Atomic Spectroscopy

Consumables and Supplies

Genuine PerkinElmer Products — Genuine Value

VOLUME 3 2008

THE WORLD LEADER IN ATOMIC SPECTROSCOPY

NEW! Optima 7000 Series!

Hollow Cathode Lamps

See page 7 for details.

ICP Torches

See page 27 for details.

Atomic Spectroscopy Standards!

See page 52 for details.

HGA Graphite Tubes

PerkinElmer tubes are manufactured to the highest quality specifications.

See pages 18–19 for details.

ICP-MS Nickel Cones

PerkinElmer Cones are tested and approved.

See page 39 for details.

PerkinElmer®
precisely.

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

PerkinElmer – precisely.

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

PerkinElmer®
precisely.

PerkinElmer®

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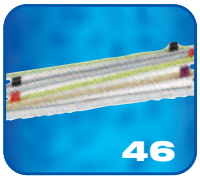
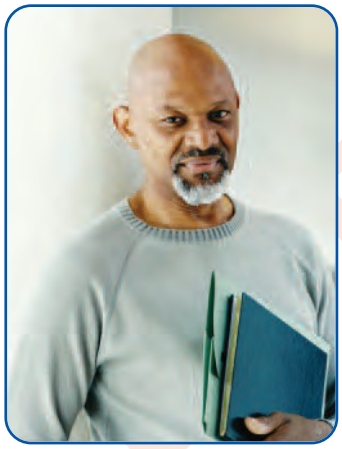
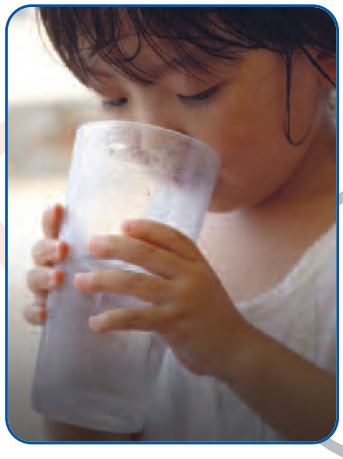


The New Measure of Success



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

Application Development Centers

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

PerkinElmer's EcoAnalytix

What is Eco?

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

Why Eco?

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

What is Analytix?

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

What is EcoAnalytix?

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

Why EcoAnalytix?

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

Community Outreach

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

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

PerkinElmer's Commitment to Environmental Responsibility

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

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

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

PerkinElmer®
precisely.

EcoAnalytix Application Focus

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

ecoanalytix™

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

Sustainable Energy

PerkinElmer's sustainable energy efforts include initiatives that address challenges as diverse as the creation of high-quality biodiesel to the development of advanced coatings for solar energy panels.

PerkinElmer's EcoAnalytix Solutions for Biodiesel Testing include:

- EcoAnalytix Trace Metals Biodiesel Analyzer – based on the Optima™ 7000 ICP-Optical Emission Spectroscopy (ICP-OES) for testing Group I and Group II metals and phosphorus

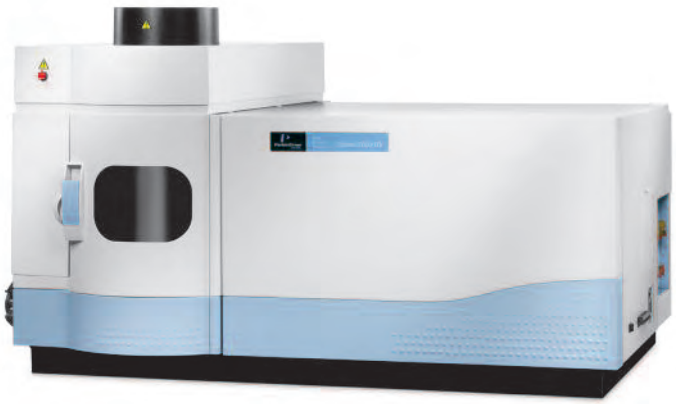
Food and Consumer Product Safety

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

PerkinElmer also provides consumer product manufacturers with the analyzers to enhance their product verification programs by increasing testing capacity as well as expanding the range of contaminants monitored.

PerkinElmer's Latest Consumer Product Safety Analyzers include:

- EcoAnalytix PlaySafe™ Analyzer based on the Optima™ Inductively Coupled Plasma-Optical Emission Spectrometer (ICP-OES) helps ensure consumer safety by verifying the amount of heavy metals, such as lead, in a particular consumer product



EcoAnalytix PlaySafe™ Analyzer

Environmental Analysis

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

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

PerkinElmer's Latest Environmental Analyzers include:

- EcoAnalytix Trace Metal Water Analyzer, based on Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) to rapidly screen for the 12 elements commonly regulated in drinking water

Visit us Online!

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

www.ecoanalytix.com

PerkinElmer has 40 years of expertise designing and manufacturing Hollow Cathode Lamps

Every genuine PerkinElmer Lumina Lamp is designed for use with and tested on, our spectrometers to assure compatibility and the highest performance

To prolong the life of a Lumina Hollow Cathode Lamp (HCL), we produce lamps with larger internal volume so that a greater supply of fill gas at optimum pressure is available. The larger the lamp, the greater the inert gas volume — and the longer the lamp lifetime.

PerkinElmer offers a wide range of single-element and multi-element HCLs, which are ideal for determining most elements by atomic absorption spectroscopy.

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*

**Please visit www.perkinelmer.com/aalampwarranty for complete details.*

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**
Bismuth	Bi	**N3050111**	**N3050311**
Cadmium	Cd	**N3050115**	**N3050315**
Calcium	Ca	**N3050114**	**N3050314**
Chromium	Cr	**N3050119**	**N3050319**
Cobalt	Co	**N3050118**	**N3050318**
Copper	Cu	**N3050121**	**N3050321**
Gold	Au	**N3050107**	**N3050307**
Iron	Fe	**N3050126**	**N3050326**
Lead	Pb	**N3050157**	**N3050357**
Magnesium	Mg	**N3050144**	**N3050344**
Manganese	Mn	**N3050145**	**N3050345**
Mercury	Hg	**N3050134**	**N3050334**
Molybdenum	Mo	**N3050146**	**N3050346**
Nickel	Ni	**N3050152**	**N3050352**
Palladium	Pd	**N3050158**	**N3050358**
Potassium	K	**N3050139**	**N3050339**
Selenium	Se	**N3050172**	**N3050372**
Silicon	Si	**N3050173**	**N3050373**
Silver	Ag	**N3050102**	**N3050302**
Sodium	Na	**N3050148**	**N3050348**
Strontium	Sr	**N3050176**	**N3050376**
Tin	Sn	**N3050175**	**N3050375**
Titanium	Ti	**N3050182**	**N3050382**
Zinc	Zn	**N3050191**	**N3050391**

Lamps for Atomic Absorption

Small Diameter Lamp Adapter Kit

Permits the use of small diameter 8-pin hollow cathode lamps.

Part No.
N3051050

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.*

For our complete listing of lamps and adapters, please visit:
www.perkinelmer.com/aasupplies

Lumina Multi-Element Hollow Cathode Lamps

Element Name	Element Symbol	Lumina Lamp Part No.	Lumina Lamp with Intensitron® Adapter Part No.
Two-element Lamps			
Calcium, Magnesium	Ca, Mg	N3050202	N3050402
Potassium, Sodium	K, Na	N3050204	N3050404
Three-element Lamps			
Calcium, Magnesium, Zinc	Ca, Mg, Zn	N3050208	N3050408
Copper, Iron, Nickel	Cu, Fe, Ni	N3050209	N3050409
Four-element Lamps			
Copper, Iron, Manganese, Zinc	Cu, Fe, Mn, Zn	N3050212	N3050412
Five-element Lamps			
Silver, Chromium, Copper, Iron, Nickel	Ag, Cr, Cu, Fe, Ni	N3050213	N3050413
Cobalt, Chromium, Copper, Manganese, Nickel	Co, Cr, Cu, Mn, Ni	N3050214	N3050414
Six-element Lamps			
Cobalt, Chromium, Copper, Iron, Manganese, Nickel	Co, Cr, Cu, Fe, Mn, Ni	N3050217	N3050417
Seven-element Lamps			
Aluminum, Calcium, Copper, Iron, Magnesium, Silicon, Zinc	Al, Ca, Cu, Fe, Mg, Si, Zn	N3050218	N3050418

Electrodeless Discharge Lamps
are an ideal source for determining volatile elements

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.

- System 2 EDLs are as easy to use as an HCL. Just install the lamp, turn it on, and set the current. Changing lamps requires only seconds because the pre-aligned bulbs require no additional adjustment.

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

Electrodeless Discharge Lamps

Element Name	Element Symbol	System 2 EDL Part No.	AAnalyst 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**

Maximum Intensity and Long Life

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*

**Please visit www.perkinelmer.com/aalampwarranty for complete details.*

The PerkinElmer Exclusive WARRANTY*

System 2 Electrodeless Discharge Lamps

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

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

EDL Assemblies and Components

EDL Driver Assemblies

Description	Part No.
For AAnalyst™ 200/400	**N3150131**
For AAnalyst 600/700/800, SIMAA™ 4110 ZL (short cable)	**03030997**
For all models except AAnalyst 600/700/800, SIMAA 4110 ZL (long cable)	**03030793**

EDL Driver Components

Description	Part No.
Driver Assembly Adapter Cable Allows System 2 EDL Drivers (03030793 and 03030997) to be used on an AAnalyst 200/400	**N3150303**
Extension Cable Converts cable on the AAnalyst 600/700/800, SIMAA 4110 Z System 2 EDL Driver Assembly	**03030998**

PerkinElmer offers a full range of replacement **burner heads** and **mixing chambers**

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.

Burner System Component Features

- 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

Burner Heads

There are four burner heads available for use with the burner system. They are all made of solid titanium, which is corrosion resistant and free of most of the elements commonly determined by atomic absorption.

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.

Part No.
N0400100

Single-slot Air-acetylene 10 cm

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

Part No.
N0400102

Single-slot Air-acetylene 5 cm

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

Part No.
N0400101

Three-slot Air-acetylene 10 cm

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

Part No.
N0400103

Single-slot Nitrous Oxide-acetylene 5 cm

Single-slot Air-acetylene 10 cm

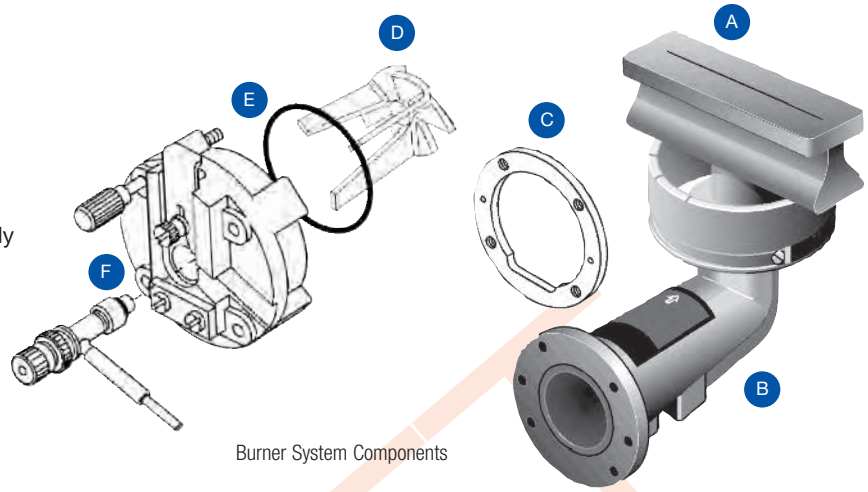
Single-slot Air-acetylene 5 cm

Three-slot Air-acetylene 10 cm

Efficiency

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

For our complete listing of Burner System Components, please visit: www.perkinelmer.com/aasupplies

Burner Heads

Description	Length	Flame Type	*For AAnalyst 100/200/300/400/700/800* Part No.	*For 2280, 2380, 3030(B), 3100, 3110, 3300, 4000, 5000, 5100PC* Part No.	*For 1100(B), 2100, 4100* Part No.
Single-slot	5 cm	Nitrous Oxide-Acetylene	**N0400100**	**00400277**	**B0162669**
Single-slot	10 cm	Air-Acetylene	**N0400102**	**00400266**	**B0162668**
Three-slot	10 cm	Air-Acetylene	**N0400103**	**00400289**	
Single-slot	5 cm	Air-Acetylene	**N0400101**		

Burner System Components

Description	*For AAnalyst 100/200/300/400/700/800* Part No.	*For 2280, 2380, 3030(B), 3100, 3110, 3300, 4000, 5000, 5100PC* Part No.	*For 1100(B), 2100, 4100* Part No.
Burner Head O-Ring	**09902219**	**09902219**	**09902219**
Burner Mixing Chamber Assembly	**00570948**	**00570948**	**00570948**
Clamping Ring	**N0401171**	**00572616**	
Flow Spoiler	**00572561**	**00572561**	**00572561**
End Cap O-Ring Standard	**09902147**	**09902147**	**B0158690**
End Cap O-Ring Organics (Corkprene)	**00472014**	**00472014**	**B0158598**
End Cap O-Ring Organics (KALREZ®)	**09921044**		
End Cap Assembly	**00570984**		
End Cap Assembly	**N0370392**	**00570984***	**B0151573**
Burner Gasket Kit	**00470988**	**00470988**	
Drain Tubing	**02507987**		
Impact Bead	**00572615**	**00572615**	**B0158616**
Seal Plug	**00572624**	**00572624**	
O-Ring (¼ in 6 mm i.d.)	**09902240**	**09902240**	
O-Ring (⅛ in 3 mm i.d.)	**09902236**	**09902236**	
Burner Drain Assembly (for 200/400)	**N0400058**		
Burner Drain Assembly for Organic Solutions (for 200/400)	**N3150232**		
Burner Drain Assembly (for 700/800)	**N2011074**		
Burner Drain Assembly for Organic Solutions (for 700/800)	**N3150230**		
Burner Drain Assembly		**00470391**	
Burner Drain Assembly (for 3100, 3110, 3300)		**N0370149**	
Cable and Pin Assembly (for Air-Acetylene)		**00400276**	**00400276**
Cable and Pin Assembly (for Nitrous Oxide)		**00400275**	**00400275**
Hold-Down Cable		**03030130**	**03030130**
Burner Gasket Kit (for aqueous solutions)			**B0155546**
Burner Gasket Kit (for organic solutions)			**B0173404**
Burner Head Cleaning Tool	**03031573**	**03031573**	**03031573**

** A different End Cap Assembly (N0370392), is required for use with the High-Sensitivity Nebulizer.*

PerkinElmer nebulizers are available in a variety of configurations to **meet** all of your **analytical needs**

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.

High-Sensitivity Nebulizer with Pt/Ir Capillary

For AAnalyst 200/400/700*/800*

Our new 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.

**Requires End Cap Assembly (N0370392).*

Nebulizer Assembly

Description	Part No.
Nebulizer Assembly	**N3150188**
Capillary Assembly	**B3150458**
Impact Bead	**B0505086**
Nebulizer Spacer	**B3150531**
Tubing Assembly (1,000 mm)	**B0191060**
For connecting Autosampler AS-90/AS-93*plus*	

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

Nebulizer Assembly with Pt/Ir Capillary

Description	Part No.
For AA100/300/700/800/5100PC/5000/3300/3110/3100	**B0505480**
For 4100/2100/1100(B)	**B0501029**

Nebulizer Assembly with Tantalum Capillary

Description	Part No.
For AA100/300/700/800/5100PC/5000/3300/3110/3100	**B0505590**
For 4100/2100/1100(B)	**B0505589**

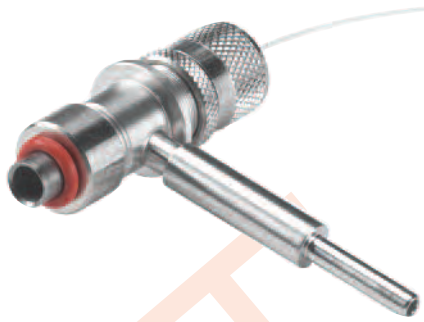
for Flame AA

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

Nebulizer Assembly

Description	Part No.
For AA100/300/700/800/5100PC/5000/3300/3110/3100	**03030404**
For 4100/2100/1100(B)	**N3110110**



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

Nebulizer Assembly

Description	Part No.
For AA100/300/700/800/5100PC/5000/3300/3110/3100	**03030299**
For 4100/2100/1100(B)	**N3110111**

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

Nebulizer Assembly

Description	Part No.
For AA100/300/700/800/5100PC/5000/3300/3110/3100	**N0370394**

High-Sensitivity Nebulizer Assembly

Description	Part No.
For AA100/300/700/800/5100PC/5000/3300/3110/3100	**N0370393**

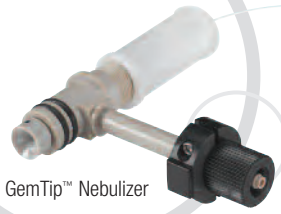
Stainless Steel Nebulizers

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

Nebulizer Assembly

Description	Part No.
For AA100/300/700/800/5100PC/5000/3300/3110/3100	**03030352**
For 4100/2100/1100(B)	**N3110109**

See the next page for a **full selection** of **Nebulizer parts**


GemTip™ Nebulizer

PerkinElmer offers a **full selection** of **parts** for your nebulizer

Plastic Body Nebulizers

High-Sensitivity Nebulizer with Pt/Ir Capillary[1]

Description	*For AAnalyst 200/400* Part No.	*For AAnalyst 100/300/700/800, 5100 PC, 5000, 3300, 3100* Part No.	*For 4100, 2100, 1100(B)* Part No.
Nebulizer Assembly	**N3150188**	**B0505480**[2]	**B0501029**[2]
Capillary Assembly	**B3150458**	**B0501022**	**B0501022**
Impact Bead	**B0505086**	**B0505086**	**B0505086**
Nebulizer Spacer	**B3150531**		
Nebulizer End Cap		**B0501026**	**B0501026**
Locking Ring		**B0501025**	**B0501025**
Nebulizer Body		**B0506666**	**B0506668**

High-Sensitivity Nebulizer with Tantalum Capillary[1]

Description	Part No.	Part No.
Nebulizer Assembly[2]	**B0505590**	**B0505589**
Capillary Assembly	**B0505588**	**B0505588**
Impact Bead	**B0505086**	**B0505086**
Nebulizer End Cap	**B0501026**	**B0501026**
Locking Ring	**B0501025**	**B0501025**
Nebulizer Body	**B0506666**	**B0506668**

GemTip™ Nebulizer

Description	Part No.	Part No.
GemTip Nebulizer Assembly	**N0370394**	
High-Sensitivity GemTip Nebulizer Assembly	**N0370393**	


Nebulizer Capillary Tubing


Nebulizer Cleaning Wires


Nebulizer Grease

Nebulizer Capillary Tubing

10 ft (3 m) length of 0.58 mm i.d. polyethylene tubing, for use with the stainless steel, platinum/rhodium and GemTip™ Nebulizers.

Part No.
09908265

Nebulizer Cleaning Wires

Made of soft alloy copper, these cleaning wires are specially deburred to prevent scratching the orifices and internal components of the nebulizers while cleaning.

Pkg.	Part No.
5	**03030135**

Nebulizer Grease

A small quantity of Apiezon®-L grease helps to lubricate the o-ring seals for reassembly and ensures leak-proof operation.

Part No.
03030405

Metal Body Nebulizers

Stainless Steel Nebulizer[3]

Description	*For AAnalyst 100/300/700/800, 5100 PC, 5000, 3300, 3100* Part No.	*For 4100, 2100, 1100(B)* Part No.
Nebulizer Assembly	**03030352**	**N3110109**
Capillary Assembly	**03030354**	**03030354**
Venturi	**03031810**	**N3111159**
O-Ring Kit	**N9300065**	**N9300066**

Corrosion-Resistant Nebulizer[3]

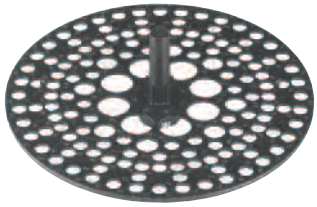
Description	Part No.	Part No.
Nebulizer Assembly	**03030404**	**N3110110**
Capillary Assembly	**03030402**	**03030402**
Capillary Assembly For AS-51 or AS-50	**00570957**	**00570957**
Venturi	**03031920**	**03031920**
O-Ring Kit	**N9300065**	**N9300066**

Platinum Alloy Nebulizer[3]

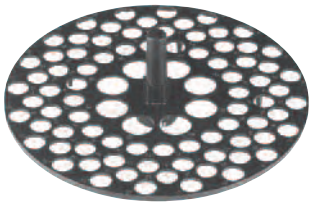
Description	Part No.	Part No.
Nebulizer Assembly	**03030299**	**N3110111**
Capillary Assembly[4]	**03030433**	**03030433**
Venturi	**03033124**	**N3111158**
O-Ring Kit	**N9300065**	**N9300066**

[1] Inert plastic body with red adjusting ring
[2] Requires End Cap Assembly (N0370392)
[3] Stainless steel body
[4] Etched with a "P" for identification

Autosampler **Sample Cups** and **Supplies**



148-Position Tray



88-Position Tray

Autosampler Trays

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

For Model AS-800

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

For Models AS-60/AS-70/AS-71/AS-72

Description	Part No.
40-Position Tray, Plastic 35 sample locations for 2.0 or 3.5 mL sample cups. Each sample tray has five positions for 30 mL cloverleaf-shaped reagent containers.	**B0510417**

For Models AS-71 and AS-72

Description	Part No.
80-Position Tray, Plastic 75 sample locations for 1.2 mL sample cups. Each sample tray has five positions for 30 mL cloverleaf-shaped reagent containers.	**B0510404**

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

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

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

Reagent Containers

For blank solutions, reagent solutions or matrix modifiers.

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

Sampling Capillaries

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

Benefits

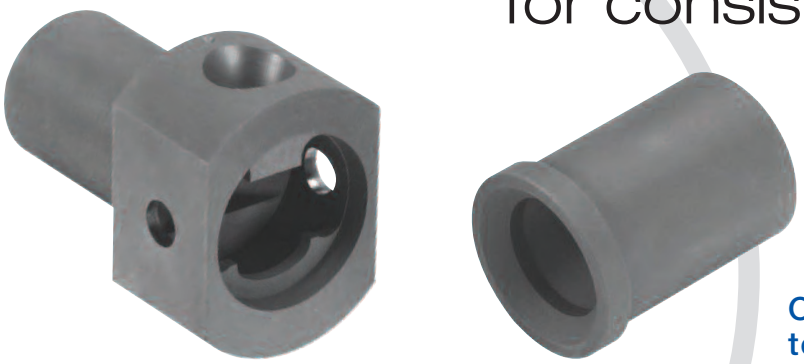
- Works well with solvent and acid-resistant sampling components
- PTFE pipette tips and capillaries reduce contamination
- Easy replacement

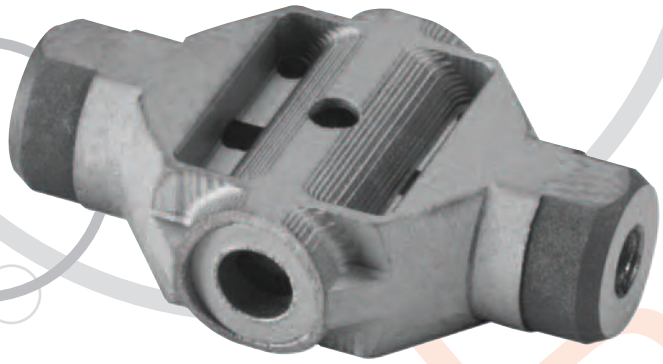
Description	Part No.
For Models AS-60/AS-70/AS-71/AS-72/AS-800	**B0129258**

Quantity Discounts Available!

Rely on **PerkinElmer graphite** for consistent analytical results.

Every sample. Every day.





We start with an exclusive grade of graphite

The production of high-quality graphite components requires stringent quality control. Selection and careful control of raw materials are extremely important.

The composition and the microstructure of the base graphite material determine the resistivity of the tube and its heating characteristics. To ensure high quality and consistency, a specific high-density base graphite material has been developed for use with PerkinElmer graphite furnace systems. This base graphite material is used exclusively for the manufacturing of PerkinElmer's graphite components.

Our tubes are manufactured and tested to the highest quality specifications

During manufacturing, a comprehensive quality testing program, including extensive mechanical, electrical, thermal, and analytical testing procedures, is strictly followed. Each lot of graphite tubes is tested to demanding specifications for lifetime, sensitivity, and precision.

Extensive testing ensures that all graphite components shipped by PerkinElmer provide consistent lot-to-lot performance.

Our pyrolytic coating design is critical to achieving high performance

The specified thickness of pyrolytic coating applied to PerkinElmer graphite improves the total resistance of the graphite tube and the temperature distribution within the tube. Improper pyrolytic coating can shorten tube lifetime dramatically.

The microstructure and density of the surface are important parameters for the atomization kinetics of analyte elements. Irreproducible surface qualities will cause changes in the optimal drying, pyrolysis and atomization temperatures, peak shape, and characteristic mass. PerkinElmer's coating specification and quality control ensure consistency from tube to tube.

You can depend on our extensive experience

PerkinElmer has over three decades of experience in the design and development of graphite furnace systems and materials. Years of PerkinElmer development have yielded the best possible graphite for atomic absorption. Any other graphite has not been optimized for use with PerkinElmer instruments, and may yield inaccurate analytical results.

Graphite

Do not accept imitations

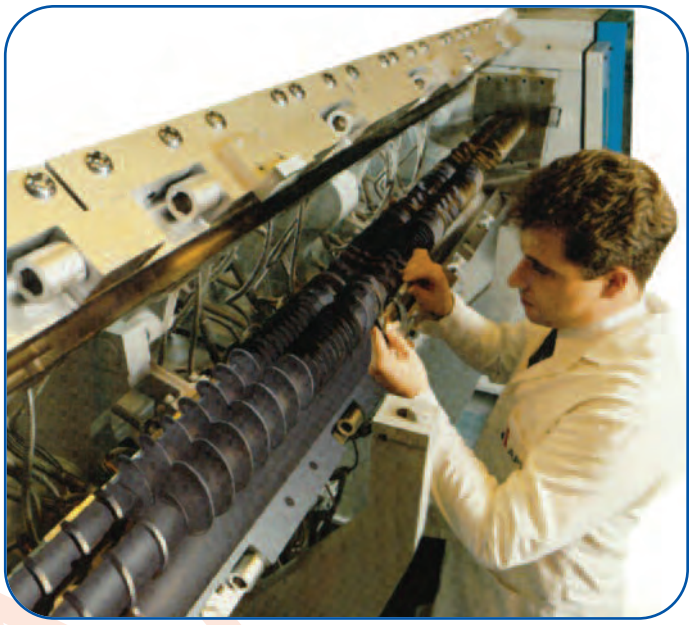
Graphite components offered by other companies often refer to the PerkinElmer part, implying that these components are made from the same material and provide equivalent performance. This is misleading, as these imitation components are not made from the same base graphite material, nor are they tested to the same demanding quality control specifications. The different base graphite material will alter the temperature calibration, the heating rates and the performance characteristics.

Rely on genuine PerkinElmer graphite

Today's analysts expect exceptional analytical performance from their graphite furnace atomic absorption spectrometers. That performance must be stable and 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 under strict quality control by both the instrument manufacturer and the graphite manufacturer. PerkinElmer graphite components continue to set the industry standard for quality.

The proper performance, maintenance, and serviceability of your graphite furnace system can be assured only through the use of genuine, high-quality PerkinElmer graphite components.



How is high-quality graphite manufactured?

- Select carefully chosen raw materials that are exclusive to PerkinElmer
- Mill and mix the components with precision
- Utilize the proper pressing techniques
- Employ the correct heat treatments at carefully selected times
- Purify materials at multiple times throughout the process
- Apply special coating technology for pyrolytic products
- Test and qualify graphite against rigorous PerkinElmer standards
- Machine patented PerkinElmer designs using specialized techniques

We have put **30 years** of **expertise** into the development of our **graphite tubes, contact cylinders** and **platforms**

PerkinElmer tubes are manufactured to the highest quality specifications

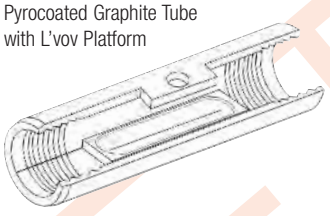
The production of high-quality graphite components requires stringent quality control. To ensure high quality and consistency, a specific grade of high-density base graphite material has been developed for PerkinElmer's exclusive use. This base graphite material is used for the manufacturing of all PerkinElmer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

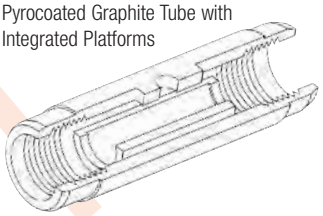
The proper performance, maintenance, and serviceability of our graphite furnace systems can be assured only through the use of genuine PerkinElmer graphite components.

Pyrocoated Graphite 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.

Pyrocoated Graphite Tubes

Grooved for use with L'vov Platforms

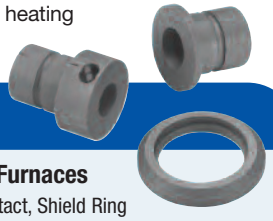
- Internally grooved to accept L'vov platforms. Does not include platform

Description	Part No.
5-pack	**B0137111**
20-pack	**B3001254**
50-pack	**B0109322**
100-pack	**N3110146**

Does not include platform.

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

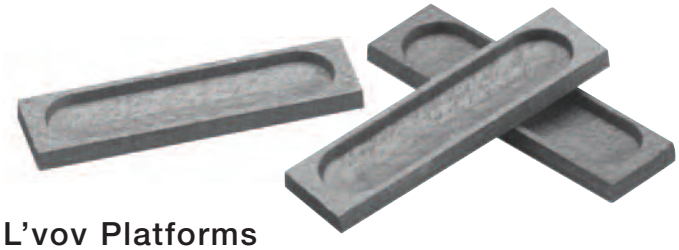
Description	Part No.
1 set	**B0128495**
5 sets	**B3130086**

For Zeeman Furnaces

- Includes left-hand Contact, right-hand Contact

Description	Part No.
1 set	**B0116823**
5 sets	**B0180361**

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 µL of solution. The function of the L'vov platform is to isolate the sample from the tube walls to allow more reproducible atomization of the sample through indirect heating. The platform heats primarily by the radiation given off from the tube walls. Sample vaporization and atomization occur after the tube reaches a steady-state temperature.

Pyrocoated Graphite Tubes with Integrated Platforms

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.

L'vov Platforms

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**
20-pack	**B3001256**
50-pack	**B0109324**
100-pack	**N3110145**

Matrix Modifiers for Graphite Furnace AA

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

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

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

PerkinElmer Exclusive!

Pyrocoated Graphite Tubes with Integrated Platforms

- 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**

Pyrocoated Graphite Tubes**

Description	Part No.
5-pack	**B0105197**
10-pack	**B0135653**
20-pack	**B3000342**
50-pack	**B0091504**

Uncoated Graphite Tubes**

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

***Not compatible with L'vov platforms*

Our **exclusive design** ensures **even heating** over the entire length of the tube

Standard THGA Graphite Tubes

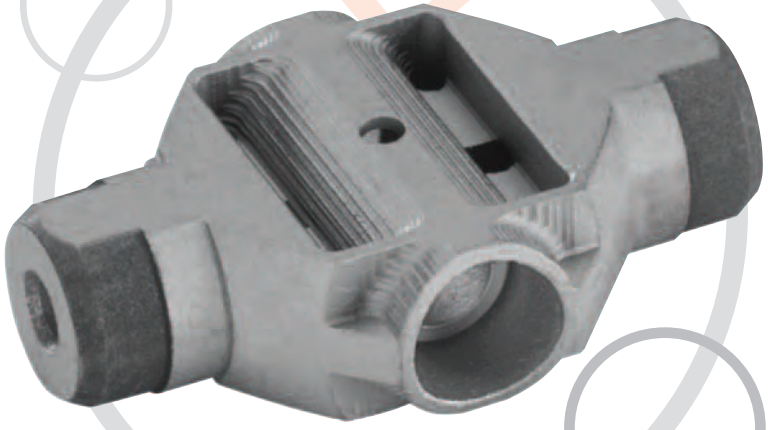
Today's analysts expect exceptional analytical performance from their graphite furnace atomic absorption spectrometers. That performance must be reproducible from day to day with respect to sensitivity (characteristic mass), accuracy and precision.

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

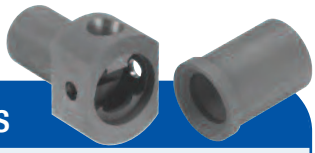
For improved characteristic mass with volatile and medium refractory elements such as Ag, As, Cd, Co, Cr, Cu, Pb, Se and Tl, the THGA graphite tubes with end caps are recommended. Note: THGA graphite tubes with end caps are not recommended for refractory elements such as V or Ba.

Standard THGA Graphite Tubes w/End Caps

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

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

For our complete listing of Graphite Furnace Supplies, please visit:
www.perkinelmer.com/aasupplies



THGA Contact Cylinders

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

Standard THGA Graphite Contact Cylinders

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

Modified THGA Contact Cylinders

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

Accessories and Spare Parts

Description	Part No.
O-Ring (behind Contact Cylinder, front and back)	**B0500748**
Contact Cylinder Removal Tools	**B3120405**

THGA Instrument Mirror

Used to optimize drying temperatures and times.

Part No.
B0851900

Matrix Modifiers for Graphite Furnace AA

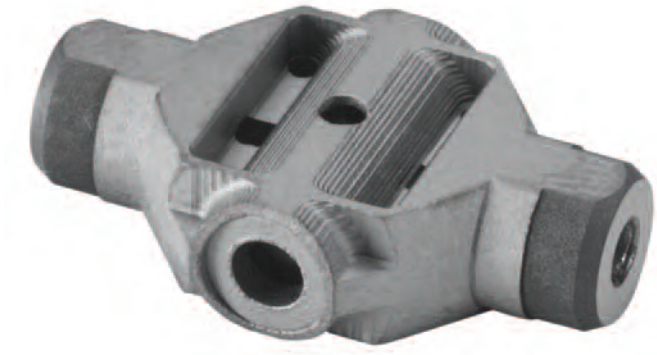
PerkinElmer provides you with the maximum performance and the lowest possible detection limits with our high-quality matrix modifiers.

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

Matrix Modifiers

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

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



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.

UltraClean THGA Graphite Tubes

Key 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)

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

Concentric Nebulizers
offer high-quality sample introduction for a wide variety of applications

MEINHARD® Nebulizers

The MEINHARD® concentric glass nebulizer reflects exacting standards in design and manufacturing. Its advantages include simplicity of design and operation, reproducible and self-aligning aerosol and close fabrication control. They provide excellent sensitivity and precision for aqueous solutions and samples with few dissolved solids (less than 1%). MEINHARD® Nebulizers are self-aspirating and must not be used with solutions containing hydrofluoric acid. PerkinElmer offers three types for ICP-OES, MEINHARD® A, C and K. All require an end cap for use with Ryton® Scott spray chambers.

MEINHARD® Model	Application	Part No.
Type A	General purpose	**00472020**
Type C	High dissolved solids	**00472022**
Type K	Reduced flow and organics	**N0681574**

End Cap for Concentric Glass Nebulizers

ICP Model	Part No.
Optima 2X00/3X00/4X00/5X00/7X00	**N0680504**

PEEK Mira Mist® Nebulizer

PEEK Mira Mist® Nebulizer

The Mira Mist® fits regular spray chambers as a direct replacement for glass concentric nebulizers. Its features include standard pressure (45 psi), low sample flow and enhanced parallel path design.

Description	Uptake Rate	Part No.
PEEK Mira Mist	0.2 to 2.5 mL/min	**N0775330**
Teflon Mira Mist	0.2 to 2.5 mL/min	**N0777031**
For samples with high HF, Sulphuric, and some other solvents that attack Peek.		
Ari Mist (low flow)	0.050 to 1.0 mL/min	**N0777032**
T2100	0.5 to 3.0 mL/min	**N0777033**
For high levels of undissolved solids such as oil samples, geologic samples, and slurries.		

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 an EzyFit 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 with an EzyFit connector with 1.3 mm o.d. x 0.25 mm i.d. x 700 mm long sample tubing. All MicroMist nebulizers offered by PerkinElmer are supplied with the EzyLok argon connector.

For Optima 2X00/3X00 XL/3X00 DV/3000 SCX/4X00/5X00/7X00*

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**

For Optima 3000/3000 SCR/3X00 RL*

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

**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/3000 SCX/4X00/5X00/7X00

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

For Optima 3000/3000 SCR/3X00 RL

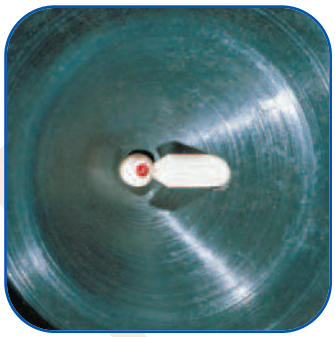
Ar Flow Rate	Uptake Rate	Part No.
1.0 L/min	2 mL/min	**N0775340**

ESI PolyPro ST Nebulizer with detachable capillary

This nebulizer is Polypropylene construction and Hydrofluoric acid resistant. 0-3 ml/min sample flow rate with peristaltic pumping.

	Part No.
	N0777219

GemCone and GemTip Nebulizers – only from PerkinElmer



GemTip Cross-Flow II Nebulizers

Excellent general purpose nebulizer for the analysis of strong mineral acids (including HF) and samples with less than 5% dissolved solids. It can routinely handle 50% (v/v) solutions of HCl, HNO_3, H_2SO_4, H_3PO_4, 20% (v/v) HF and 30% (v/v) NaOH. Up to 20% NaCl can be aspirated by the nebulizer for 1 hour without clogging. Uses chemically resistant GemTips made of sapphire and ruby in a Ryton® end cap for maximum chemical resistance.

GemTip Cross-Flow II Nebulizers

ICP Model	Part No.
Optima 2X00/4X00/5X00/7X00	**N0770546**
Optima 3X00	**N0680503**

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 Ryton® Scott Spray Chambers.

GemCone Low-Flow Nebulizers

ICP Model	Part No.
Optima 2X00/4X00/5X00/7X00	**N0770358**
Optima 3X00	**N0690671**

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 Ryton® Scott Spray Chambers.

	Part No.
	N0690670

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.

	Part No.
	N0680610

GemTip Cross-Flow Nebulizer Kits

The Tip Kit includes a clear sapphire sample tip (0.012 in i.d.) and a red ruby argon tip (0.009 in i.d.). The tips are constructed of PEEK with the gem inserts noted for maximum corrosion resistance.

GemTip Cross-Flow Nebulizer Kits

Description	Part No.
GemTip Cross-Flow II Tip Kits	**N0690676**
GemTip Cross-Flow Tip Kits	**N0580624**
GemTip Cross-Flow O-Ring Kits	**N9300067**

GemCone Nebulizer Accessories

Description	Part No.
GemCone Sample Capillary Adapter	**N0371505**
End Cap for GemCone Nebulizers For Optima 2X00/3X00/4X00/5X00/7X00	**N0680504**
Quick Disconnect Tubing For Optima 2X00/4X00/5X00/7X00	**N0770336**

Superior quality Spray Chambers designed to provide **maximum sensitivity** and **efficiency**

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
- 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. The angle of incidence is critical in determining the efficiency of large droplet removal
- A trace metal free plastic nebulizer adapter is employed to fix the depth of nebulizer insertion at the optimal position. Because of this, there is no need for an operator to move the nebulizer in and out of the port in an effort to locate the “sweet spot”
- 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

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 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.

Cyclonic Spray Chambers

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.
Optima 2X00/4X00/5X00/7X00	Standard	**N0776052**
Optima 2X00/4X00/5X00/7X00	O-Ring Free	**N0775351**
Optima 2X00/4X00/5X00/7X00	HF Resistant	**N0775357**
Optima 3X00 DV/XL/3000 SCX	Standard	**N8122188**
Optima 3X00 DV/XL/3000 SCX	O-Ring Free	**N0775350**

Applications

Baffled Cyclonic Spray Chamber

Ryton® Scott Spray Chamber

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.

Baffled Cyclonic Spray Chambers

The internal baffle design has two important characteristics:

- 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 effects

ICP Model	Type	Part No.
Optima 2X00/4X00/5X00/7X00 DV	Standard	**N0776053**
Optima 2X00/4X00/5X00/7X00 DV	O-Ring Free	**N0775352**
Optima 2X00/4X00/5X00/7X00 DV for Oil Analysis (4 mm baffle)	Standard	**N0776090**
Optima 2X00/4X00/5X00/7X00 DV	O-Ring Free,Water-Cooled	**N0774100**
Optima 2X00/4X00/5X00/7X00 DV for Oil Analysis (4 mm baffle)	O-Ring Free	**N0775355**
Optima 4300V/5300V/7300V	Standard	**N0771501**
Optima 4300V/5300V/7300V	O-Ring Free	**N0775356**
Optima 4300V/5300V/7300V	HF Resistant	**N0771550**
Optima 5X00/7X00 DV, (7 mm baffle)		**N0777036**

Drain line included without aux. gas port and it connects directly to ESI injectors.

Organic Sample Introduction Kit

Includes 4mm Baffled Cyclonic Spray Chamber, 3-slot Torch, GemCone low-flow Nebulizer, and 1.2mm Alumina Injector.

	Part No.
Optima 2X00/4X00/5X00/7X00 DV	**N0770420**

Ryton® Scott Spray Chambers

The Ryton® Scott Spray Chamber is made from corrosion-resistant Ryton®, 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.

Ryton® Scott Spray Chambers

ICP Model	Part No.
Optima 2X00/4X00/5X00/7X00	**N0770357**
Optima 3000/3000 SCR/3X00 RL	**N0690640**
Optima 3X00 DV/XL/3000 SCX	**N0690720**
Plasma 400 (complete)	**N0580542**
Plasma 400 (inner tube)	**N0582259**
Plasma 400 (outer chamber)	**N0582258**

Ryton® Scott External Spray Chamber Kit

Includes external Ryton® Scott Type II Spray Chamber, 1.2 mm Quartz Injector and appropriate mounting hardware. For use with high-volatility samples.

ICP Model	Part No.
Optima 3X00 Series	**N0690289**

Metal Ball Joint Clip

Used to connect spray chamber and torch. Includes tension screw.

	Part No.
	N0773114

UniFit Drain Connector with Tubing for Cyclonic Spray Chambers

Sample Tube Size	Pkg.	Part No.
1/16 in. o.d. x 0.75 mm i.d. x 700 mm	3	**N0774080**
1.3 mm o.d. x 0.75 mm i.d. x 700 mm	3	**N0774077**

Quick-change torch modules
provide maximum **efficiency** in your lab

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

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

Ryton® and GemTip Torch Modules

ICP Model	Part No.
Optima 2X00/4X00/5X00/7X00 DV	**N0770606**
Optima 3000/3000 SCR/3X00 RL	**N0690610**
Optima 3X00 DV	**N0690812**
Optima 3X00 XL/3000 SCX	**N0690712**

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® Type C Concentric Nebulizer.

ICP Model	Part No.
Optima 2X00/4X00/5X00/7X00	**N0770607**

Mounting Block

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

ICP Model	Part No.
Optima 2X00/4X00/5X00/7X00	**N0770600**

Mass Flow Controller

Uses capillary-type thermal technology to directly measure mass flow of gases. No temperature, pressure or square root corrections are required. Comes with an LCD display and has linear 0 to 5 and 4 to 20 mA output. Uses an internal electromagnetic proportional valve to control the mass flow rate.

Description	Part No.
Mass Flow Controller 0-50 SCCM Includes: Fittings and Tubing	**N0770689**

Quick-Change Torch Modules

Description	ICP Model	Part No.
Dry Aerosol Quick-Change Torch Module	Optima 3000/3000 SCR/3X00 RL	**N0690638**
Dry Aerosol Block and Injector Assembly	Optima 3000/3000 SCR/3X00 RL	**N0690637**
Dry Aerosol Adapter for Ultrasonic Nebulization	Optima 2X00 DV/3X00 XL/3X00 DV/3000 SCX/4X00 DV/5X00 DV/7X00 DV	**N0690770**
Quick-Change Torch Module for HF-Resistant Analysis	Optima 4300V/5300V/7300V	**N0770911**
Quick-Change Torch Module for Used Oil Analysis	Optima 4300V/5300V/7300V	**N0770910**

Keep a **replacement Torch** on-hand to ensure **maximum uptime** and **performance**

Demountable Quartz Torches

Demountable design using one-piece quartz tubing for plasma and auxiliary gas flow. Available in a wide range of styles from 0 – 3 slots, depending on your instrument and application needs. 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	# of Slots	Part No.
Optima 2X00/4X00/5X00/7X00 DV	0	**N0770343**
Optima 2X00/4X00/5X00/7X00 DV	0 (short ver.)	**N0770344**
Optima 2X00/4X00/5X00/7X00 DV	1	**N0770338**
Optima 2X00/4X00/5X00/7X00 DV	3	**N0772005**
Optima 3X00 DV	2	**N0691662**
Optima 3000 SCX/3X00 XL	0	**N0695379**
Optima 3000/3000 SCR/3X00 RL	1	**N0690568**
Optima 3000/3000 SCR/3X00 RL and Plasma 400 wear metals analyzer (for organics)	3	**N0681690**
Optima 4300V/5300V/7300V	3	**N0771500**
Optima 4300V/5300V/7300V ABC Torch Kit	3	**N0774075**
Plasma 400*	3	**N0580528**

**Not to be used with the Plasma 400 wear metals analyzer.*

Quartz Torch Copper Ignitor Tape

Includes one strip with 24 squares.

Part No.
N0775297

Metal Ball Joint Clip

Used to connect spray chamber and torch. Includes tension screw.

Part No.
N0773114

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	**N0775289**
Optima 3000/3000 SCR/3X00 RL (for instruments manufactured BEFORE 9/21/94)	**N0695295**
Optima 3000/3000 SCR/3X00 RL (for instruments manufactured AFTER 9/21/94)	**N0695456**
Optima 3X00 XL/3X00 DV	**N0691664**

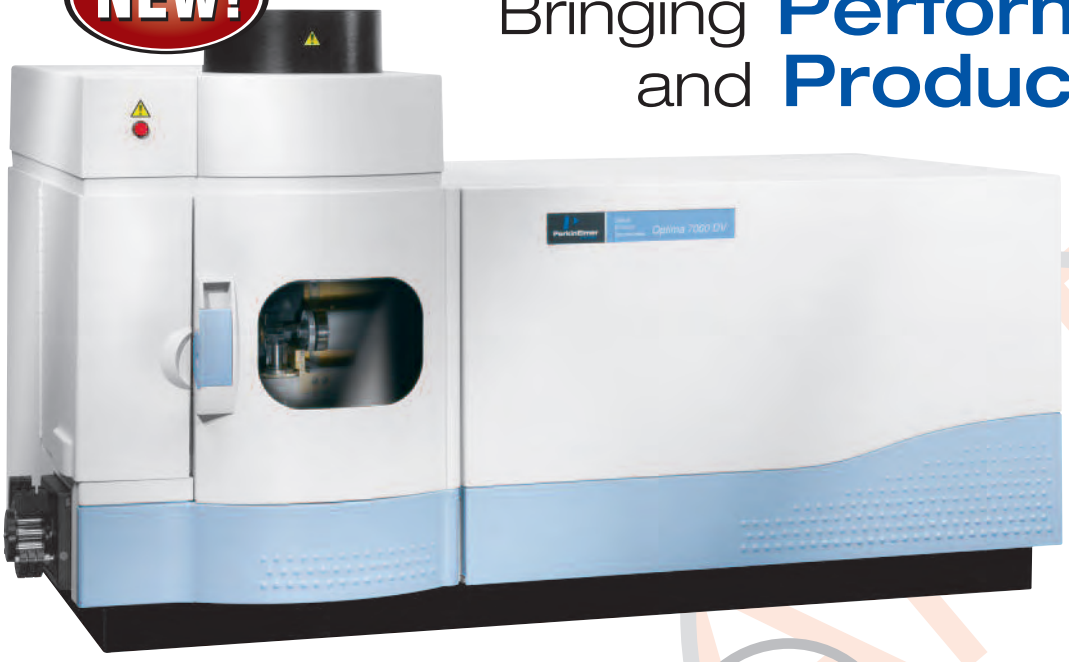
Torch O-Rings

ICP Model	Location	Dimensions	Part No.
Optima 2X00/3X00/4X00/5X00/7X00 DV	Torch Base Mount	0.612 i.d., 0.103 w.d.	**09902155**
Optima 2X00/4X00/5X00/7X00 DV O-Ring Kit for Adjustable Torch			**N0770437**
Optima 3X00 XL/3X00 DV/3000 SCX		0.239 i.d., 0.070 w.d.	**09902006**
Optima 3X00 XL/3X00 DV/3000 SCX		0.364 i.d., 0.070 w.d.	**09902015**
Optima 3X00 XL/3X00 DV/3000 SCX		8.74 i.d., 1.78 w.d.	**09921028**
Optima 3X00 XL/3X00 DV/3000 SCX/4300V/5300/7300V	Torch Adapter – inside	0.239 i.d., 0.070 w.d.	**09902207**
Optima 3X00 XL/3X00 DV/3000 SCX/4300V/5300/7300V	Torch Adapter – outside	0.301 i.d., 0.070 w.d.	**09902247**
Optima 4300V/5300V/7300V	Ball Joint	0.301 i.d., 0.070 w.d.	**09926070**
Optima 4300V/5300V/7300V Complete O-Ring Kit Includes (Qty.) Part Number: (1) 09902155, (2) 09902207, (2) 09902247, (1) 09926070			**N0770916**
Plasma 400			**09902152**
Plasma 400			**09902225**

Optima 7x00 Series ICP-OES Systems

NEW!

Bringing Performance and Productivity into Focus



The latest evolution of the world's most popular line of ICP instruments, the Optima 7x00 Series delivers the right level of analytical capacity, precision, flexibility and speed, no matter what your requirements.

The Optima 7x00 Series (which includes Optima 7000DV, 7100DV, 7200DV, 7300DV and 7300V) enables laboratories to lower their cost per analysis and to run more samples per hour. Each instrument has also been precision engineered to minimize day-to-day maintenance and virtually eliminate QC failures.

Quick Glance

- Complete family of solutions offering world-class performance to laboratories with very different performance, productivity and budgetary requirements
- Application-driven software and hardware enhancements simplify usability and maximize productivity
- Dual-view optical system ensures the widest working range in a single method
- Vertical torch model delivers economical option for specialized applications
- Versatile wavelength selection for analysis flexibility
- Superior optics and excellent RF stability make it easy to meet U.S. EPA and DIN regulations
- Stabilized optical system eliminates peak profiling and searching, ensuring exceptional long-term stability
- Enhanced sample throughput and performance with simultaneous background correction

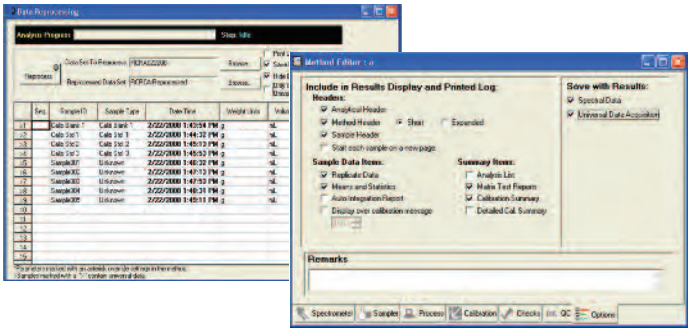
Fully adjustable cassette torch mount allows visual feedback and adjustment of the torch with the plasma running.

Selecting a Platform to Suit Your Laboratory's Requirements

	7000 DV	7100 DV	7200 DV	7300 V	7300 DV
Adjustable, Quick-Change Torch Cassette	•	•	•	•	•
# of Wavelengths Permitted in Method	350	350	350	350	350
Flow Injection Atomic Spectroscopy (FIAS) Capability		•	•	•	•
Universal Data Acquisition (UDA)				•	•
Sodium/Potassium Detection Limits	+++	+	++	+++	++
# of CCD Detectors	1	1	1	2	2
Speciation Measurements		•	•	•	•
Wavelength Stabilization - neon - thermostatted - instant on	 • •	 • 	 • 	 • 	 •
Real-Time Graphical Display	•	•	•	•	•
Simultaneous BGC	•	•	•	•	•
Dual View in Single Method	•	•	•		•
Reprocessing Original Data	•	•	•	•	•
Oil System				•	
Stored IEC/MSF	•	•	•	•	•

“Universal Data Acquisition” mode

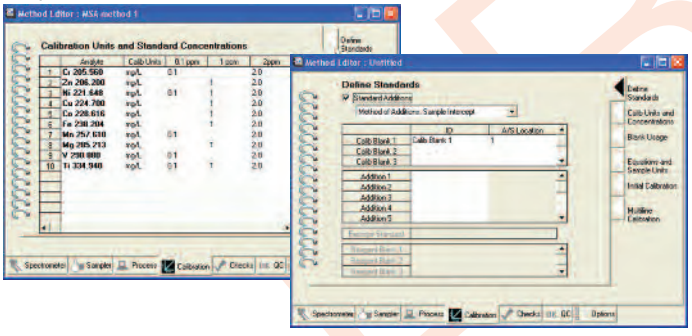
Enables users to—optionally, on demand—collect all the spectral data for every sample regardless of the elements being determined. This then allows analysts to retroactively determine the concentrations of elements not in the original method at alternate wavelengths, saving precious time and resources.



When running in Universal Data Acquisition (UDA) mode, Optima will record all of the emission spectra for every sample regardless of the elements being determined. This UDA capability allows users to retroactively use data that was not in the original method to determine additional elements or measure at alternative wavelengths

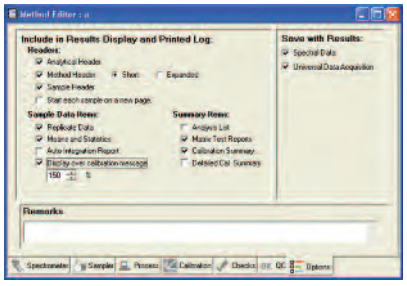
New methods of addition

Users can now perform standard additions calculations by simply selecting the equation they wish to use. Both method of additions calibration as well as the classic standard additions calibrations are possible.



Programmable “Over Calibration” message

Users can set an “over calibration limit” and specify whether or not “over calibration” messages are displayed when samples are run.

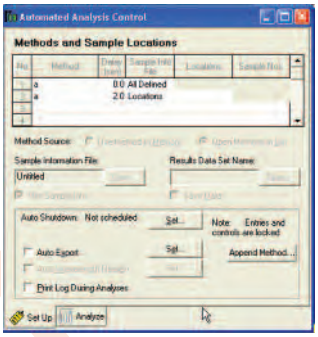


“Reprint Original Data” function

Allows users to create a verbatim copy of their original printout—ideal for regulatory environments (or other audit situations) when data needs to be presented exactly the same.

Flexibility during autosampler runs

By simply clicking on the “Append Method” button, users can dynamically add to autosampler run lists even after an analysis has started.

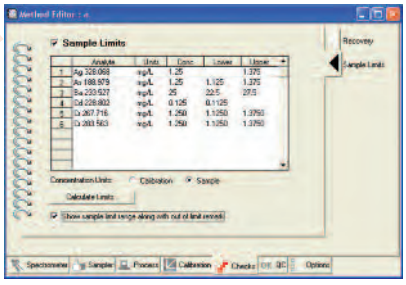


Detailed version of calibration summary

Provides specifics about a calibration—including “expected concentrations” vs. “measured concentrations”—enabling users to ensure the accuracy of their calibration and the quality/validity of their results.

Customizable “Set Limits” for individual elements

A new “Sample Limits” tab allows users to quickly and easily set up sample limit checks. When a sample result falls above or below a specified range, a message is displayed in the Results window. Users can specify whether or not they want the range included in the message.

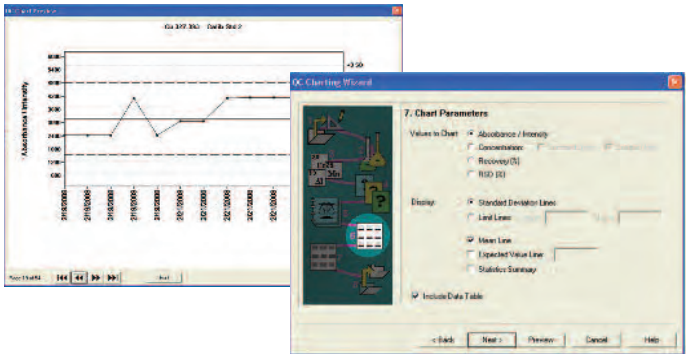


Reprocessing data

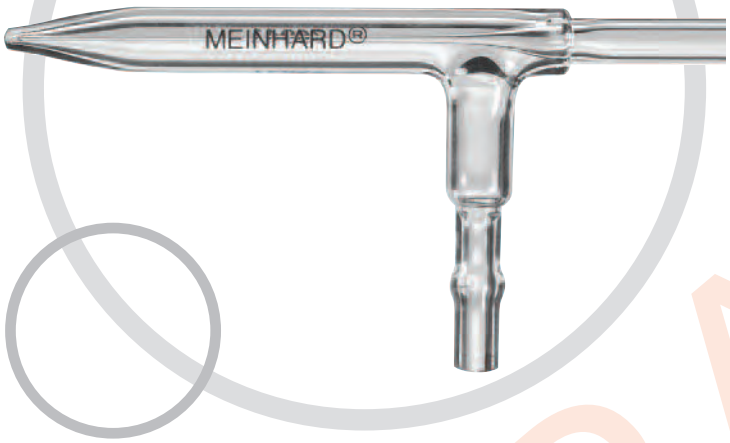
If you store your results while analyzing samples, WinLab32 offers a very elegant approach to allow you to return to the raw data and make changes to the way the data are processed and then “reprocess the data”. This useful tool saves you time since you can optimize a measurement after the sample is run and not have to re-run the sample. WinLab32 never changes the raw data and reprocessed data are clearly identified so you can tell what was done.

QC Charting

The QC Charting feature allows laboratories to quickly and easily prepare quality control charts from results, as well as store customized templates for future use.



PerkinElmer **nebulizers** offer **superb sample** introduction for a **wide variety** of **applications**



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. PerkinElmer offers three types for ICP-MS: MEINHARD® C3, K and A3. All MEINHARD® Nebulizers require an end cap (N0680504) for use with Ryton® Scott Spray Chambers. The Type A3 is an all-quartz concentric nebulizer, and ships standard on the ELAN DRC/DRC^{plus}/DRC II.

MEINHARD® Nebulizers

MEINHARD® Model	Material	Part No.
Type C3	Glass	**N8102011**
Type K	Glass	**N0681574**
Type A3	Quartz	**WE024371**

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.

	Part No.
	WE024372

Ryton® End Cap for Concentric Nebulizers

Ryton® end cap to fit any concentric nebulizer onto a Ryton® Scott Spray Chamber.

	Part No.
	N0680504

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 an EzyFit 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 an EzyFit connector with 1.3 o.d. x 0.25 mm i.d. x 700 mm long sample tubing. All MicroMist nebulizers offered by PerkinElmer are supplied with the EzyLok argon connector.

MicroMist Nebulizers

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

SeaSpray Nebulizers

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

All SeaSpray Nebulizers are supplied with the EzyLok Argon connector.

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

Conikal Nebulizer with EzyLok Kit

Includes EzyFit Connector with 0.75 mm i.d. x 1.3 mm o.d. x 700 mm L tubing and EzyLok Connector Kit.

AR Flow Rate	Uptake Rate	Part No.
1.0 L/min	3 mL/min	**N0773195**

PFA Teflon® Nebulizers

Concentric Teflon® Nebulizer – PFA-ST

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
- External threaded interface designed for zero dead volume connections and easy maintenance
- Exchangeable uptake capillaries allow one nebulizer to be used at different self-aspiration rates from 100 to 400 µL/min. Can be pumped from 0.1 to 3 mL/min.

	Part No.
	N8122192

Teflon® Sample Capillaries

For use with PFA-ST nebulizer.

Size	Uptake Rate	Part No.
0.25 mm i.d.	100 µL/min	**N8122383**
0.5 mm i.d.	400 µL/min	**N8122384**

Concentric Teflon® Nebulizers

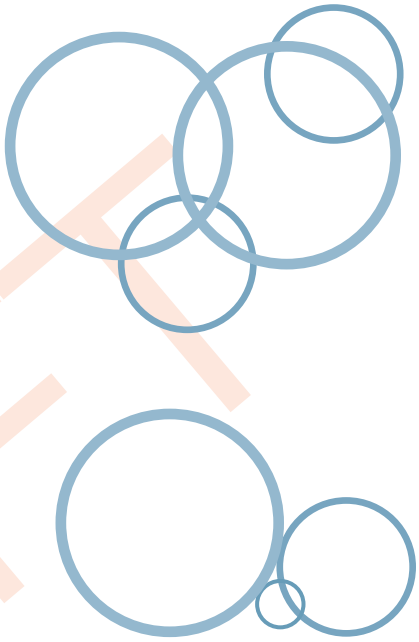
UltraClean PFA Teflon® Nebulizers. Not for use with autosamplers.

Description	Uptake Rate	Part No.
PFA-20	20 µL/min	**N8122350**
PFA-100	100 µL/min	**N8122351**

PFA Nebulizers with Carbon Fiber Probes

For use with SC Autosamplers.

Uptake Rate	Length	Part No.
20 µL	80 cm	**N0777214**
50 µL	80 cm	**N0777215**
100 µL	80 cm	**N0777216**
200 µL	80 cm	**N0777217**
400 µL	80 cm	**N0777218**



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 a Ryton® end cap with a GemTip clear sapphire sample tip and a GemTip red ruby argon tip optimized for ICP-MS.

For Model	Part No.
ELAN DRCe/9000/6X00/5000/500/250	**N8120516**

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	**N0580624**
Cross-Flow II Replacement GemTips	**N8120515**
Cross-Flow Nebulizer O-Ring Kit	**N9300067**
Cross-Flow II Nebulizer Argon Ferrule	**09920515**
Cross-Flow II Nebulizer Ferrule Kit	**N0680612**
Cross-Flow II Nebulizer End Cap	**N8122239**
Cross-Flow II Nebulizer Sample Ferrule	**09920518**

PerkinElmer **spray chambers** provide maximum **sensitivity** and **efficiency**

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.

Baffled Quartz Cyclonic Spray Chamber

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

ICP-MS Model	Part No.
ELAN DRC/DRCplus/DRC II	**WE025221**

O-Ring for Baffled Quartz Cyclonic Spray Chamber

Teflon® coated Viton. Standard on Baffled Quartz Cyclonic Spray Chamber (WE025221).

	Part No.
	09210011

Baffled Quartz Cyclonic Spray Chambers for ESI Sample Introduction

Baffled Quartz Cyclonic Spray Chamber

7mm baffle, aux. gas port, drain line included and connects directly to ESI injectors. An adapter is needed to connect to other injectors.

	Part No.
	N0777034

Baffled Quartz Cyclonic Spray Chamber

7mm baffle, drain line included without aux. gas port and connects directly to ESI injectors. An adapter is needed to connect to other injectors.

	Part No.
	N0777035

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.

ICP-MS Model	Part No.
ELAN DRC-e/9000/6X00/5000	**N8120180**
ELAN DRC/DRC^{plus}/DRC II	**N8120181**

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

The o-ring free design eliminates the o-ring seal between the nebulizer and the spray chamber.

ICP-MS Model	Part No.
ELAN DRC-e/9000/6X00/5000	**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 along the inside top of the spray chamber. This eliminates the periodic "spiking" that adversely affects precision and fosters faster washout times

Glass Cyclonic Spray Chamber Kit

For ELAN DRCe/9000/6X00/5000. Kit contains one Glass Cyclonic Spray Chamber, mounting hardware and instructions. Requires, but does not include, a concentric nebulizer.

Description	Part No.
Glass Cyclonic Spray Chamber Kit	**N8120150**
Glass Cyclonic Spray Chamber only	**N8122188**
O-Ring Free Glass Cyclonic Spray Chamber	**N0775350**

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/DRC^{plus}/DRC II	**N0775354**

Water-Cooled Twister Cyclonic Spray Chamber–50 mL

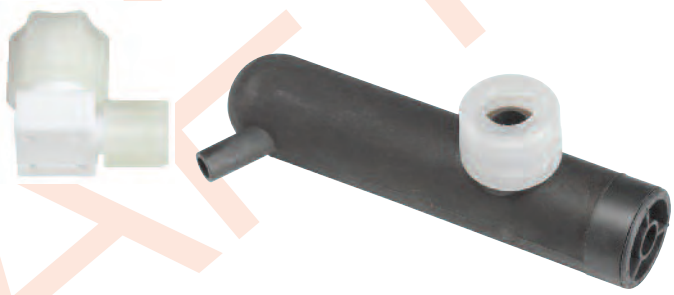
	Part No.
	N0773196

PC^3 Spray Chamber

The PC^3 cools the outer walls of the Cyclonic Spray Chamber to a constant temperature. This reduces polyatomic ion interferences, such as oxides, for ICP-MS analysis.

ICP-MS Model	Part No.
Cassette Torch Mount	**N8122410**
Twist Type Torch Mount	**N8122389**

Ryton® Scott Spray Chambers



Ryton® Scott Spray Chambers

For ELAN 9000/6X00/5000/DRC-e. Complete HF-resistant Ryton® Scott Spray Chamber. Includes (1) large O-Ring (WE013060), (1) Retaining Ring (WE014081) and (1) Right-Angled Drain Connector (WE013119).

Description	Part No.
Ryton® Scott Spray Chamber	**N8120124**
Ryton® Scott Spray Chamber Large O-Ring	**WE013060**
Ryton® Scott Spray Chamber Retaining Ring	**WE014081**

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	**N8122356**

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	**WE013829**

Full selection of Alumina, Quartz and Sapphire Injectors and Support Adapters

Alumina Injectors

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

- 2.0 mm i.d. for use with HF-resistant (Ryton®) sample introduction system. Standard injector for aqueous solutions and less volatile organic solvents
- 1.5 mm i.d. for reduced sample loading with HF-resistant (Ryton®) sample introduction system
- 0.85 mm i.d. for use with volatile organic solutions on the HF-resistant (Ryton®) sample introduction system

Alumina Injectors for ELAN DRC-e/9000/6X00/5000/500

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

Quartz Injectors

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

Quartz Injectors

For the ELAN DRC-e/9000/6X00/5000 when using the HF-Resistant Sample Introduction System (WE024782).

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

Quartz Ball Joint Injectors

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

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

**For reduced sample loading.*

Sapphire Injectors

Sapphire Injector Tube, 2.0 mm i.d.

Demountable injector for use with the HF-resistant (Ryton®) sample introduction system. Not for use with PFA sample introduction system.

Description	Part No.
ELAN DRC-e/9000/6X00/5000	**N0695495**

PFA Injector Assemblies

PFA/Quartz Torch Injector Assembly

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

PFA/Sapphire Torch Injector Assembly

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

PFA/Platinum Torch Injector Assembly

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

Injector Support Adapters

ICP-MS Model	Part No.
ELAN DRC/DRC*plus*/DRC II	
Ball Joint Twist Type Torch Injector Support Adapter	**WE023951**
ELAN DRC II	
Ball Joint Cassette Torch Injector Support Adapter	**W1012406**
ELAN 9000/6X00/5000/DRC-e	
Twist Type Torch Injector Support Adapter	**N8122007**
Twist Type Torch Injector Support Adapter (Assembled with O-Rings)	**N8120116**
ELAN 9000/6X00/5000/DRCs	
Injector Support Adapter O-Ring Kit	**N8120100**

Injector Support Adapter O-Rings

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

Ensure uptime — keep a replacement Torch on hand

Demountable Quartz Torch

The EasyGlide™ torch mount and alignment system used in the ELAN ICP-MS system is shown on the right. 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.
ELANs all models	**N8122006**

High Efficiency Demountable Quartz Torch

Demountable Quartz Torch only. Operates at 25% reduced argon gas flows compared to the Demountable Quartz Torch (N8122006). The ELAN 9000 and 6X00 require the High Efficiency Torch Kit (W1007468) for first time installation.

ICP-MS Model	Part No.
ELAN 9000/6X00/DRCs	**W1008384**

High Efficiency Torch Kit

Includes the High Efficiency Torch (W1008384) and flow restrictors required for use with the ELAN 9000 and 6X00.

ICP-MS Model	Part No.
ELAN 9000 and 6X00	**W1007468**

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.
ELAN DRC II	**W1020672**
ELAN 9000/DRC-e	**W1020668**

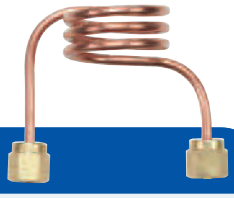
Torch Alignment Tool

Used to align the torch in the load coil.

ICP-MS Model	Part No.
ELAN 9000/6X00/DRCs	**WE015554**

Power Amplifier Tube (Ceramic)

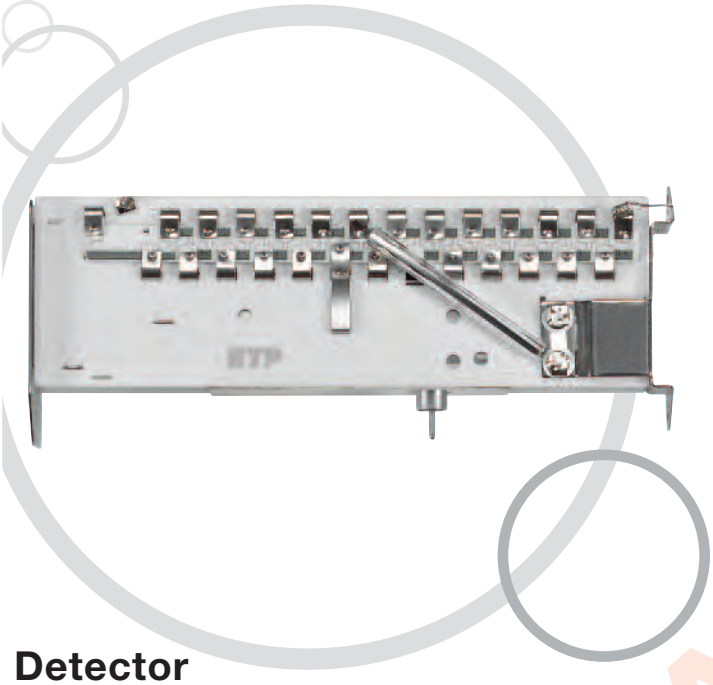
ICP-MS Model	Part No.
ELAN 9000/6X00/DRCs and ELAN 5000As manufactured after September, 1992	**N0695477**



RF Load Coil Assemblies

ICP-MS Model	Part No.
ELAN 9000/6X00/DRCs	**WE021816**
ELAN 5000	**WE012411**

Unique **Detector** and **Ion Optic** design

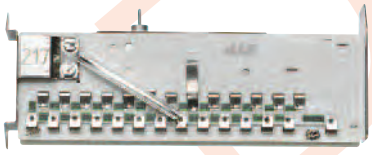


Detector

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. This Detector is designed for use with the ELAN 9000/6X00/DRCs.

ICP-MS Model	Part No.
ELAN 9000/6X00/DRCs* manufactured prior to April, 2005	**N8125001**



SimulScan Dual-Stage Detector

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

ICP-MS Model	Part No.
ELAN 9000/6X00/DRCs*	**N8125050**

Detector Electronics Upgrade Kit

Boosts detector life at least 20%.

ICP-MS Model	Part No.
ELAN 9000/6X00/DRCs* manufactured prior to April, 2005	**W1013195**

**Service installation is required, but not included.*

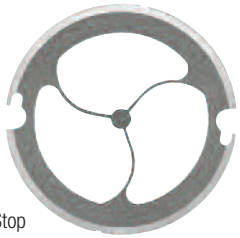
Ion Optics

PerkinElmer offers the industry's only single-ion lens with the exclusive SwiftMount™ II cassette lens mount. The plug and play design makes changing the ion lens faster and simpler than ever before. No tools are required as the design incorporates a clean capture-and-release concept.

Ion Lens

Description	ICP-MS Model	Part No.
Cassette Ion Lens Upgrade Kit	ELANs manufactured before April, 2005	**W1017871**
Series II Ion Lens	ELAN 9000/6X00/DRCs manufactured after January, 1998	**WE018034**
Ion Lens	ELAN 6000s manufactured before January, 1998	**WE014777**
Series II Lens Removal Tool	ELAN 9000/6X00/DRCs manufactured between January,1998 and April, 2005	**W1010620**

Series II Ion Lens



Series II ShadowStop

ShadowStop

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

Vacuum Pump Supplies

Vacuum Pump Oil

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

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

Fomblin Vacuum Pump Fluid

Description	Size	Part No.
Y14/6	1 kg	**N8122265**

High Vacuum Silicon Grease

For lubrication of ELAN 9000/6X00/5000/DRCs vacuum system O-Rings.

	Part No.
	09905147

Tested and approved Sampler and Skimmer Cones

Sampler and Skimmer Cones

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

Nickel Sampler and Skimmer Cone

Nickel Sampler and Skimmer Cones*

ICP-MS Model	Type	Part No.
ELAN 5000	Sampler	**WE013087**
ELAN 5000	Skimmer	**N8122000**
ELAN 9000/6X00/DRC	Sampler	**WE021140**
ELAN 9000/6X00/DRC	Skimmer	**WE021137**

Platinum Sampler and Skimmer Cones*

ICP-MS Model	Type	Part No.
ELAN 5000	Sampler	**N8122025**
ELAN 5000	Skimmer	**N8122035**
ELAN 9000/6X00/DRC	Sampler	**WE027802**
ELAN 9000/6X00/DRC	Skimmer	**WE027803**

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

Platinum Sampler Cone

Platinum Skimmer Cone

Sampler and Skimmer Cone O-Rings

ICP-MS Model	Type	Qty.	Part No.
ELAN 5000	Sampler	1	**N8122003**
ELAN 5000	Sampler	20	**N8120114**
ELAN 5000	Skimmer	1	**N8122002**
ELAN 5000	Skimmer	20	**N8120113**
ELAN 9000/6X00/DRC	Sampler	5	**N8120511**
ELAN 9000/6X00/DRC	Skimmer	5	**N8120512**

Sampler Cone Aluminum Gasket

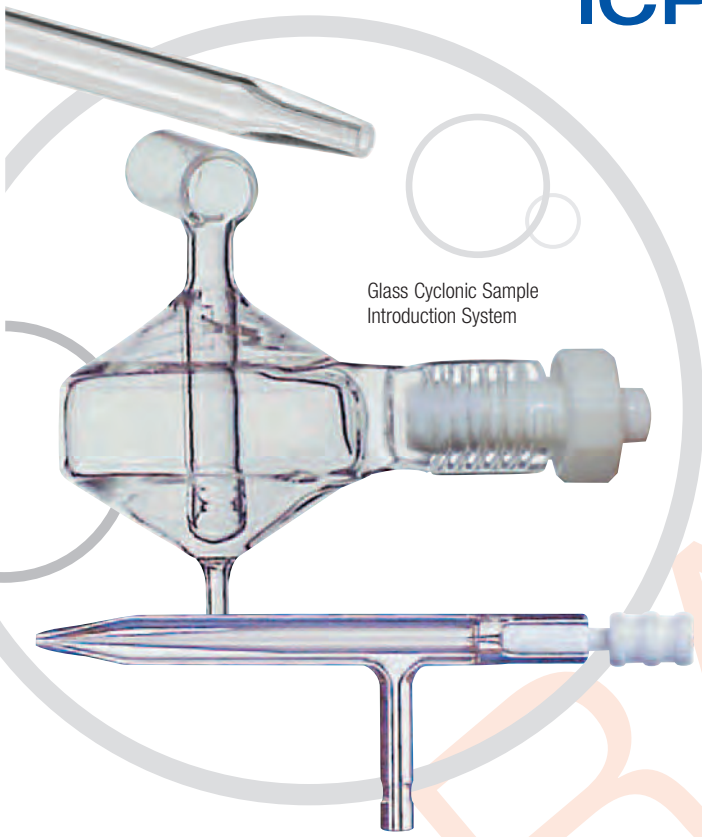
One aluminum gasket for ELAN® 5000 sampler cones.

ICP-MS Model	Part No.
ELAN 5000	**WE012989**

Cone Removal Tool

ICP-MS Model	Part No.
ELAN 5000	**N8122040**
ELAN 9000/6X00/DRC	**WE017142**

Sample Introduction Kits provide a complete solution for your ICP-MS Applications



Glass Cyclonic Sample Introduction System

Glass Cyclonic Sample Introduction System

	Part No.
	N8120518
System Includes:	
Twister Cyclonic Spray Chamber w/Helix	**N0775352**
Cyclonic Spray Chamber Mount	**WE014034**
MicroMist Micro-uptake Glass Concentric Nebulizer Offers high performance for limited sample volumes. Fitted with an EzyFit connector with 1.3 o.d. x 0.50 mm i.d. x 700 mm long sample tubing.	**N0775342**
Quartz Injector 2.0 mm i.d.	**N8125029**
Tygon Tubing (1 foot)	**02506516**
Insert	**09903094**
1/4 in Front Ferrule	**09903456**
Fitting	**09903464**
Tube Fitting	**09903465**
Black/Black Standard PVC Tubing 0.76 mm i.d. (Pkg. 12)	**09908585**
Green/Yellow Flared End PVC Tubing 0.44 mm i.d. (Pkg. 6)	**N0773113**

The low uptake MicroMist Nebulizer and Cyclonic Spray Chamber will reduce the solids buildup in the ICP-MS while providing good sensitivity and fast rinse out for ICP-MS analyses.

Quartz Cyclonic Sample Introduction System

	Part No.
	N8120519
System Includes:	
Baffled Quartz Cyclonic Spray Chamber Baffled Quartz Spray Chamber (Teflon® O-Ring type) with ball joint.	**WE025221**
MicroMist Micro-uptake Glass Concentric Nebulizer Offers high performance for limited sample volumes. Fitted with an EzyFit connector with 1.3 o.d. x 0.50 mm i.d. x 700 mm long sample tubing.	**N0775342**
Quartz Ball Injector 2.0 mm i.d.	**WE023948**
Tygon Tubing (1 foot)	**02506516**
Insert	**09903094**
1/4 in Front Ferrule	**09903456**
Fitting	**09903464**
Tube Fitting	**09903465**
Black/Black Standard PVC Tubing 0.76 mm i.d. (Pkg. 12)	**09908585**
Green/Yellow Flared End PVC Tubing 0.44 mm i.d. (Pkg. 6)	**N0773113**
Ball Joint Cassette Torch Injector Support Adapter	**W1012406**
UV Safety Shield	**W1020996**

Quartz Cyclonic Sample Introduction System

Autosampler **sampling probes** and **components**

AS-90/90A/90*plus*/91/93*plus*/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.	**B3000159**
FIAS™ Sampling Probe Assembly, 0.6 mm i.d. Includes Stainless Steel Sampling Probe and Screw Fitting (B3000152) and FIAS Capillary Tubing Assembly (B3000158–replaces B0196966).	**B3000160**
FIAS Standard Sampling Probe Assembly, 1.0 mm i.d. Includes Stainless Steel Sampling Probe and Screw Fitting (B3000152) and FIAS Capillary Tubing Assembly (B0191060–replaces B0501044).	**B3000161**

Corrosion-Resistant

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

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

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

Used Oil Autosampler Probe

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

	Part No.
	N0771529

Sampling Probe Assembly Components

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

Sampling Probe Accessories

Description	Part No.
Cleaning Wire for AS 90/91 Probe	**B0505962**

S10 Autosampler

ESI Autosampler Probes

Autosampler Probes

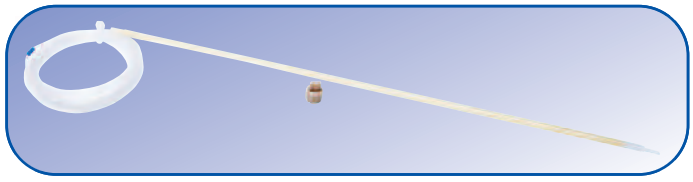
Description	Part No.
Autosampler Probe, 0.15 mm	**N0777221**
Autosampler Probe, 0.20 mm	**N0777222**
Autosampler Probe, 0.25 mm	**N0777223**
Autosampler Probe, 0.30 mm	**N0777224**
Autosampler Probe, 0.50 mm	**N0777225**
Autosampler Probe, 0.80 mm	**N0777226**

Sample Probes

Description	Part No.
High Flow, Carbon Fiber Support, 0.8 mm i.d. (blue)	**N0777285**
Low Flow, Carbon Fiber Support, 0.8 mm i.d. (blue)	**N0777266**
Sample Probe Line Holder	**N0777227**

Carrier Probes

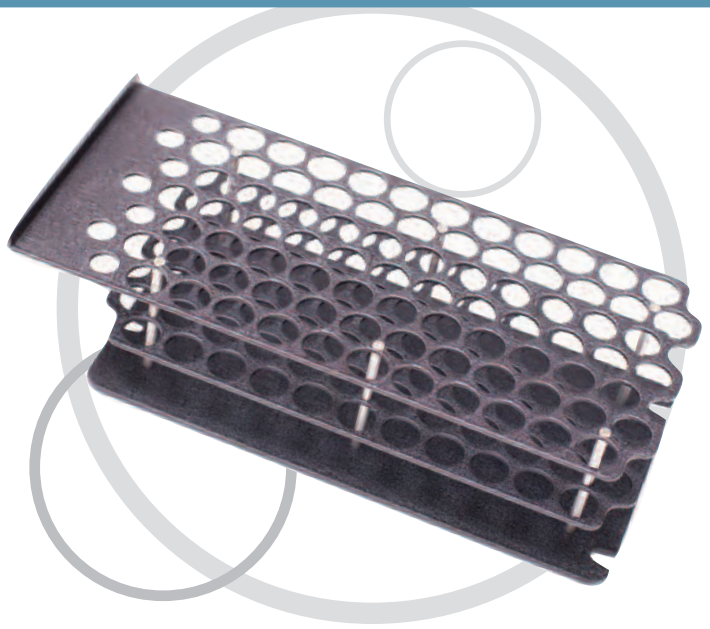
Description	Part No.
High Flow, Carbon Fiber Support, 0.5 mm i.d. (orange)	**N0777286**
Low Flow, Carbon Fiber Support, 0.5 mm i.d. (orange)	**N0777267**



Cetac Autosampler Probes

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

Sample Vials, Racks and Supplies for a



Sample Trays

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

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

***Polypropylene sample tray.*

AS-91 Sample Trays

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

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

AS-93*plus*/S10 Sample Trays

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

AS-93plus sample trays are polypropylene.

AS-93*plus*/S10 Rinsing Kit

Description	Part No.
AS-93*plus* Rinsing Kit	**B3140236**

Spare Parts

Rinsing Port	**B3140622**
Adapter M	**B0507919**
Pump Tube – 2.79 mm i.d. (pkg. 6)	**B3140721**
Pump Tube – 1.14 mm i.d. (pkg. 6)	**B3140730**
Tygon® Drain Tube – 2 m	**B0509650**
PVC Rinse Liquid Feed Tube – 2 m	**B0048139**
Connector	**B3140715**

Cetac Autosampler Supplies

Racks

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

Polypropylene Vials

Capacity	Size	Qty.	Part No.
8 mL	13 mm x 100 mm	1,000	**N0777156**
8 mL	13 mm x 100 mm	250	**N0777159**
12 mL	13 mm x 100 mm	1,000	**N0777165**
12 mL	13 mm x 100 mm	250	**N0777166**
14 mL	16 mm x 100 mm	1,000	**N0777157**
14 mL	16 mm x 100 mm	250	**N0777160**
15 mL	17 mm x 100 mm	1,000	**N0777167**
15 mL	17 mm x 100 mm	250	**N0777168**
20 mL	21.5 mm x 100 mm	500	**N0777161**
20 mL	21.5 mm x 100 mm	100	**N0777163**
30 mL	25 mm x 95 mm	500	**N0777162**
50 mL	30 mm x 115 mm	500	**N0777158**
50 mL	30 mm x 115 mm	100	**N0777164**

Tubing Kits

Description	Part No.
Hookup Kit-Rinse/Drain Tubes (Oils)	**N0774082**
Drain Pump Tubing and Connector Kit (PharMed)	**N0774083**
Drain Pump Tubing and Connector Kit (Oils)	**N0774084**
Hookup Kit-Rinse/Drain	**N0774087**
Kit-Rinse/Drain Tubing Conn 72 in x 3/16 in	**N0777170**
Kit-Rinse/Drain 84 in x 1/8 i.d. Fuel/Lubricating	**N0777171**
Kit-Rinse/Drain 72 in x 3/16 i.d. Fuel/Lubricating	**N0777172**
Drain Pump Tubing and Connector Kit (Tygon)	**N0777173**

Sample Vessels

Translucent polypropylene vessels with excellent chemical resistance.

Capacity	Qty.	Part No.
4.5 mL	1,000	**N9301204**
6 mL*	500	**B0193235**
8 mL	1,000	**B0508901**
15 mL*	500	**B0193233**
16 mL	1,000	**N9301205**
50 mL*	500	**B0193234**

**Includes screw caps.*

Variety of Autosamplers

ESI Autosampler Supplies

Racks and Rack Covers

Standard Racks

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

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

Micro Racks

Description	Size	Diameter	Part No.
21-Position	3 x 7	14 mm	**N0777229**
40-Position	4 x 10	14 mm	**N0777230**
60-Position	5 x 12	8 mm	**N0777231**
90-Position	5 x 12		**N0777232**
Cover for Micro Racks			**N0777233**

Large Racks

Description	Size	Diameter	Part No.
21-Position	3 x 7	30 mm	**N0777242**
40-Position	4 x 10	20 mm	**N0777243**
60-Position	5 x 12	16 mm	**N0777244**
90-Position	6 x 15	13 mm	**N0777245**

Super Racks

Description	Size	Diameter	Part No.
10-Position*	2 x 5	61 mm	**N0777253**
12-Position	2 x 6	50 mm	**N0777252**
21-Position	3 x 7	22 mm	**N0777251**
21-Position	3 x 7	28 mm	**N0777250**
21-Position	3 x 7	30 mm	**N0777249**
27-Position	3 x 9	28 mm	**N0777248**
80-Position	5 x 16	16 mm	**N0777247**
120-Position	6 x 20	13 mm	**N0777246**

**Holds 205 mL bottles.*

Sample Loops

Connects to Ports 1 and 4.

Size	Part No.
0.25 mL	**N0777046**
0.5 mL	**N0777289**
1 mL	**N0777290**
2 mL	**N0777291**
3 mL	**N0777292**
4 mL	**N0777293**
500 µL	**N0777274**
1,000 µL	**N0777275**
2,000 µL	**N0777276**

Microtiter Plates and Cover

Description	Size	Qty.	Part No.
24-Position	10 mL	5	**N0777236**
48-Position	5 mL	5	**N0777237**
48-Position	7.5 mL	5	**N0777238**
48-Position, Removable Rows	10 mL	5	**N0777240**
96-Position	2 mL	5	**N0777239**
Cover for Microtiter Plates		5	**N0777241**

ST Nebulizer Lines

Description	Size	Marker	Part No.
Connects to Port 3	0.15 i.d.	Red	**N0777269**
Connects to Port 3	0.20 i.d.	Purple	**N0777270**
Connects to Port 3 (low flow)	0.25 i.d.	Green	**N0777271**
Connects to Port 3 (high flow)	0.25 i.d.	Green	**N0777287**
Connects to Port 3	0.30 i.d.	Yellow	**N0777272**
Connects to Port 3 (low flow)	0.50 i.d.	Orange	**N0777273**
Connects to Port 3 (high flow)	0.50 i.d.	Orange	**N0777288**

PerkinElmer pioneered the use of flow injection techniques for atomic spectroscopy

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.

For our complete listing of Sampling Supplies, please visit:
www.perkinelmer.com/supplies

** Type designation refers to diagrams in instrument manuals.*

Adapter 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

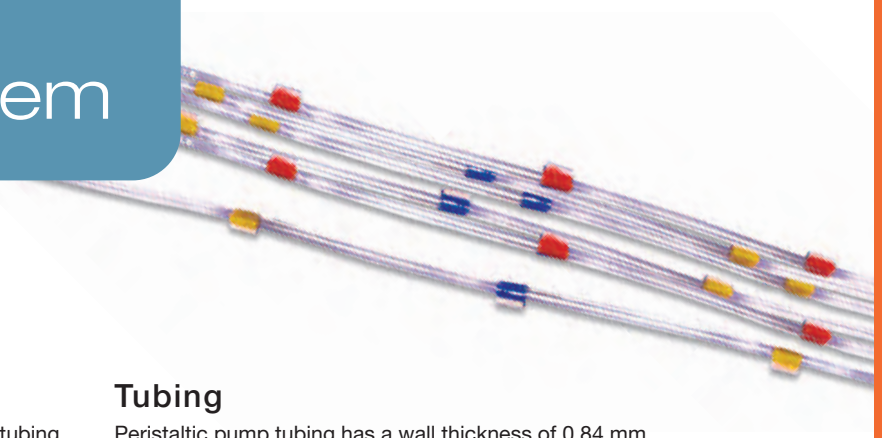
Type*		Description	Part No.
IA		Connector with nipples for 1.7 to 3.2 mm i.d. tubes	**B0199233**
IB		Connector with nipples for 2.4 to 3.2 mm i.d. tubes	**B0196882**
II		Connector with ¼ in (6.4 mm) internal screw thread	**B0196704**
IIIA		T-piece with nipples for 1.5 to 2.5 mm i.d. tubes	**B0199035**
IIIB		T-piece with nipples for 3.5 to 4.5 mm i.d. tubes	**B0198201**

Adapter 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**

Flow Injection System



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).

Part No.
B0507957

Mixing Blocks

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.

Part No.
B0507962

Gas/Liquid Separator

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

Part No.
B0507959

Tool, Screw Connectors

For convenient tightening and loosening of the screw connectors used with PTFE tubing assemblies.

Part No.
B0501315

Flow Injection Furnace Supplies

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

Sample Loops

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

Tubing

Peristaltic pump tubing has a wall thickness of 0.84 mm. Part numbers are for a package of 12 pieces.

Peristaltic Pump Tubing

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

Peristaltic Pump Tubing, Solvent-Resistant

1.14 mm	White/white	B0507692

PTFE Tubing

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

PTFE Tubing Assemblies

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

PVC Tubing

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

Price per meter.

Silicone Tubing

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

Gas/Liquid Separator Consumables

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

Ensure **reproducibility** by replacing **your tubing** frequently

Standard PVC Tubing

- An economical high-performance material with great versatility for a wide range of uses

Description	Color	Pkg.	Part No.
0.19 mm i.d.	Orange/Red	12	**N0695476**
0.25 mm i.d.	Orange/Blue	12	**N0773117**
0.38 mm i.d.	Orange/Green	12	**N0777110**
0.76 mm i.d.	Black/Black	12	**09908587**
1.14 mm i.d.	Red/Red	12	**09908585**
3.16 mm i.d.	Black/White	12	**N8122012**

Flared Tubing

Description	Color	Pkg.	Part No.
0.19 mm i.d.	Orange/Red	6	**N0773111**
0.25 mm i.d.	Orange/Blue	6	**N0773112**
0.44 mm i.d.	Green/Yellow	6	**N0773113**
0.38 mm i.d.	Orange/Green	12	**N0777042**
0.76 mm i.d.	Black/Black	12	**N0777043**

Silicone Tubing

- A flexible, long-life translucent material with good chemical and environmental resistance

Description	Color	Pkg.	Part No.
0.76 mm i.d.	Black/Black	6	**00473552**
1.14 mm i.d.	Red/Red	6	**N0691595**

Solvent Flex Tubing

- A flexible, translucent yellow PVC based compound with particular resistance to petrol and kerosene and many aromatic hydrocarbons

Description	Color	Pkg.	Part No.
0.76 mm i.d.	Black/Black	12	**00473550**
1.14 mm i.d.	Red/Red	12	**09923037**

Viton Tubing

- A unique fluoroelastomer with excellent chemical resistance to acids, alkalis, oils, fuels and most aromatic hydrocarbons

Description	Color	Pkg.	Part No.
0.76 mm i.d.	Black/Black	12	**N0773118**
1.14 mm i.d.	Red/Red	12	**N0773115**

Santoprene® Tubing

- Flexible tough opaque thermoplastic rubber with excellent resistance to both acids and alkalis

Description	Color	Pkg.	Part No.
1.14 mm i.d.	Red/Red	12	**N0773119**
1.85 mm i.d.	Green/Green	12	**N0773116**

PharMed® Drain Tubing

- Used for drain only

Description	Color	Pkg.	Part No.
2.79 mm i.d.	White/Violet	12	**N8122252**

Other Tubing

Description	Dimensions	Part No.
Polyethylene Nebulizer Tubing	3 m length, 0.6 mm i.d. x 0.97 mm o.d.	**09908265**
Teflon® Tubing	1 m length, 1 mm i.d.	**B0029792**
PTFE Tubing	0.3 m length, 0.79 mm o.d. x 0.41 mm i.d.	**09985708**

Internal Standard Kits

Includes: Mixing T-piece, Internal Standard Probe, Sample Tubings, Gripper Paper and Orange-Blue Flared End PVC Tubing.

Description	Part No.
Non-HF Resistant Internal Standard Kit	**N0774068**
HF Resistant Internal Standard Kit	**N0774067**

Recirculating chillers provide clean and reliable temperature controlled fluid

Cooling Systems for ICP-OES and ICP-MS

Water cooling systems (chillers) provide clean, reliable temperature controlled fluid for open tanks or closed loop cooling.

For added operational safety, they also feature audible and visual alarms that alert you instantly when operating parameters exceed pre-set limits. There are even user adjustable high and low temperature limits to help prevent unauthorized set point changes, plus built-in safeties to alert you to low fluid levels and thermal runaway.

- Extra-large digital displays
- Temperature and pressure/ flow rate readouts
- Low flow alarm
- High and low temperature alarms
- One-touch temperature control
- Quiet operation
- Simple maintenance

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.

Part No.
N0776099

ELAN Coolant Fluid

1 liter bottle. It is essential that this chiller coolant be used with ELAN 9000/6X00/DRC series instruments. Also suitable for organics chillers.

Part No.
WE016558

Heat Exchanger System

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

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

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.
110V	03030447
230V	03030448

Chillers/Recirculating Water Cooling Systems

ICP Model	Power Requirement	Operating Temp.	Flow Rate	Part No.
ELAN 5000/6X00/DRCs	208–230 V, 60 Hz, 8 A	-15° to 40 °C	60 psi: 4.3 gpm/16.3 Lpm	N0772026
ELAN 5000/6X00/DRCs	240 V, 50 Hz, 8.5 A	-15° to 40 °C	60 psi: 4.3 gpm/16.3 Lpm	N0772025
Optima 2X00/4X00/5X00	208–230 V, 60 Hz, 8 A	-15° to 40 °C	60 psi: 4.3 gpm/16.3 Lpm	N0772026
Optima 2X00/4X00/5X00	240 V, 50 Hz, 8.5 A	-15° to 40 °C	60 psi: 4.3 gpm/16.3 Lpm	N0772025
Optima 3X00	120 V, 60 Hz, 13.1 A	-5° to 40 °C	60 psi: 1 gpm/3.8 Lpm	N0691883
Optima 3X00	240 V, 50 Hz, 7.3 A	-5° to 40 °C	60 psi: 1 gpm/3.8 Lpm	N0691884

PerkinElmer offers a **full range** of **filters** and **regulators** for your **laboratory**

Acetylene Regulator

Argon/Nitrogen Regulator

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

Description	Part No.
Max inlet pressure: 3,000 psig	**03030284**

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**

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**

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.

Part No.
03030204

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**

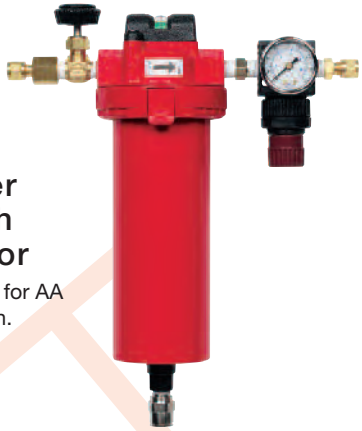
Parker Balston® 73-099 AA Gas Purifier

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.

	Part No.
	N9301398

Air Dryer Filter Assembly with R250 Regulator



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

Description	Part No.
Air Dryer Filter Assembly with R250 Regulator	**N0775325**
Replacement Filter Element	**N9306067**

Parker Balston® Replacement Filters

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

Wilkerson® Air Dryer Filter Accessories*

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

**For Wilkerson Filter PerkinElmer (00470652)*

Balston® 95A Acetylene Filter

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

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

ICP Filter Replacement Parts

ICP Model	Filter Element	Part No.
2X00/3X00/4X00/5X00/7X00	For Pre-Final	**09907122**
2X00/3X00/4X00/5X00/7X00	For Final Filter	**09923464**
2X00/3X00/4X00/5X00/7X00	Water Filter	**09904845**
2X00/3X00/4X00/5X00/7X00	Cartridge for Water Filter	**09904846**
2X00/4X00/5X00/7X00	Air Filter for the RF Generator Inlet	**N0775220**
3X00	Air Filter for the RF Generator Inlet	**02509115**

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	**N0580531**
Replacement Filter Cartridge Element	**N0582251**

Instrument Filters

Description	Part No.
For AAnalyst 100/300	**09995097**
For AAnalyst 200/400/600/700/800	**B0501696**
For AAnalyst 600/700/800 (80x80)	**B0502706**
For Optima 2X00/3X00/4X00/5X00/7X00	**09995098**

Three **service plan options** are available to **meet your needs**

Maximize instrument performance and uptime

From unplanned repair expenses to lost productivity, few events can be as disruptive as the failure of a key instrument. With a service and support plan from PerkinElmer, your lab will be protected from unplanned downtime and unexpected expense.

Planning for future service needs as part of your new instrument budget proposal or purchase order will enable your laboratory to:

- Fix the cost of ownership of mission critical or revenue generating instrumentation
- Ensure seamless continuation of support when the initial 12-month warranty expires
- Eliminate administration costs incurred by continually renewing contracts
- Avoid having to re-justify maintenance expense at a future date
- Make use of funds now that may not be available in the future

Call your local sales representative to learn more about the PerkinElmer service and support products that the most successful global corporations, research facilities and analytic laboratories use to enhance their performance.

PerkinElmer's range of multi-year service plans eliminates the risk of unbudgeted service expense and ensures instrumentation is maintained to the highest possible standard throughout its lifetime.

Comprehensive

This plan is ideal for laboratories whose financial success depends on the consistent availability and high performance of their scientific instruments.

Basic

This plan is ideal for medium to large laboratories that require predictable instrument performance.

Repair

The Repair service plan is ideal for small to medium laboratories seeking to maximize limited maintenance budgets and maintain instrument performance.

Three Options of Service Plan Packages

PerkinElmer Service Benefits	**Comprehensive** Maximum Uptime	**Basic** Managed Expense	**Repair** Dependable Protection
Core Benefits			
Priority On-Site Response	Within 48 hours		
Preventative Maintenance	2 Annual Visits	1 Annual Visit	
Training	15% off	5% off	
PerkinElmer Certified Parts	100% included	100% included	100% included
Expert Service Engineers	100% included	100% included	100% included
Travel to your Location	100% included	100% included	100% included
Additional Features			
Online Support Resources	100% included	100% included	100% included
Responsive Technical Support	100% included	100% included	100% included
Service History Tracking	100% included	100% included	100% included
Six Sigma & ISO Best Practices	100% included	100% included	100% included

Courses

Introducing eLearning from PerkinElmer — The first HTML-based online training program that fits your lab's needs

Experience the PerkinElmer difference.

Rich graphics. Simple navigation. Highly interactive. Together these features make up the most advanced online training program in the industry.

Why eLearning for your lab?

- Highly scalable, enterprise-wide training solution
- No expensive off-site training or travel costs
- Minimal disruption to workflow — helps maintain productivity
- Easy tracking and monitoring of employee progress
- The most extensive selection of lab training courses online
- The only 100% HTML-based interface in the industry
- Scalable from 1 to 1,000 employees; and can be customized to match individual skill sets

eLearning Courses

AAnalyst Flame Maintenance and Troubleshooting eLearning Course

This online course will provide the student with the knowledge necessary to perform maintenance of the flame portion of the AAnalyst series of Atomic Absorption Spectrometers.

	Part No.
	N0209765

ICP Maintenance and Troubleshooting

This online course will provide the student with the knowledge necessary to perform maintenance of the ICP Torch Assembly and Sample Introduction System of the OPTIMA 2100 and OPTIMA 5000 Dual View Series of Optical Emission Spectrometers.

	Part No.
	N0200077

For training schedule, additional courses and course locations, please visit:
www.perkinelmer.com/trainings

Live Classroom Training Available Worldwide

In addition to our new eLearning offering, PerkinElmer also offers more than 100 hands-on training classes at well-equipped training centers in Europe – including Finland, France, Germany, Italy and Sweden.

All classes are taught in either English (Finland) or the local language (France, Germany, Italy, Sweden) by factory-trained experts. Topics range from theory to techniques relating to specific methodology, optimization, and familiarization with instrumentation and related software. Additionally, each course offers an excellent opportunity for students to meet and share ideas with colleagues from a remarkably diverse array of fields and areas of interest.

Are you interested in learning more?

Please refer to the contact details below for more information on the many classes offered in a country near you.

For further information regarding training in your area please refer to the PerkinElmer office near you listed on page 2.

ONLINE: las.perkinelmer.com/Trainings/CourseSearch.htm (global)

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France **Tel:** +33 01 69 59 84 86 **Email:** roseline.caldiero@perkinelmer.com

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** Currently eLearning courses are only available in U.S., Puerto Rico, Canada, Germany and the U.K.*

Whatever your application, you can depend on **PerkinElmer Pure Standards** to yield **reliable, accurate results**

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

Quality

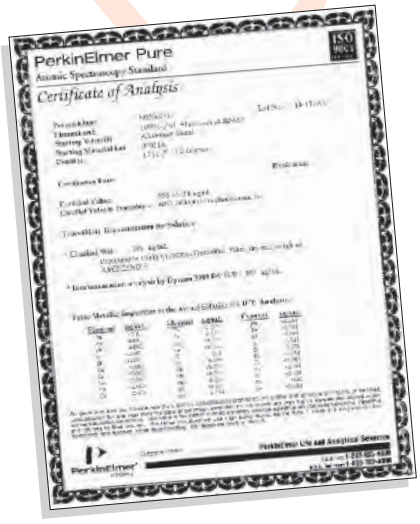
PerkinElmer Pure standards are prepared gravimetrically from high-purity metals and salts, using high-purity reagents.

- ASTM Type I, filtered water minimizes cations, anions and colloids; resistivity is maintained in the 18-megohm range
- Acids used are the highest purity
- Semi-micro analytical balances and Class A volumetric glassware are used and the bottles are subjected to a stringent leaching/cleaning process
- Following preparation, standards are analyzed for the major element as well as trace impurities. The results of the analysis are provided on the Certificate of Analysis

Reliability

Single-element standards are measured by four methods:

1. ICP/ICP-MS analysis of the high pure starting materials for trace impurities (semi-quantitative).
2. Gravimetric, “wet” assay of the major analyte.
3. ICP check of the major analyte.
4. ICP/ICP-MS check of the trace impurities in the final solution.



Safety

We ship standards to comply with both DOT and IATA regulations to ensure their safe delivery to you.

Features

- ISO 9001 accredited by Underwriters Laboratories including comprehensive continuous improvement, product recall, corrective action request and other quality maintenance and improvement programs
- Product labeling meets OSHA, California and EU labeling standards
- Bottles are low-density polyethylene from industry standard Nalge Corporation and are pre-leached and pre-treated for increased product stability and purity
- High-purity acids and ASTM Type I water used in all manufacturing
- Traceability directly to NIST standard reference materials, not independent sources or secondary NIST SRMs
- Wet assays on all single-element products via standard, accepted wet methods and traceable directly to NIST SRM to +/-0.5% of true value and reported on the Certificate of Analysis
- All starting materials tested and confirmed for the absence of interfering anions, e.g. chloride
- Twelve months guaranteed stability +/-0.5% for all major analytes for all products
- Compliance to ISO 17025 quality system requirements (certificate pending). ISO Guide 34

Single-Element Calibration Standards

Element	Symbol	Matrix	Starting Material	100 mL Part No.	500 mL Part No.
Aluminum	Al	2% HNO_3	$Al(NO_3)_3 \bullet 9H_2O$	**N9300184**	**N9300100**
Antimony	Sb	2% HNO_3	Sb_2O_3	**N9300207**	**N9300101**
Arsenic	As	2% HNO_3	$H_3AsO_4 \bullet ½H_2O$	**N9300180**	**N9300102**
Barium	Ba	2% HNO_3	$BaCO_3$	**N9300181**	**N9300103**
Beryllium	Be	2% HNO_3	$Be_4O(C_2H_3O_2)_6$	**N9300172**	**N9300104**
Bismuth	Bi	10% HNO_3	Bi	**N9303761**	**N9300105**
Cadmium	Cd	2% HNO_3	Cd	**N9300172**	**N9300107**
Calcium	Ca	2% HNO_3	$CaCO_3$	**N9303763**	**N9300108**
Chromium	Cr	2% HNO_3	$Cr(NO_3)_3 \bullet 9H_2O$	**N9300173**	**N9300112**
Cobalt	Co	2% HNO_3	$CoCO_3$	**N9303766**	**N9300113**
Copper	Cu	2% HNO_3	Cu	**N9300183**	**N9300114**
Gold	Au	10% HCl	Au	**N9303759**	**N9300121**
Hafnium	Hf	2% HCl	$HfOCl_2 \bullet 8H_2O$	**N9303775**	**N9300122**
Iron	Fe	2% HNO_3	Fe	**N9303771**	**N9300126**
Lead	Pb	2% HNO_3	Pb	**N9300175**	**N9300128**
Magnesium	Mg	2% HNO_3	Mg	**N9300179**	**N9300131**
Manganese	Mn	2% HNO_3	$Mn(C_2H_3O_2)_3 \bullet 2H_2O$	**N9303783**	**N9300132**
Mercury**	Hg	10% HNO_3	Hg	**N9300174**	**N9300133**
Molybdenum	Mo	H_2O	$(NH_4)_6Mo_7O_{24} \bullet 4H_2O$	**N9303784**	**N9300134**
Nickel	Ni	2% HNO_3	Ni	**N9300177**	**N9300136**
Palladium	Pd	10% HCl	$(NH_4)_2PdCl_4$	**N9303789**	**N9300138**
Phosphorus	P	H_2O	$NH_4H_2PO_4$	**N9303788**	**N9300139**
Platinum	Pt	10% HCl	$H_2PtCl_6 \bullet XH_2O$	**N9303791**	**N9300140**
Potassium	K	2% HNO_3	KNO_3	**N9303779**	**N9300141**
Scandium	Sc	2% HNO_3	Sc_2O_3	**N9303798**	**N9300148**
Selenium	Se	2% HNO_3	Se	**N9300182**	**N9300149**
Silicon	Si	H_2O	$(NH_4)_2SiF_6$	**N9303799**	**N9300150**
Silver	Ag	2% HNO_3	Ag	**N9300171**	**N9300151**
Sodium	Na	2% HNO_3	Na_2CO_3	**N9303785**	**N9300152**
Sulfur	S	H_2O	$(NH_4)_2SO_4$	**N9303796**	**N9300154**
Tin	Sn	20% HCl	Sn	**N9303801**	**N9300161**
Thallium	Tl	2% HNO_3	$TlNO_3$	**N9300170**	**N9300158**
Titanium	Ti	H_2O	$(NH_4)_2TiF_6$	**N9303806**	**N9300162**
Yttrium	Y	2% HNO_3	Y_2O_3	**N9303810**	**N9300167**
Zinc	Zn	2% HNO_3	Zn	**N9300178**	**N9300168**

The single element standards listed have a concentration of 1,000 µg/mL in aqueous solution. All 100 mL standards are shipped in 125 mL bottles.
***Also available at 10 µg/mL as Part No. N9300253.*

Atomic Spectroscopy Standards for your

Mixed Calibration Standards

Matrix	Contents	Vol.	Part No.
Mixed Calibration Standard			
2% HNO_3	50 µg/mL: As, K 10 µg/mL: La, Li, Mn, Ni, Sr, Zn 1 µg/mL: Ba, Mg	500 mL	**N0691579**
Mixed Calibration Standard 1			
2% HNO_3	500 µg/mL: Pb 200 µg/mL: Se 150 µg/mL: Cd, Zn 100 µg/mL: Mn 50 µg/mL: Be	100 mL	**N9300200**
Mixed Calibration Standard 2			
5% HNO_3	10,000 µg/mL: Fe 100 µ/mL: Ba, Co, Cu, V	100 mL	**N9300201**
Mixed Calibration Standard 3			
2% HNO_3/tr HF	500 µg/mL: As 100 µg/mL: Mo, Si	100 mL	**N9300202**
Mixed Calibration Standard 4			
5% HNO_3	1,000 µg/mL: Ca 400 µg/mL: K 200 µg/mL: Al, Na 20 µg/mL: Cr, Ni	100 mL	**N9300203**
Mixed Calibration Standard 5			
5% HNO_3/trTartaric Acid/tr HF	1,000 µg/mL: Mg 200 µg/mL: Sb, Tl 100 µg/mL: B 50 µg/mL: Ag	100 mL	**N9300204**

Initial Calibration Verification Standard

Matrix	Vol.	Part No.
5% HNO_3	500 mL	**N9300224**

Contents:

500 µg/mL: Ca, Mg, K, Na	50 µg/mL: Co, V	15 µg/mL: Mn
200 µg/mL: Ba, Al	40 µg/mL: Ni	10 µg/mL: As, Cr, Ag, Tl
100 µg/mL: Fe	25 µg/mL: Cu	5 µg/mL: Cd, Se
60 µg/mL: Sb	20 µg/mL: Zn	3 µg/mL: P

Instrument Calibration Standards

Matrix	Contents	Vol.	Part No.
Instrument Calibration Standard 1			
5% HNO_3	5,000 µg/mL: Ca, K, Mg, Na	100 mL	**N9300218**
Instrument Calibration Standard 2			
5% HNO_3	400 µg/mL: Ni 200 µg/mL: Zn 150 µg/mL: Mn 100 µg/mL: Ag, Cr	100 mL	**N9300219**
Instrument Calibration Standard 3			
5% HNO_3	2,000 µg/mL: Al, Ba 1,000 µg/mL: Fe 500 µg/mL: Co, V 250 µg/mL: Cu	100 mL	**N9300220**
Instrument Calibration Standard 4			
5% HNO_3	100 µg/mL: As, Tl 50 µg/mL: Cd, Se 30 µg/mL: Pb	100 mL	**N9300221**
Low UV Standard			
2% HNO_3	10 µg/mL: Al, P, S	250 mL	**N0691580**
Calcium Stray Light Standard			
H_20	10,000 µg/mL: Ca	100 mL	**N0691581**

Contract Required Detection Limits (CRDL)

Matrix	Vol.	Part No.
5% HNO_3/tr Tartaric Acid/tr HF	100 mL	**N9300225**

Contents:

120 µg/mL: Sb	50 µg/mL: Cu	20 µg/mL: Ag, As, Cr, Tl
100 µg/mL:Co, V	40 µg/mL: Zn	10 µg/mL: Be, Cd, Se
80 µg/mL: Ni	30 µg/mL: Mn	6 µg/mL: P

Quality Control Standards

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

ICP Applications

Interference Check Standards

Matrix	Contents	Vol.	Part No.
Interference Check Standard 1			
H_2O/tr HNO_3/0.6% Tartaric Acid	100 µg/mL: Sb	100 mL	**N9300207**
Interference Check Standard 5			
5% HNO_3	6,000 µg/mL: Ca 5,000 µg/mL: Fe 3,000 µg/mL: Mg 1,200 µg/mL: Al 1,000 µg/mL: Na	100 mL	**N9300208**
Interference Check Standard 18			
5% HNO_3	20,000 µg/mL: K 1,000 µg/mL: As, Pb, Tl 500 µg/mL: Se 300 µg/mL: Ag, Ba, Cd, Co, Cr, Cu, Ni, V, Zn 200 µg/mL: Mn 100 µg/mL: Be, Hg* **Included in separate bottle.*	100 mL	**N9300205**
Interferents A			
5% HNO_3	5,000 µg/mL: Al, Ca, Mg 2,000 µg/mL: Fe	500 mL	**N9300226**
Alternate Interferents A			
5% HNO_3	1,000 µg/mL: Cr, Cu, Mn, Ni, Ti, V	500 mL	**N9300228**
Analytes B			
5% HNO_3/trTartaric Acid/tr HF	100 µg/mL: Cd, Ni, Zn 60 µg/mL: Sb 50 µg/mL: Ba, Be, Co, Cr, Cu, Mn, V 20 µg/mL: Ag 10 µg/mL: As, Tl	100 mL	**N9300227**
Alternate Analytes B			
5% HNO_3/tr Tartaric Acid/tr HF	100 µg/mL: Al, As, B, Mo, Na, Sb, Se, Tl 10 µg/mL: Ca, Fe, Mg, Si	100 mL	**N9300229**

Spike Sample Analysis

Spike Sample Standard I

Matrix	Vol.	Part No.
5% HNO_3/tr Tartaric Acid/tr HF	100 mL	**N9300230**

Contents:

200 µg/mL: Al, As, Ba, Se, Tl
100 µg/mL: Fe
50 µg/mL: Co, Mn, Ni, Pb, Sb, V, Zn
25 µg/mL: Cu
20 µg/mL: Cr
5 µg/mL: Ag, Be, Cd

Water Pollutant Standards

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

Wavecal Solutions

Matrix	Contents	Vol.	Part No.
VIS Wavecal Solution			
2% HNO_3	50 µg/mL: K 10 µg/mL: La, Li, Mn, Na, Sr 1 µg/mL: Ba, Ca	250 mL	**N9302946**
UV Wavecal Solution			
5% HCl	100 µg/mL: K, P, S 20 µg/mL: As, La, Li, Mn, Mo, Na, Ni, Sc	100 mL	**N0681470**
5% HCl	100 µg/mL: K, P, S 20 µg/mL: As, La, Li, Mn, Mo, Na, Ni, Sc	500 mL	**N0582152**

Atomic Spectroscopy Standards for your

Instrument Calibration Standards

Matrix	Contents	Vol.	Part No.
Instrument Calibration Standard 1			
2% HNO_3/tr Tartaric Acid	20 µg/mL: Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Th, Tl, U, V, Zn	100 mL	**N9303816**
Instrument Calibration Standard 2			
5% HNO_3/tr Tartaric Acid/tr HF	100 µg/mL: Ag, Al, As, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn	100 mL	**N9301721**
Instrument Calibration Standard 3			
5% HNO_3	1,000 µg/mL: Fe, K, Ca, Na, Mg	100 mL	**N9303818**
Initial Calibration Verification Standard 1			
5% HNO_3/tr Tartaric Acid	1,000 µg/mL: Fe, K, Ca, Na, Mg, Sr 10 µg/mL: Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn, Th, U	100 mL	**N9303825**
Initial Calibration Verification Standard 2			
2% HNO_3/tr HF	10 µg/mL: Sn, Ti	100 mL	**N9303826**
Elan 6100 DRC Setup/Stab/Masscal Solution			
0.5% HNO_3	10 µg/L: Ba 1 µg/L: Al, Cd, Ce, Cr, Cu, In, Pb, Mg, Mn, Rh, Th	1,000 mL	**N8125035**
Elan DRC/DRC^{plus}/DRC II Solution Kit			
Solution Kit (*Includes items listed below)*			**N8120541**
2 x 1,000 mL: Setup/Stability/Masscal Solution			**N8125035**
2 x 250 mL: Wash Solution			**N8125033**
1 x 250 mL: Sensitivity/Detection Limit Solution			**N8125034**
1 x 100 mL: Methanol Blank Solution			**N8125037**
1 x 100 mL: Chromium in Methanol Solution			**N8125038**
Elan 9000/6100 Solution Kit			
Solution Kit (*Includes items listed below)*			**N8120522**
2 x 1,000 mL: Setup/Stability/Masscal Solution			**N8125030**
1 x 125 mL: Dual-Detector Calibration Solution			**N8125032**
1 x 500 mL: Wash Solution			**N8122038**
1 x 250 mL: Detection Limit Solution			**N8125031**
Elan 9000/6100 Setup/Stability/Masscal Solution			
1% HNO_3	10 µg/L: Ba, Cd, Ce, Cu, In, Pb, Mg, Rh, U	1,000 mL	**N8125030**
Elan 9000/6X00 Dual-Detector Calibration Solution			
1% HNO_3	200 µg/L: Cd, Cu, Pb, Mg, Rh	1,000 mL	**N8125032**
Elan 6000/5000 Plasma Setup Solution			
2% HNO_3	10 µg/L: Ba, Cd, Ce, Cu, Ge, Pb, Mg, Rh, Sc, Tb, Tl	1,000 mL	**N8122014**

Instrument Check Standards

Matrix	Contents	Vol.	Part No.
Instrument Check Standard 1			
2% HNO_3/tr Tartaric Acid/tr HF	10 µg/mL: Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Se, Tl, V, Zn	100 mL	**N9303821**
Instrument Check Standard 3			
2% HNO_3	200 µg/mL: Ca, Fe, K, Mg, Na	100 mL	**N9303822**
Instrument Check Standard 4			
2% HNO_3	10 µg/mL: Mo, Th, U	100 mL	**N9303823**
Instrument Check Standard 5			
2% HNO_3/tr HF	10 µg/mL: Mo, Sn, Sr, Ti	100 mL	**N9303824**

SmartTune Standards

Matrix	Contents	Vol.	Part No.
SmartTune Solution for Standard ELANs/DRC-e			
1% HNO_3	10 µg/L: Ba, Be, Ce, Co, In, Pb, Mg, Rh, U	1,000 mL	**N8125040**
SmartTune Solution for DRC/DRC^{plus}/DRC II			
0.5% HNO_3	10 µg/L: Ba 1 µg/L: Be, Ce, Co, In, Fe, Pb, Mg, Th, U	1,000 mL	**N8125041**
Tuning Solution 1			
2% HNO_3/5% HCl	10 µg/mL: Ba, Be, Ce, Co, In, Li, Mg, Pb, Rh, Tl, U, Y	100 mL	**N9303843**

Wash Standards

Matrix	Vol.	Part No.
ELAN DRC Wash Solution		
0.5% HNO_3	250 mL	**N8125033**
ELAN 9000/6X00/DRC-e Wash Solution		
1% HNO_3	1 L	**N8122038**
Water Blank		
ASTM Type I Water, 18 megohm	100 mL	**N9303814**

ICP Applications

Environmental Method Sets

Environmental Standard Kit for non-DRC/Standard ICP-MS Instruments

Description	Part No.
Environmental Standard Kit for non-DRC/Standard ICP-MS Instruments	**N9307111**

Contents: (1 bottle each, 100 mL)

1,000 µg/mL: Ca, Mg, K, Na
1,000 µg/mL: Al, Fe
100 µg/mL: Ag, Al, As, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn
100 µg/mL: B, U, Th
10 µg/mL: Hg
Internal Standard Mix

50 µg/mL: Sc	20 µg/mL: Ge	10 µg/mL: In
10 µg/mL: Ir	10 µg/mL: Li6	10 µg/mL: Rh
10 µg/mL: Tb	10 µg/mL: Y	

Environmental Standard Kit for DRC Instruments

Description	Part No.
Environmental Standard Kit for DRC Instruments	**N9307112**

Contents: (1 bottle each, 100 mL)

1,000 µg/mL: Ca, Mg, K, Na
1,000 µg/mL: Al, Fe
100 µg/mL: Ag, Al, As, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn
100 µg/mL: B, U, Th
10 µg/mL: Hg
Internal Standard Mix

200 µg/mL: Sc	20 µg/mL: Ga	10 µg/mL: In, Ir, Rh, Tm

Description	Part No.
Contract Lab Program Modification Set	**N9307103**
Calibration Standard Set for Method 6010	**N9307104**
Internal Standard Set for Method 6010 & 200.7	**N9307105**
Interference Solutions for Method 6010	**N9307106**
Calibration Standards for Method 200.7	**N9307107**
Interference Solutions for Method 200.7	**N9307108**
Environmental EPA Set 2	**N9307109**
Environmental EPA Set 1	**N9307110**

*Please visit **www.perkinelmer.com/supplies** for complete details.*

Internal Standard Solutions

Matrix	Contents	Vol.	Part No.
Multi-Element Internal Standard			
2% HNO_3	10 µg/mL: Bi, Ho, In, ^{6}Li, Sc, Tb, Y	100 mL	**N9303834**
Internal Standard Mix			
5-10% HNO_3	10 µg/mL: ^{6}Li, Sc, Ge, Y, In, Tb, Bi	100 mL	**N9303832**

Performance Verification Standard

Matrix	Contents	Vol.	Part No.
Methanol Blank Solution			
1% Semiconductor Grade		100 mL	**N8125037**
Chromium in Methanol Solution			
1% Semiconductor Grade Methanol	10 µg/mL: Cr	100 mL	**N8125038**
Selenium Solution			
5% HNO_3	10 µg/mL: Se	250 mL	**N8125039**

Multi-element Standards

Multi-Element Standards

Matrix	Contents	Vol.	Part No.
Multi-Element Solution 1			
2% HNO_3	10 µg/mL: Be, Bi, Ce, Co, In, Mg, Ni, Pb, U	100 mL	**N9300231**
Multi-Element Solution 2			
5% HNO_3	10 µg/mL: Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Th, Tm, Y, Yb	100 mL	**N9300232**
Multi-Element Solution 3			
5% HNO_3	10 µg/mL: Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, Hg*, In, K, Li, Mg, Mn, Na, Ni, Pb, Rb, Se, Sr, Tl, U, V, Zn	100 mL	**N9300233**
	**Included in separate bottle.*		
Multi-Element Solution 3 without Mercury			**N9301720**
Multi-Element Solution 4			
10% HCl/1% HNO_3	10 µg/mL: Au, Hf, Ir, Pd, Pt, Rh, Ru, Sb, Sn, Te	100 mL	**N9300234**
Multi-Element Solution 5			
H_2O/tr HF	10 µg/mL: B, Ge, Mo, Nb, P, Re, S, Si, Ta, Ti, W, Zr	100 mL	**N9300235**

Spike Sample Analysis

Matrix	Vol.	Part No.
Spike Sample Standard I (water)		
5% HNO_3/tr Tartaric Acid/tr HF	100 mL	**N9303839**

Contents:

500 µg/mL: Fe	50 µg/mL: As, Pb	
250 µg/mL: Ba, Zn	25 µg/mL: Ag, Be, Cd, Se, Tl	
100 µg/mL: Co, Cr, Cu, Mn, Ni, Sb, V		

Matrix	Vol.	Part No.
Spike Sample Standard 2 (soil)		
5% HNO_3/tr Tartaric Acid/tr HF	100 mL	**N9303840**

Contents:

250 µg/mL: Ba, Cr, Cu, Zn	125 µg/mL: Ni	50 µg/mL: As, Cd
150 µg/mL: V	100 µg/mL: Co, Pb, Sb	25 µg/mL: Ag, Be, Se, Tl

Matrix	Vol.	Part No.
Spike Sample Standard 3 (for ILM 05.2)		
5% HNO_3/tr Tartaric Acid/tr HF	100 mL	**N9303841**

Contents:

200 µg/mL: Al, Ba	20 µg/mL: Cr	4 µg/mL: As
50 µg/mL: Co, Mn, Ni, V, Zn	10 µg/mL: Sb	2 µg/mL: Pb
25 µg/mL: Cu	5 µg/mL: Be, Cd, Ag, Tl	1 µg/mL: Se

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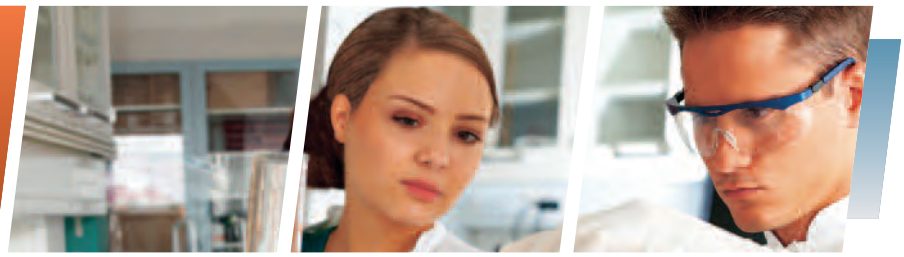


NEW PROMOTIONS

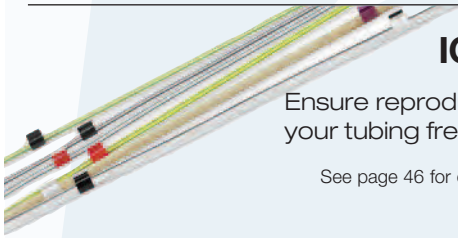
THE WORLD LEADER IN ATOMIC SPECTROSCOPY

Sample Cups

See page 15 for details.

Matrix Modifiers

See page 21 for details.



ICP Tubing

Ensure reproducibility by replacing your tubing frequently.

See page 46 for details.

Glass Torches, Nebulizers, Spray Chambers and Injectors

See page 27 for details.

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