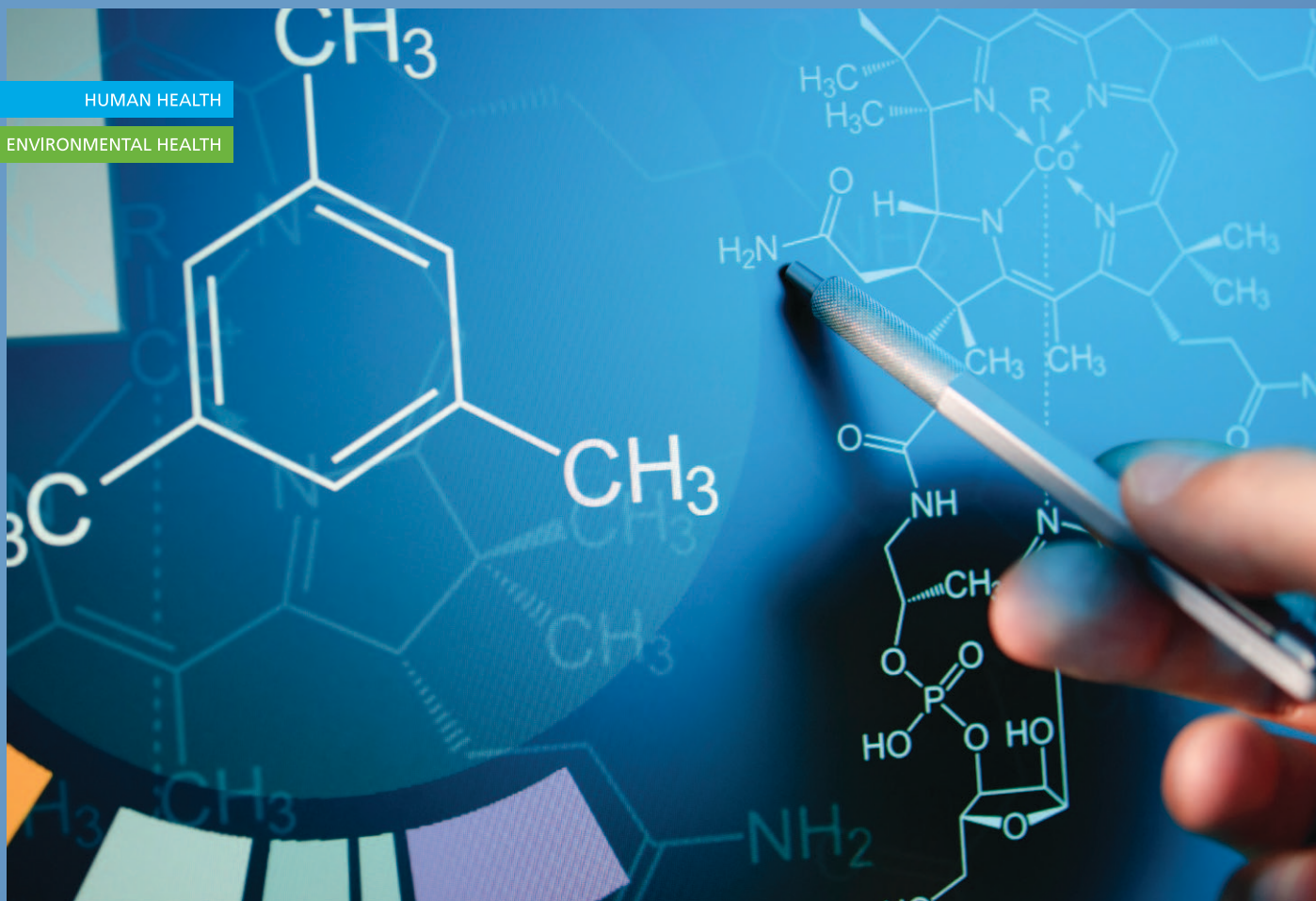


HUMAN HEALTH

ENVIRONMENTAL HEALTH



THE RIGHT SOLUTIONS TO  
**LOOK DEEPER**  
**GO FARTHER**

**2012-2013 Analytical Consumables and Supplies**

Atomic Spectroscopy | Chromatography | Materials Characterization

  
**PerkinElmer**<sup>®</sup>  
*For the Better*

# ORDERING INFORMATION

## New Investments – Local Support – Proven Quality!

For over 75 years, PerkinElmer has helped our global laboratory partners meet their most demanding application measurement challenges. Our experience in Chromatography, Spectroscopy and Material Characterization gives us a unique advantage in providing holistic and comprehensive solutions for laboratories in universities and key market segments like Environmental, Energy, and Food & Product Safety.

When you order our precision-designed, genuine PerkinElmer consumables and accessories, you can enjoy the peace of mind, ease of ordering, and best-in-class service. You'll get the results you need – accurately and on time. PerkinElmer selects only the highest quality products for our consumables portfolio and invests heavily to test and validate the quality of our products.

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Croatia .....	385 1 2001 767	385 1 2001 724	Greece - Athens .....	30 210 779 5980	30 21 771 6932
Czech Republic .....	420 241 430 534	420 241 430 535	Greece - Hellas.....	30 2310 322525	30 2310 321912
Egypt & English Africa .....	202 22905306	202 22905307	Iceland .....	354 568 8533	354 568 0304
French Africa .....	33 1 64 86 28 28	33 1 69 07 69 54	Israel .....	972 3 9777031	972-3-9777001
Hungary .....	36 1 251 1116	36 1 251 1461	Malta .....	356 21 344 345	356 21 343 952
Latvia .....	371 6755 1894	371 6755 1976	Portugal .....	351 21 782 60 30	351 21 782 60 39
Lithuania .....	370 5 2638748	370 5 2638749	Russian Federation.....	7 495 935 8888	7 495 564 8787
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Slovakia .....	421 2 59396199	421 48 2301628			
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Brazil .....	55 11 3868 6200	55 11 3868 6210	Kingdom of Saudi Arabia - Central		
Canada .....	905-851-4585 or 800-561-4646	905-851-1814	.....	966 1 4793000	966 1 4771374
Chile.....	56 2 784 7500	56 2 236 6821	Kingdom of Saudi Arabia - East		
Mexico .....	52 55 5337 0700	52 55 559 36223	.....	966 3 8475299	966 3 8475296
Puerto Rico.....	787 783 3067	787 793 7198	Kingdom of Saudi Arabia - West		
United States .....	203-925-4600 or 800 762-4000	203-944-4904	.....	966 2 6720888	966 2 6725664
			Kuwait.....	965 246 10 480	965 246 10 488/9
			Oman .....	968 248 14752 or 968 992 69420	968 248 13924
			Pakistan .....	92 21 5345581 or 92 21 5340747 or 92 21 53417934 or 92 21 53460578	92 21 5345582
			Qatar .....	974 4417371	974 4443487
			Republic of South Africa.....	27 11 794 4430	27 11 794 2160
			United Arab Emirates .....	971 4 883 0233	971 4 883 0133
			Yemen.....	967 234 5073	967 234 0504
<b>Asia</b>			<b>Western Europe</b>		
Australia.....	61-3-9212-8500 or 1-800 033 391	61-3-9212-8595	Austria.....	0800 111 933	0800 111 934
China - Beijing .....	86-10-58208166	86-10-58208155	Belgium.....	0800 40858	0800 40859
China - Chengdu .....	86-28-8678 2887 or 86-28-8678 2662	86-28-8678 2522	Denmark .....	8088 4236	8088 4237
China - Guangzhou .....	86-20-8363 3179	86-20-8363 3579	Estonia .....	372 7 383 330	372 7 383 360
China - Shanghai .....	86-21-38769510	86-21-50791316	France.....	0805 111 333	0805 111 334
China - Shenyang .....	86-24-2256-6158	86-24-2256-6153	Germany .....	0800 181 0032	0800 181 0031
China - Wuhan.....	86-27-8732-2732 or 86-27-8732-2756 or 86-27-8732- 2826	86-27-8732-2685	Italy .....	800 906 642 or 39 039 2383-1	39 039 2383 490
Hong Kong.....	852-2620-1881	852-2620-1238	Netherlands .....	0800 0234490	0800 0234491
India .....	91 22 33261700	91 22 33261790	Norway.....	800 18 854	800 18 855
Indonesia .....	62 21 56945040 43	62 21 56945024	Republic of Ireland .....	1800 932 886	1800 932 884
Japan - Kyushu .....	81-92-473-7001	81-92-473-8353	Spain.....	34 918 061 200 or 800 099 164	34 918 040 414 or 800 099 165
Japan - Osaka .....	81-6-6386-6004	81-6-6386-7009	Sweden.....	0200 887 520	0200 887 521
Japan - Tokyo.....	81-3-3866-2647	81-3-3866-2652	Switzerland .....	0800 000 015	0800 000 016
Japan - Yokohama .....	81-45-339-5861	81-45-339-5871	United Kingdom.....	0800 89 60 46	0800 89 17 14
Korea .....	82 2 868 5350	82 2 868 4343			
Malaysia.....	603-79491118	603-79491119			
New Zealand.....	64 21 215 1198 or 0800 724 663	64 3 384 1222			
Philippines .....	63 2 637 0180	63 2 910 1168			
Singapore .....	65 6868 1660	65 6872 6595			
Taiwan - Taipei .....	886-2-27647199	886-2-27647209			
Thailand .....	662-3197901	662-3197900			
Vietnam - Hanoi.....	84 4 3747 2258	84 4 3747 2260			
Vietnam - Ho Chi Minh City.....	84 8 5431 8877				

## Ordering Information

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*Online ordering is currently available in Australia, Austria, Belgium, Canada, China, Denmark, Finland, France, Germany, Ireland, Italy, Luxemburg, the Netherlands, Norway, Puerto Rico, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States.*

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Please contact your local PerkinElmer Customer Care Representative. See local office listings to the left. Or visit [www.perkinelmer.com/lasoffices](http://www.perkinelmer.com/lasoffices).

### Order by Mail

Visit us online at [www.perkinelmer.com/lasoffices](http://www.perkinelmer.com/lasoffices) to obtain the correct address for mailing your company Purchase Order.

### Return Goods Policy

Before returning any item to PerkinElmer, please obtain a Return Authorization Number from a customer service representative. Call your local PerkinElmer office and please have the following information ready:

- Our Order Number or your Purchase Order Number
- The PerkinElmer part numbers of the items that you wish to return
- Reason for return

Our customer service representative will provide you with a Return Authorization Number and the return address. We cannot accept any returns without a Return Authorization Number. Policy may vary. Please contact your local PerkinElmer representative for details.

### Technical Support

For technical assistance, please contact your local PerkinElmer Customer Care Representative. See local office listings to the left.

*Check with your local PerkinElmer Customer Care center for current pricing.*

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HUMAN HEALTH

ENVIRONMENTAL HEALTH

NOTHING  
FEELS BETTER THAN  
KNOWING YOU HAVE  
THE BEST



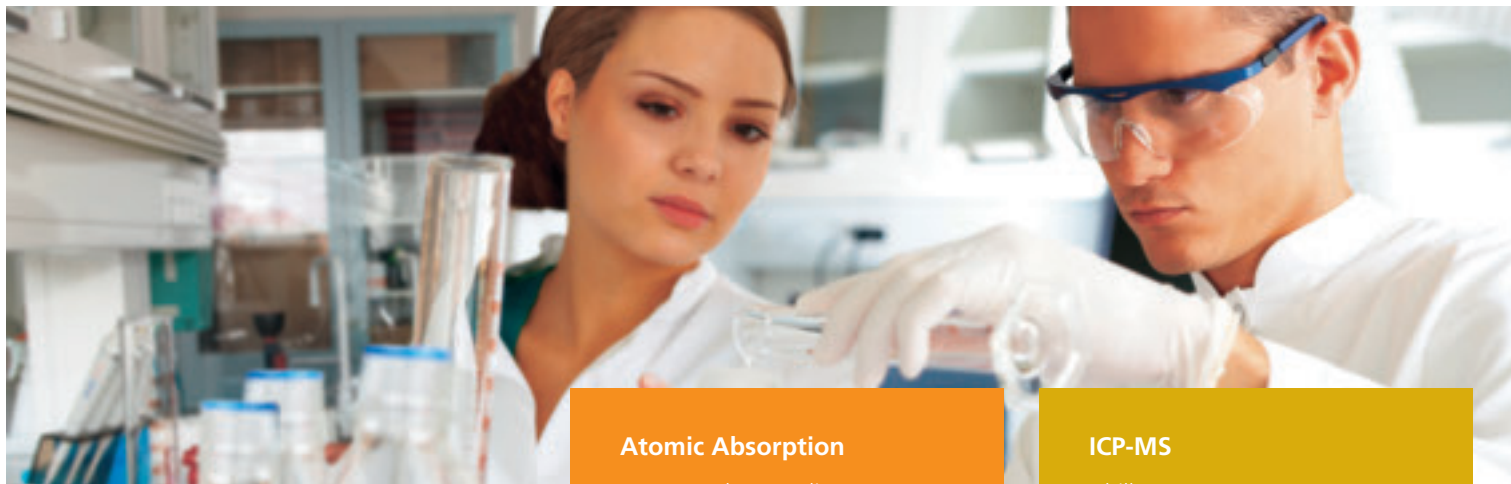
PinAAcle AA Spectrometers

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**Discover the PinAAcle of Performance in AA.** Engineered around cutting-edge fiber-optic technology for enhanced light throughput and superior detection limits, the new PinAAcle™ series is the latest innovation from the world leader in atomic absorption. Available in flame, furnace, or combination models, PinAAcle instruments offer exactly the level of performance you need with the smallest footprint of any combined flame/graphite furnace AA system on the market. Experience peak performance and unmatched productivity. Step up to the PinAAcle series from PerkinElmer.

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# ATOMIC SPECTROSCOPY

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.

We invest heavily in testing and validating our complete portfolio of solutions to ensure that you receive accurate, repeatable results, on-time, every time throughout the lifetime of your instrument. From Lumina hollow cathode lamps that allow automatic setup and provide long lamp lifetime to our pure standards that have been analyzed and certified to yield reliable, accurate results, you'll be able to relax knowing you have the best. We also offer a complete portfolio of specialized consumables that deliver reliable performance, control operating costs and maximize the uptime of your instrument.

When you order our precision-designed, genuine Atomic Spectroscopy PerkinElmer consumables and supplies, you'll get the results you need - accurately and on time.

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## WORLD LEADER IN AA, ICP-OES AND ICP-MS



### AAnalyst 200/400 Atomic Absorption Spectrometers

Whether you choose the AAnalyst™ 200 or AAnalyst 400, you'll discover an easy, affordable and reliable flame atomic absorption (AA) solution. We've simplified the process of AA analysis, from sample introduction to results. We've made it easy for anyone with a basic understanding of AA to get fast, reliable results every time, and we've made the quality and reliability of PerkinElmer available to everyone with these affordable systems.

Easy to use, easy to own, and featuring many of the advances that have made PerkinElmer the market leader, the AAnalyst 200 and 400 are the perfect choice for any laboratory needing a reliable, trouble-free solution for flame AA analysis.

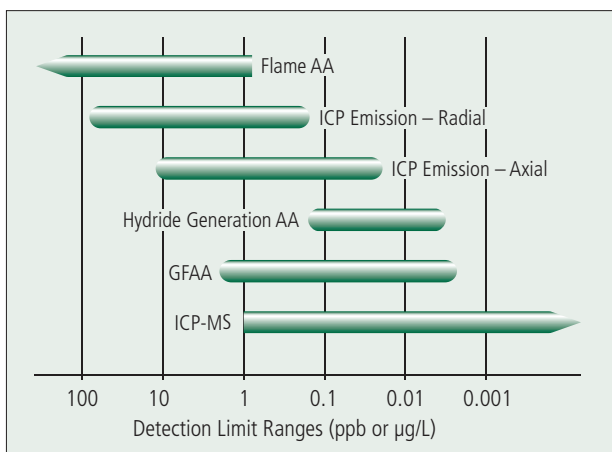


### PinAAcle 900 Atomic Absorption Spectrometers

The PinAAcle™ series of atomic absorption (AA) spectrometers brings AA performance to new heights. Engineered with an array of exciting technological advances, it offers a variety of configurations and capabilities to deliver exactly the level of performance you need:

- Flame only, furnace only, or space-saving stacked designs featuring both
- Flame, furnace, flow injection, FIAS-furnace and mercury/hydride capabilities on a single instrument
- Choice of Deuterium or longitudinal Zeeman background correction
- TubeView™ color furnace camera simplifies autosampler tip alignment and sample dispensing
- Proven WinLab32™ software offering both ease-of-use and exceptional flexibility

And no matter which model you select (900F, 900Z, 900H, 900T), you'll discover an intuitive, highly efficient system capable of simplifying your journey from sample to results – even with the most difficult matrices.



Typical detection limit ranges for the major atomic spectroscopy techniques.

PinAAcle 900 nebulizers are adjustable for optimized performance and include easily replaceable capillary assemblies and venturis for simple, reduced cost maintenance.





## Optima 8x00 ICP-OES Spectrometers

With its groundbreaking features and expanded capabilities, the Optima™ 8x00 series is more than just an evolution of the world's most popular ICP-OES... it's a revolution. Built around the proven design of the Optima platform, the 8x00 series delivers breakthrough performance through a series of cutting-edge technologies that optimize sample introduction, enhance plasma stability, simplify method development and dramatically reduce operating costs:

- Adjustable Torch Cassette - makes it easy to optimize performance - even with the most difficult samples and offers simple maintenance.
- Flat Plate™ Plasma Technology – with a patented, maintenance-free RF generator uses half the argon of traditional systems dramatically reducing operating costs.
- PlasmaCam™ Viewing Camera – offers continuous viewing of the plasma, simplifying method development and enabling remote diagnostic capabilities for maximum uptime.



Quick-change adjustable torch mount

## NexION ICP-MS Spectrometers

Engineered to deliver a level of stability, flexibility and performance never before seen in an ICP-MS instrument, the NexION® 300 systems represent the first truly significant and revolutionary industry advancement in recent memory.

For the first time ever, a single ICP-MS instrument offers both the simplicity and convenience of a collision cell and the exceptional detection limits of a true reaction cell.

With this patented Universal Cell Technology™ (UCT), analysts can now choose the most appropriate technique for a specific sample or application. No restrictions on which gases you can use. No limits on your mass range. No compromises on how you choose to work. And no hassles switching from one mode to another. Just the promise of superior accuracy and detection limits, faster analysis times, and an easier, more customizable operator experience than with any other instrument on the market.

Signal responses are kept stable hour after hour by a unique Triple Cone Interface and Quadrupole Ion Deflector. Designed to remove an unprecedented level of un-ionized material (and preventing it from entering the Universal Cell), this innovative ion path keeps the instrument clean, minimizing drift and completely eliminating the need for cell cleanings.

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.



## DESIGNING AND MANUFACTURING EXPERTISE



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

### Features and Benefits

- **Long Life:** PerkinElmer's larger lamp volume results in longer lamp lifetime
- **Automation:** PerkinElmer coded lamps allow automatic setup
- **Easy Installation:** It's as simple as sliding the lamp into the instrument's lamp bracket or turret
- **Complete Compatibility:** Lumina hollow cathode lamps can be used with PerkinElmer's entire range of atomic absorption spectrometers
- **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
- **Warranty:** The performance of every PerkinElmer lamp is fully warranted\*

### Lumina Single-Element Hollow Cathode Lamps

Element Name	Element Symbol	Lumina Lamp Part No.	Lumina Lamp with Intensitron® Adapter Part No.
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



## 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.



Element Name	Element Symbol	Lumina Lamp Part No.	Lumina Lamp with Intensitron® Adapter Part No.
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

### Lumina Multi-Element Hollow Cathode Lamps

Element Name	Element Symbol	Lumina Lamp Part No.	Lumina Lamp with Intensitron® Adapter Part No.
<b>Two-element Lamps</b>			
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
<b>Three-element Lamps</b>			
Calcium, Magnesium, Zinc	Ca, Mg, Zn	N3050208	N3050408
Copper, Iron, Nickel	Cu, Fe, Ni	N3050209	N3050409
<b>Four-element Lamps</b>			
Copper, Iron, Manganese, Zinc	Cu, Fe, Mn, Zn	N3050212	N3050412
<b>Five-element Lamps</b>			
Silver, Chromium, Copper, Iron, Nickel	Ag, Cr, Cu, Fe, Ni	N3050213	N3050413
Cobalt, Chromium, Copper, Manganese, Nickel	Co, Cr, Cu, Mn, Ni	N3050214	N3050414
<b>Six-element Lamps</b>			
Cobalt, Chromium, Copper, Iron, Manganese, Nickel	Co, Cr, Cu, Fe, Mn, Ni	N3050217	N3050417
<b>Seven-element Lamps</b>			
Aluminum, Calcium, Copper, Iron, Magnesium, Silicon, 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 two major components: a dual-channel power supply with matched dual RF driver assemblies, which allows simultaneous, independent operation of two EDLs, and the interchangeable lamp sleeves. 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.

To ensure operator safety, a built-in interlock prevents lamp operation if the lamp is not properly installed.

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

### Electrodeless Discharge Lamps

Element Name	Element Symbol	System 2 EDL Part No.	AAAnalyst Coded Intensitron® 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



## 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\*

## EDL ASSEMBLIES AND COMPONENTS

### EDL Driver Assemblies

Description	Part No.
For AAnalyst™ 200/400	<b>N3150131</b>
For PinAAcle™ 900, AAnalyst 600/700/800, For use with all that do not contain built-in EDL power supplies (short cable)	<b>03030997</b>
For all models except AAnalyst 600/700/800, For use with all that do not contain built-in EDL power supplies (long cable)	<b>03030793</b>

### 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	<b>N3150303</b>
Extension Cable Converts cable on the PinAAcle 900, AAnalyst 600/700/800, for Short Cable	<b>03030998</b>

## 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.





## 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 Atomax lamps are designed to fit most commercially available atomic absorption instruments including Varian, Thermo, Shimadzu, GBC, Analytic Jena, Hitachi and many more. Combining affordability and industry-wide compatibility 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.
- ✓ Rigid quality control assures that all lamps meet the same high standard for intensity, stability, and spectral purity.
- ✓ 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.
- ✓ 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.

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



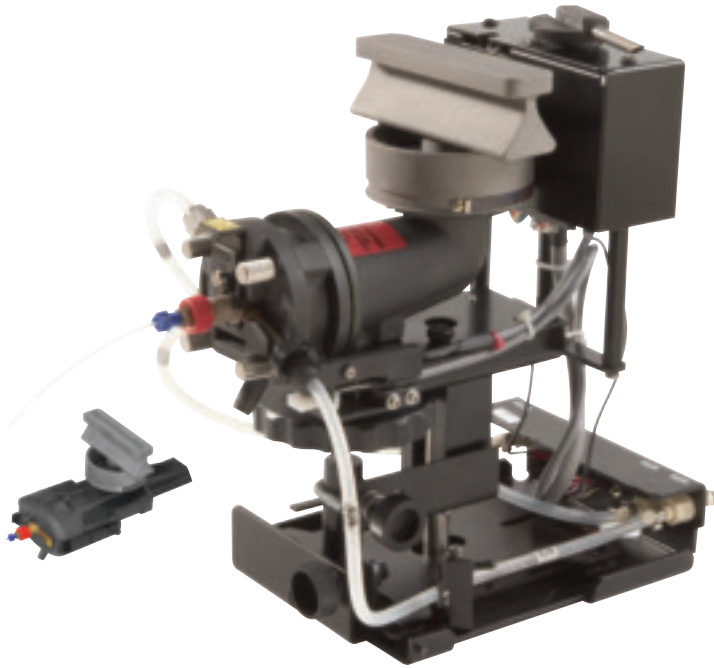
1. We warrant that during the first six months or after 5,000 milliampere-hours of operation, whichever comes first, from initial date of shipment, the lamps will meet or exceed the intensity and absorption specifications to which all new lamps are tested.
2. All of our hollow cathode lamps are warranted 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



**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 to prevent burner 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 rubber O-rings for aqueous solutions or 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.

# EXPERIENCE OPTIMAL EFFICIENCY

### 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	<b>N0400100</b>

### 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	<b>N0400102</b>

### 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	<b>N0400101</b>

### Three-slot Air-acetylene 10 cm

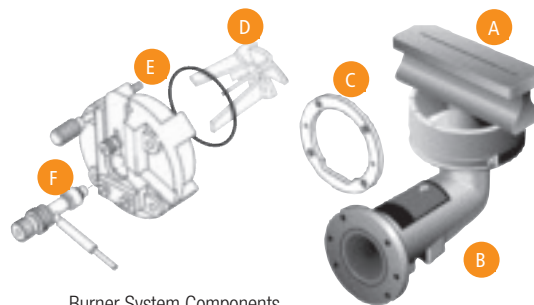
The three-slot burner head is designed to be used when analyzing samples with high concentrations of dissolved solids. The three-slot burner head is not compatible with some older gas control systems.

Description	Part No.
Three-slot Air-acetylene 10 cm	<b>N0400103</b>



## 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



Burner System Components

### Burner Heads

Description	Length	Flame Type	PinAAcle 900 Part No.	AAAnalyst 100/200/300/400/700/800 Part No.
Single-slot	5 cm	Nitrous Oxide-Acetylene	<b>N0400100</b>	<b>N0400100</b>
Single-slot	10 cm	Air-Acetylene	<b>N0400102</b>	<b>N0400102</b>
Three-slot	10 cm	Air-Acetylene	<b>N0400103</b>	<b>N0400103</b>
Single-slot	5 cm	Air-Acetylene	<b>N0400101</b>	<b>N0400101</b>

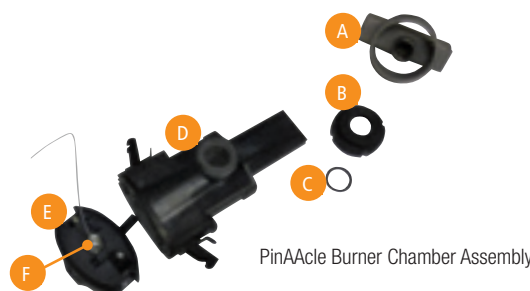
### Burner System Components

Description	PinAAcle 900 Part No.	AAAnalyst 100/200/300/400/700/800 Part No.
Burner Head Viton O-Ring		<b>09902219</b>
Burner Mixing Chamber Assembly	<b>N3160106</b>	<b>00570948</b>
End Cap Latch Assembly	<b>N3160107</b>	
Burner Head Assembly	<b>N3161034</b>	
Clamping Ring		<b>N0401171</b>
Flow Spoiler	<b>00572561</b>	<b>00572561</b>
End Cap O-Ring 0.312 x 0.070	<b>09200253</b>	
End Cap Viton O-Ring Standard	<b>09902147</b>	<b>09902147</b>
End Cap O-Ring Organics (Corkprene)		<b>00472014</b>
End Cap O-Ring Organics/Aqueous (KALREZ®)		<b>09921044</b>
End Cap Assembly (for use with metal body nebulizers)	<b>N3160102</b>	<b>00570984</b>
End Cap Assembly (for use with plastic body nebulizers)	<b>N3160111</b>	<b>N0370392</b>
Burner Gasket Kit for End Cap Assembly 00570984 Contains 00472014(5), 09902147(3), 09902219(1), 09902236(3), 09902240(3)		<b>00470988</b>
Burner Head O-Ring 0.984 x 0.139	<b>09200079</b>	
Drain Tubing - Tygon Tubing with FEP lining		<b>02507987</b>
Seal Plug Pyrex Impact Bead used with (00570984) end cap Part No. 00572615		<b>00572624</b>
O-Ring (¼ in 6 mm i.d.) for end cap assembly 00570984		<b>09902240</b>
O-Ring (¼ in 3 mm i.d.) for Seal plug in end cap 00570984		<b>09902236</b>
Burner Drain Assembly for Organic Solutions	<b>N3150232***</b>	<b>N3150230*</b>
Burner Drain Assembly (includes tubing and drain interlock, drain bottle 09904991 not included)		<b>N2011074*</b>
Burner Drain Assembly (includes tubing and drain interlock, drain bottle 09904991 not included)	<b>N0400058</b>	<b>N0400058**</b>
Burner Head Cleaning Tool	<b>03031573</b>	<b>03031573</b>
Burner Head Adjustment Tool for burner heads with adjustment tool hole	<b>N3161040</b>	<b>N3161040</b>

\*For AAAnalyst 700/800 \*\*For AAAnalyst 200/400 \*\*\*For AAAnalyst 100/200/300/400

## PinAAcle Burner Chamber Assembly

- A** Burner Head
- B** Retaining Ring
- C** Burner Head O-Ring
- D** Burner Chamber
- E** End Cap Assembly
- F** Stainless Steel Nebulizer



PinAAcle Burner Chamber Assembly

## WIDE VARIETY OF HIGH PERFORMANCE NEBULIZERS

High-Sensitivity Nebulizer with Pt/Ir Capillary



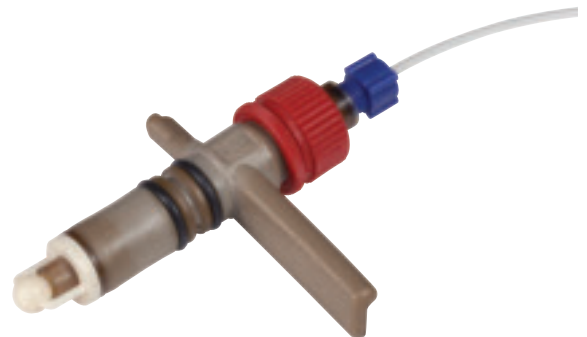
### THE NEBULIZER IS ONE OF THE MOST IMPORTANT COMPONENTS IN A FLAME AA SPECTROMETER

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.



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



PinAAcle High-Sensitivity Nebulizer Part No. N3160144

### 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, acid or base, diluted or concentrated — can be analyzed under optimum conditions. This high-sensitivity nebulizer is fabricated entirely of 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)



# NEBULIZER ASSEMBLIES AND SPARES

## Plastic Body Nebulizers

Description	PinAAcle 900 Part No.	AAAnalyst 200/400 Part No.	AAAnalyst 100/300/700/800 Part No.
<b>High-Sensitivity Nebulizer with Pt/Ir Capillary</b>			
Nebulizer Assembly	N3160144	N3150188*	B0505480
Impact Bead	B0505086	B0505086	B0505086
O-Ring	09902015	09902015	B0190672
O-Ring	B0507708	09926126	B0506143
O-Ring 9.25 X 1.78			B0174378
Needle Assembly	03030354		
Spring	09920483	09920483	B0165332
End Cap	N3160111	N0370392	N0370392
<b>High-Sensitivity Nebulizer with Tantalum Capillary</b>			
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
<b>GemTip™ Nebulizers</b>			
GemTip Nebulizer Assembly			N0370394
High-Sensitivity Nebulizer Assembly			N0370393
Impact Bead			B0505086
Spring			09902473
End Cap			N0370392

\*May also be used with AAAnalyst 100/300/700/800

## Metal Body Nebulizers

Description	PinAAcle 900 Part No.	AAAnalyst 200/400 Part No.	AAAnalyst 100/300/700/800 Part No.
<b>Stainless Steel Nebulizer</b>			
Nebulizer Assembly	N3160143	03030352	03030352
Capillary Assembly	N3160113	03030354	03030354
O-Ring Kit (Includes O-Rings in Neb Assembly)		N9300065	N9300065
O-Ring 0.176 ID x 0.070 WD	09902005		
O-Ring 0.364 ID x 0.070 WD	09902015		
O-Ring 0.208 ID x 0.070 WD	09902239		
Spring	03031806	03031806	03031806
End Cap	N3160102	00570984	00570984
<b>Corrosion-Resistant Nebulizer</b>			
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
<b>Platinum Alloy Nebulizer</b>			
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

## Nebulizer Accessories

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



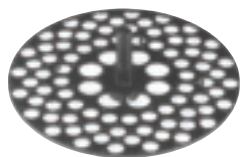
Nebulizer Capillary Tubing



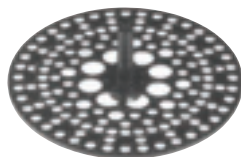
Nebulizer Cleaning Wires



Nebulizer Grease



88-Position Tray



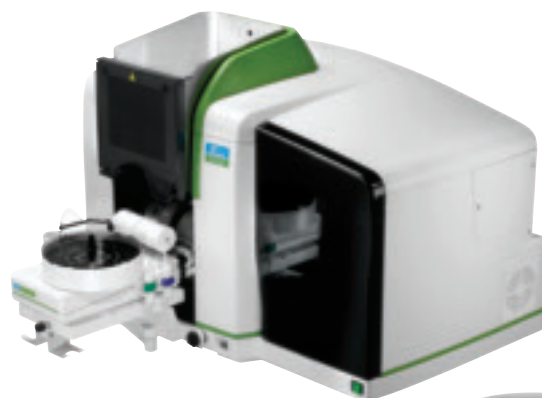
148-Position Tray

## 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.	<b>B3001507</b>
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.	<b>B3001506</b>
Cover	<b>B3001505</b>
Arm	<b>B3002046</b>



## 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 and organic solutions
- **Teflon®** – 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

## Sampling Capillaries

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	<b>B0129258</b>

## 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.	<b>B0101164</b>
30 mL Polystyrene – Not for organic solutions.	<b>B0102332</b>
Cloverleaf-shaped Reagent Containers For Models AS-60/AS-70/AS-71/AS-72. 30 mL polypropylene.	<b>B0132799</b>

Volume	Composition	Qty.	Part No.
1.2 mL*	Polypropylene	2,000	<b>B0510397</b>
2.5 mL	Polypropylene	1,000	<b>B3001566</b>
7.0 mL**	Polypropylene	100	<b>B3001567</b>
2.0 mL	Polyethylene	1,000	<b>B0087056</b>
2.0 mL	Polystyrene	1,000	<b>B0119079</b>
3.5 mL	Polystyrene	100	<b>B0129303</b>
2.0 mL	Teflon®	30	<b>B0087600</b>

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

## Pliers



Description	Part No.
For 1.2 mL sample cups.	<b>B0510398</b>

## EXCLUSIVE DESIGN ENSURES EVEN HEATING

### STANDARD THGA GRAPHITE TUBES

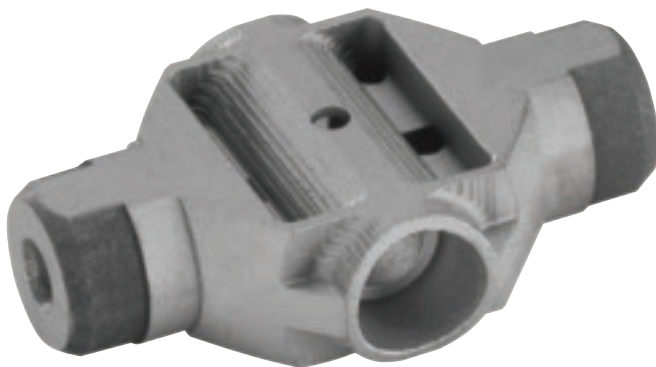
Today's analysts expect exceptional analytical performance from their graphite furnace atomic absorption spectrometers. That performance must be reproducible from day to day with respect to sensitivity (characteristic mass), accuracy and precision.

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.

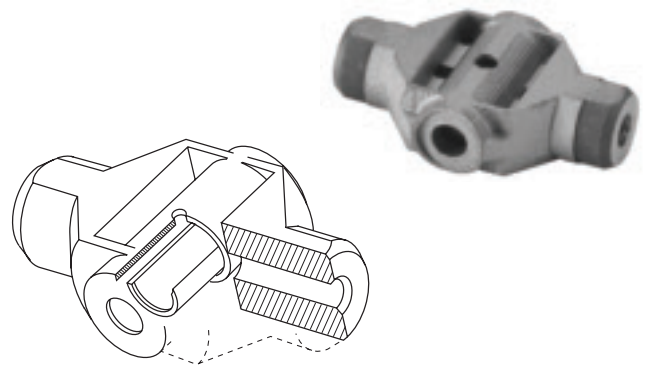
### Standard THGA Graphite Tubes

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	<b>B3140361</b>
20-pack	<b>B3140362</b>



## THGA Instrument Mirror

Used to optimize drying temperatures and times.

Description	Part No.
THGA Instrument Mirror	<b>B0851900</b>

## 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	<b>B0504035</b>
5 pairs	<b>B0504036</b>

### Modified THGA Contact Cylinders

Description	Part No.
1 pair	<b>B3002103</b>
5 pairs	<b>B3002102</b>

### Accessories and Spare Parts

Description	Part No.
O-Ring (behind Contact Cylinder, front and back)	<b>B0500748</b>
Contact Cylinder Removal Tools	<b>B3120405</b>
THGA Filter Cartridge qty. 50.	<b>B0509065</b>
Spare Graphite Tip for fume extraction system	<b>B0506722</b>

## 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
- Convenient, ready to use

### Matrix Modifiers

Modifiers	Concentration	Volume	Part No.
Mg(NO <sub>3</sub> ) <sub>2</sub>	1% Mg (as nitrate)	100 mL	<b>B0190634</b>
Pd	1% Pd (as nitrate)	50 mL	<b>B0190635</b>
NH <sub>4</sub> H <sub>2</sub> PO <sub>4</sub>	10% NH <sub>4</sub> H <sub>2</sub> PO <sub>4</sub>	100 mL	<b>N9303445</b>

## 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
50-pack	B0109322
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.
5-pack	B0137113
20-pack	B3001253
50-pack	B0070699

\*Not compatible with L'vov platforms



## L'VOV PLATFORMS

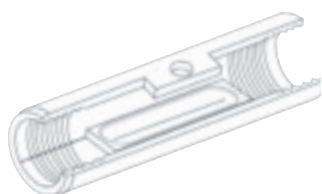
The L'vov platform is a small plate of solid pyrocoated graphite that is inserted into the graphite tube. It has a slight depression in the center, which can accommodate up to 50  $\mu\text{L}$  of solution. The function of the L'vov platform is to isolate the sample from the tube walls to allow more 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

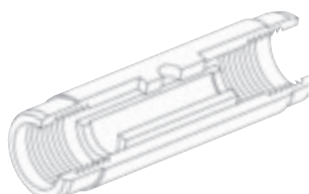
Description	Part No.
5-pack	B0137112
10-pack	B0121091
20-pack	B3001256
50-pack	B0109324
100-pack	N3110145

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 Furnaces

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

Description	Part No.
1 set	B0128495
5 sets	B3130086

For Zeeman Furnaces

- Includes left-hand Contact, right-hand Contact

Description	Part No.
1 set	B0116823
5 sets	B0180361

## 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 <sub>3</sub> ) <sub>2</sub>	1% Mg (as nitrate)	100 mL	B0190634
Pd	1% Pd (as nitrate)	50 mL	B0190635
NH <sub>4</sub> H <sub>2</sub> PO <sub>4</sub>	10% NH <sub>4</sub> H <sub>2</sub> PO <sub>4</sub>	100 mL	N9303445



## 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%).

Type	Uptake Rate	Part No.
Type A3	3 mL/min	00472020
Type C1	1 mL/min	00472022
Type K3	3 mL/min	N0681574
Type K1*	1 mL/min	N0777707
Liquid-End Connector Kit, 4 mm		N0777414
Nebulizer Clip for Meinhard Nebulizers		N0777460

\*Standard with Optima 8x00 instrument.

## End Cap for Concentric Glass Nebulizers

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



## PEEK Mira Mist® Nebulizer

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
Teflon 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

## 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

# CONCENTRIC NEBULIZERS FOR A WIDE VARIETY OF APPLICATIONS



## 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. 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.

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

\*\*Requires Quick Disconnect part no. N0770336.

## 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.

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.



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.



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.

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

## PolyCon™ Nebulizer

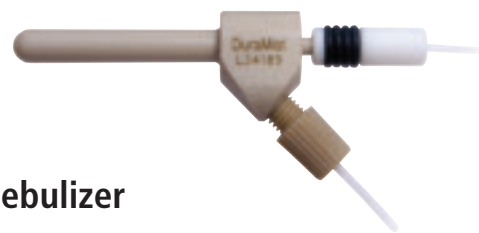
For routine high precision analyses involving samples digested in HF and are not high in dissolved solids.



### Features and Benefits

- Material: HF Resistant Polyimide
- High physical reproducibility

Uptake Rate	Part No.
2 mL/min	N0777490



## DuraMist™ Nebulizer

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.

### Features and Benefits

- Material: HF Resistant PEEK
- Low RSD's due to concentric geometry Air 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.



Uptake Rate	Part No.
0.1 mL/min	N0777486
0.4 mL/min	N0777485



## 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.

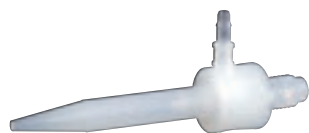
Description	Part No.
For MicroMist, SeaSpray, OpalMist, PolyCon, DuraMist and Meinhard Nebulizers	N0777711
For OpalMist and PolyCon Nebulizers	N0775358

## Sample Tube Connectors for MicroMist and SeaSpray Nebulizers

Description	Pkg.	Part No.
<b>UniFit</b>		
0.25 mm ID x 1.27 mm OD x 700 mm long	10	<b>N0777514</b>
0.50 mm ID x 1.27 mm OD x 700 mm long	10	<b>N0777513</b>
0.75 mm ID x 1.27 mm OD x 700 mm long	10	<b>N0777512</b>
UniFit-EzyFit Sample Tube	6	<b>N0777061</b>
<b>EzyFit</b>		
0.25 mm ID x 1.27 mm OD x 700 mm long	10	<b>N0777437</b>
0.50 mm ID x 1.27 mm OD x 700 mm long	10	<b>N0777436</b>
0.75 mm ID x 1.27 mm OD x 700 mm long	10	<b>N0777435</b>
0.25 mm ID x 1/16" OD x 700 mm long	10	<b>N0777464</b>
0.50 mm ID x 1/16" OD x 700 mm long	10	<b>N0777463</b>
0.50 mm ID x 1/16" OD x 700 mm long Twin	6	<b>N0777462</b>
UniFit-EzyFit Sample Tube	6	<b>N0777061</b>

## 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

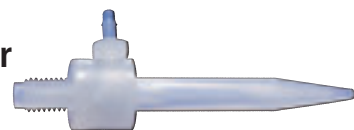
The PFA-ST Nebulizer features the same high purity, HF resistance, and high performance of the PFA MicroFlow nebulizers, along with an exchangeable external sample uptake capillary. The sample uptake rate is controlled by the diameter of the external capillary or probe.

#### Features and Benefits

- Exchangeable uptake capillaries allow one nebulizer to be used at different self-aspiration rates from 20µL/min to 700µL/min
- All Teflon® construction
- Chemically resistant - ideal for strong acids, alkalis, organics
- Can be pumped from < 0.1 mL/min to 3.0 mL/min

Description	Part No.
PFA-ST Nebulizer	<b>N0777049</b>

### PolyPro-ST Nebulizer



The PolyPro-ST Nebulizer is a low cost 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	<b>N0777219</b>

### PFA-ST3 MicroFlow Nebulizer



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

Description	Part No.
PFA-ST3 MicroFlow Nebulizer	<b>N0777676</b>

### 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	<b>N8145236</b>

### Sample Capillaries for ST Nebulizers

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

### 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.

Description	Part No.
Optima 2x00/4x00/5x00/7x00/8x00	<b>N0775331</b>



## 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.
Optima 2x00/4x00/5x00/7x00/8x00	<b>N0770358</b>

## GemCone High Dissolved Solids Nebulizer

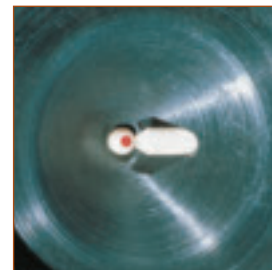


High solids GemCones are for samples with high dissolved solids (up to 20%). This conespray nebulizer allows you to analyze samples with higher solids concentration than is possible with a Cross-Flow nebulizer. GemCone nebulizers require an end cap for use with Scott Spray Chambers.

Description	Part No.
GemCone High Dissolved Solids Nebulizer	<b>N0690670</b>

## GemCone Nebulizer Accessories

ICP Model	Part No.
GemCone Sample Capillary Adapter	<b>N0371505</b>
End Cap for GemCone Nebulizers For Optima 2x00/3x00/4x00/5x00/7x00/8x00	<b>N0680504</b>
Quick Disconnect Tubing For Optima 2x00/4x00/5x00/7x00/8x00	<b>N0770336</b>



## 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<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, H<sub>2</sub>PO<sub>4</sub>, 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.
Optima 8x00	<b>N0780546</b>
Optima 2x00/4x00/5x00/7x00	<b>N0770546</b>

## GemTip Cross-Flow II Nebulizer and End Cap Retrofit Kit

This kit includes the GemTip Cross-Flow II Nebulizer, end cap assembly and the fittings required to install the nebulizer for the first time on the Plasma 40/400, Plasma 1000/2000 and Optima™ 3x00 instruments.

Description	Part No.
GemTip Cross-Flow II Nebulizer and End Cap Retrofit Kit	<b>N0680610</b>

## 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.
Optima 2x00/4x00/5x00/7x00	<b>N0690676</b>
Optima 8x00	<b>N0780676</b>
O-Ring Kit for GemTip Cross-Flow Nebulizers	<b>N9300067</b>



Standard Cyclonic  
Part No. N0776052



Teflon HF Resistant  
Part No. N0777496

## 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 O-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	<b>N0776052</b>
2x00/4x00/5x00/7x00/8x00	O-Ring Free	<b>N0775351</b>
2x00/4x00/5x00/7x00/8x00	HF Resistant	<b>N0777496</b>

# MAXIMUM SENSITIVITY AND EFFICIENCY



Cinnabar Spray Chamber  
Part No. N0777494

## 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 20mL.

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



Spray Chamber Adapter  
Part No. N0770614

## Accessories and Drain Parts

Description.	Part No.
Cyclonic Spray Chamber Adapter	<b>N0770614</b>
Drain Adapter Assembly Includes the spray chamber fitting and tubing to pump out the waste solution from the spray chamber (does not include the peristaltic pump tubing)	<b>N0770613</b>
Carboy, 15 L	<b>09904991</b>
Drain Cap Assembly	<b>N0690271</b>



UniFit  
Part No. N0774080

## Connectors and Spares

Description	Pkg.	Part No.
0.75 mm ID x 1/16" OD x 700 mm long	3	<b>N0774080</b>
0.75 mm ID x 1.3 mm OD x 700 mm long	3	<b>N0774077</b>
Nebulizer Pressure Hose Clips	10	<b>N0773197</b>
EzyLok Connector for Jacketed Spray Chamber	4	<b>N0774101</b>
EzyLok Kit for Nebulizer Gas Side Arm Includes: EzyLok Connector for 4mm Tubing, EzyLok 6mm Hose Adaptor, Hose Clip	1	<b>N0777413</b>
Helix Locking Screw	1	<b>N0777438</b>
Helix Seal	4	<b>N0777439</b>



**Baffled Cyclonic Spray Chamber**  
Part No. N0776053

## 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	<b>N0776053</b>
2x00/4x00/5x00/7x00 DV/8x00	O-Ring Free	<b>N0775352</b>
2x00/4x00/5x00/7x00 DV/8x00 20mL	O-Ring Free	<b>N0777495</b>
2x00/4x00/5x00/7x00 DV/8x00	O-Ring Free, Water-Cooled	<b>N0774100</b>
2x00/4x00/5x00/7x00 DV/8x00 for Oil Analysis (4 mm baffle)	Standard	<b>N0776090</b>
2x00/4x00/5x00/7x00 DV/8x00 for Oil Analysis (4 mm baffle)	O-Ring Free	<b>N0775355</b>
4300V/5300V/7300V	Standard	<b>N0771501</b>
4300V/5300V/7300V	O-Ring Free	<b>N0775356</b>

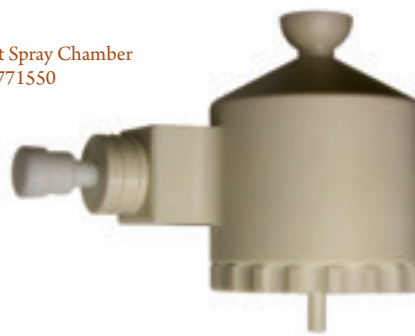


## Metal Ball Joint Clip

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

Description	Part No.
Metal Ball Joint Clip	<b>N0773114</b>

**HF Resistant Spray Chamber**  
Part No. N0771550



## HF Resistant Spray Chambers

ICP Model	Type	Part No.
4300/5300/7300V TC44, 44mL	Standard	<b>N0771550</b>
4300/5300/7300V TFE Teflon, 50mL	O-Ring Free	<b>N0777497</b>
2x00/4x00/5x00/7x00 DV/8x00 TFE Teflon, 50mL	O-Ring Free	<b>N0777496</b>

## Spray Chamber Connectors

Description	Part No.
Nebulizer Adaptor 16/6 for Standard Spray Chambers	<b>N0776006</b>
O-Ring Set for Nebulizer Adaptor 16/6	<b>N0776007</b>
Helix Locking Screw for O-Ring Free Spray Chambers	<b>N0777438</b>
Helix Seal for Locking Screw qty.4	<b>N0777439</b>



**Scott Spray Chamber**

## 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	<b>N0770357</b>
3000/3000 SCR/3x00 RL	<b>N0690640</b>
3x00 DV/XL/3000 SCX	<b>N0690720</b>



## 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.
Optima 8x00	<b>N0780607</b>
Optima 2x00/4x00/5x00/7x00	<b>N0770607</b>

### Mounting Block

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

ICP Model	Part No.
Optima 2x00/4x00/5x00/7x00/8x00	<b>N0770600</b>

### 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	<b>N0770911</b>

### 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	<b>N0770910</b>

## QUICK-CHANGE FOR MAXIMUM EFFICIENCY



## 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.
Optima 8x00	<b>N0780606</b>
Optima 2x00/4x00/5x00/7x00 DV	<b>N0770606</b>
Optima 3000/3000 SCR/3x00 RL	<b>N0690610</b>
Optima 3x00 DV	<b>N0690812</b>
Optima 3x00 XL/3000 SCX	<b>N0690712</b>

### 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.
Optima 2x00/4x00/5x00/7x00 DV/8x00	<b>N0770609</b>

# OPTIMA™ ICP-OES SAMPLE INTRODUCTION KITS



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

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



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

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

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

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

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

# TORCHES AND TORCH ACCESSORIES

## 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.
Optima 8x00	0	<b>N0780133</b>
Optima 8x00 (Standard)	1	<b>N0780130</b>
Optima 8x00	3	<b>N0780132</b>
Optima 2x00/4x00/5x00/7x00 DV	0	<b>N0770343</b>
Optima 2x00/4x00/5x00/7x00 DV (short ver.)	0	<b>N0770344</b>
Optima 2x00/4x00/5x00/7x00 DV	1	<b>N0770338</b>
Optima 2x00/4x00/5x00/7x00 DV	3	<b>N0772005</b>
Optima 4300V/5300V/7300V	3	<b>N0771500</b>
Optima 4300V/5300V/7300V ABC Torch Kit	3	<b>N0774075</b>
Optima 3x00 DV	1	<b>N0691662</b>
Optima 3000 SCX/3x00 XL	0	<b>N0695379</b>
Optima 3000/3000 SCR/3x00 RL	1	<b>N0690568</b>
Optima 3000/3000 SCR/3x00 RL	3	<b>N0681690</b>

## Copper Ignitor Tape

ICP Model	Qty.	Part No.
Optima 8x00	50	<b>N0781097</b>
Optima 2x00/4x00/5x00/7x00	120	<b>N0775297</b>

## Torch Bonnets

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



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

## Torch O-Rings

ICP Model	Dimensions	Part No.
Optima 8x00 Complete O-Ring Kit		<b>N0780437</b>
Optima 2x00/4x00/5x00/7x00 DV Complete O-Ring Kit		<b>N0770437</b>
Optima 4300V/5300V/7300V Complete O-Ring Kit		<b>N0770916</b>
Optima 3x00 XL/3x00 DV/3000 SCX	0.239 i.d., 0.070 w.d.	<b>09902006</b>
Optima 3x00 XL/3x00 DV/3000 SCX	0.364 i.d., 0.070 w.d.	<b>09902015</b>
Optima 3x00 XL/3x00 DV/3000 SCX	8.74 i.d., 1.78 w.d.	<b>09921028</b>
Optima 3x00 XL/3x00 DV/3000 SCX/4300V/5300V/7300V (Inside)	0.239 i.d., 0.070 w.d.	<b>09902207</b>
Optima 3x00 XL/3x00 DV/3000 SCX/4300V/5300V/7300V (Outside)	0.301 i.d., 0.070 w.d.	<b>09902247</b>
Optima 4300V/5300V/7300V (For Ball Joint)	0.301 i.d., 0.070 w.d.	<b>09926070</b>


Optima 8x00  
Flat Plate Torch  
Part No. N0780130



D-Torch  
Part No. N0777051

## 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.

ICP Model	Description	Part No.
2x00/4x00/5x00/7x00	DV D-Torch with Quartz Outer Tube	<b>N0777508</b>
2x00/4x00/5x00/7x00	DV Base and Inner Tube	<b>N0777509</b>
2x00/4x00/5x00/7x00	DV Quartz Outer Tube	<b>N0777510</b>
4300/5300/7300V	Torch Adapter with Auxiliary Port	<b>N0774070</b>
4300/5300/7300V	D-Torch with Quartz Outer Tube	<b>N0777051</b>
4300/5300/7300V	Quartz Outer Tube	<b>N0777053</b>
4300/5300/7300V	Ceramic Outer Tube	<b>N0777052</b>
4300/5300/7300V	Base and Inner Tube	<b>N0777054</b>
	 Retaining Ring for Outer Tube	<b>N0777055</b>
	O-Ring Kit	<b>N0777715</b>

\* For V instrument only.



## FULL SELECTION OF INJECTORS AND ADAPTERS



### Quartz Injectors

#### Features and Benefits

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

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



### 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.
Optima 8x00 Alumina Injector	0.80 mm i.d.	<b>N0781009</b>
Optima 8x00 Alumina Injector	1.2 mm i.d.	<b>N0781015</b>
Optima 8x00 Alumina Injector (1.2 mm entire length of tube)	1.2 mm i.d.	<b>N0781007</b>
Optima 8x00 Alumina Injector	2.0 mm i.d.	<b>N0781014</b>
Optima 2x00/4x00/5x00/7x00 DV	0.80 mm i.d.	<b>N0775227</b>
Optima 2x00/4x00/5x00/7x00 DV	1.2 mm i.d.	<b>N0775228</b>
Optima 2x00/4x00/5x00/7x00 DV (1.2 mm entire length of tube)	1.2 mm i.d.	<b>N0776093</b>
Optima 2x00/4x00/5x00/7x00 DV	2.0 mm i.d.	<b>N0775177</b>
Optima 4300V/5300V/7300V	1.2 mm i.d.	<b>N0771531</b>
Optima 3000/3000 SCR/3x00 RL	0.85 mm i.d.	<b>N0582186</b>
Optima 3000/3000 SCR/3x00 RL	1.5 mm i.d.	<b>N0582185</b>
Optima 3000/3000 SCR/3x00 RL	2.0 mm i.d.	<b>N0582184</b>
Optima 3x00 XL/3x00 DV/3000 SCX/4300V/5300V/7300V	2.0 mm i.d.	<b>N0695362</b>

### Injector Support Adapters

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

### Injector Support Adapter O-Ring Kits

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

### ESI FAST Injectors for Optima 8x00

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

### Sapphire Injectors

#### Features and Benefits

- Sapphire injectors are ideal for silicon applications

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

## GENUINE SAMPLE INTRODUCTION SUPPLIES

### RF LOAD COILS\*

ICP Model	Part No.
Optima 2x00/4x00/5x00/7x00 DV	<b>N0775300</b>
Optima 4300V/5300V/7300V	<b>N0771536</b>
Optima 3x00 XL/3x00 DV	<b>N0690772</b>
Optima 3000/3000 SCR/3x00 RL (For instruments manufactured BEFORE 9/21/94)	<b>N0690572</b>
Optima 3000/3000 SCR/3x00 RL (For instruments manufactured AFTER 9/21/94)	<b>N0690668</b>

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

### 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.
Optima 2x00/7000/8000	DV Axial	<b>09992731</b>
Optima 2x00/7000/8000	DV Radial	<b>N0690672</b>
Optima 3x00/4x00/5x00/7100/ 7200/7300 DV/8300	DV Axial	<b>N0771116</b>
Optima 5x00/7100/ 7200/7300 DV/8300	DV Radial	<b>N0770944</b>
Optima 3x00 DV (tube)	DV Axial	<b>N0691678</b>
Optima 3x00 DV (long tube) (38 mm/1.5 in)	DV Radial	<b>N0691689</b>
Optima 3000 SCX/3x00 XL	Axial	<b>09992731</b>
Optima 3000/3000 SCR/3x00 RL 4300V/5300V/7300V	Radial	<b>N0581497</b>
Optima 4x00 DV/5x00 DV**	DV Radial	<b>N0770322</b>

\*\* Pre November 2004



### RF Load Coil Accessories

Description	Part No.
Igniter Spark Gap Assembly for Type II Demountable Torch	<b>N0680275</b>
Nylon Igniter Standoff	<b>09989859</b>

### Purge Component Replacement Parts

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

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

For Optima 2100/7000/8000 DV

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



### Ceramic Purge Extension

ICP Model	Part No.
Optima 3000/3000 SCR/ 3x00 RL/4300V/5300V/7300V	<b>N0581455</b>

### 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.
Optima 3x00 XL/3000 SCX	<b>N0690666</b>



## Oil-Free Air Compressors for Optima Instruments

PerkinElmer is expanding its product portfolio in response to customer requests for an industrial quiet oil-free compressor, a must for dependable and clean air supply. Each compressor comes assembled on an internally and externally coated air tank and includes a self-purging regenerative dryer with aftercooler. One version includes a sound enclosure and has a sound level of less than 60 dB. Models in 115 V - 60 Hz and 230 V - 60 Hz are equipped with ASME® rated pressure tanks. Line Pressure Regulator with gauge and Line Ball Valve are standard on all units.



## Specifications

Horse Power	1.5 Hp
Output CFM	6.0 CFM
Output L.	170 L. Min
Max Pressure PSI	120 PSI
Max Pressure Bar	8 bar
Operating Pressure PSI	90-120 PSI
Operating Pressure Bar	6-8 bar
Noise Level	75 dB/A, with Enclosure 55 dB/A
Tank Size Gal.	13 Gallons
Tank Size L	50 Liters
Dimensions	16 x 26 x 35 / with Enclosure 29 x 23 x 30
Weight	119 Lbs. / with Enclosure 207 Lbs.
Packed Dimensions	33 x 28 x 43 / with Enclosure 33 x 28 x 39
Packed Weight	135 Lbs. / with Enclosure 264 Lbs.

## Compressors

Description	115V/60Hz	220V/50Hz	220V/60Hz
Compressor	<b>N0777602</b>	<b>N0777603</b>	<b>N0777604</b>
Compressor with Enclosure	<b>N0777605</b>	<b>N0777606</b>	<b>N0777607</b>

Product meets both U.S. and Canadian CSA standards. ASME® Certified tank.  
Please note: Enclosure cannot be sold separately.  
Tested and approved.

## Replacement parts

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



## 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. They are 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	<b>N8102011</b>
Type K3	Glass	1.0 L/min	3 mL/min	<b>N0681574</b>
Type A3	Quartz	1.0 L/min	3 mL/min	<b>WE024371</b>
Type A0.5 (NexION)	Quartz	1.0 L/min	0.5 mL/min	<b>N8145011</b>
Type C0.5 (NexION)	Glass	1.0 L/min	0.5 mL/min	<b>N8145012</b>

## Meinhard Nebulizer Spares



Description	Part No.
Nebulizer Clip for Meinhard Nebulizers	<b>N0777460</b>
Nebulizer Fitting	<b>N8145016</b>

## 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 Teflon® Nebulizers.

Description	Part No.
Liquid Connector	<b>WE024372</b>

# EXCELLENT SENSITIVITY AND PRECISION

## 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	<b>N0680504</b>

## 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.



ICP-MS	Part No.
NexION/ELAN DRCe/9000/6X00/5000/500/250	<b>N8120516</b>

## Cross-Flow Replacement GemTips and Supplies

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 Replacement GemTips	<b>N0580624</b>
Cross-Flow II Replacement GemTips	<b>N8120515</b>
O-Ring Kit for Gem Tip Cross-Flow Nebulizers	<b>N9300067</b>
Cross-Flow II Nebulizer Argon Ferrule	<b>09920515</b>
Cross-Flow II Nebulizer Ferrule Kit	<b>N0680612</b>
Cross-Flow II Nebulizer End Cap	<b>N8122239</b>
Cross-Flow II Nebulizer Sample Ferrule	<b>09920518</b>

## 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	<b>N0775341</b>
1.0 L/min	0.2 mL/min	<b>N0775342</b>
1.0 L/min	0.1 mL/min	<b>N0775343</b>
1.0 L/min	0.05 mL/min	<b>N0775344</b>

## 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	<b>N0775340</b>
1.0 L/min	1 mL/min	<b>N0774069</b>
1.0 L/min Quartz	1 mL/min	<b>N0774069</b>
1.0 L/min	0.4mL/min	<b>N0777484</b>

## UniFit Connectors and Spares

Description	Pkg.	Part No.
0.75 mm ID x 1/16" OD x 700 mm long	3	<b>N0774080</b>
0.75 mm ID x 1.3 mm OD x 700 mm long	3	<b>N0774077</b>
Nebulizer Pressure Hose Clips	10	<b>N0773197</b>
EzyLok Connector for Jacketed Spray Chamber	4	<b>N0774101</b>
EzyLok Kit for Nebulizer Gas Side Arm Includes: EzyLok Connector for 4mm Tubing, EzyLok 6mm Hose Adaptor, Hose Clip	1	<b>N0777413</b>
Helix Locking Screw	1	<b>N0777438</b>
Helix Seal	4	<b>N0777439</b>



## 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	<b>N0777485</b>
1.0 L/min	0.1 mL/min	<b>N0777486</b>



## 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.

- Material: HF Resistant PEEK
- Low RSD's due to concentric geometry

AR Flow Rate	Uptake Rate	Part No.
1.0 L/min	0.4 mL/min	<b>N8121046</b>
1.0 L/min	1.0 mL/min	<b>N8121045</b>

## Adapters and Fittings

Description	Part No.
Nebulizer Fitting (Meinhard)	<b>N8145016</b>
Spray Chamber Drain Fitting	<b>N8145015</b>
Male Barb CTFE Fitting (Part of N8145016)	<b>N8145017</b>
Female Barb CTFE Fitting (Part of N8145016)	<b>N8145018</b>
Teflon Sample Capillary 0.062 o.d. x 0.020 i.d.	<b>WE024375</b>
Liquid Connector for Concentric Nebulizers	<b>WE024372</b>

## 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-Teflon® 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:

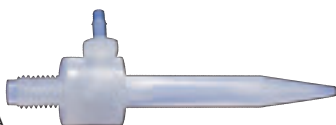


- Fe and Ca. Produces a fine aerosol for high transport efficiency and high sensitivity
- Analyze all sample types with a single introduction system  
Direct analysis of volatile and non-volatile organic solvents

Description	Part No.
PFA-ST PFA Teflon® Nebulizer	<b>N8122192</b>

### 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	<b>N0777220</b>

### PFA-ST3 MicroFlow Nebulizer

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



Description	Part No.
PFA-ST3 MicroFlow Nebulizer	<b>N8145101</b>



### 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	<b>N8145236</b>

### Teflon® Sample Capillaries

For use with ST Nebulizers.

I.D.	Self-Aspiration Rate	Part No.
0.15 mm	20 µL/min	<b>N8122382</b>
0.2 mm	50 µL/min	<b>N8145135</b>
0.25 mm	100 µL/min	<b>N8122383</b>
0.3 mm	200 µL/min	<b>N8145136</b>
0.5 mm	400 µL/min	<b>N8122384</b>
0.8 mm	700 µL/min	<b>N8145137</b>
1.0 mm	1 mL/min	<b>N8145138</b>

### Sample Introduction Kits for NexION

Complete high purity sample introduction system for NexION. All wetted surfaces are Teflon® 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	<b>N8142001</b>

Complete HF-resistant sample introduction system for NexION. All wetted surfaces are Teflon® 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	<b>N8142002</b>
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.	<b>N8140507</b>

## Baffled 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. 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.



Part No. WE025221

## Baffled Quartz Cyclonic Spray Chambers

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



Part No. N8145013

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

## NexION O-Ring Free Baffled Cyclonic Spray Chambers for PC<sup>3</sup>

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.



Part No. N8145120

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



Part No. N0777034

## Baffled Quartz Cyclonic 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 PC<sup>3</sup>.

ICP-MS Model	Part No.
ELAN with Auxillary Gas Port	N0777034
ELAN without Auxillary Gas Port	N0777035

## Baffled Glass 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. For use with ball joint injectors.



Part No. N8145014

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

\*\*O-Ring free

## Water-Cooled Baffled Glass Cyclonic Spray Chambers

The water-cooled design permits the introduction of coolant for temperature control. Thermostatting to constant temperature helps ensure highly reproducible results and long-term stability. Can also be cooled to suppress volatilization, allowing the direct aspiration of highly volatile solvents such as naphtha and petrol/gasoline. Glass with baffle and oxygen port. Recommended for light organic solvents and chromatography use.



Part No. N8120180

ICP-MS Model	Part No.
ELAN DRC-e/9000/6x00/5000	N8120180
ELAN DRC/DRCplus/DRC II	N8120181
ELAN DRC-e/9000/6x00/5000 (O-Ring Free)	N0775353

## 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



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.
<b>For ELAN 9000/6x00/5x00/DRC-e</b>	
Glass Cyclonic Spray Chamber Kit	<b>N8120150</b>
Glass Cyclonic Spray Chamber Only	<b>N8122188</b>
O-Ring Free Glass Cyclonic Spray Chamber	<b>N0775350</b>

## Water-Cooled O-Ring Free Glass Cyclonic Spray Chamber

O-Ring Free Glass Cyclonic Spray Chamber only. Ball joint type.



ICP-MS Model	Part No.
ELAN DRC/DRCplus/DRC II	<b>N0775354</b>

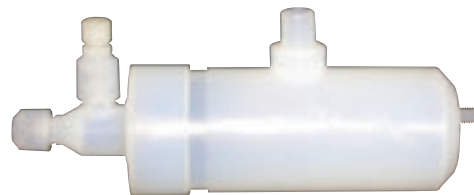


Part No. N8120124

## 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.
<b>For NexION/ELAN 9000/6x00/5000/DRC-e</b>	
Scott Spray Chamber	<b>N8120124</b>
Scott Spray Chamber Large O-Ring	<b>WE013060</b>
Scott Spray Chamber Retaining Ring	<b>WE014081</b>
End-cap for Concentric Nebulizer. Ryton endcap to fit nebulizer onto Scott Spray Chamber	<b>N0680504</b>



Part No. N8142000

## PFA Teflon® 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 Teflon® Scott Spray Chamber	<b>N8122356</b>
PFA Spray Chamber with PFA End Cap for NexION*	<b>N8142000</b>

\* Requires PFA body injector N8122411 or N8122412 or N8122413.

## Water-Cooled Glass Scott Spray Chamber

Water-Cooled Glass Scott Spray Chamber included in Heavy Organics Sample Introduction System (N8122132). Recommended for use with heavy organic solvents.

Does not include end cap.

ICP-MS Model	Part No.
ELAN DRCe/9000/6x00/5000	<b>WE013829</b>





## PC<sup>3</sup> Peltier Coolers for NexION

The PC<sup>3</sup> 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 PC<sup>3</sup> 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 PC<sup>3</sup> has 2 preset temperatures +2°C / -5°C and is ideal for analysis of aqueous or aqueous/organic mixtures. The PC<sup>3</sup>-LT operates at -20°C to reduce the solvent load on the plasma for analysis of 100% volatile organic solvents.

Description	Additional Gas Port	Part No.
PC <sup>3</sup> Organic Sample Introduction Kit – Peltier Cooler for NexION +2°C / -5°C Quartz	Yes	<b>N8142003</b>
PC <sup>3</sup> -LT Organic Sample Introduction Kit – Peltier Cooler for NexION +2°C / -20°C Quartz	Yes	<b>N8145099</b>

## PC<sup>3</sup> Peltier Coolers for ELAN

The PC<sup>3</sup> 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 PC<sup>3</sup> 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 PC<sup>3</sup> has two present temperatures +2°C / -5°C and is ideal for analysis of aqueous or aqueous/organic mixtures. The PC<sup>3</sup>-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	<b>N8122410</b>
ELAN Twist Type Torch Mount	<b>N8122389</b>
ELAN PC <sup>3</sup> -LT	<b>N8122452</b>



Part No. N8145120



Part No. N8145122

## Spray Chambers for NexION PC<sup>3</sup>

Description	Part No.
High Purity Quartz Cyclonic Spray Chamber	<b>N8145120</b>
Borosilicate Glass Spray Chamber	<b>N8145119</b>
PFA Cyclonic Spray Chamber	<b>N8145122</b>



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

ICP-MS Model	Part No.
ELAN	<b>N0777364</b>
NexION	<b>N8141426</b>

## FULL SELECTION OF 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.	<b>N8126041</b>
1.5 mm i.d.	<b>N8126040</b>
0.85 mm i.d.	<b>N8126039</b>

### 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	<b>N0681631</b>
1.6 mm i.d.	Organic Solvents	<b>00473292</b>
2.0 mm i.d.	Clinical Samples	<b>N8125029</b>

#### 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	<b>WE027030</b>
1.5 mm i.d.*	Organics	<b>WE027005</b>
2.0 mm i.d.	General Purpose	<b>WE023948</b>

\*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	<b>N0695495</b>

#### PFA Injector Assemblies

PFA/Quartz Torch Injector Assembly

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

PFA/Sapphire Torch Injector Assembly

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

PFA/Platinum Torch Injector Assembly

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

#### Injector Support Adapters

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

#### Injector Support Adapter O-Rings

Position	Torch Type	Part No.
External	Twist/Cassette	<b>09210011</b>
External (large)	Cassette	<b>W1013545</b>
Internal	Twist/Cassette	<b>09210012</b>



## 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	<b>N8122006</b>



## 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.
NexION/ELAN 9000/6x00/DRCs	<b>W1008384</b>

## 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	<b>W1007468</b>

## Torch Alignment Tool

Used to align the torch in the load coil.



ICP-MS Model	Part No.
NexION/ELAN 9000/6x00/DRCs	<b>WE015554</b>



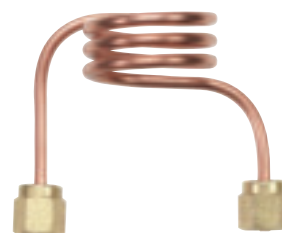
## Cassette Torch Mount

The Cassette Torch Mount is an innovative torch design that is fully modular, demountable, rugged and easy to maintain. Now changing torch components is a simple process – no tools are required. Cassette Torch Mount does not include Demountable Quartz Torch or Injector.



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

## RF Load Coil Assemblies



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

## Power Amplifier Tube (Ceramic)

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

## 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*	<b>N8145000</b>

## 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	<b>N8125001</b>

## 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*	<b>N8125050</b>

## Detector Electronics Upgrade Kit

Boosts detector life at least 20%.

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

\* 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.

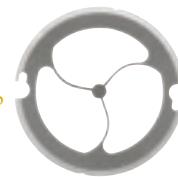
### Ion Lens

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

Series II Ion Lens



Series II ShadowStop



### ShadowStop

Description	ICP-MS Model	Part No.
Cassette Lens ShadowStop	ELAN 9000/DRCs manufactured after April, 2005	<b>W1013361</b>
Series II ShadowStop	ELAN 9000/6x00/DRCs manufactured between January, 1998 and April, 2005	<b>WE029011</b>

## Vacuum Pump Fluid for ELAN

For use with roughing pumps. One gallon (3.8 liters).

Pump Model	Part No.
Leybold	<b>N8122004</b>
Varian	<b>N8122308</b>

## 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	<b>N8145003</b>

## High Vacuum Silicon Grease

For lubrication of vacuum system O-Rings.

Description	Part No.
High Vacuum Silicon Grease	<b>09905147</b>

# TESTED AND APPROVED

## 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.



NexION Cones



### 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	09919737

### 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

### 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

### 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

### Sampler Cone Aluminum Gasket

ICP-MS Model	Part No.
NexION	W1040148

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



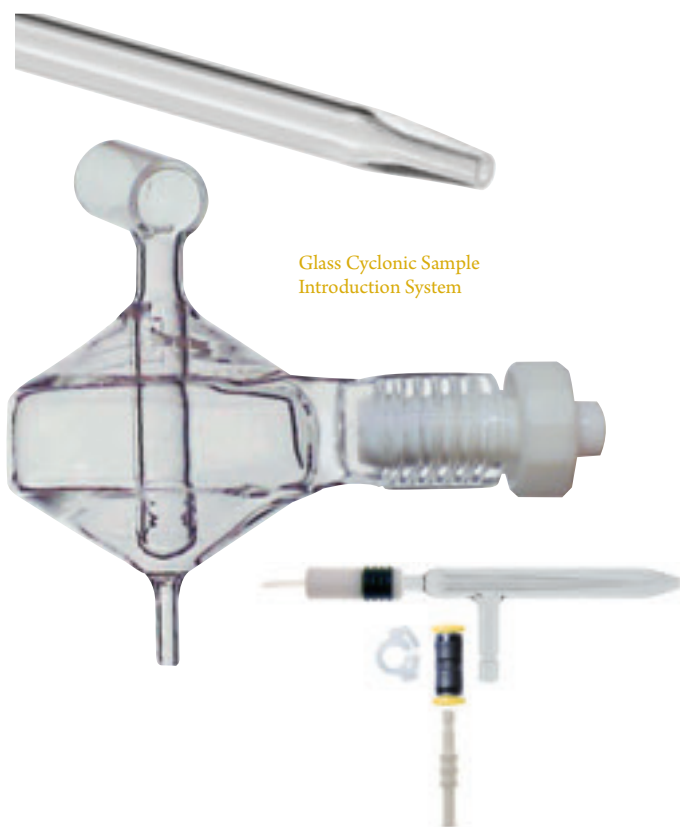
ELAN Cones



### Cone Removal Tool

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

## COMPLETE SAMPLE INTRODUCTION SOLUTIONS



Glass Cyclonic Sample Introduction System

### Glass Cyclonic Sample Introduction System for ELAN

Description	Part No.
<b>Glass Cyclonic Sample Introduction System</b>	<b>N8120518</b>
System Includes:	
Baffled Glass Cyclonic Spray Chamber O-Ring Free	<b>N0775352</b>
Cyclonic Spray Chamber Mount	<b>WE014034</b>
MicroMist Micro-uptake Glass Concentric Nebulizer 0.2 mL/min.	<b>N0775342</b>
Quartz Injector 2.0 mm i.d.	<b>N8125029</b>
Tygon Tubing (1 foot)	<b>02506516</b>
Insert	<b>09903094</b>
¼ in. Front Ferrule	<b>09903456</b>
Fitting	<b>09903464</b>
Tube Fitting	<b>09903465</b>
Black/Black Standard PVC Tubing 0.76 mm i.d. (Pkg. 12)	<b>09908585</b>
Green/Yellow Flared End PVC Tubing 0.44 mm i.d. (Pkg. 6)	<b>N0773113</b>

### Quartz Cyclonic Sample Introduction System for ELAN

Description	Part No.
<b>Quartz Cyclonic Sample Introduction System</b>	<b>N8120519</b>
System Includes:	
Baffled Quartz Cyclonic Spray Chamber Baffled Quartz Spray Chamber (Teflon® O-Ring Type) with Ball Joint.	<b>WE025221</b>
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.	<b>N0775342</b>
Quartz Ball Injector 2.0 mm i.d.	<b>WE023948</b>
Tygon Tubing (1 foot)	<b>02506516</b>
Insert	<b>09903094</b>
¼ in. Front Ferrule	<b>09903456</b>
Fitting	<b>09903464</b>
Tube Fitting	<b>09903465</b>
Black/Black Standard PVC Tubing 0.76 mm i.d. (Pkg. 12)	<b>09908585</b>
Green/Yellow Flared End PVC Tubing 0.44 mm i.d. (Pkg. 6)	<b>N0773113</b>
Ball Joint Cassette Torch Injector Support Adapter	<b>W1012406</b>
UV Safety Shield	<b>W1020996</b>
Connector 1A	<b>B0199233</b>



## ELAN Spares Kits Always keep spares on hand!



### ELAN® DRC-e/9000 Spares Kit

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



### ELAN® DRC II Spares Kit

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



### NexION 300Q/X/D Consumables Kit

Typical one year's supply of consumables.

Description	Qty	Part No.
<b>NexION 300Q/X/D Consumables Kit</b>		<b>N8140513</b>
Kit Includes:		
Demountable Quartz Torch	2	<b>N8122006</b>
Load Coil	1	<b>WE021816</b>
Quartz Ball Joint Injector 2.0 mm i.d.	2	<b>WE023948</b>
Cassette Torch Injector Support Adapter for Ball Joint Injectors	1	<b>W1012406</b>
Glass Cyclonic Spray Chamber	1	<b>N8145014</b>
Nickel Skimmer Cone	2	<b>W1026356</b>
Nickel Sampler Cone	2	<b>W1033612</b>

### NexION 300Q/X/D Consumables Kit (Continued)

Description	Qty	Part No.
Hyper Skimmer Cone	1	<b>W1033995</b>
Sampler Cone Gasket	3	<b>W1040148</b>
Hyper Skimmer O-Ring	2	<b>09902123</b>
Hyper Skimmer Screw	2	<b>09919737</b>
Santoprene® 1.30 mm Gray/Gray Pump Tubing	4	<b>N0777444</b>
Flared PVC 0.38 mm Green/Orange Pump Tubing	4	<b>N0777042</b>
Drain Tubing (feet)	6	<b>02506495</b>
Sample Uptake Tubing (cm)	12	<b>WE024375</b>
Instrument Filter (left)	2	<b>W1036712</b>
Instrument Filter (back right)	2	<b>W1036713</b>
Spray Chamber Drain Fitting	2	<b>N8145015</b>
Nebulizer Fitting	2	<b>N8145016</b>
Male Barb CTFE Fitting	2	<b>N8145017</b>
Female Barb CTFE Fitting	2	<b>N8145018</b>

### NexION 300S Consumables Kit

Typical one year's supply of consumables.

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



## ENSURE INSTRUMENT REPRODUCIBILITY

### Pump Tubing

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



#### 2-Stop Peristaltic Pump Tubing

i.d. (mm)	Stop Colors	Part No.
<b>Standard PVC (Pkg. 12)</b>		
0.19	Orange - Red	N0695476
0.25	Orange - Blue	N0773117
0.38	Orange - Green	N0777110
0.64	Orange - White	N8122012
0.76	Black - Black	09908587
1.14	Red - Red	09908585
1.42	Yellow - Yellow	N0777521
1.52	Yellow - Blue	09923536
1.85	Green - Green	N0777518
2.06	Purple - Purple	N0777561
<b>Flared PVC (Pkg. 12)</b>		
0.19	Orange - Red	N0773111
0.25	Orange - Blue	N0773112
0.38	Orange - Green	N0777042
0.44	Green - Yellow	N0773113
0.51	Orange - Yellow	N0777476
0.64	Orange - White	N0777711
0.76	Black - Black	N0777043
<b>Solvent Flex (Pkg. 12)</b>		
0.38	Orange - Green	N8145211
0.76	Black - Black	00473550
1.14	Red - Red	09923037
2.79	Purple - White	02508080

i.d. (mm)	Stop Colors	Part No.
<b>Viton® (Pkg. 12)</b>		
0.51	Orange - Yellow	N0777446
0.76	Black - Black	N0773118
1.02	White - White	N0777442
1.14	Red - Red	N0773115
1.30	Gray - Gray	N0777445
1.65	Blue - Blue	N0777447
<b>Santoprene® (Pkg. 12)</b>		
1.14	Red - Red	N0773119
1.30	Gray - Gray	N0777444
1.85	Green - Green	N0773116
<b>Silicone (Pkg. 6)</b>		
0.76	Black - Black	00473552
1.02	White - White	N0777441
1.14	Red - Red	N0691595
1.30	Gray - Gray	N0777443
2.79	Purple - White	09923448

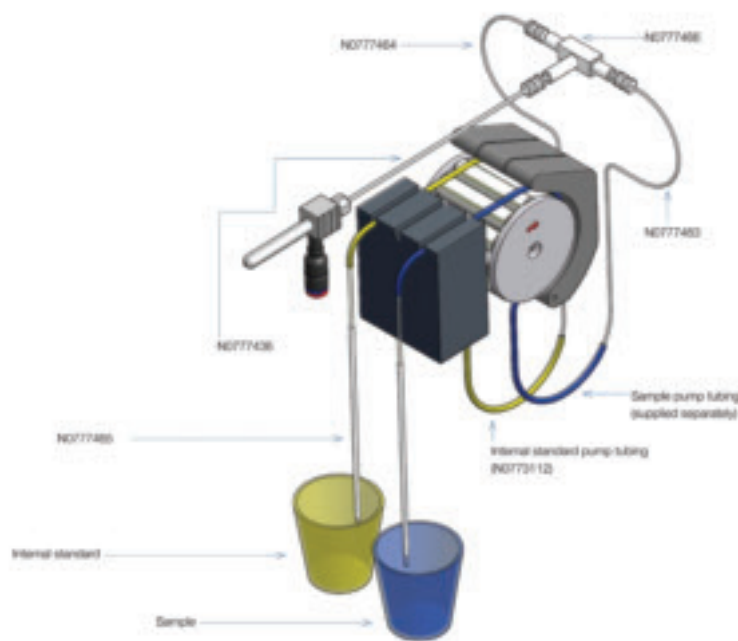
#### 3-Stop Peristaltic Pump Tubing

i.d. (mm)	Stop Colors	Part No.
<b>Standard PVC (Pkg. 12)</b>		
0.76	Black - Black	B0506058
1.14	Red - Red	B0193160
1.52	Yellow - Blue	B0193161
2.06	Purple - Purple	B0199034
3.18	Black - White	B0508310



## 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.



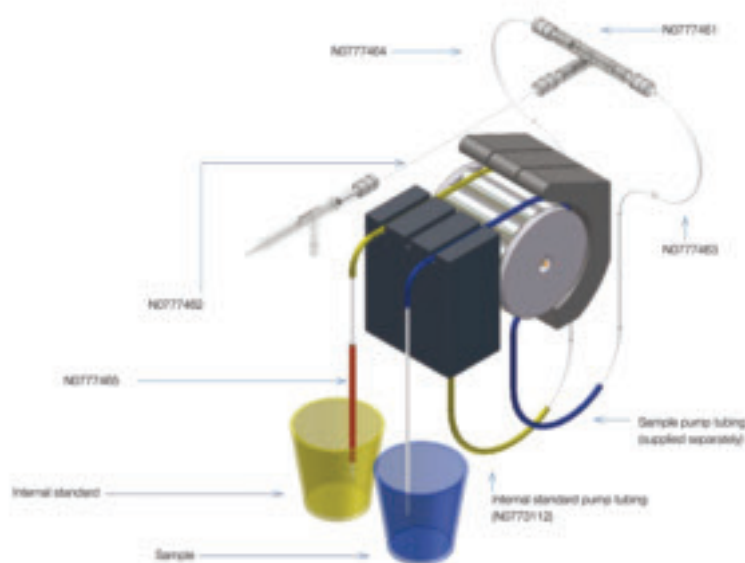
HF-Resistant  
Internal Standard Kit

### HF-Resistant Internal Standard Kit

Description	Part No.
<b>HF-Resistant Internal Standard Kit</b>	<b>N0774067</b>
Kit Includes:	
HF Mixing T-piece	N077466
Internal Standard Sample Probe	N077465
EzyFit Sample Tube 0.5 mm ID	N077463
EzyFit with 1/16 inch OD x 0.50 mm ID x 700 mm Long Sample Tube	N077436
EzyFit with 1/16 inch OD x 0.25 mm ID x 700 mm Long Sample Tube	N077437
Vitex® Gripper Paper	
Orange-Blue Flared End PVC Tubing 0.25 i.d. - Pkg 12	N0773112

### Non HF-Resistant Internal Standard Kit

Description	Part No.
<b>Non HF-Resistant Internal Standard Kit</b>	<b>N0774068</b>
Kit Includes:	
EzyFit Glass Mixing T-piece	N077461
Internal Standard Sample Probe	N077465
EzyFit Sample Tube - Twin	N077462
EzyFit with 1/16 inch OD x 0.50 mm ID x 700 mm Long Sample Tube	N077436
EzyFit with 1/16 inch OD x 0.25 mm ID x 700 mm Long Sample Tube	N077437
Vitex® Gripper Paper	
Orange-Blue Flared End PVC Tubing 0.25 i.d. - Pkg 12	N0773112



Non HF-Resistant  
Internal Standard Kit

# AUTOSAMPLER PROBES AND COMPONENTS



S10 Autosampler

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

### 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.	<b>B3000159</b>
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).	<b>B3000160</b>
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).	<b>B3000161</b>

### 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).	<b>B3001770</b>
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).	<b>B3001771</b>
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).	<b>B3001772</b>

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

## Used Oil Autosampler Probe

Autosampler probe for the AS-90plus, AS-93plus and S10 Autosamplers. The probe includes a particulate filter on the tip to remove fibers.

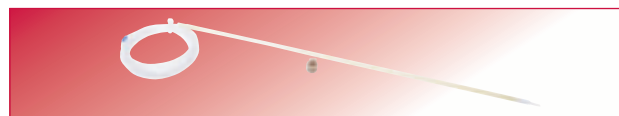
Description	Part No.
Used Oil Autosampler Probe	<b>N0771529</b>

## 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.	<b>B3000152</b>
Flame Capillary Tubing Assembly 1 m length, 0.6 mm i.d., one fitting	<b>B3000157</b>
FIAS Capillary Tubing Assembly 1 m length, 0.6 mm i.d., two fittings	<b>B3000158</b>
FIAS Capillary Tubing Assembly 1 m length, 1.0 mm i.d., two fittings	<b>B0191060</b>

## ESI Autosampler Probes

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

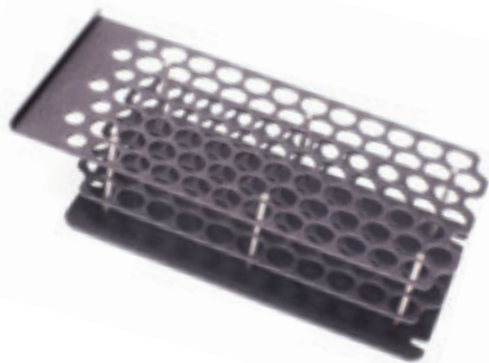


## Cetac Autosampler Probes

Description	Part No.
Cetac Autosampler Probe, 12 inch length, 0.5 mm i.d.	<b>N0774088</b>
Cetac Stainless Steel Sample Probe with Filter Tip	<b>N0777146</b>

## Accessories

Description	Part No.
Cleaning Wire	<b>B0505962</b>
S10 Dust Cover	<b>N2020045</b>



## Sample Trays

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

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

\*Polypropylene sample tray.

### AS-91 Sample Trays

Description/Capacity	Sample Vessel Size	Part No.
Tray E – 218	4.5 mL, 6 mL, 8 mL	<b>B0509554</b>
Tray F – 152	15 mL, 16 mL	<b>B0509555</b>
Tray G – 55	50 mL	<b>B0508520</b>

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

### AS-93plus/S10 Sample Tray

Description/Capacity	Sample Vessel Size	Part No.
Tray F – 9/29	50 mL/15 mL	<b>B3001647</b>
Tray E – 90	4.5 mL, 6 mL, 8 mL	<b>B3140617</b>
Tray F – 60	15 mL, 16 mL	<b>B3140618</b>
Tray G – 30	50 mL	<b>B3140621</b>

AS-93plus sample trays are polypropylene.

### AS-93plus/S10 Rinsing Kit

Description/Capacity	Part No.
AS-93plus Rinsing Kit	<b>B3140236</b>
<b>Spare Parts</b>	
Rinsing Port	<b>B3140622</b>
Adapter M	<b>B0507919</b>
Pump Tube – 2.79 mm i.d. (pkg. 6)	<b>B3140721</b>
Pump Tube – 1.14 mm i.d. (pkg. 6)	<b>B3140730</b>
Tygon® Drain Tube – 2 m	<b>B0509650</b>
PVC Rinse Liquid Feed Tube – 2 m	<b>B0048139</b>
Connector	<b>B3140715</b>

## Cetac Autosampler Supplies

### Racks

Rack	Vial Size	Part No.
21-Position	50 mL	<b>N0777152</b>
24-Position	30 mL	<b>N0777151</b>
40-Position	20 mL	<b>N0777150</b>
40-Position	20 mL	<b>N0777169</b>
40-Position/Gilson 29	20 mL	<b>N0777155</b>
45-Position/120 cc Sample Rack (oils)		<b>N0777298</b>
60-Position	14 mL	<b>N0777149</b>
80-Position Collection Metal for Oil		<b>N0774085</b>
90-Position	8 mL	<b>N0777148</b>
90-Position (Round Hole)	8 mL	<b>N0777153</b>
90-Position Collection Metal for Oil		<b>N0777154</b>

## ESI Autosampler Supplies

### Racks and Rack Covers

#### Standard Racks

Description	Size	Diameter	Part No.
10-Position		28 mm	<b>N0777228</b>
24-Position	4 x 6	14 mm	<b>N0777234</b>
Adapter Plate**			<b>N0777235</b>

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

#### Micro Racks

21-Position	3 x 7	14 mm	<b>N0777229</b>
40-Position	4 x 10	14 mm	<b>N0777230</b>
60-Position	5 x 12	8 mm	<b>N0777231</b>
90-Position	5 x 12		<b>N0777232</b>
Cover for Micro Racks			<b>N0777233</b>

#### Large Racks

21-Position	3 x 7	30 mm	<b>N0777242</b>
40-Position	4 x 10	20 mm	<b>N0777243</b>
60-Position	5 x 12	16 mm	<b>N0777244</b>
90-Position	6 x 15	13 mm	<b>N0777245</b>

#### Super Racks

10-Position***	2 x 5	61 mm	<b>N0777253</b>
12-Position	2 x 6	50 mm	<b>N0777252</b>
21-Position	3 x 7	22 mm	<b>N0777251</b>
21-Position	3 x 7	28 mm	<b>N0777250</b>
21-Position	3 x 7	30 mm	<b>N0777249</b>
27-Position	3 x 9	28 mm	<b>N0777248</b>
80-Position	5 x 16	16 mm	<b>N0777247</b>
120-Position	6 x 20	13 mm	<b>N0777246</b>

\*\*\*Holds 205 mL bottles.

## Polypropylene Autosampler Tubes for AA, ICP-OES and ICP-MS



### Standard Tubes with Screw Caps and Printed Graduations

Translucent polypropylene tubes are designed to provide you with excellent chemical resistance.

Capacity	Size	Description	Qty/Pack	Qty/Case	Part No.
15 mL Conical	17 mm x 120 mm	50/Bag, 10 Bags/Case	50	500	<b>B0193233</b>
50 mL Conical/Freestanding	28 mm x 115 mm	25/Bag, 20 Bags/Case	25	500	<b>B0193234</b>

### Autosampler Tubes with Round Bottom

Capacity	Size	Type	Qty/Pack	Part No.
5 mL Round Bottom	12 mm x 75 mm	Round Bottom	500	<b>B0193235</b>
8 mL Round Bottom	13 mm x 100 mm	Round Bottom	1,200	<b>N0777156</b>
8 mL Round Bottom	13 mm x 100 mm	Round Bottom/Bulk	1,000	<b>B0508901</b>
8 mL Round Bottom	13 mm x 100 mm	Round Bottom	250	<b>N0777159</b>
15 mL Round Bottom	17 mm x 100 mm	Round Bottom	1,200	<b>N0777167</b>
		Plug for 15 mL Vials (Part No. N0777167)	1,200	<b>N0777599</b>
15 mL Round Bottom	17 mm x 100 mm	Round Bottom	250	<b>N0777168</b>
16 mL Round Bottom	17 mm x 100 mm	Round Bottom/Packs of 125	1,000	<b>N9301205</b>
50 mL Round Bottom	30 mm x 115 mm	Round Bottom/Bulk	500	<b>N0777158</b>
50 mL Round Bottom	30 mm x 115 mm	Round Bottom/50 Tubes per bag	500	<b>N0777164</b>

### SuperClear™ Tubes with Printed Graduations

SuperClear tubes are made from a unique medical grade resin that is far more durable than commodity grade resins used in most other brands of tubes. 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.

Capacity	Size	Description	Qty/Pack	Qty/Case	Part No.
<b>15 mL SuperClear Tubes with Flat Caps</b>					
15 mL Conical	17 mm x 118 mm	50/Bag, 10 Bags/Case	50	500	<b>N0777701</b>
15 mL Conical	17 mm x 118 mm	25/Rack, 2 Racks/Pkg, 10 Pkg/Cs	50	500	<b>N0777702</b>
15 mL Conical	17 mm x 118 mm	Bulk, Tubes & Caps in Separate Bags	500	500	<b>N0777703</b>
<b>50 mL SuperClear Tubes with Flat Caps</b>					
50 mL Conical	29 mm x 115 mm	50/Bag, 10 Bags/Case	50	500	<b>N0777691</b>
50 mL Conical	29 mm x 115 mm	25/Rack, 20 Racks/Case	25	500	<b>N0777692</b>
50 mL Conical	29 mm x 115 mm	Bulk, Tubes & Caps in Separate Bags	500	500	<b>N0777693</b>

### PerformR™ Freestanding Tubes with Printed Graduations

Freestanding 50 mL Tubes are available for use in those applications where a rack is not available. They include a large white solvent resistant writing area and black graduations. Available with either a flat cap or a plug style cap. Certified to IATA 95kPa Standard.

Capacity	Size	Description	Qty/Pack	Qty/Case	Part No.
<b>Freestanding 50 mL Tubes with Flat Caps</b>					
50 mL Conical/Freestanding	29 mm x 115 mm	50/Bag, 10 Bags/Case	50	500	<b>N0777697</b>
50 mL Conical/Freestanding	29 mm x 115 mm	Bulk, Tubes & Caps in Separate Bags	500	500	<b>N0777698</b>

# CONSUMABLE APPLICATION PACKS



We've taken the guesswork out of ordering. Everything you need to run your analysis – from lamps and standards to application notes – in one, easy-to-order pack.

## **PinAAcle 900Z Application Pack for Blood Lead Determination (Part No. N0770885)**

Centers for Disease Control (CDC) require action for blood-lead level concentration above the 10 µg/dL guideline. Validated applications to determine whole blood levels are possible with PinAAcle 900Z with application pack.

Includes: Lamps, Standards, Graphite Tubes, and Sample Cups\*.



## **PinAAcle 900 Application Pack for Trace Metals in Water by GFAAS (Method 200.9) (Part No. N0770886)**

PinAAcle 900 with application pack helps analyze several trace elements – including arsenic, cadmium, lead, selenium and thallium – that are recognized as toxic or carcinogenic in drinking water.

Includes: Lamps, Standards, Graphite Tubes, and Sample Cups\*.



## **PinAAcle 900 Application Pack for Toxic and Trace Elements in Food (Part No. N0770887)**

Ingesting of trace elements from food can be linked to nutrition, disease, and even physiological development. PinAAcle 900 with application pack helps determine the presence of these elements.

Includes: Lamps, Standards, Burner Head, Graphite Tubes, and Sample Cups\*.



## **Optima 8x00 Application Pack for Toxicity Characteristic Leaching Procedure (TCLP) Extracts by Method 6010 (Part No. N0770888)**

This application pack contains all the consumables to run TCLP, the most quantitative test required by the EPA to determine the toxicity levels and disposal regulations for unknown materials.

Includes: Autosampler Tubes and Standards\*.



## **Optima 8300 Application Pack for Multi-element Analysis of Rocks and Sediment (Part No. N0770889)**

Optima 8300 with application pack can be used to determine if soils are deficient in micronutrients or if they contain toxic heavy metal contamination.

Includes: Autosampler Tubes, Pump Tubing, Standards, Mixing Block, and Internal Standard probe\*.

Description	Instrument	Part No.
Blood Lead Determination	PinAAcle 900Z	<b>N0770885</b>
Trace Metals in Water by GFAAS	PinAAcle 900	<b>N0770886</b>
Toxic and Trace Elements in Food	PinAAcle 900	<b>N0770887</b>
Toxicity Characteristic Leaching Procedure (TCLP) Extracts	Optima 8x00	<b>N0770888</b>
Multi-element Analysis of Rocks and Sediment	Optima 8300	<b>N0770889</b>

\* Please visit our website for complete details on what is included in each Application Pack.

## PIONEERED THE USE OF FLOW INJECTION TECHNIQUES



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 B 3.3 mm o.d. nipple	B0193342 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 ¼ 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 L 2.8 mm o.d. nipple	B0507918 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.

## 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	<b>B0507957</b>

### 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	<b>B0507962</b>

### 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	<b>B0507959</b>
Glass Gas/Liquid Separator	<b>B0193772</b>
Gas/Liquid Separator Holder for Glass Separator	<b>B0509479</b>
PTFE Membrane (pkg. 50)	<b>B0508306</b>
Mixing Manifold for Glass Gas/Liquid Separator	<b>B0187258</b>

### Tool, Screw Connectors

Description	Part No.
Tool, Screw Connectors	<b>B0501315</b>

### Flow Injection Furnace Supplies

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

### Sample Loops

Description	Part No.
200 µL	<b>B0194048</b>
500 µL	<b>B0194049</b>
1,000 µL	<b>B0501000</b>

## Tubing

Peristaltic pump tubing has a wall thickness of 0.84 mm.

### 3-Stop Peristaltic Pump Tubing Pkg. 12

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

### Peristaltic Pump Tubing, Solvent-Resistant

Tubing i.d.	Color Code	Part No.
1.14 mm	White/white	<b>B0507692</b>

### PTFE Tubing

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

### PTFE Tubing Assemblies

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

### PVC Tubing

Description	Part No.
3 mm i.d. with 1 mm wall thickness, no fittings	<b>B0048139</b>

Price per meter.

### Silicone Tubing

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

### Rinse Pump Tubing, Pharmed

Tubing i.d.	Color Code	Pkg	Part No.
1.14 mm	Red/red	6	<b>B3140730</b>
2.79 mm	Purple/white	6	<b>B3140721</b>

# EXPERIENCE RELIABLE, ACCURATE RESULTS



## Inorganic Aqueous Standards

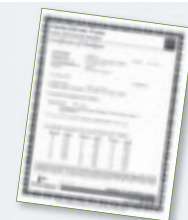
PerkinElmer offers a complete selection of atomic spectroscopy aqueous standards. Each solution is supplied with a comprehensive Certificate of Analysis that documents the quality and reliability.

### Single-Element Standards – 1,000 mg/L

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 <sub>3</sub>	N9300184	N9300100	N9303726
Antimony	Sb	2% HNO <sub>3</sub>	N9300207	N9300101	N9303750
Arsenic	As	2% HNO <sub>3</sub>	N9300180	N9300102	N9303727
Barium	Ba	2% HNO <sub>3</sub>	N9300181	N9300103	N9303729
Beryllium	Be	2% HNO <sub>3</sub>	N9300172	N9300104	N9303730
Bismuth	Bi	10% HNO <sub>3</sub>	N9303761	N9300105	N9303731*
Boron	B	H <sub>2</sub> O	N9303760	N9300106	
Cadmium	Cd	2% HNO <sub>3</sub>	N9300176	N9300107	N9303734
Calcium	Ca	2% HNO <sub>3</sub>	N9303763	N9300108	N9303733
Carbon	C	H <sub>2</sub> O	N9303762	N9300109	
Cerium	Ce	2% HNO <sub>3</sub>	N9303765	N9300110	
Cesium	Cs	2% HNO <sub>3</sub>	N9303767	N9300111	
Chromium	Cr	2% HNO <sub>3</sub>	N9300173	N9300112	N9303736
Cobalt	Co	2% HNO <sub>3</sub>	N9303766	N9300113	N9303735
Copper	Cu	2% HNO <sub>3</sub>	N9300183	N9300114	N9303737
Dysprosium	Dy	2% HNO <sub>3</sub>	N9303768	N9300115	
Erbium	Er	2% HNO <sub>3</sub>	N9303769	N9300116	
Europium	Eu	2% HNO <sub>3</sub>	N9303770	N9300117	
Gadolinium	Gd	2% HNO <sub>3</sub>	N9303773	N9300118	
Gallium	Ga	2% HNO <sub>3</sub>	N9303772	N9300119	
Germanium	Ge	H <sub>2</sub> O/0.16% F-	N9303774	N9300120	N9303739*
Gold	Au	10% HCl	N9303759	N9300121	N9303728**
Hafnium	Hf	2% HCl	N9303775	N9300122	
Holmium	Ho	2% HNO <sub>3</sub>	N9303776	N9300123	
Indium	In	2% HNO <sub>3</sub>	N9303777	N9300124	N9303741*

### 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 – certified by A2LA



### 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 – certified by A2LA

**PerkinElmer Standards are compatible  
with other manufacturers' instruments**



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 <sub>3</sub>	N9303771	N9300126	N9303738
Lanthanum	La	2% HNO <sub>3</sub>	N9303780	N9300127	
Lead	Pb	2% HNO <sub>3</sub>	N9300175	N9300128	N9303748
Lithium	Li	2% HNO <sub>3</sub>	N9303781	N9300129	
Lutetium	Lu	2% HNO <sub>3</sub>	N9303782	N9300130	
Magnesium	Mg	2% HNO <sub>3</sub>	N9300179	N9300131	N9303743
Manganese	Mn	2% HNO <sub>3</sub>	N9303783	N9300132	N9303744
Mercury	Hg	10% HNO <sub>3</sub>	N9300174	N9300133	N9303740*
Molybdenum	Mo	H <sub>2</sub> O	N9303784	N9300134	N9303745
Neodymium	Nd	2% HNO <sub>3</sub>	N9303787	N9300135	
Nickel	Ni	2% HNO <sub>3</sub>	N9300177	N9300136	N9303747
Niobium	Nb	H <sub>2</sub> O/0.4% HF	N9303786	N9300137	
Palladium	Pd	10% HCl	N9303789	N9300138	
Phosphorus	P	H <sub>2</sub> O	N9303788	N9300139	
Platinum	Pt	10% HCl	N9303791	N9300140	
Potassium	K	2% HNO <sub>3</sub>	N9303779	N9300141	N9303742
Praseodymium	Pr	2% HNO <sub>3</sub>	N9303790	N9300142	
Rhenium	Re	H <sub>2</sub> O	N9303793	N9300143	
Rhodium	Rh	10% HCl	N9303794	N9300144	N9303749*
Rubidium	Rb	2% HNO <sub>3</sub>	N9303792	N9300145	
Ruthenium	Ru	10% HCl	N9303795	N9300146	
Samarium	Sm	2% HNO <sub>3</sub>	N9303800	N9300147	
Scandium	Sc	2% HNO <sub>3</sub>	N9303798	N9300148	N9303751*
Selenium	Se	2% HNO <sub>3</sub>	N9300182	N9300149	N9303752
Silicon	Si	H <sub>2</sub> O	N9303799	N9300150	
Silver	Ag	2% HNO <sub>3</sub>	N9300171	N9300151	N9303725
Sodium	Na	2% HNO <sub>3</sub>	N9303785	N9300152	N9303746
Strontium	Sr	2% HNO <sub>3</sub>	N9303802	N9300153	
Sulfur	S	H <sub>2</sub> O	N9303796	N9300154	
Tantalum	Ta	H <sub>2</sub> O/0.8% HF	N9303803	N9300155	
Tellurium	Te	5% HNO <sub>3</sub>	N9303805	N9300156	
Terbium	Tb	2% HNO <sub>3</sub>	N9303804	N9300157	N9303753*
Tin	Sn	20% HCl	N9303801	N9300161	N9303838
Thallium	Tl	2% HNO <sub>3</sub>	N9300170	N9300158	N9303755
Thorium	Th	2% HNO <sub>3</sub>	N9303842		
Thulium	Tm	2% HNO <sub>3</sub>	N9303807	N9300160	
Titanium	Ti	H <sub>2</sub> O/tr 0.24% F-	N9303806	N9300162	N9303754
Tungsten	W	H <sub>2</sub> O	N9303809	N9300163	
Uranium	U	2% HNO <sub>3</sub>		N9303844	
Vanadium	V	2% HNO <sub>3</sub>	N9303808	N9300165	N9303756
Ytterbium	Yb	2% HNO <sub>3</sub>	N9303811	N9300166	
Yttrium	Y	2% HNO <sub>3</sub>	N9303810	N9300167	N9303757*
Zinc	Zn	2% HNO <sub>3</sub>	N9300178	N9300168	N9303758
Zirconium	Zr	2% HNO <sub>3</sub>	N9303812	N9300169	

\* 10 mg/L \*\* 100 mg/L

## Single-Element Standards – 10,000 mg/L

Element	Symbol	Matrix	Pure Grade 125 mL Part No.	Pure Grade 500 mL Part No.
Aluminum	Al	5% HNO <sub>3</sub>	N9304111	N9304110
Calcium	Ca	5% HNO <sub>3</sub>	N0691581	N9303764
Copper	Cu	5% HNO <sub>3</sub>	N9304112	
Iron	Fe	5% HNO <sub>3</sub>	N9304113	N9307117
Magnesium	Mg	5% HNO <sub>3</sub>	N0691745	N9304114
Manganese	Mn	5% HNO <sub>3</sub>	N9304115	
Nickel	Ni	5% HNO <sub>3</sub>	N9304117	N9304116
Phosphorus	P	H <sub>2</sub> O	N9304119	N9304118
Potassium	K	5% HNO <sub>3</sub>	N9304121	N9304120
Silicon	Si	H <sub>2</sub> O/4% HF	N9304122	
Sodium	Na	5% HNO <sub>3</sub>	N9304124	N9304123
Sulfur	S	H <sub>2</sub> O	N9304126	N9304125
Yttrium	Y	5% HNO <sub>3</sub>	N9304128	N9304127
Zinc	Zn	5% HNO <sub>3</sub>	N9304129	

## Mixed Calibration Standards

Matrix	Contents	Volume	Part No.
<b>Mixed Calibration Standard</b>			
2% HNO <sub>3</sub>	50 mg/L: As, K 10 mg/L: La, Li, Mn, Ni, Sr, Zn 1 mg/L: Ba, Mg	500 mL	N0691579
<b>Mixed Calibration Standard 1</b>			
2% HNO <sub>3</sub>	500 mg/L: Pb 200 mg/L: Se 150 mg/L: Cd, Zn 100 mg/L: Mn 50 mg/L: Be	125 mL	N9300200
<b>Mixed Calibration Standard 2</b>			
5% HNO <sub>3</sub>	10,000 mg/L: Fe 100 mg/L: Ba, Co, Cu, V	125 mL	N9300201
<b>Mixed Calibration Standard 3</b>			
2% HNO <sub>3</sub> /tr HF	500 mg/L: As 100 mg/L: Mo, Si	125 mL	N9300202
<b>Mixed Calibration Standard 4</b>			
5% HNO <sub>3</sub>	1,000 mg/L: Ca 400 mg/L: K 200 mg/L: Al, Na 20 mg/L: Cr, Ni	125 mL	N9300203
<b>Mixed Calibration Standard 5</b>			
5% HNO <sub>3</sub> /tr Tartaric Acid/tr HF	1,000 mg/L: Mg 200 mg/L: Sb, Tl 100 mg/L: B 50 mg/L: Ag	125 mL	N9300204

## Initial Calibration Verification Standards

Matrix	Contents	Volume	Part No.
5% HNO <sub>3</sub>	500 mg/L: Ca, K, Mg, Na 200 mg/L: Al, Ba 100 mg/L: Fe 60 mg/L: Sb 50 mg/L: Co, V 40 mg/L: Ni 25 mg/L: Cu 20 mg/L: Zn 15 mg/L: Mn 10 mg/L: Ag, As, Cr, Tl 5 mg/L: Cd, Se 3 mg/L: Pb	500 mL	N9300224
5% HNO <sub>3</sub>	Initial Calibration Verification Standard	125 mL	N9303953

## Quality Control Standards

Matrix	Contents	Volume	Part No.
<b>Quality Control Standard, 21 Elements Pure (Pure XVI)</b>			
5% HNO <sub>3</sub> /tr Tartaric Acid/tr HF	100 mg/L: As, Be, Ca, Cd, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sr, Ti, Tl, V, Zn	125 mL	N9300281
<b>Quality Control Standard, 21 Elements Pure Plus</b>			
5% HNO <sub>3</sub> /tr Tartaric Acid/tr HF	100 mg/L: As, Be, Ca, Cd, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sr, Ti, Tl, V, Zn	125 mL	N9303837
<b>Quality Control Standard, 7A Elements</b>			
5% HNO <sub>3</sub> /tr HF	1,000 mg/L: K 500 mg/L: Si 100 mg/L: Al, B, Ba, Na 50 mg/L: Ag	125 mL	N9300280

## Instrument Calibration Standards for CLP

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

## Matrix Blanks

Matrix	Volume	Part No.
<b>Water Blank</b>		
ASTM® Type I Water, 18 megohm	125 mL	<b>N9303814</b>
ASTM® Type I Water, 18 megohm	250 mL	<b>N9303813</b>
<b>Hydrochloric Acid Blank</b>		
2% HCl in ASTM® Type I Water	125 mL	<b>N9303815</b>
<b>2% Nitric Acid Blank</b>		
2% HNO <sub>3</sub> in ASTM® Type I Water	125 mL	<b>N0773120</b>
2% HNO <sub>3</sub> in ASTM® Type I Water	500 mL	<b>N9308550</b>
<b>1% Nitric Acid Blank</b>		
1% HNO <sub>3</sub> in ASTM® Type I Water	125 mL	<b>N9303732</b>

## GFAAS Mixed Standard

Matrix	Contents	Volume	Part No.
5% HNO <sub>3</sub> w/trace of HF	100 mg/L: Al, As, Pb, Sb, Se, Tl 50 mg/L: Ba, Co, Cu, Ni 20 mg/L: Cr, Fe, Mn 10 mg/L: Ag 5 mg/L: Be, Cd	125 mL	<b>N9300244</b>

## AA Test Mix

Matrix	Contents	Volume	Part No.
2% HCl	50 mg/L: Ca, Cr, Cu, Fe, Ni 20 mg/L: K 10 mg/L: Na, Zn	125 mL	<b>02900540</b>

## Contract Required Detection Limits (CRDL)

Matrix	Contents	Volume	Part No.
5% HNO <sub>3</sub> /tr Tartaric Acid/tr HF	120 mg/L: Sb 100 mg/L: Co, V 80 mg/L: Ni 50 mg/L: Cu 40 mg/L: Zn 30 mg/L: Mn 20 mg/L: Ag, As, Cr, Tl 10 mg/L: Be, Cd, Se 6 mg/L: Pb	125 mL	<b>N9300225</b>

## Matrix Modifiers for Graphite Furnace AA

Matrix	Contents	Volume	Part No.
Mg(NO <sub>3</sub> ) <sub>2</sub>	1% Mg (HNO <sub>3</sub> ) <sub>2</sub> (as nitrate)	100 mL	<b>B0190634</b>
Pd	1% Pd (as nitrate)	50 mL	<b>B0190635</b>
NH <sub>4</sub> H <sub>2</sub> PO <sub>4</sub>	10% NH <sub>4</sub> H <sub>2</sub> PO <sub>4</sub>	100 mL	<b>N9303445</b>

## Reagents

Matrix	Volume	Part No.
Triton® X-100 Wetting Agent	100 mL	<b>N9300260</b>
Antifoaming Silicone Emulsion	500 mL	<b>B0507226</b>
Glycerol	1 L	<b>B3141064</b>

## Instrument Check Standards

Matrix	Contents	Volume	Part No.
<b>Instrument Check Standard 1</b>			
2% HNO <sub>3</sub> /tr Tartaric Acid/tr HF	10 mg/L: Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Se, Tl, V, Zn	125 mL	<b>N9303821</b>
<b>Instrument Check Standard 3</b>			
2% HNO <sub>3</sub>	200 mg/L: Ca, Fe, K, Mg, Na	125 mL	<b>N9303822</b>

Matrix	Contents	Volume	Part No.
<b>Instrument Check Standard 4</b>			
2% HNO <sub>3</sub>	10 mg/L: Mo, Th, U	125 mL	<b>N9303823</b>
<b>Instrument Check Standard 5</b>			
2% HNO <sub>3</sub> /tr HF	10 mg/L: Mo, Sn, Sr, Ti	125 mL	<b>N9303824</b>

## Interference Check Standards

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

\*Supplied in separate bottle.

## Universal Data Acquisition Standards Kit

Matrix	Contents	Volume	Part No.
<b>Solution Kit (Includes items listed)</b>			<b>N9306225</b>
5% HNO <sub>3</sub>	10 mg/L: Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sm, Sc, Tb, Th, Tm, Y, Yb	125 mL	<b>N9300232</b>
5% HNO <sub>3</sub>	10 mg/L: Al, Ag, As, Ba, 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	125 mL	<b>N9300233</b>
10% HCl /1% HNO <sub>3</sub>	10 mg/L: Au, Hf, Ir, Pd, Pt, Rh, Ru, Sb, Sn, Te	125 mL	<b>N9300234</b>
5% HNO <sub>3</sub>	10 mg/L: Hg	125 mL	<b>N9300253</b>
H <sub>2</sub> O/tr HF /tr HNO <sub>3</sub>	10 mg/L: B, Ge, Mo, Nb, P, Re, S, Si, Ta, Ti, W, Zr	125 mL	<b>N9300235</b>

## Water Pollutant Standards

Matrix	Contents	Volume	Part No.
<b>Primary Drinking Water Metals</b>			
2% HNO <sub>3</sub>	100 mg/L: Ba 10 mg/L: Ag, As, Cr, Hg*, Pb 5 mg/L: Cd, Se	125 mL	<b>N9300216</b>
<b>Secondary Drinking Water Metals</b>			
2% HNO <sub>3</sub>	500 mg/L: Zn 100 mg/L: Cu 30 mg/L: Fe 5 mg/L: Mn	125 mL	<b>N9300217</b>
<b>Trace Metals I</b>			
5% HNO <sub>3</sub>	500 mg/L: Al 250 mg/L: V 100 mg/L: As, Be, Co, Cr, Cu, Fe Mn, Ni, Pb, Zn 25 mg/L: Cd, Se 10 mg/L: Hg*	125 mL	<b>N9300211</b>
<b>Trace Metals II</b>			
2% HNO <sub>3</sub>	20 mg/L: Sb, Tl 10 mg/L: Ag	125 mL	<b>N9300212</b>
<b>Trace Metals III</b>			
2% HNO <sub>3</sub>	500 mg/L: Ba, Ca, Mo, Na 100 mg/L: K, Mg	125 mL	<b>N9300213</b>
<b>Alternate Metals I</b>			
2% HNO <sub>3</sub>	20 mg/L: Al, Fe, V 10 mg/L: Co, Cu, Mn, Ni, Zn 5 mg/L: Be, Sb, Tl	125 mL	<b>N9300214</b>
<b>Alternate Metals II</b>			
2% HNO <sub>3</sub>	500 mg/L: Ca, Na 100 mg/L: K, Mg	125 mL	<b>N9300215</b>
2% HNO <sub>3</sub>	500 mg/L: Ca, Na 100 mg/L: K, Mg	500 mL	<b>N9303952</b>

\*Supplied in separate bottle.

## Instrument Setup Solutions

Matrix	Contents	Volume	Part No.
<b>Vis Wavecal Solution</b>			
2% HNO <sub>3</sub>	50 mg/L: K 10 mg/L: La, Li, Mn, Na, Sr 1 mg/L: Ba, Ca	250 mL	<b>N9302946</b>
<b>UV Wavecal Solution</b>			
5% HCl	100 mg/L: K, P, S 20 mg/L: As, La, Li, Mn, Mo, Na, Ni, Sc	250 mL	<b>N0681470</b>
5% HCl	100 mg/L: K, P, S 20 mg/L: As, La, Li, Mn, Mo, Na, Ni, Sc 1 mg/L: Ca	500 mL	<b>N0582152</b>
<b>Low UV Standard</b>			
2% HNO <sub>3</sub>	10 mg/L: Al, P, S	250 mL	<b>N0691580</b>
<b>Calcium Stray Light Standard</b>			
H <sub>2</sub> O	10,000 mg/L: Ca	125 mL	<b>N0691581</b>

## Spike Sample Analysis

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

## Internal Standard Solutions

Matrix	Contents	Volume	Part No.
<b>Multi-Element Internal Standard</b>			
2% HNO <sub>3</sub>	10 mg/L: Bi, Ho, In, <sup>6</sup> Li, Sc, Tb, Y	125 mL	<b>N9303834</b>
<b>Internal Standard Mix</b>			
5-10% HNO <sub>3</sub>	10 mg/L: Bi, Ge, In, <sup>6</sup> Li, Sc, Tb, Y	125 mL	<b>N9303832</b>
<b>Internal Standard Mix</b>			
5-10% HNO <sub>3</sub>	10 mg/L: Bi, Ge, In, <sup>6</sup> Li, Sc, Tb, Y	500 mL	<b>N9303833</b>

## Isotope Standard

Matrix	Contents	Volume	Part No.
<b>Lithium 6 Standard</b>			
2% HNO <sub>3</sub>	100 mg/L: <sup>6</sup> Li	125 mL	<b>N9303955</b>

## Wash Standards

Matrix	Contents	Volume	Part No.
<b>ELAN DRC Wash Solution</b>			
0.5% HNO <sub>3</sub>		250 mL	<b>N8125033</b>
<b>ELAN 9000/6X00/DRC-e Wash Solution</b>			
1% HNO <sub>3</sub>		1,000 mL	<b>N8122038</b>
<b>NexION Wash Solution</b>			
1% HNO <sub>3</sub>		250 mL	<b>N8145050</b>
<b>Water Blank</b>			
ASTM® Type I Water, 18 megohm		125 mL	<b>N9303814</b>

## Multi-Element Standards

Matrix	Contents	Volume	Part No.
<b>Multi-Element Solution</b>			
5% HNO <sub>3</sub>	1,000 mg/L: Al, Ca, Fe, Mg	500 mL	<b>N9307113</b>
<b>Multi-Element Solution</b>			
5% HNO <sub>3</sub>	1,000 mg/L: K, Na, P	500 mL	<b>N9307114</b>
<b>Multi-Element Solution</b>			
2-5% HNO <sub>3</sub>	1,000 mg/L: Mo, Sb, Sn, W, Zr	500 mL	<b>N9307115</b>
<b>Multi-Element Solution</b>			
5% HNO <sub>3</sub>	1,000 mg/L: As, Ba, Be, Cd, Cr, Co, Cu, La, Pb, Li, Mn, Ni, Sc, Sr, V, Y, Zn	500 mL	<b>N9307116</b>
<b>Multi-Element Solution 1</b>			
2% HNO <sub>3</sub>	10 mg/L: Be, Bi, Ce, Co, In, Mg, Ni, Pb, U	125 mL	<b>N9300231</b>
<b>Multi-Element Solution 2</b>			
5% HNO <sub>3</sub>	10 mg/L: Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Th, Tm, Y, Yb	125 mL	<b>N9300232</b>
<b>Multi-Element Solution 3</b>			
5% HNO <sub>3</sub>	10 mg/L: 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	125 mL	<b>N9300233</b>
Multi-Element Solution 3 without Mercury			<b>N9301720</b>

Matrix	Contents	Volume	Part No.
<b>Multi-Element Solution 4</b>			
10% HCl/1% HNO <sub>3</sub>	10 mg/L: Au, Hf, Ir, Pd, Pt, Rh, Ru, Sb, Sn, Te	125 mL	<b>N9300234</b>
<b>Multi-Element Solution 5</b>			
H <sub>2</sub> O/tr HF/tr HNO <sub>3</sub>	10 mg/L: B, Ge, Mo, Nb, P, Re, S, Si, Ta, Ti, W, Zr	125 mL	<b>N9300235</b>
<b>Set of Multi-Element Solutions Includes: (1 bottle of each)</b>			<b>N9300236</b>
Multi-Element Solution 2		125 mL	<b>N9300232</b>
Multi-Element Solution 3		125 mL	<b>N9300233</b>
Multi-Element Solution 4		125 mL	<b>N9300234</b>
Multi-Element Solution 5		125 mL	<b>N9300235</b>
Water Blank		125 mL	<b>N9303814</b>
Hydrochloric Acid Blank		125 mL	<b>N9303815</b>
2% Nitric Acid Blank		125 mL	<b>N0773120</b>
<b>PerkinElmer Pure I</b>			
5% HNO <sub>3</sub>	400 mg/L: Tl 200 mg/L: Bi, In, Pb 150 mg/L: Ga 100 mg/L: Al 50 mg/L: Ag, Ni 25 mg/L: Cr 20 mg/L: Cd, Co, Cu, Zn 15 mg/L: B, Fe 5 mg/L: Ba, Mn 1 mg/L: Be, Sr	125 mL	<b>N9303940</b>
<b>PerkinElmer Pure IV (Quality Control Standard 23)</b>			
10% HNO <sub>3</sub>	1,000 mg/L: 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	<b>N9303941</b>
<b>PerkinElmer Pure VIII</b>			
5% HNO <sub>3</sub>	100 mg/L: 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	<b>N9303942</b>
<b>PerkinElmer Pure IX</b>			
5% HNO <sub>3</sub>	100 mg/L: As, Be, Pb, Cd	125 mL	<b>N9303943</b>
<b>PerkinElmer Pure X</b>			
2% HNO <sub>3</sub>	35,000 ug/L: Ca 15,000 ug/L: Mg 8,000 ug/L: Na 3,000 ug/L: K 100 ug/L: B, Fe, Mo, Sr 50 ug/L: As, Ba, Ni, V, Zn 30 ug/L: Mn 25 ug/L: Co, Pb 20 ug/L: Be, Cd, Cr, Cu 10 ug/L: Bi, Se, Tl	125 mL	<b>N9303944</b>
<b>8 mg/L Mercury in 5% HNO<sub>3</sub></b>			
5% HNO <sub>3</sub>	8 mg/L: Hg	125 mL	<b>N9303954</b>
<b>PerkinElmer Pure XI</b>			
5% HNO <sub>3</sub>	2,500 mg/L: Zn 900 mg/L: Cr, Pb 800 mg/L: Cu 200 mg/L: Ni 10 mg/L: Cd	125 mL	<b>N9303945</b>

## Multi-Element Standards

Matrix	Contents	Volume	Part No.
<b>5 mg/L Mercury in 5% HNO<sub>3</sub></b>			
5% HNO <sub>3</sub>	5 mg/L: Hg in 5% HNO <sub>3</sub>	125 mL	<b>N9303949</b>
<b>PerkinElmer Pure XIII</b>			
5% HNO <sub>3</sub>	500 mg/L: Al 250 mg/L: V 100 mg/L: As, Be, Co, Cr, Cu, Fe, Mn, Ni, Pb, Zn 25 mg/L: Cd, Se	125 mL	<b>N9303946</b>
<b>PerkinElmer Pure XVI (Quality Control Standard, 21 Elements)</b>			
5% HNO <sub>3</sub> /tr Tartaric Acid/tr HF	100 mg/L: As, Be, Ca, Cd, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sr, Ti, Tl, V, Zn	125 mL	<b>N9300281</b>
<b>PerkinElmer Pure XVII</b>			
15% HCl /trace HF	100 mg/L: Hf, Ir, Sb, Sn, Ta, Tl, Zr	125 mL	<b>N9303948</b>

\*Supplied in separate bottle.

## Instrument Calibration Standards

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

Matrix	Contents	Volume	Part No.
<b>Elan 9000/6100 Solution Kit Includes: (items listed below)</b>			
	2 x 1,000 mL: Setup/Stability/Masscal Solution		<b>N8125030</b>
	1 x 125 mL: Dual-Detector Calibration Solution		<b>N8125010</b>
	1 x 1000 mL: Wash Solution		<b>N8122038</b>
	1 x 250 mL: Detection Limit Solution		<b>N8125031</b>
<b>Elan 9000/6100 Setup/Stability/Masscal Solution</b>			
1% HNO <sub>3</sub>	10 µg/L: Ba, Cd, Ce, Cu, In, Pb, Mg, Rh, U	1,000 mL	<b>N8125030</b>
<b>Elan 6000/5000 Plasma Setup Solution</b>			
2% HNO <sub>3</sub>	10 µg/L: Ba, Cd, Ce, Cu, Ge, Pb, Mg, Rh, Sc, Tb, Tl	1,000 mL	<b>N8122014</b>
<b>Elan 5000 Detection Limit Solution</b>			
2% HNO <sub>3</sub>	10 µg/L: Be, Co, Ge, In, Tl, U	100 mL	<b>N8122017</b>

## SmartTune Standards

Matrix	Contents	Volume	Part No.
<b>SmartTune Solution for Standard ELANS/DRC-e</b>			
1% HNO <sub>3</sub>	10 µg/L: Ba, Be, Ce, Co, In, Pb, Mg, Rh, U	1,000 mL	<b>N8125040</b>
<b>SmartTune Solution for DRC/DRCplus/DRC II</b>			
0.5% HNO <sub>3</sub>	10 µg/L: Ba 1 µg/L: Be, Ce, Co, In, Fe, Pb, Mg, Th, U	1,000 mL	<b>N8125041</b>
<b>Tuning Solution 1</b>			
2% HNO <sub>3</sub> /5% HCl	10 mg/L: Ba, Be, Ce, Co, In, Li, Mg, Pb, Rh, Tl, U, Y	125 mL	<b>N9303843</b>
<b>NexION Setup Solution</b>			
1% HNO <sub>3</sub>	1 µg/L: Be, Ce, Fe, In, Li, Mg, Pb, U	500 mL	<b>N8145051</b>

## Environmental Method Sets

Matrix	Contents	Volume	Part No.
<b>Environmental Standard Kit for non-DRC/ Standard ICP-MS Instruments Includes: (1 bottle of each)</b>			
	1,000 mg/L: Ca, K, Mg, Na	125 mL	<b>N9307805</b>
	1,000 mg/L: Al, Fe	125 mL	<b>N9307806</b>
	100 mg/L: 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	<b>N9301721</b>
	100 mg/L: B, Th, U	125 mL	<b>N9307807</b>
	10 mg/L: Hg	125 mL	<b>N9300253</b>
	Internal Standard Mix 50 mg/L: Sc 20 mg/L: Ge 10 mg/L: In, Ir, 6Li, Rh, Tb, Y	125 mL	<b>N9307808</b>

## Environmental Method Sets

Matrix	Contents	Volume	Part No.
<b>Environmental Standard Kit for DRC Instruments Includes: (1 bottle of each)</b>			<b>N9307112</b>
	1,000 mg/L: Ca, K, Mg, Na	125 mL	<b>N9307805</b>
	1,000 mg/L: Al, Fe	125 mL	<b>N9307806</b>
	100 mg/L: 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	<b>N9301721</b>
	100 mg/L: B, Th, U	125 mL	<b>N9307807</b>
	10 mg/L: Hg	125 mL	<b>N9300253</b>
	Internal Standard Mix 200 mg/L: Sc 20 mg/L: Ga 10 mg/L: In, Ir, Rh, Tm	125 mL	<b>N9307738</b>
<b>Contract Lab Program Modification Set Includes: (1 bottle of each)</b>			<b>N9307103</b>
2% HNO <sub>3</sub> /5% HCl	10 mg/L: Ba, Be, Ce, Co, In, Li, Mg, Pb, Rh, Tl, U, Y	125 mL	<b>N9303843</b>
2% HNO <sub>3</sub> /tr Tartaric Acid	20 mg/L: Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Th, Tl, U, V, Zn	125 mL	<b>N9303816</b>
5% HNO <sub>3</sub> /tr Tartaric Acid/tr HF	100 mg/L: 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	<b>N9301721</b>
5% HNO <sub>3</sub> /tr Tartaric Acid	500 mg/L: Ca, K, Mg, Na 20 mg/L: Al, Ba 10 mg/L: Fe 6 mg/L: Sb 5 mg/L: Co, V 4 mg/L: Ni 2.5 mg/L: Cu 2 mg/L: Zn 1.5 mg/L: Mn 1 mg/L: Ag, As, Cr, Tl 0.5 mg/L: Be, Cd, Se 0.3 mg/L: Pb	125 mL	<b>N9303819</b>
2% HNO <sub>3</sub> /tr Tartaric Acid/tr HF	10 mg/L: Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Se, Tl, V, Zn	125 mL	<b>N9303821</b>
5% HNO <sub>3</sub>	10 mg/L: Hg	125 mL	<b>N9300253</b>
2% HNO <sub>3</sub>	200 mg/L: Ca, Fe, K, Mg, Na	125 mL	<b>N9303822</b>
2% HNO <sub>3</sub>	10 mg/L: Mo, Th, U	125 mL	<b>N9303823</b>
2% HNO <sub>3</sub> /tr HF	10 mg/L: Mo, Sn, Sr, Ti	125 mL	<b>N9303824</b>
5% HNO <sub>3</sub> /tr HF	21,215 mg/L: Cl 3,000 mg/L: Ca 2,500 mg/L: Fe, Na 2,000 mg/L: C 1,000 mg/L: Al, K, Mg, P, S 20 mg/L: Mo, Ti	125 mL	<b>N9303827</b>
2% HNO <sub>3</sub>	20 mg/L: Co, Cr, Cu, Mn, Ni, V 10 mg/L: As, Cd, Se, Zn 5 mg/L: Ag	125 mL	<b>N9303829</b>
5% HNO <sub>3</sub> /tr Tartaric Acid/tr HF	500 mg/L: Fe 250 mg/L: Ba, Zn 100 mg/L: Co, Cr, Cu, Mn, Ni, Sb, V 50 mg/L: As, Pb 25 mg/L: Ag, Be, Cd, Se, Tl	125 mL	<b>N9303839</b>

Matrix	Contents	Volume	Part No.
5% HNO <sub>3</sub> /tr Tartaric Acid/tr HF	250 mg/L: Ba, Cr, Cu, Zn 150 mg/L: V 125 mg/L: Ni 100 mg/L: Co, Pb, Sb 50 mg/L: As, Cd 25 mg/L: Ag, Be, Se, Tl	125 mL	<b>N9303840</b>
5% HNO <sub>3</sub>	1,000 mg/L: Al, Ca, Fe, K, Mg, Na 20 mg/L: Ag, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Se, Tl, V, Zn	125 mL	<b>N9303835</b>
H <sub>2</sub> O/tr HF	7,200 mg/L: Cl 2,000 mg/L: C 1,000 mg/L: P, S 20 mg/L: Mo, Sb, Ti	125 mL	<b>N9303836</b>
<b>Calibration Standards Set for Method 6010 Includes: (1 bottle of each)</b>			<b>N9307104</b>
5% HNO <sub>3</sub>	5,000 mg/L: Ca, K, Mg, Na	125 mL	<b>N9300218</b>
5% HNO <sub>3</sub>	400 mg/L: Ni 200 mg/L: Zn 150 mg/L: Mn 100 mg/L: Ag, Cr	125 mL	<b>N9300219</b>
5% HNO <sub>3</sub>	2,000 mg/L: Al, Ba 1,000 mg/L: Fe 500 mg/L: Co, V 250 mg/L: Cu 50 mg/L: Be	125 mL	<b>N9300220</b>
5% HNO <sub>3</sub>	100 mg/L: As, Tl 50 mg/L: Cd, Pb, Se	125 mL	<b>N9300221</b>
H <sub>2</sub> O/tr HF	10 mg/L: B, Ge, Mo, Nb, P, Re, S, Si, Ta, Ti, W, Zr	125 mL	<b>N9300235</b>
2% HNO <sub>3</sub>	1,000 mg/L: Li	500 mL	<b>N9300129</b>
2% HNO <sub>3</sub>	1,000 mg/L: Sb	500 mL	<b>N9300101</b>
2% HNO <sub>3</sub>	1,000 mg/L: Sr	500 mL	<b>N9300153</b>
20% HCl	1,000 mg/L: Sn	500 mL	<b>N9300161</b>
2% HNO <sub>3</sub>	1,000 mg/L: Cr	500 mL	<b>N9300112</b>
2% HNO <sub>3</sub>	1,000 mg/L: Cu	500 mL	<b>N9300114</b>
2% HNO <sub>3</sub>	1,000 mg/L: Mn	500 mL	<b>N9300132</b>
2% HNO <sub>3</sub>	1,000 mg/L: Ni	500 mL	<b>N9300136</b>
H <sub>2</sub> O/tr HF	1,000 mg/L: Ti	500 mL	<b>N9300162</b>
2% HNO <sub>3</sub>	1,000 mg/L: V	500 mL	<b>N9300165</b>
2% HNO <sub>3</sub>	1,000 mg/L: Al	500 mL	<b>N9300100</b>
2% HNO <sub>3</sub>	1,000 mg/L: Ca	500 mL	<b>N9300108</b>
2% HNO <sub>3</sub>	1,000 mg/L: Fe	500 mL	<b>N9300126</b>
2% HNO <sub>3</sub>	1,000 mg/L: Mg	500 mL	<b>N9300131</b>
<b>Internal Standard Set for Method 6010 &amp; 200.7 Includes: (1 bottle of each)</b>			<b>N9307105</b>
2% HNO <sub>3</sub>	1,000 mg/L: Y	500 mL	<b>N9300167</b>
2% HNO <sub>3</sub>	1,000 mg/L: Sc	500 mL	<b>N9300148</b>
<b>Interference Solutions for Method 6010 Includes: (1 bottle of each)</b>			<b>N9307106</b>
2% HNO <sub>3</sub>	1,000 mg/L: Al	125 mL	<b>N9300184</b>
2% HNO <sub>3</sub>	1,000 mg/L: Ca	500 mL	<b>N9300108</b>
2% HNO <sub>3</sub>	1,000 mg/L: Mg	125 mL	<b>N9300179</b>
2% HNO <sub>3</sub>	1,000 mg/L: Fe	500 mL	<b>N9300126</b>

## Environmental Method Sets

Matrix	Contents	Volume	Part No.
2% HNO <sub>3</sub>	1,000 mg/L: K	500 mL	<b>N9300141</b>
2% HNO <sub>3</sub>	1,000 mg/L: Na	500 mL	<b>N9300152</b>
2% HNO <sub>3</sub>	1,000 mg/L: Cr	500 mL	<b>N9300112</b>
2% HNO <sub>3</sub>	1,000 mg/L: Cu	500 mL	<b>N9300114</b>
2% HNO <sub>3</sub>	1,000 mg/L: Mn	500 mL	<b>N9300132</b>
2% HNO <sub>3</sub>	1,000 mg/L: Ni	500 mL	<b>N9300136</b>
H <sub>2</sub> O/tr HF	1,000 mg/L: Ti	500 mL	<b>N9300162</b>
2% HNO <sub>3</sub>	1,000 mg/L: V	500 mL	<b>N9300165</b>
5% HNO <sub>3</sub>	5,000 mg/L: Al, Ca, Mg 2,000 mg/L: Fe	500 mL	<b>N9300226</b>
5% HNO <sub>3</sub> /tr Tart-HF	100 mg/L: Cd, Ni, Zn 60 mg/L: Sb 50 mg/L: Ba, Be, Co, Cr, Cu, Mn, V 20 mg/L: Ag 10 mg/L: As, Tl 5 mg/L: Pb, Se	125 mL	<b>N9300227</b>
5% HNO <sub>3</sub>	1,000 mg/L: Cr, Cu, Mn, Ni, Ti, V	500 mL	<b>N9300228</b>
5% HNO <sub>3</sub> /tr Tartaric Acid/tr HF	100 mg/L: Al, As, B, Mo, Na, Sb, Se, Tl 10 mg/L: Ca, Fe, Mg, Si	125 mL	<b>N9300229</b>
<b>Calibration Standards for Method 200.7 Includes: (1 bottle of each)</b>			<b>N9307107</b>
5% HNO <sub>3</sub>	5,000 mg/L: Ca, K, Mg, Na	125 mL	<b>N9300218</b>
5% HNO <sub>3</sub>	400 mg/L: Ni 200 mg/L: Zn 150 mg/L: Mn 100 mg/L: Ag, Cr	125 mL	<b>N9300219</b>
5% HNO <sub>3</sub>	2,000 mg/L: Al, Ba 1,000 mg/L: Fe 500 mg/L: Co, V 250 mg/L: Cu 50 mg/L: Be	125 mL	<b>N9300220</b>
5% HNO <sub>3</sub>	100 mg/L: As, Tl 50 mg/L: Cd, Pb, Se	125 mL	<b>N9300221</b>
H <sub>2</sub> O/tr HF	10 mg/L: B, Ge, Mo, Nb, P, Re, S, Si, Ta, Ti, W, Zr	125 mL	<b>N9300235</b>
2% HNO <sub>3</sub>	1,000 mg/L: Li	500 mL	<b>N9300129</b>
2% HNO <sub>3</sub>	1,000 mg/L: Sb	500 mL	<b>N9300101</b>
2% HNO <sub>3</sub>	1,000 mg/L: Sr	500 mL	<b>N9300153</b>
20% HCl	1,000 mg/L: Sn	500 mL	<b>N9300161</b>
<b>Interference Solutions for Method 200.7 Includes: (1 bottle of each)</b>			<b>N9307108</b>
2% HNO <sub>3</sub>	1,000 mg/L: Al	125 mL	<b>N9300184</b>
2% HNO <sub>3</sub>	1,000 mg/L: Ca	500 mL	<b>N9300108</b>
2% HNO <sub>3</sub>	1,000 mg/L: Mg	125 mL	<b>N9300179</b>
2% HNO <sub>3</sub>	1,000 mg/L: Fe	500 mL	<b>N9300126</b>
2% HNO <sub>3</sub>	1,000 mg/L: K	500 mL	<b>N9300141</b>
2% HNO <sub>3</sub>	1,000 mg/L: Na	500 mL	<b>N9300152</b>
5% HNO <sub>3</sub>	5,000 mg/L: Al, Ca, Mg 2,000 mg/L: Fe	500 mL	<b>N9300226</b>

Matrix	Contents	Volume	Part No.
5% HNO <sub>3</sub> /tr Tart-HF	100 mg/L: Cd, Ni, Zn 60 mg/L: Sb 50 mg/L: Ba, Be, Co, Cr, Cu, Mn, V 20 mg/L: Ag 10 mg/L: As, Tl 5 mg/L: Pb, Se	125 mL	<b>N9300227</b>
<b>Environmental EPA Set 1 Includes: (1 bottle of each)</b>			<b>N9307110</b>
2% HNO <sub>3</sub>	500 mg/L: Pb 200 mg/L: Se 150 mg/L: Cd, Zn 100 mg/L: Mn 50 mg/L: Be	125 mL	<b>N9300200</b>
5% HNO <sub>3</sub>	10,000 mg/L: Fe 100 mg/L: Ba, Co, Cu, V	125 mL	<b>N9300201</b>
2% HNO <sub>3</sub> / tr HF	500 mg/L: As 100 mg/mL: Mo, Si	125 mL	<b>N9300202</b>
5% HNO <sub>3</sub>	1,000 mg/L: Ca 400 mg/L: K 200 mg/L: Al, Na 20 mg/L: Cr, Ni	125 mL	<b>N9300203</b>
5% HNO <sub>3</sub> / tr Tart-HF	1,000 mg/L: Mg 200 mg/L: Sb, Tl 100 mg/L: B 50 mg/L: Ag	125 mL	<b>N9300204</b>
5% HNO <sub>3</sub>	20,000 mg/L: K 1,000 mg/L: As, Pb, Tl 500 mg/L: Se 300 mg/L: Ag, Ba, Cd, Co, Cr, Cu, Ni, V, Zn 200 mg/L: Mn 100 mg/L: Be	125 mL	<b>N9300205</b>
5% HNO <sub>3</sub>	100 mg/L: Hg	125 mL	<b>N9300223</b>
5% HNO <sub>3</sub>	6,000 mg/L: Ca 5,000 mg/L: Fe 3,000 mg/L: Mg 1,200 mg/L: Al 1,000 mg/L: Na	125 mL	<b>N9300208</b>
H <sub>2</sub> O/tr HNO <sub>3</sub> /0.6% Tartaric Acid	1,000 mg/L: Sb	125 mL	<b>N9300207</b>
5% HNO <sub>3</sub>	ASTM® Type I Water	500 mL	
5% HCl	ASTM® Type I Water	500 mL	
<b>Environmental EPA Set 2 Includes: (1 bottle of each)</b>			<b>N9307109</b>
2% HNO <sub>3</sub>	500 mg/L: Pb 200 mg/L: Se 150 mg/L: Cd, Zn 100 mg/L: Mn 50 mg/L: Be	125 mL	<b>N9300200</b>
5% HNO <sub>3</sub>	10,000 mg/L: Fe 100 mg/L: Ba, Co, Cu, V	125 mL	<b>N9300201</b>
2% HNO <sub>3</sub> /tr HF	500 mg/L: As 100 mg/L: Mo, Si	125 mL	<b>N9300202</b>
5% HNO <sub>3</sub>	1,000 mg/L: Ca 400 mg/L: K 200 mg/L: Al, Na 20 mg/L: Cr, Ni	125 mL	<b>N9300203</b>
5% HNO <sub>3</sub> /tr Tart-HF	1,000 mg/L Mg 200 mg/L: Sb, Tl 100 mg/L: B 50 mg/L: Ag	125 mL	<b>N9300204</b>



## Environmental Method Sets

Matrix	Contents	Volume	Part No.
5% HNO <sub>3</sub>	20,000 mg/L: K 1,000 mg/L: As, Pb, Tl 500 mg/L: Se 300 mg/L: Ag, Ba, Cd, Co, Cr, Cu, Ni, V, Zn 200 mg/L: Mn 100 mg/L: Be	125 mL	<b>N9300205</b>
5% HNO <sub>3</sub>	6,000 mg/L: Ca 5,000 mg/L: Fe 3,000 mg/L: Mg 1,200 mg/L: Al 1,000 mg/L: Na	125 mL	<b>N9300208</b>
H <sub>2</sub> O/tr HNO <sub>3</sub> /0.6% Tartaric Acid	1,000 mg/L: Sb	125 mL	<b>N9300207</b>
5% HNO <sub>3</sub>	ASTM® Type I Water	500 mL	
5% HCl	ASTM® Type I Water	500 mL	

Toxicity Characteristic Leachate  
Procedure (TCLP) Standard

Matrix	Contents	Volume	Part No.
<b>TCLP Standard 1</b>			
2% HNO <sub>3</sub>	500 mg/L: Ba 25 mg/L: Ag, As, Cr, Pb 100 mg/L: Hg* 5 mg/L: Cd, Se	500 mL	<b>N9300241</b>

\*Supplied in separate bottle.

## Performance Verification Standards

Matrix	Contents	Volume	Part No.
<b>Methanol Blank Solution</b>			
1% Semiconductor Grade		125 mL	<b>N8125037</b>
<b>Chromium in Methanol Solution</b>			
1% Semicon- ductor Grade Methanol	10 mg/L: Cr	125 mL	<b>N8125038</b>
<b>Selenium Solution</b>			
5% HNO <sub>3</sub>	10 mg/L: Se	250 mL	<b>N8125039</b>
<b>NexION 300Q Solution Kit – Non-Cell Includes: (items listed below)</b>			
	1 x 250 mL NexION Wash Solution		<b>N8145050</b>
	1 X 500 mL NexION Setup Solution		<b>N8145051</b>
	1 X 500 mL NexION 300Q Non-cell Stability Solution		<b>N8145053</b>
	1 X 100 mL NexION Standard/DRC Mode Detection Limit Blank Solution		<b>N8145055</b>
	1 x 100 mL NexION Dual Detector Mode Detection Limit Solution		<b>N8145056</b>
	1 x 100 mL NexION Dual Detector Solution		<b>N8145059</b>
<b>NexION 300 X/D/S Solution Kit – Cell Instruments Includes: (items listed below)</b>			
	1 x 250 mL NexION Wash Solution		<b>N8145050</b>
	1 X 500 mL NexION Setup Solution		<b>N8145051</b>
	1 x 250 mL NexION KED Setup Solution		<b>N8145052</b>
	1 x 500 mL NexION 300X/D/S Cell Stability Solution		<b>N8145054</b>

Matrix	Contents	Volume	Part No.
	NexION Standard/DRC Mode Detection Limit Blank Solution	100 mL	<b>N8145055</b>
	NexION Standard/DRC Mode Detection Limit Solution	100 mL	<b>N8145056</b>
	NexION KED Mode Detection Limit Blank Solution	100 mL	<b>N8145057</b>
	NexION KED Mode Detection Limit Solution	100 mL	<b>N8145058</b>
	NexION Dual Detector Solution	100 mL	<b>N8145059</b>

**NexION Setup Solution**

1% HNO <sub>3</sub>	1 µg/L: Be, Ce, Fe, In, Li, Mg, Pb, U	500 mL	<b>N8145051</b>
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**NexION KED Setup Solution**

1% HCl	10 µg/L: Co 1 µg/L: Ce	250 mL	<b>N8145052</b>
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**NexION 300Q Non-cell Stability Solution**

1% HNO <sub>3</sub>	1 µg/L: Cd, Cu, Mg, Pb	500 mL	<b>N8145053</b>
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**NexION 300X/D/S Cell Stability Solution**

1% HNO <sub>3</sub>	10 µg/L: Co, Cu, Se 1 µg/L: Cd, Cr, Fe, In, Mg, Pb	500 mL	<b>N8145054</b>
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**NexION Standard/DRC Mode Detection Limit Blank Solution**

0.5% HNO <sub>3</sub>		100 mL	<b>N8145055</b>
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**NexION Standard/DRC Mode Detection Limit Solution**

0.5% HNO <sub>3</sub>	1 µg/L: Be, Ca, Co, Fe, In, U	100 mL	<b>N8145056</b>
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**NexION KED Mode Detection Limit Blank Solution**

1% HCl		100 mL	<b>N8145057</b>
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**NexION KED Mode Detection Limit Solution**

1% HCl	10 µg/L: V, As, Se	100 mL	<b>N8145058</b>
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**NexION Dual Detector Solution**

2% HNO <sub>3</sub>	50 µg/L: Al, Ba, Ce, Co, In, Li, Mg, Mn, Ni, Pb, Tb, U, Zn	100 mL	<b>N8145059</b>
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**NexION AFT Single-Element Solution**

2% HNO <sub>3</sub>	2 µg/L: Fe	100 mL	<b>N8145060</b>
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**NexION AFT Multi-Element Solution**

2% HNO <sub>3</sub>	2 µg/L: Ag, Al, As, Ba, 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	<b>N8145061</b>
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## USP Elemental Impurities Kit

Matrix	Contents	Volume	Part No.
<b>Includes: 1 Bottle Each</b>			<b>N9303957</b>
Solution 1 5% HNO <sub>3</sub>	2,500 mg/kg: Cu, Mn 250 mg/kg: Cr, Mo, Ni, V 15 mg/kg: As, Hg 10 mg/kg: Pb 5 mg/kg: Cd	125 mL	
Solution 2 15% HCl	100 mg/kg: Ir, Os, Pd, Pt, Rh, Ru	125 mL	



## Wear Metal Metallo-Organic Standards

### Features and Benefits

- Metallo-organic metals in hydrocarbon oil
- Accuracy ensured by Quality Testing with NIST® Standard Reference Materials when available
- Certificate of Analysis supplied with each standard

### Single-Element, Metallo-Organic Standards

Matrix: Hydrocarbon Oil

Element Name	Symbol	Size	Part No.
Aluminum 1000 µg/g	Al	50 g	N9308200
Antimony 1000 µg/g	Sb	50 g	N9308201
Arsenic 1000 µg/g	As	50 g	N9308202
Barium 1000 µg/g	Ba	50 g	N9308203
Beryllium 1000 µg/g	Be	50 g	N9308204
Bismuth 1000 µg/g	Bi	50 g	N9308205
Boron 1000 µg/g	B	50 g	N9308206
Cadmium 1000 µg/g	Cd	50 g	N9308207
Calcium 1000 µg/g	Ca	50 g	N9308208
Calcium 5000 µg/g	Ca	50 g	N9308322
Chromium 1000 µg/g	Cr	50 g	N9308209
Cobalt 1000 µg/g	Co	50 g	N9308210
Copper 1000 µg/g	Cu	50 g	N9308211
Iron 1000 µg/g	Fe	50 g	N9308212
Lanthanum 1000 µg/g	La	50 g	N9308213
Lead 1000 µg/g	Pb	50 g	N9308214
Lithium 1000 µg/g	Li	50 g	N9308215
Magnesium 1000 µg/g	Mg	50 g	N9308216
Manganese 1000 µg/g	Mn	50 g	N9308217
Mercury 1000 µg/g	Hg	50 g	N9308218
Molybdenum 1000 µg/g	Mo	50 g	N9308219
Nickel 1000 µg/g	Ni	50 g	N9308220
Phosphorus 1000 µg/g	P	50 g	N9308221
Potassium 1000 µg/g	K	50 g	N9308222

Element Name	Symbol	Size	Part No.
Scandium 1000 µg/g	Sc	10 g	N9308255
Scandium 1000 µg/g	Sc	50 g	N9308223
Selenium 1000 µg/g	Se	50 g	N9308224
Silicon 1000 µg/g	Si	50 g	N9308225
Silver 1000 µg/g	Ag	50 g	N9308226
Sodium 1000 µg/g	Na	50 g	N9308227
Strontium 1000 µg/g	Sr	50 g	N9308228
Sulfur 10 µg/g	S	50 g	N9308229
Sulfur 100 µg/g	S	50 g	N9308230
Sulfur 1000 µg/g	S	50 g	N9308231
Thallium 1000 µg/g	Tl	50 g	N9308232
Tin 1000 µg/g	Sn	50 g	N9308233
Titanium 1000 µg/g	Ti	50 g	N9308234
Vanadium 1000 µg/g	V	50 g	N9308235
Yttrium 1000 µg/g	Y	50 g	N9308236
Yttrium 5000 µg/g	Y	50 g	N9308323
Zinc 1000 µg/g	Zn	50 g	N9308237
Zirconium 1000 µg/g	Zr	50 g	N9308238

### V-21 Wear Metal Standards

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

Matrix: Hydrocarbon Oil

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

### 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

Matrix: Hydrocarbon Oil

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

### Internal Standards

Description	Matrix	Size	Part No.
Cobalt (Co) Internal Standard, 6%	Mineral Spirits	200 g	<b>N0776107</b>
Cobalt (Co) Internal Standard, 6%	Mineral Spirits	400 g	<b>N9308334</b>
Cobalt (Co) Internal Standard, 5000 µg/g	Hydrocarbon Oil	50 g	<b>N9308258</b>

### Metal Additive Standards

Description	Matrix	Size	Part No.
Metal Additive Standard 4: Ca @ 5000 µg/g; Mg, P, Zn @ 1600 µg/g	Hydrocarbon Oil	100 g	<b>N9308259</b>
Metal Additive Standard 4: Ca @ 5000 µg/g; Mg, P, Zn @ 1600 µg/g	Hydrocarbon Oil	200 g	<b>N0776108</b>
Metal Additive Standard 4: Ca @ 5000 µg/g; Mg, P, Zn @ 1600 µg/g	Hydrocarbon Oil	400 g	<b>N9308333</b>

### Matrix Oils and Solvents

Description	Matrix	Volume	Part No.
75 cSt Hydrocarbon Oil	75 cSt Oil	500 mL	<b>N0776103</b>
75 cSt Hydrocarbon Oil	75 cSt Oil	1 Gal.	<b>N9308262</b>
20 cSt Mineral oil (low sulfur)	20 cSt Mineral Oil	500 mL	<b>N9308263</b>
20 cSt Mineral oil (low sulfur)	20 cSt Mineral Oil	½ Gal.	<b>N9308264</b>

### V-Solv

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.



Description	Matrix	Volume	Part No.
V-Solv™ ICP Solvent	V-Solv™	1 Gal.	<b>N9308265</b>

### Fuel Dilution Oils

Description	Matrix	Volume	Part No.
Blank for Diesel Fuel Dilution Standards	75 cSt Hydrocarbon Oil	100 mL	<b>N9308266</b>
2% (v/v) Devolatilized Diesel Fuel in Hydrocarbon Oil	75 cSt Hydrocarbon Oil	100 mL	<b>N9308267</b>
4% (v/v) Devolatilized Diesel Fuel in Hydrocarbon Oil	75 cSt Hydrocarbon Oil	100 mL	<b>N9308297</b>
5% (v/v) Devolatilized Diesel Fuel in Hydrocarbon Oil	75 cSt Hydrocarbon Oil	100 mL	<b>N9308268</b>
10% (v/v) Devolatilized Diesel Fuel in Hydrocarbon Oil	75 cSt Hydrocarbon Oil	100 mL	<b>N9308269</b>
Blank for Gas Fuel Dilution Standards	75 cSt Hydrocarbon Oil	100 mL	<b>N9308270</b>
2% (v/v) Devolatilized Gasoline in Hydrocarbon Oil	75 cSt Hydrocarbon Oil	100 mL	<b>N9308271</b>
5% (v/v) Devolatilized Gasoline in Hydrocarbon Oil	75 cSt Hydrocarbon Oil	100 mL	<b>N9308272</b>
10% (v/v) Devolatilized Gasoline in Hydrocarbon Oil	75 cSt Hydrocarbon Oil	100 mL	<b>N9308273</b>
Blank	20 cSt Hydrocarbon Oil	100 mL	<b>N9308274</b>
Ethylene Glycol & Propylene Glycol – conc. 100 µg/g	20 cSt Hydrocarbon Oil	100 mL	<b>N9308275</b>
Ethylene Glycol & Propylene Glycol – conc. 500 µg/g	20 cSt Hydrocarbon Oil	100 mL	<b>N9308276</b>
Ethylene Glycol & Propylene Glycol – conc. 1000 µg/g	20 cSt Hydrocarbon Oil	100 mL	<b>N9308277</b>

### Karl Fischer Standards

Nominal Water Concentration (%)	Matrix	Volume	Part No.
Karl Fischer Water in Oil, Blank	10W30 Motor Oil	100 mL	<b>N9308278</b>
Karl Fischer Water in Oil, 0.1%	10W30 Motor Oil	100 mL	<b>N9308279</b>
Karl Fischer Water in Oil, 0.5%	10W30 Motor Oil	100 mL	<b>N9308280</b>
Karl Fischer Water in Oil, 1.0%	10W30 Motor Oil	100 mL	<b>N9308281</b>

### Soot Content Standards

Nominal Soot Content Range (%)	Matrix	Volume	Part No.
Nominal Soot Content Range%: Blank	15W40 Diesel Oil	50 mL	<b>N9308282</b>
Nominal Soot Content Range%: 0.5-2	15W40 Diesel Oil	50 mL	<b>N9308283</b>
Nominal Soot Content Range%: 2-4	15W40 Diesel Oil	50 mL	<b>N9308284</b>
Nominal Soot Content Range%: 4-6	15W40 Diesel Oil	50 mL	<b>N9308285</b>

## Performance Testing Standards

### Performance Testing Program

Analyze a sample for up to 23 common elements and report the concentrations in µg/g (ppm). You may enter all elements or only those that you are interested in. Provides an instant response to submitted values, with convenient color-coded pass/fail indications in green (pass), yellow (borderline) and red (fail) formats via a custom-designed, easy-to-use, on-line user interface.

Description	Size	Part No.
PTP Standard	25 g	<b>N9308314</b>

### Viscosity PTP Test Standard

Designed to provide analytical laboratories with a method of monitoring their analytical performance as measured against Certified Reference Materials (CRM's). Currently, the types of instrumentation included in the program are ICP, viscosity, and particle sizing systems. This Viscosity Standard will have values reportable at 40° C and 100° C.

Description	Size	Part No.
Viscosity PTP Test Standard	50 g	<b>N9308540</b>

### Biodiesel Standards

Description	Matrix	Volume	Part No.
Biodiesel Blank	B100 Biodiesel	100 mL	<b>N9308286</b>
Biodiesel Blank	B100 Biodiesel	500 mL	<b>N9308287</b>
Sulfur @ 20 µg/g in Biodiesel	B100 Biodiesel	100 mL	<b>N9308288</b>
Metals in Biodiesel - Ca, K, Mg, Na, P @ 20 µg/g	B100 Biodiesel	100 g	<b>N9308289</b>
100% #2 Diesel Fuel	#2 Diesel Fuel	20 mL	<b>N9308290</b>
2% (v/v) Biodiesel in #2 Diesel Fuel	#2 Diesel Fuel	20 mL	<b>N9308291</b>
5% (v/v) Biodiesel in #2 Diesel Fuel	#2 Diesel Fuel	20 mL	<b>N9308292</b>
10% (v/v) Biodiesel in #2 Diesel Fuel	#2 Diesel Fuel	20 mL	<b>N9308293</b>
15% (v/v) Biodiesel in #2 Diesel Fuel	#2 Diesel Fuel	20 mL	<b>N9308294</b>
20% (v/v) Biodiesel in #2 Diesel Fuel	#2 Diesel Fuel	20 mL	<b>N9308295</b>
100% (v/v) Biodiesel	B100 Biodiesel	20 mL	<b>N9308296</b>

### Viscosity Reference Standards

Description	Matrix	Size	Part No.
Viscosity Standard 30	Hydrocarbon Oil	1 Gallon	<b>N5316025</b>
Viscosity Standard 110	Hydrocarbon Oil	1 Gallon	<b>N5316024</b>
Viscosity Standard 130	Hydrocarbon Oil	1 Gallon	<b>N5316026</b>



# CLEAN, RELIABLE, TEMPERATURE CONTROLLED FLUID

## 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
- 2900 watts (9889 BTU/hour) cooling capacity
- Built-in temperature, pressure, and flow rate alarms

### Chiller Coolant Mix

Non-glycol coolant, which is made up of five half gallon bottles of distilled water and includes an additive to control black algae and other resistant strains.

Description	Part No.
Chiller Coolant Mix	<b>N0776099</b>

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	
Temperature Stability	±0.1 °C (±1.8 °F)	
Cooling Capacity at 20 °C	2900 Watts (9889 BTU/hr)	
at 10 °C	1925 Watts (6574 BTU/hr)	
at 0 °C	1000 Watts (3410 BTU/hr)	
Compressor	1.0 HP	
Reservoir Capacity	4.2 L	
Pump Type	Turbine	
Maximum Pump Pressure	90 PSI	
Maximum Pump Flow	13.2 LPM	
Replacement Air Filter	<b>N0777095</b> (Air Filter with Frame, 13x14")	
Chiller Coolant Mix	<b>N0776099</b> (Five Half-gallon Bottles)	

### Coolant Fluid

1 liter bottle. It is essential that this chiller coolant be used with ELAN 9000/6xX00/DRC/NexION series instruments. Also suitable for organics chillers.

Description	Part No.
ELAN Coolant Fluid	<b>WE016558</b>

### 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	<b>N8122248</b>
220/250 V, 50/60 Hz	<b>N8122247</b>

### Chillers/Recirculating Water Cooling Systems

ICP Model	Power Requirement	Operating Temp.	Flow Rate	Part No.
Optima/ELAN/NexION	208 – 230 V, 60 Hz, 8 A	-15° to 40 °C	60 psi: 4.3 gpm/16.3 Lpm	<b>N0772046</b>
Optima/ELAN/NexION	240 V, 50 Hz, 8.5 A	-15° to 40 °C	60 psi: 4.3 gpm/16.3 Lpm	<b>N0772045</b>

## LINE 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.

### Line Conditioners

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



### On-Line Conditioned Uninterruptible 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.

Instrument Model	Description	Frequency (Hz)	Part No.
<b>UPS Systems</b>			
PinAAcle 900F/AAAnalyst 100/200/300/400	800 VA	60	<b>N0777681</b>
PinAAcle 900F/AAAnalyst 100/200/300/400	800 VA	50	<b>N0777689</b>
PinAAcle 900H/AAAnalyst 700/Optima	5.2 kVA	50/60	<b>N0777511</b>
PinAAcle 900H/AAAnalyst 700	8.0 kVA	50/60	<b>N0777682</b>
PinAAcle 900T/Z/AAAnalyst 600/800/ELAN/NexION	10 kVA	50/60	<b>N0777613</b>
PinAAcle 900T/Z/AAAnalyst 600/800/ELAN	12 kVA	50/60	<b>N0777719</b>
<b>Probes</b>			
Power Probe	0-250 V Input	50/60	<b>N3151391</b>



# 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 1/4" 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	<b>N9301398</b>

### Parker Balston® Replacement Filters

Description	Cartridges Part No.	Each (\$)	Seal Sets Part No.
1st Air Filter	<b>N9301710</b>	20	<b>N9301712</b>
2nd Air Filter	<b>N9301711</b>	20	<b>N9301712</b>
Acetylene Filter	<b>N9301714</b>	16	<b>N9301715</b>

### 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	<b>N9301399</b>
Replacement Acetylene Filter Cartridge	<b>N9301714</b>

### 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.



Description	Part No.
Air Filter Assembly	<b>N0580531</b>
Replacement Filter Cartridge Element	<b>N0582251</b>

## 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	<b>N0775325</b>
Replacement Filter Element	<b>N9306067</b>
Float Assembly	<b>N0777710</b>

### Wilkerson® Air Dryer Filter Accessories\*

Description	Pre-Filter Part No.	Each (\$)	Final Filter Part No.
Filter Elements	<b>09923464</b>	16	<b>09907120</b>
Filter Bowls	<b>N9302199</b>	43	<b>N9302199</b>
Bowl O-Ring Kit, Final Filter	<b>N9302197</b>	48	<b>N9301715</b>

\* For Wilkerson Filter PerkinElmer (00470652)

### ICP Filter Replacement Parts

ICP Model	Filter Element	Part No.
8x00 Side	Filter in Front of Fan	<b>09995098</b>
2x00/3x00/4x00/5x00/7x00	For Pre-Final	<b>09907122</b>
2x00/3x00/4x00/5X00/7x00	For Final Filter	<b>09923464</b>
2x00/3x00/4x00/5x00/7x00 /8x00	Water Filter	<b>09904845</b>
2x00/3x00/4x00/5x00/7x00 /8x00	Cartridge for Water Filter	<b>09904846</b>
2x00/4x00/5x00/7x00/8x00	Air Filter for the RF Generator Inlet	<b>N0775220</b>
3x00	Air Filter for the RF Generator Inlet	<b>02509115</b>

### Instrument Filters

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

### Polyscience Replacement Air Filters

Description	Part No.
Polyscience Air Filter	<b>N0777359</b>
Polyscience Air Filter with Frame	<b>N0777095</b>
Heat Exchanger Air Filter	<b>N0777360</b>



## 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 ¼ t 10–20 w (Qty. 2)	N9309024
O-Ring ¼ i.d. x ¼ w Viton	N9309025
O-Ring Amalgamator ¼ i.d., ¾ 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.
<b>Basic Spares Kit</b>		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.
<b>Extended Spares Parts Kit</b>		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



## 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

# SAMPLE PREPARATION BLOCKS



## Sample Preparation Blocks

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

Better laboratory practices demand modern techniques in sample preparation. In the past, hot plates were used to digest samples where common digestion problems involve rusting, cross contamination of digestion system to sample, and poor sample temperature control. With no exposed metal components and an outer shell manufactured from Kydex plastic, the SPB blocks reduce the chances of sample contamination.

Each system is constructed with a solid, Teflon-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.

### 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
- Teflon® Coated Graphite block resists aggressive, corrosive attack
- Choose from 6 different SPB blocks

Description	Capacity	Part No.
SPB 50-24, (115 V/ 230V)	24 Tubes/50 ml	<b>N9308019</b>
SPB 100-12, (115 V/ 230V)	12 Tubes/100 ml	<b>N9308010</b>
SPB 50-48, (115 V/ 230V)	48 Tubes/50 ml	<b>N9308004</b>
SPB 100-30, (115 V/ 230V)	30 Tubes/100 ml	<b>N9308012</b>
SPB 50-72, (230V)	72 Tubes/50 ml	<b>N9308005</b>
SPB 100-42, (230V)	42 Tubes/100 ml	<b>N9308014</b>

## Controllers

Our sample blocks operate with either a SPB Digital Controller or SPB Touch Controller. 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.

Description	Part No.
SPB Digital Controller	<b>N9308006</b>
SPB Touch Controller	<b>N9308007</b>



## Start Up Kits

PerkinElmer provides SPB Start Up kits containing all consumable items required to operate the system including: RackLock Digi TUBEs, disposable watch glasses, Digi FILTERs, watch glasses, 24 position RackLock rack and storage racks.

Description	Part No.
Start Up Kit for SPB 50-24	<b>N9308017</b>
Start Up Kit for SPB 100-12	<b>N9308011</b>
Start Up Kit for SPB 50-48	<b>N9308002</b>
Start Up Kit for SPB 100-30	<b>N9308013</b>
Start Up Kit for SPB 50-72	<b>N9308025</b>
Start Up Kit for SPB 100-42	<b>N9308015</b>

## 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  $\pm 2.5$  mL). Increase lab efficiency by automatically digesting samples off-hours. Select appropriate Probe for Tube use



Description	Qty	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

## Temperature Probes

The SPB Probe provides direct control and monitoring of actual sample temperature via a corrosion-resistant, PFA-coated temperature probe. Each probe is supplied with 5 Probe Watch Glasses and a probe holder.



Description	Qty	Part No.
SPB 6" Probe for 50 mL Tubes	1	N9308018
SPB 6" Probe 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 50 mL	1	N9308044
SPB PROBE Holder for DigiTUBES 100 mL	1	N9308045

## 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 Teflon® membrane.



Description	Qty	Part No.
<i>DigiFILTER</i> 0.45 micron for 50 mL <i>DigiTUBES</i>	100	N9308031
<i>DigiFILTER</i> 1.0 micron for 50 mL <i>DigiTUBES</i>	100	N9308032
Field Filtration Kit 0.45 for 50 mL <i>DigiTUBES</i> <sup>1</sup>	1	N9308033
<i>DigiFILTER</i> Manifold	1	N9308034

<sup>1</sup> Contains : 25 *DigiFILTERS*, 30 *DigiTUBES*, 1x 6 ml eyedropper bottle to dispense 2 to 3 drops of (1+1) PlasmaPURE Nitric acid, 1 storagerack, 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 & Watch Glasses

PerkinElmer offers 50 and 100 ml, disposable, sample digestion tubes with easy-to-read graduations. Accurate 50 or 100 ml graduation is calibrated to meet Class A specifications to allow normalization directly in the tube. RackLock design allows for easy, one-handed closure of leak-free screw cap.



Description	Qty	Part No.
<b>Tubes</b>		
<i>DigiTUBES</i> 50 mL with RackLock (incl./Caps)	750	N9308008
<i>DigiTUBES</i> 100 mL with RackLock (incl./Caps)	300	N9308016
<i>DigiTUBES</i> 50 mL non-RackLock (incl./Caps)	750	N9308037
<i>DigiTUBES</i> 100 mL non-RackLock (incl./Caps)	300	N9308066
<i>DigiTUBES</i> 50 mL RackLock (no Caps)	750	N9308340
Teflon Digestion Tubes 50 mL (incl./Caps)	6	N9308024

### Caps

Screw Caps, Orange, for <i>DigiTUBES</i>	250	N9308058
Screw Caps, Red, for <i>DigiTUBES</i>	250	N9308059
Screw Caps, Clear, for <i>DigiTUBES</i>	250	N9308060
Screw Caps, Yellow, for <i>DigiTUBES</i>	250	N9308056
Teflon Screw Caps for Teflon Tubes, N9308024 Replaces Blue Cap Supplied	6	N9308027

### Watch Glasses

Disposable Watch Glasses, 50 mL	1,000	N9308003
Disposable Watch Glasses, 100 mL	500	N9308030

### Racks

Rack for SPB-100-12, 100 mL	1	N9308067
Rack for SPB-100-30, 100 mL	1	N9308068
Rack for SPB-100-42, 100 mL	1	N9308069
Rack for SPB-50-24, 50 mL	1	N9308070
Rack for SPB-50-48 and SPB-50-72, 50 mL	1	N9308042

### Accessories

Fume Hood SPB 50-24/100-12/50-48/100-30	N9308000
Fume Hood SPB 50-72/100-42	N9308001
Filter for SPB Fume Hoods	N9308078
SPBVAC™ Evacuation Hood SPB 50-48/SPB 100-30	N9308021
Autosampler Fume Hood	N9308036
SPB Blower Unit (all systems)115/230V	N9308022
Vacuum Pump 20L/min 115V	N9308035
Vacuum Pump 60L/min115V	N9308063
Vacuum Pump 17L/min 230V	N9308331
Vacuum Pump 58L/min 230V	N9308332

HUMAN HEALTH

ENVIRONMENTAL HEALTH



## LEAPFROGGING EVERYONE IN SENSITIVITY AND STABILITY



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**PerkinElmer**<sup>®</sup>  
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.

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# 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 quadrupole 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™ Electro spray 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.

### Flexar SQ 300 MS

Description	Part No.
Flexar SQ 300 MS	<b>N2910801</b>
Flexar SQ 300 MS with Diverter Valve	<b>N2910800</b>



### Spare Probe Assemblies / Dielectric Capillary

Description	Part No.
ESI Probe and Capillary Entrance Cone Kit	<b>MZ300503</b>
Capillary Entrance Cone	<b>MZ105094</b>
ESI Probe	<b>MZ109197</b>
Dielectric Capillary	<b>MZ105057-60180</b>
Quartz Tube for APCI	<b>MZ109004</b>
Corona Needle for APCI	<b>MZ301193</b>

Calibration solutions are required for instrument installation and for routine operations.

### Calibration Solutions

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

### Test Kits

Description	Part No.
SQ300 Installation Performance Test Kit	<b>MZ300061</b>
SQ300 Customer Performance Test Kit	<b>MZ300085</b>
SQ300 ESI Positive and Negative Test Kit	<b>MZ300096</b>

### Spare Syringes and Needles (for Syringe Pump)

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



## Sound Reducing Pump Box

This pump is made from noise adsorbing material, which is oil and water resistant.

- Average 12 dB sound level decrease at 1.5 meters (by comparison: decreasing sound by 10 dB results in a 50% sound reduction).
- Heat exchange is controlled by two internal silent fans guaranteeing efficient air circulation (about 200 m<sup>3</sup>/h).
- No tools needed to access the pump compartment making routine maintenance and oil change easy to be performed.

Description	Part No.
Sound Reducing Pump Box	<b>MZ301123</b>

## LCMS Filtration System

High Capacity Hydrocarbon Trap

- Contains 750 cc of preconditioned activated charcoal.
- Stainless steel body. ¼" brass compression fittings 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 with helium.



Description	Part No.
LCMS Filtration System	<b>N9301208</b>

## Custom Benches

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

## Certified LC Clean Easy-to-Order Convenience Kits

Description	Pkg	Part No.
<b>Certified LC Clean Non-slit Cap/Vial Convenience Kit</b>		<b>N9300707</b>
9 mm 2 mL Screw Top Clear Vial	100	
9 mm Blue Screw Top Cap with Clear Non-slit PTFE/Silicone (LC Clean)	100	
<b>Certified LC Clean Pre-slit Cap/Clear Vial Convenience Kit</b>		<b>N9300708</b>
9 mm 2 mL Screw Top Clear Vial with 9 mm Gray Screw Top Cap	100	
9 mm Gray Screw Top Cap with Clear Pre-slit PTFE/Silicone (LC Clean)	100	
<b>Certified LC Clean Non-slit CapAmber Vial Convenience Kit</b>		<b>N9300719</b>
9 mm 2 mL Screw Top Amber Vial	100	
9 mm Blue Screw Top Cap with Clear Non-slit PTFE/Silicone (LC Clean)	100	
<b>Certified LC Clean Pre-Slit Cap/Amber Vial Convenience Kit</b>		<b>N9300720</b>
9 mm 2 mL Screw Top Amber Vial	100	
9 mm Gray Screw Top Cap with Clear Pre-slit PTFE/Silicone (LC Clean)	100	

## LCMS Caps

Description	Pkg	Part No.
9 mm Screw Cap Blue PTFE (Natural)/Silicone (White) Ultra-low Bleed, Non-slit	100	<b>N9306362</b>
9 mm Screw Cap Blue PTFE (Natural)/Silicone (White) Ultra-low Bleed, Non-slit	1,000	<b>N9306363</b>
9 mm Screw Cap Blue PTFE (Natural)/Silicone (white) Ultra-low Bleed, Slit	100	<b>N9306364</b>
9 mm Screw Cap Blue PTFE (Natural)/Silicone (white) Ultra-low Bleed, Slit	1,000	<b>N9306365</b>

**NEW**



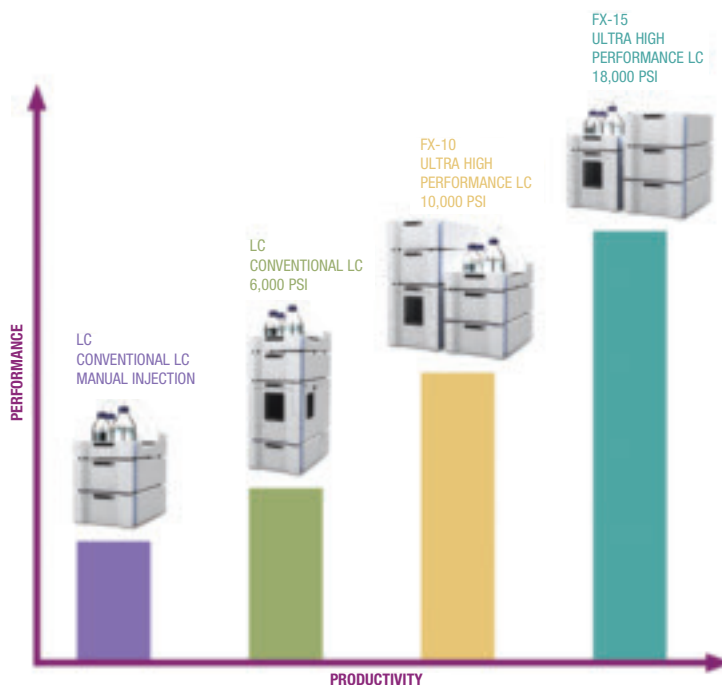
# POWER AND FLEXIBILITY IN UHPLC

## NEW FLEXAR™ UHPLC SYSTEM FROM PERKINELMER

With Flexar UHPLC, you'll be able to transfer your existing methods to achieve faster, more predictable results while reducing your solvent consumption by up to 90%. The FX-15's patented, dual reciprocating, 18,000 psi pump offers the widest operating range with exceptional compositional accuracy and retention time repeatability. The value and performance of the FX-10 microbinary pump offers minimal disruption in your method development phase and analytical approach so you can easily port your existing methods. And with the powerfully easy new Chromera® software, instrument control is taken to a whole new level. Performance, flexibility and predictability — Flexar.

### Benefits of Flexar UHPLC

- Improved separation efficiency
- Up to 90% reduction in solvent consumption — saving you money
- Up to 10x productivity gains — helping you do more in less time



### Flexar UHPLC Systems

Description	Part No.
Flexar FX-10 UHPLC Platform	<b>NFLR0210</b>
Flexar FX-10 UHPLC Pump	<b>N2910640</b>
Flexar FX-10 UHP Pump Master	<b>N2910641</b>
"Flexar Bottle Manager, 3-channel Vacuum Degassing" Tubing Kit	<b>N2600581</b>

### Flexar UHPLC Systems

Description	Part No.
Flexar FX-15 UHPLC Platform	<b>NFLR0215</b>
Flexar FX-15 UHPLC Pump	<b>N2910531</b>
"Flexar Bottle Manager, 3-channel Vacuum Degassing" Tubing Kit	<b>N2600581</b>



## 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 shear 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	<b>N2911200</b>
150 µL In-Line High Pressure Mixer Assembly, SS	<b>N2911201</b>
250 µL In-Line High Pressure Mixer Assembly, SS	<b>N2911202</b>
350 µL In-Line High Pressure Mixer Assembly, SS	<b>N2911205</b>
500 µL In-Line High Pressure Mixer Assembly, SS	<b>N2911203</b>
150 µL High Pressure Binary High Pressure Mixing-T, SS	<b>N2911206</b>
10 µL Binary Mixing-T, SS	<b>N2911170</b>
Binary High Pressure T-Mixer, SS, 50 µL	<b>N2911212</b>
Binary High Pressure T-Mixer, SS, 350 µL	<b>N2911210</b>
Binary High Pressure T-Mixer, SS, 500 µL	<b>N2911211</b>
T-connector, SS	<b>N2911127</b>

## 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	<b>N2936009</b>
Air Guide Needle (62 mm)	<b>N2936000</b>
Bio Compatible Sample Needle w/Tubing Connector	<b>N2936010</b>
Needle (80 mm)	<b>N2936342</b>

### Syringe Kits

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

## FX-15 UHPLC Pump Accessories

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

## FX-10 and FX-15 UHPLC System Accessories

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

## 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	<b>09904937</b>
25 µL Syringe	<b>09904823</b>
50 µL Syringe	<b>09904941</b>
100 µL Syringe	<b>09904822</b>
Rheodyne 22-gauge Blunt Needle with Luer Hub	<b>09904943</b>

# 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 Teflon Tubing (AS Transfer Line)	02506495

## Flexar Autosamplers and Upgrade Kits

Description	Part No.
<b>Flexar LC Autosampler</b> 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
<b>Flexar Peltier LC Autosampler</b> 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
<b>Flexar FX UHPLC Autosampler</b> 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
<b>Field Upgrade Peltier Kits</b>	
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

# CHROMERA® CHROMATOGRAPHY DATA SYSTEM

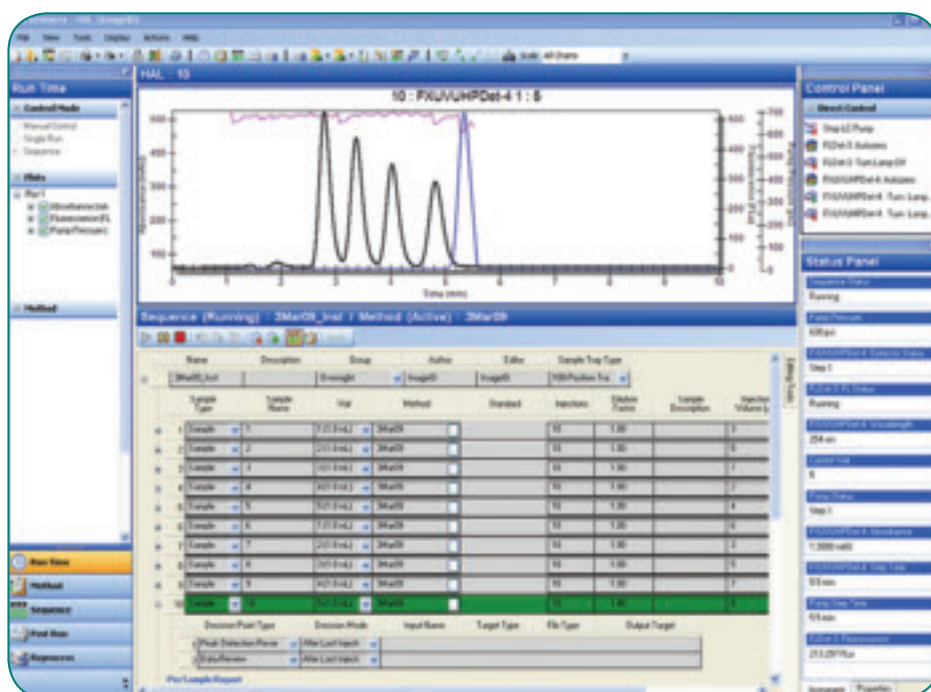
NEW



## THE POWERFULLY EASY CDS

One click and you'll see: CDS doesn't get any easier than Chromera. Combining intuitive ease of use with powerful functionality and configurability, Chromera delivers the most streamlined way to get from the analysis you need to the information your enterprise demands. It's powerfully easy.

## Information-rich Desktop offers instrument control at-a-glance



### Features and Benefits

#### Powerful

- Instrument Control: NEW patented "Device Descriptors" control instruments. No channels limitation, trackable instrument status
- Designed for UHPLC: interactive graphical methods optimization environment with immediate feedback; ability to overlay pressure profile run after run. Extend runtime of chromatogram in real time
- Graphics: Multichannel graphics for multiple signal channel monitoring (including system status channels to get 'the pulse of the system' real-time)
- Feedback: Instrument-at-a-glance status panel provides real-time feedback of complete LC system
- Batch Sequencing: all the functions for setting up and reviewing a sequence and results are within a single environment

#### Easy

- Shallow footprint GUI: Most functions only one or two clicks away, using familiar Microsoft™ Outlook user interface
- Simple and obvious method editor: a single-point access to all instrument parameters, regardless of how complex the instrument configuration; Convenient tools for point-and-click method optimization
- Intuitive Sequence Wizard: Create complex sample tables easily; Convenient auto-fill and other editing functions; Decision Points for real-time and post-processing data evaluation
- Peak Integration Wizard: Makes integration process easy and straight forward
- Report Wizard: allows creating numerous styles of reports and printouts using the same tool

# LC VIALS, CAPS AND SEPTA KITS

## PerkinElmer Supplies – Tested and Approved

We have expanded our product selection to include additional vial types, new version caps and mating septa in a kit format for easier customer ordering. The following pages contain both current and new product information. Tested to meet your application requirements and guaranteed for fit and compatibility.

## LC Vials, Caps and Septa Kits

PerkinElmer offers a variety of vials, 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.

### 2.0 mL Glass Vials\*

Description	Pkg.	Part No.
2 mL 11 mm Clear Glass Crimp Vials	100	N9301385
2 mL 11 mm Clear Crimp Wide Opening Vials with Write-On Patch and Fill Lines	100	N9306223
2 mL 11 mm Amber Glass Crimp Vials	100	N9302680
2 mL 11 mm Amber Crimp Wide Opening Vials with Write-On Patch and Fill Lines	100	N9302679
2 mL 11 mm Clear Snap Top Vial	100	N9303418
2 mL 11 mm Clear Snap Wide Opening Vials with Write-On Patch and Fill Lines	100	N9306207
2 mL 11 mm Amber Snap Wide Opening Vials with Write-On Patch and Fill Lines	100	N9306208
2 mL 8 mm Screw Top Clear Glass Vials	100	N9302945
2 mL 9 mm Clear Screw Top Vials	100	N9306201
2 mL 9 mm Screw Top Amber Vials	100	N9306220
2 mL 9 mm Clear Screw Top Vial with Write-On Patch and Fill Lines	100	N9307801
2 mL 9 mm Screw Top Amber Vials with Write-On Patch and Fill Lines	100	N9307802
2 mL 10 mm Clear Glass Screw Top Vials with Write-On Label and Fill Lines	100	N9306053
2 mL 10 mm Amber Glass Screw Top Vials with Write-On Label and Fill Lines	100	N9306057



### 2.0 mL Caps and Septa\*

Description	Pkg.	Part No.
11 mm Snap Cap Polyethylene Cross-cut Slit (no Septum)	1,000	04978532
11 mm Snap Cap Polyethylene Single Slit (no Septum)	1,000	N9307023
8 mm Black Screw Caps (without septa)	100	N9303441
8 mm SEPTA-PTFE Red Rubber No CAP (for Cap N9303441)	100	N9303442
8 mm Screw Cap PTFE/Silicone Septa	100	N9303449
9 mm PTFE/Silicone Screw Cap Blue	100	N9306202
10 mm PTFE/Red Rubber Screw Cap Black	100	N9306206
10 mm PTFE/Silicone Single Slit Screw Cap Black	100	N9306052
10 mm PTFE/Silicone No Slit Screw Cap Black	100	N9306205
11 mm Crimp Green Aluminum Cap w/Teflon® Rubber Septa	100	N9302684
11 mm Crimp Red Aluminum Cap w/Teflon® Rubber Septa	100	N9302685
11 mm Crimp Blue Aluminum Cap w/Teflon® Rubber Septa	100	N9302686
11 mm Crimp Silver Aluminum Cap w/Teflon® Rubber Septa	100	N9306015
11 mm Crimp Silver Red Rubber	100	N9306230
11 mm Crimp Silver PTFE/Silicone	100	N9306228
11 mm Crimp Silver PTFE/Silicone/PTFE	100	N9306229

\* Also see Convenience Kits for additional vials and caps, sold separately.

### 0.2 mL Micro Vials, Caps and Septa

Description	Pkg.	Part No.
<b>Caps/Septa</b>		
8 mm Silver Aluminum Crimp Cap PTFE/Rubber	1,000	03300806
PTFE/Pre-Slit White Silicone Polyethylene Press-On Cross-Slit Cap for 8 mm Vials	1,000	N9302141
<b>Crimp Top Vials</b>		
Glass Microvials, Tapered, 0.2 mL, 8 mm o.d. Top**	500	N9302136
<b>Autosampler Vial Sleeve</b>		
12 x 32 Glass Vial Support Sleeve for 2 mL 8 mm Micro Vials (N9302136)	25	N9307027
<b>Micro Vial Kit</b>		
Polyethylene Includes 300 µL Tapered Vial, Blue Polypropylene Cap with Bonded Silicone/PTFE Septa	500	N9306080

\*\* To be used with Glass Vial Support Sleeve (N9307027).

## UHPLC – General Starter Kit

Description	Part No.
<b>UHPLC – General Starter Kit</b>	<b>N2930801</b>

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.
<b>HPLC – General Starter Kit</b>	<b>N2930802</b>

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

Contents	Qty/Pack	Part No.
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 Vial Glass Inserts

Description	Pkg.	Part No.
<b>Vial Glass Inserts:</b>		
6 mm x 29 mm Clear Glass Insert, Rimless Pulled Point with Bottom Spring, 250 µL Usable Volume	100	N9300703
6 mm x 31 mm Clear Glass Flat Bottom Insert, 400 µL Usable Volume	100	N9300704
Use with: 10 mm 2 mL Amber Screw Top Vial w/White "P" Icon w/Patch		N9306057
10 mm 2 mL Clear Screw Top Vial w/White "P" Icon w/Patch		N9306053
11 mm Clear Large Opening Snap Ring Vial w/Black "P" Icon		N9303418
11 mm Clear Large Opening Crimp Vial w/Black "P" Icon		N9306231
9 mm 2 mL Amber Screw Top Vial w/Black "P" Icon		N9306220
9 mm 2 mL Clear Screw Top Vial w/Black "P" Icon		N9306201
5 mm x 29 mm Clear Glass Insert, Rimless Pulled Point with Bottom Spring, 150 µL Usable Volume	100	N9300705
5 mm x 31 mm Clear Glass Flat Bottom Insert, 200 µL Usable Volume	100	N9300706
Use with: 11 mm Standard Amber Crimp Vial w/Black "P" Icon		N9302680
11 mm Standard Clear Crimp Vial w/Black "P" Icon		N9301385
8 mm 2 mL Clear Screw Top Vial w/Black "P" Icon		N9302945

### 6 mL Vials and Caps

6 mL Glass Large-Volume Vials with 20 mm o.d. Top	125	N9302134
Polyethylene Press-On Slit Caps/Septa or 20 mm o.d. Top Vials	25	N2936083

## Micro Vial Kit and Polypropylene Vial/Cap Kits

Description	Pkg.	Part No.
Polyethylene Micro Vial Kit – Pkg/500 Includes: 300 µL Tapered Screw Top Vials (Pkg/500) Blue Polypropylene 9 mm Caps w/Bonded Silicone/PTFE Septa (Pkg/500)	500	N9306080
1.5 mL Polypropylene Screw Top Amber Vial With Fill Lines, Teflon®/Silicone Septa and Cap With Single Slit	100	N9301735
1.5 mL Polypropylene Screw Top Clear Vial With Fill Lines, Teflon®/Silicone Septa and Cap With Single Slit	100	N9301736

# EASY-TO-ORDER CONVENIENCE KITS

## Certified LC Clean™ Kits (Vials and Caps/Septa sold separately.)

**NEW**

Description	Pkg.	Part No.
Certified LC Clean™ Non-Slit Cap/Vial Convenience Kit (Pkg. of 100) 9 mm 2 mL Screw Top Clear Vial with 9 mm Blue Screw Top Cap Clear Non-Slit PTFE/Silicone (LC Clean™)	100	<b>N9300707</b>
Certified LC Clean™ Pre-Slit Cap/Vial Convenience Kit (Pkg. of 100) 9 mm 2 mL Screw Top Clear Vial with 9 mm Gray Screw Top Cap Clear Pre-Slit PTFE/Silicone (LC Clean™)	100	<b>N9300708</b>
<b>NEW</b> Certified LC Clean™ Non-Slit Cap/Vial Convenience Kit (Pkg. of 100) 9 mm 2 mL Screw Top Amber Vial with 9 mm Blue Screw Top Cap Clear Non-Slit PTFE/Silicone (LC Clean™)	100	<b>N9300719</b>
<b>NEW</b> Certified LC Clean™ Pre-Slit Cap/Vial Convenience Kit (Pkg. of 100) 9 mm 2 mL Screw Top Amber Vial with 9 mm Gray Screw Top Cap Clear Pre-Slit PTFE/Silicone (LC Clean™)	100	<b>N9300720</b>

## Convenience Kits (Vials and Caps/Septa sold separately.)

Description	Pkg.	Part No.
<b>9 mm Pre-Slit PTFE/Silicone Screw Cap Convenience Kit (Pkg. of 100)</b>		<b>N9300701</b>
9 mm Pre-Slit PTFE/Silicone Screw Cap Assembly (Pkg. of 100)	1	<b>N9306203</b>
9 mm 2 mL Clear Screw Vial Kit (Pkg. of 100)	1	<b>N9306201</b>
<b>9 mm Red Rubber/Screw Cap Convenience Kit (Pkg. of 100)</b>		<b>N9300699</b>
9 mm Red Rubber/Screw Cap Assembly (Pkg. of 100)	1	<b>N9306200</b>
9 mm Clear 2 mL Vial Kit (Pkg. of 100)	1	<b>N9306201</b>
<b>9 mm PTFE/Silicone Screw Cap Convenience Kit (Pkg. of 100)</b>		<b>N9300700</b>
9 mm PTFE/Silicone Screw Cap Assembly (Pkg. of 100)	1	<b>N9306202</b>
9 mm Clear 2 mL Vial Kit (Pkg. of 100)	1	<b>N9306201</b>
<b>11 mm Pre-Slit PTFE/Silicone Snap Convenience Kit (Pkg. of 100)</b>		<b>N9300697</b>
11 mm Pre-Slit PTFE/Silicone Snap Cap Assembly (Pkg. of 100)	1	<b>N9303416</b>
11 mm 2 mL Clear Snap Vial Kit (Pkg. of 100)	1	<b>N9303418</b>
<b>11 mm PTFE/Silicone/PTFE Snap Convenience Kit (Pkg. of 100)</b>		<b>N9300698</b>
11 mm PTFE/Silicone/PTFE Clear Snap Cap Assembly (Pkg. of 100)	1	<b>N9303417</b>
11 mm 2 mL Clear Snap Vial Kit (Pkg. of 100)	1	<b>N9303418</b>
<b>10 mm Clear Pre-Slit PTFE/Silicone Screw Cap Convenience Kit (Pkg. of 100)</b>		<b>N9300695</b>
10 mm Pre-Slit PTFE/Silicone Screw Cap Assembly (Pkg. of 100)	1	<b>N9306052</b>
10 mm 2 mL Clear Screw Vials with Write-On Patch and Fill Lines (Pkg. of 100)	1	<b>N9306053</b>
<b>10 mm Amber Pre-Slit PTFE/Silicone Screw Cap Convenience Kit (Pkg. of 100)</b>		<b>N9300696</b>
10 mm Pre-Slit PTFE/Silicone Screw Cap Assembly (Pkg. of 100)	1	<b>N9306052</b>
10 mm 2 mL Amber Screw Top Vials with Write-On Patch and Fill Lines (Pkg. of 100)	1	<b>N9306057</b>
<b>11 mm PTFE/Silicone Snap Convenience Kit (Pkg. of 100)</b>		<b>N9300702</b>
11 mm PTFE/Silicone Snap Cap Assembly (Pkg. of 100)	1	<b>N9303419</b>
11 mm 2 mL Clear Snap Vial Kit (Pkg. of 100)	1	<b>N9303418</b>
<b>11 mm Red Rubber Crimp Convenience Kit (Pkg. of 100)</b>		<b>N9300502</b>
11 mm Red Rubber/Silver Crimp Assembly (Pkg. of 100)	1	<b>N9306230</b>
11 mm 2 mL Clear Vial Kit (Pkg. of 100)	1	<b>N9306231</b>
<b>11 mm Red Rubber Crimp Convenience Kit (Pkg. of 500)</b>		<b>N9300503</b>
11 mm Red Rubber/Silver Crimp Assembly (Pkg. of 100)	5	<b>N9306230</b>
11 mm 2 mL Clear Vial Kit (Pkg. of 100)	5	<b>N9306231</b>
<b>11 mm PTFE/Silicone Crimp Convenience Kit (Pkg. of 100)</b>		<b>N9300500</b>
11 mm PTFE/Silicone Crimp Assembly (Pkg. of 100)	1	<b>N9306228</b>
11 mm 2 mL Clear Vial Kit (Pkg. of 100)	1	<b>N9306231</b>
<b>11 mm PTFE/Silicone/PTFE Crimp Convenience Kit (Pkg. of 100)</b>		<b>N9300501</b>
11 mm PTFE/Silicone/PTFE Crimp Assembly (Pkg. of 100)	1	<b>N9306229</b>
11 mm 2 mL Clear Vial Kit (Pkg. of 100)	1	<b>N9306231</b>

# SYRINGE FILTERS, DISPOSABLE SYRINGES, MICRO-VIALS, BOTTLE KITS



## Vials with Fused Glass Sample Inserts

Description	Pkg	Part No.
2 mL 11 mm Large Opening Crimp Top Clear 0.3 mL Insert	100	<b>N9300709</b>
2 mL 11 mm Large Opening Crimp Top Amber 0.3 mL Insert	100	<b>N9300710</b>
2 mL 11 mm Large Opening Snap Top Ring Clear 0.3 mL Insert	100	<b>N9300711</b>
2 mL 11 mm Large Opening Snap Top Ring Amber 0.3 mL Insert	100	<b>N9300712</b>
2 mL 8 mm Screw Top Clear 0.1 mL Insert	100	<b>N9300713</b>
2 mL 8 mm Amber Screw Top 0.1 mL Insert	100	<b>N9300714</b>
2 mL 9 mm Large Opening Screw Top Clear 0.3 mL Insert	100	<b>N9300715</b>
2 mL 9 mm Large Opening Screw Top Amber 0.3 mL Insert	100	<b>N9300716</b>
2 mL 10 mm Large Opening Screw Top Clear 0.3 mL Insert	100	<b>N9300717</b>
2 mL 10 mm Large Opening Screw Amber 0.3 mL Insert	100	<b>N9300718</b>

## Liquid Chromatography Laboratory Bottle Kits

Description	Part No.
1x5L Bottle with Cap and Teflon Insert, 2m PTFE 1/8" Tubing and 1x10um SS Solvent Frit	<b>N2601610</b>
1x2L Bottle with Cap and Teflon Insert, 1m PTFE 1/8" Tubing and 1x10um SS Solvent Frit	<b>N2601611</b>
1x1 L Bottle with Cap and Teflon Insert, 1m PTFE 1/8" Tubing and 1x10um SS Solvent Frit	<b>N2601612</b>
1x0.5L Bottle with Cap and Teflon Insert, 1m PTFE 1/16" Tubing and 1x40um SS Solvent Frit	<b>N2601613</b>
1 Cap with Teflon Insert, 1m PTFE 1/8" Tubing and 1x10um SS Solvent Frit	<b>N2601614</b>
1 Cap with Teflon Insert, 1m PTFE 1/16" Tubing and 1x40um SS Solvent Frit	<b>N2601615</b>
1x0.5L Bottle with Cap and Dual Teflon Insert, 2 pcs of 1m PTFE 1/8" Tubing (Piston Wash Function)	<b>N2601616</b>
1 Cap with Dual Teflon Insert, 2 pcs of 1 m PTFE 1/8" Tubing and 1x10um SS Solvent Frit (Piston Wash Function)	<b>N2601617</b>

## Disposable Syringes

Description	Part No.
Disposable Syringes, Luer-Lock Tips, 1 mL (100PK)	<b>02542890</b>
Disposable Syringes, Luer-Lock Tips, 3 mL (200PK)	<b>02542891</b>
Disposable Syringes, Luer-Lock Tips, 5 mL (100PK)	<b>02542892</b>
Disposable Syringes, Luer-Lock Tips, 10 mL (100PK)	<b>02542893</b>

## Syringe Filters

Size	Color	Pkg	Part No.
<b>Nylon</b>			
0.22 µm, 4 mm	Clear	200	<b>02542900</b>
0.45 µm, 4 mm	Clear	200	<b>02542901</b>
0.22 µm, 13 mm	Purple	100	<b>02542902</b>
0.45 µm, 13 mm	Purple	100	<b>02542903</b>
0.22 µm, 17 mm	Yellow	100	<b>02542881</b>
0.45 µm, 17 mm	Yellow	100	<b>02542880</b>
0.22 µm, 25 mm	Purple	100	<b>02542904</b>
0.45 µm, 25 mm	Purple	100	<b>02542905</b>
0.22 µm, 30 mm	Yellow	100	<b>02542883</b>
0.45 µm, 30 mm	Yellow	100	<b>02542882</b>
<b>PTFE (Hydrophobic)</b>			
0.22 µm, 4 mm	Clear	200	<b>02542906</b>
0.45 µm, 4 mm	Clear	200	<b>02542907</b>
0.22 µm, 13 mm	Red	100	<b>02542908</b>
0.45 µm, 13 mm	Red	100	<b>02542909</b>
0.22 µm, 17 mm	Red	100	<b>02542884</b>
0.45 µm, 17 mm	Red	100	<b>02542910</b>
0.22 µm, 25 mm	Red	100	<b>02542911</b>
0.45 µm, 25 mm	Red	100	<b>02542912</b>
0.22 µm, 30 mm	Red	100	<b>02542886</b>
0.45 µm, 30 mm	Red	100	<b>02542885</b>
<b>PVDF</b>			
0.22 µm, 4 mm	Clear	200	<b>02542913</b>
0.45 µm, 4 mm	Clear	200	<b>02542914</b>
0.22 µm, 13 mm	Yellow	100	<b>02542915</b>
0.45 µm, 13 mm	Yellow	100	<b>02542783</b>
0.22 µm, 17 mm	Maroon	100	<b>02542916</b>
0.45 µm, 17 mm	Maroon	100	<b>02542917</b>
0.22 µm, 25 mm	Yellow	100	<b>02542918</b>
0.45 µm, 25 mm	Yellow	100	<b>02542919</b>
0.22 µm, 30 mm	Maroon	100	<b>02542920</b>
0.45 µm, 30 mm	Maroon	100	<b>02542921</b>
<b>PTFE (Hydrophilic)</b>			
0.22 µm, 4 mm	Clear	200	<b>02542922</b>
0.45 µm, 4 mm	Clear	200	<b>02542923</b>
0.22 µm, 13 mm	Red	100	<b>02542924</b>
0.45 µm, 13 mm	Red	100	<b>02542925</b>
0.22 µm, 25 mm	Red	100	<b>02542926</b>
0.45 µm, 25 mm	Red	100	<b>02542927</b>
0.22 µm, 30 mm	Red	100	<b>02542928</b>
0.45 µm, 30 mm	Red	100	<b>02542929</b>

## 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.

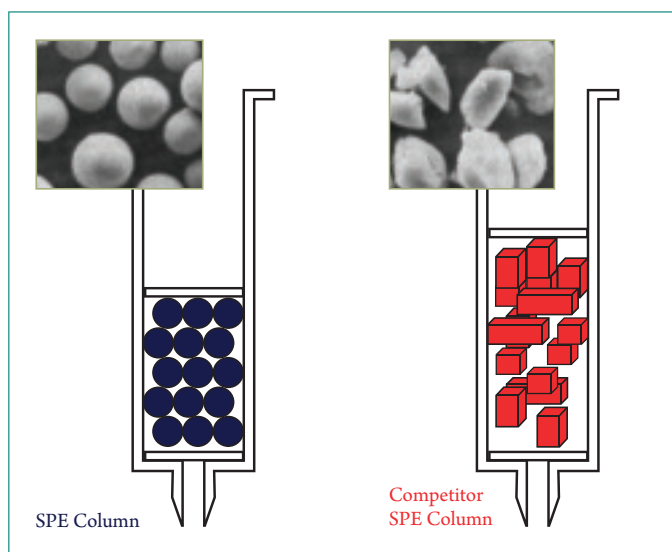


### SPE Manifolds, Selection Kits and Application Packs

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.

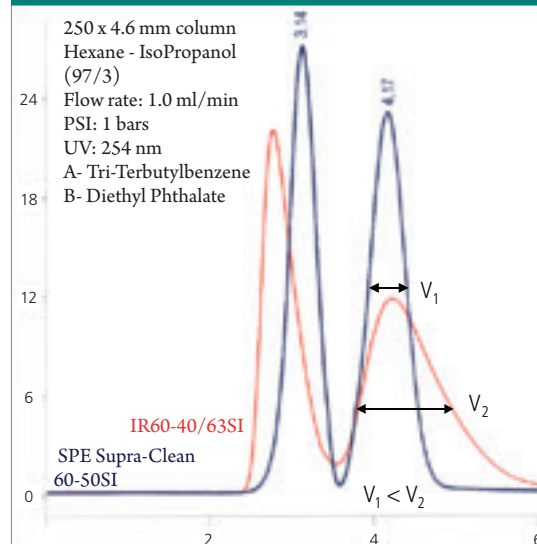
#### SPE Manifolds:

- 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



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

### 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.



## Manifolds, Selection Kits and Application Packs to Streamline Your Sample Preparation

For greater method development simplicity and sample throughput, PerkinElmer offers a variety of pre-prepared kits and column manifolds.

### Features and Benefits

- 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

### SPE Manifolds and Accessories

Description	Pkg	Part No.
Cover, Gasket, 12 Stopcocks	12	N9306621
Cover, Gasket, 24 Stopcocks	24	N9306628
Drying Attachment 12 Positions	12	N9306625
Drying Attachment 24 Positions	24	N9306632
Glass Chamber 12 Positions	12	N9306620
Glass Chamber 24 Positions	24	N9306627
Needles Polypropylene 12 Positions	12	N9306622
Needles Polypropylene 24 Positions	24	N9306629
Needles Stainless Steel 12 Positions	12	N9306623
Needles Stainless Steel 24 Positions	24	N9306630
Stopcocks 12 Positions	12	N9306624
Stopcocks 24 Positions	24	N9306631
Vacuum Manifold Complete Set 12 Positions	12	N9306619
Vacuum Manifold Complete Set 24 Positions	24	N9306626

### SPE Selection Kits

Selection kits enable quick column selection for development of reproducible and repeatable SPE methods.

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

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

# SOLID PHASE EXTRACTION (SPE)

## Complete Consistency. Complete Confidence.

Weight/Volume	Pkg	Part No.
<b>SPE Supra-Clean Cyano (CN-S) Column</b>		
500mg/3mL	50	N9306645
500mg/6mL	30	N9306644
<b>SPE Supra-Clean Florisil (FL-S) Column</b>		
1g/6mL	30	N9306413
200mg/3mL	50	N9306511
2g/15mL	20	N9306514
2g/25mL	20	N9306515
2g/6mL	20	N9306513
500mg/3mL	50	N9306512
500mg/6mL	30	N9306494
<b>SPE Supra-Clean Florisil (FL-S) Pesticide Grade Column</b>		
1g/6mL	30	N9306436
200mg/3mL	50	N9306516
2g/15mL	20	N9306443
2g/25mL	20	N9306447
2g/6mL	30	N9306470
500mg/3mL	50	N9306400
500mg/6mL	30	N9306517
<b>SPE Supra-Clean Amino (NH<sub>2</sub>-S) Column</b>		
100mg/1mL	100	N9306410
100mg/3mL	50	N9306529
200mg/3mL	50	N9306530
500mg/3mL	50	N9306414
500mg/6mL	30	N9306531
50mg/1mL	50	N9306528
<b>SPE Supra-Clean Polyamine (P6) Column</b>		
500mg/3mL	50	N9306518
500mg/6mL	30	N9306434
<b>SPE Supra-Clean Silica (SI-S) Column</b>		
100mg/3mL	50	N9306532
1g/6mL	30	N9306404
200mg/3mL	50	N9306444
2g/15mL	20	N9306534
2g/25mL	20	N9306535
2g/6mL	20	N9306533
500mg/3mL	50	N9306402
500mg/6mL	30	N9306466
<b>SPE Supra-Clean 300Å C4 Column</b>		
100mg/1mL	100	N9306591
100mg/3mL	50	N9306592
200mg/3mL	50	N9306593
50mg/1mL	50	N9306590

Weight/Volume	Pkg	Part No.
<b>SPE Supra-Clean C18 Column</b>		
100mg/1mL	100	N9306478
100mg/3mL	50	N9306523
1g/6mL	30	N9306422
200mg/3mL	50	N9306462
2g/15mL	20	N9306479
2g/25mL	20	N9306475
2g/6mL	30	N9306430
500mg/3mL	50	N9306438
500mg/6mL	30	N9306448
50mg/1mL	50	N9306476
200mg/6mL	30	N9306634
500mg/6mL	30	N9306640*
500mg/3mL	50	N9306642*
<b>SPE Supra-Clean LCC Column</b>		
500mg/3mL	50	N9306643
500mg/6mL	30	N9306641
<b>SPE Supra-Clean Phenyl (PH-S) Column</b>		
100mg/1mL	100	N9306524
100mg/3mL	50	N9306525
1g/6mL	30	N9306527
200mg/3mL	50	N9306490
500mg/3mL	50	N9306421
500mg/6mL	30	N9306526
50mg/1mL	50	N9306401
<b>SPE Supra-Clean REC18 Column (full accessible surface)</b>		
100mg/1mL	100	N9306520
100mg/3mL	50	N9306455
1g/6mL	30	N9306491
200mg/3mL	50	N9306521
500mg/3mL	50	N9306522
500mg/6mL	30	N9306457
50mg/1mL	50	N9306519
200mg/1mL	30	N9306633
<b>SPE Supra-Clean Strong Anion Exchange (SAX) Column</b>		
100mg/1mL	100	N9306471
100mg/3mL	50	N9306554
200mg/3mL	50	N9306482
500mg/3mL	50	N9306555
500mg/6mL	30	N9306556
50mg/1mL	50	N9306553

\* No end-capping

Weight/Volume	Pkg	Part No.
<b>SPE Supra-Clean Strong Cation Exchange (SCX) Column</b>		
100mg/1mL	100	N9306432
100mg/3mL	50	N9306537
200mg/3mL	50	N9306538
500mg/3mL	50	N9306539
500mg/6mL	30	N9306540
50mg/1mL	50	N9306536
<b>SPE Supra-Clean Weak Cation Exchange (WCX) Column</b>		
100mg/1mL	100	N9306545
100mg/3mL	50	N9306546
200mg/3mL	50	N9306547
500mg/3mL	50	N9306420
500mg/6mL	30	N9306407
50mg/1mL	50	N9306544
<b>SPE Supra-Clean Mixed-Mode (MM1, MM2, MM3) Column</b>		
100mg/1mL	100	N9306542 (MM1)
100mg/3mL	50	N9306419 (MM1)
200mg/3mL	50	N9306543 (MM1)
500mg/3mL	50	N9306481 (MM1)
500mg/6mL	30	N9306416 (MM1)
50mg/1mL	50	N9306541 (MM1)
100mg/1mL	100	N9306549 (MM2)
100mg/3mL	50	N9306550 (MM2)
200mg/3mL	50	N9306551 (MM2)
500mg/3mL	50	N9306411 (MM2)
500mg/6mL	30	N9306552 (MM2)
50mg/1mL	50	N9306548 (MM2)
500mg/6mL	30	N9306649 (MM3)

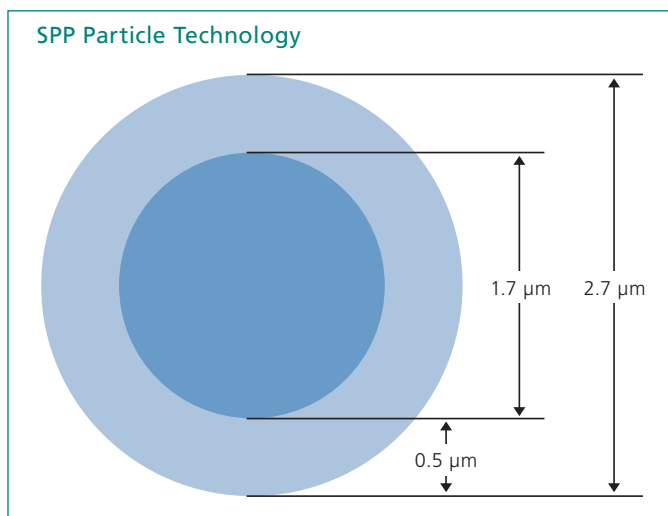
Weight/Volume	Pkg	Part No.
<b>SPE Supra-Poly Extreme Capacity 1500 m<sup>2</sup>/g (XC) Column</b>		
100mg/1mL	50	N9306403
100mg/3mL	50	N9306440
1g/15mL	20	N9306503
200mg/3mL	50	N9306428
30mg/1mL	50	N9306441
500mg/6mL	30	N9306405
50mg/1mL	50	N9306500
60mg/1mL	50	N9306501
60mg/3mL	50	N9306502
200mg/6mL	30	N9306635
<b>SPE Supra-Poly Extra Wide Particle 1200 m<sup>2</sup>/g (XWP) Column</b>		
100mg/1mL	50	N9306506
100mg/3mL	50	N9306508
1g/15mL	20	N9306510
200mg/3mL	50	N9306509
30mg/1mL	50	N9306504
500mg/6mL	30	N9306418
50mg/1mL	50	N9306427
60mg/1mL	50	N9306505
60mg/3mL	50	N9306507
<b>SPE Supra-Poly ATH, ATL, AEV Polymer Column</b>		
200mg/6mL	30	N9306636 (ATH)
200mg/3mL	50	N9306638 (ATH)
100mg/3mL	50	N9306646 (ATH)
200mg/6mL	30	N9306637 (ATL)
200mg/3mL	50	N9306639 (ATL)
100mg/3mL	50	N9306647 (ATL)
100mg/3mL	50	N9306648 (AEV)
<b>SPE Supra-Clean Silica (SI-S) Cartridge (full accessible surface)</b>		
1300mg	50	N9306586
300mg	50	N9306584
700mg	50	N9306585
<b>SPE Supra-Clean C18 Cartridge (full accessible surface)</b>		
1690mg	50	N9306589
390mg	50	N9306587
910mg	50	N9306588

# INNOVATION TO THE 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.



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

## Brownlee SPP Phases and Applications

UHPLC Phases*	PoreSize (Å)	Coverage (µmol/m <sup>2</sup> )	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 moieties.	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.

# 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  $\mu\text{m}$  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.

### PerkinElmer Optimization Kits

Description	Part No.
Series 200 LC or Flexar UHPLC systems with UV/Vis detector	<b>N2920191</b>
Series 200 LC or Flexar UHPLC systems with PDA detector	<b>N2920193</b>

### Agilent Optimization Kits

Description	Part No.
Extra column volume (ECV) - STD Autosampler and Variable Wavelength Detector (VWD) Optimization Kit	<b>ZECVSTDVWD</b>
ECV - STD Well Plate Autosampler and Diode Array Detector/Multiple Wavelength Detector (DAD/MWD)	<b>ZECVSTDWPDADMWD</b>
ECV - STD Autosampler and DAD/MWD	<b>ZECVSTDADMWD</b>
ECV - STD Well Plate Autosampler and VWD	<b>ZECVSTDWVWD</b>
Ultra Low ECV - STD Autosampler and VWD	<b>ZULECVSTDVWD</b>
Ultra Low ECV - STD Well Plate Autosampler and DAD/MWD	<b>ZULECVSTDWPDADMWD</b>
Ultra Low ECV - STD Autosampler and DAD/MWD	<b>ZULECVSTDADMWD</b>
Ultra Low ECV - STD Well Plate Autosampler and VWD	<b>ZULECVSTDWVWD</b>



#### 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



## Performance For Every Phase

## Brownlee SPP 2.7 µm Columns

Diameter/Length	Part No.
<b>C18</b>	
2.1 x 20 mm	N9308400
2.1 x 30 mm	N9308401
2.1 x 50 mm	N9308402
2.1 x 75 mm	N9308403
2.1 x 100 mm	N9308404
2.1 x 150 mm	N9308405
3.0 x 20 mm	N9308406
3.0 x 30 mm	N9308407
3.0 x 50 mm	N9308408
3.0 x 75 mm	N9308409
3.0 x 100 mm	N9308410
3.0 x 150 mm	N9308411
4.6 x 20 mm	N9308412
4.6 x 30 mm	N9308413
4.6 x 50 mm	N9308414
4.6 x 75 mm	N9308415
4.6 x 100 mm	N9308416
4.6 x 150 mm	N9308417

<b>Peptide ES-C18</b>	
2.1 x 30 mm	N9308450
2.1 x 50 mm	N9308451
2.1 x 75 mm	N9308452
2.1 x 100 mm	N9308453
2.1 x 150 mm	N9308454
3.0 x 30 mm	N9308455
3.0 x 50 mm	N9308456
3.0 x 75 mm	N9308457
3.0 x 100 mm	N9308458
3.0 x 150 mm	N9308459
4.6 x 30 mm	N9308460
4.6 x 50 mm	N9308461
4.6 x 75 mm	N9308462
4.6 x 100 mm	N9308463
4.6 x 150 mm	N9308464

<b>C8</b>	
2.1 x 20 mm	N9308418
2.1 x 30 mm	N9308419
2.1 x 50 mm	N9308420
2.1 x 75 mm	N9308421
2.1 x 100 mm	N9308422
2.1 x 150 mm	N9308423
3.0 x 30 mm	N9308424
3.0 x 50 mm	N9308425
3.0 x 75 mm	N9308426
3.0 x 100 mm	N9308427
3.0 x 150 mm	N9308428
4.6 x 20 mm	N9308429

Diameter/Length	Part No.
4.6 x 30 mm	N9308430
4.6 x 50 mm	N9308431
4.6 x 75 mm	N9308432
4.6 x 100 mm	N9308433
4.6 x 150 mm	N9308434

<b>PFP</b>	
2.1 x 20 mm	N9308465
2.1 x 30 mm	N9308466
2.1 x 50 mm	N9308467
2.1 x 75 mm	N9308468
2.1 x 100 mm	N9308469
2.1 x 150 mm	N9308470
3.0 x 30 mm	N9308471
3.0 x 50 mm	N9308472
3.0 x 75 mm	N9308473
3.0 x 100 mm	N9308474
3.0 x 150 mm	N9308475
4.6 x 30 mm	N9308476
4.6 x 50 mm	N9308477
4.6 x 75 mm	N9308478
4.6 x 100 mm	N9308479
4.6 x 150 mm	N9308480

<b>HILIC</b>	
2.1 x 30 mm	N9308435
2.1 x 50 mm	N9308436
2.1 x 75 mm	N9308437
2.1 x 100 mm	N9308438
2.1 x 150 mm	N9308439
3.0 x 30 mm	N9308440
3.0 x 50 mm	N9308441
3.0 x 75 mm	N9308442
3.0 x 100 mm	N9308443
3.0 x 150 mm	N9308444
4.6 x 30 mm	N9308445
4.6 x 50 mm	N9308446
4.6 x 75 mm	N9308447
4.6 x 100 mm	N9308448
4.6 x 150 mm	N9308449

<b>Phenyl-Hexyl</b>	
2.1 x 20 mm	N9308481
2.1 x 30 mm	N9308482
2.1 x 50 mm	N9308483
2.1 x 75 mm	N9308484
2.1 x 100 mm	N9308485
2.1 x 150 mm	N9308486
3.0 x 30 mm	N9308487
3.0 x 50 mm	N9308488
3.0 x 75 mm	N9308489
3.0 x 100 mm	N9308490
3.0 x 150 mm	N9308491
4.6 x 30 mm	N9308492

Diameter/Length	Part No.
4.6 x 50 mm	N9308493
4.6 x 75 mm	N9308494
4.6 x 100 mm	N9308495
4.6 x 150 mm	N9308496

<b>RP-Amide</b>	
2.1 x 20 mm	N9308497
2.1 x 30 mm	N9308498
2.1 x 50 mm	N9308499
2.1 x 75 mm	N9308500
2.1 x 100 mm	N9308501
2.1 x 150 mm	N9308502
3.0 x 30 mm	N9308503
3.0 x 50 mm	N9308504
3.0 x 75 mm	N9308505
3.0 x 100 mm	N9308506
3.0 x 150 mm	N9308507
4.6 x 30 mm	N9308508
4.6 x 50 mm	N9308509
4.6 x 75 mm	N9308510
4.6 x 100 mm	N9308511
4.6 x 150 mm	N9308512

<b>C18 Guard Column Packs</b>	
2.1 x 5 mm, 3 pk	N9308513
3.0 x 5 mm, 3 pk	N9308514
4.6 x 5 mm, 3 pk	N9308515

<b>C8 Guard Column Packs</b>	
2.1 x 5 mm, 3 pk	N9308522
3.0 x 5 mm, 3 pk	N9308523
4.6 x 5 mm, 3 pk	N9308524

<b>HILIC Guard Column Packs</b>	
2.1 x 5 mm, 3 pk	N9308525
3.0 x 5 mm, 3 pk	N9308526
4.6 x 5 mm, 3 pk	N9308527

<b>Peptide ES-C18 Guard Column Packs</b>	
2.1 x 5 mm, 3 pk	N9308528
3.0 x 5 mm, 3 pk	N9308529
4.6 x 5 mm, 3 pk	N9308530

<b>PFP Guard Column Packs</b>	
2.1 x 5 mm, 3 pk	N9308531
3.0 x 5 mm, 3 pk	N9308532
4.6 x 5 mm, 3 pk	N9308533

<b>Phenyl-Hexyl Guard Column Packs</b>	
2.1 x 5 mm, 3 pk	N9308519
3.0 x 5 mm, 3 pk	N9308520
4.6 x 5 mm, 3 pk	N9308521

<b>RP-Amide Guard Column Packs</b>	
2.1 x 5 mm, 3 pk	N9308516
3.0 x 5 mm, 3 pk	N9308517
4.6 x 5 mm, 3 pk	N9308518

<b>Guard Column Holder</b>	
	N9308534

# BROWNLEE UHPLC 15,000 PSI COLUMNS

## Brownlee Columns for HRes™ Fast-LC (1.9 µm Particle Size)

Recent developments in LC column technology have now made the use of sub 3 µm particle packing materials practical. These smaller particle size materials allow higher mobile phase linear velocities to be used, without the decrease in separation efficiency experienced with conventional larger particle size packings. This translates into higher throughput and higher productivity. To conserve mobile phase, these sub 3 µm column materials are typically packed into 2.1 mm i.d. columns so that flow rates (mobile phase volume) are kept low. However, smaller sized packings result in elevated operating pressures. Technological advances in pump and injector designs have also kept pace, and these columns can be used at pressures as high as 10,000 psi with the PerkinElmer Series 275 or up to 15,000 psi using FX15 LC systems.

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

### Features and Benefits

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

Description	Length	Part No.
Brownlee HRes Biphenyl	30 mm	N9303911
Brownlee HRes Biphenyl	50 mm	N9303912
Brownlee HRes Biphenyl	100 mm	N9303913
Brownlee HRes PFP Propyl	30 mm	N9303914
Brownlee HRes PFP Propyl	50 mm	N9303915
Brownlee HRes PFP Propyl	100 mm	N9303916
Brownlee HRes Aqueous C18	30 mm	N9303917
Brownlee HRes Aqueous C18	50 mm	N9303918
Brownlee HRes Aqueous C18	100 mm	N9303919
Brownlee HRes IBD	30 mm	N9303920
Brownlee HRes IBD	50 mm	N9303921
Brownlee HRes IBD	100 mm	N9303922
Brownlee HRes Analytical C18	30 mm	N9303852
Brownlee HRes Analytical C18	50 mm	N9303853
Brownlee HRes Analytical C18	100 mm	N9303854
Brownlee HRes Analytical DB Silica	30 mm	N9303970
Brownlee HRes Analytical DB Silica	50 mm	N9303971
Brownlee HRes Analytical DB Silica	100 mm	N9303972
Brownlee HRes Analytical DB Cyano	30 mm	N9303973
Brownlee HRes Analytical DB Cyano	50 mm	N9303974
Brownlee HRes Analytical DB Cyano	100 mm	N9303975
Brownlee HRes Analytical DB PAH	50 mm	N9303995
Brownlee HRes Analytical DB PAH	100 mm	N9303996

Phase	End Cap?	Carbon Load	Applications	Chromatographic Properties
C18	Y	11	Hydrophobic C18 Phase suitable for analyses of a wide range of compounds, from acidic through slightly basic.	Highly base-deactivated spherical silica. Monomeric C18 bonding.
Aqueous C18	N	6	Ideal for applications that require highly aqueous mobile phases, such as organic acids and water-soluble vitamins.	Highly selective phase for polar analytes. Compatible with highly aqueous (up to 100%) mobile phases.
Biphenyl	Y	8	Excellent choice for the analysis of steroids, tetracyclines, drug metabolites, and other compounds that contain some degree of unsaturation.	Highly base-deactivated spherical silica. Unique reversed phase material that displays both increased retention and selectivity for aromatic and/or unsaturated compounds when compared to conventional alkyl and phenyl phases.
PFP	Y	6	Exhibits excellent peak shapes for a wide range of compounds, including nucleosides, nucleotides, and halogenated compounds.	Highly base-deactivated spherical silica. Unique pentafluorophenyl phase with a propyl spacer.
IBD	N	-	Excellent phase for significantly increasing the retention and selectivity of acids, for symmetrical peak shapes of bases and for the analysis of zwitterions and other polar compounds.	Intrinsically base-deactivated (IBD) phases, with a polar group within, or intrinsic to, the alkyl bonded phase. Provides unique selectivity and a high level of base deactivation while reducing or eliminating the need for mobile phase additives.
Silica	-	-	Normal phase mode of separation.	Highly base-deactivated spherical silica.
C8	Y	7	Superior general purpose C8 for non-basic analytes.	Provides shorter retention times for hydrophobic compounds than C18.
PAH	Y	-	Maximum resolution of polycyclic aromatic hydrocarbons.	Proprietary stationary phase; resolves 16 PAHs in US EPA Method 610.
Cyano	Y	4	Superior general purpose cyano for weakly-basic analytes. Used in either normal or reversed phase analyses.	More rugged than bare silica for normal phase analyses.

Pore Size A = 140, pH Range = 2.5-8, Temp Limit = 80°C, Particle Size = 1.9 µm



Conventional columns do not require MPLC holders.

## Brownlee Conventional Columns

Conventional Brownlee 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



250 mm, 100 mm Microbore Columns (1.0 mm i.d.)

## Brownlee Microbore HPLC Columns

Microbore columns (1.0 mm i.d.) are ideal for the analysis of samples of limited availability (e.g., micropurification of picomole levels of proteins/peptides). Reducing the column diameter from the standard 4.6 mm to 1.0 mm increases the mass sensitivity by 20 times. Sample components can be collected in small elution volumes (1–50  $\mu\text{L}$ ) for further sequence or mass analysis. Microbore offers major benefits in pharmacokinetic assays and LC/MS applications. The typical flow rate range is 10–100  $\mu\text{L}/\text{min.}$ , therefore specialized HPLC systems may be required for optimum column performance.

### Features and Benefits

- Increase sensitivity and decrease solvent consumption by a factor of 20 (compared with 4.6 mm i.d.)
- Reduce sample size for pharmacokinetic assays
- Better compatibility with LC/MS interfaces
- Each column is individually tested

## 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).

## 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  $\mu\text{m}$  and lengths ranging from 30–250 mm, in 2.1 and 4.6 i.d. The Brownlee Analytical family includes Amino, C18, C8, Cyano, Phenyl, Silica, and PAH phases.

## Brownlee Aquapore®

This is a wide-pore (300 Å, 7, and 20  $\mu\text{m}$ ), silica-based support suitable for the separation of large biopolymers.

## Brownlee Bio

This material is wide-pore silica (300 Å) that is excellent for peptide and protein separation. Columns are available in 5  $\mu\text{m}$  and lengths ranging from 30–250 mm, 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  $\mu\text{m}$  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  $\mu\text{m}$ ), silica based sorbent for separating small molecules. Both monofunctional (comb-pre) and polyfunctional (polymerized loop-type) C8 and C18 sorbents available.

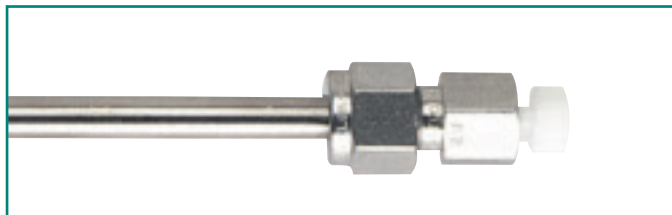
## Brownlee Validated™

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  $\mu\text{m}$  and lengths ranging from 30–250 mm, 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 Columns

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

### Features and Benefits

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

### Conventional Columns Conventional columns do not require MPLC holders.

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

## Brownlee Analytical Conventional Columns

### Brownlee Analytical Amino

Ideal column for mono and disaccharide analyses. Most popular amino-based stationary phase. Routine analysis of simple sugars, using isocratic elution and a refractive index detector or an evaporative light scattering detector.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C

**Pore size:** 110 Å - **Carbon load:** 2% - **End Cap:** No

Phase	Length	ID	Particle Size	Part No.
Amino	50 mm	4.6 mm	3 µm	<b>N9303502</b>
Amino	100 mm	4.6 mm	3 µm	<b>N9303500</b>
Amino	150 mm	4.6 mm	3 µm	<b>N9303501</b>
Amino	50 mm	4.6 mm	5 µm	<b>N9303506</b>
Amino	100 mm	4.6 mm	5 µm	<b>N9303503</b>
Amino	150 mm	4.6 mm	5 µm	<b>N9303504</b>
Amino	250 mm	4.6 mm	5 µm	<b>N9303505</b>

### Brownlee Analytical C8

Shorter retention times for hydrophobic compounds. Reliable performance with symmetrical peak shapes for neutral to acidic compounds.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C

**Pore size:** 100 Å - **Carbon load:** 7% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
C8	30 mm	4.6 mm	5 µm	<b>N9303521</b>
C8	100 mm	4.6 mm	5 µm	<b>N9303515</b>
C8	150 mm	4.0 mm	5 µm	<b>N9303516</b>
C8	150 mm	4.6 mm	5 µm	<b>N9303517</b>
C8	200 mm	4.6 mm	5 µm	<b>N9303518</b>
C8	250 mm	4.0 mm	5 µm	<b>N9303519</b>
C8	250 mm	4.6 mm	5 µm	<b>N9303520</b>

### Brownlee Analytical C18

Suitable for a wide range of acidic to neutral hydrophobic compounds. Excellent all purpose column.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C

**Pore size:** 110 Å - **Carbon load:** 13% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
C18	30 mm	4.6 mm	3 µm	<b>N9303509</b>
C18	50 mm	4.6 mm	3 µm	<b>N9303510</b>
C18	100 mm	4.6 mm	3 µm	<b>N9303507</b>
C18	150 mm	4.6 mm	3 µm	<b>N9303508</b>
C18	100 mm	4.0 mm	5 µm	<b>N9303511</b>
C18	100 mm	4.6 mm	5 µm	<b>N9303512</b>
C18	150 mm	4.6 mm	5 µm	<b>N9303513</b>
C18	250 mm	4.6 mm	5 µm	<b>N9303514</b>

### Brownlee Analytical Cyano

Suitable for analyses of a wide range of compounds from acidic through slightly basic. Highly base-deactivated spherical silica.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C

**Pore size:** 110 Å - **Carbon load:** 4% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
Cyano	150 mm	4.6 mm	5 µm	<b>N9303522</b>
Cyano	250 mm	4.6 mm	5 µm	<b>N9303523</b>

### Brownlee Analytical PAH

Specifically designed for challenging analyses of polynuclear aromatic hydrocarbons.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C

**Pore size:** 110 Å - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
PAH	100 mm	4.6 mm	5 µm	<b>N9303527</b>
PAH	150 mm	3.2 mm	5 µm	<b>N9303430</b>
PAH	150 mm	4.6 mm	5 µm	<b>N9303529</b>
PAH	200 mm	4.6 mm	5 µm	<b>N9303528</b>
PAH	250 mm	2.1 mm	5 µm	<b>N9303530</b>
PAH	250 mm	4.6 mm	5 µm	<b>N9303531</b>

### Brownlee Analytical Phenyl

Unique selectivity especially for aromatic compounds.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C

**Carbon load:** 6% - **Pore size:** 110 Å - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
Phenyl	150 mm	4.6 mm	5 µm	<b>N9303524</b>

### Brownlee Analytical Silica

Good general purpose packing for normal phase separations.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C

**Pore size:** 110 Å - **End Cap:** No

Phase	Length	ID	Particle Size	Part No.
Silica	150 mm	4.6 mm	5 µm	<b>N9303525</b>
Silica	250 mm	4.6 mm	5 µm	<b>N9303526</b>

## Brownlee Aquapore Conventional Columns

### Brownlee Aquapore AX-300

Used for Ion Exchange chromatography.

**Pore Size:** 300 Å

Phase	Length	ID	Particle Size	Part No.
AX-300	250 mm	4.6 mm	7 µm	<b>07120040</b>

### Brownlee Aquapore Octyl C8

Used for Reversed Phase chromatography.

**Pore Size:** 300 Å

Phase	Length	ID	Particle Size	Part No.
C8	100 mm	1.0 mm	7 µm	<b>07120096</b>
C8	250 mm	1.0 mm	7 µm	<b>07120097</b>
C8	250 mm	4.6 mm	7 µm	<b>07120033</b>

### Brownlee Aquapore ODS C18

Silica-based support suitable for the separation of large biopolymers. Microbore columns increase sensitivity, reduce sample size, and have better compatibility with LC/MS interfaces.

**Pore Size:** 300 Å

Phase	Length	ID	Particle Size	Part No.
C18	100 mm	1.0 mm	7 µm	<b>07120099</b>
C18	250 mm	4.6 mm	7 µm	<b>07120073</b>

## Brownlee Bio Conventional Columns

### Brownlee Bio C8

Wide-pore HPLC Column. High proportion of pore/surface area available for large molecule separations.

**Pore Size:** 300 Å - **Carbon Load:** 6% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
C8	50 mm	2.1 mm	5 µm	<b>N9303664</b>
C8	50 mm	4.6 mm	5 µm	<b>N9303665</b>
C8	100 mm	2.1 mm	5 µm	<b>N9303656</b>
C8	100 mm	4.6 mm	5 µm	<b>N9303657</b>
C8	150 mm	2.1 mm	5 µm	<b>N9303658</b>
C8	150 mm	4.6 mm	5 µm	<b>N9303659</b>
C8	200 mm	2.1 mm	5 µm	<b>N9303660</b>
C8	200 mm	4.6 mm	5 µm	<b>N9303661</b>
C8	250 mm	2.1 mm	5 µm	<b>N9303662</b>
C8	250 mm	4.6 mm	5 µm	<b>N9303663</b>

### Brownlee Bio C18

Excellent for separating peptides or proteins. Wide-pore HPLC Column.

**Pore Size:** 300 Å - **Carbon Load:** 6% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
C18	50 mm	2.1 mm	5 µm	<b>N9303654</b>
C18	50 mm	4.6 mm	5 µm	<b>N9303655</b>
C18	100 mm	2.1 mm	5 µm	<b>N9303646</b>
C18	100 mm	4.6 mm	5 µm	<b>N9303647</b>
C18	150 mm	2.1 mm	5 µm	<b>N9303648</b>
C18	150 mm	4.6 mm	5 µm	<b>N9303649</b>
C18	200 mm	2.1 mm	5 µm	<b>N9303650</b>
C18	200 mm	4.6 mm	5 µm	<b>N9303651</b>
C18	250 mm	2.1 mm	5 µm	<b>N9303652</b>
C18	250 mm	4.6 mm	5 µm	<b>N9303653</b>

## Brownlee CHOICE Conventional Columns

### Brownlee CHOICE Basix

Excellent choice for analytes containing amine group functionality.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Pore Size:** 60 Å - **Carbon Load:** 12% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
Basix	50 mm	2.1 mm	5 µm	<b>N9303615</b>
Basix	50 mm	4.6 mm	5 µm	<b>N9303616</b>
Basix	100 mm	2.1 mm	5 µm	<b>N9303613</b>
Basix	100 mm	4.6 mm	5 µm	<b>N9303614</b>
Basix	150 mm	2.1 mm	5 µm	<b>N9303617</b>
Basix	150 mm	4.6 mm	5 µm	<b>N9303618</b>
Basix	250 mm	4.6 mm	5 µm	<b>N9303619</b>

### Brownlee CHOICE C18

Excellent choice for LC/MS. Highly retentive phase for hydrophobic and slightly polar analytes.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Pore Size:** 60 Å - **Carbon Load:** 27% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
C18	50 mm	2.1 mm	5 µm	<b>N9303626</b>
C18	100 mm	2.1 mm	5 µm	<b>N9303625</b>
C18	150 mm	2.1 mm	5 µm	<b>N9303627</b>
C18	150 mm	4.6 mm	5 µm	<b>N9303628</b>
C18	250 mm	2.1 mm	5 µm	<b>N9303629</b>
C18	250 mm	4.6 mm	5 µm	<b>N9303630</b>

### Brownlee CHOICE Organic Acids

Enhanced retention and selectivity for polar organic acids. Retention is stable and reproducible even with 100% aqueous mobile phase specified in the AOAC method.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Pore Size:** 60 Å - **End Cap:** No

Phase	Length	ID	Particle Size	Part No.
Organic Acids	150 mm	4.6 mm	5 µm	<b>N9303631</b>
Organic Acids	250 mm	2.1 mm	5 µm	<b>N9303632</b>
Organic Acids	250 mm	4.6 mm	5 µm	<b>N9303633</b>
Organic Acids	300 mm	4.6 mm	5 µm	<b>N9303634</b>

### Brownlee CHOICE Propyl

Highly retentive for basic analytes. Excellent separation of nucleosides, nucleotides, purines, pyrimidines halogenated compounds, beta blockers and tricyclic antidepressants.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Pore Size:** 60 Å - **Carbon Load:** 17% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
PFP Propyl	30 mm	2.1 mm	5 µm	<b>N9303640</b>
PFP Propyl	50 mm	2.1 mm	5 µm	<b>N9303641</b>
PFP Propyl	50 mm	4.6 mm	5 µm	<b>N9303642</b>
PFP Propyl	100 mm	2.1 mm	5 µm	<b>N9303638</b>
PFP Propyl	100 mm	4.6 mm	5 µm	<b>N9303639</b>
PFP Propyl	150 mm	2.1 mm	5 µm	<b>N9303643</b>
PFP Propyl	150 mm	4.6 mm	5 µm	<b>N9303644</b>
PFP Propyl	250 mm	4.6 mm	5 µm	<b>N9303645</b>

## Brownlee Spheri-5 Conventional Columns

### Brownlee Spheri-5®

Small pore silica-based sorbent for separating small molecules both non-functional and polyfunctional C8 and C18 are available.

**Length:** 250 mm - **ID:** 4.6 mm - **Pore Size:** 80 Å

Phase	Length	ID	Particle Size	Part No.
C2	250 mm	4.6 mm	10 µm	<b>07120005</b>
C8	250 mm	4.6 mm	5 µm	<b>07120012</b>
C18	250 mm	4.6 mm	5 µm	<b>07120016</b>
C18	250 mm	4.6 mm	10 µm	<b>07120001</b>
C18 ODS	250 mm	4.6 mm	5 µm	<b>07120019</b>
Silica	250 mm	4.6 mm	5 µm	<b>07120023</b>

## Brownlee Validated Conventional Columns

### Brownlee Validated™ Amino

Good for normal phase analytes of mono- and disaccharides or similar compounds.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Particle Size:** 5 µm - **Pore Size:** 100 Å - **Carbon Load:** 2%

Phase	Length	ID	Particle Size	Part No.
Amino	100 mm	2.1 mm	5 µm	N9303532
Amino	150 mm	2.1 mm	5 µm	N9303533
Amino	150 mm	4.6 mm	5 µm	N9303534
Amino	200 mm	4.6 mm	5 µm	N9303535
Amino	250 mm	4.6 mm	5 µm	N9303536

### Brownlee Validated Aqueous C18

Highly base deactivated. Compatible with highly aqueous mobile phases.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Pore Size:** 100 Å - **Carbon Load:** 15% - **End Cap:** No

Phase	Length	ID	Particle Size	Part No.
Aqueous C18	30 mm	2.1 mm	3 µm	N9303540
Aqueous C18	50 mm	2.1 mm	3 µm	N9303541
Aqueous C18	50 mm	4.6 mm	3 µm	N9303542
Aqueous C18	100 mm	2.1 mm	3 µm	N9303537
Aqueous C18	100 mm	4.6 mm	3 µm	N9303538
Aqueous C18	150 mm	2.1 mm	3 µm	N9303539
Aqueous C18	30 mm	4.6 mm	5 µm	N9303550
Aqueous C18	100 mm	2.1 mm	5 µm	N9303543
Aqueous C18	100 mm	4.6 mm	5 µm	N9303544
Aqueous C18	150 mm	2.1 mm	5 µm	N9303545
Aqueous C18	150 mm	4.6 mm	5 µm	N9303546
Aqueous C18	200 mm	4.6 mm	5 µm	N9303547
Aqueous C18	250 mm	2.1 mm	5 µm	N9303548
Aqueous C18	250 mm	4.6 mm	5 µm	N9303549

### Brownlee Validated C1

Least retentive reversed phase hydrocarbon packing.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Pore Size:** 100 Å - **Carbon Load:** 5% - **End Cap:** No

Phase	Length	ID	Particle Size	Part No.
C1	150 mm	4.6 mm	5 µm	N9303718
C1	250 mm	4.6 mm	5 µm	N9303719

### Brownlee Validated C4

High bonding coverage and base deactivation. Less retention than C18 or C8 phases.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Pore Size:** 100 Å - **Carbon Load:** 9% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
C4	150 mm	4.6 mm	5 µm	N9303720
C4	250 mm	4.6 mm	5 µm	N9303721

### Brownlee Validated C8

Retentive, high purity base-deactivated reversed phase packing.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Pore Size:** 80 Å - **Carbon Load:** 12% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
C8	100 mm	2.1 mm	5 µm	N9303564
C8	100 mm	4.6 mm	5 µm	N9303565
C8	150 mm	2.1 mm	5 µm	N9303566
C8	150 mm	4.6 mm	5 µm	N9303567
C8	250 mm	4.6 mm	5 µm	N9303568

### Brownlee Validated C18

Excellent general purpose phase column.  
 Retentive high purity packing.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Pore Size:** 100 Å - **Carbon Load:** 20% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
C18	100 mm	2.1 mm	3 µm	N9303551
C18	100 mm	4.6 mm	3 µm	N9303552
C18	50 mm	2.1 mm	5 µm	N9303562
C18	50 mm	4.6 mm	5 µm	N9303563
C18	100 mm	2.1 mm	5 µm	N9303553
C18	100 mm	4.6 mm	5 µm	N9303554
C18	150 mm	2.1 mm	5 µm	N9303556
C18	150 mm	4.0 mm	5 µm	N9303557
C18	150 mm	4.6 mm	5 µm	N9303558
C18	200 mm	4.6 mm	5 µm	N9303559
C18	250 mm	2.1 mm	5 µm	N9303560
C18	250 mm	4.6 mm	5 µm	N9303561

## Brownlee Validated Conventional Columns

### Brownlee Validated™ Carbamate

A unique stationary phase bonded to a 3µm silica specifically designed for carbamate analysis. This column is compatible with fluorescence or LC/MS detection. Validated Carbamate column has much faster analysis, which will significantly reduce solvent usage.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C - **Pore Size:** 100 Å

Phase	Length	ID	Particle Size	Part No.
Carbamate	50 mm	4.6 mm	3 µm	<b>N9303570</b>
Carbamate	100 mm	4.6 mm	3 µm	<b>N9303569</b>
Carbamate	250 mm	4.6 mm	3 µm	<b>N9303571</b>

### Brownlee Validated Cyano

High purity Cyano phase with few silanol sites. Less sensitive to small amounts of water present in the mobile phase.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Pore Size:** 100 Å - **Carbon Load:** 10% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
Cyano	30 mm	4.6 mm	5 µm	<b>N9303578</b>
Cyano	100 mm	2.1 mm	5 µm	<b>N9303572</b>
Cyano	100 mm	4.6 mm	5 µm	<b>N9303573</b>
Cyano	150 mm	2.1 mm	5 µm	<b>N9303574</b>
Cyano	150 mm	4.6 mm	5 µm	<b>N9303575</b>
Cyano	200 mm	4.6 mm	5 µm	<b>N9303576</b>
Cyano	250 mm	4.6 mm	5 µm	<b>N9303577</b>

### Brownlee Validated IBD

Unique selectivity and a high level of base-deactivation. Reduces or eliminates the need for mobile phase additives.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Pore Size:** 100 Å - **Carbon Load:** 12% - **End Cap:** No

Phase	Length	ID	Particle Size	Part No.
IBD	30 mm	4.6 mm	3 µm	<b>N9303594</b>
IBD	50 mm	2.1 mm	3 µm	<b>N9303595</b>
IBD	50 mm	4.6 mm	3 µm	<b>N9303596</b>
IBD	100 mm	2.1 mm	3 µm	<b>N9303590</b>
IBD	100 mm	4.6 mm	3 µm	<b>N9303591</b>
IBD	150 mm	2.1 mm	3 µm	<b>N9303592</b>
IBD	150 mm	4.6 mm	3 µm	<b>N9303593</b>

## Brownlee Validated IBD (Continued)

Phase	Length	ID	Particle Size	Part No.
IBD	30 mm	1.0 mm	5 µm	<b>N9303585</b>
IBD	30 mm	2.1 mm	5 µm	<b>N9303586</b>
IBD	30 mm	4.6 mm	5 µm	<b>N9303587</b>
IBD	50 mm	2.1 mm	5 µm	<b>N9303588</b>
IBD	50 mm	4.6 mm	5 µm	<b>N9303589</b>
IBD	100 mm	2.1 mm	5 µm	<b>N9303579</b>
IBD	100 mm	4.6 mm	5 µm	<b>N9303580</b>
IBD	150 mm	2.1 mm	5 µm	<b>N9303581</b>
IBD	150 mm	4.6 mm	5 µm	<b>N9303582</b>
IBD	200 mm	4.6 mm	5 µm	<b>N9303583</b>
IBD	250 mm	4.6 mm	5 µm	<b>N9303584</b>

### Brownlee Validated PFP

Unique selectivity for compounds containing organohalogens or other basic functional groups.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Pore Size:** 100 Å - **Carbon Load:** 7% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
PFP	50 mm	2.1 mm	5 µm	<b>N9303601</b>
PFP	100 mm	4.6 mm	5 µm	<b>N9303597</b>
PFP	150 mm	2.1 mm	5 µm	<b>N9303598</b>
PFP	150 mm	4.6 mm	5 µm	<b>N9303599</b>
PFP	250 mm	4.6 mm	5 µm	<b>N9303600</b>

### Brownlee Validated Phenyl

High purity, highly retentive base-deactivated phase, especially designed for aromatic analytes.

**pH range:** 2.5 to 7.5 - **Temperature limit:** 80° C -  
**Pore Size:** 100 Å - **Carbon Load:** 10% - **End Cap:** Yes

Phase	Length	ID	Particle Size	Part No.
Phenyl	50 mm	1.0 mm	3 µm	<b>N9303604</b>
Phenyl	100 mm	2.1 mm	3 µm	<b>N9303602</b>
Phenyl	100 mm	4.6 mm	3 µm	<b>N9303603</b>
Phenyl	150 mm	2.1 mm	5 µm	<b>N9303605</b>
Phenyl	150 mm	4.6 mm	5 µm	<b>N9303606</b>
Phenyl	250 mm	4.6 mm	5 µm	<b>N9303607</b>

## Guard Cartridges and Accessories

### Guard Cartridge Accessories

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

### Guard Cartridges Bownlee Analytical

**Pkg: 3**

Phase	Length	ID	Particle Size	Part No.
Amino	10 mm	2.1 mm	5 µm	<b>N9303674</b>
Amino	10 mm	4.0 mm	5 µm	<b>N9303675</b>
C18	10 mm	2.1 mm	5 µm	<b>N9303676</b>
C18	10 mm	4.0 mm	5 µm	<b>N9303677</b>
C8	10 mm	2.1 mm	5 µm	<b>N9303678</b>
C8	10 mm	4.0 mm	5 µm	<b>N9303679</b>
Cyano	10 mm	2.1 mm	5 µm	<b>N9303680</b>
Cyano	10 mm	4.0 mm	5 µm	<b>N9303681</b>
PAH	10 mm	2.1 mm	5 µm	<b>N9303682</b>
PAH	10 mm	4.0 mm	5 µm	<b>N9303683</b>
Phenyl	10 mm	2.1 mm	5 µm	<b>N9303684</b>
Phenyl	10 mm	4.0 mm	5 µm	<b>N9303685</b>
Silica	10 mm	2.1 mm	5 µm	<b>N9303686</b>
Silica	10 mm	4.0 mm	5 µm	<b>N9303687</b>

### Guard Cartridges Bownlee Bio

**Pore Size: 300 Å - Pkg: 3**

Phase	Length	ID	Particle Size	Part No.
C18	10 mm	2.1 mm	5 µm	<b>N9303708</b>
C18	10 mm	4.0 mm	5 µm	<b>N9303707</b>
C8	10 mm	2.1 mm	5 µm	<b>N9303709</b>
C8	10 mm	4.0 mm	5 µm	<b>N9303710</b>

### Guard Cartridges Bownlee CHOICE

**Pore Size: 60 Å - Pkg: 3**

Phase	Length	ID	Particle Size	Part No.
Basix	10 mm	2.1 mm	5 µm	<b>N9303666</b>
Basix	10 mm	4.0 mm	5 µm	<b>N9303667</b>
C18	10 mm	2.1 mm	5 µm	<b>N9303668</b>
C18	10 mm	4.0 mm	5 µm	<b>N9303669</b>
Organic Acids	10 mm	2.1 mm	5 µm	<b>N9303670</b>
Organic Acids	10 mm	4.0 mm	5 µm	<b>N9303671</b>
PFP Propyl	10 mm	2.1 mm	5 µm	<b>N9303672</b>
PFP Propyl	10 mm	4.0 mm	5 µm	<b>N9303673</b>

### Guard Cartridges Bownlee Validated

**Pore Size: 100 Å - Pkg: 3**

Phase	Length	ID	Particle Size	Part No.
Amino	10 mm	2.1 mm	5 µm	<b>N9303688</b>
Amino	10 mm	4.0 mm	5 µm	<b>N9303689</b>
Aqueous C18	10 mm	2.1 mm	5 µm	<b>N9303690</b>
Aqueous C18	10 mm	4.0 mm	5 µm	<b>N9303691</b>
C1	10 mm	4.0 mm	5 µm	<b>N9303722</b>
C4	10 mm	4.0 mm	5 µm	<b>N9303723</b>
C8	10 mm	2.1 mm	5 µm	<b>N9303695</b>
C8	10 mm	4.0 mm	5 µm	<b>N9303696</b>
C18	10 mm	2.1 mm	5 µm	<b>N9303693</b>
C18	10 mm	4.0 mm	5 µm	<b>N9303694</b>
C18	10 mm	4.0 mm	10 µm	<b>N9303692</b>
Carbamate	10 mm	2.1 mm	5 µm	<b>N9303697</b>
Carbamate	10 mm	4.0 mm	5 µm	<b>N9303698</b>
Cyano	10 mm	2.1 mm	5 µm	<b>N9303699</b>
Cyano	10 mm	4.0 mm	5 µm	<b>N9303700</b>
IBD	10 mm	2.1 mm	5 µm	<b>N9303701</b>
IBD	10 mm	4.0 mm	5 µm	<b>N9303702</b>
PFP	10 mm	2.1 mm	5 µm	<b>N9303703</b>
PFP	10 mm	4.0 mm	5 µm	<b>N9303704</b>
Phenyl	10 mm	2.1 mm	5 µm	<b>N9303705</b>
Phenyl	10 mm	4.0 mm	5 µm	<b>N9303706</b>

## 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™ ANALYTICAL CARTRIDGE COLUMNS FOR CONVENTIONAL AND NARROWBORE HPLC

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

### Features and Benefits

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

## Brownlee CHOICE™

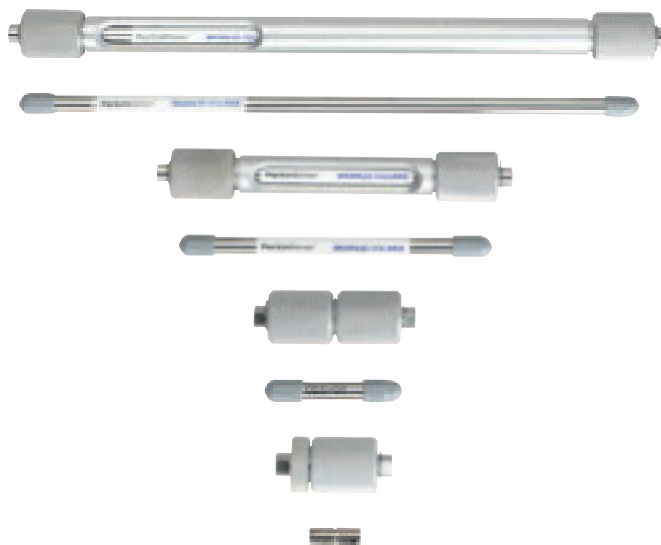
The CHOICE™ columns provide the speed and efficiency appropriate for LC/MS. Each column's separation requirements vary depending on the system, sample and mass spectrometer.

## Brownlee PECO

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

## Brownlee Preparative

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



Brownlee Columns and Holders

## Brownlee VeloSep®

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

## Brownlee Validated

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

## NewGuard Columns

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

## Brownlee MPLC/Peco Holders

MPLC cartridge system ensures leak-free operation up to 7,000 psi, with only finger-tightening. The high-pressure seal in each end assembly actually seals tighter as pressure increases. No wrenches are required and there is no need to disconnect any tubing to your LC system when changing a cartridge. MPLC cartridges can be directly coupled to another using a union.

## Extensive Range of Phases and Column Lengths

### Brownlee MPLC Cartridge Columns

#### Ion Exchange

Column	Description	Part No.	Part No.	Part No.
AX-300, Aquapore®	7 µm, 300 Å, Weak Anion	<b>07110073</b>	<b>07110074</b>	<b>07110075</b>
Polypore® CA	10 µm, Polymeric, Calcium Form	<b>07110091</b>		<b>07110093</b>
Polypore H	10 µm, Polymeric, Hydrogen Form	<b>07110085</b>		<b>07110087</b>

#### Polar Phase

Column	Description	Part No.	Part No.	Part No.
Cyano, Spheri-5	Cyanopropyl, 5 µm, 80 Å	<b>07110043</b>		<b>07110045</b>
Silica, Spheri-5	5 µm, 80 Å	<b>07110031</b>	<b>07110032</b>	<b>07110033</b>
Silica, Spheri-10	10 µm, 80 Å	<b>07110145</b>		

#### Reversed Phase

Column	Description	Part No.	Part No.	Part No.
Cyano, Spheri-5	Cyanopropyl, 5 µm, 80 Å	<b>07110043</b>		<b>07110045</b>
OD-300, Aquapore ODS	C-18, 7 µm, 300 Å	<b>07110235</b>	<b>07110234</b>	<b>07110232</b>
ODS, Spheri-5	C-18, Polyfunctional, 5 µm, 80 Å	<b>07110019</b>	<b>07110020</b>	<b>07110021</b>
Phenyl, Spheri-5	Phenyl, 5 µm, 80 Å	<b>07110025</b>		<b>07110027</b>
RP-8, Spheri-5	C-8, Monofunctional, 5 µm, 80 Å	<b>07110001</b>	<b>07110002</b>	<b>07110003</b>
RP-18, Spheri-5	C-18, Monofunctional, 5 µm, 80 Å	<b>07110013</b>	<b>07110014</b>	<b>07110015</b>
RP-300, Aquapore Octyl C-8	7 µm, 300 Å	<b>07110055</b>	<b>07110056</b>	<b>07110057</b>
Pecosphere C18	C-18, Monofunctional, Non-reduced, 3µm, 80A <b>(Pack of 5)</b>	<b>02580164</b>		<b>0258-0220</b>
Pecosphere 3CR	C-8, Base Deactivated, 3 µm <b>(Pack of 5)</b>	<b>02580191</b>		
Pecosphere 3CR	C-18, Base Deactivated, 3 µm <b>(Pack of 5)</b>	<b>02580195</b>		

Pecosphere C18 100 x 3.2 mm monofunctional, non-reduced, 3 µm, 80A column 0258-0221  
 \*Requires Holder (07150013) \*\*Requires Holder (07150014)

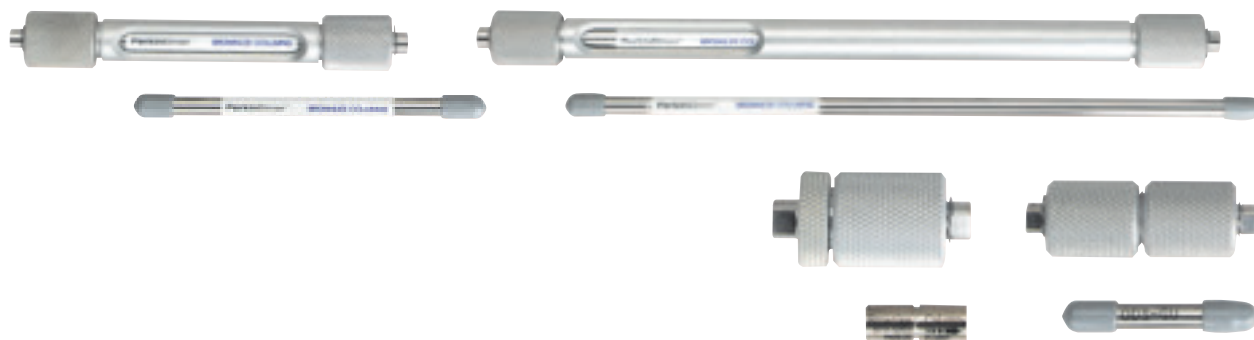
#### Normal Phase

Description	Part No.	Part No.	Part No.
Pecosphere 3 Silica		<b>02580167</b>	

#### Reversed Phase

Description	Part No.	Part No.	Part No.
Pecosphere 3 C18, 3 µm	<b>02580164</b>	<b>02580166</b>	
Pecosphere 5 C18, 5 µm			<b>02580169</b>
Pecosphere 3CR C8, Base Deactivated, 3 µm	<b>02580191</b>	<b>02580192</b>	
Pecosphere 3CR C18, Base Deactivated, 3 µm	<b>02580195</b>	<b>02580194</b>	
Reduced Activity 5 C18, 5 µm			<b>N9303396</b>
Reduced Activity 5 C8, 5 µm			<b>02580168</b>
Peco HCODS C18, Polyfunctional, 5 µm, 300 Å			<b>02580213</b>

Description	Part No.	Part No.
Pecosphere 3CR C18, Base Deactivated, 3 µm <b>(Pack of 5)</b>	<b>02580220</b>	<b>02580221</b>



## Scavenger Columns

33 mm x 4.6 mm i.d.<sup>4</sup>  
5 per package

Column	Description	Part No.
Silica Scavenger	10 µm	<b>02580203</b>
C18 Scavenger	Monofunctional, 10 µm, 80Å	<b>02580202</b>

## Ion Exchange

100 mm x 2.1 mm i.d.<sup>2</sup>  
1 per package

220 mm x 4.6 mm i.d.<sup>5</sup>  
1 per package

220 mm x 2.1 mm i.d.<sup>5</sup>  
1 per package

Column	Description	Part No.	Part No.	Part No.
AX-300, Aquapore	7 µm, 300 Å, Weak Anion		<b>07110077</b>	
Polypore® CA	10 µm, Polymeric, Calcium Form		<b>07110095</b>	
Polypore H	10 µm, Polymeric, Hydrogen Form		<b>07110089</b>	

## Polar Phase

100 mm x 2.1 mm i.d.<sup>2</sup>  
1 per package

220 mm x 4.6 mm i.d.<sup>5</sup>  
1 per package

220 mm x 2.1 mm i.d.<sup>5</sup>  
1 per package

Column	Description	Part No.	Part No.	Part No.
Amino, Spheri-5	Aminopropyl, 5 µm, 80 Å		<b>07110041</b>	
Cyano, Spheri-5	Cyanopropyl, 5 µm, 80 Å		<b>07110047</b>	
Silica, Spheri-5	5 µm, 80 Å		<b>07110035</b>	

## Reversed Phase

100 mm x 2.1 mm i.d.<sup>2</sup>  
1 per package

220 mm x 4.6 mm i.d.<sup>5</sup>  
1 per package

220 mm x 2.1 mm i.d.<sup>5</sup>  
1 per package

Column	Description	Part No.	Part No.	Part No.
BU-300, Aquapore Butyl C-4	7 µm, 300 Å	<b>07110064</b>		
Cyano, Spheri-5	Cyanopropyl, 5 µm, 80 Å		<b>07110047</b>	
OD-300, Aquapore ODS	C-18, 7 µm, 300 Å	<b>07110233</b>	<b>07110231</b>	<b>07110236</b>
ODS, Spheri-5	C-18, Polyfunctional, 5 µm, 80 Å	<b>07110022</b>	<b>07110023</b>	<b>07110024</b>
Phenyl, Spheri-5	Phenyl, 5 µm, 80 Å		<b>07110029</b>	
RP-8, Spheri-5	C-8, Monofunctional, 5 µm, 80 Å	<b>07110004</b>	<b>07110005</b>	<b>07110006</b>
Pecosphere 3CR	C-18, Base Deactivated, 3 µm			
RP-18, Spheri-5	C-18, Monofunctional, 5 µm, 80 Å	<b>07110016</b>	<b>07110017</b>	<b>07110018</b>
Pecosphere 3CR	C-8, Base Deactivated, 3 µm			
RP-300, Aquapore Octyl C-8	7 µm, 300 Å	<b>07110058</b>	<b>07110059</b>	<b>07110060</b>
Pecosphere C18 <sup>6</sup>	C-18, Monofunctional, Nonreduced, 3 µm, 80 Å	<b>0258-0220</b>		

<sup>2</sup> Requires Holder (07150014) <sup>4</sup> Requires Holder (07150028) <sup>5</sup> Requires Holder (07150015) <sup>6</sup> Requires Holder (02580225)



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

## 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

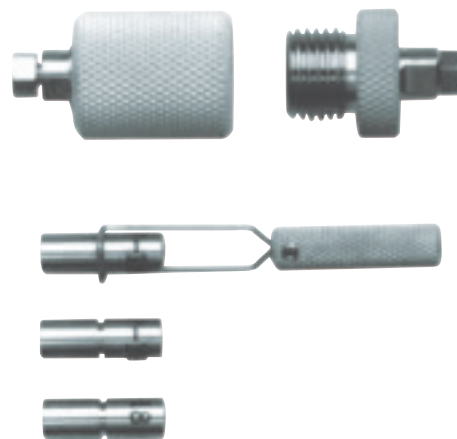
- Prolong column life by 2 to 5 times
- Protect your column from particulates and strongly bound sample components
- Optimized dimensions to prevent loss of resolution
- Easy coupling to MPLC cartridges or conventional columns
- Finger-tight seal to 7,000 psi using NewGuard holders
- Can be used for 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



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

## Standards Solutions

Description	Part No.
<b>Test Mix</b>	
LC Gradient Test Mix	N9334010
Universal Test Mix for Reversed-phase (5 mL/pkg)	00890893
<b>Standards</b>	
HPLC SV Calibration Mix #5/610 PAH	00891542
HPLC 610 Calibration Mix A	00891543
HPLC 610 Calibration Mix B	00891544

## NewGuard Accessories







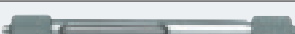



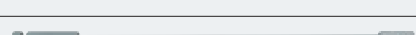






### Replacement Seals for MPLC and Prep-10 Holders

Description	Part No.
<b>Prep-10 Inlet Seal</b>	
One each (Prep-10 Seal Replacement Kit Tools Required)	07150012
<b>Prep-10 Outlet Seal</b>	
One each (Prep-10 Seal Replacement Kit Tools Required)	07150026
<b>Seals for MPLC Holders</b>	
Two 7,000 psi seals (Seal Replacement Kit Tools Required)	07150024
<b>Seal Replacement Kit for MPLC Holders</b>	
Tools and Two 7,000 psi Seals	07150023


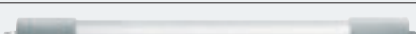
## Finger-Tight Holders

### MPLC/Peco™ Holders

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

Name	Description		Part No.
Universal Holder Kit	Includes 100 and 220 mm holder bodies, 2 end assemblies, 1 union and 1 NewGuard end assembly.		07150025
NewGuard® Holder	Holds a single NewGuard cartridge or a single 20 mm CHOICE™ cartridge.		07150001
30 mm Holder	Holds a single MPLC and CHOICE 30 mm cartridge. (Do not use with Pecosphere column)		07150013
33 mm Pecosphere Holder	Holds 33 mm Fast LC Peco cartridge only.		07150028
50 mm Holder	Holds a single 50 mm CHOICE cartridge only.		N2580030
83 mm Peco Holder	Holds 83 mm Fast LC Peco cartridge only.		07150029
100 mm Holder	Holds a single MPLC 100 mm cartridge.		07150014
100 mm Holder	Holds Pecosphere 10 cm cartridge		02580225
150 mm Holder	Holds a single MPLC 150 mm cartridge.		07150030
220 mm Holder	Holds a single MPLC 220 mm cartridge.		07150015
250 mm Holder	Holds a single MPLC 250 mm cartridge.		07150031
100 mm NewGuard System Holder	Holder for a NewGuard and a 100 mm coupled cartridge.		07150016
220 mm NewGuard System Holder	Holder for a NewGuard and a 220 mm coupled cartridge.		07150017
130 mm MPLC System Holder	Holder for a 30 and 100 mm coupled cartridge.		07150032
Union	For direct coupling of 2 cartridge holders. (Two holder bodies and 2 end assemblies also required.)		07150018
NewGuard End Assembly	Upgrades a 30 mm holder to a NewGuard holder.		07150002
End Assembly	Holder component.		07150019
30 mm Holder Body	Holder component.		07150020
100 mm Holder Body	Holder component.		07150021
20 mm Holder Body	Holder component.		07150022

### Prep-10 Cartridge Holders

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

## 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

### Stainless Steel Sample Loops

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

## 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

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

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

### Tubing Accessories

Clean-Cut™ tubing tool is designed to cut Teflon®, 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

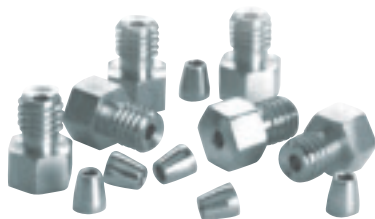
- Pre-cut and mirror-polished in 316 stainless steel

Description	Length	Part No.
1/16 in O.D. x 0.015 in I.D.	6 ft	00873036
1/16 in O.D. x 0.007 in I.D.	3 ft	02540838
1/16 in O.D. x 0.005 in I.D.	2 ft	02507060

## 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
OptiTech Ferrule 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.s, 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

## 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	<b>N2600571</b>
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	<b>N2600570</b>
Binary Bottle Cap Kit. Includes: two Caps, Tubing, Fittings and Labels required for two Solvent Bottles	<b>N2600522</b>
Quaternary Bottle Cap Kit. Includes: four Caps, Tubing, Fittings and Labels required for four Solvent Bottles	<b>N2600523</b>

### Liquid Chromatography Laboratory Bottle Kits

Contents	Part No.
1x5 Liter Bottle with Cap and Teflon Insert, 2 Meters PTFE 1/8" Tubing and 1x10 µm SS Solvent Frit	<b>N2601610</b>
1x2 Liter Bottle with Cap and Teflon Insert 1 Meter PTFE 1/8" Tubing and 1x10 µm SS Solvent Frit	<b>N2601611</b>
1x1 Liter Bottle with Cap and Teflon Insert 1 Meter PTFE 1/8" Tubing and 1x10 µm SS Solvent Frit	<b>N2601612</b>
1x0.5 Liter Bottle with Cap and Teflon Insert 1 Meter PTFE 1/8" Tubing and 1x40 µm SS Solvent Frit	<b>N2601613</b>
1 Cap with Teflon Insert 1 Meter PTFE 1/8" Tubing and 1x10 µm SS Solvent Frit	<b>N2601614</b>
1 Cap with Teflon Insert 1 Meter PTFE 1/16" Tubing and 1x40 µm SS Solvent Frit	<b>N2601615</b>
1x0.5 Liter Bottle with Cap and Dual Teflon Insert 2 pcs of 2 Meter PTFE 1/8" Tubing (Piston Wash Function)	<b>N2601616</b>
1 Cap with Dual Teflon Insert 2 pcs of 2 Meter PTFE 1/8" Tubing and 1x10 µm SS Solvent Frit (Piston Wash Function)	<b>N2601617</b>

### Check Valves

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



Type	Inlet/Intermediate Check Valve Part No.	Outlet Check Valve Part No.
Standard Stainless Steel	<b>02540177</b>	<b>02540197</b>
Micropump	<b>02540177</b>	<b>02540197</b>
Biocompatible Titanium	<b>N2600226</b>	<b>N2600192</b>
FX-15 Check Valves	<b>N2911220</b>	<b>N2911220</b>

### Maintenance Kits and Tools

Description	Part No.
Biocompatible Piston Seal Replacement Kit Includes: Four Seals, Backup Rings, and O-rings	<b>N2910385</b>
Check Valve Torque Wrench	<b>02540871</b>
Diaphragm for Pulse Compensator	<b>N2601316</b>
FX-15 UHPLC Pump Accessories Replacement 0.5 µm Filter Frits for FX-15 (4-pack)	<b>N2911224</b>
High pressure FX-15 Piston Seal Kit	<b>N2911221</b>
Standard Piston Seal Replacement Kit for Series 200 and Flexar Pump Includes: Four Seals, Backup Rings, and O-rings	<b>N2910383</b>
Insertion Tool	<b>N2601503</b>
Micropump Piston Seal Replacement Kit for Series 275 and FX-10 pump	<b>N2910384</b>
Piston Wash Bottle Kit for FX-15	<b>N2601616</b>
Pulse Compensator Repair Kit Includes: Diaphragm, Elastomer Plug, and Seal	<b>N2600313</b>
Seal Removal Tool	<b>N2601295</b>
Series 200 Bio LC Pump Maintenance Kit Includes: Fuses, Seals, O-rings, and Seal Tools	<b>N2910346</b>
Series 200 Pump Maintenance Kit Includes: Fuses, Seals, O-rings, and Seal Tools	<b>N2910345</b>

### Replacement Vacuum Degasser Bottles

Description	Part No.
1 L Glass Bottle	<b>N2600497</b>
2 L Glass Bottle	<b>N2600498</b>



## 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.



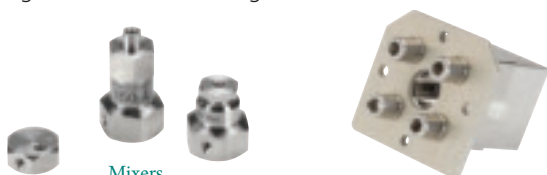
Solvent Filters

### Solvent Spargers, Filters and Scavengers

Description	Size	Part No.
<b>Solvent Reservoir Sparger</b>		
Stainless Steel	10 µm	<b>09903610</b>
Titanium	10 µm	<b>N2600070</b>
Stainless Steel	40 µm	<b>09903615</b>
Titanium	40 µm	<b>N2600089</b>
<b>Solvent Filters/Scavengers</b>		
In-Line Solvent Filter System		<b>09903606</b>
In-Line Solvent Filter Replacement Kit		<b>02540311</b>
In-Line Solvent Filter System, Titanium		<b>N2600259</b>
Replacement 2 µm Titanium Filter Element		<b>N2601477</b>
Replacement Seal for In-Line Solvent Filter		<b>N2601262</b>
3 cm Scavenger Cartridge Holder		<b>02580178</b>
Spheri-5 C18 10 µm Scavenger Column (5 pack)		<b>02580202</b>
<b>LC System Accessories</b>		
Solvent waste cup		<b>N2916019</b>
Drain Cup		<b>N2916085</b>
90° Elbow Adapter, ¼" ID HDPP		<b>09220102</b>
Tubing Clip (U-shaped, Polypropylene)		<b>NX598006</b>
Polypro Elbow Barbs		<b>09220102</b>
Large ID (11 mm) Silicone Tubing (5 ft)		<b>N2916016</b>
Manual Injector Bracket (Magnetic Clip-on)		<b>N2931275</b>

## Static Mixers

Static mixers are used to facilitate complete mobile phase blending, resulting in improved retention performance. The mixer will most typically be used where high-pressure blending of two pump outputs is required. Mixers incorporate a highly efficient crossflow shearing mechanism which produces vortex shear mixing over a wide flow range.



Mixers

Mixing Head

### UHPLC Static Mixers (up to 18,000 psi)

Description	Size	Part No.
In-Line High Pressure Mixer Assembly, SS	50 µL	<b>N2911200</b>
In-Line High Pressure Mixer Assembly, SS	150 µL	<b>N2911201</b>
In-Line High Pressure Mixer Assembly, SS	250 µL	<b>N2911202</b>
In-Line High Pressure Mixer Assembly, SS	350 µL	<b>N2911205</b>
In-Line High Pressure Mixer Assembly, SS	500 µL	<b>N2911203</b>
Binary T-Mixer, SS	10 µL	<b>N2911170</b>
Binary High Pressure T-Mixer, SS	50 µL	<b>N2911212</b>
HP Binary High Pressure T-Mixing, SS	150 µL	<b>N2911206</b>
Binary High Pressure T-Mixer, SS	350 µL	<b>N2911210</b>
Binary High Pressure T-Mixer, SS	500 µL	<b>N2911211</b>
T-connector, SS		<b>N2911127</b>

### Analytical Static Mixers (up to 6,200 psi)

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

### Dynamic Mixer

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

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

Description	Part No.
Dynamic Mixer Accessory (100–240 V)	<b>N2910520</b>

### Mixing Heads

Size	Part No.
75 µL	<b>N2910521</b>
200 µL	<b>N2910522</b>
400 µL	<b>N2910523</b>

**NEW**



## 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	Product No.
Flom Injection Valve Stainless Steel	<b>N9306073</b>
Flom Injection Valve PEEK	<b>N9306072</b>

## 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	Product No.
Flom Rotor Seal PEEK	<b>N9306068</b>
Rheodyne 7725 Vespel Rotor Seal	<b>09904802</b>
Rheodyne 8125 Vespel Rotor Seal	<b>10070900</b>
Rheodyne 7725/9725 PEEK Rotor Seal	<b>N9306044</b>



## Rheodyne™ 9725 PEEK Bio Injection Valve

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

Description	Product No.
9725 Injection Valve for Series 200 Autosampler	<b>N9306020</b>

## 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	Product No.
8125 Low-Dispersion Stainless Steel Injection Valve	<b>N9306021</b>

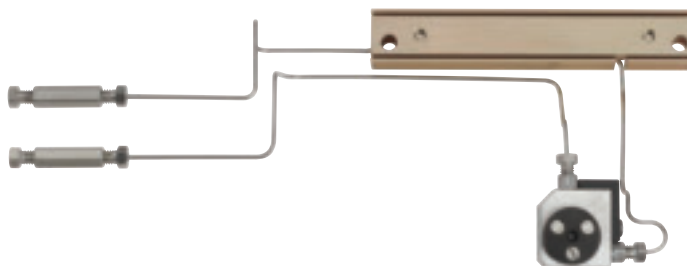
## Rheodyne™ 7725 Analytical Injection Valve

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	Product No.
7725 Injection Valve for Series 200 Autosampler	<b>N9306019</b>
7725i Injection Valve with Internal Switch	<b>N9306017</b>

# 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	<b>N2910035</b>
S200 Pump Conversion Kit	<b>N2910036</b>

## Pump Seal Kits

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



## 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		<b>N2925090</b>
2 – 5K psi variable backpressure regulator		<b>N2925091</b>
Backpressure Regulator Adjustable from 15 – 59 psi	Stainless Steel	<b>09907126</b>

## 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.
<b>Flowcells for Flexar FX-UV/Vis UHPLC Detectors</b>		
Flowcell	6 mm x 2.4 µL	<b>N2925090</b>
Flowcell Kit (includes flowcell & detector head plate w/ gasket)	6 mm x 2.4 µL	<b>N2920070</b>
<b>Flowcells for Flexar FX-UV/Vis UHPLC Detectors</b>		
Flowcell Kit (includes flowcell w/ heat exchanger and zdv unions)	10 mm x 15 µL	<b>N2920070</b>
Flowcell	10 mm x 15 µL	<b>N2920124</b>
Flowcell Assembly (w/ zdv unions)	6 mm x 2.4 µL	<b>29000544</b>
Prep Flowcell Assembly (w/ zdv unions)	3 mm x 1.7 µL	<b>29000545</b>
<b>Flowcells for 785A UV/Vis Detectors</b>		
Flowcell	8 mm x 12 µL	<b>29000542</b>
Flowcell Assembly (w/ heat exchanger and zdv unions)	8 mm x 12 µL	<b>N2920117</b>
<b>Flowcells for Flexar FX-PDA UHPLC and Series 275 PDA Detectors</b>		
Flowcell (dual-lensed)	6 mm x 2.4 µL	<b>N2920128</b>
<b>Flowcells for Flexar and Series 200EP PDA Detectors</b>		
Flowcell	10 mm x 15 µL	<b>N2920126</b>
Flowcell Assembly	10 mm x 15 µL	<b>N2920160</b>
<b>Flowcells for Series 200 PDA Detectors</b>		
Flowcell	10 mm x 12 µL	<b>N2922107</b>
Flowcell	4.5 mm x 5 µL	<b>N2922030</b>
FL 3 µL Flowcell w/ Assembly		<b>N2922211</b>
<b>Flowcells for LC-135/235 PDA Detectors</b>		
Flowcell Assembly (w/ heat exchanger)	10 mm x 8 µL	<b>N2350211</b>
Flowcell	10 mm x 8 µL	<b>N2350162</b>

## FOR OUTSTANDING PERFORMANCE



UV/VIS Deuterium  
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.
<b>Flexar Series/Series 200/785A UV/VIS Detector Lamps</b>	
Deuterium Lamp	N2920149
Tungsten Lamp	N2920146
<b>LC-295 UV/VIS Detector Lamps</b>	
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.

Series 200/200a

Components	Part No.
Tungsten Lamps	02712273



Series 200/200 EP  
Photo Diode Array Detector Lamp

### 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.
<b>Flexar/Series 200 EP</b>	
Deuterium Lamp	N2925030
Tungsten Lamp	N2922011
<b>Series 200</b>	
Deuterium Lamp (Phase 2)	N2922046
Tungsten Lamp	N2922011
<b>LC-135C/235</b>	
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.
<b>Flexar/Series 200/200a</b>	
Xenon Lamp	N2922082
<b>Flexar/Series 200/200a</b>	
Xenon Lamp	L2251157
Festoon Lamp	04969486

## 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.

### Features and Benefits

- LC/MS grade purity enhances instrument performance
- Phthalate-free
- Recommended, certified, tested, and used by all major LC/MS instrument manufacturers
- Return on investment in 6 months to 2 years
- Minimal maintenance required

### Applications

- LC/MS
- Solvent Evaporation
- Analytical instruments requiring nitrogen
- Thermal Analyzers



## Low Flow NITROFLOW Lab

### Features and Benefits

- Complete “Plug and Play” system recommended by all major LC/MS manufacturers
- 8,000 hours compressor warranty or two years
- Special design ensures quiet operation
- Dual oil-less air compressors

Components	Part No.
120 V	<b>N9306213</b>
230 V	<b>N9306214</b>
Product Specification	
Purity:	94.0 – 99.5%
Phthalate-free	
Hydrocarbon-free	
Flow Rates	10 – 50 lpm
Delivery pressure	8 bar
Ambient temperature	10 °C – 35 °C
Power consumption	1400 Watts
Noise level	<58 dB (A)
Electrical requirements	120 V / 60 Hz, 20 Amp Nema 5
Lab capacity at nominal conditions:	
Ambient temperature:	20 °C / 68 °F
Ambient pressure:	1013 mbar(a).
Dimensions (net):	90 cm W x 31 cm D x 70 cm H
Weight (shipping)	127.4 kg, 280 lbs

Description	Part No.
N2-22 Mid Flow Nitrogen Generator without Air Compressor	<b>N9306210</b>

Product Specification	
Purity:	95.0 – 99.5%
Atmospheric Dewpoint	-58 °F (-50 °C)
Particles >0.01 µm:	None
Suspended liquids:	None
Min./Max. operating pressure:	60/145 psig (4.0/10 barg)
Ambient operating temperature range:	60 °F – 95 °F (15 °C – 35 °C)
Inlet air temperature range:	60 °F – 95 °F (15 °C – 35 °C)
Maximum recommended inlet air temperature	110 °F (43 °C)
Electrical requirements:	None
Dimensions (net):	45 cm W x 41 cm D x 130 cm H
Weight (shipping):	36 kg, 80 lbs

Description	Part No.
N2-35 Mid Flow Nitrogen Generator without Air Compressor	<b>N9306211</b>

Product Specification	
Purity:	95.0 – 99.5%
Atmospheric Dewpoint	-58 °F (-50 °C)
Particles >0.01 µm:	None
Suspended liquids:	None
Min./Max. operating pressure:	60/145 psig (4.0/10 barg)
Ambient operating temperature range:	60 °F – 95 °F (15 °C – 35 °C)
Inlet air temperature range:	60 °F – 95 °F (15 °C – 35 °C)
Maximum recommended inlet air temperature	110 °F (43 °C)
Electrical requirements:	None
Dimensions (net):	45 cm W x 41 cm D x 130 cm H
Weight (shipping):	41 kg, 90 lbs

Description	Part No.
N2-45 High Flow Nitrogen Generator without Air Compressor	<b>N9306212</b>

Product Specification	
Purity:	95.0 – 99.5%
Hydrocarbon-free	
Phthalate-free	
Atmospheric Dewpoint	-58 °F (-50 °C)
Particles >0.01 µm:	None
Suspended liquids:	None
Min./Max. operating pressure:	60/145 psig (4.0/10 barg)
Recommended ambient operating temp range	72 °F (22 °C)
Inlet air temperature range:	60 °F – 95 °F (15 °C – 35 °C)
Maximum recommended inlet air temperature	110 °F (43 °C)
Inlet/Outlet ports	1/2" NPT
Electrical requirements:	None (filtration system only)
Dimensions (net):	61 cm W x 50 cm D x 140 cm H
Weight (shipping)	114 kg, 250 lbs

\*See [www.perkinelmer.com](http://www.perkinelmer.com) for complete listing of flow rates.



### Flow Rates\*

Inlet psi	Output lpm	Purity %
100	13	99.5
125	16	99.5
100	20	99.0
125	25	99.0
100	30	98.0
125	38	98.0



### Flow Rates\*

Inlet psi	Output lpm	Purity %
100	20	99.5
125	25	99.5
100	30	99.0
125	37	99.0
100	46	98.0
125	57	98.0



### Flow Rates\*

Inlet psi	Output lpm	Purity %
100	39	99.5
125	55	99.5
100	53	99.0
125	74	99.0
100	73	98.0
125	106	98.0

## THE FASTEST INJECTION-TO-INJECTION TIME IN CONVENTIONAL GAS CHROMATOGRAPHY



### CLARUS 680 GAS CHROMATOGRAPH – THE INNOVATION IS SIMPLY ITS SPEED

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

PerkinElmer has always led the way with innovations in gas chromatography and the Clarus 680 Gas Chromatograph (GC) is no exception. It features a unique, high-performance oven with the fastest combined heat-up and cool-down rate in a conventional GC oven design.

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

Every fast-paced, high-volume laboratory shares a common goal: to speed up analytical cycle times. Now, PerkinElmer delivers with its latest innovation in GC, the high-performance **Clarus® 680 Gas Chromatograph**.

#### QUICK GLANCE

- Oven cool-down from 450 °C to 50 °C in less than 2 minutes
- Integrated autosampler adds flexibility and automation
- High sample capacity with 108 vial tray
- Temperature programmable inlets deliver performance and flexibility for more demanding applications
- Programmable pneumatic control (PPC) adds automation efficiencies
- Exclusive optional PreVent pressure-balanced system enhances performance and productivity
- Innovative, intuitive touch-screen interface makes operation easy—no training required
- Scalable TotalChrom CDS make data management and reporting easier than ever
- PerkinElmer's complete offering allows easy integration of best-in-class mass spectrometer, headspace, headspace trap or thermal desorption

#### Convenient GC/MS Consumable Kits

Description	Part No.
GC/MS PSS Injector Starter Kit	<b>N6100447</b>

Contents	Pkg.	Qty.	Part No.
5.0 µL Autosampler Syringe	1		<b>N6101390</b>
Vial Locator (dongle)	2		<b>N6101182</b>
PSS Injector Viton o-rings (250 deg)	10	1	<b>N6101747</b>
PSS Injector Kelrez o-rings (350 deg)	1	10	<b>09921004</b>
PSS Split/Splitless Injector, 2 mm, No Wool	2		<b>N6121004</b>
Graphite/Vespel Ferrules, for 0.25 mm Columns	10	2	<b>09920104</b>
PerkinElmer Green Speta (50 pieces)	1		<b>N6621028</b>
Marathon Filament	1		<b>N6470012</b>
Aluminum Oxide Powder (3 oz)	1		<b>4190197</b>

Description	Part No.
GC/MS CAP Injector Starter Kit	<b>N6100448</b>

Contents	Pkg.	Qty.	Part No.
5.0 µL Autosampler Syringe	1		<b>N6101390</b>
Vial Locator (Dongle)	2		<b>N6101182</b>
CAP Injector Viton o-rings (250 deg)	10		<b>N9302783</b>
CAP Injector Kelrez o-rings (350 deg)	10		<b>N9302782</b>
CAP Split/Splitless Injector, 4 mm, No Wool	2		<b>N6121004</b>
Graphite/Vespel Ferrules, for 0.25 mm Columns	10	2	<b>09920104</b>
PerkinElmer Green Speta (50 pieces)	1		<b>N6621028</b>
Marathon Filament	1		<b>N6470012</b>
Aluminum Oxide Powder (3 oz)	1		<b>4190197</b>

## Get results better and faster with the NEW Clarus SQ 8 Family of GC/MS



### WHATEVER YOU NEED IT FOR, THE CLARUS SQ8 GC/MS FAMILY DELIVERS

The compact Clarus SQ8 GC/MS, with its advanced electron multiplier, features the widest mass range and best-in-class detection limits of any quadrupole MS. Our high-speed scanning delivers far better peak integrity and accuracy. Its gas chromatograph has the fastest heat-up and cool-down oven in a conventional GC. Multiple pumping options offer an instrument for every lab's needs. Plus, the system is driven by our sample-centric TurboMass™ software for ease-of-use from data collection to evaluation and reporting.

#### Quick Glance

- EI and CI: >800:1 EI signal to noise specifications offer new possibilities for analysis
- Plug-and-play ion source: SMARTsource™ with universal cam lock design allows for fast maintenance and easy removal
- Two pumping systems: provide the right performance to fit your needs and budget
- Smaller footprint: for economical space use
- Fast scan rates (12,500 amu/sec): for the most accurate determination of peaks
- Widest mass range (1–1,200 u): encompasses a variety of applications, such as brominated flame retardants
- SIFI™ simultaneous collection of selected ion and full ion scanning data for the most productive analytical work
- UltraTune™ automated tuning for BFB/DFTTP or custom tuning on any compound for faster setup

### A model for every lab's needs:

Description	Part No.
<b>Compatible with Clarus 680 Gas Chromatographs</b>	
Clarus SQ 8C 120/230V (EI/CI – 255 L/sec turbomolecular pump)	<b>N6480011</b>
Clarus SQ 8T 120/230V (EI – 255 L/sec turbomolecular pump)	<b>N6480012</b>
Clarus SQ 8S 120/230V (EI – 75 L/sec turbomolecular pump)	<b>N6480013</b>
<b>Compatible with Clarus 580 Gas Chromatographs</b>	
Clarus SQ 8S 120/230V (EI – 75 L/sec oil turbomolecular pump)	<b>N6480021</b>



**The new 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	<b>N6470012</b>

To view the webcast and to order your replacement filament, visit:  
[www.perkinelmer.com/MarathonFilament](http://www.perkinelmer.com/MarathonFilament)

# 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).

### Key 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.	<b>N6520273</b>
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.	<b>N6520272</b>

### 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.	<b>N6520270</b>
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.	<b>N6520271</b>
D-Swafer Dean's Switch (Swafer only)	<b>N9306251</b>
S-Swafer Splitter (Swafer only)	<b>N9306262</b>



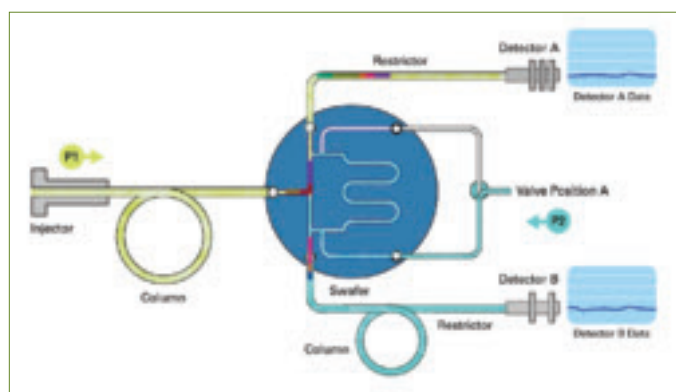
HOW CAN THE SWAFER HELP YOU?

Enhanced Sample Information

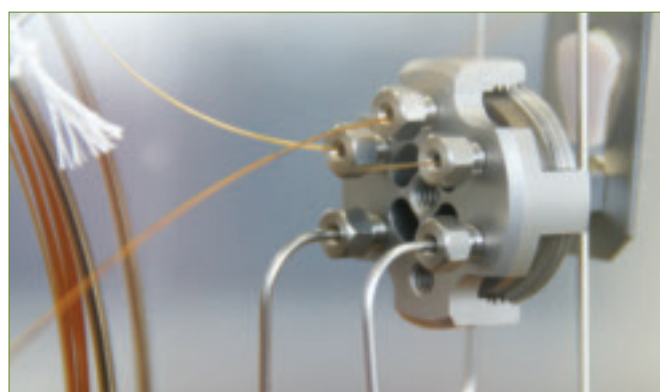
Solvent venting	Vent unwanted solvent or other large peak from chromatogram	D-Swafer S-Swafer
Detector switching	Switch between your detectors of choice anytime during the run or between injections	D-Swafer
Column switching	Make your GC more flexible by choosing which column should be used to chromatograph 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).

# 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 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



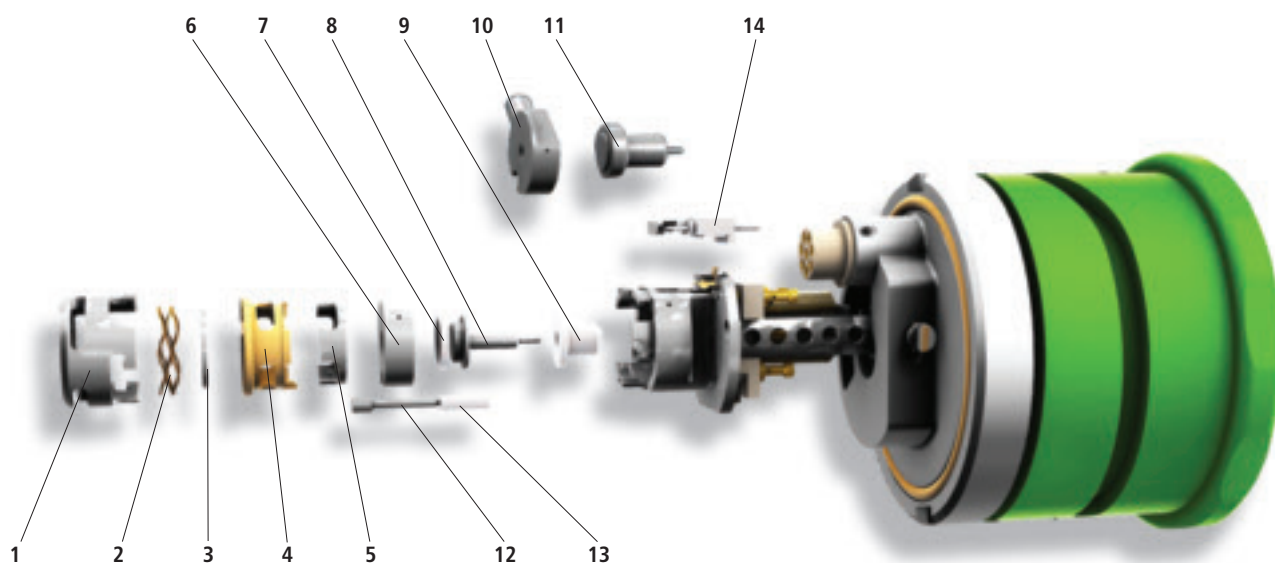
Take the guesswork out of setting your column depth. Our Handle Assembly allows for precise alignment of the column within the SMARTsource every time.

### Handle Assembly (Source Blank and Sight)

Description	Part No.
Handle Assembly (Source Blank and Sight)	N6480380

### 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.
EI Trap Rebuilt Kit (Numbers 6-9, 12-13) Kit replaces the 6 parts of the EI Trap and Ion Volume	N6480460
EI Source Complete Rebuild Kit (Numbers 1-9, 12-14) Kit replaces the 12 parts of the EI Source including the Marathon Filament	N6480461
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
EI to CI Upgrade Kit Valve Assembly, source Assembly	N6480083

## 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	<b>N9306090</b>
SilTite™ Ferrules Starter Kit*	0.5 mm	<b>N9306091</b>
SilTite™ Ferrules Starter Kit*	0.8 mm	<b>N9306092</b>
SilTite™ Ferrules (pkg. 10)	0.4 mm	<b>N9306093</b>
SilTite™ Ferrules (pkg. 10)	0.5 mm	<b>N9306094</b>
SilTite™ Ferrules (pkg. 10)	0.8 mm	<b>N9306095</b>
SilTite™ Nuts (pkg. 5)		<b>N9306096</b>

\* 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 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 350 °C.

## Capillary Column Ferrules

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		<b>09920104</b>
1/16 in	0.18 – 0.32 mm / 0.5 mm	<b>09903700</b>	<b>09920105</b>
1/16 in	0.18 – 0.32 mm / 0.5 mm**	<b>N9306001</b>	<b>N9306000</b>
1/16 in	0.18 – 0.53 mm / 0.8 mm	<b>09920141</b>	<b>09920107</b>
1/8 in	0.18 – 0.53 mm / 1.0 mm	<b>09903394</b>	
1/8 in	0.18 – 0.32 mm / 0.5 mm**	<b>09903395</b>	
1/8 in	0.18 – 0.32 mm / 0.5 mm	<b>09903981</b>	

\*\* 2-hole

## Merlin MicroSeal™ Septum

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



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

Description	Part No.
Merlin MicroSeal™ Septum Kit Includes: Injector Port Adapter, 2 Septa and 1 Nut	<b>N9303344</b>
Merlin MicroSeal™ Septum	<b>N9303345</b>

## Injector Septa

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

Description	Pkg.	Part No.
PerkinElmer Green Injection Septum	50	<b>N6621028</b>
Low Bleed Injector Septa	25	<b>N9303343</b>
PTFE/Silicone Injector Septa	50	<b>00090652</b>
<b>Green</b> Injection Port Septa	10	<b>N9306218</b>
<b>Green</b> Injection Port Septa	50	<b>N9306219</b>
<b>Orange</b> Injection Port Septa	50	<b>N9302972</b>

**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 pre-cleaned glass screw top jar for high purity.

# 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	1/8" Brass (2)	<b>N9306108</b>
Combination: Oxygen/Moisture Trap	1/8" SS (2)	<b>N9306109</b>
Combination: Moisture/Hydrocarbons Trap	1/8" Brass (2)	<b>N9306117</b>
Combination: Moisture/Hydrocarbons Trap	1/8" SS (2)	<b>N9306118</b>
Triple: Oxygen/Moisture/Hydrocarbons Trap	1/8" Brass (2)	<b>N9306110</b>
Triple: Oxygen/Moisture/Hydrocarbons Trap	1/8" SS (2)	<b>N9306111</b>
Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8" Brass (2)	<b>N9306112</b>
Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8" SS (2)	<b>N9306113</b>

### Product Specifications

Purifier Type	Gas Quality*	Max. Pressure	Max. Flow	Use For	H <sub>2</sub> O	Capacity O <sub>2</sub>	Hydrocarbons	Est. Lifetime
Moisture	99.9999%	11 bar, 160 psi	25 L/min	Inert carrier gas He, Air, H <sub>2</sub>	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 <sub>2</sub>	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 <sub>2</sub>	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



### Stainless Steel Traps

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

### 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 1/8" 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		<b>N9306107</b>
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8" Brass (2)	<b>N9306114</b>
Indicating Glass Triple Gas Specific (He): Oxygen/Moisture/Hydrocarbons	1/8" SS (2)	<b>N9306116</b>

# 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.

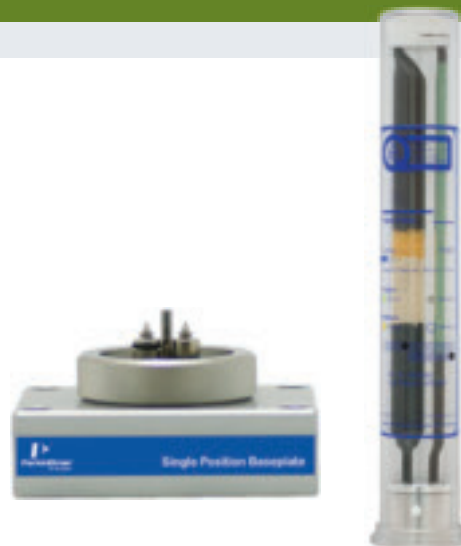
### Carrier Gas Purity

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



### Cartridge - Base Plates

Description	Part No.
Ultra Clean Base plate 1 Position - 1/4" Brass	N9306800
Ultra Clean Base plate 1 Position - 1/8" Brass	N9306801
Ultra Clean Base plate 1 Position - 1/4" SS	N9306802
Ultra Clean Base plate 1 Position - 1/8" SS	N9306803
Ultra Clean Base plate 2 Position - 1/4" Brass	N9306804
Ultra Clean Base plate 2 Position - 1/8" Brass	N9306805
Ultra Clean Base plate 2 Position - 1/4" SS	N9306806
Ultra Clean Base plate 2 Position - 1/8" SS	N9306807
Ultra Clean High Flow Base plate 2 Position - 1/4" Brass	N9306808
Ultra Clean High Flow Base plate 2 Position - 1/4" SS	N9306809
Ultra Clean Base plate 3 Position - 1/4" Brass	N9306810
Ultra Clean Base plate 3 Position - 1/8" Brass	N9306811
Ultra Clean Base plate 3 Position - 1/4" SS	N9306812
Ultra Clean Base plate 3 Position - 1/8" SS	N9306813

### Cartridge - Replacements

Description	Part No.
Ultra Clean Moisture Filter	N9306814
Ultra Clean Oxygen Filter	N9306815
Ultra Clean Hydrocarbon Filter	N9306816
Ultra Clean Hydrocarbon AT Filter Hydrocarbon with AT indicator	N9306817
Ultra Clean Combi Filter - Moisture - Hydrocarbon adsorbents combination	N9306818
Ultra Clean Triple Filter Triple combination of Oxygen - Moisture - Hydrocarbon adsorbents	N9306819
Ultra Clean Triple He-specific Filter Triple combination of Oxygen - Moisture - Hydrocarbon adsorbents, conditioned with Helium	N9306820
Ultra Clean Triple AT Filter Triple combination of Oxygen - Moisture - Hydrocarbon with AT indicator	N9306821
Ultra Clean Triple H2-specific Filter Triple combination of Oxygen - Moisture - Hydrocarbon adsorbents, conditioned with Hydrogen	N9306822

## Cartridge - Bundles

Description	Part No.
Ultra Clean High Flow Hydrocarbon Filter Bundle 2 High Flow Hydrocarbon Filters	<b>N9306823</b>
Ultra Clean High Flow Moisture Filter Bundle 2 High Flow Moisture Filters	<b>N9306824</b>
Ultra Clean High Flow Hydrocarbon AT Filter Bundle 2 High Flow Indicating Hydrocarbon Filters	<b>N9306825</b>
Ultra Clean Filter Bundle of 3 1 Triple Filter, 2 Combi Filters	<b>N9306826</b>
Ultra Clean Filter Bundle of 4 Oxygen Filter, Moisture Filter, 2 Hydrocarbon Filters	<b>N9306827</b>

## Cartridge - Kits

Description	Part No.
Ultra Clean 1 Triple Filter Kit - 1/4" Brass Triple Filter, 1 Position Base plate	<b>N9306828</b>
Ultra Clean 1 Triple Filter Kit - 1/8" Brass Triple Filter, 1 Position Base plate	<b>N9306829</b>
Ultra Clean 1 Triple Filter Kit - 1/4" SS Triple Filter, 1 Position Base plate	<b>N9306830</b>
Ultra Clean 1 Triple Filter Kit - 1/8" SS Triple Filter, 1 Position Base plate	<b>N9306831</b>
Ultra Clean 1 Triple He Filter Kit - 1/4" Brass Triple He Filter, 1 Position Base plate	<b>N9306832</b>
Ultra Clean 1 Triple He Filter Kit - 1/8" Brass Triple He Filter, 1 Position Base plate	<b>N9306833</b>
Ultra Clean 1 Triple He Filter Kit - 1/4" SS Triple He Filter, 1 Position Base plate	<b>N9306834</b>
Ultra Clean 1 Triple He Filter Kit - 1/8" SS Triple He Filter, 1 Position Base plate	<b>N9306835</b>
Ultra Clean 1 Triple H2 Filter Kit - 1/4" Brass Triple H2 Filter, 1 Position Base plate	<b>N9306836</b>
Ultra Clean 1 Triple H2 Filter Kit - 1/8" Brass Triple H2 Filter, 1 Position Base plate	<b>N9306837</b>
Ultra Clean 1 Triple H2 Filter Kit - 1/4" SS Triple H2 Filter, 1 Position Base plate	<b>N9306838</b>
Ultra Clean 1 Triple H2 Filter Kit - 1/8" SS Triple H2 Filter, 1 Position Base plate	<b>N9306839</b>
Ultra Clean High Flow Hydrocarbon Filter Kit - 1/4" Brass 2 High Flow Hydrocarbon Filters, 2 Position High Flow Base plate	<b>N9306840</b>
Ultra Clean High Flow Hydrocarbon Filter Kit - 1/4" SS 2 High Flow Hydrocarbon Filters, 2 Position High Flow Base plate	<b>N9306841</b>
Ultra Clean 3 Filters Kit - 1/4" Brass Triple Filter, 2 Combi filters, 3 Position Base plate	<b>N9306842</b>
Ultra Clean 3 Filters Kit - 1/8" Brass 2 Triple Filters, 4 Combi Filters, 3 Position Base plate	<b>N9306843</b>
Ultra Clean 3 Filters Kit - 1/4" SS Triple Filter, 2 Combi filters, 3 Position Base plate	<b>N9306844</b>
Ultra Clean 3 Filters Kit - 1/8" SS Oxygen Filter, Moisture Filter, 2 Hydrocarbon Filters, 4 Position Base plate	<b>N9306845</b>

## Connectors

Description	Pkg.	Part No.
Ultra Clean Connector Set - 1/4" Brass 3 Sets of two Connectors (in- and outlet) for Base plate	6	<b>N9306846</b>
Ultra Clean Connector Set - 1/8" Brass 3 Sets of two Connectors (in- and outlet) for Base plate	6	<b>N9306847</b>
Ultra Clean Connector Set - 1/4" SS 3 Sets of two Connectors (in- and outlet) for Base plate	6	<b>N9306848</b>
Ultra Clean Connector Set - 1/8" SS 3 Sets of two Connectors (in- and outlet) for Base plate	6	<b>N9306849</b>
Ultra Clean High Flow Connector Set - Brass 1/4" 3 Sets of two Connectors (in- and outlet) for Base plate	6	<b>N9306850</b>
Ultra Clean High Flow Connector Set - 1/4" SS 3 Sets of two Connectors (in- and outlet) for Base plate	6	<b>N9306851</b>

## Flush Caps

Description	Pkg.	Part No.
Ultra Clean Flush Cap Replacement Set 2 Flush Caps for Base Plate	2	<b>N9306852</b>
Ultra Clean High Flow Flush Cap Replacement Set 2 Flush Caps for High Flow Base Plate	2	<b>N9306853</b>

## O-Rings

Description	Pkg.	Part No.
Ultra Clean Base Plate O-ring Replacement Set Two sets of 10 O-rings for Base plate	20	<b>N9306854</b>

## Wall Mounting

Description	Part No.
Ultra Clean Wall-mounting Bracket Set Suitable for genuine Ultra Clean Base plates	<b>N9306855</b>

## Particle Filters

Description	Part No.
Ultra Clean 0.5 Micron Particle Filter (1/4" Brass)	<b>N9306856</b>
Ultra Clean 0.5 Micron Particle Cup Filter Pack Replacement Filter Element - pack of 12	<b>N9306857</b>

## High Quality Gas Filtration Systems



### Advanced Filter System

Part No.
N9303963

- 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.

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

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.

Description	Part No.
Replacement cartridge for oxygen, water and hydrocarbons	N9303964

### Three-Cartridge Gas Purification System

Part No.
N9306135

- All-Stainless Steel Cartridges are easy to replace
- High capacity
- Wall bracket gets the system up and out of the way

	Capacity	Efficiency
Oxygen	1000 cc	<1 ppb
Water	25 g	<30 ppb
Hydrocarbons	19 g	<1 ppb (C5 and higher)

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



Description	Part No.
Purification System – 3-Head All-Steel System	N9306135
Cartridge Set – Gas Purification All System Cartridge (Replacement)	N9306136
Cartridge – Gas Purification Moisture Replacement	N9306137
Cartridge – Gas Purification Hydrocarbon Replacement	N9306138
Cartridge – High-Capacity O <sub>2</sub> Replacement	N9306004
Hardware – Gas Purification Manifold/Mtg for bench or wall	N9306140

### Gas In-line Filter



Part No.
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 to let you know 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.



**Hydrocarbon Trap**

Part No.
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.
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.
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.
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<sub>2</sub>, H<sub>2</sub> or CH<sub>4</sub>, 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.
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 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.



## 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	$1.0 \times 10^{-5}$	Red
Hydrogen*	$1.0 \times 10^{-5}$	Red
Nitrogen	$1.4 \times 10^{-3}$	Yellow
Argon	$1.0 \times 10^{-4}$	Yellow
Carbon Dioxide	$1.0 \times 10^{-4}$	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	<b>N9306089</b>
Soft Carrying Case	<b>N9306142</b>
Probe (Fine Tip)	<b>N9306063</b>

\* 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	<b>N9306074</b>

### Basic Tool Kit

Description	Part No.
Tools Come in a Tool Box for Easy Storage and Use	<b>N9301327</b>

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

### Deluxe Tool Kit

Description	Part No.
Shipped in a Plastic Tool Box for Convenient Storage	<b>N9301328</b>

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)

## 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  $\pm 3\%$ . 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  $\pm 3\%$  of measured flow rate

Description	Part No.
Digital Bubble Flow Meter	<b>N9302974</b>
Replacement Glass for Digital Bubble Flow Meter	<b>N9303429</b>

## 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 NIST primary standard
- Split ratio mode and accuracy  $\pm 3\%$
- LCD alphanumeric display

Description	Part No.
PerkinElmer Electronic Flowmeter 1000	<b>N9307029</b>

## 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.

(stand required, but not included – **N9303314**)

Description	Part No.
Two-stage	<b>00230522</b>
Three-stage	<b>N9300081</b>
Stand	<b>N9303314</b>

## 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  $\pm 2\%$  of flow or  $\pm 0.2$  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



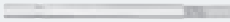
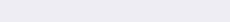
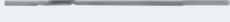




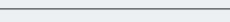
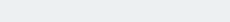
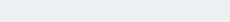
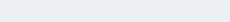
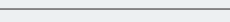
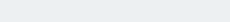
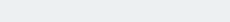


Description	Part No.
FlowMark™ Electronic Flowmeter	<b>N9307086</b>
Soft Carrying Case	<b>N9306142</b>

## Glass Inlet Liners

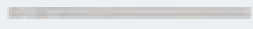
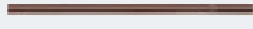


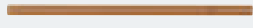
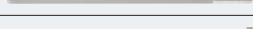
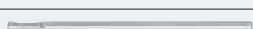

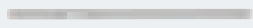


Inlet liners for split injection have mixing chambers with tortuous flow paths to allow full vaporization of the sample. Deactivating the surface of these liners prevents active compounds from degrading. Packing the liner with wool will trap non-volatile residue and prevent column contamination when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


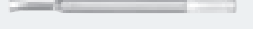

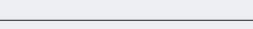


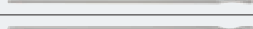

### Capillary Split/Splitless Injector Liners

	Description	ID mm	OD mm	Length mm	Pkg	Part No.
	PSS Splitless Glass Liner Siltek Deactivated Surface Liner (with wool) – General purpose use, ideal for chlorinated pesticides analyses	2	4	86.2	5	<b>N6502001</b>
	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	<b>N6121020</b>
	Split Glass Liner (with wool) – Universal liner for general purpose analyses	4	6	92.1	5	<b>N6502009</b>
	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	92.1	5	<b>N6502010</b>
	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	92.1	5	<b>N6502011</b>
	Clarus Cycloplitter 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	92.1	5	<b>N6502012</b>
	Uniliner Deactivated Glass Liner (with wool) – Universal liner for general purpose analyses	4	6.2	92.1	5	<b>N6121022</b>
	Clarus Splitless Glass Liner – Low volume sample analyses, beneficial with headspace and purge/trap	1	6.2	92.1	5	<b>N6502006</b>
	Quartz Liner for Splitless Operation (ships with instrument) – Standard injector liner	2	6.2	92.1	1	<b>N6121002</b>
	Glass Liner for Splitless Operation – Universal liner for general purpose analyses	2	6.2	92.1	1	<b>N6101372</b>
	Deactivated Glass Liner for Splitless Operation (with wool) – Good for analyses of trace samples	2	6.2	92.1	5	<b>N6121021</b>
	Siltek Deactivated Liner (with wool) for Splitless Operation – Optimum sample dispersion 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	<b>N6502004</b>
	Quartz Liner for Split Operation – Good for large volume injection samples	4	6.2	92.1	1	<b>N6121001</b>
	Glass Liner for Split Operation – Universal liner for general purpose analyses	4	6.2	92.1	1	<b>N6101052</b>
	Siltek Deactivated Double Gooseneck Glass Liner (with wool) – Optimum sample dispersion 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	<b>N6502003</b>
	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	<b>N6502005</b>
	Zero Dilution Glass Outer Liner – Ideal for trace HS work. Use in conjunction with N1011446	2	6.3	90	1	<b>N1011445</b>
	Zero Dilution Glass Inner Liner – Ideal for trace HS work. Use in conjunction with N1011445	2	6.3	90	1	<b>N1011446</b>


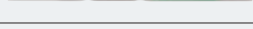
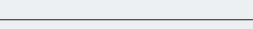

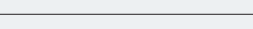

### Programmed Temperature Split/Splitless (PSS) Injector Liners

	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	<b>N6121006</b>
	NEW! Siltek Deactivated Glass PSS Liner – Used for low volume trace sample analyses	1	4	86.2	5	<b>N6502000</b>
	Quartz Liner for Split operation (ships with instrument) – Approved PerkinElmer standard injector liner	2	4	86.2	1	<b>N6121004</b>
	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	<b>N6502001</b>
	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	<b>N6502002</b>
	Zero Dilution Outer Liner – Use in conjunction with N1011446	2.8	4	83	1	<b>N1011447</b>
	Zero Dilution Inner Liner – Use in conjunction with N1011447		2	73	1	<b>N1011446</b>
	On-column Glass Liner	2.4	4	86.2	1	<b>N6101539</b>
	Liner/Hour Glass for POC Injector	2.4	4	19.05	1	<b>N6101703</b>
	Quartz Split Liner with Silanized Glass Wool	2	4	86.2	1	<b>N6121008</b>
	Quartz Split Liner with Silanized Glass Wool	2	4	86.2	5	<b>N6121009</b>

### 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	<b>N6121022</b>
	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	<b>N6502013</b>
	NEW! Gooseneck Drilled Uniliner (hole on top) – Use for trace, active samples, high recovery and linearity	4	6.2	92.1	5	<b>N6502014</b>
	NEW! Gooseneck Drilled Uniliner (hole on bottom) – Use for trace, active samples, high recovery and linearity	4	6.2	92.1	5	<b>N6502015</b>
	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	<b>N6502016</b>
	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	<b>N6502017</b>
	Wide-Bore Column Glass Liner	6	4	92.1	1	<b>N6101375</b>
	Wide-Bore Column On/Off Quartz Liner	6	4	92.1	1	<b>N6121003</b>

### 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	<b>N9306232</b>
	Capillary splitless deactivated glass liners with deactivated wool.	4	6.2	92.1	5	<b>N9306233</b>
	Capillary splitless deactivated glass liners with deactivated wool.	4	6.2	92.1	1	<b>N9306234</b>
	Capillary splitless deactivated glass liners with deactivated wool.	4	6.2	92.1	5	<b>N9306235</b>
	Capillary splitless deactivated glass liners with deactivated wool. Quartz wool is used to fully vaporize the sample.	4	6.2	92.1	5	<b>N9306236</b>
	PSS Splitless deactivated glass liners with deactivated wool 5/pk.	1.25	4	86.2	5	<b>N9306237</b>

# 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	<b>N6101760</b>
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm o.d. Needle	<b>N6101390</b>
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm o.d. Needle BLUE Barrel (pack of 5 syringes)	<b>N6103240</b>
5 µL Syringe, Metal Plunger PTFE-tipped Seal 0.63 mm o.d. Needle BLUE Barrel (pack of 10 syringes)	<b>N6103241</b>
5 µL Syringe, Metal Plunger 0.63 mm o.d. Needle	<b>N6101251</b>
5 µL On-column Syringe Metal Plunger 0.47 mm o.d. Needle	<b>N6101380</b>
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.63 mm o.d. needle	<b>N6101252</b>
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm o.d. Needle BLUE Barrel (pack of 5 syringes)	<b>N6103242</b>
0.5 µL Low Injection Volume Syringe Metal Plunger 0.63 mm o.d. Needle BLUE Barrel (pack of 10 syringes)	<b>N6103243</b>
0.5 µL Low Injection Volume Syringe, Metal Plunger 0.47 mm o.d. Needle	<b>N6101253</b>

## Ultramicro Volume Syringes

### Features and Benefits

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

Syringe Capacity	Gauge	Length	Pack Size	Part No.
0.5 µL	25		1	<b>N9302231</b>
1.0 µL	22		1	<b>00230177</b>
1.0 µL	26 <sup>1</sup>		1	<b>00230111</b>
2.0 µL	25	1		<b>N9302235</b>

<sup>1</sup> Recommended for PerkinElmer wide-bore capillary adapter

## Point Style 2

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



## Point Style 3

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



## GC Injector Syringes

### 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.
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### Removable Needle Syringes (RN)

10 µL			1	#2	<b>N9302210</b>
25 µL			1	#2	<b>N9302211</b>
50 µL			1	#2	<b>N9302212</b>
100 µL			1	#2	<b>N9302213</b>

### Replacement Needles for RN Syringes

10 µL			1	#2	<b>N9302222</b>
25/50/100 µL	22S	2 in	3	#2	<b>N9302224</b>
250 µL	22S	2 in	3	#2	<b>N9302226</b>

### Fixed Needle Syringes

10 µL <sup>3</sup>			1	#2	<b>00230523</b>
10 µL <sup>2</sup>			6	#2	<b>N9302230</b>
25 µL			1	#2	<b>N9302202</b>
25 µL			1	#3	<b>09904823</b>
50 µL			1	#2	<b>N9302203</b>
50 µL			1	#3	<b>09904941</b>

<sup>2</sup> Savings based on one-piece price. Savings of 20% reflected in price shown.

<sup>3</sup> Standard fitted with 7 cm needle.

# ELECTRONIC HANDHELD AND BENCHTOP

## Crimping Tools

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.



### Features and Benefits

- Universal voltage
- Precision control crimping
- Ergonomically-designed grip
- Numerous reproducible crimps from a single charge
- Fully rechargeable

### Hand Held and Bench-top Crimpers

Description	Pkg.	Part No.
8 mm Hand Crimper	1	N9306127
11 mm Hand Crimper	1	00090699
11 mm Hand Decapper	1	N9301390
20 mm Hand Crimper	1	N9302785
20 mm Hand Decapper	1	N9301270
Bench-top Vial Crimper	1	N6621006
11 mm Crimper Jaws	1	N6621008
20 mm Crimper Jaws	1	N6621009



NEW

### Electronic Crimpers

Description	Part No.
11 mm Electronic Crimper with Battery and Global Mains Plug Pack	N9304500
20 mm Electronic Crimper with Battery and Global Mains Plug Pack	N9304501
11 mm Electronic Decapper with Battery and Global Mains Plug Pack	N9304502
20 mm Electronic Decapper with Battery and Global Mains Plug Pack	N9304503
6.4 Volt Lithium Ion Battery	N9304504

NEW

### Ergonomic Crimpers

Description	Part No.
11 mm Ergonomic Hand Crimper	N6621035
11 mm Ergonomic Hand Decapper	N6621036
20 mm Ergonomic Hand Crimper	N6621037
20 mm Ergonomic Hand Decapper	N6621038



# VIALS, CAPS AND SEPTA KITS

## Autosampler Crimp and Screw Top Vials, Caps and Septa

Our screw thread vials are custom designed for PerkinElmer Clarus® GCs. Manufactured from Type 33 borosilicate glass, the vials have high-temperature tolerance and are chemically inert. Color variety crimp caps offer easy identification within the laboratory on 2 mL crimp top vials.



Description	Pkg.	Part No.
<b>CRIMP TOP VIALS:</b> (Also See Convenience Kits for Additional Vials and Caps Sold Separately)		
2 mL 8 mm Crimp Top Clear Glass Vials	200	<b>N9301069</b>
2 mL 11 mm Crimp Top Clear Glass Vials	100	<b>N9301385</b>
2 mL 11 mm Crimp Top Amber Glass Vials	100	<b>N9302680</b>
2 mL 11 mm Crimp Top Clear Wide Mouth Glass Vials with Write-On Patch and Fill Lines	100	<b>N9306223</b>
2 mL 11 mm Crimp Top Amber Wide Mouth Glass Vials with Write-On Patch and Fill Lines	100	<b>N9302679</b>
<b>Crimp Top Septa:</b>		
8mm Silver Crimp Cap with PTFE/Rubber Septa	1,000	<b>03300806</b>
11 mm Silver Crimp Caps with PTFE/Silicone Septa	100	<b>N9306228</b>
11 mm Silver Crimp Caps with PTFE/Silicone/PTFE Septa	100	<b>N9306229</b>
11 mm Silver Crimp Caps with Red Rubber Septa	100	<b>N9306230</b>
11 mm Blue Crimp Caps with Teflon®/Rubber Septa	100	<b>N9302686</b>
11 mm Green Crimp Caps with Teflon®/Rubber Septa	100	<b>N9302684</b>
11 mm Red Crimp Caps with Teflon®/Rubber Septa	100	<b>N9302685</b>
11 mm Silver Crimp Caps with Teflon®/Rubber Septa	100	<b>N9306015</b>
11 mm Silver Crimp Cap with Black Viton® Septa	1,000	<b>N9302784</b>
<b>Screw Top Vials/Caps/Septa:</b>		
2 mL 8 mm Screw Top Clear Glass Vials	100	<b>N9302945</b>
8 mm Screw Caps- No Septa-Phenolic Cap with hole	100	<b>N9303441</b>
8 mm Screw Caps	100	<b>N9303449</b>
8 mm PTFE-Coated Butyl Rubber Septa for 8 mm Screw Caps	100	<b>N9303442</b>
2 mL 9 mm Screw Top Clear Vials	100	<b>N9306201</b>
2 mL 9 mm Screw Top Amber Vials	100	<b>N9306220</b>
2 mL 9 mm Screw Top Clear Vials with Write-On Patch and Fill Lines	100	<b>N9307801</b>
2 mL 9 mm Screw Top Amber Vials with Write-On Patch and Fill Lines	100	<b>N9307802</b>
9 mm Blue Screw Cap PTFE/Silicone Septa	100	<b>N9306202</b>
9 mm Blue Screw Cap Pre-Slit PTFE/Silicone Septa	100	<b>N9306203</b>
2 mL 10 mm Screw Top Clear Vial	100	<b>N9306053</b>
2 mL 10 mm Screw Top Amber Vial	100	<b>N9306057</b>
10 mm Blue Screw Cap Red Rubber Septa	100	<b>N9306200</b>
10 mm Black Screw Caps PTFE/Silicone Septa	100	<b>N9306205</b>
10 mm Black Screw Caps PTFE/Red Rubber Septa	100	<b>N9306206</b>

Description	Pkg.	Part No.
<b>Snap Top Vials/Caps/Septa:</b>		
2 mL 11 mm Clear Snap Wide Opening Vials	100	<b>N9303418</b>
2 mL 11 mm Clear Snap Wide Opening Vials with Write-On Patch and Fill Lines	100	<b>N9306207</b>
2 mL 11 mm Amber Snap Wide Opening Vials with Write-On Patch and Fill Lines	100	<b>N9306208</b>
11 mm Pre-slit PTFE/Silicone Clear Snap Cap	100	<b>N9303416</b>
11 mm Pre-slit PTFE/Silicone/PTFE Clear Snap Cap	100	<b>N9303417</b>
11 mm PTFE/Silicone Clear Snap Cap	100	<b>N9303419</b>
<b>Waste and Wash Vials/Caps:</b>		
Cap for Waste and Wash Vials (15 mm)	1 ea.	<b>09923032</b>
Clear Waste and Wash Vial 4 mL (15 mm)	1 ea.	<b>09923031</b>
Clear Waste and Wash Vial 4 mL (15 mm)	100	<b>N9306247</b>
Septa for Waste Wash Vials (for use with Viscous or Toxic Samples)	50	<b>N9302780</b>
Diffusers for Waste and Wash Vials Diffusers are sold exclusively by PerkinElmer. The conical shape allows the needle to penetrate into solvent or waste. Reduces spillage and large losses through evaporation.	1	<b>N6101276</b>
<b>Inserts:</b>		
200-µL Low-Volume Clear Glass Insert	1,000	<b>N9302681</b>
Vial Support for Insert	500	<b>N9302682</b>



<b>Low Volume Vial Glass Inserts:</b>		
6 mm x 29 mm Clear Glass Insert, Rimless Pulled Point with Bottom Spring, 250 µL Usable Volume	100	<b>N9300703</b>
6 mm x 31 mm Clear Glass Flat Bottom Insert, 400 µL Usable Volume	100	<b>N9300704</b>
Use with:		
10 mm 2 mL Amber Screw Top Vial w/White "P" Icon w/Patch		<b>N9306057</b>
10 mm 2 mL Clear Screw Top Vial w/White "P" Icon w/Patch		<b>N9306053</b>
11 mm Clear Large Opening Snap Ring Vial w/Black "P" Icon		<b>N9303418</b>
11 mm Clear Large Opening Crimp Vial w/Black "P" Icon		<b>N9306231</b>
9 mm 2 mL Amber Screw Top Vial w/Black "P" Icon		<b>N9306220</b>
9 mm 2 mL Clear Screw Top Vial w/Black "P" Icon		<b>N9306201</b>
5 mm x 29 mm Clear Glass Insert Rimless Pulled Point with Bottom Spring, 150 µL Usable Volume	100	<b>N9300705</b>
5 mm x 31 mm Clear Glass Flat Bottom Insert, 200 µL Usable Volume	100	<b>N9300706</b>
Use with:		
11 mm Standard Amber Crimp Vial w/Black "P" Icon		<b>N9302680</b>
11 mm Standard Clear Crimp Vial w/Black "P" Icon		<b>N9301385</b>
8 mm 2 mL Clear Screw Top Vial w/Black "P" Icon		<b>N9302945</b>
<b>Vial Holder Racks:</b>		
36-Vial Capacity 20 mm Vial Holder Rack	1	<b>N9301304</b>
50-Vial Capacity 11 mm Vial Holder Rack	1	<b>N9301303</b>

See New Convenience Kits for Additional Vials, Caps and Septa



## MICRO VIALS AND KITS

### Autosampler Vials/Caps/Septa Kits

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

Description	Pkg.	Part No.
<b>Autosampler Starter Kit</b>	<b>1</b>	<b>N6120105</b>
Crimper Tool (Pkg/1)	1	00090699
Syringe 9000 5.0 µL 0.63 mm o.d. (Pkg/1)	1	N6101390
Vial Rack for 50 Vials 12 mm (Pkg/1)	1	N9301303
2 mL 11 mm Crimp Top Vial, Clear (Pkg/100)	1	N9301385
Decapper 11 mm Tool (Pkg/1)	1	N9301390
2 mL Crimp Top Vial, Amber (Pkg/100)	1	N9302680
11 mm Crimp Cap, Green w/ Septa	1	N9302684
11 mm Crimp Cap, Red w/ Septa (Pkg/100)	1	N9302685
11 mm Crimp Cap, Blue w/ Septa (Pkg/100)	1	N9302686
Septa for Waste/Wash Vials (Pkg/50)	2	N9302780
11 mm Crimp Cap Silver w/ Red Rubber/ PTFE Septa (Pkg/100)	1	N9306015
<b>GC Educational Consumables Kit with Electronic Crimper</b>	<b>1</b>	<b>N6500570</b>
Crimper Tool 11 mm Electronic Hand Crimper w/ Battery (Pkg/1)	1	N9304500
Syringe 5.0 µL 0.63 mm o.d. (Pkg/1)	2	N6101390
Rack for 50 Vials 12 mm (Pkg/1)	1	N9301303
11 mm Crimp Top Vial, 2 mL (Pkg/100)	2	N9301385
11 mm Crimp Cap Silver w/ Red Rubber/ PTFE Septa (Pkg/100)	2	N9306015
Elite™ Column – 5-30 M x 0.25 µm x 0.25 mm (Pkg/1)	1	N9316076
<b>GC Educational Consumables Kit with Manual Crimper</b>	<b>1</b>	<b>N6500571</b>
Hand Crimper Tool (Pkg/1)	2	00090699
Syringe 5.0 µL 0.63 mm o.d. (Pkg/1)	2	N6101390
Rack for 50 Vials, 12 mm (Pkg/1)	2	N9301303
11 mm Crimp Top Vial, 2 mL (Pkg/100)	2	N9301385
11 mm Crimp Cap Silver w/ Red Rubber/PTFE Septa (Pkg/100)	2	N9306015
Elite Column – 5-30 M x 0.25 m x 0.25 mm (Pkg/1)	1	N9316076
<b>Screw Top Autosampler Vial Convenience Kit – Pkg/100</b>	<b>1</b>	<b>N9301945</b>
2 mL 8 mm Clear Screw Top Vials (Pkg/100)		
8 mm Black Caps w/ Preassembled PTFE/Rubber Septa (Pkg/100)		
Packed in a Environmentally Clean, Re-sealable Clamshell Pack		
<b>Crimp Top Autosampler Vial Convenience Kit – Pkg/100</b>	<b>1</b>	<b>N9300654</b>
2 mL 11 mm Clear Crimp Top Vials (Pkg/100)	1	N9301385
11 mm Silver Caps w/ Preassembled PTFE/Rubber Septa (Pkg/100) Packed in a Environmentally Clean, Re-sealable Clamshell Pack	1	N9306015

### Easy-to-Order Convenience Kits

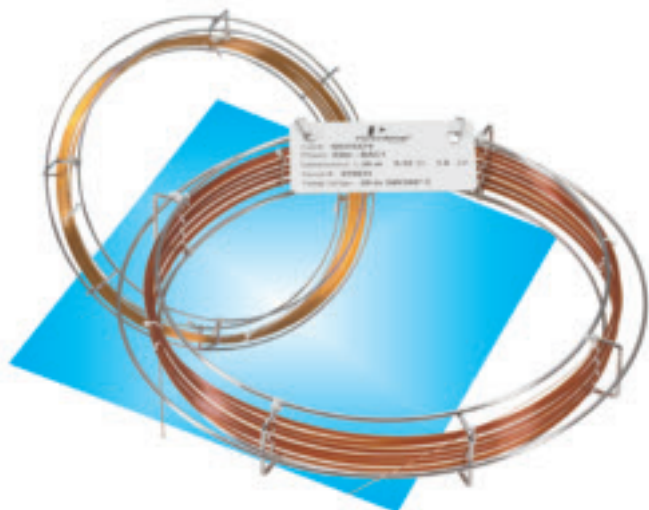
Description	Pkg.	Part No.
<b>11 mm Red Rubber Crimp Convenience Kit – Pkg/100</b>	<b>1</b>	<b>N9300502</b>
11 mm Red Rubber/Silver Crimp Assembly (Pkg/100)	1	N9306230
11 mm Clear 2 mL Vial Kit (Pkg/100)	1	N9306231
<b>11 mm Red Rubber Crimp Convenience Kit – Pkg/500</b>	<b>1</b>	<b>N9300503</b>
11 mm Red Rubber/Silver Crimp Assembly (Pkg/100)	5	N9306230
11 mm Clear 2 mL Vial Kit (Pkg/100)	5	N9306231
<b>11 mm PTFE/SIL Crimp Convenience Kit – Pkg/100</b>	<b>1</b>	<b>N9300500</b>
11 mm PTFE/Sil Crimp Assembly (Pkg/100)	1	N9306228
11 mm Clear 2 mL Vial Kit (Pkg/100)	1	N9306231
<b>11 mm PTFE/SIL/PTFE Crimp Convenience Kit – Pkg/100</b>	<b>1</b>	<b>N9300501</b>
11 mm PTFE/Sil/PTFE Crimp Assembly (Pkg/100)	1	N9306229
11 mm Clear 2 mL Vial Kit (Pkg/100)	1	N9306231
<b>9 mm Red Rubber Screw Cap Convenience Kit – Pkg/100</b>	<b>1</b>	<b>N9300699</b>
9 mm Red Rubber/Screw Cap Assembly (Pkg/100)	1	N9306200
9 mm Clear 2 mL Vial Kit (Pkg/100)	1	N9306201
<b>9 mm PTFE/Sil Screw Cap Convenience Kit – Pkg/100</b>	<b>1</b>	<b>N9300700</b>
9 mm PTFE/Sil Screw Cap Assembly (Pkg/100)	1	N9306202
9 mm Clear 2 mL Vial Kit (Pkg/100)	1	N9306201

**NEW**



### Vials with Fused Glass Sample Inserts

Description	Pkg.	Part No.
Vial-2 mL 11 mm Large Opening Crimp Top Clear 0.3 mL Insert	100	N9300709
Vial-2 mL 11 mm Large Opening Crimp Top Amber 0.3 mL Insert	100	N9300710
Vial-C2 mL 11mm Clear Large Opening Snap Ring With 0.3 mL Insert	100	N9300711
Vial-2 mL 11mm Amber Large Opening Snap Ring With 0.3 mL Insert	100	N9300712
Vial-2 mL 8 mm Screw Top Clear 0.1 mL Insert	100	N9300713
Vial-2 mL 8 mm Amber Screw Top 0.1 mL Insert	100	N9300714
Vial-2 mL 9 mm Large Opening Screw Top Clear 0.3 mL Insert	100	N9300715
Vial-2 mL 9 mm Large Opening Screw Top Amber 0.3 mL Insert	100	N9300716
Vial-2 mL 10 mm Large Opening Screw Top Clear 0.3 mL Insert	100	N9300717
Vial-2 mL 10 mm Large Opening Screw Top Amber 0.3 mL Insert	100	N9300718



## Why choose fused silica?

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

## Selecting the right Stationary Phase

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

## What length do I need?

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

# FINEST QUALITY HIGH-STRENGTH FUSED SILICA

## 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, Cl-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

## Elite-1 Dimethylpolysiloxane 100% Dimethyl Polysiloxane phase:

The 100% Dimethyl Polysiloxane is a highly versatile phase that is extremely rugged, exhibiting long column lifetime, low bleed, and high maximum operating temperatures.

Primary Applications: Elite 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.

### Features and Benefits

- Thermal stability to 350 °C
- Low Bleed
- Low baseline noise

Description	Dimensions	Part No.
ELITE-1	30 M x 0.32 mm x 0.25 µm	<b>N9316023</b>
ELITE-1	30 M x 0.32 mm x 1.0 µm	<b>N9316024</b>
ELITE-1	15 M x 0.25 mm x 1.0 µm	<b>N9316008</b>
ELITE-1	30 M x 0.25 mm x 0.25 µm	<b>N9316010</b>
ELITE-1	30 M x 0.32 mm x 3.0 µm	<b>N9316025</b>
ELITE-1	60 M x 0.25 mm x 0.25 µm	<b>N9316013</b>
ELITE-1	60 M x 0.25 mm x 1.0 µm	<b>N9316014</b>
ELITE-1	60 M x 0.35 mm x 5.0 µm	<b>N9316031</b>

## Elite-5 (5% Diphenyl) Dimethylpolysiloxane

General purpose columns for semivolatiles, phenols, amines, residual solvents, drugs of abuse, pesticides, PCB congeners (e.g. Aroclor mixes), solvent impurities. Most inert column on the market. Elite-5MS ultra-low bleed columns improves signal-to-noise ratio for better sensitivity and mass spectral integrity. Temperature limits to 310-400°C depending on column size.

Equivalent to USP G27 phase

Description	Dimensions	Part No.
Elite 5	30 M x 0.25 mm x 0.25 µm	<b>N9316076</b>
Elite 5	30 M x 0.32 mm x 0.25 µm	<b>N9316086</b>
Elite 5	30 M x 0.32 mm x 1.0 µm	<b>N9316087</b>
Elite 5	30 M x 0.53 mm x 0.5 µm	<b>N9316102</b>
Elite 5	30 M x 0.53 mm x 1.50 µm	<b>N9316103</b>
Elite 5 MS	30 M x 0.25 mm x 0.25 µm	<b>N9316282</b>
Elite 5 MS	30 M x 0.32 mm x 0.25 µm	<b>N9316293</b>
Elite 5 MS	30 M x 0.25 mm x 0.50 µm	<b>N9316284</b>
Elite 5 MS	30 M x 0.25 mm x 1.0 µm	<b>N9316283</b>
Elite 5 MS	60 M x 0.25 mm x 1.0 µm	<b>N9316287</b>
Elite 5 HT	15 M x 0.32 mm x 0.10 µm	<b>N9316274</b>
Elite 5 HT	30 M x 0.32 mm x 0.10 µm	<b>N9316275</b>

## ELITE-1, ELITE-5, ELITE-WAX, AND ELITE-624

### Elite-Wax

The Elite-Wax columns have a lower minimum temperature and a higher maximum temperature than non-bonded polyethylene glycols due to extensive cross linking, delivering higher resolution of low boiling point analytes. Ideal for EPA and ASTM methods. Temperature limits to 240°C.

Primary Applications: This column is suitable for the analysis of fatty acid methyl esters (FAMES), food, flavor and fragrance compounds, alcohols and aromatics. Chemically compatible with water and other injection solvents, but solvents such as water and methanol must be vaporized before reaching the column inlet. Avoid these solvents when using on-column injection techniques. Sensitive to strong inorganic acids. Also meets USP G16 requirements.

Description	Dimensions	Part No.
Elite Wax	30 M x 0.32 mm x 0.25 µm	<b>N9316412</b>
Elite Wax	30 M x 0.25 mm x 0.25 µm	<b>N9316403</b>
Elite Wax	30 M x 0.32 mm x 0.50 µm	<b>N9316413</b>
Elite Wax	30 M x 0.53 mm x 1.0 µm	<b>N9316427</b>
Elite Wax	60 M x 0.25 mm x 0.25 µm	<b>N9316406</b>
Elite Wax	60 M x 0.32 mm x 0.50 µm	<b>N9316417</b>
Elite Wax ETR	50 M x 0.32 mm x 1.0 µm	<b>N9316558</b>
Elite Wax ETR	60 M x 0.32 mm x 1.0 µm	<b>N9316561</b>

### Elite-624

We offer a selection of advanced polymer chemistries for the increasingly demanding volatiles applications. Elite-624 columns are recommended for EPA methods 502.2 and 8021, as well as for fast GC/MS volatiles analysis. Temperature limits to 240°C.

Primary Applications: Specifically designed for the analysis of volatile priority pollutants, superb inertness for active compounds. Excellent for U.S. EPA Methods 501.3, 502.2, 503.1, 524.2, 601, 602, 8010, 8015, 8020, 8240 and 8260

Description	Dimensions	Part No.
Elite 624	30 M x 0.53 mm x 3.0 µm	<b>N9316207</b>
Elite 624	30 M x 0.25 mm x 1.4 µm	<b>N9316201</b>
Elite 624	30 M x 0.32 mm x 1.8 µm	<b>N9316203</b>
Elite 624	60 M x 0.25 mm x 1.4 µm	<b>N9316202</b>
Elite 624	60 M x 0.32 mm x 1.8 µm	<b>N9316204</b>
Elite 624	75 M x 0.53 mm x 3.0 µm	<b>N9316208</b>
Elite 624 SIL MS	20 M x 0.18 mm x 1.0 µm	<b>N9315067</b>
Elite 624 SIL MS	30 M x 0.25 mm x 1.4 µm	<b>N9315068</b>
Elite 624 SIL MS	30 M x 0.32 mm x 1.8 µm	<b>N9315069</b>
Elite 624 SIL MS	60 M x 0.32 mm x 1.8 µm	<b>N9315070</b>

For our complete selection of columns please visit our web site at [www.perkinelmer.com/gcsupplies](http://www.perkinelmer.com/gcsupplies)

## Elite-BAC Blood Alcohol Analysis Columns for GC and High-Speed Headspace Gas Chromatography

Now using the PerkinElmer Blood Alcohol columns, standard separations and automated separations of less than 1.5 minutes can be accomplished. Sample concentrations range from 0.01 to 0.05% with quantitative precision of <3% RSD. A full range of analytes with a choice of internal standards can be used – with excellent quantitative performance. Two columns may be used in parallel for confirmation of peak identity.

Description	Dimensions	Part No.
Elite BAC-1	10 M x 0.18 mm x 1.00 $\mu$ m	<b>N9316573</b>
Elite BAC-2	10 M x 0.18 mm x 0.63 $\mu$ m	<b>N9316574</b>
Elite BAC-3	10 M x 0.18 mm x 0.30 $\mu$ m	<b>N9316575</b>

### Standard Blood Alcohol GC Columns

Description	Dimensions	Part No.
Elite BAC-1	30 M x 0.32 mm x 1.80 $\mu$ m	<b>N9316579</b>
Elite BAC-1	30 M x 0.53 mm x 3.00 $\mu$ m	<b>N9316578</b>
Elite BAC-2	30 M x 0.32 mm x 1.20 $\mu$ m	<b>N9316577</b>
Elite BAC-2	30 M x 0.53 mm x 2.00 $\mu$ m	<b>N9316576</b>

## Elite-200 Trifluoropropylmethyl Polysiloxane Capillary Column

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

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

#### Features and Benefits

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

Dimensions	Part No.
<b>Elite-200</b>	
15 M x 0.25 mm x 0.10 $\mu$ m	<b>N9316616</b>
15 M x 0.32 mm x 1.50 $\mu$ m	<b>N9316632</b>
30 M x 0.25 mm x 0.25 $\mu$ m	<b>N9316619</b>
30 M x 0.53 mm x 1.00 $\mu$ m	<b>N9316642</b>
60 M x 0.53 mm x 0.25 $\mu$ m	<b>N9316637</b>
60 M x 0.53 mm x 1.00 $\mu$ m	<b>N9316643</b>

## Elite-CLPesticides

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

Primary Applications: Chlorinated Pesticides and Herbicides. U.S. EPA Methods 504, 608, 619, 8081, 8151, and CLP.

#### Features and Benefits

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

Dimensions	Part No.
<b>Elite-CLPesticides</b>	
15 M x 0.25 mm x 0.25 $\mu$ m	<b>N9316661</b>
30 M x 0.25 mm x 0.25 $\mu$ m	<b>N9316662</b>
15 M x 0.32 mm x 0.50 $\mu$ m	<b>N9316663</b>
30 M x 0.32 mm x 0.50 $\mu$ m	<b>N9316664</b>
15 M x 0.53 mm x 0.50 $\mu$ m	<b>N9316665</b>
30 M x 0.53 mm x 0.50 $\mu$ m	<b>N9316666</b>
<b>Elite-CLPesticides 2</b>	
15 M x 0.25 mm x 0.20 $\mu$ m	<b>N9316667</b>
30 M x 0.25 mm x 0.20 $\mu$ m	<b>N9316668</b>
15 M x 0.32 mm x 0.25 $\mu$ m	<b>N9316669</b>
30 M x 0.32 mm x 0.25 $\mu$ m	<b>N9316670</b>
15 M x 0.53 mm x 0.42 $\mu$ m	<b>N9316671</b>
30 M x 0.53 mm x 0.42 $\mu$ m	<b>N9316672</b>

## Elite-SimDist

Dimensions	Temperature Limits (°C)	Part No.
<b>Elite-HT SimDist for High-Temperature Simulated Distillation</b>		
6 M x 0.53 mm x 0.15 $\mu$ m	-60 to 400	<b>N9316572</b>
<b>Elite-SimDist Dimethylpolysiloxane Processed for Simulated Distillation</b>		
10 M x 0.45 mm* x 2.55 $\mu$ m	-60 to 360	<b>N9316261</b>
10 M x 0.53 mm x 3.00 $\mu$ m	-60 to 360	<b>N9316262</b>

\* Ferrule size same as 0.53 mm.

## 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 to 350 °C.

Description	Dimensions	Part No.
Velocity-1	15 M x 0.25 mm x 0.25 µm	<b>N9306319</b>
Velocity-1	15 M x 0.25 mm x 1.00 µm	<b>N9306310</b>
Velocity-1	30 M x 0.25 mm x 0.25 µm	<b>N9306312</b>
Velocity-1	30 M x 0.25 mm x 1.00 µm	<b>N9306323</b>
Velocity-1	30 M x 0.32 mm x 0.25 µm	<b>N9306318</b>
Velocity-1	30 M x 0.32 mm x 1.00 µm	<b>N9306321</b>
Velocity-1	30 M x 0.32 mm x 3.00 µm	<b>N9306329</b>
Velocity-1	60 M x 0.25 mm x 0.25 µm	<b>N9306320</b>
Velocity-1	60 M x 0.25 mm x 1.00 µm	<b>N9306328</b>
Velocity-1	60 M x 0.32 mm x 1.00 µm	<b>N9306324</b>

### 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 to 350°C.

Description	Dimensions	Part No.
Velocity-5	15 M x 0.32 mm x 0.25 µm	<b>N9306325</b>
Velocity-5	30 M x 0.25 mm x 0.25 µm	<b>N9306311</b>
Velocity-5	30 M x 0.32 mm x 0.25 µm	<b>N9306313</b>
Velocity-5	30 M x 0.32 mm x 1.00 µm	<b>N9306316</b>
Velocity-5	30 M x 0.53 mm x 0.50 µm	<b>N9306326</b>
Velocity-5	30 M x 0.53 mm x 1.50 µm	<b>N9306327</b>

### Velocity-Wax — Polyethylene Glycol

This column is ideal for intermediate to high polarity compounds. Thermal stability to 250 °C.

Description	Dimensions	Part No.
Velocity-Wax	30 M x 0.32 mm x 0.25 µm	<b>N9306314</b>
Velocity-Wax	30 M x 0.25 mm x 0.25 µm	<b>N9306315</b>
Velocity-Wax	30 M x 0.32 mm x 0.50 µm	<b>N9306317</b>
Velocity-Wax	30 M x 0.53 mm x 1.00 µm	<b>N9306322</b>

## MAINTAIN THE INTEGRITY OF YOUR CAPILLARY COLUMN WITH A FUSED SILICA GUARD COLUMN

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

### Features and Benefits

- Increase column life and performance
- Elite-Guard temperature range to 325 °C
- Elite-Siltek® guard temperature range to 380 °C

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

### Wide-Bore Adapter Kit

Contains all the parts necessary to adapt packed column injectors quickly and easily for use with wide-bore capillary columns. Includes 0–20 mL/min flow controller element, wide-bore adapter with 1/16 inch fitting, wide-bore glass liner and column support hanger.



Description	Part No.
Wide-Bore Adapter Kit	<b>N6120001</b>

### UNIVERSAL CONNECTORS



Dimension	Part No.
Universal Connector (pkg. 5)	<b>N9302149</b>
Metal Universal Connectors: 0.25 mm i.d. (pkg. 10)	<b>N9301167</b>
Universal Y Splitter (pkg. 1)	<b>N9303448</b>
Polyimide Sealing Resin (5 g)	<b>N9301343</b>
Undeactivated Prestight Column Connectors (pkg. 5)	<b>N9303962</b>

### 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)	<b>N9301376</b>



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	<b>N9331047</b>

### Method 8260B Standards

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

### Ketones for Method 8260B

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

### Mix B Purgeable Gases for Methods 8260B/524.2

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

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 and to detect the eluent and ECD (electron capture detector) or ELCD (electrolytic conductivity detector) is used.

Description	Part No.
1.2 mL @ 1,000 µg/mL in Hexane	<b>N9331028</b>

#### 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.
<b>Semi-Volatile Calibration Standard for Method 8270C</b>	
1.2 mL @ 1,000 µg/mL in Hexane	<b>N9331030</b>
<b>Internal Standard for Method 8270C</b>	
1.2 mL @ 2,000 µg/mL in Methylene Chloride/Benzene	<b>N9331036</b>

#### Method 8270C Mixes

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

#### Method 8270C Surrogates

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

### 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	<b>N9331064</b>
<b>Mix A for Method 624</b>	
1.2 mL @ 2,000 µg/mL in P & T Methanol	<b>N9331060</b>
<b>Purgeable Gases Mix B for Method 624</b>	
1.2 mL @ 2,000 µg/mL in P & T Methanol	<b>N9331061</b>
<b>Mix C for Method 624</b>	
1.2 mL @ 2,000 µg/mL in P & T Methanol	<b>N9331062</b>
<b>Mix D for Method 624</b>	
1.2 mL @ 2,000 µg/mL in P & T Methanol	<b>N9331063</b>

#### 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.

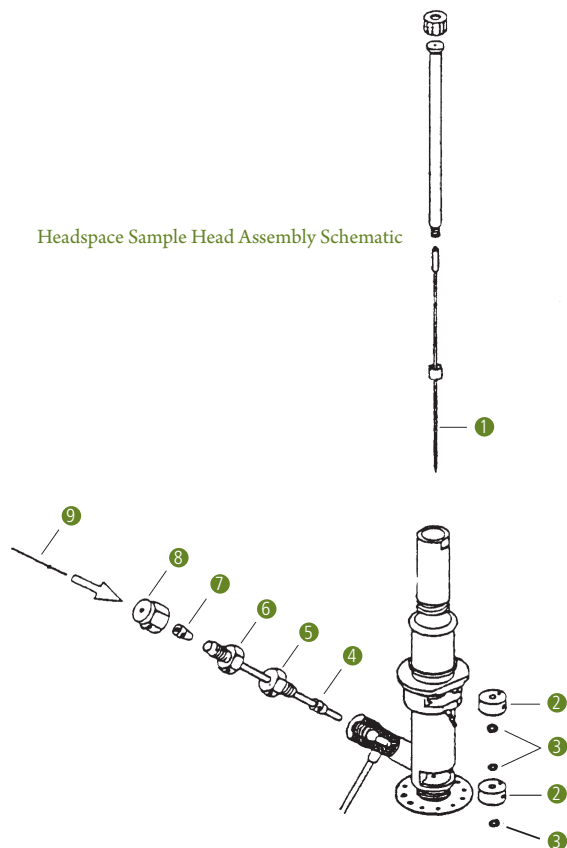
Description	Part No.
<b>Polynuclear Aromatic Hydrocarbons for Method 8100/625</b>	
1.2 mL @ 2,000 µg/mL in Methylene Chloride/Benzene	<b>N9331044</b>
<b>Polynuclear Aromatic Hydrocarbons Mix B for Method 8100</b>	
1.2 mL @ 1,000 µg/mL in Methylene Chloride/Benzene	<b>N9331045</b>
<b>Surrogate Standard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

## 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.



## ONE-STEP SOLUTION FROM FIELD SAMPLE TO LAB RESULTS

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 thermostating. Ordinary vials and caps without these safety features may burst. All of our headspace vials are 20 mL, providing a maximum liquid sample volume of 15 mL. They have a greater wall thickness and round base which enables them to withstand pressure up to 60 psig. Low-volume sampling can be achieved by using a 6 mL crimp vial and vial adapter. All PerkinElmer headspace vials are manufactured to specific tolerances that are guaranteed to fit within PerkinElmer instruments.

### Features and Benefits

- Patented vial and cap design guarantees safe operation
- Manufactured to specific tolerances guaranteed to fit PerkinElmer instruments
- Lot-tested, certified and approved septa deliver reproducible results

## Headspace Screw Top Vials and Preamsembled Caps

New from PerkinElmer, headspace screw top vials and preassembled caps allow for samples to be taken in the field and directly analyzed on the PerkinElmer® TurboMatrix™ Headspace Sampler without having to transfer the sample into another vial, streamlining the sampling process and increasing your productivity. Screw thread vials are designed for a guaranteed fit. PerkinElmer septa are lot tested for impurities. The cap is conveniently preassembled for ease-of-use and packed in clean Mylar® bags to reduce the risk of contamination.



Dimension	Pkg.	Part No.
20 mL Headspace Screw Top Vials	100	<b>N9306075</b>
20 mL Headspace Screw Top Vials	1,000	<b>N9306078</b>
18 mm PTFE/Butyl Assembled Caps/Septa 3.2 mm Thickness	100	<b>N9306076</b>
18 mm PTFE/Silicone Assembled Caps/Septa 3.2 mm Thickness	100	<b>N9306077</b>
18 mm Red PTFE/White Silicone Metal Screw Cap/Septa 1.3 mm Thickness 8 mm Hole	100	<b>N6356474</b>
18 mm White PTFE/Transparent Blue Silicone Metal Screw Cap/Septa 1.3 mm Thickness 8 mm hole	100	<b>N6356475</b>
18 mm Blue PTFE/White Silicone Metal Screw Cap/Septa 1.5 mm Thickness 8 mm Hole	100	<b>N6356476</b>
18 mm Gray PTFE/Red Butyl Metal Screw Cap/Septa 1.6 mm Thickness 8 mm Hole	100	<b>N6356477</b>

### Vial Rack Holder

36-Vial Polypropylene 20 mm Holder	1	<b>N9301304</b>
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## Headspace Vials with Write-on Patch and Fill Lines



Description	Pkg.	Part No.
20 mL 23 mm o.d. Headspace Crimp Top Vials with Write-On White Patch and Fill Lines	1,000	<b>N9303348</b>
20 mL 23 mm o.d. Headspace Crimp Top Vials with Write-On White Patch and Fill Lines	100	<b>N9303349</b>
20 mL 23 mm o.d. Headspace Screw Top Vials with Write-On White Patch and Fill Lines	1,000	<b>N9306241</b>
20 mL 23 mm o.d. Headspace Screw Top Vials with Write-On White Patch and Fill Lines	100	<b>N9306240</b>
10 mL Clear Crimp Top Headspace Vials	100	<b>N6356478</b>
10 mL Clear Screw Top Headspace Vials	100	<b>N6356479</b>
20 mL 23 mm o.d. Clear Crimp Top CTC Headspace Vials	100	<b>N6356471</b>

## Crimp Top Headspace Vials 20 mL, 22.6 OD x 75.50 mm Height



Description	Pkg.	Part No.
22 mL Clear 22.6 OD Glass Round Bottom Headspace Crimp Top Vials with Write On Patch and Level Lines <sup>1</sup>	1,000	<b>N9303351</b>
22 mL Clear 22.6 OD Glass Flat Bottom Headspace Crimp Top Vials with Write On Patch and Level Lines <sup>2</sup>	1,000	<b>N9303352</b>

<sup>1</sup> Recommended for Shimadzu, Tekmar, and Varian

<sup>2</sup> Recommended for Agilent



## Headspace Crimp-top Vials and Preamsembled Caps

Description	Pkg.	Part No.
6 mL Headspace Clear Glass Vial <sup>3,4</sup>	125	<b>N9302134</b>
Low-Volume Vial Adapter	10	<b>N6120110</b>
20 mL 23 mm o.d. Headspace Clear Glass Vials	1,000	<b>B0104236</b>
20 mL 23 mm o.d. Headspace Crimp Top Vials	100	<b>N9306079</b>
20 mL 23 mm o.d. Headspace Crimp Top Vials with Write-On White Patch and Fill Lines	1,000	<b>N9303348</b>
20 mL 23 mm o.d. Headspace Crimp Top Vials with Write-On White Patch and Fill Lines	100	<b>N9303349</b>
Red Butyl Rubber Septa/Cap/Spring	100	<b>B0159356</b>
Red Butyl Rubber Septa/Cap/Spring	1,000	<b>B0159357</b>
Red Butyl Rubber Preamsembled	1,000	<b>N1010070</b>
Red PTFE-Coated Butyl Rubber/Cap Spring	100	<b>B0104239</b>

<sup>3</sup> Not compatible with TurboMatrix HS 110 headspace sampler

<sup>4</sup> Use with Low-Volume Vial Adapter (N6120110)

# HEADSPACE CRIMP-TOP CAPS AND SEPTA



## Headspace Crimp-top Septa and Pre-assembled Caps

Description	Pkg.	Part No.
Red PTFE-Coated Butyl Rubber/Cap/Spring	1,000	<b>B0104240</b>
Red PTFE-Coated Butyl Rubber Pre-assembled	1,000	<b>B4000025</b>
Aluminum-Coated Silicone/Cap/Spring	100	<b>B0104243</b>
Aluminum-Coated Silicone/Cap/Spring	1,000	<b>B0104244</b>
Aluminum-Coated Silicone Pre-assembled	1,000	<b>B4000028</b>
PTFE-Coated Silicone/Cap/Spring	100	<b>B0104241</b>
PTFE-Coated Silicone/Cap/Spring	1,000	<b>B0104242</b>
PTFE-Coated Silicone Pre-assembled	1,000	<b>B4000022</b>
20 mm Gray Butyl/PTFE Pre-assembled Cap/Septa/Spring	1,000	<b>N9306264</b>
20 mm Gray Butyl/PTFE Pre-assembled Cap/Septa/Spring Clear 20 mL Headspace with Write-on Patch and Fill Lines	100	<b>N9306265</b>
Gray PTFE/Butyl Kit, Unassembled Cap/Septa/Spring	100	<b>N9306266</b>
Gray PTFE/Butyl Kit, Unassembled Cap/Septa/Spring	1,000	<b>N9306267</b>
20 mm Gray Butyl Pre-assembled Cap/Septa/Spring	1,000	<b>N9306268</b>
20 mm Butyl Pre-assembled Cap/Septa/Spring Clear 20 mL Headspace with Write-on Patch and Fill Lines	100	<b>N9306269</b>
Gray Butyl Kit Unassembled Cap/Septa/Spring	100	<b>N9306270</b>
Gray Butyl Kit Unassembled Cap/Septa/Spring	1,000	<b>N9306271</b>
PTFE/Red Rubber Septa, Pre-assembled Cap/Septa/Spring	1,000	<b>N9302978</b>
PTFE/Red Rubber Septa, Unassembled Crimp Cap/Septa/Spring	100	<b>N9302979</b>
PTFE/Red Rubber Septa, Unassembled Crimp Cap/Septa/Spring	1,000	<b>N9302980</b>

## Septa Recommended Temperatures

Material	Upper Temp Limit at Vial	Inertness
Red Butyl Rubber	100 °C	Fair
Gray Butyl Rubber	130 °C	Fair
Gray PTFE-Coated Butyl Rubber	130 °C	Good
Red PTFE-Coated Butyl Rubber	100 °C	Good
Aluminum-Coated Silicone	210 °C	Good
PTFE-Coated Silicone	220 °C	Good

## Crimp Top Cap and Septa — GC Headspace (CTC Autosampler)

Description	Pkg.	Part No.
20 mm Magnetic Cap/Septa 8 mm Hole w/3.2 mm Thickness Silicone/PTFE Transparent White Liner	100	<b>N6356558</b>
20 mm Magnetic Cap/Septa 8 mm Hole w/3.0 mm Thickness Silicone/PTFE Transparent Blue Liner	100	<b>N6356559</b>
20 mm Magnetic Cap/Septa 8 mm Hole w/3.0 mm Thickness PTFE/Butyl Gray	100	<b>N6356560</b>
20 mm Magnetic Cap/Septa 8 mm Hole w/3.0 mm Thickness Gray Butyl Liner	100	<b>N6356561</b>
20 mm Magnetic Cap/Septa 8 mm Hole w/3.0 mm Thickness Pharma Fix Butyl/PTFE	100	<b>N6356562</b>
20 mm Magnetic Cap/Septa 8 mm Hole w/3.2 mm Thickness Aluminum/Silicone Liner	100	<b>N6356563</b>
20 mm Magnetic Cap/Septa 8 mm Hole w/1.3 mm Thickness Silicone/PTFE Trans Blue (SPME Liner)	100	<b>N6356564</b>
20 mm Magnetic Bi-metal Cap/Septa w/3.0 mm 8 mm Thickness PTFE/Blue Liner	100	<b>N6356565</b>
20 mm Bi-metal Cap/Septa w/3.0 mm Silicone 8 mm Thick PTFE Transparent Blue Liner	100	<b>N6356566</b>



## Specialty Headspace Caps & Septa

Description	Pkg.	Part No.
20 mm Extreme Low Bleed 20 mm PTFE/Natural Crimp Septa Skived PTFE 0.005"/Natural Silicone 0.125"	1,000	<b>N9302976</b>
20 mm Ultra Low Bleed HS Cap Non-pressure Relief Skived PTFE 0.005"/White Silicone 0.125"	1,000	<b>N9302977</b>
20 mm Ultra Low Bleed HS Cap 20 mm Crimp Pressure Relief HS Cap Skived PTFE 0.005"/Silicone 0.125"	1,000	<b>N9302975</b>



Description	Pkg.	Part No.
20 mm Gray Butyl/PTFE Pre-assembled Ridged Center Cap/Septa Non-pressure Rated	1,000	<b>N9302981</b>
20 mm Headspace Caps with Inserted Septa	1,000	<b>N9302975</b>
Pharma Cap 20 mm Aluminum Crimp Seal Lined with Gray Butyl Septa with PTFE Disc*	1,000	<b>N9306224</b>

\* Max temp is 130 °C

# ONE-STEP SOLUTION

## Headspace Vial, Septa and Cap Kits

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

### Headspace Mini Starter Kit

The same great consumables as the Headspace Starter Kit (N6710195) without the "Static Headspace Gas Chromatography Theory and Practice" book, and with fewer vials — 200 total (100 each crimp and screw top vials).

Description	Part No.		
Headspace Mini Starter Kit	<b>N6710197</b>		
Contents	Pkg.	Qty.	Part No.
20 mL Headspace Crimp Vials	100	1	<b>N9306079</b>
20 mm PTFE/Butyl Septa/Cap/Springs	100	1	<b>B0104239</b>
20 mm PTFE/Silicone Septa/Cap/Springs	100	1	<b>B0104241</b>
20 mm Aluminum Silicone Septa/Cap/Springs	100	1	<b>B0104243</b>
O-rings	10	1	<b>B0198110</b>
Needle Seal Assemblies	1	2	<b>B0500833</b>
Pressure Gauge with Needle for Vials	1	1	<b>B0501377</b>
20 mm Hand Crimper	1	1	<b>N9302785</b>
20 mL Headspace Screw Top Vials*	100	1	<b>N9306075</b>
18 mm PTFE/Butyl Assembled Cap and Septa*	100	1	<b>N9306076</b>
18 mm PTFE/Silicone Assembled Cap and Septa*	100	1	<b>N9306077</b>

### Headspace Kit 1000

Description	Part No.		
Headspace Kit 1000	<b>N6710198</b>		
Contents	Pkg.	Qty.	Part No.
20 mL Headspace Clear Crimp Glass Vial	1,000	1	<b>B0104236</b>
20 mm PTFE/Silicone Septa/Cap/Spring	100	10	<b>B0104241</b>
Ergonomic Crimper Manual 20 mm	1	1	<b>N6621037</b>



### Headspace Starter Kit

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

Description	Part No.		
TurboMatrix™ Headspace Starter Kit:	<b>N6710195</b>		
Contents	Pkg.	Qty.	Part No.
20 mL Headspace Crimp Vials	100	5	<b>N9306079</b>
20 mm PTFE/Butyl Septa/Cap/Springs	100	1	<b>B0104239</b>
20 mm PTFE/Silicone Septa/Cap/Springs	100	1	<b>B0104241</b>
20 mm Aluminum Silicone Septa/Cap/Springs	100	1	<b>B0104243</b>
O-rings	10	1	<b>B0198110</b>
Needle Seal Assemblies	10	2	<b>B0500833</b>
Pressure Gauge with Needle for Vials	1	1	<b>B0501377</b>
"Static Headspace Gas Chromatography Theory and Practice" Book by B. Kolb and L.S. Ettre	1	1	<b>N1011210</b>
20 mm Hand Crimper	1	1	<b>N9302785</b>
20 mL Headspace Screw Top Vials*	100	5	<b>N9306075</b>
18 mm PTFE/Butyl Assembled Cap and Septa*	100	1	<b>N9306076</b>
18 mm PTFE/Silicone Assembled Cap and Septa*	100	1	<b>N9306077</b>

\* Not compatible with TurboMatrix HS 110 headspace sampler

## BETTER SEPTA BETTER ANALYSIS



### Headspace Convenience Kits

Description	Pkg.	Qty.	Part No.
<b>20 mL Butyl HS Convenience Kit</b>	<b>100</b>		<b>N9303990</b>
20 mm Red Butyl Assembly	100	1	<b>N1010070</b>
20 mL Crimp Clear Vial Kit with Write-on Patch 20 mm Cap	100	1	<b>N9303349</b>
<b>20 mL PTFE/Butyl HS Convenience Kit</b>	<b>100</b>		<b>N9303991</b>
20 mm Red PTFE/Butyl Assembly	100	1	<b>B4000025</b>
20 mL Crimp Clear Vial Kit with Write-on Patch 20 mm Cap	100	1	<b>N9303349</b>
<b>20 mL PTFE/Silicone Convenience Kit</b>	<b>100</b>		<b>N9303992</b>
20 mm PTFE/Silicone Assembly	100	1	<b>B4000022</b>
20 mL Crimp Clear Vial Kit with Write-on Patch 20 mm Cap	100	1	<b>N9303349</b>
<b>20 mL Al/Silicone Convenience Kit</b>	<b>100</b>		<b>N9303993</b>
20 mm Aluminum/Silicone Assembly	100	1	<b>B4000028</b>
20 mL Crimp Clear Vial Kit with Write-on Patch 20 mm Cap	100	1	<b>N9303349</b>



### VOA Vials & Caps

Description	Pkg.	Part No.
Vial, Screw Top, Clear Glass, Size 40 mL, o.d. 24 mm x 98 mm H, Open Top Gray Polypropylene Closure with Teflon®/Silicone Septa, 22 mm Dia. 0.125 mil Thick.	72	<b>N6352030</b>
Vial, Screw Top, Amber Glass, Size 40 mL, o.d. 24 mm x 98 mm H, Open Top Gray Polypropylene Closure with Teflon®/Silicone Septa, 22 mm Dia. 0.125 mil Thick.	72	<b>N6352031</b>
Septa, Teflon/Silicone, 22 mm, 0.125 mil Thick	72	<b>N6352032</b>
Open Top Closure, Polypropylene. 24-414 Thread Cap	24	<b>N6352033</b>

### CHOOSING THE RIGHT SEPTA FOR YOUR ANALYSIS

Although a wide variety of septa is available, chemical compatibility and temperature are the most critical to the analysis. Temperature applies not only to the vial, but also to the temperature of the instrument's needle used for pressurization and sample transfer, which is heated to prevent condensation. A needle temperature higher than the vial temperature setting can decompose the septum material. PTFE coated silicone and aluminum-coated silicone offer the highest temperature operating limits. (See Septa Recommended Temperature Chart page 146.)

**NEW**

### Headspace Convenience Kits

Description	Qty.	Part No.
<b>Kit-HS 22.6 mm PTFE/Sil Low Bleed 1000</b>		<b>N9300901</b>
20 mL x 22.6 mm x 75 HS Vial with Write-on Patch and Flat Bottom 1,000 Pack*	1	<b>N9303352</b>
20 mm Extreme Low Bleed 20 mm PTFE/ Natural Crimp Septa Skived PTFE 0.005"/ Natural Silicone 0.125" 1,000 Pack	1	<b>N9302976</b>
<b>Kit-HS 22.6 mm Ultra Low Bleed PTFE/Sil 1000</b>		<b>N9300902</b>
22.6 mm HS Vial with Write-on Patch and Flat Bottom 1000*	1	<b>N9303352</b>
20 mm Ultra Low Bleed HS Cap Non Pressure Relief Skived PTFE 0.005"/White Silicone 0.125" 1,000 Pack	1	<b>N9302977</b>
<b>Kit-HS 22.6 mm Pres Ultra Low Bleed PTFE/Sil 1000</b>		<b>N9300903</b>
22.6 mm HS Vial with Write-on Patch and Flat Bottom 1000*	1	<b>N9303352</b>
20 mm Ultra Low Bleed HS Cap 20 mm Crimp Pressure Relief HS Cap Skived PTFE 0.005"/Silicone 0.125" 1,000 Pack	1	<b>N9302975</b>

\* Vials for non PerkinElmer Headspace instruments



### Headspace Cap and Stopper Kits

Description	Pkg.	Qty.	Part No.
<b>Butyl Rubber Stoppers with Caps</b>	<b>1,000</b>		<b>B0110728</b>
Butyl Rubber Stopper	100	10	<b>B0038137</b>
Knurled Caps	100	10	<b>B0099814</b>
<b>PTFE/Silicone Injector Septa</b>	<b>12</b>		<b>00091357</b>
Injection Septa	12	1	<b>00092388</b>
<b>Pharma Fix Cap and Septa</b>	<b>1,000</b>	<b>1</b>	<b>N9306224</b>
20 mm Aluminum Crimp Cap Seal Lined with Gray Butyl Septa and PTFE Ring Assembled			
<b>Butyl Rubber Stoppers with Ridged Crimp Cap</b>	<b>1,000</b>	<b>1</b>	<b>N9303350</b>
20 mm Ridged Center Hole Crimp Seal with Gray Butyl Stopper Septa			

# PACKED TRAPS SPECIFICALLY DESIGNED FOR PERKINELMER THERMAL DESORBERS

## Air Monitoring Trap

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



Low Flow Cold Trap



## Cold Traps

### TurboMatrix Thermal Desorption Trap Supplies

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

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

### Cold Traps Fittings and Accessories

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

# THERMAL DESORBER TUBES



Unconditioned Thermal Desorber Tubes



Fully conditioned Thermal Desorber tubes shown

## 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		
Carbosieve™ SIII 60/80		
Carbotrap™ C/B		N9307065
NIOSH	N9307057	N9307066

### Empty Sample Tubes without Cap

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

### Empty Sample Tubes with Caps

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

## 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. 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 will now be printed with the packing material clearly identified on each tube. In addition an arrow will also be printed, which points to the end of the tube where sample is drawn from, and also indicates the end that desorb vapors will exit.

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

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

“NOT for Analytical test applications”, use N6200119 PTFE caps and O-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
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



## 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.		
<b>Thermal Desorber Starter Kit</b>	<b>M0413541</b>		
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.		
<b>Workplace Air Monitoring Industrial Hygiene Application Kit**</b>	<b>N6710188</b>		
Contents	Pkg.	Qty.	Part No.
Cold Trap O-ring, 0.145 i.d./0.070 w.d.	1	1	09200091
Cold Trap Tube (Tenax TA)	1	1	L4275089
Empty Glass Sample Tubes - No Caps	10	1	L4071594
Graphite Ferrule	2	1	L4271187
Pen Clips for Stainless Steel Sample Tubes	10	1	L4071029
PTFE Ferrule	10	1	L4275110
PTFE Filter Disk - Either Side of the Cold Trap	10	1	L1003030
Tenax TA Stainless Steel Sample Tubes	10	1	N9307005

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

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

## Thermal Desorber Caps and Accessories

Description	Pkg.	Part No.
Brass Long-Term Storage Caps Recommended for long-term storage, two required per tube. Also requires Teflon® Ferrule (L1003015).	1	09908851
Combined Teflon® Ferrule For use with ¼ in Brass Long-Term Storage Caps (09908851), two required per tube.	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 Teflon® Ferrules For TurboMatrix Storage End Caps.	20	M0413625
TurboMatrix Analytical Caps PTFE Caps with O-ring, Required for Use on the TurboMatrix Instrument During Analysis	20	N6200119

## POWERFUL SOLUTIONS FOR YOUR LAB



PerkinElmer is committed to providing analytical chemists with gas solutions that enable them to get the most out of their instruments. Whether the requirement is for ultra high purity hydrogen for use as a GC and GC/MS carrier gas or multiple gases to operate sophisticated LC/MS instrumentation, PerkinElmer's offerings always keep the end user in mind.

### Hydrogen Generators

#### Features and Benefits

- Ultra safe operation
- >99.999% purity
- High purity guaranteed, 24/7
- Class leading PEM cell featuring 2-year warranty as standard
- CE, UL & CSA approved
- Low life cycle cost, excellent return on investment

### Ultra High Purity Hydrogen Generators

#### Features and Benefits

- Ultra safe operation
- >99.9999% purity
- High purity guaranteed, 24/7
- Class leading PEM cell featuring 2-year warranty as standard
- CE, UL & CSA approved
- Low life cycle cost, excellent return on investment

### Zero Air Generators

#### Features and Benefits

- High performance heated platinum catalyst
- High efficiency filtration
- Modular and stackable with all PerkinElmer hydrogen generators
- CE, UL & CSA approved
- Low life cycle cost, excellent return on investment
- Superior resolution and lowered limits of detection
- Safe and sustainable

### LC/MS Nitrogen Generators

#### Features and Benefits

- Continuous automatic operation, 24/7
- Phthalate-free componentry
- Low life cycle cost, excellent return on investment
- CE, UL & CSA approved
- Safe and sustainable
- Field proven Pressure Swing Adsorption (PSA) technology
- Compact and robust design



## Ultra High Purity Hydrogen Gas Generators for Carrier Gas Applications

Model	Flow Rate (mL/min)	Water Consumption (24/7, full flow) (L/week)	Part No.
20H-MD	160	1.69	<b>N9303201</b>
40H-MD	250	2.41	<b>N9303202</b>
60H-MD	500	4.82	<b>N9303203</b>
110H-MD	1100	10.60	<b>N9303204</b>

Size: 17.9" H x 13.5" W x 18.5" D

Weight: 45.2 lbs. empty

Purity: >99.9999

Delivery Pressure (psi/g): 10–100

Ambient Temperature Range: 41–104 °F

Water Quality: Deionized, ASTM® II, >1MΩ, <1 μs, filtered to <100 μm

Maximum Water Supply Pressure/Flow\*: 1.45 psi g/1 L/min

Supply Voltage Range: Universal 120/230 V ±10% (60/50 Hz)

Port Connections

Hydrogen Outlet: 1/8" Compression Fitting

Water Drain: Quick Release Push in Fitting

\*With Auto Water Refill option

## Hydrogen Gas Generators for Fuel Gas Applications

Model	Flow Rate (mL/min)	Water Consumption (24/7, full flow) (L/week)	Part No.
20H	160	1.25	<b>N9303225</b>
40H	250	2	<b>N9303226</b>
60H	500	4	<b>N9303227</b>

Size: 17.9" H x 13.5" W x 17.2" D

Weight: 41.9 lbs. empty

Purity: >99.999

Delivery Pressure (psi/g): 5-100

## Zero Air Generators

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	<b>N9303206</b>
UHP-35ZA-S	3.5	4.2	230V	<b>N9303205</b>
UHP-35ZA-S	5.0	6.0	120V	<b>N9303208</b>
UHP-35ZA-S	5.0	6.0	230V	<b>N9303207</b>
UHP-35ZA-S	15	18	120V	<b>N9303210</b>
UHP-35ZA-S	15	18	230V	<b>N9303209</b>
UHP-35ZA-S	30	35	120V	<b>N9303212</b>
UHP-35ZA-S	30	35	230V	<b>N9303211</b>

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

## LC/MS Nitrogen Generators with Integrated Compressor

Model	Flow Rate (L/min)	Purity (ppm)	Voltage	Part No. (120 V)
LCMS30-1	30	>98	120V	<b>N9303223</b>
LCMS30-1	30	>98	230V	<b>N9303224</b>

Size: 27.8" H x 20.1" W x 22.9" D

Weight: 298 lbs.

Delivery Pressure (psi/g): 101.5

Ambient Temperature Range: 41-104 °F

Supply Voltage Range: 120V/60 Hz or 230 V/50-60 Hz ±10%

Port Connections Nitrogen Outlet: 1/4" Compression Fitting



## NEW AND IMPROVED NEXT GENERATION GENERATORS FOR YOUR APPLICATION NEEDS

### PGX-H<sub>2</sub> HYDROGEN GENERATORS

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

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

#### Technical Specifications for PGX-H<sub>2</sub>

Electrolysis Cell	PEM Membrane type
H <sub>2</sub> Purity	99.9999%
Delivery Pressure	100 psig – 7 barg (max)
H <sub>2</sub> Flow Rate	Adjustable, according to model (100 – 160 – 250 – 300 – 500 – 600 mL/min)
Safety	Auto shut-off
User Interface	Set points, system status
Display	4 row x 34 character LCD, set points, status, alarms
Indicator Lights	Power ON, System OK, System error
Outputs	RS232C, bi-directional
Options	Remote control Cascading via RS-485 of up to 32 units in parallel for models 250 and 500 only (patented feature)

Description	Part No.
PGX-H <sub>2</sub> 100 mL/min of Hydrogen	<b>N9306058</b>
PGX-H <sub>2</sub> 160 mL/min of Hydrogen	<b>N9306059</b>
PGX-H <sub>2</sub> 250 mL/min of Hydrogen	<b>N9306060</b>
PGX-H <sub>2</sub> 500 mL/min of Hydrogen	<b>N9306061</b>
PGX-H <sub>2</sub> Desiccant Cartridge, Fitting and Refill Kit	<b>N9306064</b>
PGX-H <sub>2</sub> Desiccant Refill (Sufficient for 3 Cartridge Refills)	<b>N9306065</b>
PGX-H <sub>2</sub> Deionizer Bag	<b>N9307097</b>

### NO MAINTENANCE HYDROGEN GENERATORS

#### A Safe Source of Hydrogen

Both the PGX-H<sub>2</sub> 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<sub>2</sub>) Hydrogen Pure Gas Generators employ the newest membrane technology available for electrolytic production of pure hydrogen gas, including exclusive no maintenance auto-drying technology.

#### Technical Specifications for No Maintenance

Electrolysis Cell	PEM Membrane type
H <sub>2</sub> Purity	99.9999%
Auto Drying System	No maintenance of drying cartridges (exclusive system)
Delivery Pressure	155 psig – 10 barg (max.)
H <sub>2</sub> Flow Rate	Adjustable, according to model (100 – 160 – 250 – 300 – 500 – 600 – 1000 mL/min)
Safety	Auto shut-off
User Interface	Set points, system status
Display	4 row x 34 character LCD, set points, status, alarms
Indicator Lights	Power ON, System OK, System error
Options	Remote control Cascading via RS-485 of up to 32 units in parallel for models 250 and 500 only (patented feature)

Description	Part No.
100 mL/min of Hydrogen	<b>N9307070</b>
160 mL/min of Hydrogen	<b>N9307071</b>
250 mL/min of Hydrogen	<b>N9307072</b>
500 mL/min of Hydrogen	<b>N9307073</b>
1000 mL/min of Hydrogen	<b>N9307074</b>

#### Accessories

Description	Part No.
Cable for Cascading	<b>N9307093*</b>
I/O Board	<b>N9307094</b>
Remote Control RS-232 (Includes converter, cables, software)	<b>N9307095*</b>
Auto Refill	<b>N9307096*</b>
Deionizer LE Bag	<b>N9307097</b>
Triangle Deionizer LE Bag	<b>N9307098</b>

\* Requires I/O Board

## ZERO AND ULTRA AIR GENERATORS

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

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

### Specifications for Zero Air

Part No.	N9307075	N9307076	N9307077	N9307078	N9307079
<b>Outlet Zero Air</b>	1,500 mL/min	3,000 mL/min	6,000 mL/min	15,000 mL/min	30,000 mL/min
<b>Maximum Continuous Output Flow Rate</b>	1.5 L/min	3.0 L/min	6.0 L/min	15.0 L/min	30.0 L/min
<b>Electrical Requirements</b>	230/115 VAC 250 W max	230/115 VAC 250 W max	230/115 VAC 250 W max	230/115 VAC 480 W max	230/115 VAC 480 W max
<b>Temperature/Pressure Control Board</b>	N/A	Included	Included	Included	Included

Dimension	Part No.
1.5 L/min of Air (Without Compressor)	<b>N9307075</b>
3.0 L/min of Air (Without Compressor)	<b>N9307076</b>
6.0 L/min of Air (Without Compressor)	<b>N9307077</b>
15.0 L/min of Air (Without Compressor)	<b>N9307078</b>
30.0 L/min of Air (Without Compressor)	<b>N9307079</b>

### 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



**WALL MOUNTABLE**

## ULTRA ZERO AIR GENERATORS

### Features and Benefits

- Flow rate: < 0.1 ppm HC; < 0.1 ppm CO; < 1 ppm NOx; < 5 ppm CO<sub>2</sub>
- Produce laboratory-grade purified air for the most accurate and convenient calibration of testing equipment
- Designed with safety and convenience in mind, this system will generate purified air from an existing in-house oil-free compressed air supply, eliminating the need for inconvenient high-pressure gas cylinders
- Eliminate gas cylinders reducing annual operating costs associated with materials, labor and downtime, and reduces risk of injury to workers
- Will remove CO and HC pollutants to less than 0.1 ppm and NOx contaminants to 1 ppm. Carbon dioxide is also removed to about 1 ppm levels. Operation of the generator requires low levels of air consumption and electrical power
- Fully supported by PerkinElmer Service Organization

### Specifications for Ultra Zero Air

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

Description	Part No.
1.5 L/min of Air (Without Compressor)	<b>N9307081</b>
3.0 L/min of Air (Without Compressor)	<b>N9307082</b>
6.0 L/min of Air (Without Compressor)	<b>N9307083</b>
15.0 L/min of Air (Without Compressor)	<b>N9307080</b>

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

# ULTRA QUIET OIL FREE



**NEW**

## 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.

**Key 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	N9306291
220V 60Hz	N9306292
220V 50H	N9306293



**NEW**

## 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.

**Key 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

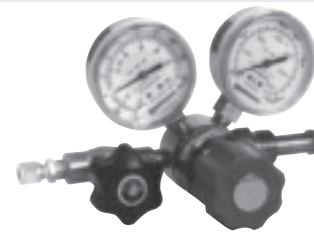
Ideally suited for chromatographic carrier gas applications including FID, TCD, ECD, HID, and non-corrosive gas mixtures for analytical instrumentation.



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
<b>Materials</b>		
Body	316 Stainless Steel	Nickel-Plated Brass
Bonnet	Nickel Plated Brass	Nickel Plated Brass
Seat	PCTFE®	Teflon®
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	<b>09907128</b>
CGA-580	He, Ar, N2	4 – 100	0 – 200	0 – 3,000	<b>09907127</b>

## 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	<b>00230091</b>
CGA-350	CO, H2	10 – 200	0 – 400	0 – 4,000	<b>00230253</b>
CGA-590*	Air	10 – 200	0 – 400	0 – 4,000	<b>00230090</b>

\*Supplied with 590-580 Adapter.

## GC Startup Kits

Description	Part No.
<b>GC Startup Kit ⅛" Tubing and Fitting for (3) Gases</b>	<b>N9306304</b>
<b>Description.</b>	<b>Qty</b>
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
Teflon Tape	1

Description	Part No.
<b>GC Startup Kit ⅛" Tubing and Fitting With One Single Stage Regulator</b>	<b>N9306305</b>
<b>Description.</b>	<b>Qty</b>
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
Teflon Tape	1
Single Stage Analytical 0 – 100 psig delivery, CGA 350 (H2, Carbon Monoxide, Ethylene)	1

Description	Part No.
<b>GC Startup Kit ⅛" Tubing and Fitting With One Dual Stage Regulator</b>	<b>N9306306</b>
<b>Description.</b>	<b>Qty</b>
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
Teflon Tape	1
Dual Stage Analytical 0 – 100 psig delivery, CGA 580 (N2, Argon, He)	1

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](http://www.perkinelmer.com/frontier)

  
**PerkinElmer**<sup>®</sup>  
*For the Better*



# MATERIAL 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, Raman, UV, UV/Vis, Fluorescence, DSC, TGA, STA, 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.

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# 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.

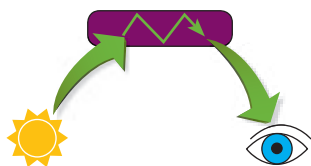
From simple transmission spectroscopy techniques to more advanced research analysis, our premium “plug-and-play” accessories, such as UATR and diffuse reflectance, offer ultimate performance with minimum set-up and calibration through their convenient auto-recognition set-up design.



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)

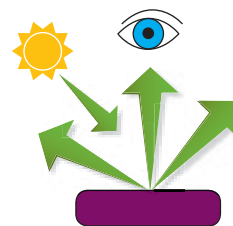


A sampling technique which requires little to no sample preparation. A beam of infrared light passes through the ATR crystal and is reflected off the surface of the sample. The reflection forms an evanescent wave which is collected by a detector.

**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.

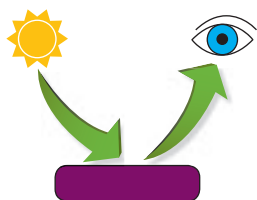


**Branded:** the quality of your instrument and that of the sampling accessory are equally important to your analysis. These mid-level accessories, manufactured by Specac, PIKE and others, have been tested and are approved for use on our PerkinElmer FT-IR systems.



**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

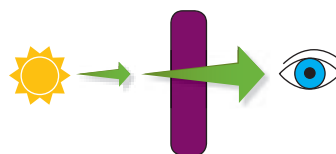


A mirror-like reflection occurs when a beam of light strikes a smooth, shiny surface such that the angle of incidence equals the angle of reflection.

**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

## 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
Multiple (10) Reflection HATR with ZnSe flat and trough plate	L1272337	L1272384

## Silver Gate™ Evolution ATR Accessory (Specac)

A high throughput, single reflection ATR accessory with interchangeable crystal plates. Used to analyze solids, liquids, gels and pastes, all with little or no preparation.

Description	Spectrum One/100/400/65	Spectrum Two	Frontier
Silver Gate Evolution ZnSe Flat Plate (Single Reflection)	L1272270	L1272326	L1272270
Silver Gate Evolution Ge Flat Plate (Single Reflection)	L1272271	L1272327	L1272271
Silver Gate Evolution Recessed ZnSe (Single Reflection)	L1272272	L1272328	L1272272
Silver Gate Evolution Recessed Ge (Single Reflection)	L1272273	L1272329	L1272273

## 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)	<b>L1272407</b>

## 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	<b>L1272330</b>	<b>L1272412</b>
Gateway™ HATR with ZnSe with electrical heating to 200 °C. Requires Gateway controller (territory dependent)	<b>L1272414</b>	<b>L1272414</b>

## 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	<b>L1272372</b>	<b>L1272372</b>

## 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	<b>L1272381</b>
GladiATR Diamond	<b>L1272423</b>

## 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	<b>L1272386</b>
Classic VATR(50mm). Choose a 50mm crystal	<b>L1272443</b>

Crystal Type	25mm Crystal	50mm Crystal
KRS-5, 45° Parallelogram	<b>L1272387</b>	<b>L1272388</b>
KRS-5, 60° Parallelogram	<b>L1272389</b>	<b>L1272390</b>
ZnSe, 45° Parallelogram	<b>L1272391</b>	<b>L1272392</b>
ZnSe, 60° Parallelogram	<b>L1272393</b>	<b>L1272394</b>
Ge, 45° Parallelogram	<b>L1272395</b>	<b>L1272396</b>
Ge, 30° Parallelogram	<b>L1272397</b>	<b>L1272398</b>
Ge, 60° Parallelogram	<b>L1272399</b>	<b>L1272400</b>
Si, 45° Parallelogram	<b>L1272401</b>	<b>L1272402</b>

# 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	✓	✓



Description	Part No.	Spectrum One/100/400/65	Frontier
Premium HATR (Coated for extended lifetime) ZnSe 60 Degree Flat Plate	L1200325	✓	✓
Premium HATR (Coated for extended lifetime) ZnSe 60 Degree Trough Plate	L1200326	✓	✓
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 AMTIR Top Plate	L1272132	✓	✓	✓
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			✓

\* Requires L1272317, L1272318 or L1272319

\*\* Requires L1272426, L1272427 or L1272428

Description	Part No.	Spectrum One/100/400/65	Spectrum Two	Frontier
GladiATR USB Temperature Controller (220V, Euro)	L1272427			✓
GladiATR USB Temperature Controller (110V, 60Hz)	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 Thermo-circulating 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			<b>L1280306</b>
Value Diffuse Reflectance Accessory	<b>L1200351</b>	<b>L1600111</b>	<b>L1280323</b>

### 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	<b>L1272344</b>

### 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	<b>L1272403</b>

### 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	<b>L1272409</b>
Selector Diffuse Reflectance Accessory with Environmental Chamber	<b>L1272410</b>

### 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	<b>L1272405</b>
NIR Integrating Sphere with KBr Windows	<b>L1272406</b>

## 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	<b>01860796</b>	<b>L1600119</b>	<b>01860796</b>

### 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	<b>01860954</b>

### 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	<b>L1272248</b>	<b>L1272248</b>	<b>L1272248</b>

### 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	<b>L1272247</b>	<b>L1272361</b>	<b>L1272247</b>

### 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	<b>L1272240</b>	<b>L1272240</b>
VeeMAX II Variable Angle Specular Reflectance ATR Accessory		<b>L1272382</b>
ATRMx II Variable HATR accessory with 45 degree ZnSe Trough Plate		<b>L1272383</b>

## Pike Specular Reflectance Options

Description	Part No.	Spectrum One/100/400/65	Spectrum Two	Frontier
80Spec/VeeMAX KRS-5 Polarizer	<b>L1272243</b>	✓	✓	✓
80Spec ZnSe Manual Polarizer	<b>L1272376</b>	✓	✓	✓
80Spec/10Spec Gold Reflectance Mirror	<b>L1272377</b>	✓	✓	✓
VeeMax ZnSe 45 degree flat plate	<b>L1272450</b>	✓		✓
VeeMax ZnSe 60 degree flat plate	<b>L1272451</b>	✓		✓
VeeMax Ge 45 degree flat plate	<b>L1272452</b>	✓		✓
VeeMax Ge 60 degree flat plate	<b>L1272453</b>	✓		✓
VeeMax Ge 65 degree flat plate	<b>L1272454</b>	✓		✓
ATRMx II Variable Angle Multiple reflection ATR, 45 deg ZnSe crystal	<b>L1272455</b>	✓		✓
ATRMx Ge 45 degree trough plate	<b>L1272456</b>	✓		✓
ATRMx Ge 45 degree flat plate	<b>L1272457</b>	✓		✓



## 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<sub>2</sub>)** is extremely hard and stable. CaF<sub>2</sub> is not significantly affected by moisture and does not fog. While resistant to most acids and bases, CaF<sub>2</sub> should not be used with ammonium salts.
- **Barium Fluoride (BaF<sub>2</sub>)** is a relatively hard material, similar to CaF<sub>2</sub>. Though less resistant to water than CaF<sub>2</sub>, BaF<sub>2</sub> has a wider spectral range. The useful temperature range extends to 500 °C. Also, BaF<sub>2</sub> 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 $\mu\text{m}$	Transmission Range $\text{cm}^{-1}$	Refractive Index at 1,000 $\text{cm}^{-1}$	Solubility G/100 G H <sub>2</sub> O 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 <sub>2</sub>	0.20 – 4	50,000 – 2,500	1.42 (at 3,333 $\text{cm}^{-1}$ )	Insoluble
Calcium Fluoride, CaF <sub>2</sub>	0.20 – 9	50,000 – 1,100	1.39 (at 2,000 $\text{cm}^{-1}$ )	1.51 x 10 <sup>3</sup>
Barium Fluoride, BaF <sub>2</sub>	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 x 10 <sup>2</sup>
Silver Bromide, AgBr	0.50 – 35	20,000 – 285	2.00	12 x 10 <sup>6</sup>
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 $\text{cm}^{-1}$ )	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	<b>51001188</b>

### Replacement Parts for the Crystal Polishing Kit

Description	Part No.
Selvyt Cloth (pkg. 5)	<b>51001324</b>
Glass Grinding Lap	<b>51001325</b>
Optical Lap	<b>51001326</b>
Cleaning Sponge (pkg. 2)	<b>51001327</b>
Tin Polishing Rouge, 56 g	<b>51001328</b>
Polishing Lap Glass Plate	<b>51001329</b>

## Demountable Cells and Windows

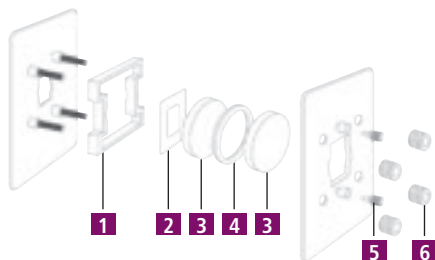


Demountable Cell

### 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
<b>1</b> Window Aligner	04821132
<b>2</b> Neoprene™ Gasket	L1270512
<b>3</b> Circular Window (see below)	
<b>4</b> Spacer (see below)	
<b>5</b> Teflon® Plugs (pkg. 6)	04821008
<b>6</b> Quick Release Nut	04821131

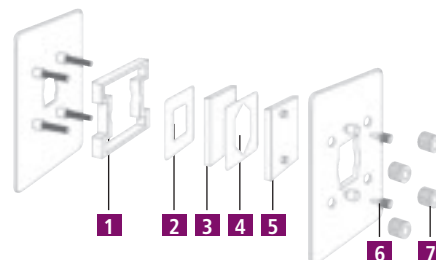


## Semi-demountable Cells and Windows

### 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.
<b>1</b> Window Aligner	04821132
<b>2</b> Neoprene™ Gasket	L1270512
<b>3</b> Undrilled Window (see below)	
<b>4</b> Spacer (see below)	
<b>5</b> Drilled Window (see below)	
<b>6</b> Teflon Plugs (pkg. 6)	04821008
<b>7</b> 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
Teflon*	0.05 mm	10	51001135
Teflon*	0.1 mm	6	51001137
Teflon*	0.2 mm	3	51001140
Teflon*	0.5 mm	3	51001141

\* Teflon spacers can be used for the analysis of less viscous samples.

## 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
Teflon	0.05 mm	6	L1270402
Teflon	0.1 mm	6	L1270404
Teflon	0.2 mm	3	L1270408
Teflon	0.5 mm	3	L1270409
Teflon	1 mm	3	L1270410
Assorted (2 of each)			L1270421

## Sealed Liquid Cells

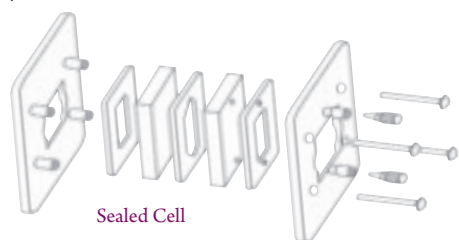
### FOR HIGHLY VOLATILE SAMPLES AND QUANTITATIVE ANALYSIS

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.



Sealed Cell

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

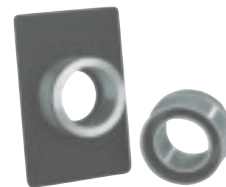
## Rectangular Sealed Liquid Cells

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
Zinc Selenide	0.1 mm	L1270969
	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 <sub>2</sub>	25 mm	4 mm	L1272002
ZnSe	25 mm	2 mm	L1270766
CaF <sub>2</sub>	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
Rectangular cell holder	50 mm	N9302640
Rectangular cell holder	50 mm	02200550

## 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 CaF <sub>2</sub> 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 Condenser with ZnSe Lenses. Requires but does not include DC-2 Diamond Compression Cell	L1272283	L1272354	L1272283
Microfocus Beam Condenser 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; CaF <sub>2</sub> windows	L1272470	L1272470
Cyclone™ C2 gas cell 0.5 to 2.5m; metal body; CaF <sub>2</sub> windows	L1272471	L1272471
Cyclone™ C5 Gas Cell 1-8m VPL; glass body; CaF <sub>2</sub> windows	L1272299	L1272299
Cyclone™ C5 Gas Cell 1-8m VPL; metal body; CaF <sub>2</sub> 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
Storm Gas cell (Pyrex) with NaCl windows	<b>L1272472</b>
Storm Gas Cell (Pyrex) with KBr windows	<b>L1272473</b>
Storm Gas Cell (stainless steel) with NaCl windows	<b>L1272474</b>
Storm Gas Cell (stainless steel) with KBr windows	<b>L1272475</b>

## 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
MIR Optistat DN system (ZnSe windows)	<b>L1272480</b>
NIR Optistat DN system (Sapphire windows)	<b>L1272481</b>
FIR Optistat DN system (Polypropylene windows)	<b>L1272482</b>

## 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
Photoacoustic PA301 accessory	<b>L1272440</b>

## Transmission Options

Description	Part No.	Spectrum One/100/400/65	Spectrum Two	Frontier
Sealed Liquid Cell for Variable Temperature Cell, KBr, 1.00mm pathlength	<b>L1272292</b>	✓	✓	✓
Sealed Liquid Cell for Variable Temperature Cell, KBr, 0.50mm pathlength	<b>L1272293</b>	✓	✓	✓
Sealed Liquid Cell for Variable Temperature Cell, KBr, 0.10mm pathlength	<b>L1272294</b>	✓	✓	✓
Solids Holder for Variable Temperature Cell (Sample size 12 – 30mm diameter and 0.1 – 0.8mm thick)	<b>L1272298</b>	✓	✓	✓
Variable Temperature Cell Holder Jacket KBr windows (pair)	<b>L1272291</b>	✓	✓	✓
Variable Temperature Cell Holder Flow Fittings Kit	<b>L1272359</b>	✓	✓	✓
Cyclone™ C5 Gas Cell Pressure Gauge	<b>L1272307</b>	✓	✓	✓
Cyclone™ C2 Gas Cell Heating Jacket and controller (220V, UK).	<b>L1272364</b>			✓
Cyclone™ C2 Gas Cell Heating Jacket and controller (220V, Europe)	<b>L1272365</b>			✓
Cyclone™ C2 Gas Cell Heating Jacket and controller (110V, 60Hz)	<b>L1272366</b>			✓
Cyclone™ C5 Gas Cell Heating Jacket and controller (220V, UK)	<b>L1272367</b>			✓
Cyclone™ C5 Gas Cell Heating Jacket and controller (220V, Europe)	<b>L1272368</b>			✓
Cyclone™ C5 Gas Cell Heating Jacket and controller (110V, 60Hz)	<b>L1272369</b>			✓
Tornado/Cyclone™ Vacuum/Gas Inlet and Outlet Taps	<b>L1272307</b>			✓
Tornado/Cyclone™ Gas Cell Desiccant Storage Caps	<b>L1272152</b>			✓
Tornado/Cyclone™ Purge Bellows	<b>L1272227</b>			✓



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

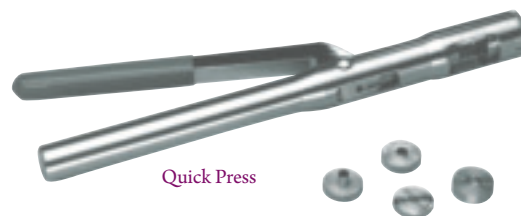
## Evacuable KBr Mini-press

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

## 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

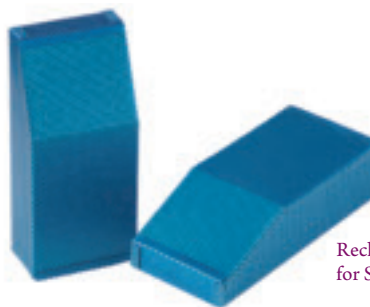
User-installable desiccant includes two desiccant packs. Four packs (two kits) required for each desiccant change. Six packs (three kits) required for use with Spectrum 65, Spectrum 100, Spectrum 100N and Spectrum 400.

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	<b>N0171159</b>
For use with Spectrum Two	<b>L1600244</b>

### 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.	<b>L1250311</b>
For Spectrum One/One NTS Includes: four (4) Desiccant Packs, two to be used in the instrument and two spares for recharging.	<b>L1200219</b>
For Spectrum 1000/BX/RX, Model 1600, Paragon 500/1000 Includes: one (1) Desiccant Pack. One pack required for each desiccant change.	<b>L1180480</b>
For Spectrum 400 Second Desiccant area Includes: one (1) Desiccant Pack. One required for each desiccant change.	<b>L1251840</b>



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.	<b>L1200253</b>
NIR Source Lamp for Spectrum One/65/100/400/Frontier	<b>L1240098</b>
Mid-IR Source Assembly for Spectrum One/100/400/Frontier	<b>L1200406</b>
Mid-IR Source Element for Spectrum One/65/100/400/Frontier	<b>L1200443</b>
Spectrum Two Source Replacement Kit	<b>L1600243</b>

## 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	<b>L1365335</b>
Mid Infrared IPV upgrade kit for Spectrum Software V.6 or lower	<b>L1365341</b>
Mid Infrared IPV kit for Spectrum 10 Software	<b>L1250404</b>
Mid Infrared IPV upgrade kit for Spectrum 10 Software	<b>L1250474</b>
Near Infrared IPV kit for Spectrum Software V.6 or lower	<b>L1180479</b>
Near Infrared IPV upgrade kit for Spectrum Software V.6 or lower	<b>L1180490</b>
Near Infrared IPV kit for Spectrum 10 Software	<b>L1250405</b>
Near Infrared IPV upgrade kit for Spectrum 10 Software	<b>L1250475</b>
Polystyrene Test Film – 0.038 mm thickness (not traceable)	<b>L1202057</b>
Methane Test Sample for Manual AVI	<b>L1250462</b>
Spectralon Reference Material (for use with Remote Solid Sampling Systems)	<b>L1241446</b>



# 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  $\mu\text{m}$  areas to be collected to get more information from the sample quickly.

Description	Qty	Part No.
ATR Imaging Upgrade		<b>L1860319</b>
Spare Germanium Crystal	1	<b>L1860317</b>
ATR Imaging Sample Supports	10	<b>L1860318</b>

## 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  $\text{cm}^{-1}$ . A spare Germanium crystal and holder is provided.

Description	Part No.
Micro ATR Objective Upgrade for Spotlight 400 Systems	<b>L1860334</b>
Micro ATR Objective for AutoIMAGE Systems	<b>L1860275</b>
Micro ATR Objective for Multiscope Systems	<b>L1860298</b>
Optional/Spare Silicone Crystal with Holder	<b>L1860269</b>
Spare Germanium Crystal with Holder	<b>L1860268</b>

## 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  $^{\circ}\text{C}$  in 1 $^{\circ}$  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	<b>N1870184</b>
Hot Stage 220/240 V, 50 Hz	<b>N1870188</b>

## 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	<b>N1870151</b>
Includes:	
Dissecting Forceps	<b>N9302610</b>
Roller Knife	<b>N9302619</b>
Micro Specimen Tweezers	<b>N9302609</b>
Straight Micro Probe	<b>N9302605</b>
Aluminum Probe Handle	<b>N9302622</b>
Pin Vise	<b>N9302603</b>

## Microscope Supplies

Description	Part No.
Holder for 13 mm Sampling Disks	<b>L1861634</b>
Holder for 13 mm Sampling Disks Includes gold mirror.	<b>L1860409</b>
Base Microscope Slides Optical quality glass, 1 x 3 in., 1 mm thick for visible observations (box of 72).	<b>N9302600</b>
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).	<b>L1272249</b>

## 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	<b>L1272282</b>

## 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	<b>N1870185</b>

## 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	<b>N9302611</b>
Barium Fluoride	13 x 2 mm	<b>N9302612</b>
Sodium Chloride	13 x 2 mm	<b>N9302614</b>
Potassium Bromide	13 x 2 mm	<b>N9302615</b>

## 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 Polystyrene 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 Polystyrene 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 Teflon Spacers (contains 6) and Assorted Rectangular Spacers.	L1272268

## FT-IR Sampling Kit Supplies

Description	Size.	Part No.
Nujol	100 mL	04960691
Fluorolube	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

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 Nutraceutical 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 Teflon 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, Teflon 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 Teflon 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 Teflon Spacer (pk 6), Torque screwdriver, HEX BIT 3.0mm, IR Liquid Cell Luer Connected Waste Tube, AVI Manual Kit, FT-IR Fuels Touch Application Software Kit.

Description	Part No.
IR Benzene in Gasoline ASTM D4053 – 04 Application Pack	L1608012

## ROBUST, VERSATILE RAMAN FIBER-OPTIC PROBES AND ACCESSORIES

### Near Infrared Fiber-optic Probes

**For the Raman IdentiCheck, RamanStation 400F, RamanFlex 400 and RamanMicro 200F**

PerkinElmer's Fiber-optic Probes allow you to bring the spectrometer to the sample, making results easier than ever to gather. With a simple point and click process, you can analyze a range of samples types – even in uncontrolled environments and restricted spaces. Offering considerable additional functionality, like in-situ analysis and reaction monitoring, this easy-to-use accessory will be beneficial to your lab.

Description	Part No.
Raman Probe Stainless steel probe, 7.5 mm working distance, 5 M cabling. Spectral range is 230 – 3,500 $\text{cm}^{-1}$ .	<b>L1320002</b>
Liquid Immersion Sleeve An option for Raman Probe comprising stainless steel body with sapphire window. The sleeve allows the Raman Probe to be immersed in liquids at temperatures up to 200 °C.	<b>L1320003</b>
Trigger Fiber Optic Raman Probe, 5 m Stainless-steel probe, 7.5 mm Working distance, 5 m Cabling. Handle with Trigger, Removable contact tip 7.5 mm included, Spectral range is 230 – 3,500 $\text{cm}^{-1}$ .	<b>L1320030</b>
Trigger Fiber Optic Raman Probe, 20 m Stainless-steel probe, 7.5 mm Working distance, 20 m Cabling. Handle with Trigger, Removable contact tip 7.5 mm included, Spectral range is 230 – 3,500 $\text{cm}^{-1}$ .	<b>L1320031</b>
Short (10 cm) immersion sleeve for Triggered Fiber Optic Probe An optional stainless-steel immersion sleeve for Fiber optic probes.	<b>L1320070</b>
Raman Probe — Long Stainless steel probe, 350 mm long, suitable for non-contact and liquid immersion, and use at elevated temperature and pressure up to 200 °C / 1,500 psi, 5 M cabling. Spectral range is 230 – 3,500 $\text{cm}^{-1}$ .	<b>L1320011</b>
Raman Probe — Max Stainless steel probe, suitable for non contact and liquid immersion, and for use at elevated temperature and pressure up to 500 °C / 3,000 psi, 5 M cabling. Spectral range is 230 – 3,500 $\text{cm}^{-1}$ .	<b>L1320012</b>
Purge Jacket for Raman Probe — Max Required to enable Max Probe operation at temperatures between 200° & 500 °C.	<b>L1320013</b>
Removable Contact tip 7.5 mm working distance, replacement unit. Optimize the working distance of the fiber probe by directly touching the sample and reduce the risk of external light contamination of the spectrum.	<b>L1320324</b>
Ultra long working distance lens for fiber probes and triggered fiber probes This accessory allows a working distance of 25 mm instead of 7.5 mm	<b>L1320071</b>



### Raman Calibration and Operational Qualification Kit

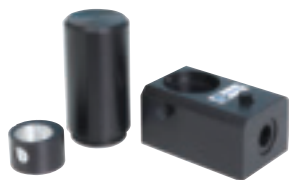
An option for use with RamanStation 400, RamanFlex 400, RamanIdentiCheck and RamanMicro 200. Due to the design of these instruments no routine calibration is required. Annual calibration is normally performed during annual servicing or recertification. The Calibration Kit has been made available for those customers who wish to perform more frequent calibrations.

#### The kit includes:

- Neon lamp and fiber-optic connector for Wavelength Calibration
- Calibration Plate containing Polystyrene for Wavelength Calibration Verification and Laser Wavelength Calibration
- Calcite for Resolution Verification
- NIST 2241 Standard for Intensity Correction

Description	Part No.
RamanStation Calibration and Operational Qualification Kit (785 nm)	<b>L1320237</b>
NIST 2241 Intensity Correction Standard	<b>L1321831</b>

## Fiber Probe Sample Holder



Compact sample holder for the measurement of small vials and cuvettes. Can accommodate three sizes of standard glass vials (29, 23, 15 mm diameter) and cuvettes up to 1 cm pathlength. Also includes four solid sampling cups

for powders, pastes and films. A spring-loaded mechanism shields user from laser light and avoids measurement of ambient light.

Description	Part No.
Fiber Probe Sample Holder	L1320095

## MALDI Sample Plates

MALDI sample plates can be used to examine liquid samples; either in solution or as material dried onto the surface of the plate. A micro-pipette can be used to place a small drop of sample on an appropriate 1 or 2 mm 'spot' on the plate. The MALDI plates can be used with the motorized stage of the RamanStation 400, RamanMicro 300 and RamanMicro 200.

Description	Qty.	Part No.
96-well plate, 1 mm diameter target (gold on glass)	10	L1322000
384-well plate, 1 mm diameter target (gold on glass)	10	L1322001
96-well plate, 2 mm diameter target (gold on glass)	10	L1322002
96-well plate (stainless steel)	1	L1322003
384-well plate (stainless steel)	1	L1322004

## SERS Gold Colloids and Consumables

Description	Part No.
SERS Gold Colloid 50 nm particles (20 ml)	L1329300
SERS Gold Colloid 100 nm particles (20 ml)	L1329307
SERS Gold Colloid 200 nm particles (20 ml)	L1329308
Aggregating Agent – MgSO4 0.16 M milli Q water (20 ml)	L1329301
Standard Crystal Violet Pigment (0.25 ml)	L1329303
Disposable Micropipettes 200 µL 100/pk	L1329304
Disposable Micropipettes 50 µL 100/pk	L1329305
Disposable Micropipettes 2 µL 100/pk	L1329306

## Raman Laser Safety Kit (785 nm)

Description	Part No.
Raman Laser Safety Kit (785 nm), Including Coded Reed Switch with 10 M cabling, 1 pair of Laser Safety Glasses, Laser Viewing Card, Door Warning Label USA and Europe.	L1320262
Door Interlock Kit, Coded Reed Switch with 10 M cabling (one included in safety kit)	L1320820
Laser Viewing Card, for safe viewing of laser position (one included in safety kit)	L1323521
Door Warning Label USA and Europe. (one included in safety kit)	L1323523
Laser Safety Goggles for 785 nm, OD 6 at 785 nm (one included in safety kit)	L1323518

## Low-e Microscope Slides

Low-e microscopy slides are standard size microscope slides which reflect 95% of mid-IR radiation with no interfering absorption effects.



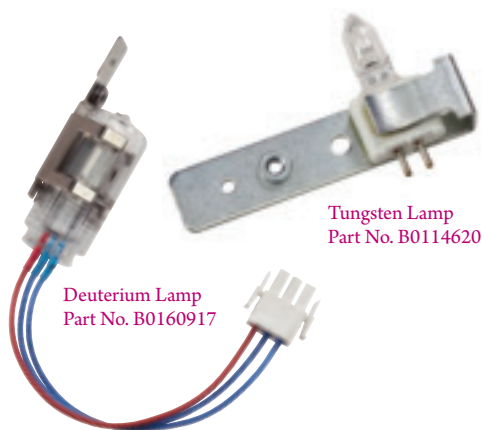
This is achieved by one side of the slide having a reflective surface made up of several coatings, two of which are silver.

Low-e microscopy slides can be used with solids, liquids, and biological materials. Liquid samples are simply applied to the slide surface. For solid samples such as fibers, minerals and polymers a Roller Knife tool can be used to press the sample flat on the slides surface.

Description	Part No.
Low-e microscope slides (pack 25)	L1272249
Roller Knife	N9302619

## 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.



### Source Lamps for LAMBDA Spectrophotometers

#### Deuterium Lamps

LAMBDA Model	Part No.
For LAMBDA 1/3	<b>C0550505</b>
For LAMBDA 1X/2X/3X/4X/5X/5XX/ Bio/6XX/8XX/9XX/10XX	<b>B0160917</b>
For LAMBDA 4/6	<b>C6880055</b>

#### Tungsten Lamps

LAMBDA Model	Part No.
For LAMBDA 1/3*	<b>C0550500</b>
For LAMBDA 1X/2X/3X/4X/Bio/6XX/8XX/9XX/10XX	<b>B0114620</b>
For LAMBDA 4/6*	<b>C6880054</b>
For 5X/5XX	<b>B0091906</b>

\*Prefocused and prealigned.

### Calibration Reference Materials for PerkinElmer and non-PerkinElmer Spectrometers

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.



Photometric and Wavelength Accuracy Reference Material Set

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	<b>B0507805</b>

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.



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. 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.

## Stray Light Solutions Reference Material Set

Description	Part No.
Stray Light Solutions Reference Material Set	<b>B2500099</b>

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. 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.

## Pharmacopoeia Solutions Reference Material Set

Description	Part No.
Pharmacopoeia Solutions Reference Material Set	<b>B2500100</b>

Reference materials to verify calibration of UV/Vis and UV/Vis/NIR Spectrometers in accordance with Pharmacopoeia 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	<b>N1010504</b>

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	<b>N1010539</b>

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.

## 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

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 and 2,500 nm.

#### SUPRASIL UV Quartz

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 and 2,500 nm for an empty cell.

#### SUPRASIL 300 NIR Quartz

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 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.
<b>NIR Quartz SUPRASIL® 300</b>				
1 mm*	45 x 12.5 x 3.5 mm	350 µL	2	<b>B0631013</b>
5 mm	45 x 12.5 x 7.5 mm	1.75 mL	2	<b>B0631014</b>
10 mm	45 x 12.5 x 12.5 mm	3.5 mL	2	<b>B0631015</b>
20 mm	45 x 12.5 x 22.5 mm	7.0 mL	2	<b>B0631016</b>
50 mm	45 x 12.5 x 52.5 mm	17.5 mL	1	<b>B0631017</b>
100 mm	45 x 12.5 x 102.5 mm	35.0 mL	1	<b>B0631018</b>
<b>Optical Glass 360-2,500 nm without lid</b>				
10 mm	45 x 12.5 x 12.5 mm	3.5 mL	4	<b>B0631134</b>
<b>Quartz SUPRASIL</b>				
1 mm*	45 x 12.5 x 3.5 mm	350 µL	2	<b>B0631007</b>
5 mm	45 x 12.5 x 7.5 mm	1.75 mL	2	<b>B0631008</b>
10 mm	45 x 12.5 x 12.5 mm	3.5 mL	2	<b>B0631009</b>
20 mm	45 x 12.5 x 22.5 mm	7.0 mL	2	<b>B0631010</b>
50 mm	45 x 12.5 x 52.5 mm	17.5 mL	1	<b>B0631011</b>
100 mm	45 x 12.5 x 102.5 mm	35.0 mL	1	<b>B0631012</b>
<b>Special Optical Glass</b>				
1 mm*	45 x 12.5 x 3.5 mm	350 µL	2	<b>B0631001</b>
5 mm	45 x 12.5 x 7.5 mm	1.75 mL	2	<b>B0631002</b>
10 mm	45 x 12.5 x 12.5 mm	3.5 mL	2	<b>B0631003</b>
20 mm	45 x 12.5 x 22.5 mm	7.0 mL	2	<b>B0631004</b>
50 mm	45 x 12.5 x 52.5 mm	17.5 mL	1	<b>B0631005</b>
100 mm	45 x 12.5 x 102.5 mm	35.0 mL	1	<b>B0631006</b>

\*Glass lid.

#### Macro with PTFE Stopper

Lightpath	Outside Dim. H x W x D	Cell Volume	Qty.	Part No.
<b>NIR Quartz SUPRASIL 300</b>				
1 mm	52 x 12.5 x 3.5 mm	350 µL	2	<b>B0631031</b>
5 mm	46 x 12.5 x 7.5 mm	1.75 mL	2	<b>B0631032</b>
10 mm	46 x 12.5 x 12.5 mm	3.5 mL	2	<b>B0631033</b>
20 mm	46 x 12.5 x 22.5 mm	7.0 mL	2	<b>B0631034</b>
50 mm	46 x 12.5 x 52.5 mm	17.5 mL	1	<b>B0631035</b>
100 mm	46 x 12.5 x 102.5 mm	35.0 mL	1	<b>B0631036</b>
<b>Quartz SUPRASIL</b>				
1 mm	52 x 12.5 x 3.5 mm	350 µL	2	<b>B0631025</b>
5 mm	46 x 12.5 x 7.5 mm	1.75 mL	2	<b>B0631026</b>
10 mm	46 x 12.5 x 12.5 mm	3.5 mL	2	<b>B0631027</b>
20 mm	46 x 12.5 x 22.5 mm	7.0 mL	2	<b>B0631028</b>
50 mm	46 x 12.5 x 52.5 mm	17.5 mL	1	<b>B0631029</b>
100 mm	46 x 12.5 x 102.5 mm	35.0 mL	1	<b>B0631030</b>
<b>Special Optical Glass</b>				
1 mm	48 x 12.5 x 3.5 mm	350 µL	2	<b>B0631019</b>
5 mm	46 x 12.5 x 7.5 mm	1.75 mL	2	<b>B0631020</b>
10 mm	46 x 12.5 x 12.5 mm	3.5 mL	2	<b>B0631021</b>
50 mm	46 x 12.5 x 52.5 mm	17.5 mL	1	<b>B0631023</b>



## 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.
<b>NIR Quartz SUPRASIL 300</b>			
5 mm	45 x 12.5 x 7.5 mm	700 µL	<b>B0631050</b>
10 mm	45 x 12.5 x 12.5 mm	1.4 mL	<b>B0631051</b>
<b>Quartz SUPRASIL</b>			
5 mm	45 x 12.5 x 7.5 mm	700 µL	<b>B0631048</b>
10 mm	45 x 12.5 x 12.5 mm	1.4 mL	<b>B0631049</b>
<b>Special Optical Glass</b>			
5 mm	45 x 12.5 x 7.5 mm	700 µL	<b>B0631046</b>
10 mm	45 x 12.5 x 12.5 mm	1.4 mL	<b>B0631047</b>

### Semi-micro with PTFE Lid – Clear Sides

Lightpath	Outside Dim. H x W x D	Cell Volume	Part No.
<b>NIR Quartz SUPRASIL 300</b>			
20 mm	45 x 12.5 x 22.5 mm	2.8 mL	<b>B0631045</b>
<b>Quartz SUPRASIL</b>			
20 mm	45 x 12.5 x 22.5 mm	2.8 mL	<b>B0631042</b>
<b>Special Optical Glass</b>			
20 mm	45 x 12.5 x 22.5 mm	2.8 mL	<b>B0631039</b>

### Semi-micro with PTFE Stopper – Black Sides

Lightpath	Outside Dim. H x W x D	Cell Volume	Part No.
<b>NIR Quartz SUPRASIL® 300</b>			
5 mm	46 x 12.5 x 7.5 mm	700 µL	<b>B0631065</b>
10 mm	46 x 12.5 x 12.5 mm	1.4 mL	<b>B0631066</b>
<b>Quartz SUPRASIL</b>			
10 mm	46 x 12.5 x 12.5 mm	1.4 mL	<b>B0631064</b>
<b>Special Optical Glass</b>			
5 mm	46 x 12.5 x 7.5 mm	700 µL	<b>B0631061</b>

### Semi-micro with PTFE Stopper – Clear Sides

Lightpath	Outside Dim. H x W x D	Cell Volume	Part No.
<b>NIR Quartz SUPRASIL 300</b>			
20 mm	46 x 12.5 x 22.5 mm	2.8 mL	<b>B0631060</b>
<b>Quartz SUPRASIL</b>			
20 mm	46 x 12.5 x 22.5 mm	2.8 mL	<b>B0631057</b>

## 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.
<b>Quartz SUPRASIL®</b>			
45 x 12.5 x 12.5 mm	3.2 mm	700 µL	<b>B0631071</b>
<b>Special Optical Glass</b>			
45 x 12.5 x 12.5 mm	3.2 mm	700 µL	<b>B0631070</b>

### Micro with PTFE Stopper - Black Sides

Outside Dim. H x W x Dt	Base Thickness	Cell Volume	Part No.
<b>NIR Quartz SUPRASIL 300</b>			
40 x 12.5 x 12.5 mm	1.5 mm	400 µL	<b>B0631078</b>
<b>Quartz SUPRASIL</b>			
40 x 12.5 x 12.5 mm	1.5 mm	400 µL	<b>B0631077</b>
<b>Special Optical Glass</b>			
40 x 12.5 x 12.5 mm	1.5 mm	400 µL	<b>B0631076</b>

## 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.
<b>Quartz SUPRASIL</b>			
10 mm	2 x 1.5 mm	30 µL	<b>B0631079</b>

### Ultra-micro with Pipette Tips

Lightpath	Aperture	Chamber Volume	Part No.
<b>Quartz SUPRASIL</b>			
0.1 mm	1 x 5 mm	0.5 µL	<b>B0631082</b>
1 mm	1 x 5 mm	5 µL	<b>B0631083</b>
5 mm	∅ 0.8 mm	2.5 µL	<b>B0631080</b>
10 mm	∅ 0.8 mm	5 µL	<b>B0631081</b>

# CYLINDRICAL AND FLOW-THROUGH CELLS

## 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.
<b>NIR Quartz SUPRASIL® 300</b>					
	10 mm	12.5 mm	2.8 mL	Neck Ø 6 mm Taper 1:10	<b>B0631099</b>
	20 mm	22.5 mm	5.6 mL	Neck NS 7	<b>B0631100</b>
	50 mm	52.5 mm	14.0 mL	2 necks NS 7	<b>B0631101</b>
	100 mm	102.5 mm	28.0 mL	2 necks NS 7	<b>B0631102</b>
<b>Quartz SUPRASIL</b>					
	10 mm	12.5 mm	2.8 mL	Neck Ø 6 mm Taper 1:10	<b>B0631095</b>
	20 mm	22.5 mm	5.6 mL	Neck NS 7	<b>B0631096</b>
	50 mm	52.5 mm	14.0 mL	2 necks NS 7	<b>B0631097</b>
	100 mm	102.5 mm	28.0 mL	2 necks NS 7	<b>B0631098</b>
<b>Special Optical Glass</b>					
	10 mm	12.5 mm	2.8 mL	Neck Ø 6 mm Taper 1:10	<b>B0631091</b>
	20 mm	22.5 mm	5.6 mL	Neck NS 7	<b>B0631092</b>
	50 mm	52.5 mm	14.0 mL	2 necks NS 7	<b>B0631093</b>
	100 mm	102.5 mm	28.0 mL	2 necks NS 7	<b>B0631094</b>



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	<b>B0631085</b>
Quartz SUPRASIL	10 mm	15 mm	35 x 12.5 x 12.5 mm	11 x 3.5 mm	390 µL	<b>B0631084</b>
Quartz SUPRASIL	10 mm	15 mm	35 x 12.5 x 12.5 mm	8 x 2 mm	160 µL	<b>B0631087</b>
Quartz SUPRASIL	10 mm	15 mm	35 x 12.5 x 12.5 mm	11 x 2.5 mm	300 µL	<b>B0631150</b>
Quartz SUPRASIL	10 mm	15 mm	35 x 12.5 x 12.5 mm	Ø 3 mm	80 µL	<b>B0631089</b>
Quartz SUPRASIL	50 mm	15 mm	45 x 12.5 x 52.5 mm	Ø 3 mm	370 µL	<b>B0631088</b>
Quartz SUPRASIL	10 mm	15 mm	35 x 12.5 x 12.5 mm	Ø 2 mm	30 µL	<b>B0631090</b>
Quartz SUPRASIL (FIAS)	10 mm	15 mm	35 x 12.5 x 12.5 mm	Ø 1.5 mm	18 µL	<b>B0631151</b>
Quartz SUPRASIL (FIAS)	10 mm	15 mm	35 x 12.5 x 12.5 mm	Ø 1 mm	8 µL	<b>B0631152</b>

## Lids and Stoppers

Description	Lightpath	Part No.
Glass Covering Plate	1 mm	<b>B0631144</b>
PTFE Fitted Lid	5 mm	<b>B0631145</b>
PTFE Fitted Lid	10 mm	<b>B0631129</b>
PTFE Fitted Lid	20 mm	<b>B0631146</b>
PTFE Fitted Lid	50 mm	<b>B0631147</b>
Glass Fitted Lid	100 mm	<b>B0631148</b>
PTFE Stopper with NS 7 Fitting		<b>B0631128</b>
PTFE Stopper with Fitting Ø 6, taper 1:10		<b>B0631149</b>

## Replacement Tubing

Description	Part No.
FEP-Replacement Tubing with one short screw fitting, 500 mm long	<b>B0631130</b>
FEP-Replacement Tubing with one long screw fitting, 500 mm long	<b>B0631131</b>
Sipper Tubing to Cuvette (in)	<b>B2500129</b>
Sipper Tubing to Cuvette (out)	<b>B2500127</b>



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	<b>L7110269</b>
Polystyrene	45 x 12.5 x 12.5 mm	2.5 – 4.5 mL	1,000	<b>L7110271</b>
Polymethyl Methacrylate	45 x 12.5 x 12.5 mm	2.5 – 4.5 mL	1,000	<b>L7110273</b>



### Micro Cells

Description	Outside Dimensions	Cell Volume	Qty.	Part No.
UV Material	45 x 12.5 x 12.5 mm	70 – 550 µL	100	<b>L7110260</b>
UV Material	45 x 12.5 x 12.5 mm	70 – 550 µL	500	<b>L7110261</b>
UV Material Individually Wrapped*	45 x 12.5 x 12.5 mm	70 – 550 µL	100	<b>L7110262</b>
Caps - Blue			100	<b>L7110264</b>
Caps - Yellow			100	<b>L7110265</b>
Caps - Green			100	<b>L7110266</b>
Caps - Orange			100	<b>L7110267</b>

\* 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	<b>L7110268</b>
Polystyrene	45 x 12.5 x 12.5 mm	1.5 – 3.0 mL	1,000	<b>L7110272</b>
Polymethyl Methacrylate	45 x 12.5 x 12.5 mm	1.5 – 3.0 mL	1,000	<b>L7110274</b>

### 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	<b>L7110275</b>

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	<b>B0080822</b>

## Test Tube Holder

This holder accommodates test tubes from 11 to 17 mm diameter.

Description	Part No.
Test Tube Holder	<b>B0500952</b>

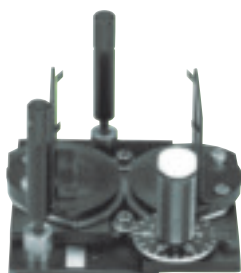
## Variable Angle Sample Holder

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.

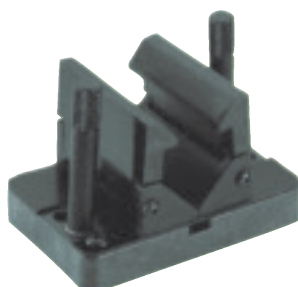
Description	Part No.
Variable Angle Sample Holder	<b>B0152471</b>



Test Tube Holder



Variable Angle Sample Holder



Cylindrical Long-path Cell Holder

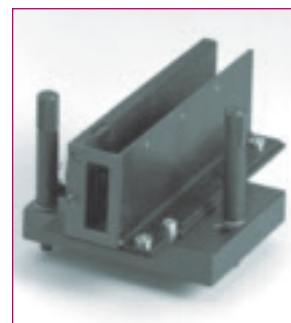


Solid Sample Holder

# MAXIMIZE SAMPLING FLEXIBILITY



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	<b>B0550571</b>

## 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	<b>B0080821</b>

## 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	<b>C0550303</b>

### 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	<b>N1010569</b>

### 8+1 Cell Changer for LAMBDA 1X/2X/3X/4X/Bio

Automatic water thermostatable linear cell changer for eight samples and one reference. Includes: Automatic Linear Transport (B2000186), 8-Cell Holder Water Thermostatable (B2205411), and Water Thermostatable Reference Cell Holder (B2000201). No accessory PCB required.

Description	Part No.
8+1 Cell Changer for LAMBDA 1X/2X/3X/4X/Bio	<b>N1010567</b>

### 8+8 Cell Changer for LAMBDA 1X/2X/3X/4X/Bio

Automatic water thermostatable 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	<b>N1010568</b>

### 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	<b>B0185210</b>

### Manual Cell Changer for LAMBDA 1X/2X/3X/4X/Bio

Base unit to be used with cell holder of choice. Includes Accessory Cover (B0094014). Requires, but does not include, Long Pathlength 5-Cell Holder (B0089439) or 8-Cell Holder, Water Thermostatable (B2500081).

Description	Part No.
Manual Cell Changer for LAMBDA 1X/2X/3X/4X/Bio	<b>B2500080</b>



### Automatic Linear Transport for LAMBDA 1X/2X/3X/4X/Bio

Automatic linear transport unit. Can be combined with 8-Cell Holder, Water Thermostatable (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 Thermostatable Reference Cell Holder (B2000201) can be used alternatively.

Description	Part No.
Automatic Linear Transport for LAMBDA 1X/2X/3X/4X/Bio	<b>B2000186</b>

### Reference Kit

For Automatic Linear Transport (B2000186). For reference position to be used with 8-Cell Holder, Water Thermostatable (B2205411) or Long Pathlength 5-Cell Holder (B0089439).

Description	Part No.
Reference Kit	<b>B2000310</b>

### Gel-Scanner Linear Transport for Gels and Glasses for LAMBDA 1X/2X/3X/4X/Bio

Complete Gel-Scanner accessory. Allows measurement of 100 mm gel cuvettes or glass samples up to 100 mm pathlength in continuous or random access mode. No accessory PCB required. For gel measurement, Gel Cell (B0107047) is required, but not included.

Description	Part No.
Gel-Scanner Linear Transport for Gels and Glasses for LAMBDA 1X/2X/3X/4X/Bio	<b>B2000199</b>

### 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	<b>CP183700</b>

# FAST, EFFICIENT, TEMPERATURE-CONTROL



## 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° 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° to 45 °C. Must be service installed. Requires the LAMBDA 25, 35, 45 Accessory 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° 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° 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-Position 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 (PCB-150)

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° 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 (PCB-150)	N1015158

## Water Circulator

Electronic temperature control, continuously settable from 32° to 60 °C, temperature stability +/- 0.2 °C, with precision thermometer and built-in cooling coils.

Description	Part No.
Water Circulator, 110 V/60 Hz	N9302736



## 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

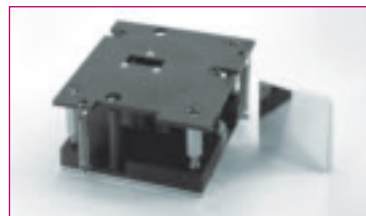
- Measurement range: 190 – 3,100 nm (UV/Vis/NIR), 190 – 900 nm (UV/Vis)
- Angular range: 8 – 68° incident angle
- Depolarization recommended for angles >15°
- Measure separate S&P polarizations using the Double Depolarizer Drive (B0505530)
- Absolute and relative measurements can be made
- Typical applications include the measurement of anti-reflection coatings, high-reflectors, coating thickness and metallic reflectors

Description	Part No.
URA* (UV/Vis only)	<b>L6020208</b>
URA* (UV/Vis/NIR)	<b>L6020202</b>
URA (UV/Vis/NIR) for LAMBDA 1050 only	<b>L6020358</b>

\*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.



Relative Specular Reflectance Accessory, 6°

### 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	<b>B0086703</b>

## 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	<b>B0137314</b>

## 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	<b>B0071519</b>

## Powder Sample Holder Set

For measurement of powder samples.

Description	Part No.
Powder Sample Holder Set	<b>PELA9040</b>





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 Integrating Sphere is 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

\*Not available for the LAMBDA 750.

## 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

## 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.
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.
Peristaltic 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	<b>B0509546</b>
650/850/950/1050	<b>L6020290</b>
800/900	<b>B2205302</b>

### Pair of Mono-Fibers

2x2 meters each.

Wavelength	Part No.
250 to 900 nm (UV/Vis)	<b>B0196912</b>
400 to 2400 nm (Vis/NIR)	<b>B0509591</b>

### 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	<b>N1016070</b>

### Light Shield

For use with Fiber Optic Dip Probe (N1016070).

LAMBDA Model	Part No.
All	<b>N1016074</b>

### Probe Tip

For use with Fiber Optic Dip Probe (N1016070).

Pathlength	Part No.
2 mm	<b>N1016073</b>
5 mm	<b>N1016072</b>
10 mm	<b>N1016071</b>

## GENERAL PURPOSE OPTICAL BENCH KITS FOR THE LAMBDA 6XX/8XX/9XX/10XX

### Sample Holder Mount Kit

Two cantilever sample holders with magnetic bases.

Description	Part No.
Sample Holder Mount Kit	<b>PELA1005</b>

### 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	<b>PELA1006</b>

### Optical Bench Kit

Two magnetized mounted iris diaphragms on two optical rails with mounts.

Description	Part No.
Optical Bench Kit	<b>PELA1008</b>

### 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	<b>PELA1013</b>

### Beam Blocker Kit

Optical black beam blocker on adjustable base with magnetic mounts.

Description	Part No.
Beam Blocker Kit	<b>PELA1014</b>

### 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	<b>PELA1015</b>

## Polarimetry Cells

Our polarimetry cells are exclusively manufactured for PerkinElmer. Use them to maintain the high level of accuracy and precision of your PerkinElmer Polarimeter. They are manufactured by a special process in which the windows are fused to the cell bodies to ensure that they are free of tension. Because the windows are not mechanically inserted, birefringence effects, which could affect the accuracy of your reading, are eliminated.

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.

All cells are jacketed for thermostating with constant temperature water, except for one flowcell. Their residual cell rotation is almost zero and may be neglected in most measurements.

Cells are designed for easy filling and emptying, with no loss of sample. The filling ports are arranged so that liquid flows over the inner window surfaces. A wide variety of cells made of fused silica are available. These cells are used for measurements of optical rotation in the ultraviolet range or at elevated temperatures.

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.

## Standard Cells for Polarimetry

Material	Lightpath	Cell Vol.	Part No.
Quartz	100 mm	3.0 mL	<b>B0507403</b>
Quartz	100 mm	6.2 mL	<b>B0041696</b>
Optical Glass	100 mm	3.0 mL	<b>B0507447</b>
Optical Glass	100 mm	6.2 mL	<b>B0041693</b>

## Short Path Cells for Polarimetry

Material	Lightpath	Cell Vol.	Part No.
Quartz, Fused Silica	20 mm	1.3 mL	<b>B0022087</b>
Quartz, Fused Silica	10 mm	0.6 mL	<b>B0022088</b>
Optical Glass	10 mm	0.5 mL	<b>B0017052</b>
Optical Glass	1 mm	0.25 mL	<b>B0017057</b>

## Micro Cells for Polarimetry

Material	Lightpath	Cell Vol.	Part No.
Quartz, Fused Silica	100 mm	1.0 mL	<b>B0023365</b>
Quartz, Fused Silica*	100 mm	0.35 mL	<b>B0131186</b>
Optical Glass	100 mm	1.0 mL	<b>B0017047</b>

\* With reduced inner diameter

## Beaker Cells for Polarimetry

Beaker cells are not thermostatable.

Material	Lightpath	Cell Vol.	Part No.
Quartz, Fused Silica	100 mm	50 mL	<b>B0023363</b>
Optical Glass	100 mm	50 mL	<b>B0017041</b>

## Flow Cells for Polarimetry

Material	Lightpath	Cell Vol.	Part No.
Quartz, Fused Silica*	100 mm	6.2 mL	<b>B0507451</b>
Optical Glass	100 mm	5.0 mL	<b>B0017054</b>

\* With two PTFE tubing (4 mm i.d.)

## Pluggable Coupling

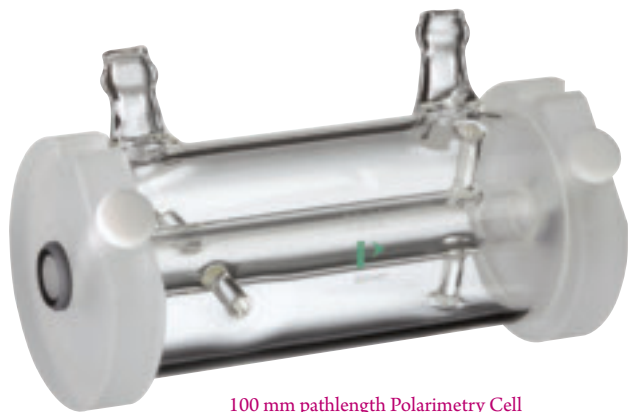
For cell thermostating.

Connection	Part No.
Female	<b>B0023491</b>
Male	<b>B0023492</b>

## 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	<b>B0017059</b>
041 693/041 696	6 mm	<b>B0041695</b>



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	<b>B0008754</b>
Mercury Vapor (St46)	341/343S/343plus/341LC	<b>B0510581</b>



## 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 thermostatable housing.

Description	Nominal Rotation	Part No.
Quartz Control Plate +1	+1° at 589 nm	<b>B0098800</b>
Quartz Control Plate -1	-1° at 589 nm	<b>B0098799</b>

## Optional Interference Filter

For Model 341 Polarimeters. Service installation recommended.

Wavelength	Part No.
302 nm	<b>B0094404</b>
325 nm	<b>B2100154</b>
405 nm	<b>B0062666</b>



## 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.
<b>with PTFE Lid</b>								
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	<b>B0631104</b>
Quartz SUPRASIL®	2	10 x 10 mm	45 x 12.5 x 12.5 mm	10 mm	1.25 mm	3.5 mL	4	<b>B0631107</b>
<b>with PTFE Stopper</b>								
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	<b>B0631110</b>
Quartz SUPRASIL	2	10 x 10 mm	46 x 12.5 x 12.5 mm	10 mm	1.25 mm	3.5 mL	4	<b>B0631113</b>

### 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.
<b>with PTFE Lid</b>								
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	<b>B0631115</b>
Quartz SUPRASIL®	2	10 x 4 mm	45 x 12.5 x 12.5 mm	4 mm	1.25 mm	1.4 mL	4	<b>B0631116</b>
<b>with PTFE Stopper</b>								
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	<b>B0631117</b>
Quartz SUPRASIL	2	10 x 4 mm	46 x 12.5 x 12.5 mm	4 mm	1.25 mm	1.4 mL	4	<b>B0631118</b>

### 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.
<b>Macro/Semi-micro</b>								
Quartz SUPRASIL	1	4 x 4 mm	45 x 12.5 x 12.5 mm	4 mm	4.5 mm	500 µL	4	<b>B0631132</b>
Magnetic Stirrer Fleas	6							<b>04978499</b>

## 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.
<b>with PTFE Lid</b>								
Special Optical Glass	2	10 x 2 mm	45 x 12.5 x 12.5 mm	2 mm	1.25	700 µL	4	<b>B0631119</b>
Quartz SUPRASIL	2	10 x 2 mm	45 x 12.5 x 12.5 mm	2 mm	1.25	700 µL	4	<b>B0631120</b>
<b>with PTFE Stopper</b>								
Special Optical Glass	2	10 x 2 mm	40 x 12.5 x 12.5 mm	2 mm	1.25	700 µL	4	<b>B0631121</b>
Quartz SUPRASIL	2	10 x 2 mm	40 x 12.5 x 12.5 mm	2 mm	1.25	700 µL	4	<b>B0631122</b>

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		<b>B0631123</b>
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	<b>B0631142</b>
Micro Cell Adapter	4								<b>L2250139</b>

\*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	<b>B0631124</b>

Quartz SUPRASIL Flow-through Cells for Fluorimetry (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. H x W x D	Inside Width H x W x D	Base Thickness	Cell Volume	Windows	Part No.
<b>Macro Inlet/Outlet Tubes on Top</b>								
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	<b>B0631126</b>
<b>Semi-micro Inlet/Outlet Tubes on Top</b>								
Quartz SUPRASIL	1	10 x 4 mm	15 mm	45 x 12.5 x 12.5 mm	11 x 4 mm	450 µL	3	<b>B0631127</b>
Quartz SUPRASIL*	1	3 x 3 mm	15 mm	35 x 12.5 x 12.5 mm	11 x 3 mm	100 µL	3	<b>B0631133</b>

\*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	<b>B0631125</b>

## 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 800 nm. The full detection range is 200 – 800 nm.

Requires installation by a PerkinElmer service engineer.

Description	Part No.
Red-Sensitive Photomultiplier	09972337



## 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 thermostatable 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.
<b>For LS50/45/55</b>	
Single-cell Peltier Accessory	<b>L2250150</b>
TempScan Software	<b>L225B009</b>

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	<b>L2250134</b>

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	<b>L2250140</b>

## 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	<b>L2250141</b>



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	<b>L2250145</b>

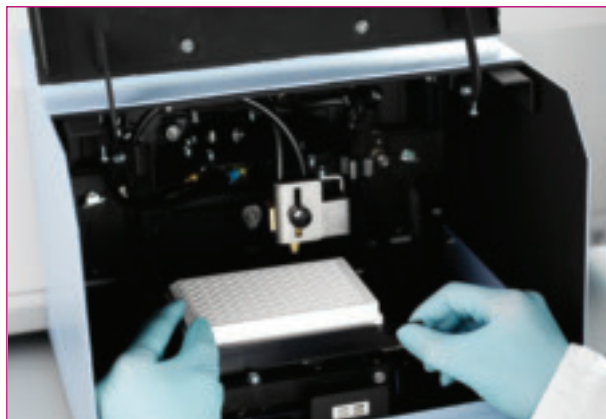
## Low-temperature Luminescence Accessory

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		<b>L2250136</b>
Low-temperature Sample Tubes	5	<b>52126027</b>

## 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	<b>L2250035</b>
For work above 260 nm Excitation and Emission	<b>L2250042</b>

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	<b>L2251692</b>

Ideal for DNA Quantitation, Enzyme-linked Assays, Protein Measurements, Fluorescent ELISAs, Cell Viability Testing and Drug and Steroid 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	<b>L2250135</b>

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	<b>L2250138</b>

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-sensitivity Alternative 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
<b>Powder Sample Holder</b>	
For use with Front Surface Accessory (52123130)	52123164
<b>Synthetic Fused Silica Window</b>	
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	<b>02190048</b>

## 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  $\mu$ L sample pans.



Description	Part No.
Universal Crimper Press	<b>B0139005</b>

## ALUMINUM SAMPLE PANS AND COVERS

Sample Pan	Operating Range	Vol. ( $\mu$ L)	Max Pressure	Qty.	Crimper (Sealer)	Part No.
<b>Open/Crimped Pans</b>						
Standard Aluminum Pans and Covers	-170° to 600 °C	40	Ambient	400	02190048 or B0139005 with B0508921	<b>02190041</b>
Aluminum Sample Pans	-170° to 600 °C	28	Ambient	200	N5356027 or N5356028	<b>N5356010</b>
Aluminum Sample Pans	-170° to 600 °C	45	Ambient	400	N5356027 or N5356028	<b>N5356012</b>
Aluminum Pans for HyperDSC®	-170° to 600 °C	40	Ambient	100	Not Required	<b>N5203115</b>
<b>Vented/Pierced Pans</b>						
Aluminum Covers (Pierced)*	-170° to 600 °C		0.05 mm hole	400	B0139005	<b>B7001014</b>
Volatile Aluminum Pans and Covers (Pierced)**	-170° to 600 °C	20	0.05 mm hole	100	02190061 or B0139005 with B0144637	<b>N5190788</b>
Aluminum (Vented) Pans	-170° to 600 °C	30	Vented	400	B0139005	<b>B0143018</b>
Aluminum (Vented) Pans	-170° to 600 °C	50	Vented	400	B0139005	<b>B0143019</b>
<b>Hermetically Sealed/Volatile Pans</b>						
Aluminum Pans	-170° to 600 °C	10	1 bar	400	B0139005	<b>B0143015</b>
Aluminum Pans	-170° to 600 °C	30	1 bar	400	B0139005	<b>B0143016</b>
Aluminum Pans	-170° to 600 °C	50	1 bar	400	B0139005	<b>B0143017</b>
Aluminum Pans and Covers	-170° to 600 °C	20	2 bar	400	02190061 or B0139005 with B0144637	<b>02190062</b>
Aluminum Pans and Covers	-170° to 600 °C	10	3 bar	400	B0139005	<b>B0169319</b>
Aluminum Pans and Covers	-170° to 600 °C	30	3 bar	400	B0139005	<b>B0169320</b>
Aluminum Pans and Covers	-170° to 600 °C	50	3 bar	400	B0139005	<b>B0169321</b>
Non-coated Aluminum Sample Pans and Covers	-170° to 500 °C	7.5	3 bar	200	N5356027 or N5356028	<b>N5356008</b>
Aluminum Pans and Cover Starter Kit			3 bar	200/200	B0139005	<b>B0510800</b>
<b>Photo DSC Pans</b>						
Aluminum Pans for Photocalorimetric Analysis	-170° to 600 °C	12.5	Ambient	100	Not Required	<b>B0196858</b>
Aluminum Pans and Quartz Covers	-170° to 600 °C	12.5	Ambient	100	Not Required	<b>B0198030</b>
Quartz Covers				10		<b>B0181091</b>

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, sublimation studies.

## High Pressure Capsule Sealing Tool

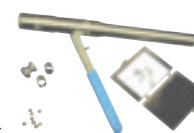
This reliable sealing tool is fast and precise. It employs a built-in torque clutch which guarantees that all capsules are closed with the same torque.



Description	Part No.
High-Pressure Capsule Sealing Tool	<b>B0182864</b>

## 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	<b>09908467</b>
Quick Press Spacer Die	<b>03191047</b>

## 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	<b>03190218</b>
▶ Stainless Steel Pans, Covers and O-rings	-40° to 300 °C	60	24 bar	1,000	B0139005 with B0505340 -or- 09908467 with 03191047	<b>03190029</b>
▶ High Pressure Stainless Steel Pans, Covers and Seals <sup>1</sup>	-170° to 400 °C	30	150 bar	5	B0182864	<b>B0182901</b>
▶ High Pressure Gold-plated Pans and Covers <sup>1</sup>	-170° to 400 °C	30	150 bar	5	B0182864	<b>B0182902</b>
▶ High Pressure Titanium Pans, Covers and Seals <sup>2</sup>	-170° to 400 °C	30	150 bar	5	B0182864	<b>B0182903</b>
▶ Aluminum Sample Pans and Covers, High Volume <sup>2</sup>	-170° to 500 °C	70	30 bar	40	N5356027 or N5356028	<b>N5356002</b>
▶ Aluminum Sample Pans and Covers, Small Volume <sup>3</sup>	-170° to 500 °C	15	30 bar	40	N5356027 or N5356028	<b>N5356003</b>

<sup>1</sup> Reusable, includes 5 Pans and 20 Gold-plated Seals, uses Replacement Seals (B0182905)

<sup>2</sup> Reusable, includes 5 Pans and 20 Titanium Seals, uses Replacement Seals (B0185054)

<sup>3</sup> 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	<b>N5190180</b>
▶ Standard Copper Pans and Covers <sup>6</sup>	-170° to 730 °C	40	Ambient	200	02190048	<b>03190026</b>
▶ Heat Treated Aluminum Pans and Covers	-170° to 600 °C	40	Ambient	100	Not Required	<b>N5340188</b>
▶ Graphite Sample Pans and Covers	-170° to 600 °C	40	Ambient	4	Not Required	<b>03190025</b>
▶ Gold Sample Pans and Covers	-170° to 730 °C	40	Ambient	10	Not Required	<b>02190042</b>
▶ Copper Sample Pans <sup>4, 5, 6</sup>	-170° to 800 °C	45	Ambient	200	Not Required	<b>N5356021</b>
▶ Aluminum Sample Pans, High Volume <sup>2, 3</sup>	-170° to 600 °C	90	Ambient	200	N5356027 or N5356028	<b>N5356034</b>
▶ Ceramic Sample Pans <sup>7</sup>	RT to 1,500 °C	25	Ambient	5	Not Required	<b>N5356019</b>
▶ Ceramic Sample Pans <sup>7</sup>	RT to 1,500 °C	55	Ambient	2	Not Required	<b>N5356020</b>
▶ Platinum Sample Pans <sup>8</sup>	-170° to 1,500 °C	45	Ambient	5	Not Required	<b>N5356016</b>
▶ Platinum Sample Pans, High Volume <sup>8</sup>	-170° to 1,500 °C	95	Ambient	5	Not Required	<b>N5356017</b>

<sup>1</sup> Not for use with Autosampler <sup>2</sup> Cover Crimp style (N5356014). Not for DSC Autosampler, requires Crimping Die and Stage (N5366030)

<sup>3</sup> Cover Plate style (N5356015) <sup>4</sup> Copper Mesh Cover (N5356022) <sup>5</sup> Stainless Steel Mesh Cover (N5356023) <sup>6</sup> Recommended for O.I.T. tests <sup>7</sup> No Covers <sup>8</sup> 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	<b>03190033</b>
Tin	231.88 °C	<b>03190034</b>
Lead	327.47 °C	<b>03190035</b>
Zinc	419.47 °C	<b>03190036</b>
Encapsulated Kit*		<b>02190045</b>
Encapsulated Kit**		<b>N5190762</b>

\* 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	<b>02190136</b>

## 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	<b>03190030</b>

### 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	<b>04190299</b>
Vented	6	<b>03190031</b>
Unvented	6	<b>03190032</b>
DSC Autosampler, (2 required)	1	<b>B0139122</b>
Large furnace covers	2	<b>B0182981</b>

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	<b>N5361180</b>

### Forceps

Description	Part No.
Flat Round Tips	<b>09908400</b>
Flat Pointed Tips	<b>N5361078</b>
Hook	<b>09908138</b>

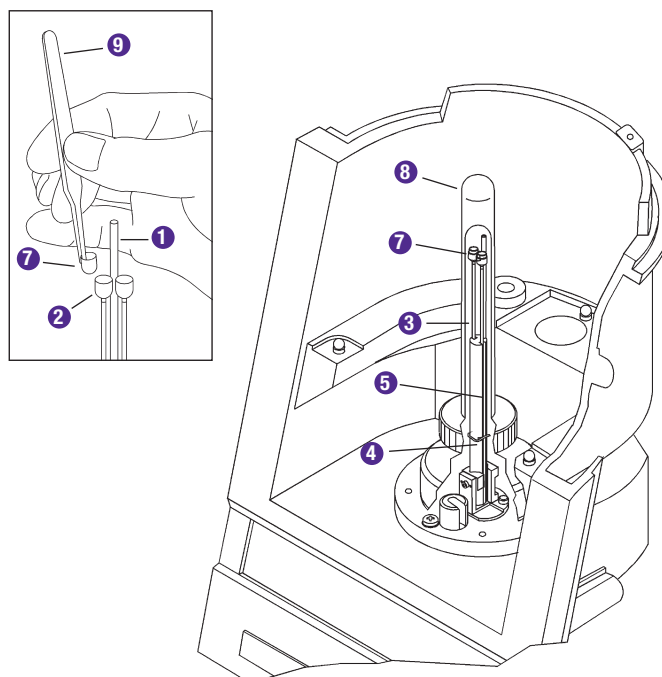


### Sample Pan Manipulators

#### 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	<b>B0142512</b>
Standard Sample Pan Manipulator	<b>B0143263</b>
Replacement Rubber Tip	<b>N5376097</b>



### DTA 7 and DTA 1700 Supplies and Accessories

Components	Part No.
<b>1</b> DTA Alumina Purge Gas Tube, Located between the sample and reference cups; permits purging of the sample area (pkg. 2)	<b>04190119</b>
<b>2</b> Sample and Reference Cup Holders, 95% platinum/5% rhodium cups 0.47 cm diameter (pkg. 4)	<b>04190163</b>
Aluminum Oxide Powder*, Vial of 28 g	<b>04190197</b>
<b>4</b> Thermocouple Retaining Clips, (pkg. 6)	<b>04190117</b>
<b>5</b> Thermocouple Support Post	<b>04191228</b>

\* Operating Tip: Place some aluminum oxide powder between the sample and the cup to prevent the sample from adhering to the cup.

### 7 DTA 7 and DTA 1700 Sample and Reference Cups

Alumina, platinum, and magnesia cups are available. Use alumina cups if the sample is to be brought to temperatures higher than 1500°C and when metal samples are being run. Use magnesia cups for super conductor investigations. Use the platinum cups when alumina and magnesia cups are not suitable.

Cup Material	Size	Quantity	Part No.
Alumina	60 mm <sup>3</sup>	1	<b>04191290</b>
	60 mm <sup>3</sup>	6	<b>04190166</b>
	60 mm <sup>3</sup>	25	<b>04190387</b>
	100 mm <sup>3</sup>	1	<b>04191291</b>
	100 mm <sup>3</sup>	6	<b>04190217</b>
	100 mm <sup>3</sup>	25	<b>04190388</b>
Alumina Sample, Cup Lids		Pair	<b>N5380063</b>
Platinum	100 mm <sup>3</sup>	10	<b>04190165</b>
Magnesia	60 mm <sup>3</sup>	1	<b>04191838</b>
	100 mm <sup>3</sup>	1	<b>04191839</b>

Components	Part No.
<b>9</b> Non-magnetic Straight Forceps	<b>09908400</b>

### DTA 7 only Supplies and Accessories

Components	Part No.
<b>3</b> Matched Sample and Reference Thermocouples,** matched pair, S-Type	<b>N5380052</b>
O-Rings, Furnace Tube	<b>09921019</b>
Base	<b>09921018</b>
Purge Tube	<b>09902245</b>
<b>8</b> Alumina Furnace Tube, cylindrical with closed end, placed over the cups to ensure even heating of both the sample and reference materials and to provide a controlled gas environment.	<b>N5380037</b>
Oven Thermocouple Assembly, S-Type	<b>N5380051</b>
Sapphire Cup for Oven Thermocouple	<b>N5191875</b>
Replacement Furnace Heater Assembly	<b>N5380053</b>
DTA 7 Spares Kit	<b>N5380015</b>
Hex Wrench	<b>09907236</b>
Open Alumina Furnace Tube Kit, For collecting evolved gases generated during a DTA experiment	<b>N5380062</b>
Balance Cup Stand, Use this stand to support the sample cup vertically while weighing your sample	<b>N5381081</b>

\*\*Operating Tip: When replacing the thermocouple, replace both thermocouples because they are a matched pair.

## ACCESSORIES

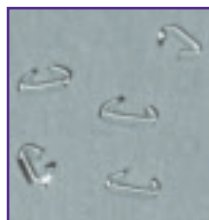
### Furnace Accessories and Glassware

Description	Standard TGA Part No.	TGA High-Temp. Part No.
Furnace	<b>N5190264</b>	<b>N5190172</b>
Furnace Thermocouple		<b>N5190196</b>
Cup for Furnace, Thermocouple		<b>N5191875</b>
<b>1</b> Sample Thermocouple	<b>03190253</b>	<b>N5190197</b>
<b>2</b> Furnace Tube Quartz TGA 7	<b>N5190203</b>	
<b>2</b> Furnace Tube Quartz PYRIS 1 TGA	<b>N5370459</b>	<b>N5190202</b>
Platinum Furnace Shield	<b>03191628</b>	
<b>4</b> Balance Tare Weight	<b>N5190282</b>	<b>N5190284</b>
<b>5</b> Cover O-ring	<b>09902163</b>	<b>09902163</b>

### Furnace Accessories for STA 6000

Description	Part No.
STA 6000 SaturnA Sensor	<b>N5202083</b>

### Hangdown Wire Kits



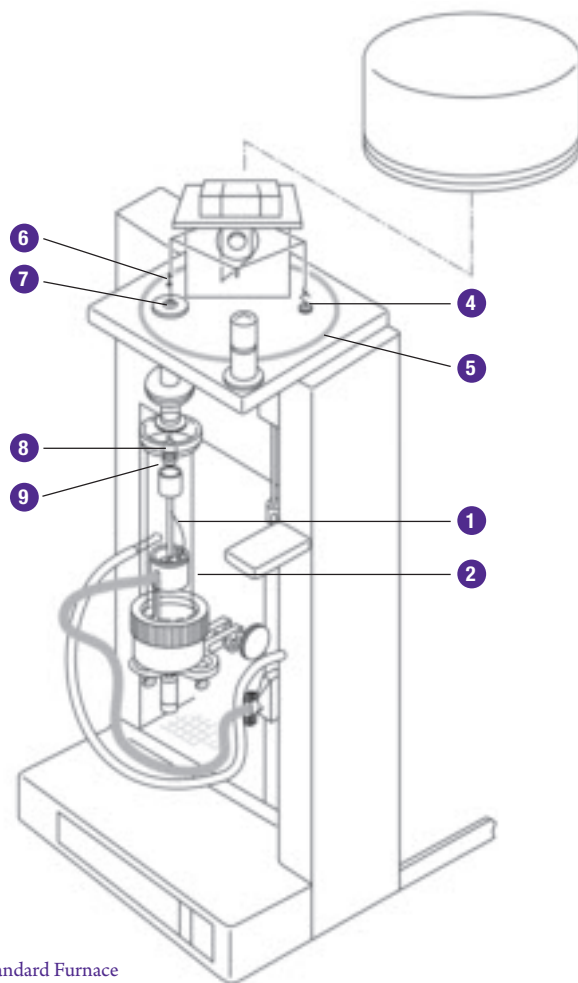
Hangdown Wire Link Kit, Quartz



Hangdown Wire Kit, Nichrome



Stirrup Kit, Platinum



TGA Standard Furnace

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.
<b>6</b> Hangdown Wire Link Kit	Quartz	10	<b>N5190330</b>			
Hanger Kit	Quartz	5			<b>N5370487</b>	
Autosampler Hanger Kit	Quartz	5			<b>N5370488</b>	
<b>7</b> Hangdown Wire Kit Includes 6 preformed and 6 straight wires	Nichrome	6	<b>N5190285</b>			
Hangdown Wire Kit Includes 6 preformed wires	Nichrome	6	<b>N5190516</b>			
Hangdown Wire Kit Includes 6 straight wires	Nichrome	6	<b>N5190515</b>			
Autosampler Hanger Kit	Nichrome	5			<b>N5370490</b>	
<b>7</b> Hanger Kit	Platinum	6				<b>N5370330</b>
<b>7</b> Hangdown Wire Kit Includes 6 preformed wires	Platinum	6		<b>N5190276</b>		
<b>8</b> Stirrup Kit	Platinum	4	<b>03190265</b>	<b>N5190279</b>	<b>03190265</b>	<b>N5190279</b>



## 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 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

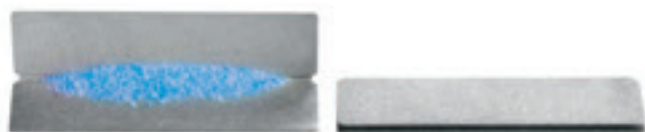
## Calibration Supplies

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
Polycarb 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	<b>N5330254</b>
LN2 Cryo Dewar with Transfer Line and Fittings	50 L	<b>N5373009</b>



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-adaptor 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.		<b>N5330604</b>
Material Pockets For running pharmaceuticals, powders and other non-self supporting samples.	Set of 10	<b>N5330322</b>
	Set of 100	<b>N5330323</b>
	Set of 1,000	<b>N5330324</b>
Mesh Pockets For running pharmaceuticals, paints and other non-supporting samples where letting moisture and solvent in and out is desirable.	Set of 25	<b>N5330177</b>
	Set of 100	<b>N5330178</b>
DMA 7e Fixture Adapter Allows use of DMA 7 fixtures in DMA 8000.		<b>N5330613</b>
DMA Photo Adapter Allows use of DSC UV system light guides with DMA 8000.		<b>N5337024</b>
Fluid Bath Accessory* Allows immersion of samples.		<b>N5330262</b>
Humidity Generator** Allows testing in controlled relative humidity.		<b>N5330400</b>
Time Temp Superposition SW Allows manipulation of frequent scan data to generate mastercurves.		<b>N5330265</b>

\* Required for routine humidity work with Humidity Generator (N5330400).

\*\* Requires Fluid Bath Accessory (N5330262).

## Tubes and Reagent Kits

Description	Part No.
<b>2400 CHN Kit for 2000 Runs</b>	
Combustion and Reduction Tube and Reagent Kits and Tin Capsules	<b>N2410683</b>
<b>2400 CHNS Kit for 2000 Runs</b>	
Combustion/Reduction Tube, Reagent Kits and Tin Capsules	<b>N2410684</b>
<b>2400 CHN Combustion Tubes and Reagents for 2000 Runs</b>	
Combustion Tubes, EA1000, Silver Tungstate on Magnesium Oxide, Silver Vanadate and Vial Receptacles	<b>N2410680</b>
<b>2400 CHN Reduction Tubes and Reagents for 500 Runs</b>	
Reduction Tubes, Copper Plus and Copper Oxide	<b>N2410681</b>
<b>2400 CHNS Combustions/Reduction Tubes and Reagents for 500 Runs</b>	
Combustions/Reduction Tubes, EA600 and Copper (wire form)	<b>N2410682</b>
<b>2400/2410 Maintenance Kit</b>	
Includes O-Rings, Washers, Fuses and Springs Required for Routine Maintenance of the 2400 or 2410 Elemental Analyzers	<b>N2410152</b>

## Packing Supplies

Description	Part No.
Silver Gauze Strip (Pkg 1)	<b>N2410145</b>
Platinum Gauze Strip (Pkg 1)	<b>N2411273</b>
Quartz Wool, (50 g)	<b>02401118</b>
Copper Diffusion Plug, each	<b>N2411333</b>

## Calibration Standards

Description	Size	Part No.
Acetanilide	2 g	<b>02401121</b>
Benzoic Acid	4 g	<b>02401120</b>
Cystine	4 g	<b>N2410324</b>
EDTA	100 g	<b>N2410325</b>
Sulfamic Acid	10 g	<b>N2410501</b>



PerkinElmer genuine reagents will assure consistent and accurate results.

## Reagents

Description	Part No.
EA-1000, (50 g)	<b>N2410092</b>
EA-1000, (3 x 50 g)	<b>N2410166</b>
Silver Tungstate/Magnesium Oxide, (100 g)	<b>02401344</b>
Silver Tungstate/Magnesium Oxide, (3 x 100 g)	<b>N2410165</b>
Silver Vanadate, (40 g)	<b>02401117</b>
Silver Vanadate, (3 x 40 g)	<b>N2410164</b>
EA-6000, (50 g)	<b>N2410278</b>
EA-6000, (5 x 50 g)	<b>N2410331</b>
Platinized Carbon, (10 g)	<b>02400119</b>
Copper Plus, (454 g)	<b>02400117</b>
Copper Plus, (10 x 454 g)	<b>N2410157</b>
Copper Plus – Wire Form, (454 g)	<b>02401362</b>
Copper Plus – Wire Form, (5 x 454 g)	<b>N2410332</b>
Copper for Nitrogen, (454 g)	<b>N2411527</b>
Copper for Nitrogen, (10 x 454 g)	<b>N2410518</b>
Copper Oxide – Wire Form, (454 g)	<b>02401092</b>
Aquasorb, (25 g)	<b>N2410277</b>
Colorcarb, (100 g)	<b>02400115</b>
Colorcarb, (3 x 100 g)	<b>N2410188</b>
Magnesium Perchlorate, (454 g)	<b>02401119</b>
Magnesium Perchlorate, (3 x 454 g)	<b>N2410191</b>
Thermolite, (100 g)	<b>02400815</b>

## Receptacles

Description	Qty.	Part No.
Quartz Tube Insert	1	<b>N2411401</b>
Vial Receptacle, Metal (CHN Mode and 2410)	1	<b>N2411335</b>
Vial Receptacle, Metal (CHNS and Oxygen Modes)	10	<b>N2410177</b>
Vial Receptacle, Ceramic	1	<b>09904866</b>
Zirconia Cloth	1	<b>N2410168</b>

## Sample Capsules and Sealers

### Tin Capsules

For analysis of nonvolatile solid samples.

Description	Qty.	Part No.
Standard Tin Capsule Kit	96	<b>N2411255</b>
Standard Tin Capsule Kit, (pkg. 10)	960	<b>N2410155</b>
Large Tin Capsule Kit	250	<b>N2411362</b>

### Flat Tin Disks

For analyzing 13 or 25 mm filters.

Description	Qty.	Part No.
Flat Tin Disks	100	<b>N2411363</b>
Flat Tin Disks, (pkg. 10)	1000	<b>N2410244</b>

### 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	<b>02400642</b>
Aluminum Capsules, 30 µL	1,000	<b>00090709</b>

### 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	<b>N2410320</b>

### Silver Capsules

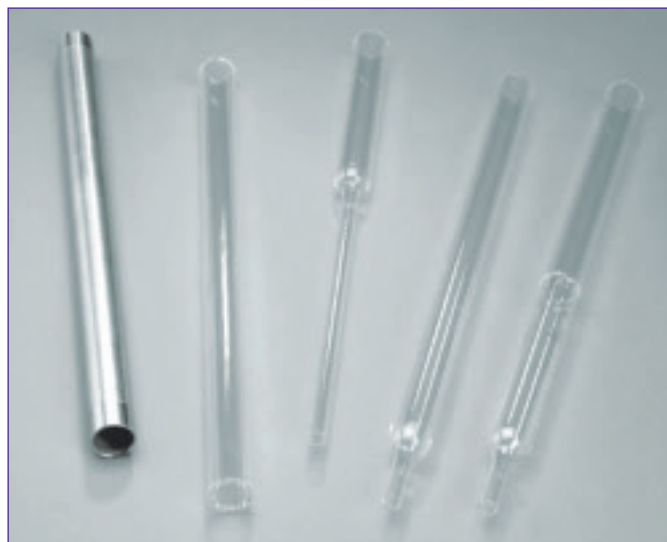
For analyzing organic substances with Oxygen Analysis.

Description	Qty.	Part No.
Silver Capsules	96	<b>N2411364</b>

### Sample Sealers

For use with volatile, nonviscous, noncorrosive samples.

Description	Part No.
Liquid Sample Sealer	<b>B0198093</b>
Spare Magazine for Liquid Sample Sealer	<b>B0501078</b>
Volatile Sample Sealer	<b>02190061</b>



Combustion and Pyrolysis Tubes

## Tubes

PerkinElmer tubes are composed of pure fused quartz which is 99% SiO<sub>2</sub>. 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	<b>N2411264</b>
Combustion	Quartz	2400	CHN	3	<b>N2410212</b>
Combustion	Quartz	2400	CHN	10	<b>N2410153</b>
Combustion/ Reduction	Quartz	2400	CHNS	1	<b>N2411514</b>
Combustion/ Reduction	Quartz	2400	CHNS	5	<b>N2410330</b>
Combustion/ Reduction	Stainless Steel	2410	Nitrogen	1	<b>N2421070</b>
Combustion	Quartz	2410	Nitrogen	1	<b>N2411487</b>
Pyrolysis	Quartz	2400	Oxygen	1	<b>N2411235</b>
Reduction	Quartz	2400	Oxygen & Sulfur	1	<b>N2411300</b>
Reduction	Quartz	2400	CHN	1	<b>N2411291</b>
Reduction	Quartz	2400	CHN	10	<b>N2410154</b>
Scrubber	Pyrex®	2400/ 2410	Oxygen & Nitrogen	1	<b>N2411359</b>

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