrated, set of 4	**L1281926**
Reflectance Standards, 100 mm, 8 mm x 98 mm, Calibrated, set of 4	**L1281927**
Reflectance Abscissa Standard 60mm, 8 mm x 58 mm, Calibrated	**L1281928**
Reflectance Abscissa Standard 100mm, 8 mm x 98 mm, Calibrated	**L1281929**
Reflectance Standard Recalibration Service, it is recommended that reflectance standards are re-calibrated after 12 months	**L1281930**

Sample Cups

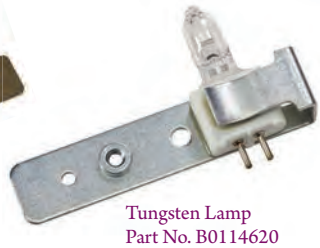
Sample cups for DairyGuard™ system are 50 mm, black, round, metal with quartz glass base. These versatile cups can also be used to analyze dry, ground food or agriculture products. All cups use the same disposable backs for convenience.

Description	Part No.
50 mm with Quartz Base	**L1281931**
50 mm with Quartz Base, Screw Back	**L1281932**
50 mm Camlock Cup with Quartz Powder Base	**L1281933**
50 mm with Disposable Backs	**L1281934**

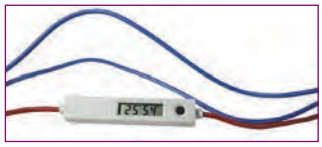
DEUTERIUM AND TUNGSTEN SOURCE LAMPS

PerkinElmer's long-lifetime deuterium and tungsten source lamps provide the best wavelength coverage across the working range of the spectrometer for consistently high performance. All lamps are pre-aligned and can be easily changed by the user. Our extensive quality control and inspection process demands the very best quality sources to provide high sensitivity and stability for your key measurements.

Deuterium Lamp
Part No. L6022728



Tungsten Lamp
Part No. B0114620



Source Lamps for LAMBDA Spectrophotometers

Deuterium Lamps

LAMBDA Model	Part No.
For LAMBDA 2X/3X/4X/6XX/7XX/8XX/9XX/10XX*	**L6022728**

Tungsten Lamps

LAMBDA Model	Part No.
For LAMBDA 2X/3X/4X/6XX/7XX/8XX/9XX/10XX*	**B0114620**

*Prefocused and prealigned.

Calibration Reference Materials for PerkinElmer and non-PerkinElmer Spectrometers

Photometric and Wavelength Accuracy Reference Material Set

PerkinElmer reference materials speed calibration verification of UV/Vis and UV/Vis/NIR spectrometers*, providing laboratory managers with the evidence they need to pass the strictest quality audit.

A comprehensive range of certified traceable filters and sealed cuvettes fit into the standard 10mm cuvette holder of PerkinElmer and non-PerkinElmer instruments allowing users to generate simple protocols to verify ordinate and abscissa accuracy, stray light radiation, and spectral resolution. All reference materials are certified traceable to NIST primary reference materials and are supplied with a calibration certificate detailing the calibration method and results.

A central PerkinElmer recertification laboratory equipped with state-of-the-art instrument technology ensures a rapid turnaround service for periodic recalibration of PerkinElmer and non-PerkinElmer reference materials, allowing laboratories to maintain the requirements of their calibration SOP's.

Features and Benefits

- Comprehensive range of reference materials
- Traceable to NIST
- Immediate availability
- Rapid recertification service for PerkinElmer and non-PerkinElmer reference materials

*Not diode array spectrometers.

CALIBRATION AND RECERTIFICATION SOLUTIONS

Photometric and Wavelength Accuracy Reference Material Set

Description	Part No.
Photometric and Wavelength Accuracy Reference Material Set	**B0507805**

A set of reference materials used to verify the ordinate and abscissa (wavelength) accuracy of UV/Vis and UV/Vis/NIR Spectrometers. Neutral density glass filters included in this kit are AL2A ISO 17025 accredited.

ACCREDITED CALIBRATION CERT. 3112.01

The set includes four glass filters mounted in precision aluminum spring mounts. The cells are designed for use with standard 10 mm cuvette holders of most UV/Vis and UV/Vis/NIR Spectrometers. There are three neutral density glass filters for checking the ordinate accuracy and a holmium oxide glass filter for checking the wavelength accuracy of a spectrometer. Each filter has an identification number. The ordinate and abscissa values of each filter are quoted in the accompanying Certificate of Calibration, nominally 1A (10%T), 0.5A (30%T) and 0.3A (50%T). Reference materials are supplied in a re-useable UV-protective storage container.*

Stray Light Solutions Reference Material Set

Description	Part No.
Stray Light Solutions Reference Material Set	**B2500099**

Set of reference materials comprising four solutions in sealed cells — one reference solution and three test solutions. The cells are designed for use with standard 10 mm cuvette holders of most UV/Vis and UV/Vis/NIR Spectrometers. The test solutions, comprising sodium iodide, sodium nitride, and potassium chloride, act as a cut-off filter with a very precise wavelength. Reference materials are accompanied with a Certificate of calibration and are supplied in a re-useable UV-protective storage container.*

Pharmacopoeia Solutions Reference Material Set

Description	Part No.
Pharnacopoeia Solutions Reference Material Set	**B2500100**

* Since UV/Vis and UV/Vis/NIR reference materials require periodic recertification a rapid, convenient recertification program is available through PerkinElmer's central recertification laboratory.

Reference materials to verify calibration of UV/Vis and UV/Vis/NIR Spectrometers in accordance with Pharmacopeia monographs, including:

- Ordinate (photometric) accuracy (potassium dichromate in perchloric acid)
- Abscissa (wavelength) accuracy (holmium perchlorate)
- Stray radiation level (potassium chloride)
- Resolution (toluene in hexane)

Set of reference materials comprising six solutions in sealed cells — two reference solutions and four test solutions. The cells are designed for use with standard 10mm cuvette holders of most UV/Vis and UV/Vis/NIR Spectrometers. Reference materials are accompanied with a Certificate of calibration and are supplied in a re-useable UV-protective storage container.

Reference Mirror for Reflectance Spectroscopy

Description	Part No.
Reference Mirror for Reflectance Spectroscopy	**N1010504**

This mirror is required to verify the specular reflectance calibration of PerkinElmer and Non-PerkinElmer reflectance accessories. The aluminum mirror with magnesium fluoride coating is a secondary standard and is calibrated according to GLP regulations in the wavelength range 250 to 2500 nm and includes spectral data on convenient transfer media for %RC reflection correction.

Recertification Program for UV/Vis Calibration Reference Materials

Description	Part No.
Recertification Program for UV/Vis Calibration Reference Materials	**N1010539**

To guarantee the integrity of your Reference Material set they must be recertified at periodic intervals. PerkinElmer offers a rapid service through our convenient central recertification laboratory in the USA. The recertification process includes as received analysis, inspection and cleaning of the reference material, recertification testing using state-of-the-art instrument technology, and certificate of the results. Fast shipment to and from our laboratory from anywhere in the world is free and we return your recertified standards in ten business days or less from the time we receive them.

Note: A recertification service for individual reference materials or non-PerkinElmer reference materials is also available. Please contact our recertification laboratory in the United States by phone (1-203-402-6852) or email (PKIFILTERS@PerkinElmer.com) for availability, pricing, requests, ordering procedures and other questions.

Diffuse Reflectance Standards

Description	Part No.
99% Diffuse Reflectance Standard, 2-inch, calibrated	**PELA 9058**
2%, 50%, 75%, 99% Diffuse Reflectance Standards Kit, 2-inch, calibrated	**PELA 9011**
2%, 5%, 10%, 20%, 40%, 60%, 80%, 99% Diffuse Reflectance Standards Kit, 2-inch, calibrated	**PELA 9013**
Diffuse Reflectance Standards Kit, 2-inch, calibrated color: R, G, B and Y	**PELA 9018**
Diffuse Reflectance Standards Kit, 2-inch, calibrated color: O, P, C, and V	**PELA 9019**
Adjustable Prop	**L6020329**

HIGHEST QUALITY FOR EVERY APPLICATION

PerkinElmer Cells Ensure Top Optical Performance, with High Cell Transmission and Accurate Pathlength

No matter what type of cells your application requires — rectangular or cylindrical, standard or short path, micro, semi-micro or flowcells — choosing only high quality, precision cells allows you to make full use of the accuracy and sensitivity of your optical instrument.

The cell windows are fused to the bodies by a special process which avoids deformation of the windows. This assures that the full width of the cell is usable and the finished cell dimensions are maintained.

Our cells are manufactured from various types of glass. We offer three basic materials: Special Optical Glass, SUPRASIL® UV Quartz and SUPRASIL 300 NIR Quartz, in all the common sizes and types. The most important criterion for the choice of a particular type of glass is the spectral range for which the cell is intended. Color logos are fused onto each PerkinElmer cell, thus indicating the spectral range over which the cell can be used.

Special Optical Glass 320 nm - 2,500 nm

Indicates that SCHOTT type UK 5 is used for cells referred to in the catalog as manufactured from "Special Optical Glass". This crown glass is made from exceptionally pure raw materials, which gives an improved transmission in the near ultraviolet range. An empty cell will give a transmission of more than 80% over a spectral range of between 320 nm and 2,500 nm.

SUPRASIL UV Quartz 200 nm - 2,500 nm

Indicates that quartz of the highest purity and homogeneity has been used for the window. Because it is produced from a silicon compound, it is also called synthetic quartz. SUPRASIL gives transmission values of more than 80% over a spectral range of between 200 nm and 2,500 nm for an empty cell.

SUPRASIL 300 NIR Quartz 200 nm - 3,500 nm

Denotes a synthetic quartz that is free from OH absorption. Therefore it is suitable for applications in the near infrared range up to approximately 4,000 nm. SUPRASIL 300 gives a transmission of more than 80% over a spectral range of between 200 nm and 3,500 nm for an empty cell.

Macro Cells

Standard rectangular macro cells are the most frequently-used type of spectroscopy cell for routine liquids analysis. Each cell has a standard inside width of 9.5 mm and a base thickness of 1.5 mm.

Macro with PTFE Lid

Lightpath	Outside Dim. H x W x D	Cell Volume	Qty.	Part No.
NIR Quartz SUPRASIL® 300				
1 mm*	45 x 12.5 x 3.5 mm	350 µL	2	**B0631013**
5 mm	45 x 12.5 x 7.5 mm	1.75 mL	2	**B0631014**
10 mm	45 x 12.5 x 12.5 mm	3.5 mL	2	**B0631015**
20 mm	45 x 12.5 x 22.5 mm	7.0 mL	2	**B0631016**
50 mm	45 x 12.5 x 52.5 mm	17.5 mL	1	**B0631017**
100 mm	45 x 12.5 x 102.5 mm	35.0 mL	1	**B0631018**
Optical Glass 360-2,500 nm without lid				
10 mm	45 x 12.5 x 12.5 mm	3.5 mL	4	**B0631134**
Quartz SUPRASIL				
1 mm*	45 x 12.5 x 3.5 mm	350 µL	2	**B0631007**
5 mm	45 x 12.5 x 7.5 mm	1.75 mL	2	**B0631008**
10 mm	45 x 12.5 x 12.5 mm	3.5 mL	2	**B0631009**
20 mm	45 x 12.5 x 22.5 mm	7.0 mL	2	**B0631010**
50 mm	45 x 12.5 x 52.5 mm	17.5 mL	1	**B0631011**
100 mm	45 x 12.5 x 102.5 mm	35.0 mL	1	**B0631012**
Special Optical Glass				
1 mm*	45 x 12.5 x 3.5 mm	350 µL	2	**B0631001**
5 mm	45 x 12.5 x 7.5 mm	1.75 mL	2	**B0631002**
10 mm	45 x 12.5 x 12.5 mm	3.5 mL	2	**B0631003**
20 mm	45 x 12.5 x 22.5 mm	7.0 mL	2	**B0631004**
50 mm	45 x 12.5 x 52.5 mm	17.5 mL	1	**B0631005**
100 mm	45 x 12.5 x 102.5 mm	35.0 mL	1	**B0631006**

*Glass lid.

Macro with PTFE Stopper

Lightpath	Outside Dim. H x W x D	Cell Volume	Qty.	Part No.
NIR Quartz SUPRASIL 300				
1 mm	52 x 12.5 x 3.5 mm	350 µL	2	**B0631031**
5 mm	46 x 12.5 x 7.5 mm	1.75 mL	2	**B0631032**
10 mm	46 x 12.5 x 12.5 mm	3.5 mL	2	**B0631033**
20 mm	46 x 12.5 x 22.5 mm	7.0 mL	2	**B0631034**
50 mm	46 x 12.5 x 52.5 mm	17.5 mL	1	**B0631035**
100 mm	46 x 12.5 x 102.5 mm	35.0 mL	1	**B0631036**
Quartz SUPRASIL				
1 mm	52 x 12.5 x 3.5 mm	350 µL	2	**B0631025**
5 mm	46 x 12.5 x 7.5 mm	1.75 mL	2	**B0631026**
10 mm	46 x 12.5 x 12.5 mm	3.5 mL	2	**B0631027**
20 mm	46 x 12.5 x 22.5 mm	7.0 mL	2	**B0631028**
50 mm	46 x 12.5 x 52.5 mm	17.5 mL	1	**B0631029**
100 mm	46 x 12.5 x 102.5 mm	35.0 mL	1	**B0631030**
Special Optical Glass				
1 mm	48 x 12.5 x 3.5 mm	350 µL	2	**B0631019**
5 mm	46 x 12.5 x 7.5 mm	1.75 mL	2	**B0631020**
10 mm	46 x 12.5 x 12.5 mm	3.5 mL	2	**B0631021**
50 mm	46 x 12.5 x 52.5 mm	17.5 mL	1	**B0631023**

Semi-micro Cells

Semi-micro cells have the same outside dimension as the Macro cells but the cell walls have been thickened slightly, limiting the interior sample chamber width to 4 mm. Each cell has a base thickness of 3.2 mm and each package contains two cells.

Semi-micro with PTFE Lid – Black Sides

Lightpath	Outside Dim. H x W x D	Cell Volume	Part No.
NIR Quartz SUPRASIL 300			
10 mm	45 x 12.5 x 12.5 mm	1.4 mL	**B0631051**
Quartz SUPRASIL			
5 mm	45 x 12.5 x 7.5 mm	700 µL	**B0631048**
10 mm	45 x 12.5 x 12.5 mm	1.4 mL	**B0631049**
Special Optical Glass			
5 mm	45 x 12.5 x 7.5 mm	700 µL	**B0631046**
10 mm	45 x 12.5 x 12.5 mm	1.4 mL	**B0631047**

Semi-micro with PTFE Lid – Clear Sides

Lightpath	Outside Dim. H x W x D	Cell Volume	Part No.
NIR Quartz SUPRASIL 300			
20 mm	45 x 12.5 x 22.5 mm	2.8 mL	**B0631045**
Quartz SUPRASIL			
20 mm	45 x 12.5 x 22.5 mm	2.8 mL	**B0631042**
Special Optical Glass			
20 mm	45 x 12.5 x 22.5 mm	2.8 mL	**B0631039**

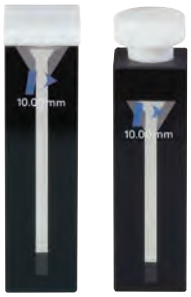
Semi-micro with PTFE Stopper – Black Sides

Lightpath	Outside Dim. H x W x D	Cell Volume	Part No.
NIR Quartz SUPRASIL® 300			
5 mm	46 x 12.5 x 7.5 mm	700 µL	**B0631065**
10 mm	46 x 12.5 x 12.5 mm	1.4 mL	**B0631066**
Quartz SUPRASIL			
10 mm	46 x 12.5 x 12.5 mm	1.4 mL	**B0631064**

Semi-micro with PTFE Stopper – Clear Sides

Lightpath	Outside Dim. H x W x D	Cell Volume	Part No.
NIR Quartz SUPRASIL 300			
20 mm	46 x 12.5 x 22.5 mm	2.8 mL	**B0631060**
Quartz SUPRASIL			
20 mm	46 x 12.5 x 22.5 mm	2.8 mL	**B0631057**

Micro Cells



Micro cells have the same outside dimension as the Macro cells but the cell walls have been thickened, limiting the interior sample chamber width to 2 mm. Each cell has a standard light path of 10 mm and each package contains two cells.

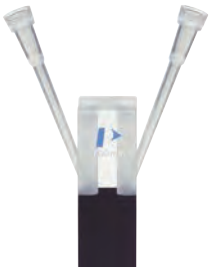
Micro with PTFE Lid - Black Sides

Outside Dim. H x W x Dt	Base Thickness	Cell Volume	Part No.
Quartz SUPRASIL®			
45 x 12.5 x 12.5 mm	3.2 mm	700 µL	**B0631071**
Special Optical Glass			
45 x 12.5 x 12.5 mm	3.2 mm	700 µL	**B0631070**

Micro with PTFE Stopper - Black Sides

Outside Dim. H x W x Dt	Base Thickness	Cell Volume	Part No.
Quartz SUPRASIL			
40 x 12.5 x 12.5 mm	1.5 mm	400 µL	**B0631077**
Special Optical Glass			
40 x 12.5 x 12.5 mm	1.5 mm	400 µL	**B0631076**

Ultra-micro Cells



Ultra-micro cells use a narrower sample chamber, raising it directly into the center of the light path and masking it with black quartz. One cell with light path 40 x 12.5 x 12.5 mm.

Ultra-micro with PTFE Lid

Lightpath	Aperture	Chamber Volume	Part No.
Quartz SUPRASIL			
10 mm	2 x 1.5 mm	30 µL	**B0631079**

Ultra-micro with Pipette Tips

Lightpath	Aperture	Chamber Volume	Part No.
Quartz SUPRASIL			
0.1 mm	1 x 5 mm	0.5 µL	**B0631082**
1 mm	1 x 5 mm	5 µL	**B0631083**
5 mm	Ø 0.8 mm	2.5 µL	**B0631080**
10 mm	Ø 0.8 mm	5 µL	**B0631081**

TrayCell™

The TrayCell is a fiber-optic ultra-micro measuring cell designed for the UV/Vis analysis of DNA/RNA and proteins. The dimensions of the TrayCell are equivalent to a standard cuvette in order to work in most spectrophotometers.

Features and Benefits

- Suitable for almost any current spectrophotometers
- Ideally suited for very small measurement volumes: 0.7 µL to 10 µL
- Trouble-free measurement of the sample at different optical path lengths simply by exchanging the cap [caps with dilution factors: 5, 10, 50 and 100]
- Fast and simple cleaning of the optics before measuring the next sample - the TrayCell remains in the cell holder!
- Samples can be reused after the measurement simply by pipetting them off
- During measurements, TrayCell shows excellent shows excellent reproducibility

TrayCell™

Description	Part No.
UVS TrayCell complete with 0.2 mm and 1.0 mm caps. Complete with blocks to change beam height from 8.5 mm to 15 mm to 20 mm	**L7110289**
2.0 mm TrayCell, (Factor* 5) cap	**L7110290**
1.0 mm TrayCell, (Factor* 10) cap	**L7110291**
0.2 mm TrayCell, (Factor* 50) cap	**L7110292**
2 mm TrayCell, (Factor* 100) cap	**L7110293**

Caps for TrayCell™

Description	Volume	Part No.
1 mm (Factor* 10)	3 µL - 5 µL	**L7110291**
0.2 mm (Factor* 50)	0.7 µL - 4 µL	**L7110292**
2 mm (Factor* 5)	6 µL - 10 µL	**L7110290**
0.1 mm (Factor* 100)	0.7 µL - 3 µL	**L7110293**

* Factor = dilution factor compared to a standard cell with a path length of 10 mm

Cylindrical Cells – Macro with PTFE Stopper

Cylindrical cells are used with spectrophotometers that have a larger, circular light beam. Each cell has an outside diameter of 22 mm and an inside diameter of 19 mm. Each package contains one cell and two windows.

Material	Lightpath	Outside Depth	Cell Volume	Remarks	Part No.
NIR Quartz SUPRASIL® 300					
	10 mm	12.5 mm	2.8 mL	Neck Ø 6 mm Taper 1:10	**B0631099**
	20 mm	22.5 mm	5.6 mL	Neck NS 7	**B0631100**
	50 mm	52.5 mm	14.0 mL	2 necks NS 7	**B0631101**
	100 mm	102.5 mm	28.0 mL	2 necks NS 7	**B0631102**
Quartz SUPRASIL					
	10 mm	12.5 mm	2.8 mL	Neck Ø 6 mm Taper 1:10	**B0631095**
	20 mm	22.5 mm	5.6 mL	Neck NS 7	**B0631096**
	50 mm	52.5 mm	14.0 mL	2 necks NS 7	**B0631097**
	100 mm	102.5 mm	28.0 mL	2 necks NS 7	**B0631098**
Special Optical Glass					
	10 mm	12.5 mm	2.8 mL	Neck Ø 6 mm Taper 1:10	**B0631091**
	20 mm	22.5 mm	5.6 mL	Neck NS 7	**B0631092**
	50 mm	52.5 mm	14.0 mL	2 necks NS 7	**B0631093**
	100 mm	102.5 mm	28.0 mL	2 necks NS 7	**B0631094**

NIR Quartz SUPRASIL Cylindrical Cells Macro with PTFE Stopper, 10 mm **Part No. B0631099**

Flow-through Cells

Flow-through cells are used for measuring samples with continuous flow or with Sippers where individual samples are aspirated into the cell. All cells have center heights of 15 mm. Each package contains one cell with two clear windows. The cells listed below are Compact with two screw connectors, M6 x1 and 500 mm length FEP tubing - 1.9 mm o.d., 1.1 mm i.d.

Material	Lightpath	Centre Height	Outside Depth	Aperture	Cell Volume	Part No.
Quartz SUPRASIL	1 mm	15 mm	35 x 12.5 x 12.5 mm	17.5 x 3.5 mm	62 µL	**B0631085**
Quartz SUPRASIL	10 mm	15 mm	35 x 12.5 x 12.5 mm	11 x 3.5 mm	390 µL	**B0631084**
Quartz SUPRASIL	10 mm	15 mm	35 x 12.5 x 12.5 mm	8 x 2 mm	160 µL	**B0631087**
Quartz SUPRASIL	10 mm	15 mm	35 x 12.5 x 12.5 mm	11 x 2.5 mm	300 µL	**B0631150**
Quartz SUPRASIL	10 mm	15 mm	35 x 12.5 x 12.5 mm	Ø 3 mm	80 µL	**B0631089**
Quartz SUPRASIL	50 mm	15 mm	45 x 12.5 x 52.5 mm	Ø 3 mm	370 µL	**B0631088**
Quartz SUPRASIL	10 mm	15 mm	35 x 12.5 x 12.5 mm	Ø 2 mm	30 µL	**B0631090**
Quartz SUPRASIL (FIAS)	10 mm	15 mm	35 x 12.5 x 12.5 mm	Ø 1.5 mm	18 µL	**B0631151**
Quartz SUPRASIL (FIAS)	10 mm	15 mm	35 x 12.5 x 12.5 mm	Ø 1 mm	8 µL	**B0631152**

Lids and Stoppers

Description	Lightpath	Part No.
PTFE Fitted Lid	5 mm	**B0631145**
PTFE Fitted Lid	10 mm	**B0631129**
PTFE Stopper with NS 7 Fitting		**B0631128**
PTFE Stopper with Fitting Ø 6, taper 1:10		**B0631149**

Replacement Tubing

Description	Part No.
FEP-Replacement Tubing with one short screw fitting, 500 mm long	**B0631130**
FEP-Replacement Tubing with one long screw fitting, 500 mm long	**B0631131**
Sipper Tubing to Cuvette (in)	**B2500129**
Sipper Tubing to Cuvette (out)	**B2500127**

DISPOSABLE CELLS

Disposable cells greatly reduce the risk of contamination, remove the need for cleaning reagents and lower laboratory costs as compared to quartz or glass cells.

Disposable cells are available in polystyrene and polymethyl methacrylate either as macro or semi-micro cells. Additionally, disposable cells are available in a special UV transparent material in macro, semi-micro and micro cells. The useful spectral range for UV material is between 220 and 900 nm, for polymethyl methacrylate it is 300 and 900 nm and for polystyrene it is 340 and 900 nm.

Each cell has a standard light path of 10 mm and is suitable for any UV/Vis Spectrophotometer which accommodates cells with a center height of 15 mm.

Color coded caps can be ordered for the micro UV transparent cells which allow samples to be stored down to -20 °C.

Macro Cells

Description	Outside Dimensions	Cell Volume	Qty.	Part No.
UV Material	45 x 12.5 x 12.5 mm	2.5 – 4.5 mL	100	**L7110269**
Polystyrene	45 x 12.5 x 12.5 mm	2.5 – 4.5 mL	1,000	**L7110271**
Polymethyl Methacrylate	45 x 12.5 x 12.5 mm	2.5 – 4.5 mL	1,000	**L7110273**

Micro Cells

Description	Outside Dimensions	Cell Volume	Qty.	Part No.
UV Material	45 x 12.5 x 12.5 mm	70 – 550 µL	100	**L7110260**
UV Material	45 x 12.5 x 12.5 mm	70 – 550 µL	500	**L7110261**
UV Material Individually Wrapped*	45 x 12.5 x 12.5 mm	70 – 550 µL	100	**L7110262**
Caps - Blue			100	**L7110264**
Caps - Yellow			100	**L7110265**
Caps - Green			100	**L7110266**
Caps - Orange			100	**L7110267**

* Free of DNase, DNA and RNase

Semi-micro Cells

Description	Outside Dimensions	Cell Volume	Qty.	Part No.
UV Material	45 x 12.5 x 12.5 mm	1.5 – 3.0 mL	100	**L7110268**
Polystyrene	45 x 12.5 x 12.5 mm	1.5 – 3.0 mL	1,000	**L7110272**
Polymethyl Methacrylate	45 x 12.5 x 12.5 mm	1.5 – 3.0 mL	1,000	**L7110274**

Cell Rack

Also available is a cell rack for easy storage of samples. It is suitable for standard 10 mm light path cells and holds up to 16 cells in numbered positions to aid sample tracking. The cell rack can withstand temperatures up to 121 °C so it can be used in an Autoclave.

Description	Qty.	Part No.
Cell Rack, 16 cell capacity	1	**L7110275**

MAXIMIZE SAMPLING FLEXIBLITY

To extend the range of samples that you can analyze, we offer a wide range of sample holders.
The rectangular and cylindrical long-path cell holders are ideal for sensitive measurements on dilute samples where the extra pathlength is important. For the chemist, the test-tube holder provides a convenient method of sampling in-situ without having to decant the sample into standard cells.
Finally, extend your measurement capabilities to include solid materials with the solid and variable-angle sample holders.

Solid Sample Holder

Minimum sample size 10 x 15 mm. Maximum sample thickness 5 mm.

Description	Part No.
Solid Sample Holder	**B0080822**

Test Tube Holder

This holder accommodates test tubes from 11 to 17 mm diameter.

Description	Part No.
Test Tube Holder	**B0500952**

Variable Angle Sample Holder

0° to 60° for sample position for measurement in transmission of filter glasses and other transparent samples. Minimum sample size is 30 x 40 mm.

Description	Part No.
Variable Angle Sample Holder	**B0152471**

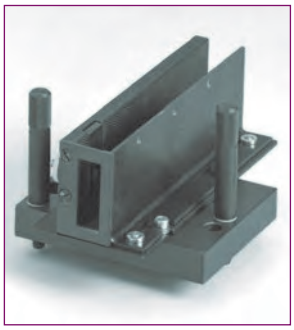
Test Tube Holder

Variable Angle Sample Holder

Cylindrical Long-path Cell Holder

Solid Sample Holder

Standard Cell Holder



Rectangular Long-path Cell Holder

Standard Cell Holder

The Standard Cell Holder is provided as standard equipment with your PerkinElmer LAMBDA Series instrument. A lifter (included) makes short cell removal easy. It accommodates a large selection of rectangular cells up to 10 mm pathlength. The Standard Cell Holder is adjustable both vertically and horizontally.

Description	Part No.
Standard Cell Holder	**B0505071**

Rectangular Long-path Cell Holder

The Rectangular Long-path Cell Holder accepts cells with pathlengths from 10 to 100 mm. This optional cell holder is easy to install and has the same footprint as the Standard Cell Holder. It is designed for a precise fit and gives you maximum reproducibility.

Description	Part No.
For LAMBDA 1X/2X/3X/4X/6XX/8XX/9XX/10XX/Bio	**B0080821**

Cylindrical Long-path Cell Holder

The Cylindrical Long-path Cell Holder accommodates cells with outside diameters from 22 to 30 mm. A versatile cell holder, it accepts cells with pathlengths up to 100 mm. The spring loaded clamping arms provide a precise, reproducible fit and are easy to adjust.

Description	Part No.
Cylindrical Long-path Cell Holder	**C0550303**

5+5 Cell Changer for LAMBDA 1X/2X/3X/4X/Bio

Automatic linear 5+5 cell changer for long pathlength cells up to 50 mm. Includes: Automatic Linear Transport (B2000186), Reference Kit (B2000310), and two Long Pathlength 5-Cell Holders (B0089439). No accessory PCB required.

Description	Part No.
5+5 Cell Changer for LAMBDA 1X/2X/3X/4X/Bio	**N1010569**

8+1 Cell Changer for LAMBDA 1X/2X/3X/4X/Bio

Automatic water thermostattable linear cell changer for eight samples and one reference. Includes: Automatic Linear Transport (B2000186), 8-Cell Holder Water Thermostattable (B2205411), and Water Thermostattable Reference Cell Holder (B2000201). No accessory PCB required.

Description	Part No.
8+1 Cell Changer for LAMBDA 1X/2X/3X/4X/Bio	**N1010567**

8+8 Cell Changer for LAMBDA 1X/2X/3X/4X/Bio

Automatic water thermostattable linear cell changer for eight samples and eight references. Includes: Automatic Linear Transport (B2000186), Reference Kit (B2000310), and two 8-Cell Holders (B2205411). No accessory PCB required.

Description	Part No.
8+8 Cell Changer for LAMBDA 1X/2X/3X/4X/Bio	**N1010568**

13-Cell Changer System for LAMBDA 1X/2X/3X/4X/Bio

Includes cell changer and one carousel each for glass/quartz and plastic cuvettes. Accessory PCB (L6000500) required for LAMBDA 25/35/45, or PCB (B0509681) required for LAMBDA 10/20/40/Bio, but not included.

Description	Part No.
13-Cell Changer System for LAMBDA 1X/2X/3X/4X/Bio	**B0185210**

8+1 Cell Changer Configuration

Automatic Linear Transport for LAMBDA 1X/2X/3X/4X/Bio

Automatic linear transport unit. Can be combined with 8-Cell Holder, Water Thermostattable (B2205411), Long Pathlength 5-Cell Holders (B0089439), or Research Peltier System (L6310011). For reference position, Reference Kit (B2000310) and 5- or 8-Cell Holder recommended, but not included. Water Thermostattable Reference Cell Holder (B2000201) can be used alternatively.

Description	Part No.
Automatic Linear Transport for LAMBDA 1X/2X/3X/4X/Bio	**B2000186**

Reference Kit

For Automatic Linear Transport (B2000186). For reference position to be used with 8-Cell Holder, Water Thermostattable (B2205411) or Long Pathlength 5-Cell Holder (B0089439).

Description	Part No.
Reference Kit	**B2000310**

Gel Cell, Glass

For gel measurements with Gel-Scanner Linear Transport (B2000199). Dimensions are 6 mm pathlength by 100 mm width by 10 mm height.

Description	Part No.
Gel Cell, Glass	**CP183700**

FAST, EFFICIENT, TEMPERATURE-CONTROL

9 Cell w/ Reference Cell

Routine Peltier Systems

Routine Peltier System – Single Sample Accessory + Single Reference Accessory

Includes the Peltier Single Sample Accessory (B2000159) for the sample position and the Single Reference Accessory (B0510412) for the reference position. Also included are a reference position cover, power supply, power cables, and User's Guide. Selectable temperature range 20 °C to 45 °C. Requires the LAMBDA 25, 35, 45 Accessory Board (L6000500).

LAMBDA Model	Part No.
1X/2X/3X/4X/Bio	**N1010565**

Routine Peltier System – 9-Sample Position Accessory + Single Reference Accessory

Includes the Peltier 9-Sample Position Accessory for the sample position and the Single Reference Accessory for the reference position. Also included are 5 beam masks, alignment gauge, reference position cover, sample compartment extension, power supply, cables, and User's Guide. Selectable temperature range 20 °C to 45 °C. Must be service installed. Requires the LAMBDA 25, 35, 45 Acessory Board (L6000500).

LAMBDA Model	Part No.
1X/2X/3X/4X/Bio	**N1010566**

Routine Peltier Single Sample Accessory

Peltier temperature controlled single cell holder for the sample position. Also included are a reference position cover, power supply, power cables, and User's Guide. Selectable temperature range 20 °C to 45 °C. Requires the LAMBDA 25, 35, 45 Accessory Board (L6000500).

LAMBDA Model	Part No.
1X/2X/3X/4X/Bio	**B2000159**

Routine Peltier 9-Sample Position Accessory

Includes the Peltier 9 position cell changer, 5 beam masks, alignment gauge, reference position cover, sample compartment extension, power supply, power cables, and User's Guide. Must be service installed. Selectable temperature range 20 °C to 45 °C. Requires the LAMBDA 25, 35, 45 Accessory Board (L6000500).

LAMBDA Model	Part No.
1X/2X/3X/4X/Bio	**B2000160**

Routine Peltier Single Reference Accessory

Peltier temperature controlled single cell holder for the reference position Also included are the power supply, power cables, and User's Guide. Selectable temperature range 20° to 45 °C. Requires the LAMBDA 25, 35, 45 Accessory Board (L6000500).

LAMBDA Model	Part No.
1X/2X/3X/4X/Bio	**B0510412**

9-Postion Cell Holder

As included with the Peltier 9-Sample Position Accessory. Additional interchangeable cell holder for use with the 9-position cell changer.

LAMBDA Model	Part No.
1X/2X/3X/4X/Bio	**B0510366**

Stirring Rods Set of 15 pieces for stirring in the cuvette.

For use with the Research Peltier System-6 Position (PTP-6) (L6310011), and 13-Cell Changer Systems (B0185210), and Magnetic Stirrer Accessory (B0507355 and B0510070).

LAMBDA Model	Part No.
1X/2X/3X/4X/Bio	**B0187028**

PTP-A Single-cell Air-cooled Peltier Accessory

The PTP-A Single-cell Peltier Accessory is air-cooled and does not require a source of cooling water, making it very convenient to use with minimal setup time. Temperature programs are set up, edited and stored from the front panel of the controller unit.

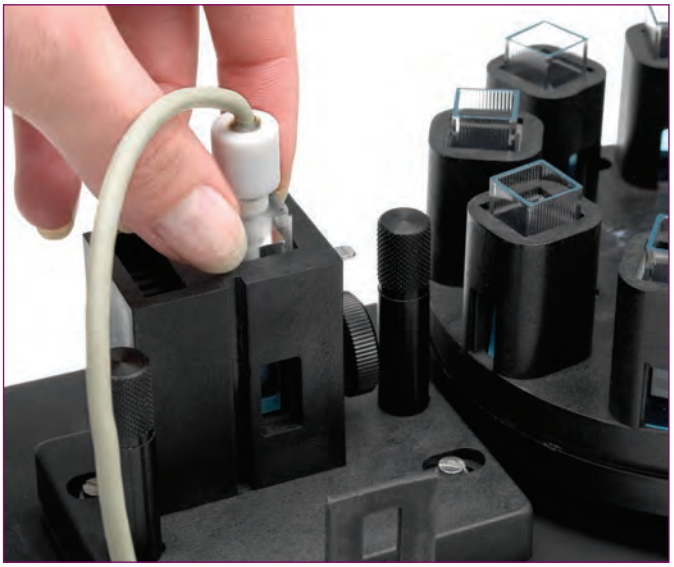
The PTP-A is ideal for protein and nucleic assays to 37 °C and for many studies of kinetics, thermodynamics and acid-base equilibria.

Description	Part No.
PTP-A Single-cell Air-cooled Peltier System	**L6310014**

Water-thermostatted Single-cell Holder

A single-cell holder with 3 mm fluid tubing connectors to enable fluid circulated temperature stabilization. Can be installed in the reference position with the PTP-1 and PTP-6 to allow the reference sample to be temperature controlled. Requires, but does not include, a fluid circulator.

Description	Part No.
Water-thermostatted Single-cell Holder	**B0080819**



Temperature-measurement Kit

Temperature-measurement Kit

Probe for measuring the temperature within the cell. Includes glass cell. Requires the LAMBDA 25, 35, 45 Accessory Board (L6000500).

Description	Part No.
Temperature-measurement Kit	**B0185227**

Research Peltier Systems

PTP 1+1 and PTP 6+6 Research Peltier Systems

The research Peltier range of accessories is ideal for any application that requires precise control of temperature at, below or above ambient temperature. The ability to operate up to 100 °C allows applications such as DNA melting, protein denaturation and some polymer studies to be performed.

These accessories consist of Peltier-controlled, single or six-cell cuvette holders for the sample and reference channels. Single-channel versions are also available. The accessory includes in-cuvette stirring and the ability to preset temperature programs. These units require a source of cooling water.

Description	Part No.
PTP-1 Research Peltier System	**L6310010**
PTP 1+1 Research Peltier System	**L6310012**
PTP-6 Research Peltier System*	**L6310011**
PTP 6+6 Research Peltier System*	**L6310013**

*For the PTP-6 and 6+6 the sample and reference cell holders must be fitted to the baseplate of the cell changer unit in the sample compartment. In a Lambda 25, 35 or 45 this is the Automatic Linear Transport (B2000186), while in a Lambda 650, 850, 950 or 1050 the Linear Cell Programmer (B2205401) is required.

Peltier Controlled Fluid Circulator (PCB1500)

An external fluid circulator for use with all thermostatted cell holders enabling peltier effect temperature control. With both heating and cooling ability the circulator provides a temperature range of 20 °C to 60 °C with an accuracy of +/- 0.1 °C. Also included is a serial port and documentation to enable PC programming.

Description	Part No.
Peltier Controlled Fluid Circulator (PCB1500)	**N1015158**

The Fully-automated Universal Reflectance Accessory (URA)

PerkinElmer's unique Universal Reflectance Accessory (URA) is the only fully-automated, multi-angle, absolute specular reflectance accessory available today. For the Lambda 650/850/950/1050.

Simply place the sample on the horizontal sampling plate, select the required measurement angles with a few mouse clicks and scan. Unlike traditional methods, the URA automatically and reproducibly changes the measurement angle, eliminating time-consuming manual mirror adjustments and changes of accessory. This approach reduces running costs and increases productivity. The URA snaps into place in the second sampling position and can quickly be interchanged with integrating spheres and other detector modules.

Features and Benefits

- Measurement range: 190 – 3,100 nm (UV/Vis/NIR), 190 – 900 nm (UV/Vis)
- Angular range: 8° – 68° incident angle
- Depolarization recommended for angles >15°
- Measure separate S&P polarizations using the Double Depolarizer Drive (B0505530)
- Absolute and relative measurements can be made
- Typical applications include the measurement of anti-reflection coatings, high-reflectors, coating thickness and metallic reflectors

Description	Part No.
URA* (UV/Vis only)	**L6020208**
URA* (UV/Vis/NIR)	**L6020202**
URA (UV/Vis/NIR) for LAMBDA 1050 only	**L6020358**

*Not available for the LAMBDA 750

Relative Specular Reflectance Accessories

For reflectance or thickness measurements. 6° angle of light incidence. For Lambda 25/35/45/650/750/850/950/1050.

Features and Benefits

- Locates in the standard sample compartment for routine relative reflectance measurements at a 6° fixed angle of incidence
- Accommodates samples from 20 x 20 mm to 100 x 100 mm
- Wavelength range: 175 – 3,300 nm

Description	Part No.
Relative Specular Reflectance Accessory	**B0086703**

Variable-Angle Relative Specular Reflectance Accessory

For relative specular reflectance studies which require data from more than one angle of incidence, the variable angle accessory is ideal. The angular range is from 15 to 70° with an accuracy of +/- 1°. Typical applications include the study of the how the reflectivity of a sample changes with change of incident angle. For the Lambda 25/35/45/650/750/850/950/1050.

Features and Benefits

- Wavelength range: 175 – 3,300 nm
- Locates in standard sample compartment
- Range of angles: 15 – 70°

Description	Part No.
Variable-Angle Relative Specular Reflectance Accessory	**B0137314**

Spare Standard Mirror

For Relative Specular Reflectance Accessory, 6° (B0086703) and Variable Angle Reflectance Accessory (B0137314). This mirror is not calibrated.

Description	Part No.
Spare Standard Mirror	**B0071519**

Powder Sample Holder Set

For measurement of powder samples.

Description	Part No.
Powder Sample Holder Set	**PELA9040**

150 mm Integrating Sphere

Snap-in Integrating Spheres for Lambda 650/750/850/950/1050

PerkinElmer's range of snap-in integrating spheres is the industry standard for the measurement of total reflectance, diffuse reflectance and diffuse transmittance measurements for a huge range of sample types. The 150 mm Integrating Sphere is the recommended accessory for measurement of total solar reflectance and transmittance in the glass industry and for the measurement of UV transmittance of paint films in the automotive industry. Many national laboratories use it in R&D studies and for calibration measurements.

The 60 mm and 100 mm Integrating Sphere are used for routine diffuse reflectance and diffuse transmittance measurements. The detector sphere comprises a 60 mm Spectralon detector sphere contained in a snap-in module which fits into the second sample compartment position. This leaves the primary sample compartment free for the use of accessories such as the V-N absolute reflectance accessories, transmission sample holders and polarizer/depolarizer drive.

Features and Benefits

- Measurement range: 200 – 2,500 nm (UV/Vis/NIR), 200 – 900 (UV/Vis)
- InGaAs versions offer higher sensitivity in the near-IR range
- Sampling modes include total and diffuse reflectance at an incident angle of 8°, and total and diffuse transmittance at normal (0°) incidence

Description	Part No.
150 mm Integrating Sphere*	**L6020204**
60 mm Integrating Sphere	**L6020203**
60 mm Detector Sphere*	**L6020209**
150 mm InGaAs Integrating Sphere*	**L6020322**
60 mm InGaAs Integrating Sphere*	**L6020323**
100 mm InGaAs Detector Integrating Sphere**	**L6020371**
100 mm PbS Detector Integrating Sphere**	**L6020372**

*Not available for the LAMBDA 750
**For all LAMBDA high performance units: 650, 750, 850, 950, 1050

Accessories for LAMBDA 150 mm Integrating Spheres

Center Mounted Sample Holder, Clip Style

Clip style for films and paper samples.

LAMBDA Model	Part No.
6XX/8XX/9XX/10XX	**PELA9039**

Center Mounted Sample Holder, Jaw Style

Jaw style for solid samples like glasses, prisms, etc.

LAMBDA Model	Part No.
6XX/8XX/9XX/10XX	**PELA9038**

Cell Holder

For measurement in 1 cm cuvettes in transmission or reflectance mode.

LAMBDA Model	Part No.
6XX/8XX/9XX/10XX	**C6951019**

Small Spot Accessory Kit

Lens kit for reducing beam size to the transmittance position, to the center mount and to the diffuse reflectance position. Requires Reflectance Aperture Kit, Part No. L6020314.

LAMBDA Model	Part No.
6XX/8XX/9XX/10XX	**L6020211**

Reflectance Only Small Spot Kit

Lens kit for reducing beam size to the reflectance position. Requires Sample Compartment Iris, Part No. L6020316.

LAMBDA Model	Part No.
6XX/8XX/9XX/10XX	**L6020313**

100 mm Integrating Spheres for LAMBDA 650, 750, 850, 950, 1050

Description	Part No.
Cuvette Holder	**L6022022**
Powder Cell Holder	**L6022025**
Reference Sample Holder	**L6022018**
Transmittance-only Small Spot Kit	**L6022023**
Reflectance-only Small Spot Kit	**L6022024**

50 mm Integrating Sphere for Lambda 35

Simplifies analysis of a wide variety of samples, including solids, powders, pastes and liquids. For scattered transmittance and diffuse reflectance measurement. Spectralon coated, wavelength range 250 to 1,100 nm.

LAMBDA Model	Part No.
LAMBDA 35	**C6951014**

Accessories for LAMBDA 35 Integrating Spheres

Description	Part No.
1.25" Calibrated Spectralon Diffuse Reflectance Standard	**PELA9057**
Powder Sample Holder Set	**PELA9040**

PRECISE TRANSMISSION AND REFLECTANCE MEASUREMENTS

Double Polarizer drive for LAMBDA 650/750/850/950/1050

When samples are oriented and polarize incident light, it is important to correct for the inherent polarizing effect of the spectrometer's optics by using a depolarizer. Another important application is to make measurements using a specific orientation of incident radiation e.g. for crystalline materials and polymers.

Features and Benefits

- Measurement range (Depolarization): 185 – 2,600 nm
- Measurement range (with Polarizers): 400 – 700 nm (Film), 300 – 2,600 nm (Glan-Thompson), 210 – 1,000 nm (Glan-Taylor)
- Fits into standard sample compartment alongside reflectance accessories and transmittance sample holders
- Suitable for reflectance and transmittance measurements

The high performance Double Polarizer/Depolarizer Drive is installed in the primary sample compartment. The polarization/depolarization orientation can be fully automated, changed by a scan at a fixed wavelength or with a stepping mode. Resolution of 0.25° for scanning. The polarization (depolarization) orientation in the stepping mode can be changed at up to 20 wavelength positions. Applications include specular reflectance studies of optics, coatings, metallic reflectors and thin films. The Double Polarizer Drive can operate with the Universal Reflectance Accessory or manual specular reflectance and transmission accessories.

Description	Part No.
Double Polarizer drive for LAMBDA 650/750/850/950/1050	**B0505530**

The Double Polarizer Drive requires, but does not include, one or two of the following polarization elements:

Polarizer/Depolarizer Elements for the Double Polarizer Drive

A range of polarizing materials is available, according to the required wavelength range. For equal energy in the sample and reference beams of the spectrometer, two are required.

Description	Wavelength Range	Part No.
Film Polarizer	400 – 700 nm	**B2205022**
High Performance Polarizer Crystal	300 – 2,600 nm	**B0505284**
Glan-Taylor Polarizer Crystal	210 – 1,000 nm	**N1010520**
Depolarizer Crystal (98% efficiency)	190 – 2,600 nm	**B2205021**

Common-beam Depolarizer

Another approach to depolarization involves the use of a software controlled depolarizer inside the spectrometer. Driven by a stepper drive, and controlled by UV WinLab™ software, the Common-beam Depolarizer operates between 190 and 2,600 nm uses a double-wedge quartz/Suprasil design for 92% depolarization efficiency. Service installation is required.

Description	Part No.
Common Beam Depolarizer	**B0501282**

Sipper

Peristaltic Sipper "PESI"

Sampling and purging time selectable from keyboard.

For LAMBDA 25/35/45/10/20/40 no accessory PCB necessary. Requires, but does not include, accessory PCB for LAMBDA Bio 11, 12, and 14, (B0509681/B2190034) or accessory PCB for LAMBDA 18/19 (B0124984/B0116378).

For LAMBDA 6XX/8XX/9XX/10XX, requires, but does not include, Installation Kit for LAMBDA 800/900 (B2500123) and Accessory PC Board for LAMBDA 800/900 (B2205116).

Requires, but does not include, Flowcell of choice with screw connector.

Description	Part No.
Peristalic Sipper PESI	**B2190036**

FIBER OPTICS ACCESSORIES

Transfer-Optic for 1X/2X/3X/4X/Bio Part No. B0509546

Transfer-Optic for Mono-Fibers

Fiber optic transfer holder for LAMBDA spectrophotometers. Requires pair of Mono-Fibers 2x2 or 2x10 meters and/or optrode. Other optrodes available on request.

LAMBDA Model	Part No.
1X/2X/3X/4X/Bio	**B0509546**
650/850/950/1050	**L6020290**

Pair of Mono-Fibers

2x2 meters each.

Wavelength	Part No.
250 to 900 nm (UV/Vis)	**B0196912**
400 to 2400 nm (Vis/NIR)	**B0509591**

Fiber Optic Dip Probe

The Fiber Optic Dip Probe is a 15 mm, 316 grade stainless steel probe with a wavelength of 200-1100 nm. Requires but does not include: Transfer-Optic for Mono-Fibers, Light Shield (N1016074) and one of the following Probe Tips: Probe Tip, 2 mm pathlength (N1016073); Probe Tip, 5 mm pathlength (N1016072); or Probe Tip, 10 mm pathlength (N1016071).

LAMBDA Model	Part No.
All	**N1016070**

Light Shield

For use with Fiber Optic Dip Probe (N1016070).

LAMBDA Model	Part No.
All	**N1016074**

Probe Tip

For use with Fiber Optic Dip Probe (N1016070).

Pathlength	Part No.
2 mm	**N1016073**
5 mm	**N1016072**
10 mm	**N1016071**

GENERAL PURPOSE OPTICAL BENCH KITS FOR THE LAMBDA 6XX/8XX/9XX/10XX

General Purpose Optical Bench (GPOB)

General Purpose Optical Bench for Lambda 650/850/950/1050

The GPOB features a magnetized, ruled optical bench with a moveable 60 mm Spectralon® or InGaAs Spectralon® collection integrating sphere. Samples up to 400 mm in pathlength can be analyzed using the General Purpose Optical Bench. Wavelength Range: 190 nm to 2500 nm.

Description	Part No.
General Purpose Optical Bench	**PELA1003**
InGaAs General Purpose Optical Bench	**L6020328**

Sample Holder Mount Kit

Two cantilever sample holders with magnetic bases.

Description	Part No.
Sample Holder Mount Kit	**PELA1005**

Variable Angle Transmittance Sample Holder Kit

Holds samples at an accurately measured angle to the incident beam for measurement of transmittance. Samples can be up to 1 cm thick and up to 10 cm square.

Description	Part No.
Variable Angle Transmittance Sample Holder Kit	**PELA1006**

Optical Bench Kit

Two magnetized mounted iris diaphragms on two optical rails with mounts.

Description	Part No.
Optical Bench Kit	**PELA1008**

Short Focal Length Mirror Kit, Spot Incidence

Kit consists of a short focal length (20 to 30 mm) concave mirror on an adjustable base with magnetic mounts to allow for small spot incidence of curved samples.

Description	Part No.
Short Focal Length Mirror Kit, Spot Incidence	**PELA1013**

Beam Blocker Kit

Optical black beam blocker on adjustable base with magnetic mounts.

Description	Part No.
Beam Blocker Kit	**PELA1014**

Fiber Optic Measurement Stage and Holder Kit

Includes two fiber optic holders to allow for measurement of small diameter fibers and fixed apertures.

Description	Part No.
Fiber Optic Measurement Stage and Holder Kit	**PELA1015**

Polarimetry Cells

PerkinElmer offers a wide range of polarimetry sample cells for virtually all applications, including micro cells, short path cells, flow cells, and fused silica (quartz) cells. Use quartz cells for all wavelengths and for elevated temperatures (200 °C, maximum). Use glass cells only for visible wavelengths, above 400 nm.

Each of our polarimetry cells is individually tested with respect to its pathlength. The actual pathlength of each cell is engraved on the cell to the nearest 0.001 cm (i.e. to the nearest 0.01 mm), together with the serial number of the cell.

Cells are designed for easy filling and emptying. They are jacketed for thermostatting with constant temperature water, except for one flowcell. Their residual cell rotation is almost zero and may be neglected in most measurements.

Standard Cells for Polarimetry

Material	Lightpath	Cell Vol.	Part No.
Quartz	100 mm	3.0 mL	**B0507403**
Quartz	100 mm	6.2 mL	**B0041696**
Optical Glass	100 mm	3.0 mL	**B0507447**
Optical Glass	100 mm	6.2 mL	**B0041693**

Short Path Cells for Polarimetry

Material	Lightpath	Cell Vol.	Part No.
Quartz, Fused Silica	20 mm	1.3 mL	**B0022087**
Optical Glass	10 mm	0.5 mL	**B0017052**
Optical Glass	1 mm	0.25 mL	**B0017057**

Micro Cells for Polarimetry

Material	Lightpath	Cell Vol.	Part No.
Quartz, Fused Silica*	100 mm	0.35 mL	**B0131186**
Optical Glass	100 mm	1.0 mL	**B0017047**

* With reduced inner diameter

Beaker Cells for Polarimetry

Beaker cells are not thermostattable.

Material	Lightpath	Cell Vol.	Part No.
Quartz, Fused Silica	100 mm	50 mL	**B0023363**
Optical Glass	100 mm	50 mL	**B0017041**

Flow Cells for Polarimetry

Material	Lightpath	Cell Vol.	Part No.
Quartz, Fused Silica*	100 mm	6.2 mL	**B0507451**
Optical Glass	100 mm	5.0 mL	**B0017054**

* With two PTFE tubing (4 mm i.d.)

Pluggable Coupling

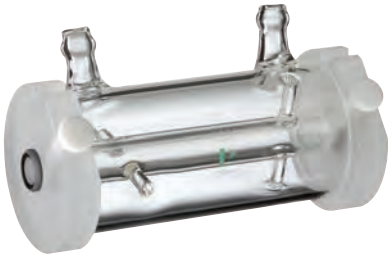
For cell thermostatting.

Connection	Part No.
Female	**B0023491**
Male	**B0023492**

PTFE Stopper

10 mm long.

Cell Compatibility	Diameter	Part No.
017 047/017 057/022 086 - 022 091/023 365/037 634/037 635/022 085/037 357	3 mm	**B0017059**
041 693/041 696	6 mm	**B0041695**



100 mm pathlength Polarimetry Cell

Long Lifetime Source Lamps

High-quality source lamps, specially selected to optimize the performance of all PerkinElmer polarimeters, offer high radiant energy and a long operating lifetime. Their high output ensures that very accurate measurements of optical rotation can be made, even when the sample absorbs strongly.

Description	Polarimeter Model	Part No.
Sodium, 20 W	341/343/343plus/341LC/ 241/241MC/243/243B	**L9004741**
Mercury Vapor (St46)	341/343S/343plus/341LC	**B0510581**

Secondary Quartz Standards for Instrument Validation

Quartz control plates provide traceable instrument calibration in the visible spectral range, ensuring the highest standards of accuracy and precision for all measurements. All quartz control plates feature a thermostattable housing.

Description	Nominal Rotation	Part No.
Quartz Control Plate +1	+1° at 589 nm	**B0098800**
Quartz Control Plate -1	-1° at 589 nm	**B0098799**

Optional Interference Filter

For Model 341 Polarimeters. Service installation recommended.

Wavelength	Part No.
302 nm	**B0094404**
325 nm	**B2100154**
405 nm	**B0062666**

HIGH QUALITY CELLS FOR ALL APPLICATIONS

Standard rectangular macro cells are the most frequently-used type of spectroscopy cell for routine liquids analysis. Micro cells have the same outside dimension as the macro cells but the cell walls have been thickened, limiting the interior sample chamber width to 2 mm. This reduces the sample requirements by 80%.

For full details of the properties of Quartz SUPRASIL and Special Optical Glass see UV/Vis Macro Cells.

Macro with PTFE Lid or with PTFE Stopper

Material	Qty.	Light Path	Outside Dim. H x W x D	Inside Width	Base Thickness	Cell Volume	Windows	Part No.
with PTFE Lid								
Special Optical Glass	2	10 x 10 mm	45 x 12.5 x 12.5 mm	10 mm	1.25 mm	3.5 mL	4	**B0631104**
Quartz SUPRASIL®	2	10 x 10 mm	45 x 12.5 x 12.5 mm	10 mm	1.25 mm	3.5 mL	4	**B0631107**
with PTFE Stopper								
Special Optical Glass	2	10 x 10 mm	46 x 12.5 x 12.5 mm	10 mm	1.25 mm	3.5 mL	4	**B0631110**
Quartz SUPRASIL	2	10 x 10 mm	46 x 12.5 x 12.5 mm	10 mm	1.25 mm	3.5 mL	4	**B0631113**

Semi-micro with PTFE Lid or PTFE Stopper

Semi-micro cells have the same outside dimensions as the macro cells but the cell walls have been thickened slightly, limiting the interior sample chamber width to 4 mm. This reduces the sample requirements by 60%. Each package contains two cells with two clear windows each.

Material	Qty.	Light Path	Outside Dim. H x W x D	Inside Width	Base Thickness	Cell Volume	Windows	Part No.
with PTFE Lid								
Special Optical Glass	2	10 x 4 mm	45 x 12.5 x 12.5 mm	4 mm	1.25 mm	1.4 mL	4	**B0631115**
Quartz SUPRASIL®	2	10 x 4 mm	45 x 12.5 x 12.5 mm	4 mm	1.25 mm	1.4 mL	4	**B0631116**
with PTFE Stopper								
Special Optical Glass	2	10 x 4 mm	46 x 12.5 x 12.5 mm	4 mm	1.25 mm	1.4 mL	4	**B0631117**
Quartz SUPRASIL	2	10 x 4 mm	46 x 12.5 x 12.5 mm	4 mm	1.25 mm	1.4 mL	4	**B0631118**

Fluorescence Cells for Magnetic Stirrers

Material	Qty.	Light Path	Outside Dim. H x W x D	Inside Width	Base Thickness	Cell Volume	Windows	Part No.
Macro/Semi-micro								
Quartz SUPRASIL	1	4 x 4 mm	45 x 12.5 x 12.5 mm	4 mm	4.5 mm	500 µL	4	**B0631132**
Magnetic Stirrer Fleas	6							**04978499**

Micro with PTFE Lid or with PTFE Stopper

Material	Qty.	Light Path	Outside Dim. H x W x D	Inside Dim. width	Base Thickness	Cell Volume	Windows	Part No.
with PTFE Lid								
Special Optical Glass	2	10 x 2 mm	45 x 12.5 x 12.5 mm	2 mm	1.25	700 µL	4	**B0631119**
Quartz SUPRASIL	2	10 x 2 mm	45 x 12.5 x 12.5 mm	2 mm	1.25	700 µL	4	**B0631120**
with PTFE Stopper								
Special Optical Glass	2	10 x 2 mm	40 x 12.5 x 12.5 mm	2 mm	1.25	700 µL	4	**B0631121**
Quartz SUPRASIL	2	10 x 2 mm	40 x 12.5 x 12.5 mm	2 mm	1.25	700 µL	4	**B0631122**

Quartz SUPRASIL Ultra-micro with PTFE Stopper (B0631124)

Quartz SUPRASIL Micro with PTFE Lid (B0631120)

Quartz SUPRASIL Micro without Lid (B0631123)

Micro Cells without Lid

Material	Qty.	Light Path	Outside Dim. H x W x D	Inside Dim. H x W x D	Base Thickness	Cell Volume	Windows	Remarks	Part No.
Quartz SUPRASIL*	2	5 x 5 mm	33.5 x 7.5 x 7.5 mm	32.25 x 5 x 5 mm	1.25 mm	600 µL	5		**B0631123**
Quartz SUPRASIL*	2	5 x 5 mm	46 x 7.5 x 7.5 mm	38.75 x 5 x 5 mm	1.25 mm	850 µL	5	w/ PTFE Stopper NS 5	**B0631142**
Micro Cell Adapter	4								**L2250139**

*Requires Microcell Adapter (L2250139). Microcuvette Adapter allows 5 mm pathlength microcells to be used in any of the cuvette holders. (pkg. 4)

Ultra-micro Cells with PTFE Stopper

Ultra-micro cells use a narrower sample chamber, raising it directly into the center of the light path and masking it with black quartz. This design optimizes the use of smaller sample volumes. All Ultra-micro cells contain one cell and two clear windows.

Material	Qty.	Light Path	Center Height	Outside Dim. H x W x D	Aperture	Chamber Volume	Filling Volume	Windows	Part No.
Quartz SUPRASIL	1	10 x 2 mm	15 mm	45 x 12.5 x 12.5 mm	5 x 2 mm	100 µL	120 µL	3	**B0631124**

Quartz SUPRASIL Flow-through Cells for Fluorimtry (B0631126)

Flow-through Cells for Fluorescence Spectroscopy

Flow-through cells are used for measuring samples with continuous flow or with Sippers where individual samples are aspirated into the cell. All cells have center heights of 15 mm. Each package contains one cell with two clear windows. The cells listed below are compact with two screw connectors, M6x1 and 500 mm length FEP tubing – 1.9 mm o.d., 1.1 mm i.d.

Material	Qty.	Light Path	Outside Dim.	Inside Width H x W x D	Base Thickness	Cell Volume	Windows	Part No.
Macro Inlet/Outlet Tubes on Top								
Quartz SUPRASIL	1	10 x 6.5 mm	15 mm	45 x 12.5 x 12.5 mm	11 x 6.5 mm	750 µL	3	**B0631126**
Semi-micro Inlet/Outlet Tubes on Top								
Quartz SUPRASIL	1	10 x 4 mm	15 mm	45 x 12.5 x 12.5 mm	11 x 4 mm	450 µL	3	**B0631127**

*Compact with two (2) screw connectors and FEB tubing.

Temperature-controlled Cells for Fluorimetry

Material	Qty.	Light Path	Outside Dim. H x W x D	Inside Width	Base Thickness	Cell Volume	Windows	Part No.
Quartz SUPRASIL	1	10 x 4 mm	48 x 12.5 x 12.5 mm	4 mm	11 x 3.2 mm	1.4 mL	5	**B0631125**

HIGH-SENSITIVITY, ULTRA-STABLE LAMPS

Xenon Source Lamp

Xenon Source Lamps for LS30/40/45/50/50B/55

PerkinElmer Fluorescence Spectrometers use pulsed Xenon discharge lamps, which are not only very reliable and stable, but also provide remarkable sensitivity with a peak intensity exceeding 1 KW.

To maintain optimum stability and sensitivity of your instrument, installation of a new lamp by a PerkinElmer service engineer is recommended. Additionally, Xenon lamp quartz envelopes are under pressure, requiring eye protection and extreme caution in handling.

Description	Part No.
Xenon Source Lamp for LS30/40/45/50/50B/55	**L2251157**
Festoon Lamp for the LS Series*	**04969486**

*The Festoon Lamp is used along with the Xenon Lamp to maintain even triggering and stability.

Set of six Luminescence Sample Blocks

Checking the Day-to-Day Reproducibility of your Fluorescence Spectrometer

For day-to-day checks on reproducibility and wavelength calibration a set of six PMMA (polymethyl-methacrylate) blocks can be used. These have emission characteristics in the following wavelength ranges:

	Wavelength Range (nm)
1	300 – 400 (anthracene/naphthalene)
2	420 – 600 (ovalene)
3	300 – 400 (p-terphenyl)
4	400 – 600 (tetraphenyl/butadiene)
5	600 – 640 (europium)
6	540 – 640 (rhodamine B)

For checking instrument sensitivity, a 10 mm sealed cell contains high-purity water, which acts as a constant sample to reproducibly measure signal-to-noise using the Raman band.

Description	Part No.
Luminescence Sample Blocks (Set of 6)	**52019600**
Sealed Water Sample	**L2251293**

Red-sensitive Photomultiplier for the LS50B/45/55

The Red-sensitive Photomultiplier is a useful addition to the LS-series spectrometers to extend the detection range out to 900 nm. The full detection range is 200 – 900 nm.

Requires installation by a PerkinElmer service engineer.

Description	Part No.
Red-Sensitive Photomultiplier	**L6020281**

Ideal for Polarization Studies, Protein Folding and DNA Melting.

Changes in temperature affect fluorescence intensity. A simple, inexpensive and accurate way to control sample temperature is to use a thermostattable cell holder through which water from an external water-bath can be circulated. For temperature ramping studies and experiments where more rapid heating and cooling is required, a single-cell Peltier-thermostatted accessory is available.

Single-Cell Peltier Accessory

For analyses where more rapid heating and cooling is required, a single-cell, water-cooled Peltier accessory is available. Operation between 0 – 100 °C with a resolution of 0.1 °C makes it the ideal choice for a wide variety of applications, for example, thermal denaturation of proteins. Temperature control is via keypad or the optional TempScan software.

Description	Part No.
For LS50/45/55	
Single-cell Peltier Accessory	**L2250150**
BL Studio, FL	**L2258003**
BL Peltier, Add-on	**L2258004**

Requires a source of liquid cooling, such as a water-circulator.
Requires Accessory PCB Kit (L2250162) for use with LS-45

Four-position Thermostatted Automatic Cell Changer

Four-position Thermostatted Automatic Cell Changer

The Four-position Cell Changer accommodates four square, 10 mm pathlength cells or four micro-cells with adapters.

Description	Part No.
Four-position Thermostatted Automatic Cell Changer For LS50B/55	**L2250134**

Requires, but does not include, 4 Adapters (L2250139) to work with micro cells. Includes 6 Stirrer Fleas.

Single-position Thermostatted Cell Holder

Water-thermostatted cell holder for a 10 mm pathlength cell. This cell holder is included as standard with the LS-45 and LS-55.

Description	Part No.
Single-position Thermostatted Cell Holder For LS50B/45/55	**L2250140**

Single-position Thermostatted Cell Holder, with Stirrer

Cell holder with magnetic stirrer for a 10mm pathlength cell, water thermostatted. Includes six stirrer Fleas (04978499).

Description	Part No.
Single-position Thermostatted Cell Hold, with Stirrer	**L2250141**

Biokinetics Accessory for LS50/45/55

Biokinetics Accessory

The Biokinetics Accessory consists of a magnetically stirred single-cell holder with a built-in temperature sensor (0 – 100 °C) event marker. Thermostattable by an external water-bath (not included).

Includes 6 Stirrer Fleas. Requires Accessory PCB Kit (L2250162) for use with LS-45.

Description	Part No.
For LS50/45/55	**L2250145**

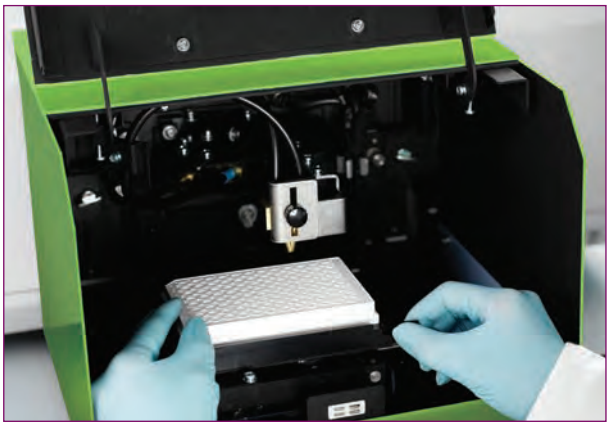
Low-temperature Luminescence Accessory

For cooling samples to liquid nitrogen temperature. Used for measuring fluorescence or phosphorescence. Includes a pack of five sample tubes (52126027).

Low-temperature Sample Tubes

Description	Pkg.	Part No.
Low-temperature Luminescence Accessory		**L2250136**
Low-temperature Sample Tubes	5	**52126027**

INCREASE YOUR APPLICATION CAPABILITIES



Fluorescence "Well-plate Reader"

Well-plate Reader Accessory for LS50B/55

The Well-plate Reader Accessory allows you to switch from a cuvette-based system to a well-plate reader in seconds. The accessory is front-mounted, providing easy access to standard well-plates.

Features and Benefits

- Measures in fluorescence, phosphorescence, bioluminescence and chemiluminescence modes
- Fiberoptic light feed for permanent alignment and high performance
- Standard or far-UV fiberoptics
- Easily removes and installs for switching between plate and cuvette measurements
- Can create programs for single end-point and kinetics analysis
- Optional plug-in software module allows the user to collect multiple spectra per well
- Measures up to 96 well plates

Description	Part No.
For work above 260 nm Excitation, 340 nm Emission	**L2250035**
For work above 260 nm Excitation and Emission	**L2250042**

Installation by a PerkinElmer service engineer is required.Includes one pack of white Microplates (L2251692).

96-Well Microplates

Description	Pkg.	Part No.
Hi-White flat bottom.	100	**L2251692**

Ideal for DNA Quantitation, Enzyme-linked Assays, Protein Measurements, Fluorescent ELISAs, Cell Viability Testing and Drug and Steriod Testing.

Liquid Sipper Accessory

The Liquid Sipper Accessory is ideal for the automation of liquid sampling, providing productivity improvements and sample-handling convenience. The accessory consists of a 16 microliter volume flowcell and a peristaltic pump controlled by the instrument software, which automatically transfers samples from the vessel to the cuvette.

Description	Part No.
For LS50B/55	**L2250135**

Includes Flowcell, Peristaltic Pump, 0.4 mm FEP Inlet Tube and 0.7 mm FEP Outlet Tube. Requires installation by a PerkinElmer service engineer.

Liquid Sipper Accessory

LC Flow Cell Accessory

The LC Flow Cell Accessory allows you to detect trace components eluted from a liquid chromatograph. Fluorescence can be monitored continuously at selected excitation and emission wavelengths, simply by replacing the standard cell holder with an LC flow cell.

Description	Part No.
For LS50B/45/55	**L2250138**

Includes Flowcell, Peristaltic Pump, 0.4 mm FEP Inlet Tube and 0.7 mm FEP Outlet Tube. Requires installation by a PerkinElmer service engineer.

High-sensitivityAlternative to a Dedicated LC Fluorescence Detector.

Remote Fiber-optic Accessory

Remote Fiber-optic Accessory

The Remote Fiber-optic Accessory allows you to make the measurement at the sample, without needing to take the sample to the instrument. Includes bifurcated synthetic fused-silica fiber-optics (1 m in length), which operate over the range 280 – 800 nm, and transfer-optics which mount in the spectrometer. This accessory is ideal for remote, non-destructive testing of fluorescent papers and fabrics, or remote sampling of hazardous materials.

Description	Part No.
For LS50B/45/55	**L2250144**

Total Emission Accessory

The Total Emission Accessory enhances the sensitivity of the fluorescence detection for samples with weak emission, and is recommended for bioluminescence and chemiluminescence experiments. The accessory uses a plane mirror that swings into place in front of the emission monochromator so that the total fluorescence of the sample can be measured.

The use of cut-off emission filters is recommended to reduce emission from other wavelengths. Five software-controlled emission filters are supplied with the LS55 spectrometers.

Description	Part No.
For LS50B/55	**L2250101**

Requires installation by a PerkinElmer service engineer.

Front-surface Accessory*

For Measurements on Solids, Powders and Viscous or Opaque Liquids

The simple-to-use Front-surface Accessory extends your measurement capabilities to a wide variety of solid and semi-solid samples, including powders, paper, plastic films, cloth samples, TLC plates, gels and turbid liquids. The accessory can be used with the LS-50B/45/55 spectrometers.

Features and Benefits

- Used for fluorescence and phosphorescence measurements
- Sample can be placed in the accessory directly or held in the synthetic fused silica window powder holder
- Ultra-small volumes or viscous samples can be sandwiched between the two windows
- Opaque and turbid samples can be measured in small cuvettes (under 10 mm)

Description	Part No.
Front-surface Accessory	**52123130**
Powder Sample Holder	
For use with Front Surface Accessory (52123130)	**52123164**
Synthetic Fused Silica Window	
For Powder Sample Holder	**52123814**

*Includes Powder Sample Holder (52123164).

DSC SAMPLE PANS, COVERS AND CRIMPERS

Standard Sample Pan Crimper Press

Used to crimp covers on standard DSC pans of aluminum, gold and copper. Design incorporates a replaceable crimper head.

Description	Part No.
Standard Sample Pan Crimper Press	**02190048**

Universal Crimper Press

The Universal Crimper Press provides high quality pan sealing for the autosampler sample pans/hermetically sealed pans and can also crimp standard aluminum pans, large volume stainless steel (24 bar) and volatile pans. This is achieved simply by using the appropriate sealing insert. Includes sample pan suction tool and inserts to seal 10, 30 and 50 µL sample pans.

Description	Part No.
Universal Crimper Press	**B0139005**

ALUMINUM SAMPLE PANS AND COVERS

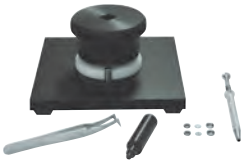
Sample Pan	Operating Range	Vol. (µL)	Max Pressure	Qty.	Crimper (Sealer)	Part No.
Open/Crimped Pans						
Standard Aluminum Pans and Covers	-170° to 600 °C	40	Ambient	400	02190048 or B0139005 with B0508921	**02190041**
Supra clean Aluminum pans	-170° to 600 °C	40	Ambient	400	02190048 or B0139005 with B0508921	**02192005**
Aluminum Sample Pans	-170° to 600 °C	28	Ambient	200	N5356027 or N5356028	**N5356010**
Aluminum Sample Pans	-170° to 600 °C	45	Ambient	400	N5356027 or N5356028	**N5356012**
Aluminum Pans for HyperDSC®	-170° to 600 °C	40	Ambient	100	Not Required	**N5203115**
Vented/Pierced Pans						
Aluminum Covers (Pierced)	-170° to 600 °C		0.05 mm hole	400	B0139005	**B7001014**
Volatile Aluminum Pans and Covers (Pierced)**	-170° to 600 °C	20	0.05 mm hole	100	02190061 or B0139005 with B0144637	**N5190788**
Aluminum (Vented) Pans	-170° to 600 °C	30	Vented	400	B0139005	**B0143018**
Aluminum (Vented) Pans	-170° to 600 °C	50	Vented	400	B0139005	**B0143019**
Hermetically Sealed/Volatile Pans						
Aluminum Pans	-170° to 600 °C	10	1 bar	400	B0139005	**B0143015**
Aluminum Pans	-170° to 600 °C	30	1 bar	400	B0139005	**B0143016**
Aluminum Pans	-170° to 600 °C	50	1 bar	400	B0139005	**B0143017**
Aluminum Covers (solid)*	-170° to 600 °C		1 bar	400	B0139005	**B0143003**
Aluminum Covers (solid)***	-170° to 600 °C		3 bar	400	B0139005	**B0143004**
Aluminum Pans and Covers	-170° to 600 °C	20	2 bar	400	02190061 or B0139005 with B0144637	**02190062**
Aluminum Pans****	-170° to 600 °C	25	2 bar	400	B0139005	**B0143020**
Aluminum Pans****	-170° to 600 °C	40	2 bar	400	B0139005	**B0143021**
Aluminum Pans and Covers	-170° to 600 °C	10	3 bar	400	B0139005	**B0169319**
Aluminum Pans and Covers	-170° to 600 °C	30	3 bar	400	B0139005	**B0169320**
Aluminum Pans and Covers	-170° to 600 °C	50	3 bar	400	B0139005	**B0169321**
Non-coated Aluminum Sample Pans and Covers	-170° to 500 °C	7.5	3 bar	200	N5356027 or N5356028	**N5356008**
Aluminum Pans and Cover Starter Kit			3 bar	200/200	B0139005	**B0510800**
Photo DSC Pans						
Aluminum Pans for Photocalorimetric Analysis	-170° to 600 °C	12.5	Ambient	100	Not Required	**B0196858**
Aluminum Pans and Quartz Covers	-170° to 600 °C	12.5	Ambient	100	Not Required	**B0198030**
Quartz Covers				10		**B0181091**
Aluminum Pans and Covers - hand sealable	-170° to 600 °C	1	Ambient		Not Required	**L90004787**
Aluminum Pans and Covers - 6.7 mm x 2.7 mm	-170° to 600 °C	1	Ambient		Not Required	**L90004788**

For use with DSC 4000, DSC 6000, DSC 8000, DSC 8500, Diamond DSC, Pyris 1 DSC, DSC 7, DSC 6, Pyris 6 DSC and Jade DSC For use with Sapphire DSC

* For use with B0143015, B0143016, B0143017
** 50 Micron hole; use for boiling point, heat of vaporization, sublimatation studies.
*** For use with B0149319, B0149320, B0149321
**** Lids must be ordered separately as B0143003

High Pressure Capsule Sealing Tool

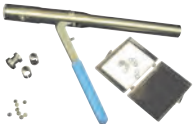
This reliable sealing tool is fast and precise. It employs a built-in torque clutch which guarantees that all capsules are closed with the same torque.



Description	Part No.
High-Pressure Capsule Sealing Tool	**B0182864**

Quick Press

The Quick Press is a convenient device for sealing stainless steel pans, covers and o-rings (03190218 and 03190029). Requires but does not include spacer die (03191047).



Description	Part No.
Quick Press	**09908467**
Quick Press Spacer Die	**03191047**

High Pressure Sample Pans (24 to 150 bar)

Pans contain the sample in a sealed environment throughout an experiment. The sealing suppresses the vaporization of a solvent or contains a volatile reaction product, thereby eliminating the interfering effects of the heat of vaporization.

Stainless Steel Pans with O-rings

Sample Pan	Operating Range	Vol. (µL)	Max Pressure	Qty.	Crimper (Sealer)	Part No.
◣ Stainless Steel Pans, Covers and O-rings	-40° to 300 °C	60	24 bar	20	B0139005 with B0505340 -or- 09908467 with 03191047	**03190218**
◣ Stainless Steel Pans, Covers and O-rings	-40° to 300 °C	60	24 bar	1,000	B0139005 with B0505340 -or- 09908467 with 03191047	**03190029**
◣ P20 High Pressure Pans and Covers	-170° to 310 °C	20	100 bar		09908467 with 03191047	**L90004786**
◣ High Pressure Stainless Steel Pans, Covers and Seals[1]	-170° to 300 °C	30	150 bar	5	B0182864	**B0182901**
◣ High Pressure Gold-plated Pans and Covers[1]	-170° to 400 °C	30	150 bar	5	B0182864	**B0182902**
◣ High Pressure Titanium Pans, Covers and Seals[2]	-170° to 400 °C	30	150 bar	5	B0182864	**B0182903**
◣ Aluminum Sample Pans and Covers, High Volume[2]	-170° to 500 °C	70	30 bar	40	N5356027 or N5356028	**N5356002**
◣ Aluminum Sample Pans and Covers, Small Volume[3]	-170° to 500 °C	15	30 bar	40	N5356027 or N5356028	**N5356003**

[1] Reusable, includes 5 Pans and 20 Gold-plated Seals, uses Replacement Seals (B0182905)
[2] Reusable, includes 5 Pans and 20 Titanium Seals, uses Replacement Seals (B0185054)
[3] Electric Sealer (N5356028) requires Hermetic Die (N5356032) and Stage (N5356035), included with Manual Sealer

Specialty Sample Pans and Covers

Sample Pan	Operating Range	Vol. (µL)	Max Pressure	Qty.	Crimper (Sealer)	Part No.
◣ Alumina Pans and Covers	-170° to 730 °C	40	Ambient	6	Not Required	**N5190180**
◣ Standard Copper Pans and Covers[6]	-170° to 730 °C	40	Ambient	200	02190048	**03190026**
◣ Heat Treated Aluminum Pans and Covers	-170° to 600 °C	40	Ambient	100	Not Required	**N5340188**
◣ Graphite Sample Pans and Covers	-170° to 600 °C	40	Ambient	4	Not Required	**03190025**
◣ Gold Sample Pans and Covers	-170° to 730 °C	40	Ambient	10	Not Required	**02190042**
◣ Copper Sample Pans[4, 5, 6]	-170° to 800 °C	45	Ambient	200	Not Required	**N5356021**
◣ Aluminum Sample Pans, High Volume[2, 3]	-170° to 600 °C	90	Ambient	200	N5356027 or N5356028	**N5356034**
◣ Ceramic Sample Pans[7]	RT to 1,500 °C	25	Ambient	5	Not Required	**N5356019**
◣ Ceramic Sample Pans[7]	RT to 1,500 °C	55	Ambient	2	Not Required	**N5356020**
◣ Platinum Sample Pans[8]	-170° to 1,500 °C	45	Ambient	5	Not Required	**N5356016**
◣ Platinum Sample Pans, High Volume[8]	-170° to 1,500 °C	95	Ambient	5	Not Required	**N5356017**

[1] Not for use with Autosampler [2] Cover Crimp style (N5356014). Not for DSC Autosampler, requires Crimping Die and Stage (N5366030)
[3] Cover Plate- style (N5356015) [4] Copper Mesh Cover (N5356022) [5] Stainless Steel Mesh Cover (N5356023) [6] Recommended for O.I.T. tests [7] No Covers [8] Plate Covers (N5356018)

◣ For use with DSC 4000, DSC 6000, DSC 8000, DSC 8500, Diamond DSC, Pyris 1 DSC, DSC 7, DSC 6, Pyris 6 DSC and Jade DSC ◣ For use with Sapphire DSC

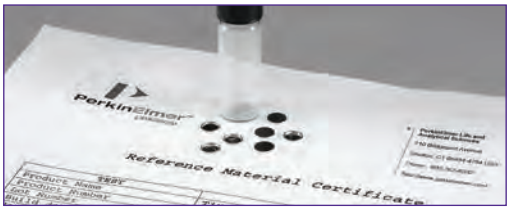
Calibration Reference Materials

PerkinElmer reference materials are 99.999% pure. DSC requires elements of this purity so that the instrument can be accurately calibrated.

Reference Material	Transition Point	Part No.
Indium	156.60 °C	**03190033**
Tin	231.88 °C	**03190034**
Lead	327.47 °C	**03190035**
Zinc	419.47 °C	**03190036**
Encapsulated Kit*		**02190045**
Encapsulated Kit**		**N5190762**

* Includes a large and small indium, tin and lead

** Includes indium and zinc for DSC 4000, DSC 6000, DSC 8000, DSC 8500, DSC 7, Pyris 1 DSC, DSC 6, Pyris 6 DSC, Jade DSC and Diamond DSC



Specific Heat Kit

Includes four sapphire disks manufactured to two separate diameters and thicknesses. Also includes a calibration chart giving the specific heat of aluminum oxide in the form of synthetic sapphire.

Description	Part No.
Specific Heat Kit	**02190136**

Sample Holder Supplies

Sample Holder Cover Reforming Tool

DSC performance is enhanced with sample holder covers that are formed properly and not degraded by extended usage. This tool allows the analyst to reform the platinum covers to their original dimensions.

Description	Part No.
Sample Holder Cover Reforming Tool	**03190030**

Platinum Sample Holder Covers

Each cover has two vent holes and is used for the Diamond DSC, Pyris 1 DSC, DSC 7, DSC 8000 and DSC 8500 sample holders.

Description	Qty.	Part No.
Vented	2	**04190299**
Vented	6	**03190031**
DSC Autosampler, (2 required)	1	**B0139122**
Large furnace covers	2	**B0182981**

Sample Holder Cover Reforming Tool

Vented Platinum Sample Holder Cover

Hook Forceps

Diamond DSC Loading Tool

Allows for easy insertion and removal of sample or reference pans or platinum lids.

Description	Part No.
Diamond DSC Loading Tool	**N5361180**

Forceps

Description	Part No.
Flat Round Tips	**09908400**
Flat Pointed Tips	**N5361078**
Hook	**09908138**

Sample Pan Manipulators

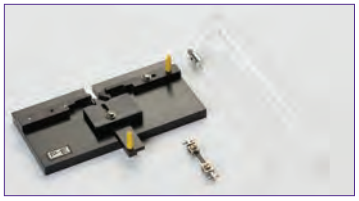
Features and Benefits

- Specially designed to simplify the pickup and positioning of your sample pans and covers.
- Prevents contamination of your sample.

Description	Part No.
Special Sample Pan Manipulator	**B0142512**
Standard Sample Pan Manipulator	**B0143263**
Replacement Rubber Tip	**N5376097**

WHEN FAILURE IS NOT AN OPTION

PerkinElmer offers a complete portfolio of consumables, accessories and supplies that deliver optimal performance in measuring the coefficient of thermal expansion (CTE), Tg, and TM in materials. Choose from a range of consumables and accessories with a cost efficient range of probes including expansion, compression, flexure, extension, and volumetric (dilatometry).



Analysis Kits

Complete sets of all the parts necessary for analysis of samples.

Description	Part No.
TMA Analysis Kit	**L8040200**
Advanced Analysis Kit	**L8040202**
Extension Kit	**N5190619**
Quartz Dilatometer (sm) Kit	**03190461**

Probes and Sample Tools

Probes

Probes and fixtures for special tests and as replacements of those included in kits.

Description	Part No.
Expansion Probe	**N5190378**
Extension Probe	**N5190609**
Flat Tip Penetration Probe	**N5190376**
Flexure TMA Kit	**N5190399**
Flexure Probe -3 Point Bending	**N5190393**
Short Expansion Probe	**L8041800**
Round Tip Probe - 0.5 mm	**N5190377**
Round Tip Probe - Large	**N5190416**

Sample Tools and other necessary parts

Complete sets of all the parts necessary for analysis of samples.

Description	Part No.
Aluminum Oxide Powder	**04190197**
Bending Anvil	**N5391181**
Ceramic Furnace Top	**L8041808**
Copper Film/Fiber Mounting Pins	**02190322**
Dilatometer (sm)	**03191705**
Extension Tube	**N5191700**
Extension Sample Clamp	**N5190611**
Halocarbon Oil 27	**L9004783**
Knurled Nut for Sample Tube	**N5391054**
Quartz Sample Tube	**N5191549**
Sample Load Fixture	**N5190615**
Sample Thermocouple	**L8041809**
Split Collar for Sample Tube	**N5191662**

Reference Materials

Standards for calibration of the TMA.

Description	Part No.
Aluminum Std Expansion 10mm x 3mm	**L8041600**
Aluminum Std Expansion 5mm x 3mm	**L8041601**
Indium Temperature Calibration Material	**03190033**
Quartz Displacement Standard	**N5391051**
Sapphire Disc - Thin Expansion Standard	**02191269**
Test and Calibration Weights	**L8041801**
Zinc Temperature Calibration Material	**N5340229**
Zinc T-Calibration Standard	**03190036**

Spares

Useful consumables and accessories you may need to operate your TMA.

Description	Part No.
Non-Magnetic Tweezers	**09908400**
Fuses 110V AC	**L8041802**
Fuses 220V AC	**L8041803**
Fuses 110/220V AC	**L8041804**
Hose clamps (4)	**09903004**
Tape: High Temperature	**02507907**
Tape: Thread Sealant	**09908134**
PTFE Tubing: 1/8" OD x 1/16" ID	**02506483**
Thermocouple	**N5190417**
Tygon Tubing: 1/2" OD x 3/8" ID	**02506519**
Turbulent Chamber Kit	**L8040201**
1/8" Swageloc Fittings (2)	**09903906**
Restrictor: Type A	**01541496**
Restrictor: Type H	**01541498**

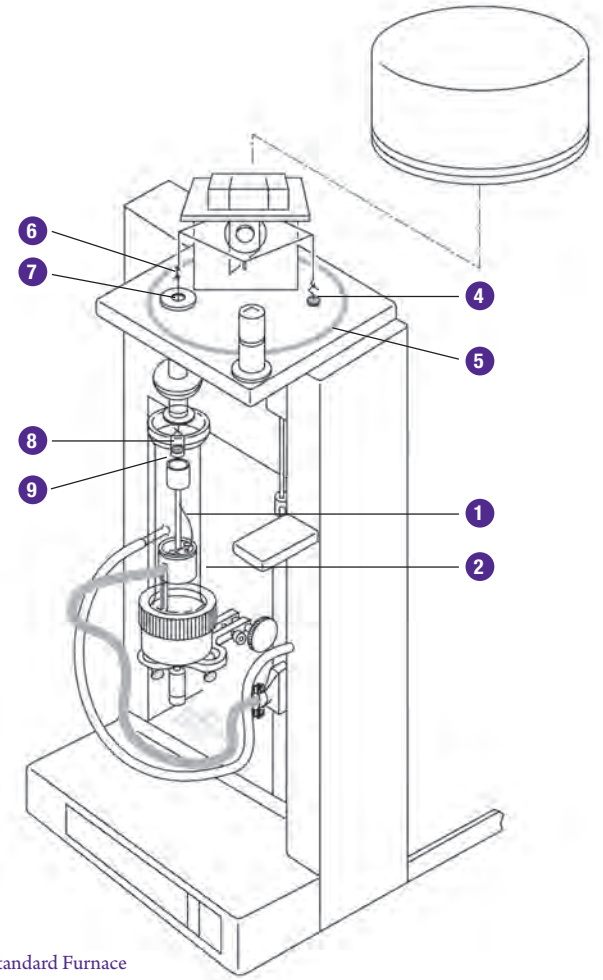
ACCESSORIES

Furnace Accessories and Glassware

Description	Standard TGA Part No.	TGA High-Temp. Part No.
Furnace	**N5190264**	**N5190172**
Furnace Thermocouple		**N5190196**
Cup for Furnace, Thermocouple		**N5191875**
1 Sample Thermocouple	**03190253**	**N5190197**
2 Furnace Tube Quartz TGA 7	**N5190203**	
2 Furnace Tube Quartz PYRIS 1 TGA	**N5370459**	**N5190202**
Platinum Furnace Shield	**03191628**	
4 Balance Tare Weight	**N5190282**	**N5190284**
5 Cover O-ring	**09902163**	**09902163**

Furnace Accessories for STA 6000

Description	Part No.
STA 6000 SaturnA Sensor	**N5202083**



TGA Standard Furnace

Hangdown Wire Kits

Hangdown Wire Link Kit, Quartz

Hangdown Wire Kit, Nichrome

Stirrup Kit, Platinum

Description	Material	Qty.	TGA 7 Standard Part No.	TGA 7 High-Temp. Part No.	PYRIS 1 TGA Standard Part No.	PYRIS 1 TGA High-Temp. Part No.
6 Hangdown Wire Link Kit	Quartz	10	**N5190330**			
Hanger Kit	Quartz	5			**N5370487**	
Autosampler Hanger Kit	Quartz	5			**N5370488**	
7 Hangdown Wire Kit Includes 6 preformed and 6 straight wires	Nichrome	6	**N5190285**			
Hangdown Wire Kit Includes 6 preformed wires	Nichrome	6	**N5190516**			
Hangdown Wire Kit Includes 6 straight wires	Nichrome	6	**N5190515**			
Hangdown Ribbon	Platinum	2			**N5370478**	**N5370478**
Autosampler Hanger Kit	Nichrome	5			**N5370490**	
7 Hanger Kit	Platinum	6				**N5370330**
7 Hangdown Wire Kit Includes 6 preformed wires	Platinum	6		**N5190276**		
8 Stirrup Kit	Platinum	4	**03190265**	**N5190279**	**03190265**	**N5190279**

Pans for TGA 7 and PYRIS 1 TGA

Description	Qty	Part No.
9 For TGA 7 Standard/PYRIS 1 TGA	4	**03190264**
9 For TGA 7/PYRIS 1 TGA High-temperature	4	**N5190280**
Ceramic Liner Kit for TGA 7/PYRIS 1 TGA	6	**N5190283**
PYRIS 1 TGA Accupik Sample Pans and Covers	400	**N5370550**

Pyris 1 TGA Autosampler Ceramic Crucible Kits and Liners

Description	Part No.
Ceramic Crucible Kit. Contains 10 ceramic crucibles.	**N5370464**
Aluminum Liners for Pyris 1 TGA Autosampler Ceramic Crucibles - Kit of 400	**N5370492**
Stainless Steel Liners for Pyris 1 TGA Autosampler Ceramic Crucibles - Kit of 400	**N5370495**

Pans for STA 6000, STA 8000, and TGA 4000

Description	Part No.
STA 6000/TGA 4000 Ceramic Sample Pan Kit - 45 Pans	**N5200045**
STA 6000/TGA 4000 Ceramic Sample Pan Kit - 3 Pans	**N5200040**
STA 6000/TGA 4000 Pt/Rh Pans (2.5 mm height) - 5 Pans	**N5201021**
STA 6000/TGA 4000 Pt/Rh Pans (5.0 mm height) - 5 Pans	**N5201022**
STA 6000/TGA 4000 Pt/Rh Pans (2.5 mm height) - 1 Pan	**N5201023**
STA 6000/TGA 4000 Pt/Rh Pans (5.0 mm height) - 1 Pan	**N5201024**

Pyris 1 TGA Accupik Replacement Needle Kit

Contains 3 needles.

Description	Part No.
Pyris 1 TGA Accupik Replacement Needle Kit	**N5370554**

Pyris 1 TGA Cooling Jacket

With this accessory and a Chiller (optional), the TGA can start from -20 °C.

Description	Part No.
Pyris 1 TGA Cooling Jacket	**N5370553**

Pyris TGA Volatile Capsule Sealer Kit

Description	Part No.
Pyris TGA Volatile Capsule Sealer Kit	**N5370555**

Forceps, Non-Magnetic

Description	Part No.
Hooked	**09908138**
Straight	**09908400**

CALIBRATION REFERENCE MATERIALS

Ensure accurate thermogravimetric measurements with PerkinElmer magnetic reference materials.

Description	Part No.
Kit of Five Reference Materials (Alumel, Nickel, Perkalloy, Iron and Hisat-50)*	**02190071**
Alumel Reference Material (154.2°C)	**09988015**
Nickel Reference Material (355.3°C)	**N5190869**
Perkalloy Reference Material (596°C)	**N5190616**
Iron Reference Material (780°C)	**09988017**
Indium Calibration Reference	**03190033**
Tin Calibration Reference	**03190034**
Lead Calibration Reference	**03190035**
Zinc Calibration Reference	**03190036**
Silver Calibration Reference	**N5370438**
Calibration Weight (TGA 6, TGA 4000, STA 6000)	**N5200042**
Calibration Weight (100 mg)	**09908397**
Calibration Weight Standards Kit for NOACK Lubricating Oil Test**	**N5370140**

* Magnetic Calibration Reference Materials are available in kit form and now are also available separately for your convenience. We recommend that you use fresh reference materials each time you calibrate your instruments. In this way you can avoid the effects of hysteresis and oxidation on the Curie point of the reference materials.

** Used to calibrate a TGA or STA to perform ASTM test method D5800 for evaporation loss of lubricating oils by the NOACK method.

COMPLETE RANGE OF ACCESSORIES

Cost effective Dynamic Mechanical Analyzer supplies for routine quality testing in the polymers, composites, pharmaceutical and food industries.

REPLACEMENT PARTS FOR THE DMA 8000

The DMA 8000 comes with a complete set of standard fixtures to allow tension, bending (3 type), shear and compression experiments.

Description	Part No.
Bending Clamp Set	**N5330300**
Shear Studs and Plate Set	**N5330301**
Shear Clamp Outer Assembly (pair)	**N5330302**
3 Point Bend Assembly	**N5330305**
Outer Clamp Supports – Stainless (pair)	**N5330303**
Outer Clamp Support – Single Side Only	**N5330304**
Extended Bending Clamp Set	**N5330308**
Compression Insert	**N5330309**
Extended Bending Clamp Set	**N5330306**
Miniature 3 Point Bending Clamp	**N5330307**
Extended Nut Set	**N5330310**
Full Nut Set	**N5330311**
Tensile Spacer Set	**N5330313**
Tensile Clamps (Titanium)	**N5330312**
Alignment Fixture	**N5330314**

Replaceable Parts For DMA 8000 Systems

Description	Part No.
Pt 100 Replacement Sensor	**N5330253**
Pyrex® Cup for Fluid Bath (set of 3)	**N5330320**
Screw set (4)	**N5330338**
Side Pillars and Screw	**N5330303**
Insert Compression (titanium)	**N5330308**
Replacement Omnicure® Light Pipe	**N5365048**
Replacement Omnicure® Bulb	**N5365049**
End cap for DMA 8000 Vent Cover	**N5337031**
Desiccant for Humidity Chamber (1 kg)	**N5330405**
Humidity Generator Sensor – calibrated	**N5330402**
Humidity Generator Heated Line	**N5330403**
Humidity Generator Sensor Lead	**N5330404**
Rod Microswitch Extension	**N5331098**

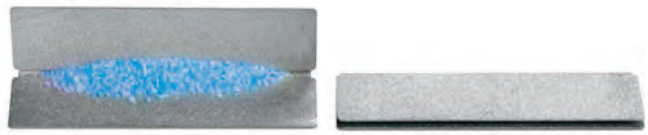
Calibration Supplies

Description	Part No.
PMMA Test Sample (set of 5)	**N5330316**
Steel Test Sample	**N5330317**
PVC Test Sample (set of 5)	**N5330340**
HDPE Test Sample (set of 5)	**N5330341**
Polycarbonate Test Sample (set of 5)	**N5330342**
PET Film Test Sample (set of 5)	**N5330343**
G10 Epoxy Test Sample (set of 5)	**N5330344**
Septum for compression (Set of 5)	**00090652**
Calibration Mass	**N5330315**
Temperature Calibration Kit Includes indium wire (1.5 mm dia), PMMA test sample (5) and FEB tube.	**N5330318**
Traceable Calibration Kit, DMA Testing Kit Includes micrometer caliper, calibration mass, PMMA test sample kit (5) feeler gauge, indium wire sample (2) and PTFE tube.	**N5330319**
Measuring System Training Kit Includes training manual, fairprene septum kit, acrylic sample (5), PVC sample (5), HDPE sample (5), polycarb sample (5), PET sample (5) and G10 sample (5).	**N5330220**
Dynamic Mechanical Analysis: A Practical Introduction (Menard)	**N5374092**

Cooling Accessories

The DMA 8000 has two options for sub-ambient operation: a 1-Liter Dewar for those needing occasional cooling, and a 50 L Dewar for those requiring longer or more frequent sub-ambient experiments.

Description	Size	Part No.
LN2 Cryo Dewar with Transfer Line and Fittings	1 L	**N5330254**
LN2 Cryo Dewar with Transfer Line and Fittings	50 L	**N5373009**



Material Pockets

Specialty Fixtures and Accessories

Special problems often require special tools and a wide range of options exist for the DMA 8000. Advanced software for special tasks, clamps for tablets, material pockets, photo-adapter for UV studies and fixtures that allow you to use the DMA 7 fixtures in the DMA 8000 are all available.

Description	Package	Part No.
Measuring System for Tablets For holding non-flat tablets, capsules and pills in compression. Can be used with the fluid bath or the humidity chamber as well as the standard furnace. One side is V-grooved and the other side has a round groove to allow a wide range of specimens to be held.		**N5330604**
Material Pockets For running pharmaceuticals, powders and other non-self supporting samples.	Set of 10	**N5330322**
	Set of 100	**N5330323**
	Set of 1,000	**N5330324**
Mesh Pockets For running pharmaceuticals, paints and other non-supporting samples where letting moisture and solvent in and out is desirable.	Set of 25	**N5330177**
	Set of 100	**N5330178**
DMA 7e Fixture Adapter Allows use of DMA 7 fixtures in DMA 8000.		**N5330613**
DMA Photo Adapter Allows use of DSC UV system light guides with DMA 8000.		**N5337024**
Fluid Bath Accessory* Allows immersion of samples.		**N5330262**
Humidity Generator** Allows testing in controlled relative humidity.		**N5330400**
Upgrade to Pyris SW Version 11 Controls the DMA8000 from within Pyris SW and includes TTS and Stress Relaxation.		**N5340090**

* Required for routine humidity work with Humidity Generator (N5330400).
** Requires Fluid Bath Accessory (N5330262).

Prepacked Tubes

Description	Est. Runs*	Part No.
CHN Oxidation Tube	1000*	**N2410695**
CHN Reduction Tube	150-180*	**N2410694**
CHNS Oxidation/Reduction Tube	120*	**N2410693**
O Pyrolysis Tube	1000*	**N2410696**
Scrubbing Tube (Argon Sealed)	250*	**N2410697**
CHNS/Oxygen Reduction Furnace	N/A	**N2410698**

*Estimated runs derived by PerkinElmer under ideal conditions, actual customer runs may vary.

Tubes

Description	Part No.
2400 CHN Kit	
Combustion and Reduction Tube and Reagent Kits and Tin Capsules. Quartz wool not included.	**N2410683**
2400 CHNS Kit	
Combustion/Reduction Tube, Reagent Kits and Tin Capsules. Quartz wool not included.	**N2410684**
CHN Prepacked Tube Kit	
One prepacked combustion tube and 3 prepacked combustion tubes.	**N2410506**
CHNS Prepacked Tube Kit	
Four prepacked CHNS combustion tube and a prepacked reduction furnace tube.	**N2410507**
O Prepacked Tube Kit	
One prepacked O combustion tube, 1 prepacked reduction furnace tube, and 4 prepacked scrubbing tubes.	**N2410513**
2400/2410 Maintenance Kit	
Includes O-Rings, Washers, Fuses and Springs Required for Routine Maintenance of the 2400 or 2410 Elemental Analyzers	**N2410152**

Packing Supplies

Description	Part No.
Silver Gauze Strip (Pkg 1)	**N2410145**
Plantinum Gauze Strip (Pkg 1)	**N2411273**
Quartz Wool, (50 g)*	**02401118**
Copper Diffusion Plug, each	**N2411333**

*Only sold in the US due to export restrictions.

Calibration Standards

Description	Size	Part No.
Acetanilide	2 g	**02401121**
Benzoic Acid	4 g	**02401120**
Cystine	4 g	**N2410324**
EDTA	100 g	**N2410325**
Sulfamic Acid	10 g	**N2410501**

PerkinElmer genuine reagents will assure consistent and accurate results.

Reagents

Description	Part No.
EA-1000, (50 g)	**N2410092**
EA-1000, (3 x 50 g)	**N2410166**
Silver Tungstate/Magnesium Oxide, (100 g)	**02401344**
Silver Tungstate/Magnesium Oxide, (3 x 100 g)	**N2410165**
Silver Vanadate, (40 g)	**02401117**
Silver Vanadate, (3 x 40 g)	**N2410164**
EA-6000, (50 g)	**N2410278**
EA-6000, (5 x 50 g)	**N2410331**
Platinized Carbon, (10 g)	**02400119**
Copper Plus, (454 g)	**02400117**
Copper Plus, (10 x 454 g)	**N2410157**
Copper Plus – Wire Form, (454 g)	**02401362**
Copper Plus – Wire Form, (5 x 454 g)	**N2410332**
Copper for Nitrogen, (454 g)	**N2411527**
Copper for Nitrogen, (10 x 454 g)	**N2410518**
Coopper Oxide – Wire Form, (454 g)	**02401092**
Aquasorb, (25 g)	**N2410277**
Colorcarb, (100 g)	**02400115**
Colorcarb, (3 x 100 g)	**N2410188**
Magnesium Perchlorate, (454 g)	**02401119**
Magnesium Perchlorate, (3 x 454 g)	**N2410191**
Thermolite, (100 g)	**02400815**

Receptacles

Description	Qty.	Part No.
Quartz Tube Insert	1	**N2411401**
Vial Receptacle, Metal (CHN Mode and 2410)	1	**N2411335**
Vial Receptacle, Metal (CHNS and Oxygen Modes)	10	**N2410177**
Vial Receptacle, Ceramic	1	**09904866**
Zirconia Cloth	1	**N2410168**

Sample Capsules and Sealers

Tin Capsules

For analysis of nonvolatile solid samples.

Description	Dims.	Qty.	Part No.
Standard Tin Capsule Kit	5 mm x 7 mm	96	**N2411255**
Standard Tin Capsule Kit, (pkg. 10)	5 mm x 7 mm	960	**N2410155**
Large Tin Capsule Kit	7 mm x 14 mm	250	**N2411362**

Flat Tin Disks

For analyzing 13 or 25 mm filters.

Description	Qty.	Part No.
Flat Tin Disks	100	**N2411363**
Flat Tin Disks, (pkg. 10)	1000	**N2410244**

Aluminum Capsules

For analyzing volatile liquid samples. Requires, but does not include, Liquid Sample Sealer (B0198093) and Tin Capsules.

Description	Qty.	Part No.
Aluminum Capsules, 4 µL	1,000	**02400642**
Aluminum Capsules, 30 µL	1,000	**00090709**

Tin Pans and Covers

For volatile liquid or solid samples, including viscous materials. Requires, but does not include, Volatile Sample Sealer (02190061).

Description	Qty.	Part No.
Volatile Tin Sample Pans and Covers	400	**N2410320**

Silver Capsules

For analyzing organic substances with Oxygen Analysis.

Description	Qty.	Part No.
Silver Capsules	96	**N2411364**

Sample Sealers

For use with volatile, nonviscous, noncorrosive samples.

Description	Part No.
Liquid Sample Sealer	**B0198093**
Spare Magazine for Liquid Sample Sealer	**B0501078**
Volatile Sample Sealer	**02190061**

Combustion and Pyrolysis Tubes

Tubes

PerkinElmer tubes are composed of pure fused quartz which is 99% SiO_2. Fused quartz has been chosen because of its very high purity and low thermal expansion rate. Because we care about your safety, all combustion tubes are pressure-tested to eliminate any tubes which might contain weak spots. In addition, stringent specifications are used to ensure that the combustion tubes fit in an airtight connection when placed in the analyzer.

Type	Material	Analyzer	Mode	Qty.	Part No.
Combustion	Quartz	2400	CHN	1	**N2411264**
Combustion	Quartz	2400	CHN	3	**N2410212**
Combustion	Quartz	2400	CHN	10	**N2410153**
Combustion/ Reduction	Quartz	2400	CHNS	1	**N2411514**
Combustion/ Reduction	Quartz	2400	CHNS	5	**N2410330**
Combustion/ Reduction	Stainless Steel	2410	Nitrogen	1	**N2421070**
Pyrolysis	Quartz	2400	Oxygen	1	**N2411235**
Reduction	Quartz	2400	Oxygen & Sulfer	1	**N2411300**
Reduction	Quartz	2400	CHN	1	**N2411291**
Reduction	Quartz	2400	CHN	10	**N2410154**
Scrubber	Pyrex®	2400/ 2410	Oxygen & Nitrogen	1	**N2411359**

PART NUMBER INDEX

Part No.	Page
00080100	207, 214, 216, 217, 218, 220
00090652	213, 296
00090699	117, 121
00090709	299
00091279	215
00091357	116
00091667	217
00230090	157, 241
00230091	241
00230111	112
00230177	112
00230178	112
00230253	241
00230522	243
00230523	212
00402237	152
00402239	148
00402240	148
00402241	148
00402243	148
00403053	148
00470258	90
00470988	21
00472014	21
00472020	34
00472022	34, 41
00473292	54
00473550	60
00473552	60
00570559	90
00570567	90
00570948	21
00570984	21, 24
00572561	21
00572615	24
00572624	21
00873032	162, 168
00873035	161
00873036	161
00890873	162
00890893	152
00890945	162
00891480	161, 168
00891542	152
00891543	152
00891544	152
00903094	58
01541496	293
01541498	293
01860436	261
01860796	255
01860954	255
01862289	261
01862292	261
01862295	261
01862301	265
02190041	290
02190042	291
02190045	292
02190048	290
02190061	299
02190062	290
02190071	295
02190136	292
02190322	293
02191269	293
02192005	290
02200550	258
02400115	298
02400117	298
02400119	298
02400642	299
02400815	298
02401092	298
02401117	298
02401118	298
02401119	298
02401120	298
02401121	298
02401344	298
02401362	298
02506483	157, 293
02506495	59, 164
02506516	41, 58
02506519	293
02507060	168
02507907	293
02507987	21
02508080	60
02509115	91
02540154	158
02540177	158
02540197	158
02540272	160
02540274	162
02540276	158
02540311	160
02540838	161
02540871	160
02542076	158
02542313	158
02542783	100
02542880	100
02542881	100
02542882	100
02542883	100
02542884	100
02542885	100
02542886	100
02542890	112
02542891	112
02542892	112
02542893	112
02542900	100
02542901	100
02542902	100
02542903	100
02542904	100
02542905	100
02542906	100
02542907	100
02542908	100
02542909	100
02542910	100
02542911	100
02542912	100
02542913	100
02542914	100
02542915	100
02542916	100
02542917	100
02542918	100
02542919	100
02542920	100
02542921	100
02542922	100
02542923	100
02542924	100
02542925	100
02542926	100
02542927	100
02542928	100
02542929	100
02580164	147
02580166	147
02580168	147
02580169	147
02580178	160, 165
02580191	147
02580192	147
02580194	147
02580195	147
02580202	147, 165
02580203	147
02580204	147
02580213	147
02580223	165
02580225	153
02711441	161
02712266	155
02712273	155
02900540	73
03030106	90
03030133	25
03030135	25
03030204	90
03030264	90
03030284	90
03030299	24
03030349	90
03030352	24
03030354	24, 25
03030402	24, 25
03030404	24
03030405	25
03030433	24
03030447	90
03030448	90
03030793	17
03030997	17
03030998	17
03031573	21
03031573	21
03031806	24
03190025	291
03190026	291

Part No.	Page
03190029	291
03190030	292
03190031	292
03190033	292, 293, 295
03190034	292, 295
03190035	292, 295
03190036	292, 293, 295
03190218	291
03190253	294
03190264	295
03190265	294
03190461	293
03191047	291
03191628	294
03191705	293
03300806	116
03300865	219
03300866	219
03300904	204
03300905	207
03302775	219
03302777	219
03302778	219
03302973	219
03302976	219
03302979	219
03302989	219
03303598	219
03303599	219
03303773	219
04190197	207, 293
04190299	292
04800514	261
04810949	261
04820519	261
04821008	257
04821131	257
04821132	257
04960691	265
04967843	265
04967845	258, 265
04967854	265
04969486	155, 286
04970673	225
04977042	261
04977043	261, 265
04978064	225
04978499	284
04978532	116
5085685	262
6008103	262
6008104	262
7002356	262
7005386	262
7005397	262
7005398	262
07110001	146
07110002	146
07110003	146
07110004	146
07110005	146
07110006	146

Part No.	Page
07110013	146
07110014	146
07110015	146
07110016	146
07110017	146
07110018	146
07110019	146
07110020	146
07110021	146
07110022	146
07110023	146
07110024	146
07110025	146
07110027	146
07110028	146
07110029	146
07110031	146
07110032	146
07110033	146
07110034	146
07110037	146
07110039	146
07110041	146
07110042	146
07110043	146
07110044	146
07110045	146
07110046	146
07110047	146
07110055	135, 145
07110056	135, 145
07110057	135, 145
07110058	135, 145
07110059	135, 145
07110060	135, 145
07110061	145
07110062	145
07110064	145
07110066	145
07110073	135, 145
07110074	135, 145
07110075	135, 145
07110076	135, 145
07110077	135, 145
07110085	149
07110086	152
07110087	149
07110088	152
07110089	149
07110090	152
07110091	149
07110092	152
07110093	149
07110095	149
07110096	152
07110098	152
07110100	152
07110102	152
07110105	152
07110106	152
07110114	149
07110163	149

Part No.	Page
07110165	149
07110166	149
07110189	151
07110190	151
07110191	151
07110192	151
07110231	135, 145
07110232	135, 145
07110233	135, 145
07110234	135, 145
07110235	135, 145
07110236	135, 145
07120001	141
07120005	141
07120012	141
07120016	141
07120019	141
07120023	141
07120033	135
07120040	135
07120043	135
07120070	135
07120073	135
07120096	135
07120097	135
07120099	135
07150001	153
07150002	153
07150005	153
07150006	153
07150012	152
07150013	153
07150014	153
07150015	153
07150016	153
07150017	153
07150018	153
07150019	153
07150020	153
07150021	153
07150022	153
07150023	152
07150024	152
07150025	153
07150026	152
07150028	153
07150029	153
07150030	153
07150031	153
07150032	153
07607537	262
09200064	45
09200078	42
09200079	25
09200091	225
09200122	21, 25
09200253	21, 25
09200271	25
09200272	25
09200273	25
09200274	25
09200275	25

PART NUMBER INDEX

Part No.	Page
09200276	25
09200277	25
09200278	25
09200369	25
09210011	51, 54, 55
09210012	54, 55
09220102	160
09220120	122
09220122	122
09410105	123
09902005	24, 25
09902006	42
09902015	24, 25, 42
09902018	158
09902033	48
09902045	42
09902102	25
09902123	57, 59
09902128	158
09902131	42
09902143	45, 214
09902147	21, 25
09902155	45
09902163	294
09902207	41, 42
09902219	21
09902223	42
09902236	21
09902239	24, 25
09902240	21
09902247	42, 216
09902473	24
09903004	293
09903094	41, 58
09903128	209
09903150	41
09903289	162, 168
09903392	204, 209
09903394	200
09903395	200
09903456	58
09903464	58
09903465	58
09903606	160
09903610	160
09903615	160
09903700	200
09903771	157, 162, 168
09903891	162, 168
09903906	157, 293
09903980	162, 168
09903981	200
09904800	166
09904802	163, 166
09904805	166
09904822	165, 213
09904823	165, 212, 213
09904845	91
09904846	91
09904849	160, 165, 168
09904866	298
09904937	165, 213
09904941	165, 212, 213
09904943	165, 213
09904947	162, 168
09904956	162, 168
09904974	162, 168
09904991	21, 25, 38
09905147	56
09907120	91
09907126	154
09907127	241
09907128	241
09907233	168
09907338	158
09907339	158
09907345	158
09907827	214
09907925	29
09908134	293
09908138	292, 295
09908265	24, 25, 37
09908324	158
09908397	295
09908400	292, 293, 295
09908467	291
09908585	58, 60
09908587	60
09908851	225
09919737	59
09920104	200, 207, 228
09920105	200, 204, 228
09920107	200
09920127	228
09920140	204
09920141	200
09920301	204, 209
09920381	162, 168
09920382	162, 168
09920483	24
09920513	168
09920515	48
09920518	48
09921004	207, 209
09921028	41, 42
09921036	45
09921044	21
09921045	37, 48
09921057	45
09921061	42
09921062	42, 45
09923031	114
09923032	114
09923037	60
09923078	214
09923219	168
09923270	168
09923304	168
09923305	168
09923306	168
09923307	168
09923366	158
09923367	158
09923448	60
09923464	91
09923517	91
09923536	60
09926070	42
09926083	25
09926126	24
09926127	25
09938910	160
09972321	216
09985708	37, 48
09985723	48
09988015	295
09988017	295
09989859	45
09992731	45
09995097	91
09995098	91
10070900	163
29000542	154
29000544	154
29000545	154
51000634	259
51000636	259
51000638	259
51000817	259
51001135	257
51001137	257
51001140	257
51001141	257
51001144	261
51001148	261
51001149	261
51001152	261
51001188	256
51001324	256
51001325	256
51001326	256
51001327	256
51001328	256
51001329	256
51002592	261
51002593	261
51004599	261
52019600	286
52123130	289
52123164	289
52123814	289
52126027	287
54120790	225
B0017041	283
B0017047	283
B0017052	283
B0017054	283
B0017057	283
B0017059	283
B0017998	67
B0018283	64, 67
B0022087	283
B0023363	283
B0023491	283
B0023492	283
B0029792	67

Part No.	Page
B0029796	67
B0038137	119
B0041693	283
B0041695	283
B0041696	283
B0046948	67
B0048139	64, 67
B0062666	283
B0066549	66
B0070126	67
B0070699	30
B0071519	279
B0080259	31
B0080819	278
B0080821	275
B0080822	275
B0086703	279
B0087056	26
B0087600	26
B0091504	30
B0094404	283
B0098799	283
B0098800	283
B0099814	119
B0101164	26
B0102332	26
B0104236	118
B0104239	119, 120
B0104240	119
B0104241	119, 120
B0104242	119
B0104243	119, 120
B0104244	119
B0104281	26
B0104344	26
B0105197	30
B0105973	26
B0105974	26
B0110728	119
B0114620	268
B0119079	26
B0121092	30
B0128495	31
B0129258	26
B0129303	26
B0131186	283
B0131385	228
B0132799	26
B0135653	30
B0137111	30
B0137113	30
B0137314	279
B0139005	290
B0139122	292
B0142512	292
B0143003	290
B0143004	290
B0143015	290
B0143016	290
B0143017	290
B0143018	290
B0143019	290
B0143020	290
B0143021	290
B0143263	292
B0144169	228
B0152471	275
B0159356	119
B0159357	119
B0165332	24
B0169319	290
B0169320	290
B0169321	290
B0172053	63
B0174378	24
B0181091	290
B0182864	291
B0182901	291
B0182902	291
B0182903	291
B0182981	292
B0185210	276
B0185227	278
B0187028	277
B0187258	67
B0190634	29, 31, 73
B0190635	29, 31, 73
B0190672	24
B0191058	67
B0191059	67
B0191060	63, 62, 67
B0193161	62, 67
B0193233	65
B0193234	65
B0193235	65
B0193342	66
B0193772	67
B0193873	66
B0194048	67
B0194049	67
B0196704	66
B0196850	66
B0196857	66
B0196858	290
B0196882	66
B0196912	282
B0198005	29
B0198030	290
B0198093	299
B0198097	67
B0198099	67
B0198100	67
B0198110	120, 228
B0198201	66
B0199034	62, 67
B0199035	66
B0199233	58, 66
B0500748	29
B0500833	120, 228
B0500952	275
B0500959	228
B0500987	228
B0501000	67
B0501056	64
B0501078	299
B0501236	29
B0501282	281
B0501315	67
B0501377	120
B0501580	66
B0501594	67
B0501595	67
B0501696	91
B0502706	91
B0503956	228
B0504033	28
B0504035	29
B0504036	29
B0505057	30
B0505071	275
B0505086	24
B0505284	281
B0505480	24
B0505530	280, 281
B0505590	24
B0505677	167
B0505983	24
B0506058	62, 67
B0506060	67
B0506143	24
B0506716	66
B0506722	29
B0506737	62
B0507020	67
B0507021	67
B0507226	73
B0507403	283
B0507447	283
B0507451	283
B0507486	66
B0507487	66
B0507692	62, 67
B0507805	269
B0507918	66
B0507919	64, 66
B0507920	66
B0507921	66
B0507949	66
B0507957	67
B0507959	67
B0507962	67
B0508306	67
B0508310	62, 67
B0508520	64
B0508901	65, 262
B0509065	29
B0509479	67
B0509546	282
B0509554	64
B0509555	64
B0509591	282
B0509612	67
B0510032	67
B0510334	66
B0510364	228
B0510366	277

Part No.	Page
B0510370	66
B0510397	26
B0510398	26
B0510412	277
B0510581	283
B0510800	290
B0631001	270
B0631002	270
B0631003	270
B0631004	270
B0631005	270
B0631006	270
B0631007	270
B0631008	270
B0631009	270
B0631010	270
B0631011	270
B0631012	270
B0631013	270
B0631014	270
B0631015	270
B0631016	270
B0631017	270
B0631018	270
B0631019	270
B0631020	270
B0631021	270
B0631023	270
B0631025	270
B0631026	270
B0631027	270
B0631028	270
B0631029	270
B0631030	270
B0631031	270
B0631032	270
B0631033	270
B0631034	270
B0631035	270
B0631036	270
B0631039	271
B0631042	271
B0631045	271
B0631046	271
B0631047	271
B0631048	271
B0631049	271
B0631051	271
B0631057	271
B0631060	271
B0631064	271
B0631065	271
B0631066	271
B0631070	271
B0631071	271
B0631076	271
B0631077	271
B0631079	271
B0631080	271
B0631081	271
B0631082	271
B0631083	271

Part No.	Page
B0631084	273
B0631085	273
B0631087	273
B0631088	273
B0631089	273
B0631090	273
B0631091	273
B0631092	273
B0631093	273
B0631094	273
B0631095	273
B0631096	273
B0631097	273
B0631098	273
B0631099	273
B0631100	273
B0631101	273
B0631102	273
B0631104	284
B0631107	284
B0631110	284
B0631113	284
B0631115	284
B0631116	284
B0631117	284
B0631118	284
B0631119	285
B0631120	285
B0631121	285
B0631122	285
B0631123	285
B0631124	285
B0631125	285
B0631126	285
B0631127	285
B0631128	273
B0631129	273
B0631130	273
B0631131	273
B0631132	284
B0631134	270
B0631142	285
B0631145	273
B0631149	273
B0631150	273
B0631151	273
B0631152	273
B0810377	45
B0851900	29
B2000159	277
B2000160	277
B2000186	276
B2000310	276
B2100154	283
B2190036	281
B2205021	281
B2205022	281
B2500099	269
B2500100	269
B2500127	273
B2500129	273
B3000055	63

Part No.	Page
B3000132	64
B3000133	64
B3000135	64
B3000151	63
B3000152	63
B3000157	63
B3000158	63
B3000159	63
B3000160	63
B3000161	63
B3000243	66
B3000274	66
B3000342	30
B3000641	28
B3000653	28
B3000655	28
B3001253	30
B3001254	30
B3001256	31
B3001262	30
B3001264	30
B3001485	26
B3001505	26
B3001506	26
B3001507	26
B3001566	26
B3001567	26
B3001647	64
B3001769	63
B3001770	63
B3001771	63
B3001772	63
B3002006	26
B3002007	26
B3002046	26
B3002102	29
B3002103	29
B3120405	29
B3121301	31
B3130086	31
B3140236	64
B3140361	29
B3140362	29
B3140617	64
B3140618	64
B3140621	64
B3140622	64
B3140715	64
B3140721	62, 64
B3140730	62, 64
B3141064	73
B3150458	24
B3150525	24, 25
B3150531	24
B4000011	228
B4000022	119
B4000025	119
B4000028	119
B7001014	290
C0550303	275
C6951014	280
C6951019	280

Part No.	Page
CP183700	276
ED020005	162
ED020015	161
ED020016	161
L0171159	267
L1003006	225
L1003008	225
L1003015	225
L1003027	224
L1003028	224
L1003029	225
L1003030	224, 225
L1060351	261
L1180479	263
L1180480	263
L1180490	263
L1181303	258
L1185153	267
L1191079	262
L1191081	262
L1191082	262
L1200219	263
L1200253	263
L1200311	250
L1200312	250
L1200313	252
L1200314	252
L1200315	252
L1200316	252
L1200321	252
L1200323	252
L1200324	252
L1200325	252
L1200333	252
L1200334	252
L1200335	252
L1200336	252
L1200337	252
L1200338	252
L1200343	252
L1200344	252
L1200345	252
L1200346	252
L1200351	254
L1200406	263
L1200443	263
L1200551	262
L1200552	262
L1200553	262
L1200555	262
L1200556	262
L1200557	262
L1200558	262
L1200559	262
L1200560	262
L1200574	262
L1200587	262
L1200588	262
L1200589	262
L1201654	254
L1201655	254
L1201865	254

Part No.	Page
L1201944	252
L1201980	252
L1202023	252
L1202024	252
L1202049	252
L1202050	252
L1202057	263
L1205436	252
L1240098	263
L1241446	263
L1242701	267
L1250046	252
L1250048	252
L1250050	250
L1250051	250
L1250052	250
L1250053	250
L1250054	250
L1250220	262
L1250240	252
L1250241	252
L1250242	252
L1250311	263
L1250404	263
L1250425	263
L1250462	263
L1250474	263
L1250475	263
L1251840	263
L1270301	257
L1270402	257
L1270404	257
L1270408	257
L1270409	257
L1270410	257
L1270421	257
L1270512	257
L1270664	257
L1270665	257
L1270666	257
L1270765	257
L1270766	257, 258
L1270941	258
L1270942	258
L1270944	258
L1270947	258
L1270948	258
L1270949	258
L1270951	258
L1270952	258
L1270954	258
L1270957	258
L1270958	258
L1270959	258
L1270961	258
L1270962	258
L1270964	258
L1270967	258
L1270968	258
L1270969	258
L1270970	258
L1270986	257

Part No.	Page
L1271021	254
L1271102	257, 258
L1271191	257
L1271192	257
L1271193	257
L1271194	257
L1271195	257
L1271202	257, 258
L1271250	257
L1271602	257, 258
L1272002	257, 258
L1272102	257
L1272126	250
L1272127	250
L1272130	253
L1272131	253
L1272133	253
L1272240	255
L1272243	255
L1272247	255
L1272248	255
L1272249	264
L1272265	265
L1272266	265
L1272267	265
L1272268	265
L1272274	253
L1272275	253
L1272276	253
L1272277	253
L1272282	259, 264
L1272283	259
L1272284	259
L1272288	259
L1272289	259
L1272290	259
L1272291	260
L1272292	260
L1272293	260
L1272294	260
L1272298	260
L1272299	259
L1272300	259
L1272301	259
L1272302	259
L1272303	259
L1272307	260
L1272313	253
L1272314	253
L1272315	253
L1272316	253
L1272317	253
L1272318	253
L1272319	253
L1272320	253
L1272321	253
L1272323	253
L1272324	253
L1272325	253
L1272331	253
L1272332	253
L1272333	253

Part No.	Page
L1272334	253
L1272335	253
L1272336	253
L1272337	250
L1272338	253
L1272339	253
L1272340	253
L1272341	253
L1272342	253
L1272344	254
L1272345	254
L1272346	254
L1272347	254
L1272348	254
L1272349	254
L1272350	254
L1272351	254
L1272352	254
L1272354	259
L1272355	259
L1272356	259
L1272357	259
L1272358	259
L1272359	260
L1272361	255
L1272364	260
L1272365	260
L1272366	260
L1272367	260
L1272368	260
L1272369	260
L1272370	259
L1272372	251
L1272373	253
L1272374	253
L1272375	254
L1272376	255
L1272377	255
L1272380	252
L1272381	251
L1272382	255
L1272383	255
L1272384	250
L1272386	251
L1272387	251
L1272388	251
L1272389	251
L1272390	251
L1272391	251
L1272392	251
L1272393	251
L1272394	251
L1272395	251
L1272396	251
L1272397	251
L1272398	251
L1272399	251
L1272400	251
L1272401	251
L1272402	251
L1272403	254
L1272405	254

Part No.	Page
L1272406	254
L1272407	251
L1272409	254
L1272410	254
L1272412	251
L1272414	251
L1272422	253
L1272423	251
L1272425	253
L1272426	253
L1272427	253
L1272428	253
L1272433	252
L1272440	260
L1272443	251
L1272450	255
L1272451	255
L1272452	255
L1272453	255
L1272454	255
L1272455	255
L1272456	255
L1272457	255
L1272458	254
L1272459	254
L1272461	254
L1272462	254
L1272463	254
L1272470	259
L1272471	259
L1272472	260
L1272473	260
L1272474	260
L1272475	260
L1272480	260
L1272481	260
L1272482	260
L1272483	250
L1272484	253
L1272485	253
L1272486	253
L1272487	253
L1272490	262
L1272490R	262
L1272491	261
L1272492	261
L1272493	261
L1272494	261
L1272495	262
L1272496	262
L1272498	262
L1272503	250
L1272504	250
L1272505	250
L1272506	250
L1272511	250
L1272512	250
L1272513	250
L1272514	250
L1275102	254
L1275105	254
L1275106	254

Part No.	Page
L1280064	252
L1280065	252
L1280066	252
L1280069	250
L1280301	250
L1280302	250
L1280303	250
L1280304	250
L1280305	250
L1280306	254
L1280308	250
L1280312	250
L1280321	250
L1280322	250
L1280323	254
L1281920	267
L1281921	267
L1281922	267
L1281923	267
L1281924	267
L1281925	267
L1281926	267
L1281927	267
L1281928	267
L1281929	267
L1281930	267
L1281931	267
L1281932	267
L1281933	267
L1281934	267
L1360266	252
L1360267	252
L1360268	252
L1360269	252
L1360270	252
L1360271	252
L1360272	252
L1360273	252
L1360275	252
L1365311	265
L1365312	265
L1600107	250
L1600109	250
L1600111	254
L1600113	250
L1600114	250
L1600115	250
L1600116	250
L1600119	255
L1600130	258
L1600233	262
L1600238	262
L1600241	262
L1600242	262
L1600243	262
L1600243	263
L1600244	262, 263
L1600246	262
L1600350	262
L1608001	265
L1608002	265
L1608003	266

Part No.	Page
L1608004	266
L1608005	266
L1608006	266
L1608007	266
L1608008	266
L1608009	266
L1608010	266
L1608012	266
L1608013	266
L1608015	266
L1608022	265
L1610021	262
L1610022	262
L1610023	262
L1610028	262
L1860268	264
L1860269	264
L1860275	264
L1860298	264
L1860317	264
L1860318	264
L1860319	264
L1860334	264
L1860361	264
L1860409	264
L1861634	264
L2250035	288
L2250042	288
L2250101	289
L2250134	287
L2250135	288
L2250136	287
L2250138	288
L2250139	285
L2250140	287
L2250141	287
L2250144	289
L2250145	287
L2250150	287
L2251157	155, 286
L2251293	286
L2251692	288
L2258003	287
L2258004	287
L4070023	224
L4070207	225
L4070208	225
L4071029	225
L4071034	225
L4071123	225
L4071151	224
L4071594	225, 227
L4135472	216
L4270009	224
L4270010	224
L4270128	227
L4270129	227
L4271106	224
L4271187	224, 225
L4271203	224
L4271205	224
L4271290	224, 225

Part No.	Page
L4275009	224, 225
L4275072	224
L4275089	224, 225
L4275107	224
L4275108	224
L4275110	224, 225
L6020202	279
L6020203	280
L6020204	280
L6020208	279
L6020209	280
L6020211	280
L6020281	286
L6020290	282
L6020313	280
L6020322	280
L6020323	280
L6020328	282
L6020329	269
L6020358	279
L6020371	280
L6020372	280
L6022018	280
L6022022	280
L6022023	280
L6022024	280
L6022025	280
L6022728	268
L6301054	225
L6310010	278
L6310011	278
L6310012	278
L6310013	278
L6310014	278
L7110260	274
L7110261	274
L7110262	274
L7110264	274
L7110265	274
L7110266	274
L7110267	274
L7110268	274
L7110269	274
L7110271	274
L7110272	274
L7110273	274
L7110274	274
L7110275	274
L7110289	272
L7110290	272
L7110290	272
L7110291	272
L7110292	272
L7110293	272
L8040200	293
L8040201	293
L8040202	293
L8041600	293
L8041601	293
L8041800	293
L8041801	293
L8041802	293

Part No.	Page
L8041803	293
L8041804	293
L8041808	293
L8041809	293
L90004786	291
L90004787	290
L90004788	290
L9004128	262
L9004196	267
L9004198	262
L9004199	262
L9004200	262
L9004319	250
L9004573	267
L9004574	267
L9004575	267
L9004578	267
L9004741	283
L9004783	293
L9004892	267
M0410094	225
M0413535	224
M0413592	228
M0413593	228
M0413595	225, 227
M0413597	227
M0413598	225, 227
M0413625	225
M0413627	224
M0413628	224. 228
MZ101903-17	123
MZ105057-60180	123
MZ105094	123
MZ108391-5001	122
MZ108391-5002	122
MZ109004	123
MZ109017	123
MZ109197	123
MZ300061	122
MZ300085	122
MZ300095	122
MZ300096	122
MZ300503	123
MZ301193	123
MZ301198	122
MZ301199	122
MZ301236	123
MZ305382	123
MZ305385	123
MZ321146	88
MZ321147	88
MZ331300	122
MZ331301	122
N0171159	263
N0370392	21, 24
N0370393	24
N0370394	24
N0371505	37
N0400058	21, 25
N0400100	20, 21
N0400101	20, 21
N0400102	20, 21

PART NUMBER INDEX

Part No.	Page
N0400103	20, 21
N0401171	21
N0580531	91
N0581455	45
N0581497	45
N0582152	78
N0582184	44
N0582185	44
N0582186	44
N0582251	91
N0680275	45
N0680504	34
N0680504	37, 48, 52
N0680612	48
N0681470	78
N0681574	34, 48
N0681631	54
N0681690	42
N0690269	44
N0690271	38
N0690568	42
N0690610	40
N0690640	39
N0690666	45
N0690668	45
N0690670	37
N0690672	45
N0690676	37
N0690712	40
N0690720	39
N0690769	44
N0690772	45
N0690812	40
N0691579	72
N0691580	78
N0691581	70, 78
N0691595	60
N0691662	42
N0691664	42
N0691678	45
N0691689	45
N0691745	70
N0691907	87
N0695295	42
N0695362	44
N0695379	42
N0695442	44
N0695449	44
N0695456	42
N0695460	44
N0695461	44
N0695476	60
N0695477	55
N0695494	44
N0695495	44, 54
N0770322	45
N0770336	37
N0770338	41, 42
N0770343	42
N0770344	42
N0770357	39, 41
N0770358	37, 41
N0770420	41
N0770437	42
N0770438	44
N0770546	37, 41
N0770600	38, 40
N0770603	44
N0770606	40
N0770607	40
N0770609	40
N0770610	37
N0770613	38
N0770614	38, 41
N0770689	41
N0770730	41
N0770731	41
N0770732	41
N0770910	40
N0770911	40
N0770916	42
N0770944	45
N0770965	41
N0771116	45
N0771500	41, 42
N0771501	39, 41
N0771526	44
N0771527	44
N0771529	63
N0771531	41, 44
N0771536	45
N0771561	42
N0771725	47
N0771726	47
N0772005	41, 42
N0772006	41
N0772008	42
N0772017	38
N0773084	45
N0773090	45
N0773106	47
N0773111	60
N0773112	60, 61
N0773113	58, 60
N0773114	39
N0773115	60
N0773116	60
N0773117	60
N0773118	60
N0773119	60
N0773120	81
N0773196	51
N0773197	36
N0774067	61
N0774068	61
N0774069	49
N0774070	41, 43
N0774077	36, 49
N0774080	36. 49
N0774085	64
N0774088	63
N0774095	65
N0774096	65
N0774101	38
N0775014	44
N0775177	41, 44
N0775220	91
N0775223	44
N0775224	44
N0775225	44
N0775226	44
N0775227	44
N0775228	44
N0775247	44
N0775289	41, 42
N0775297	41, 42
N0775300	45
N0775325	91
N0775330	34
N0775331	37
N0775340	35, 49
N0775341	49
N0775342	49, 58
N0775343	49
N0775344	49
N0775345	35
N0775346	34
N0775347	34
N0775348	34
N0775349	34
N0775350	52
N0775351	38
N0775352	39, 58
N0775355	39
N0775356	39
N0775358	35, 49
N0776006	38
N0776007	38
N0776014	41
N0776025	41
N0776052	38, 41
N0776053	39
N0776090	39, 41
N0776091	41, 44
N0776093	41, 44
N0776099	87
N0776103	84
N0776104	83
N0776105	83
N0776106	83
N0776107	83
N0776108	83
N0776109	83
N0776116	65
N0776118	65
N0777031	34
N0777032	34
N0777033	34
N0777034	51
N0777035	51
N0777042	59, 60
N0777043	60
N0777044	44
N0777049	36
N0777051	43
N0777052	43

Part No.	Page
N0777053	43
N0777054	43
N0777055	43, 55
N0777061	36, 49
N0777062	64
N0777063	84
N0777064	84
N0777071	65
N0777072	65
N0777095	87, 91
N0777110	60
N0777111	34
N0777112	34
N0777113	34
N0777114	34
N0777115	34
N0777116	34
N0777117	34
N0777148	64
N0777149	64
N0777150	64
N0777151	64
N0777152	64
N0777153	64
N0777154	64
N0777155	64
N0777156	65
N0777159	65
N0777167	65, 262
N0777168	65
N0777169	64
N0777219	36
N0777220	50
N0777221	63
N0777222	63
N0777223	63
N0777224	63
N0777225	63
N0777226	63
N0777227	63
N0777228	64
N0777229	64
N0777230	64
N0777231	64
N0777232	64
N0777233	64
N0777234	64
N0777235	64
N0777242	64
N0777243	64
N0777244	64
N0777245	64
N0777246	64
N0777247	64
N0777248	64
N0777249	64
N0777250	64
N0777251	64
N0777252	64
N0777253	64
N0777266	63
N0777267	63
N0777285	63
N0777286	63
N0777298	64
N0777328	91
N0777359	91
N0777360	91
N0777364	53
N0777413	36
N0777414	34
N0777415	55
N0777416	55
N0777417	55
N0777419	55
N0777420	55
N0777435	36, 49
N0777436	36, 49, 61
N0777437	36, 49
N0777438	38, 52
N0777439	38, 52
N0777441	60
N0777442	60
N0777443	60
N0777444	59, 60
N0777445	60
N0777446	60
N0777447	60
N0777460	34, 36, 48
N0777462	36, 49
N0777463	36, 49, 61
N0777464	36, 49, 61
N0777465	61
N0777466	61
N0777476	60
N0777484	49
N0777485	49
N0777486	49
N0777487	35
N0777488	35
N0777489	35
N0777490	35
N0777494	38
N0777495	39
N0777496	39
N0777497	39
N0777508	43
N0777509	43
N0777510	43
N0777511	89, 123
N0777512	36, 49
N0777513	36, 49
N0777514	36, 49
N0777518	60
N0777521	60
N0777547	63
N0777561	60
N0777565	63
N0777568	63
N0777599	65, 262
N0777602	46
N0777603	46
N0777604	46
N0777605	46
N0777606	46
N0777607	46
N0777608	46
N0777609	46
N0777610	46
N0777611	46
N0777612	46
N0777613	89
N0777676	36
N0777681	89
N0777682	89
N0777689	89
N0777690	89
N0777691	65
N0777692	65
N0777693	65
N0777694	65
N0777695	65
N0777696	65
N0777697	65
N0777698	65
N0777699	65
N0777700	65
N0777701	65
N0777702	65
N0777703	65
N0777704	65
N0777705	65
N0777706	65
N0777707	34
N0777707	41
N0777710	91
N0777711	60
N0777712	35, 49
N0777713	35
N0777714	35
N0777715	43
N0777719	89
N0777731	39, 41
N0777734	35
N0777735	35
N0777736	35
N0777737	35
N0777738	35
N0777783	47
N0777784	47
N0777785	47
N0777840	43
N0777841	43
N0777842	43
N0777843	43
N0777844	38, 39
N0777845	36, 49
N0777846	36, 49
N0777847	36, 49
N0777848	61
N0777870	27
N0777871	27
N0777874	60
N0777880	43
N0777881	46
N0777882	46

Part No.	Page
N0777883	46
N0777900	47, 96
N0777901	65
N0777920	88
N0777930	47
N0777940	65
N0777941	65
N0777942	65
N0780128	43
N0780130	41, 42
N0780132	41, 42
N0780133	42
N0780437	42
N0780546	37, 41
N0780606	40
N0780607	40
N0780608	41
N0780616	41
N0780617	41
N0780676	37
N0781007	41, 44
N0781008	44
N0781009	44
N0781013	44
N0781014	41, 44
N0781015	44
N0781016	44
N0781017	44
N0781018	44
N0781019	44
N0781050	44
N0781097	41, 42
N0782004	44
N0782005	44
N0782006	44
N0782007	44
N0782008	44
N0782009	44
N0782010	44
N1010070	119
N1010504	269
N1010520	281
N1010539	269
N1010565	277
N1010566	277
N1010567	276
N1010568	276
N1010569	276
N1011210	120, 228
N1011445	204, 210
N1011446	204, 209, 210, 211
N1011447	209, 211
N1015158	278
N1016070	282
N1016071	282
N1016072	282
N1016073	282
N1016074	282
N1870151	264
N1870184	264
N1870185	264
N1870188	264

Part No.	Page
N2010245	25
N2010246	25
N2010247	25
N2010250	25
N2011074	21
N2025300	19
N2025301	19
N2025302	19
N2025303	19
N2025304	19
N2025305	19
N2025306	19
N2025307	19
N2025308	19
N2025309	19
N2025310	19
N2025311	19
N2025312	19
N2025313	19
N2025314	19
N2025315	19
N2025316	19
N2025317	19
N2025318	19
N2025319	19
N2025320	19
N2025321	19
N2025322	19
N2025323	19
N2025324	19
N2025325	19
N2025326	19
N2025327	19
N2025328	19
N2025329	19
N2025330	19
N2025331	19
N2025332	19
N2025333	19
N2025334	19
N2025335	19
N2025336	19
N2025337	19
N2025338	19
N2025339	19
N2025340	19
N2025341	19
N2025342	19
N2025343	19
N2025344	19
N2025345	19
N2025346	19
N2025347	19
N2025348	19
N2025349	19
N2025350	19
N2025351	19
N2025352	19
N2025353	19
N2025354	19
N2025355	19
N2025356	19

Part No.	Page
N2025357	19
N2025358	19
N2025359	19
N2025360	19
N2025361	19
N2025362	19
N2025363	19
N2025364	19
N2025365	19
N2025366	19
N2061174	158
N2350162	154
N2350211	154
N2351285	155
N2410092	298
N2410145	298
N2410152	298
N2410153	299
N2410154	299
N2410155	299
N2410157	298
N2410164	298
N2410165	298
N2410166	298
N2410168	298
N2410177	298
N2410188	298
N2410191	298
N2410212	299
N2410244	299
N2410277	298
N2410278	298
N2410320	299
N2410324	298
N2410325	298
N2410330	299
N2410331	298
N2410332	298
N2410501	298
N2410506	298
N2410507	298
N2410513	298
N2410518	298
N2410683	298
N2410684	298
N2410693	298
N2410694	298
N2410695	298
N2410696	298
N2410697	298
N2410698	298
N2411235	299
N2411255	299
N2411264	299
N2411273	298
N2411291	299
N2411300	299
N2411333	298
N2411335	298
N2411359	299
N2411362	299
N2411363	299

Part No.	Page
N2411364	299
N2411401	298
N2411514	299
N2411527	298
N2421070	299
N2580003	150
N2580012	150
N2580013	150
N2580020	150
N2580021	150
N2580022	150
N2580030	153
N2580042	150
N2600070	160
N2600089	160
N2600104	158
N2600124	158
N2600192	158
N2600226	158
N2600259	160
N2600284	157
N2600313	160
N2600457	157
N2600458	157
N2600459	157
N2600491	157
N2600495	157
N2600496	157
N2600497	156, 157
N2600498	156, 157
N2600499	157
N2600506	157
N2600522	156
N2600523	156
N2600570	156
N2600571	156
N2601189	157, 162, 168
N2601262	160
N2601295	160
N2601313	160
N2601316	160
N2601477	160
N2601503	160
N2601610	156
N2601611	156
N2601612	156
N2601613	156
N2601614	156
N2601615	156
N2601616	156, 165
N2601617	156
N2910035	154, 160
N2910036	154
N2910342	160
N2910343	160
N2910344	160
N2910345	154, 160
N2910346	160
N2910349	160
N2910383	154, 160
N2910384	154, 160
N2910385	160
N2910511	158
N2910512	158
N2910515	158
N2910765	165
N2911127	165
N2911170	165
N2911196	123
N2911197	123
N2911198	123
N2911199	123
N2911200	165
N2911201	165
N2911202	165
N2911203	165
N2911205	165
N2911206	165
N2911210	165
N2911211	165
N2911212	165
N2911220	159
N2911221	159, 165
N2911224	159, 165
N2911235	159
N2911236	159
N2911239	159
N2911240	159
N2911241	159
N2911244	159
N2911245	159
N2911249	159
N2911250	159
N2911251	159
N2915006	158
N2916016	160
N2916019	160
N2916052	158
N2916056	165
N2916059	161
N2916085	160
N2916200	161, 165
N2916201	165
N2916202	162
N2916210	161, 165
N2916211	161
N2916212	165
N2916213	165
N2916214	165
N2916215	165
N2916216	165
N2916217	165
N2916218	165
N2916219	165
N2916222	165
N2916223	165
N2916224	165
N2916260	165
N2916261	168
N2916262	165, 168
N2918536	159
N2920070	154
N2920117	154
N2920124	154
N2920126	154
N2920128	154
N2920146	155
N2920149	155
N2920160	154
N2920191	126
N2920193	126
N2922011	155
N2922030	154
N2922046	155
N2922082	155
N2922107	154
N2922211	154
N2925030	155
N2925090	154
N2925091	154
N2930035	167
N2930036	167
N2930037	167
N2930038	167
N2930040	167
N2930041	167
N2930042	167
N2930043	167
N2930044	167
N2930146	167
N2930147	167
N2930313	165, 168
N2930314	167
N2930660	164
N2930661	164
N2930664	164
N2930669	164
N2930672	164
N2930673	164
N2930675	164
N2930676	164
N2930801	168
N2930802	168
N2931054	166
N2931097	167
N2931199	165, 212
N2931275	160
N2932000	164
N2932001	164
N2932002	164
N2936000	165, 212
N2936003	164
N2936009	165, 212
N2936010	165, 212
N2936020	164
N2936021	164
N2936022	164
N2936042	164
N2936043	164
N2936045	164
N2936046	164
N2936048	164
N2936049	164
N2936050	164
N2936051	165, 212
N2936052	165, 212

Part No.	Page
N2936053	165, 212
N2936054	165, 212
N2936055	165, 212
N2936056	161
N2936057	161
N2936058	161
N2936059	161
N2936060	161
N2936061	161
N2936062	161
N2936063	161
N2936064	161
N2936065	161
N2936071	161
N2936072	161
N2936073	161
N2936074	161
N2936075	161
N2936076	161
N2936077	161
N2936078	161
N2936079	161
N2936080	161
N2936081	161
N2936082	161
N2936342	165, 212
N3050102	15
N3050103	14
N3050105	14
N3050107	14
N3050108	14
N3050109	14
N3050110	14
N3050111	14
N3050114	14
N3050115	14
N3050118	14
N3050119	14
N3050121	14
N3050122	14
N3050123	14
N3050124	14
N3050126	14
N3050128	14
N3050129	14
N3050130	14
N3050133	14
N3050134	14
N3050135	14
N3050137	14
N3050138	14
N3050139	14
N3050141	14
N3050142	14
N3050144	14
N3050145	14
N3050146	14
N3050148	15
N3050149	14
N3050150	14
N3050152	14
N3050155	14

Part No.	Page
N3050157	14
N3050158	14
N3050161	14
N3050162	14
N3050165	14
N3050166	14
N3050168	15
N3050170	14
N3050171	15
N3050172	15
N3050173	15
N3050174	15
N3050175	15
N3050176	15
N3050177	15
N3050178	15
N3050180	15
N3050182	15
N3050183	15
N3050184	15
N3050186	15
N3050187	15
N3050189	15
N3050190	15
N3050191	15
N3050192	15
N3050201	15
N3050202	15
N3050203	15
N3050204	15
N3050205	15
N3050206	15
N3050208	15
N3050209	15
N3050212	15
N3050213	15
N3050214	15
N3050217	15
N3050218	15
N3050302	15
N3050303	14
N3050305	14
N3050307	14
N3050308	14
N3050309	14
N3050310	14
N3050311	14
N3050314	14
N3050315	14
N3050318	14
N3050319	14
N3050321	14
N3050322	14
N3050323	14
N3050324	14
N3050326	14
N3050328	14
N3050329	14
N3050330	14
N3050333	14
N3050334	14
N3050335	14

Part No.	Page
N3050337	14
N3050338	14
N3050339	14
N3050341	14
N3050342	14
N3050344	14
N3050345	14
N3050346	14
N3050348	15
N3050349	14
N3050350	14
N3050352	14
N3050355	14
N3050357	14
N3050358	14
N3050361	14
N3050362	14
N3050365	14
N3050366	14
N3050368	15
N3050370	14
N3050371	15
N3050372	15
N3050373	15
N3050374	15
N3050375	15
N3050376	15
N3050377	15
N3050378	15
N3050380	15
N3050382	15
N3050383	15
N3050384	15
N3050386	15
N3050387	15
N3050389	15
N3050390	15
N3050391	15
N3050392	15
N3050401	15
N3050402	15
N3050403	15
N3050404	15
N3050405	15
N3050406	15
N3050408	15
N3050409	15
N3050412	15
N3050413	15
N3050414	15
N3050417	15
N3050418	15
N3050605	16
N3050611	16
N3050615	16
N3050620	16
N3050630	16
N3050634	16
N3050655	16
N3050657	16
N3050664	16
N3050670	16

Part No.	Page
N3050672	16
N3050675	16
N3050680	16
N3050683	16
N3050691	16
N3050860	16
N3050861	16
N3050862	16
N3050863	16
N3050864	16
N3050865	16
N3050866	16
N3050867	16
N3050868	16
N3050869	16
N3050870	16
N3050871	16
N3050872	16
N3050873	16
N3050874	16
N3110145	31
N3110146	30
N3110147	28
N3130100	95
N3130110	95
N3131005	96
N3131006	96
N3131007	96
N3131008	96
N3131009	96
N3131010	96
N3131011	96
N3132000	96
N3132001	97
N3132002	97
N3132003	97
N3132004	97
N3132005	97
N3132006	97
N3132007	97
N3132008	97
N3132009	96
N3132010	96
N3132011	96
N3132012	96
N3132013	96
N3132014	97
N3132015	97
N3133003	97
N3133006	97
N3133007	97
N3133008	97
N3133009	97
N3133010	97
N3133011	97
N3133012	96
N3133013	96
N3133014	96
N3133015	96
N3133016	96
N3133017	97
N3133018	97

Part No.	Page
N3133019	97
N3133021	97
N3133022	97
N3133023	97
N3133024	96
N3134000	97
N3134002	97
N3134004	97
N3134005	97
N3134007	97
N3134009	97
N3134010	97
N3134011	97
N3134012	97
N3134013	97
N3134014	97
N3134015	96
N3134064	96
N3134072	97
N3150131	17
N3150188	24
N3150230	21
N3150232	21, 25
N3150303	17
N3160143	24, 25
N3160144	24, 25
N3160146	25
N3160152	25
N3160153	25
N3160154	25
N3160156	25
N3160157	25
N3160158	25
N3160159	25
N3160179	24
N3160182	24
N3160188	25
N3160189	25
N3160192	25
N3160193	25
N3160194	25
N3160505	21, 24, 25
N3160506	21
N3160511	21, 24, 25
N3160546	21
N3160809	21
N3161040	21
N3161240	21
N5190172	294
N5190180	291
N5190196	294
N5190197	294
N5190202	294
N5190203	294
N5190264	294
N5190276	294
N5190279	294
N5190280	295
N5190282	294
N5190283	295
N5190284	294
N5190285	294

Part No.	Page
N5190330	294
N5190376	293
N5190377	293
N5190378	293
N5190393	293
N5190399	293
N5190416	293
N5190417	293
N5190515	294
N5190516	294
N5190609	293
N5190611	293
N5190615	293
N5190616	295
N5190619	293
N5190762	292
N5190788	290
N5190869	295
N5191549	293
N5191662	293
N5191700	293
N5191875	294
N5200040	295
N5200042	295
N5200045	295
N5201021	295
N5201022	295
N5201023	295
N5201024	295
N5202083	294
N5203115	290
N5316000	86
N5316001	86
N5316002	86
N5316003	86
N5316004	86
N5316005	86
N5316024	86
N5316025	86
N5330177	297
N5330178	297
N5330220	296
N5330253	296
N5330254	297
N5330262	297
N5330300	296
N5330301	296
N5330302	296
N5330303	296
N5330304	296
N5330305	296
N5330306	296
N5330307	296
N5330308	296
N5330309	296
N5330310	296
N5330311	296
N5330312	296
N5330313	296
N5330314	296
N5330315	296
N5330316	296

Part No.	Page
N5330317	296
N5330318	296
N5330319	296
N5330320	296
N5330322	297
N5330323	297
N5330324	297
N5330338	296
N5330340	296
N5330341	296
N5330342	296
N5330343	296
N5330344	296
N5330400	297
N5330402	296
N5330403	296
N5330404	296
N5330405	296
N5330604	297
N5330613	297
N5331098	296
N5337024	297
N5337031	296
N5340090	297
N5340188	291
N5340229	293
N5356002	291
N5356003	291
N5356008	290
N5356010	290
N5356012	290
N5356016	291
N5356017	291
N5356019	291
N5356020	291
N5356021	291
N5356034	291
N5361078	292
N5361180	292
N5365048	296
N5365049	296
N5370140	295
N5370330	294
N5370438	295
N5370459	294
N5370464	295
N5370478	294
N5370487	294
N5370488	294
N5370490	294
N5370492	295
N5370495	295
N5370550	295
N5370553	295
N5370554	295
N5370555	295
N5373009	297
N5374092	296
N5376097	292
N5391051	293
N5391054	293
N5391181	293

Part No.	Page
N6000637	216
N6000981	216
N6000986	217
N6001204	214
N6003057	216
N6003066	216
N6100016	215
N6100038	218
N6100047	204
N6100048	206
N6100102	204, 207, 215
N6100153	204, 206, 208, 209
N6100157	204
N6100158	204
N6100159	204, 209
N6100161	217
N6100194	214, 215
N6100228	218
N6100243	216
N6100244	216
N6100245	216
N6100253	218
N6100256	208
N6100260	209
N6100261	209
N6100264	216
N6100275	204, 209
N6100289	215
N6100331	204
N6100357	214
N6100361	214
N6100364	214
N6100430	214
N6100447	207
N6101034	204, 209
N6101048	206
N6101050	206
N6101052	204, 210
N6101085	214
N6101182	207
N6101251	212
N6101252	212
N6101253	212
N6101297	214
N6101345	215
N6101358	204
N6101372	204, 210
N6101374	204
N6101375	211
N6101378	204
N6101380	212
N6101390	117, 207, 212
N6101412	215
N6101474	224
N6101482	204, 209
N6101539	209. 211
N6101696	219
N6101702	208
N6101703	208, 211
N6101705	209
N6101747	207, 209
N6101751	209

Part No.	Page
N6101760	212
N6102354	214, 215, 225
N6103089	214
N6103151	214
N6103167	214
N6103175	214
N6103188	214
N6103225	214
N6103240	212
N6103241	212
N6103242	212
N6103243	212
N6107032	198
N6107033	198
N6107040	198
N6107041	198
N6107048	198
N6107052	198
N6107053	198
N6107056	198
N6107057	198
N6107060	198
N6107061	198
N6107070	198
N6107072	198
N6107073	198
N6107075	198
N6107076	198
N6107198	199
N6107199	199
N6107200	199
N6107201	199
N6107208	198
N6107216	198
N6107218	198
N6107221	198
N6107222	198
N6107224	198
N6107225	198
N6107226	198
N6107227	198
N6107228	198
N6107229	198
N6107230	198
N6107232	198
N6120001	200, 207
N6120006	214, 220
N6120007	206
N6120008	206
N6120009	205
N6120011	217
N6120012	220
N6120014	217
N6120015	220
N6120020	214, 220
N6120022	205
N6120025	206
N6120026	217
N6120027	220
N6120047	219
N6120050	205
N6120057	219

Part No.	Page
N6120059	214, 217, 219
N6120061	219
N6120062	219
N6120070	215
N6120071	206
N6120072	206
N6120074	209
N6120075	209
N6120076	208
N6120077	208
N6120080	220
N6120082	208
N6120083	208
N6120088	216
N6120089	216
N6120090	218
N6120091	218
N6120092	218
N6120093	218
N6120094	218
N6120095	216
N6120098	208
N6120100	206
N6120101	205
N6120102	209
N6120122	217
N6120123	217
N6120124	220
N6120125	220
N6120126	218
N6120127	218
N6120128	216
N6120129	216
N6120130	219
N6120131	219
N6120136	206
N6120137	206
N6120138	205
N6120139	205
N6120140	209
N6120141	209
N6120142	208
N6120143	208
N6120150	220
N6120161	214, 215
N6120162	214
N6120165	214
N6120166	214
N6120167	214
N6120168	214
N6121000	206
N6121001	204, 210
N6121002	204, 210
N6121003	211
N6121004	207, 209, 211
N6121006	209, 211
N6121008	211
N6121009	211
N6121020	204, 210
N6121021	204, 210
N6121022	204, 210, 211
N6200119	225

Part No.	Page
N6200150	224, 228
N6301054	224
N6352030	120
N6352031	120
N6352032	120
N6352033	120
N6356471	118
N6356472	118
N6356473	116
N6356474	119
N6356475	119
N6356477	119
N6356478	118
N6356479	118
N6356558	119
N6356559	119
N6356560	119
N6356561	119
N6356562	119
N6356563	119
N6356564	119
N6356566	119
N6470012	207, 221, 223
N6480080	223
N6480081	223
N6480082	223
N6480130	223
N6480132	223
N6480140	223
N6480141	223
N6480142	223
N6480143	223
N6480144	223
N6480145	223
N6480146	223
N6480147	223
N6480148	223
N6480149	223
N6480151	223
N6480153	223
N6480154	223
N6480360	222
N6480361	222
N6480362	222
N6480380	222
N6482024	222
N6502000	211
N6502001	211
N6502002	211
N6502003	210
N6502004	210
N6502005	210
N6502006	210
N6502009	210
N6502010	210
N6502011	210
N6502012	210
N6502013	211
N6502014	211
N6502015	211
N6502016	211
N6502017	211

Part No.	Page
N6520010	206
N6520011	206
N6520012	205
N6520013	205
N6520014	209
N6520015	209
N6520018	214
N6520019	214
N6520020	217
N6520021	217
N6520022	220
N6520023	220
N6520024	218
N6520025	218
N6520026	219
N6520027	219
N6520028	216
N6520029	216
N6520270	202
N6520271	202
N6520272	202
N6520273	202
N6621006	121
N6621008	121
N6621009	121
N6621028	204, 206, 207, 208, 209, 213
N6621035	121
N6621036	121
N6621037	121
N6621038	121
N6700113	228
N6700130	228
N6701170	228
N6710188	225
N8102011	48
N8120100	54, 55
N8120116	54
N8120124	52
N8120150	52
N8120511	57, 58
N8120512	57, 58
N8120515	48, 58
N8120516	48
N8120518	58
N8120519	58
N8120522	78
N8120541	78
N8120610	58
N8120611	58
N8121036	34, 48
N8121037	48
N8121038	48
N8121039	48
N8121045	49
N8121046	49
N8121056	49
N8121057	49
N8121061	49
N8121068	88
N8121069	47, 88
N8121086	57
N8122004	56

Part No.	Page
N8122006	55, 58, 59
N8122007	54
N8122010	54, 55
N8122012	60
N8122014	78
N8122017	78
N8122038	78, 81
N8122188	52
N8122192	50
N8122239	48
N8122247	87
N8122248	87
N8122308	56
N8122356	52
N8122358	54
N8122359	54
N8122382	36, 50
N8122383	36, 50
N8122384	36, 50
N8122389	53
N8122394	54
N8122410	53
N8122411	54
N8122412	54
N8122413	54
N8122452	53
N8122460	48
N8122461	48
N8122462	48
N8125001	56
N8125010	78
N8125029	54, 58
N8125030	78
N8125031	78
N8125032	78
N8125033	78, 81
N8125034	78
N8125035	78
N8125037	78, 80
N8125038	78, 80
N8125039	80
N8125040	78
N8125041	78
N8125050	56
N8126039	54
N8126040	54
N8126041	54, 58
N8140503	80
N8140504	80
N8140507	50
N8140513	59
N8140514	59
N8140527	55
N8140536	55
N8141206	59
N8141230	47, 123
N8141420	52
N8141426	53
N8142000	52
N8142001	50
N8142002	50
N8142003	53
N8142098	48
N8142300	77
N8142301	77
N8142302	77
N8142303	77
N8142304	77
N8142305	77
N8142306	77
N8142307	77
N8145000	56
N8145003	56
N8145011	48
N8145012	48
N8145013	51
N8145013	59
N8145014	51, 59
N8145015	48, 59
N8145016	48, 59
N8145017	48, 59
N8145018	48, 59
N8145022	59
N8145050	80, 81
N8145051	78, 80
N8145052	80
N8145053	80
N8145054	80
N8145055	80
N8145056	80
N8145057	80
N8145058	80
N8145059	80
N8145060	80
N8145061	80
N8145099	53
N8145101	50
N8145106	55
N8145119	52
N8145120	52
N8145121	52
N8145122	52
N8145135	36, 50
N8145136	36, 50
N8145137	36, 50
N8145138	36, 50
N8145145	62
N8145146	62
N8145147	62
N8145148	62
N8145149	62
N8145150	62
N8145151	62
N8145152	62
N8145153	62
N8145154	62
N8145155	62
N8145156	62
N8145157	62
N8145158	62
N8145159	62
N8145160	62
N8145161	62
N8145162	62
N8145163	62
N8145164	62
N8145165	62
N8145166	62
N8145167	62
N8145168	62
N8145169	62
N8145170	62
N8145171	62
N8145172	62
N8145173	62
N8145174	62
N8145175	62
N8145176	62
N8145177	62
N8145178	62
N8145179	62
N8145180	62
N8145181	62
N8145182	62
N8145183	62
N8145184	62
N8145185	62
N8145186	62
N8145187	62
N8145188	62
N8145189	62
N8145190	62
N8145191	62
N8145192	62
N8145193	62
N8145194	62
N8145195	62
N8145196	62
N8145197	62
N8145198	62
N8145199	62
N8145200	62
N8145201	62
N8145202	62
N8145203	62
N8145204	62
N8145205	62
N8145206	62
N8145207	62
N8145208	62
N8145209	62
N8145210	62
N8145211	62
N8145212	62
N8145213	62
N8145214	62
N8145215	62
N8145216	62
N8145217	62
N8145218	62
N8145219	62
N8145220	62
N8145236	36, 50
N8145284	78, 80
N8145289	80
N8145309	53

Part No.	Page
N8145310	53
N8145318	55
N8145319	57
N8145320	57
N8145321	52
N8145322	77
N8145323	77
N8145324	77
N8145340	53
N8145407	88
N9300030	201
N9300031	201
N9300032	201
N9300033	201
N9300036	201
N9300037	201
N9300038	201
N9300039	201
N9300040	201
N9300041	201
N9300042	201
N9300043	201
N9300044	201
N9300046	201
N9300047	201
N9300048	201
N9300049	201
N9300050	201
N9300051	201
N9300053	201
N9300054	201
N9300055	201, 204
N9300056	201, 204
N9300057	201
N9300058	201
N9300059	201, 228
N9300060	201
N9300061	201
N9300065	24
N9300068	90
N9300081	243
N9300086	265
N9300096	216
N9300100	68, 75
N9300101	68, 75
N9300102	68
N9300103	68
N9300104	68
N9300105	68
N9300106	68
N9300107	68
N9300108	68, 75, 76
N9300109	68
N9300110	68
N9300111	68
N9300112	68, 75
N9300113	68
N9300114	68, 75
N9300115	68
N9300116	68
N9300117	68
N9300118	68

Part No.	Page
N9300119	68
N9300120	68
N9300121	68
N9300122	68
N9300123	68
N9300124	68
N9300125	68
N9300126	68, 75, 76
N9300127	68
N9300128	68
N9300129	68, 75
N9300130	68
N9300131	68, 75
N9300132	68, 75
N9300133	68
N9300134	68
N9300135	68
N9300136	68, 75
N9300137	68
N9300138	68
N9300139	68
N9300140	68
N9300141	68, 75, 76
N9300142	68
N9300143	68
N9300144	68
N9300145	68
N9300146	68
N9300147	68
N9300148	68
N9300148	75
N9300149	68
N9300150	69
N9300151	69
N9300152	69, 75, 76
N9300153	69, 75
N9300154	69
N9300155	69
N9300156	69
N9300157	69
N9300158	69
N9300160	69
N9300161	69, 75
N9300162	69, 75
N9300163	69
N9300165	69, 75
N9300166	69
N9300167	69, 75
N9300168	69
N9300169	69
N9300170	69
N9300171	69
N9300172	68
N9300173	68
N9300174	68
N9300175	68
N9300176	68
N9300177	68
N9300178	69
N9300179	68, 75, 76
N9300180	68
N9300181	68

Part No.	Page
N9300183	68
N9300184	68, 75, 76
N9300200	72, 76
N9300201	72, 76
N9300202	72, 76
N9300203	72, 76
N9300204	72, 76
N9300205	76, 79
N9300207	68, 76, 79
N9300208	76, 79
N9300211	76
N9300212	76
N9300213	76
N9300214	76
N9300215	76
N9300216	76
N9300217	76
N9300218	75, 79
N9300219	75, 79
N9300220	75, 79
N9300221	75, 79
N9300223	76
N9300224	79
N9300225	80
N9300226	75, 76, 79
N9300227	75, 76, 79
N9300228	75, 79
N9300229	75, 79
N9300230	72
N9300231	71
N9300232	71, 81
N9300233	71, 81
N9300234	71, 81
N9300235	71, 75, 81
N9300236	71
N9300238	71, 81
N9300239	71
N9300241	77
N9300244	73
N9300253	74, 81
N9300260	73
N9300280	72
N9300281	72
N9300283	70
N9300500	117
N9300501	117
N9300502	117
N9300503	117
N9300650	117
N9300651	30
N9300695	117, 168
N9300696	117
N9300697	117
N9300698	117
N9300699	117
N9300700	117
N9300701	117
N9300702	117
N9300703	115
N9300704	115
N9300705	115
N9300706	115

Part No.	Page
N9300707	117, 123
N9300708	117, 123
N9300709	114, 115
N9300710	114, 115
N9300711	114, 115
N9300712	114, 115
N9300713	114, 115
N9300714	114, 115
N9300715	114, 115
N9300716	114, 115
N9300717	114, 115
N9300718	114, 115
N9300719	117, 123
N9300720	117, 123
N9300850	86, 262
N9300901	120
N9300902	120
N9300903	120
N9301001	162
N9301002	162
N9301029	161
N9301167	200
N9301178	233
N9301179	233
N9301191	233
N9301192	233
N9301193	233
N9301205	65
N9301208	123, 233
N9301221	201
N9301222	201
N9301223	201
N9301225	201
N9301226	201
N9301227	201
N9301233	201
N9301253	201
N9301254	201
N9301255	201
N9301259	201
N9301266	201
N9301268	201
N9301269	201
N9301270	121
N9301272	214
N9301303	117, 121
N9301304	121
N9301326	168
N9301327	242
N9301328	242
N9301343	200
N9301356	228
N9301357	228
N9301376	200, 214
N9301385	114, 115, 117
N9301385	114
N9301390	117, 121
N9301398	91
N9301399	91
N9301480	168
N9301710	91
N9301711	91
N9301712	91
N9301714	91
N9301715	91
N9301720	71
N9301721	74, 78
N9301735	117
N9301736	117
N9301945	117
N9302130	115
N9302134	118
N9302136	115
N9302139	116
N9302140	116
N9302141	116
N9302149	200
N9302197	91
N9302199	91
N9302202	212
N9302203	212
N9302210	212
N9302211	212
N9302212	212
N9302213	212
N9302222	212
N9302224	212
N9302226	212
N9302230	212
N9302231	112
N9302235	112
N9302555	123, 164
N9302560	123, 164, 167
N9302561	167
N9302562	123, 164, 167
N9302563	167
N9302564	167
N9302565	167
N9302600	264
N9302603	264
N9302605	264
N9302609	264
N9302610	264
N9302611	264
N9302612	264
N9302614	264
N9302615	264
N9302619	264
N9302620	258
N9302622	264
N9302640	258
N9302642	258
N9302643	258
N9302650	161, 168
N9302677	166
N9302678	161
N9302679	115
N9302680	115, 117
N9302681	114
N9302682	114
N9302684	116, 117
N9302685	116, 117
N9302686	116, 117
N9302780	114, 117
N9302782	204, 207
N9302783	204, 207
N9302784	116
N9302785	120, 121
N9302832	228
N9302945	115
N9302946	78
N9302972	213
N9302974	243
N9302975	119
N9302976	119
N9302977	119
N9302978	119
N9302979	119
N9302980	119
N9302981	119
N9303139	229
N9303201	237
N9303202	237
N9303203	237
N9303204	237
N9303205	239
N9303206	239
N9303207	239
N9303208	239
N9303209	239
N9303210	239
N9303211	239
N9303212	239
N9303223	171
N9303224	171
N9303225	236
N9303226	236
N9303227	236
N9303343	213
N9303344	204, 213
N9303345	204
N9303348	118
N9303349	118
N9303350	119
N9303351	118
N9303352	118
N9303396	147
N9303416	116
N9303417	116
N9303418	115
N9303419	116
N9303429	243
N9303430	131
N9303441	116
N9303442	116
N9303445	29, 31, 73
N9303448	200
N9303449	116
N9303500	130
N9303501	130
N9303502	130
N9303503	130
N9303504	130
N9303505	130
N9303506	130
N9303507	129

Part No.	Page
N9303508	129
N9303509	129
N9303510	129
N9303511	129
N9303512	129
N9303513	129
N9303514	129
N9303515	130
N9303516	130
N9303517	130
N9303518	130
N9303519	130
N9303520	130
N9303521	130
N9303522	130
N9303523	130
N9303524	130
N9303525	131
N9303526	131
N9303527	131
N9303528	131
N9303529	131
N9303530	131
N9303531	131
N9303532	140
N9303533	140
N9303534	140
N9303535	140
N9303536	140
N9303537	139
N9303538	139
N9303539	139
N9303540	139
N9303541	139
N9303542	139
N9303543	139
N9303544	139
N9303545	139
N9303546	139
N9303547	139
N9303548	139
N9303549	139
N9303550	139
N9303551	139
N9303552	139
N9303553	139
N9303554	139
N9303557	139
N9303558	139
N9303559	139
N9303560	139
N9303561	139
N9303562	139
N9303563	139
N9303564	139
N9303565	139
N9303566	139
N9303567	139
N9303568	139
N9303569	141
N9303570	141
N9303571	141
N9303572	140
N9303573	140
N9303574	140
N9303575	140
N9303576	140
N9303577	140
N9303578	140
N9303598	140
N9303599	140
N9303600	140
N9303601	140
N9303602	140
N9303603	140
N9303604	140
N9303605	140
N9303606	140
N9303607	140
N9303613	137
N9303614	137
N9303615	137
N9303616	137
N9303617	137
N9303618	137
N9303619	137
N9303625	136
N9303626	136
N9303627	136
N9303628	136
N9303629	136
N9303630	136
N9303631	137
N9303632	137
N9303633	137
N9303634	137
N9303635	137
N9303636	137
N9303637	137
N9303638	137
N9303639	137
N9303640	137
N9303641	137
N9303642	137
N9303643	137
N9303644	137
N9303645	137
N9303646	135
N9303647	135
N9303648	135
N9303649	135
N9303650	135
N9303651	135
N9303652	135
N9303653	135
N9303654	135
N9303655	135
N9303656	135
N9303657	135
N9303658	135
N9303659	135
N9303660	135
N9303661	135
N9303662	135
N9303663	135
N9303664	135
N9303665	135
N9303666	143
N9303667	143
N9303668	143
N9303669	143
N9303670	143
N9303671	143
N9303672	143
N9303673	143
N9303674	142
N9303675	142
N9303676	142
N9303677	142
N9303678	142
N9303679	142
N9303680	142
N9303681	142
N9303682	142
N9303683	142
N9303684	142
N9303685	142
N9303686	142
N9303687	142
N9303688	143
N9303689	143
N9303690	143
N9303691	143
N9303693	143
N9303694	143
N9303695	143
N9303696	143
N9303697	143
N9303698	143
N9303699	143
N9303700	143
N9303701	143
N9303702	143
N9303703	143
N9303704	143
N9303705	143
N9303706	143
N9303707	143
N9303708	143
N9303709	143
N9303710	143
N9303711	142
N9303712	142
N9303713	142
N9303714	142
N9303715	142
N9303716	142
N9303717	142
N9303718	138
N9303719	138
N9303720	138
N9303721	138
N9303722	143
N9303723	143
N9303725	69
N9303726	68

Part No.	Page
N9303727	68
N9303728	68
N9303729	68
N9303730	68
N9303731	68
N9303731	70
N9303732	81
N9303733	68
N9303734	68
N9303735	68
N9303736	68
N9303737	68
N9303738	68
N9303739	68
N9303739	70
N9303740	68
N9303741	68
N9303741	70
N9303742	68
N9303743	68
N9303744	68
N9303745	68
N9303746	69
N9303747	68
N9303748	68
N9303749	68
N9303749	70
N9303750	68
N9303751	68
N9303751	70
N9303752	68
N9303753	69
N9303753	70
N9303754	69
N9303755	69
N9303756	69
N9303757	69, 70
N9303758	69
N9303759	68
N9303761	68
N9303763	68
N9303764	70
N9303765	68
N9303766	68
N9303767	68
N9303768	68
N9303769	68
N9303770	68
N9303771	68
N9303772	68
N9303773	68
N9303774	68
N9303775	68
N9303776	68
N9303777	68
N9303778	68
N9303779	68
N9303780	68
N9303781	68
N9303782	68
N9303783	68
N9303784	68
N9303785	69
N9303786	68
N9303787	68
N9303788	68
N9303789	68
N9303790	68
N9303791	68
N9303792	68
N9303793	68
N9303794	68
N9303795	68
N9303796	69
N9303797	79
N9303798	68
N9303799	69
N9303800	68
N9303801	69
N9303802	69
N9303803	69
N9303804	69
N9303805	69
N9303806	69
N9303807	69
N9303808	69
N9303809	69
N9303810	69
N9303811	69
N9303812	69
N9303813	81
N9303814	71, 81
N9303816	74, 78
N9303818	78
N9303819	74
N9303821	74, 79
N9303822	74, 79
N9303823	74, 79
N9303824	74, 79
N9303825	78
N9303826	78
N9303827	75
N9303828	79
N9303829	75
N9303830	79
N9303831	79
N9303832	80
N9303833	80
N9303834	80
N9303835	75
N9303836	75
N9303837	72
N9303838	69
N9303839	75
N9303840	72, 75
N9303840	75
N9303841	72
N9303842	69
N9303843	74, 78
N9303844	69
N9303847	140
N9303848	139
N9303851	138
N9303867	142
N9303868	143
N9303869	133
N9303870	133
N9303871	133
N9303872	142
N9303873	143
N9303877	142
N9303878	143
N9303879	134
N9303880	134
N9303882	142
N9303883	143
N9303884	137
N9303885	137
N9303886	141
N9303887	132, 133
N9303888	132, 133
N9303889	132, 133
N9303890	132, 133
N9303891	132, 133
N9303892	132, 133
N9303893	142
N9303894	143
N9303895	134
N9303896	134
N9303897	134
N9303898	134
N9303899	134
N9303900	134
N9303901	142
N9303902	143
N9303903	132
N9303904	132
N9303905	132
N9303906	132
N9303907	132
N9303908	132
N9303909	142
N9303910	143
N9303911	132, 133
N9303912	132, 133
N9303913	132, 133
N9303914	134
N9303915	134
N9303916	134
N9303917	132
N9303918	132
N9303919	132
N9303920	133
N9303921	133
N9303922	133
N9303931	130
N9303932	130
N9303935	136
N9303936	136
N9303937	136
N9303938	143
N9303940	71, 137
N9303941	71, 137
N9303942	71, 137
N9303943	71, 143
N9303944	71

Part No.	Page
N9303945	72
N9303946	72
N9303948	72
N9303949	72
N9303952	76
N9303953	79
N9303954	72
N9303955	81
N9303962	200
N9303963	229
N9303964	229
N9303970	134
N9303971	134
N9303972	134
N9303973	133
N9303974	133
N9303975	133
N9303981	134
N9303990	120
N9303991	120
N9303992	120
N9303993	120
N9303995	134
N9303996	134
N9304110	70
N9304111	70
N9304112	70
N9304113	70
N9304114	70
N9304115	70
N9304116	70
N9304117	70
N9304118	70
N9304119	70
N9304120	70
N9304121	70
N9304122	70
N9304123	70
N9304124	70
N9304125	70
N9304126	70
N9304127	71
N9304128	71
N9304129	71
N9304130	72
N9304131	72
N9304135	114, 115
N9304136	114, 115
N9304137	114, 115
N9304138	114, 115
N9304139	114, 115
N9304140	114, 115
N9304141	114
N9304142	114
N9304143	119
N9304144	119
N9304145	119
N9304146	119
N9304147	119
N9304150	77
N9304151	77
N9304152	77
N9304153	77
N9304154	77
N9304155	77
N9304156	77
N9304157	77
N9304158	77
N9304159	77
N9304160	77
N9304168	83
N9304200	69
N9304201	69
N9304202	69
N9304203	69
N9304204	69
N9304205	69
N9304206	69
N9304207	69
N9304208	69
N9304209	69
N9304210	69
N9304211	69
N9304212	69
N9304213	69
N9304214	69
N9304215	69
N9304216	69
N9304217	69
N9304218	69
N9304219	69
N9304220	69
N9304221	69
N9304222	69
N9304223	69
N9304224	69
N9304225	69
N9304226	69
N9304227	69
N9304228	69
N9304229	69
N9304230	69
N9304231	69
N9304232	69
N9304233	69
N9304234	69
N9304235	69
N9304236	69
N9304237	69
N9304238	69
N9304239	69
N9304240	69
N9304241	69
N9304242	69
N9304243	69
N9304244	69
N9304245	69
N9304247	69
N9304248	69
N9304249	69
N9304250	69
N9304251	69
N9304252	69
N9304253	69
N9304254	69
N9304255	69
N9304256	69
N9304257	69
N9304258	69
N9304259	69
N9304260	69
N9304261	69
N9304262	69
N9304263	69
N9304264	69
N9304265	69
N9304266	69
N9304267	70
N9304268	70
N9304269	70
N9304270	70
N9304271	70
N9304272	70
N9304273	70
N9304274	70
N9304275	70
N9304276	70
N9304277	70
N9304278	70
N9304279	70
N9304280	70
N9304281	70
N9304282	70
N9304283	70
N9304284	70
N9304285	70
N9304286	70
N9304287	70
N9304288	70
N9304289	70
N9304290	70
N9304291	70
N9304292	70
N9304294	70
N9304295	70
N9304296	70
N9304297	70
N9304298	70
N9304299	70
N9304300	70
N9304301	70
N9304302	70
N9304303	70
N9304304	70
N9304305	70
N9304306	70
N9304307	70
N9304308	70
N9304309	70
N9304310	70
N9304311	70
N9304312	70
N9304313	70
N9304314	70
N9304315	70
N9304316	70

Part No.	Page
N9304317	70
N9304318	70
N9304319	70
N9304320	70
N9304321	70
N9304322	70
N9304323	70
N9304324	70
N9304325	70
N9304326	70
N9304327	70
N9304328	70
N9304329	70
N9304330	70
N9304331	70
N9304332	70
N9304333	70
N9304334	70
N9304335	70
N9304336	70
N9304337	70
N9304338	70
N9304339	70
N9304340	70
N9304341	70
N9304342	70
N9304343	70
N9304344	70
N9304345	70
N9304346	70
N9304347	70
N9304348	70
N9304349	70
N9304350	70
N9304351	71
N9304352	71
N9304353	71
N9304354	71
N9304355	71
N9304356	71
N9304357	71
N9304358	71
N9304359	71
N9304360	71
N9304500	117, 121
N9304501	121
N9304502	121
N9304503	121
N9304550	123
N9304551	123
N9304552	123
N9304553	123
N9304554	123
N9304555	123
N9304556	123
N9304557	123
N9304600	32
N9304601	32
N9304602	32
N9304603	32
N9304604	32
N9304610	32

Part No.	Page
N9304611	32
N9304612	32
N9304613	32
N9304614	32
N9304615	32
N9304616	32
N9304617	32
N9304618	32
N9304619	32
N9304620	32
N9304621	32
N9304622	32
N9304623	32
N9304624	32
N9304625	32
N9304626	32
N9304627	32
N9304628	32
N9304629	32
N9304630	32
N9304631	32
N9304632	32
N9304633	32
N9304634	32
N9305600	173
N9305601	173
N9305602	173
N9305603	173
N9305604	173
N9305605	173
N9305606	173
N9305607	173
N9305608	173
N9305609	173
N9305610	173
N9305611	173
N9305612	173
N9305613	173
N9305614	173
N9305615	173
N9305616	173
N9305617	173
N9305618	173
N9305619	173
N9305620	173
N9305621	173
N9305622	173
N9305623	173
N9305624	173
N9305625	173
N9305626	173
N9305627	173
N9305628	173
N9305629	173
N9305630	173
N9305631	173, 184
N9305632	173
N9305633	173
N9305634	173
N9305635	177
N9305636	177
N9305637	177

Part No.	Page
N9305638	177
N9305639	177
N9305640	177
N9305641	177
N9305642	177
N9305643	177
N9305644	177
N9305645	177
N9305646	177
N9305647	177
N9305648	177
N9305649	177
N9305650	177
N9305651	177
N9305652	177
N9305653	177
N9305654	177
N9305655	179
N9305656	179
N9305657	179
N9305658	179
N9305659	179
N9305660	179
N9305661	179
N9305662	179
N9305663	179
N9305664	179
N9305665	179
N9305666	179
N9305667	179
N9305668	179
N9305669	179
N9305670	179
N9305671	179
N9305672	179
N9305673	179
N9305674	179
N9305675	179
N9305677	181
N9305678	181
N9305679	181
N9305680	181
N9305681	181
N9305682	181
N9305683	181
N9305684	181
N9305685	181
N9305686	182
N9305687	182
N9305688	182
N9305689	182
N9305690	182
N9305691	182
N9305692	182
N9305693	182
N9305694	182
N9305695	182
N9305696	182
N9305697	182
N9305698	179
N9306000	200
N9306001	200

Part No.	Page
N9306015	116, 117
N9306017	163
N9306019	163
N9306020	163
N9306021	163
N9306022	166
N9306023	166
N9306024	166
N9306025	166
N9306026	166
N9306027	166
N9306028	166
N9306029	166
N9306030	166
N9306031	166
N9306032	166
N9306033	166
N9306034	166
N9306035	166
N9306036	166
N9306037	166
N9306038	166
N9306039	166
N9306040	166
N9306041	166
N9306042	166
N9306044	163, 166
N9306045	166
N9306046	166
N9306047	166
N9306052	116
N9306053	115
N9306057	115
N9306063	242
N9306064	234
N9306065	234
N9306068	163
N9306072	163
N9306073	163
N9306074	242
N9306075	118, 120
N9306076	119, 120
N9306077	119, 120
N9306078	118
N9306079	120
N9306080	117
N9306089	242
N9306090	200
N9306091	200
N9306092	200
N9306093	200
N9306093	224
N9306094	200, 224
N9306095	200, 224
N9306096	200, 224
N9306100	232
N9306101	232
N9306102	232
N9306103	232
N9306104	232
N9306105	232
N9306106	232
N9306107	232
N9306108	232
N9306109	232
N9306110	232
N9306111	232
N9306112	232
N9306113	232
N9306114	232
N9306116	232
N9306117	232
N9306118	232
N9306127	121
N9306142	242, 243
N9306200	116
N9306201	115
N9306203	116
N9306205	116
N9306206	116
N9306207	115
N9306208	115
N9306210	171
N9306211	171
N9306212	171
N9306213	171
N9306214	171
N9306216	118
N9306218	213
N9306219	213
N9306220	115
N9306223	114
N9306223	114, 115
N9306224	119
N9306225	81
N9306228	116
N9306229	116
N9306231	115
N9306232	211
N9306233	211
N9306234	211
N9306235	211
N9306236	211
N9306237	211
N9306240	118
N9306241	118
N9306242	118
N9306247	114
N9306251	202
N9306262	202
N9306264	119
N9306265	119, 120
N9306266	119
N9306267	119
N9306268	119
N9306269	119
N9306269	120
N9306270	119
N9306271	119
N9306277	227
N9306278	227
N9306285	170
N9306286	170
N9306287	170
N9306288	170
N9306291	240
N9306292	240
N9306293	240
N9306300	162
N9306301	162, 168
N9306304	241
N9306305	241
N9306306	241
N9306310	196
N9306311	196
N9306312	196
N9306313	196
N9306314	196
N9306315	196
N9306316	196
N9306317	196
N9306318	196
N9306319	196
N9306320	196
N9306321	196
N9306322	196
N9306323	196
N9306324	196
N9306325	196
N9306326	196
N9306327	196
N9306328	196
N9306329	196
N9306345	27
N9306346	27
N9306350	240
N9306351	240
N9306352	240
N9306360	116
N9306361	116
N9306362	116
N9306363	116
N9306364	116
N9306365	116
N9306400	105
N9306401	106
N9306402	106
N9306403	108
N9306404	106
N9306405	108
N9306407	105
N9306410	106
N9306411	105
N9306413	105
N9306414	106
N9306416	105
N9306418	108
N9306419	105
N9306420	105
N9306421	106
N9306422	104
N9306427	108
N9306428	108
N9306430	104
N9306432	105
N9306434	106

Part No.	Page
N9306436	105
N9306438	104
N9306440	108
N9306441	108
N9306443	105
N9306444	106
N9306447	105
N9306448	104
N9306455	104
N9306457	104
N9306462	104
N9306466	106
N9306470	105
N9306471	104
N9306475	104
N9306476	104
N9306478	104
N9306479	104
N9306481	105
N9306482	104
N9306490	106
N9306491	104
N9306494	105
N9306500	108
N9306501	108
N9306502	108
N9306503	108
N9306504	108
N9306505	108
N9306506	108
N9306507	108
N9306508	108
N9306509	108
N9306510	108
N9306511	105
N9306512	105
N9306513	105
N9306514	105
N9306515	105
N9306516	105
N9306517	105
N9306518	106
N9306519	104
N9306520	104
N9306521	104
N9306522	104
N9306523	104
N9306524	106
N9306525	106
N9306526	106
N9306527	106
N9306528	106
N9306529	106
N9306530	106
N9306531	106
N9306532	106
N9306533	106
N9306534	106
N9306535	106
N9306536	105
N9306537	105
N9306538	105

Part No.	Page
N9306539	105
N9306540	105
N9306541	105
N9306542	105
N9306543	105
N9306544	105
N9306545	105
N9306546	105
N9306547	105
N9306548	105
N9306549	105
N9306550	105
N9306551	105
N9306552	105
N9306553	104
N9306554	104
N9306555	104
N9306556	104
N9306557	108
N9306558	108
N9306559	108
N9306560	108
N9306561	108
N9306562	108
N9306563	104
N9306564	104
N9306565	104
N9306566	104
N9306567	104
N9306568	104
N9306569	106
N9306570	106
N9306571	106
N9306572	106
N9306573	106
N9306574	106
N9306575	105
N9306576	105
N9306577	105
N9306578	105
N9306579	105
N9306580	105
N9306581	104
N9306582	104
N9306583	104
N9306584	106
N9306585	106
N9306586	106
N9306587	104
N9306588	104
N9306589	104
N9306590	104
N9306591	104
N9306592	104
N9306593	104
N9306594	109
N9306595	109
N9306596	109
N9306597	109
N9306598	109
N9306599	109
N9306600	109

Part No.	Page
N9306601	109
N9306602	109
N9306603	109
N9306604	109
N9306605	109
N9306606	109
N9306607	109
N9306608	109
N9306609	109
N9306610	109
N9306611	109
N9306612	109
N9306613	109
N9306614	109
N9306615	109
N9306616	109
N9306617	109
N9306618	109
N9306619	109
N9306620	109
N9306621	109
N9306622	109
N9306623	109
N9306624	109
N9306625	109
N9306626	109
N9306627	109
N9306628	109
N9306629	109
N9306630	109
N9306631	109
N9306632	109
N9306633	104
N9306634	104
N9306635	108
N9306636	108
N9306637	108
N9306638	108
N9306639	108
N9306640	104
N9306641	106
N9306642	104
N9306643	106
N9306644	106
N9306645	106
N9306646	108
N9306647	108
N9306648	108
N9306649	105
N9306650	107
N9306651	107
N9306652	107
N9306653	107
N9306655	107
N9306656	107
N9306657	107
N9306658	107
N9306659	107
N9306660	107
N9306661	107
N9306662	107
N9306663	107

Part No.	Page
N9306664	107
N9306665	107
N9306666	107
N9306667	107
N9306668	107
N9306669	107
N9306670	107
N9306671	107
N9306672	107
N9306673	107
N9306674	107
N9306675	107
N9306676	107
N9306677	107
N9306678	107
N9306679	107
N9306680	107
N9306681	107
N9306682	107
N9306683	107
N9306684	107
N9306685	107
N9306686	107
N9306687	107
N9306688	107
N9306689	107
N9306690	107
N9306691	107
N9306692	107
N9306693	107
N9306694	107
N9306695	107
N9306696	107
N9306697	107
N9306698	107
N9306699	107
N9306700	107
N9306713	105
N9306755	89
N9306757	89
N9306758	89
N9306800	230
N9306801	230
N9306802	230
N9306803	230
N9306804	230
N9306805	230
N9306806	230
N9306807	230
N9306808	230
N9306809	230
N9306810	230
N9306811	230
N9306812	230
N9306813	230
N9306814	231
N9306815	231
N9306816	231
N9306817	231
N9306818	231
N9306819	231
N9306820	231
N9306821	231
N9306822	231
N9306823	231
N9306824	231
N9306825	231
N9306826	231
N9306827	231
N9306828	230
N9306829	230
N9306830	230
N9306831	230
N9306832	230
N9306833	230
N9306834	230
N9306835	230
N9306836	230
N9306837	230
N9306838	230
N9306839	230
N9306840	231
N9306841	231
N9306842	231
N9306843	231
N9306844	231
N9306845	231
N9306846	231
N9306847	231
N9306848	231
N9306849	231
N9306850	231
N9306851	231
N9306852	231
N9306853	231
N9306854	231
N9306855	231
N9306856	231
N9306857	231
N9306900	111
N9306901	111
N9306902	111
N9306908	111
N9306909	111
N9306910	111
N9306911	111
N9306912	111
N9306913	111
N9306914	111
N9306920	111
N9306921	111
N9306922	111
N9306923	111
N9306924	111
N9306925	111
N9306926	111
N9306927	111
N9306933	111
N9306935	111
N9306936	111
N9306937	111
N9306938	111
N9306939	111
N9306940	111
N9306941	111
N9307000	227
N9307001	227
N9307002	227
N9307003	227
N9307004	227
N9307005	225
N9307005	227
N9307006	227
N9307007	227
N9307008	227
N9307009	227
N9307010	227
N9307011	227
N9307012	227
N9307013	227
N9307017	115
N9307018	115
N9307021	116
N9307023	116
N9307026	227
N9307029	243
N9307037	227
N9307038	227
N9307050	227
N9307051	227
N9307052	227
N9307053	227
N9307054	227
N9307055	227
N9307056	227
N9307057	227
N9307058	227
N9307059	227
N9307060	227
N9307061	227
N9307062	227
N9307063	227
N9307064	227
N9307065	227
N9307066	227
N9307075	238
N9307076	238
N9307077	238
N9307078	238
N9307079	238
N9307080	238
N9307081	238
N9307082	238
N9307083	238
N9307085	243
N9307086	243
N9307093	235
N9307094	235
N9307095	235
N9307096	235
N9307097	234, 235
N9307098	235
N9307103	74
N9307104	75
N9307105	75
N9307106	75

Part No.	Page
N9307107	75
N9307108	76
N9307109	76
N9307110	76
N9307111	74
N9307112	74
N9307113	71
N9307114	71
N9307115	71
N9307116	71
N9307117	70
N9307118	74
N9307119	74
N9307504	89
N9307509	89
N9307511	89
N9307512	89
N9307515	89
N9307519	89
N9307521	89
N9307522	89
N9307522	89
N9307523	89
N9307738	74
N9307740	86
N9307741	72
N9307760	89
N9307800	162
N9307801	115
N9307802	115
N9307805	74
N9307806	74
N9307807	74
N9307808	74
N9307809	76
N9307810	76
N9307820	168
N9307822	168
N9307823	116
N9307830	28
N9307831	28
N9307832	28
N9307833	28
N9307834	31
N9307835	31
N9308000	94
N9308001	94
N9308002	93
N9308003	93
N9308004	92
N9308005	92
N9308006	92
N9308007	92
N9308008	93
N9308009	94
N9308010	92
N9308011	93
N9308012	92
N9308013	93
N9308014	92
N9308015	93
N9308016	93

Part No.	Page
N9308017	93
N9308018	94
N9308019	92
N9308020	94
N9308021	94
N9308022	94
N9308023	94
N9308024	93
N9308025	93
N9308027	93
N9308029	94
N9308030	93
N9308031	93
N9308032	93
N9308033	93
N9308034	93
N9308035	109
N9308036	94
N9308037	93
N9308041	94
N9308042	94
N9308044	94
N9308045	94
N9308048	93
N9308049	93
N9308050	93
N9308056	93
N9308058	93
N9308059	93
N9308060	93
N9308063	109
N9308065	94
N9308066	93
N9308067	94
N9308068	94
N9308069	94
N9308070	94
N9308073	94
N9308150	89
N9308160	84
N9308161	84
N9308162	84
N9308163	84
N9308164	84
N9308165	84
N9308166	84
N9308167	84
N9308168	84
N9308169	84
N9308170	84
N9308173	85
N9308174	85
N9308176	85
N9308177	85
N9308178	85
N9308181	85
N9308182	85
N9308200	82
N9308201	82
N9308202	82
N9308203	82
N9308204	82

Part No.	Page
N9308205	82
N9308206	82
N9308207	82
N9308208	82
N9308209	82
N9308210	82
N9308211	82
N9308212	82
N9308213	82
N9308214	82
N9308215	82
N9308216	82
N9308217	82
N9308218	82
N9308219	82
N9308220	82
N9308221	82
N9308222	82
N9308223	82
N9308224	82
N9308225	82
N9308226	82
N9308227	82
N9308228	82
N9308229	82
N9308230	82
N9308231	82
N9308232	82
N9308233	82
N9308234	82
N9308235	82
N9308236	82
N9308237	82
N9308238	82
N9308239	83
N9308241	83
N9308242	83
N9308243	83
N9308245	83
N9308247	83
N9308248	83
N9308249	83
N9308251	83
N9308252	83
N9308255	82
N9308258	83
N9308259	83
N9308262	84
N9308263	84
N9308264	84
N9308265	84
N9308266	84
N9308267	84
N9308268	84
N9308269	84
N9308270	84
N9308271	84
N9308272	84
N9308273	84
N9308274	84
N9308278	85
N9308279	85

Part No.	Page
N9308280	85
N9308281	85
N9308282	85
N9308283	85
N9308284	85
N9308285	85
N9308286	85
N9308287	85
N9308288	85
N9308289	85
N9308290	86
N9308291	86
N9308292	86
N9308293	86
N9308294	86
N9308295	86
N9308296	86
N9308297	84
N9308300	83
N9308301	83
N9308302	83
N9308303	83
N9308304	83
N9308305	83
N9308306	83
N9308307	83
N9308308	83
N9308309	83
N9308310	83
N9308311	83
N9308312	83
N9308313	83
N9308314	86
N9308315	83
N9308316	83
N9308317	83
N9308318	83
N9308319	83
N9308320	83
N9308321	83
N9308322	82
N9308323	82
N9308324	83
N9308325	83
N9308326	83
N9308327	83
N9308328	83
N9308329	83
N9308330	83
N9308331	109
N9308332	109
N9308333	83
N9308334	83
N9308340	93
N9308341	85
N9308342	85
N9308343	85
N9308344	85
N9308345	85
N9308346	85
N9308350	86, 262
N9308351	86, 262

Part No.	Page
N9308352	86, 262
N9308354	86, 262
N9308355	83
N9308356	83
N9308357	83
N9308358	83
N9308359	83
N9308360	83
N9308361	83
N9308362	83
N9308363	83
N9308364	83
N9308365	83
N9308366	83
N9308367	83
N9308368	83
N9308369	83
N9308370	83
N9308371	83
N9308372	83
N9308373	83
N9308374	83
N9308375	86
N9308376	86, 262
N9308377	86
N9308378	84
N9308380	86, 262
N9308381	94
N9308382	94
N9308390	85
N9308391	85
N9308392	85
N9308393	85
N9308394	85
N9308395	85
N9308400	125
N9308401	125
N9308402	125
N9308403	125
N9308404	125
N9308405	125
N9308406	125
N9308407	125
N9308408	125
N9308409	125
N9308410	125
N9308411	125
N9308412	125
N9308413	125
N9308414	125
N9308415	125
N9308416	125
N9308417	125
N9308418	125
N9308419	125
N9308420	125
N9308421	125
N9308422	125
N9308423	125
N9308424	125
N9308425	125
N9308426	125

Part No.	Page
N9308427	125
N9308428	125
N9308429	125
N9308430	125
N9308431	125
N9308432	125
N9308433	125
N9308434	125
N9308435	125
N9308450	125
N9308451	125
N9308452	125
N9308453	125
N9308454	125
N9308455	125
N9308456	125
N9308457	125
N9308458	125
N9308459	125
N9308460	125
N9308461	125
N9308462	125
N9308463	125
N9308464	125
N9308465	125
N9308466	125
N9308467	125
N9308468	125
N9308469	125
N9308470	125
N9308471	125
N9308472	125
N9308473	125
N9308474	125
N9308475	125
N9308476	125
N9308477	125
N9308478	125
N9308479	125
N9308480	125
N9308481	125
N9308482	125
N9308483	125
N9308484	125
N9308485	125
N9308486	125
N9308487	125
N9308488	125
N9308489	125
N9308490	125
N9308491	125
N9308492	125
N9308493	125
N9308494	125
N9308495	125
N9308496	125
N9308497	125
N9308498	125
N9308499	125
N9308500	125
N9308501	125
N9308502	125

Part No.	Page
N9308503	125
N9308504	125
N9308505	125
N9308506	125
N9308507	125
N9308508	125
N9308509	125
N9308510	125
N9308511	125
N9308512	125
N9308513	125
N9308514	125
N9308515	125
N9308516	125
N9308517	125
N9308518	125
N9308519	125
N9308520	125
N9308521	125
N9308522	125
N9308523	125
N9308524	125
N9308525	125
N9308526	125
N9308527	125
N9308528	125
N9308529	125
N9308530	125
N9308531	125
N9308532	125
N9308533	125
N9308534	125
N9308535	159
N9308540	86
N9308541	71
N9308542	71
N9308543	71
N9308552	83
N9308554	85
N9308555	85
N9308571	81
N9308573	169
N9308574	169
N9308575	169
N9308576	169
N9308577	234
N9308578	234
N9308579	234
N9308580	234
N9308581	235
N9308582	235
N9308583	235
N9308584	235
N9308585	235
N9308587	169
N9308588	169
N9308589	169
N9308590	169
N9308591	74, 80
N9308592	74, 80
N9308700	94
N9308701	94

Part No.	Page
N9308702	94
N9308703	94
N9308704	93
N9308705	93
N9308706	93
N9308707	94
N9308708	93
N9308709	92
N9308710	92
N9308711	93
N9308712	93
N9308713	93
N9308714	85
N9308715	85
N9308716	85
N9308717	85
N9308718	85
N9308719	85
N9308720	85
N9308721	85
N9308722	85
N9308723	85
N9308724	85
N9308725	86
N9308726	85
N9308900	262
N9308901	262
N9308904	262
N9309004	33
N9309006	33
N9309007	33
N9309008	33
N9309009	33
N9309010	33
N9309011	33
N9309012	33
N9309013	33
N9309017	33
N9309019	33
N9309021	33
N9309024	33
N9309025	33
N9309026	33
N9309027	33
N9309028	33
N9309029	33
N9309030	33
N9309031	33
N9309032	33
N9309033	33
N9309034	33
N9309035	33
N9309036	33
N9309066	33
N9309103	33
N9309108	33
N9309109	33
N9309110	33
N9309130	227
N9309160	226
N9309161	226
N9311570	194

Part No.	Page
N9315067	189
N9315068	189
N9315069	189
N9315070	189
N9315071	190
N9315072	190
N9315073	190
N9315074	190
N9315075	190
N9315076	190
N9315499	176
N9316001	176
N9316002	176
N9316003	176
N9316004	176
N9316005	176
N9316006	176
N9316007	176
N9316008	176
N9316009	176
N9316010	176
N9316011	176
N9316012	176
N9316013	176
N9316014	176
N9316015	194
N9316016	176
N9316017	176
N9316018	176
N9316019	176
N9316020	176
N9316021	176
N9316022	176
N9316023	176
N9316024	176
N9316025	176
N9316026	176
N9316027	176
N9316028	176
N9316029	176
N9316030	176
N9316031	176
N9316032	176
N9316034	176
N9316035	176
N9316036	176
N9316037	176
N9316038	176
N9316039	176
N9316040	176
N9316041	176
N9316042	176
N9316043	176
N9316044	176
N9316045	176
N9316046	176
N9316047	176
N9316048	176
N9316049	176
N9316050	176
N9316051	176
N9316052	176

Part No.	Page
N9316053	176
N9316054	176
N9316056	176
N9316057	176
N9316058	176
N9316061	176
N9316062	176
N9316063	176
N9316064	176
N9316065	194
N9316066	178
N9316067	178
N9316068	178
N9316069	178
N9316071	178
N9316072	178
N9316073	178
N9316074	178
N9316075	178
N9316076	117, 178
N9316077	178
N9316078	178
N9316079	178
N9316080	178
N9316081	178
N9316082	178
N9316083	178
N9316085	178
N9316086	178
N9316087	178
N9316089	178
N9316090	178
N9316091	178
N9316092	178
N9316093	178
N9316094	178
N9316095	178
N9316096	178
N9316097	178
N9316098	178
N9316099	178
N9316100	178
N9316101	178
N9316102	178
N9316103	178
N9316104	178
N9316105	178
N9316108	178
N9316109	178
N9316110	178
N9316111	178
N9316112	178
N9316113	180
N9316114	180
N9316115	180
N9316116	180
N9316117	180
N9316118	180
N9316119	180
N9316120	180
N9316121	180
N9316122	180
N9316123	180
N9316124	180
N9316125	180
N9316126	180
N9316127	180
N9316128	180
N9316129	180
N9316130	180
N9316131	180
N9316132	180
N9316133	180
N9316134	180
N9316135	180
N9316136	180
N9316137	180
N9316138	180
N9316139	180
N9316140	180
N9316141	180
N9316142	180
N9316143	180
N9316144	182
N9316145	182
N9316146	182
N9316147	182
N9316148	182
N9316149	182
N9316150	182
N9316151	182
N9316152	182
N9316153	182
N9316172	184
N9316173	184
N9316174	184
N9316175	184
N9316176	184
N9316177	184
N9316178	184
N9316179	184
N9316180	184
N9316182	184
N9316183	184
N9316184	184
N9316185	184
N9316186	184
N9316187	184
N9316188	193
N9316189	193
N9316189	193
N9316190	193
N9316191	193
N9316192	193
N9316193	193
N9316194	193
N9316195	193
N9316196	193
N9316197	193
N9316198	193
N9316199	193
N9316200	189
N9316201	189
N9316202	189
N9316203	189
N9316204	189
N9316205	189
N9316206	189
N9316207	189
N9316208	189
N9316209	189
N9316210	185
N9316212	185
N9316213	185
N9316214	185
N9316215	185
N9316216	185
N9316217	185
N9316218	185
N9316219	185
N9316220	185
N9316221	185
N9316222	185
N9316223	185
N9316224	185
N9316225	185
N9316226	185
N9316227	185
N9316228	186
N9316229	186
N9316230	186
N9316231	186
N9316232	186
N9316234	186
N9316235	186
N9316236	186
N9316237	186
N9316238	186
N9316239	186
N9316240	186
N9316242	186
N9316243	186
N9316244	186
N9316245	186
N9316246	186
N9316247	186
N9316248	186
N9316249	186
N9316250	186
N9316251	186
N9316252	186
N9316253	186
N9316254	186
N9316255	186
N9316256	186
N9316257	186
N9316258	186
N9316259	186
N9316261	193
N9316262	193
N9316263	180
N9316264	180
N9316265	180
N9316266	180
N9316267	180
N9316268	177

Part No.	Page
N9316269	177
N9316270	177
N9316271	177
N9316272	178
N9316273	178
N9316275	178
N9316276	179
N9316277	179
N9316279	179
N9316280	179
N9316282	179
N9316283	179
N9316284	179
N9316286	179
N9316287	179
N9316289	179
N9316290	179
N9316291	179
N9316293	179
N9316294	179
N9316295	179
N9316297	179
N9316298	179
N9316299	179
N9316300	179
N9316301	179
N9316302	179
N9316303	179
N9316304	195
N9316305	195
N9316319	193
N9316345	193
N9316346	193
N9316347	193
N9316348	193
N9316349	193
N9316350	193
N9316351	194
N9316352	194
N9316353	194
N9316354	194
N9316355	194
N9316356	194
N9316357	194
N9316358	194
N9316359	195
N9316360	195
N9316361	195
N9316374	178
N9316386	194
N9316387	194
N9316388	192
N9316389	192
N9316390	192
N9316391	192
N9316392	192
N9316393	192
N9316399	187
N9316400	187
N9316401	187
N9316402	187
N9316403	187
N9316404	187
N9316405	187
N9316406	187
N9316407	187
N9316408	187
N9316409	187
N9316410	187
N9316411	187
N9316412	187
N9316413	187
N9316416	187
N9316417	187
N9316418	187
N9316419	187
N9316420	187
N9316421	187
N9316422	187
N9316423	187
N9316425	187
N9316426	187
N9316427	187
N9316428	187
N9316429	187
N9316478	187
N9316480	191
N9316481	191
N9316483	191
N9316484	191
N9316485	191
N9316487	191
N9316488	191
N9316489	191
N9316490	191
N9316491	191
N9316492	191
N9316493	191
N9316494	191
N9316495	191
N9316496	191
N9316497	191
N9316498	193
N9316506	194
N9316507	194
N9316508	194
N9316520	194
N9316521	194
N9316534	181
N9316535	181
N9316536	181
N9316537	181
N9316538	181
N9316539	181
N9316540	181
N9316541	181
N9316542	181
N9316544	195
N9316545	193, 195
N9316546	195
N9316547	188
N9316548	188
N9316549	188
N9316550	188
N9316551	188
N9316552	188
N9316553	188
N9316554	188
N9316555	188
N9316556	188
N9316557	188
N9316558	188
N9316559	188
N9316560	188
N9316561	188
N9316563	188
N9316564	188
N9316565	188
N9316566	188
N9316567	188
N9316568	188
N9316569	188
N9316570	188
N9316571	188
N9316572	194
N9316575	190
N9316580	176
N9316596	176
N9316607	228
N9316608	228
N9316616	183
N9316617	183
N9316618	183
N9316619	183
N9316620	183
N9316621	183
N9316622	183
N9316623	183
N9316624	183
N9316625	183
N9316626	183
N9316627	183
N9316628	183
N9316629	183
N9316630	183
N9316631	183
N9316632	183
N9316633	183
N9316634	183
N9316635	183
N9316636	183
N9316637	183
N9316638	183
N9316639	183
N9316640	183
N9316641	183
N9316642	183
N9316643	183
N9316644	183
N9316645	183
N9316646	183
N9316647	183
N9316648	183
N9316649	183
N9316650	191
N9316651	191

Part No.	Page
N9316652	191
N9316653	191
N9316654	191
N9316655	191
N9316656	191
N9316657	191
N9316658	191
N9316659	191
N9316661	192
N9316662	192
N9316663	192
N9316664	192
N9316665	192
N9316666	192
N9316667	192
N9316668	192
N9316669	192
N9316670	192
N9316671	192
N9316672	192
N9316673	178
N9316674	178
N9316675	178
N9316676	178
N9316677	178
N9316678	178
N9316679	178
N9316680	178
N9316681	178
N9316682	178
N9316684	178
N9316685	176
N9316686	176
N9316691	176
N9316692	176
N9318482	191
N9326141	186
N9331028	245
N9331030	245
N9331031	245
N9331032	245
N9331033	245
N9331036	245
N9331037	245
N9331038	245
N9331041	244
N9331042	244
N9331043	244
N9331044	245
N9331045	245
N9331046	245
N9331047	244
N9331048	244
N9331060	245
N9331061	245
N9331062	245
N9331063	245
N9331064	245
N9334010	152
N9336181	184
NR002500	198
NR002503	198
NR004030	198
NR004031	198
NR004038	198
NR004040	198
NR004041	198
NR004043	198
NR004044	198
NR004045	198
NR004046	198
NR004083	198
NR004086	198
NR004087	198
NR004229	198
NX598006	160, 161, 168
PELA 9011	269
PELA 9013	269
PELA 9018	269
PELA 9019	269
PELA 9058	269
PELA1003	282
PELA1005	282
PELA1006	282
PELA1008	282
PELA1013	282
PELA1014	282
PELA1015	282
PELA9038	280
PELA9039	280
PELA9040	279, 280
PELA9057	280
W1007468	55
W1008384	55
W1008572	55
W1008573	55
W1010620	56
W1012406	54, 55, 58, 59
W1012406	54
W1012408	55
W1012409	55
W1013195	56
W1013266	54
W1013361	56
W1013545	54, 55
W1017871	56
W1020668	55
W1020672	55
W1020996	58
W1026356	57, 59
W1026907	57, 59
W1033612	57, 59
W1033614	57, 59
W1033995	57, 59
W1034694	57
W1036712	59, 91
W1036713	59, 91
W1037267	59
W1037485	55
W1040148	57, 59
W5005586	59
WE012411	55
WE013060	52, 54
We014034	58
WE014081	52
WE014777	56
WE015554	55
WE016558	87
WE017142	57
WE018034	56, 58
WE021137	57, 58
WE021140	57, 58
WE021816	55, 58, 59
WE023948	54, 58, 59
WE023951	54
WE024371	48
WE024372	48
WE024375	48, 59
WE025221	51, 58
WE027005	54
WE027030	54
WE027484	57
WE027802	57, 58
WE027803	57, 58
WE029011	56
ZECVSTDDADMWD	126
ZECVSTDVWD	126
ZECVSTDWPDADMWD	126
ZECVSTDWPVWD	126
ZG196985000	122
ZG2421A	122
ZULECVSTDDADMWD	126
ZULECVSTDVWD	126
ZULECVSTDWPDADMWD	126
ZULECVSTDWPVWD	126

ATOMIC ABSORPTION INDEX

Atomic Spectroscopy - Instrument Overview 12-13
AAnalyst 200/400 Atomic Absorption Spectrometers 12
NexION 350 ICP-MS Spectrometers 13
Optima 8x00 ICP-OES Spectrometers.....13
PinAAcle 900 Atomic Absorption Spectrometers 12

Autosampler Cups and Supplies 26
Autosampler Cups.....26
Autosampler Trays.....26
Pliers 26
Reagent Containers.....26
Sampling Capillaries 26

Burner System Components..... 20-21
Burner Heads 20
Burner System Components 21

Compressors 27

Graphite Furnace Tubes and Supplies 28-32
HGA Graphite Tubes and Supplies 30-32
Contact Cylinders 31
Graphite Tubes 30-32
Matrix Modifiers 31
THGA Graphite Tubes and Supplies 28-29
Accessories and Spare Parts 29
Contact Cylinders 29
Graphite Tubes 28-29
Instrument Mirror 29
Matrix Modifiers 29

Lamps..... 14-19
1.5" Atomax Hollow Cathode Lamps 18-19
2" Lumina Hollow Cathode Lamps..... 14-15
Lumina Multi-Element Hollow Cathode Lamps.....15
Lumina Single-Element Hollow Cathode Lamps..... 14-15
Electrodeless Discharge Lamps..... 16-17
EDL Driver Assemblies.....17
EDL Driver Components.....17
Electrodeless Discharge Lamps 16

Mercury Analyzer Supplies 33

Nebulizers, Assemblies and Spares 22-25
Nebulizer Accessories 24-25
Nebulizers 22-23

Autosampler Supplies **63-65**
Accessories 64
Autsampler Probe Assemblies 63
Cetac 63
ESI 63
PerkinElmer 63
Used Oil Autosampler Probe 63

Autosampler Tubes **65**

Cooling Systems **87**
Chiller Coolant Mix 87
Chillers/Recirculating Water Cooling Systems 87
Coolant Fluid 87
Heat Exchanger System 87

Flow Injection System **66-67**
Adapters and Connectors 66
Mixing/Separation Assembly 67
Flow Injection Furnace Supplies 67
Gas/Liquid Separator 67
Mixing Block 67
Sample Loops 67
Tool, Screw Connectors 67
Tubing 67

Internal Standard Kits **61**
Internal Standard Kits 61
HF-Resistant Internal Standard Kit 61
Non HF-Resistant Internal Standard Kit 61

Laboratory Products **90-91**
Blower and Vent Assembly 90
Dryers, Filters, and Replacement Parts 91
Flashback Arrestor 90
Hose Assemblies 90
Instrument Filters 91
Polyscience Replacement Air Filters 91
Regulators 90

Microwave Sample Preparation **95-97**
Titan MPS Systems 95
Titan MPS System Accessories 96-97
Titan MPS Consumables 96-97

Power Conditioners and UPS Systems **89**
Power Conditioners 89
Uninterruptable Power Supply Systems 89

Pump Tubing **60-62**
Three-Stop Peristaltic Pump Tubing 62
Two-Stop Peristaltic Pump Tubing 60, 62

Noise Enclosures **88**

Sample Preparation Blocks **92-94**
Sample Preparation Blocks and Controllers 92
Automatic Shut-Off System 94
Digi FILTERS 93
SPB Hoods 94
Start Up Kits 93
Temperature Probes 94
Tubes, Caps & Watch Glasses 93

Standards **68-86**
Inorganic Aqueous Standards 68-81
AA Test Mix 73
Contract Required Detection Limits (CRDL) 80
Environmental Method Sets 74-76
GFAAS Mixed Standard 73
Initial Calibration Verification Standards 79
Instrument Calibration Standards 78
Instrument Calibration Standards for CLP 79
Instrument Check Standards 79
Instrument Setup Solutions 78
Interference Check Standards 79
Internal Standard Solutions 80
Isotope Standard 81
Matrix Blanks 81
Matrix Modifiers for Graphite Furnace AA 73
Mixed Calibration Standards 72
Multi-Element Standards 71-72
Performance Verification Standards 80
Quality Control Standards 72
Reagents 73
Single-Element Standards 68-70
SmartTune Standards 78
Spike Sample Standards 72
Toxicity Characteristic Leachate Procedure (TCLP) Standard 77
Universal Data Acquisition Standards Kit 81
USP and ICH Standards 77
Wash Standards 81
Water Pollutant Standards 76
Wear Metal Metallo-Organic Standards 82-86
Biodiesel Standards 85
Fuel Dilution Oils 84
Internal Standards 83
Karl Fischer Standards 85
Matrix Oils and Solvents 84
Metal Additive Standards 83
OilExpress Standards 86
Proficiency Testing Standards 86
Single-Element Standards 82
Soot Content Standards 85
V-21 Wear Metal Standards 83
V-23 Wear Metal Standards 83
Viscosity Reference Standards 86
V-Solv 84

Trays and Racks **64**
Cetac Autosampler Supplies 64
Racks 64
ESI Autosampler Supplies 64
Racks and Rack Covers 64
PerkinElmer Sample Trays 64
Trays and Supplies 64

Crimping Tools and Vial Accessories..... 121

QuEChERS Dispersive SPE..... 110-111

Solid Phase Extraction (SPE)..... 101-109
Solid Phase Extraction (SPE) Application Packs 109
Solid Phase Extraction (SPE) Columns and Well Plates ... 101-108
300 Å C4 Columns.....104
Amino Columns and Well Plates 106
C18 Columns and Well Plates.....104
Cyano Columns.....106
Florisil (Pesticide Grade) Columns.....105
Florisil Columns 105
LCC Columns 106
Mixed Mode (1) Columns and Well Plates.....105
Mixed Mode (2) Columns 105
Mixed Mode (3) Columns 105
Phenyl Columns and Well Plates 106
Polyamine Columns 106
REC18 Columns and Well Plates 104
Silica Columns and Cartridges.....106
Strong Anion Exchange Columns and Well Plates.....104
Strong Cation Exchange Columns and Well Plates.....105
Super-Poly Environmental Columns.....108
Super-Poly Extra Wide Particle 1200 m2/g
Columns and Well Plates 108
Super-Poly Extreme Capacity 1500 m2/g
Columns and Well Plates 108
Super-Poly HLB Columns and Well Plates 107
Super-Poly Hydrophilic Columns.....108
Super-Poly Lipophilic Columns 108
Weak Cation Exchange Columns and Well Plates.....105
Solid Phase Extraction (SPE) Selection Kits.....109

Syringe Filters..... 100
Nylon Filters 100
PTFE (Hydrophobic) Filters.....100
PTFE (Hydrophylic) Filters 100
PVDF Filters 100

Syringes 112

Vials, Caps and Septa..... 113-120
Autosampler Vials, Caps and Septa 114-117
2 mL Vials (12 x 32 mm) 114
Caps and Septa 116
Inserts for 2 mL Vials.....115
Kits - Convenience.....117
Kits - Starter 117
Vials with fused inserts (12 x 32 mm).....115
Headspace Vials, Caps and Septa
Caps and Septa 119
Kits - Convenience.....120
Kits - Starter 120
Vials 118

Autosampler Parts and Accessories 228

Calibration Gas Blends - Arnel Analyzers..... 199

Columns 172-198
Capillary Columns - General Purpose..... 176-188, 196, 198
Arnel Replacement Columns.....198
Elite-1 176
Elite-1301 185
Elite-17 180
Elite-1701 186
Elite-17MS 181
Elite-17MS+.....181
Elite-1HT.....177
Elite-1MS 177
Elite-200 183
Elite-225 184
Elite-35 182
Elite-35MS 182
Elite-5 178
Elite-5 Amine 178
Elite-5HT.....178
Elite-5MS 179
Elite-5MS II 179
Elite-624 189
Elite-624 MS 189
Elite-WAX 187
Elite-WAX ETR 188
Velocity-1 196
Velocity-5 196
Velocity-WAX.....196
Capillary Columns - Integrated Guard Columns 173
Capillary Columns - Specialty Phases 190-195
Elite-23 194
Elite-2560 194
Elite-502.2 193
Elite-608 193
Elite-Alumina PLOT 195
Elite-Alumina/KCl PLOT 195
Elite-BAC 190
Elite-Betecylodextrin 193
Elite-CLPesticides 192
Elite-Cyclosis B PLOT 195
Elite-FFAP.....194
Elite-Molesive PLOT.....195
Elite-MTBE 194
Elite-PONA.....194
Elite-Q PLOT 195
Elite-RX.....193
Elite-SimDist 193
Elite-SimDist HT 194
Elite-TPH 194
Elite-VMS.....191
Elite-Volatiles 192
Elite-XLB 191
Custom Packed Columns.....197

Detectors 214-220
Electron Capture Detector (ECD).....217
Flame Ionization Detector (FID) 214-215
Flame Photometric Detector (FPD) 216
Nitrogen Phosphorous Detector (NPD) 218
Photoionization Detector (PID).....219
Thermal Conductivity Detector (TCD).....220

Ferrules and Connectors..... 200

Fittings 201

Gas Management..... 229-243
Compressors 240
Filters 229-233
Flow Meter.....243
Generators - Hydrogen..... 234-237
Generators - Zero Air..... 238-239
Leak Detector.....242
Regulators.....241

Injection Port Septum 213

Injectors 204-209

Liners..... 210-211

Marathon Filament 221

Organic Standards 244-245

SMARTSource 222-223

Syringes 212

Swafer..... 202-203

Thermal Desorber Consumables and Accessories.... 224-227
Conditioning Oven 226
Kits and Accessories 225
Packed Traps 224
Tubes 227

Thermal Desorber Conditioning Oven 226

Cones 57
Cone Removal Tool.....57
Hyper Skimmer Cone and Spares.....57
Sampler and Skimmer Cone O-Rings 57

Injectors and Adapters 54-55
Injector Support Adapter O-Rings..... 54-55
Injector Support Adapters..... 54-55
Injectors
Alumina Injectors.....54
Quartz Injectors 54
Sapphire Injectors 54
PFA Injector Assemblies 54

Mass Spectometer Hardware..... 56
Detectors 56
Ion Optics.....56
Ion Lens.....56
ShadowStop 56
Vacuum Pump Fluid.....56

Nebulizers and Supplies 48-50
Adapters and Fittings 48-49
End Cap for Concentric Nebulizers 48
Liquid Connector.....48
Nebulizers 48-50
GemClean Cross-Flow II Nebulizer 48
Meinhard Nebulizers and Spares 48
MicroMist Nebulizers 49
Obstruction Removal Tool 49-50
PFA Nebulizers.....38
SeaSpray Nebulizers.....50
Sample Introduction Kits 58-59
Sample Capillaries 50
Connectors and Spares.....48

Sample Introduction Kits and Spares Kits..... 58-59
ELAN Spares Kits 58
NexION Consumables Kits 59
Sample Introduction Systems for ELAN 58

Spray Chambers 51-53
Baffled Cyclonic Spray Chambers 51
Cyclonic Spray Chambers 51-52
Scott Spray Chambers 52
Temperature Controlled Spray Chambers.....53
IsoMist Programmable Temperature Spray Chambers 53
PC^3 Peltier Coolers.....53

Torches and Load Coil 55
Cassette Torch Mount 55
Demountable Quartz Torches 55
Power Amplifier Tube (Ceramic).....55
RF Load Coil Assemblies 55
Torch Alignment Tool.....55

Air Compressors and Replacement Parts 46
Compressors 46
Replacement Parts.....46

Benches and Carts..... 47

Injectors and Adapters 44
Alumina Injectors 44
FAST Injectors.....44
Injector Support Adapter O-Ring Kits.....44
Injector Support Adapters.....44
Quartz Injectors.....44
Sapphire Injectors.....44

Load Coils and Purge Windows 45
Ceramic Interface Cone.....45
Ceramic Purge Extension.....45
Purge Component Replacement Parts.....45
Purge Extension Windows 45
RF Load Coil 45

Nebulizers and Supplies 34-37
Argon Humidifier 37
Nebulizers 34-37
End Cap for Concentric Nebulizers.....34
GemCone High Dissolved Solids Nebulizer 37
GemCone Low-Flow Nebulizers 37
GemTip Cross-Flow II Nebulizers 37
Meinhard Nebulizers.....34
MicroMist Nebulizers 34
Mira Mist Nebulizer 34
PFA Nebulizers.....36
Sample Capillaries.....36
Sample Tube Connectors 36
Seaspray Nebulizers 35
Obstruction Removal Tool.....36

Sample Introduction Kits..... 41

Spray Chambers and Accessories..... 38-39
Accessories and Drain Parts 38
Baffled Cyclonic Spray Chambers 39
Connectors and Spares.....38
Cyclonic Spray Chambers 38
HF Resistant Spray Chambers 39
Scott Spray Chambers 39

Torches, Modules and Hardware 40, 42-43
Torches and Torch Accessories 42-43
Ceramic D-Torch 43
Copper Ignitor Tape 42
Quartz Torches..... 42-43
Torch Bonnets.....42
Torch O-Rings 42
Quick-Change Torch Modules.....40
Quick-Change Torch Module Support Stand 40

INFRARED SPECTROSCOPY INDEX

Accessories Overview 248-249

Application Packs 266
- Benzene in Gasoline ASTM D4053-04 266
- Biodiesel 266
- Educational 266
- Environmental Hydrocarbons ASTM D7066-04 266
- Environmental Hydrocarbons ATR 266
- Environmental Hydrocarbons Cyclohexane 266
- In-Service Lubricants 266
- Neutraceutical Compliance 266
- Pharmacopeia Compliance 266
- Polymer 266

ATR Accessories 250-251
- PerkinElmer ATR Accessories 250
  - HATR 250
  - UATR 250
- Pike ATR Accessories 250-251
  - ATR Miracle 250
  - GladiATR Vision 251
  - Variable Angle ATR (VATR) 251
  - Multiple (10) Reflection HATR 250
- Specac ATR Accessories 250-251
  - 25 Reflection ATR 251
  - Gateway HATR 251
  - Golden Gate ATR 251

ATR Top Plate Accessories 252-253
- PerkinElmer ATR Top Plates & Options 252
- Pike ATR Top Plates & Options 253
- Silver Gate Evolution ATR 253
- Specac ATR Top Plates & Options 253

Desiccant and Laser Kits, Sources and Reference Materials 263
- Disposable Desiccant Kit 263
- Instrument Performance Validation (IPV) Kits 263
- Rechargeable Desiccant Kits 263
- Replacement Laser Head Kit and Sources 263

Diffuse Reflectance Accessories and Options 254-255
- PerkinElmer Accessories 254
- Pike Accessories 254
- Specac Accessories 254
- Diffuse Reflectance Options 254
  - PerkinElmer 254
  - Pike 254

FT-NIR Consumables and Accessories 267
- General Consumables 267
- Reflectance Standards 267
- Sample Cups 267
- Spare Parts 267

Imaging Accessories 264
- ATR Imaging Upgrade for Spotlight Systems 264
- Crystal Compression Cell 264
- Diamond Compression Cell 264
- Hot Stage Accessory 264
- Infrared Windows 264
- Micro ATR Objective Upgrade Kit 264
- Microsampling Tools 264
- Microscope Supplies 264

OilExpress Supplies 262
- OilExpress Supplies 262
- Spare Parts 262
- Tubes and Bottles 262
- Tubing 262

Presses and Accessories 261
- Evacuable KBr Mini-press 261
- Hydraulic KBr Presses 261
- KBr Pellet Quick Press 261
- KBr Powder 261
- Support Rings for KBr Pellets 261

Sampling and Starter Kits 265

Spectrum Two Portability Options 262

Specular Reflectance Accessories 255
- PerkinElmer Accessories 255
- Pike Accessories 255
- Pike Specular Reflectance Options 255

Transmission Accessories and Options 256-260
- Accessories
  - Circular Demountable Cell Windows (Pair) 257
  - Circular Spacers 257
  - Crystal Polishing Kit and Replacement Parts 256
  - DC-2 Diamond Compression Cell 259
  - Demountable Cells and Windows 257
  - FT-NIR Liquid Cells and Holders 258
  - Press-N-Lock Demountable Cell and Windows 258
  - Press-N-Lock Demountable Cell Windows (Pair) 258
  - Rectangular Sealed Liquid Cells 258
  - Rectangular Semi-Demountable Cell Windows 257
  - Rectangular Spacers 257
  - Sealed Liquid Cells 258
  - Semi-Demountable Cells and Windows 257
  - Short Path Demountable Gas Cells 259
  - The Cyclone Series of Fixed and Variable Long Pathlength Gas Cells 259
  - The Gasera Photoacoustic PA301 FTIR Accessory 260
  - The Oxford Instrument Optistat DN 260
  - The Storm Short Pathlength (10 cm) Gas Cell 260
  - The Tornado Series of Fixed, Long Pathlength Gas Cells 259
  - Variable Temperature Cell 259
- Transmission Options 260

Columns **124-153**
Cartridge Columns 144-153
Brownlee Aquapore 145
Brownlee CHOICE 150
Brownlee Pecoshpere 147
Brownlee Polypore 149
Brownlee Prep-10 Semi-Preparative 149
Brownlee Spheri-10.....146
Brownlee Spheri-5.....146
Brownlee Validated 148
Brownlee VeloSep 151
Column Holders.....153
NewGuard 152
Conventional Columns 127-143
Brownlee Analytical 129-131
Brownlee Analytical DB 132-134
Brownlee Aquapore 135
Brownlee Bio 135
Brownlee CHOICE 136-137
Brownlee Validated 138-141
Guard Columns..... 142-143
SPP Columns 124-126

Detector Lamps **155**

Fingertight Fittings **162**

Flexar Autosampler and Accessories **164-165**

Flexar SQ 300 MS Consumables and Accessories.....**122 -123**

Flow Cells..... **154**

General Supplies and Accessories..... **166-168**

Generators - Nitrogen..... **169-171**

Injection Valves **163**

Pumps.....**158-160**

Pump Accessory Kits **154**

Rotor Seals..... **163**

Sample Loops **161**

Tubing **161**

Vacuum Degassing Kits **156-157**

DMA Supplies 296-297
Calibration Supplies 296
Replaceable Parts 296
Cooling Accessories 297
Specialty Fixtures and Accessories 297

DSC Supplies 290-292
Calibration Reference Materials 292
Crimpers and Presses 290-291
Loading Tools 292
Sample Holder Supplies 292
Sample Pan Manipulators 292
Sample Pans and Covers 290

Elemental Analysis Supplies 298-299
Calibration Standards 298
Packing Supplies 298
Reagents 298
Receptacles 298
Sample Capsules and Sealers 299
Tubes 299
Tubes - Prepacked 298
Tubes and Reagent Kits 298

TGA/STA Supplies 294-295
Autosampler Ceramic Crucible Kits and Liners 295
Calibration Reference Materials 295
Cooling Jacket 295
Forceps 295
Furnace and Balance Supplies 294
Pans 295
Replacement Needle Kit 295
Volatile Capsule Sealer Kit 295

TMA Supplies 293
Analysis Kits 293
Probes and Sample Tools 293
Reference Materials 293
Spares 293

Cells **270-274**
Cylindrical and Flow-Through Cells 273
Disposable Cells 274
Macro Cells 270
Micro Cells 271
Semi-Micro Cells 271
Ultra-Micro Cells 272

Cell Changers **276**
5+5 Cell Changer 276
8+1 Cell Changer 276
8+8 Cell Changer 276
13 Cell Changer 276
Automatic Linear Transport 276
Gel Cell, Glass 276
Reference Kit 276

Cell Holders **275**
Cylindrical Long-Path Cell Holder 275
Rectangular Long-Path Cell Holder 275
Solid Sample Holder 275
Standard Cell Holder 275
Test Tube Holder 275
Variable Angle Sample Holder 275

Fiber-Optics Accessories **282**
Fiber Optic Dip Probe 282
Light Shield 282
Pair of Mono-Fibers 282
Probe Tip 282
Transfer-Optic for Mono-Fibers 282

General Purpose Optical Bench Kits **282**
Sample Holder Mount Kit 282
Variable Angle Transmittance Sample Holder Kit 282
Optical Bench Kit 282
Short Focal Length Mirror Kit, Spot Incidence 282
Beam Blocker Kit 282
Fiber Optic Measurement Stage and Holder Kit 282

Fluorescence Consumables and Accessories **284-289**
Cells 284-285
Lamps 286
Fluorescence Thermostatting Accessories 287
Biokinetics Accessory 287
Four-Position Thermostatted Automatic Cell Changer 287
Luminescence Accessory 287
Sample Tubes 287
Single-Cell Peltier Accessory 287
Single-Position Thermostatted Cell Holder 287
Reference Materials 286
Sampling Accessories 288-289
Front-Surface Accessory 289
LC Flow Cell Accessory 288
Liquid Sipper Accessory 288
Remote Fiber-Optic Accessory 289
Total Emission Accessory 289
Well-Plate Reader Accessory 288

Integrating Spheres **280**
150 mm Integrating Spheres 280
50 mm Integrating Sphere 280
Cell Holder 280
Center Mounted Sample Holder 280

Lamps **268**
Deuterium 268
Tungsten 268

Polarimetry Cells and Accessories **283**
Beaker Cells 283
Flow Cells 283
Interference Filter 283
Micro Cells 283
Pluggable Coupling 283
PTFE Stopper 283
Quartz Standards 283
Short Path Cells 283
Source Lamps 283
Standard Cells 283
Standards 283

Polarizers and Depolarizers **281**

Reference Materials **268-269**
Calibration Reference Materials 268
Diffuse Reflectance Standards 269
Pharmacopoeia Solutions Reference Material Set 269
Photometric and Wavelength Accuracy Reference Material Set 269
Recertification Program for UV/Vis Calibration Reference Materials 269
Reference Mirror for Reflectance Spectroscopy 269
Stray Light Solutions Reference Material Set 269

Specular Reflectance Accessories **279**
Relative Specular Reflectance Accessories 279
Universal Reflectance Accessory (URA) 279
Variable-Angle Relative Specular Reflectance Accessory 279

Sipper **281**

Thermostatting Accessories **277-278**
Research Peltier Systems 278
Routine Peltier Systems 277

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