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Atomic Absorption Supplies

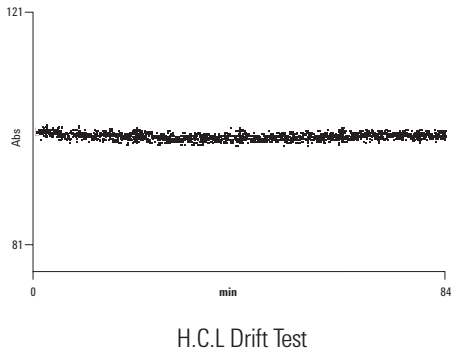
Hollow Cathode Lamps

Agilent provides a comprehensive range of consumables for atomic absorption, designed to maintain the high performance of your AA instrument. In addition, Agilent continues to research and manufacture an extensive range of single-element and solid-cathode multi-element lamps, plus high-intensity UltrAA lamps for superior cost-effective performance.

Agilent hollow cathode lamps provide optimal signal-to-noise performance, permitting determinations at even lower levels with the most demanding applications. Agilent lamps are manufactured in an ISO 9001 certified environment and use proven processing steps to guarantee quality and reliability, and to ensure they are optimized to deliver the best performance from your AA. Agilent lamps provide high spectral purity because of purified materials, an extended processing cycle, and unique lamp conditioning procedures. These ensure minimal lamp warm-up time and good stability during operation.

Economical operation is assured by the long lamp life, typically exceeding 5,000 mA hours, over and above our factory conditioning and testing service.

Consistent performance is also assured. All lamps are tested to confirm that the emission intensity exceeds a minimum level. No lamp leaves our factory without having satisfied our demanding test standards. These tests ensure that you receive quality lamps that can provide optimum signal-to-noise ratio and stable performance throughout the life of the lamp.



The trace shows the variation in emission intensity from a lamp over a 1 hour 24 minutes period. The steady trace demonstrates the superb stability and low drift achieved when using our hollow cathode lamps (after a suitable warm-up period).



Coded Single Element Lamps

- High performance – manufactured from the purest cathode materials
- Easier to use – element coded for automatic lamp recognition, preventing errors
- Stable operation – extended processing ensures minimal warm-up and good lamp stability



Coded Single Element Lamp, Cu, 5610101400

Coded Single Element Lamps

Element	Part No.
Aluminum – Al	5610100100
Antimony – Sb	5610100200
Arsenic – As	5610100300
Barium – Ba	5610100400
Beryllium – Be	5610100500
Bismuth – Bi	5610100600
Boron – B	5610100700
Cadmium – Cd	5610100800
Calcium – Ca	5610101000
Chromium – Cr	5610101200
Cobalt – Co	5610101300
Copper – Cu	5610101400
Gold – Au	5610102100
Hafnium – Hf	5610102200
Iridium – Ir	5610102600
Iron – Fe	5610102700
Lead – Pb	5610102900
Lithium – Li	5610103000
Magnesium – Mg	5610103200
Manganese – Mn	5610103300
Mercury – Hg	5610103400
Molybdenum – Mo	5610103500
Neodymium – Nd	5610103600

Coded Single Element Lamps

Element	Part No.
Nickel – Ni	5610103700
Niobium – Nb	5610103800
Palladium – Pd	5610104000
Phosphorus – P	5610107700
Platinum – Pt	5610104100
Potassium – K	5610104200
Rhenium – Re	5610104400
Rhodium – Rh	5610104500
Selenium – Se	5610105000
Silicon – Si	5610105100
Silver – Ag	5610105200
Sodium – Na	5610105300
Strontium – Sr	5610105400
Tantalum – Ta	5610105500
Tellurium – Te	5610105600
Thallium – Tl	5610105800
Tin – Sn	5610106100
Titanium – Ti	5610106200
Vanadium – V	5610106500
Zinc – Zn	5610106800
Zirconium – Zr	5610106900

Uncoded Single Element Lamps

- No element coding for economical operation
- Compatible with all Agilent and most other AA systems
- Same excellent performance as provided by Agilent coded single element lamps

Uncoded Single Element Lamps

Element	Part No.	Element	Part No.
Aluminum – Al	5610122000	Neodymium – Nd	5610125500
Antimony – Sb	5610122100	Nickel – Ni	5610125600
Arsenic – As	5610122200	Niobium – Nb	5610125700
Barium – Ba	5610122300	Palladium – Pd	5610125900
Beryllium – Be	5610122400	Phosphorus – P	5610126000
Bismuth – Bi	5610122500	Platinum – Pt	5610126100
Boron – B	5610122600	Potassium – K	5610126200
Cadmium – Cd	5610122700	Rhenium – Re	5610126400
Cesium – Cs	5610122800	Rhodium – Rh	5610126500
Calcium – Ca	5610122900	Rubidium – Rb	5610126600
Chromium – Cr	5610123100	Ruthenium – Ru	5610126700
Cobalt – Co	5610123200	Samarium – Sm	5610126800
Copper – Cu	5610123300	Scandium – Sc	5610126900
Europium – Eu	5610123600	Selenium – Se	5610127000
Gadolinium – Gd	5610123700	Silicon – Si	5610127100
Gallium – Ga	5610123800	Silver – Ag	5610127200
Germanium – Ge	5610123900	Sodium – Na	5610127300
Gold – Au	5610124000	Strontium – Sr	5610127400
Hafnium – Hf	5610124100	Tantalum – Ta	5610127500
Indium – In	5610124400	Tellurium – Te	5610127600
Iridium – Ir	5610124500	Thallium – Tl	5610127800
Iron – Fe	5610124600	Tin – Sn	5610128100
Lanthanum – La	5610124700	Titanium – Ti	5610128200
Lead – Pb	5610124800	Tungsten – W	5610128300
Lithium – Li	5610124900	Vanadium – V	5610128500
Magnesium – Mg	5610125100	Yttrium – Y	5610128700
Manganese – Mn	5610125200	Zinc – Zn	5610128800
Mercury – Hg	5610125300	Zirconium – Zr	5610128900
Molybdenum – Mo	5610125400		



Uncoded single element lamp, Au, 5610124000

Convenient Multi-Element Lamps

- Save time by eliminating lamp warm-up, when switching elements
- Same excellent performance as provided by Agilent single element lamps
- Primary lines checked to avoid and minimize spectral interferences



Coded multi-element lamp, Co/Cr/Cu/Fe/Mn/Ni,
5610107600

Coded Multi-Element Lamps – for automatic lamp recognition, preventing errors

Element	Part No.
Aluminum/Calcium/Magnesium – Al/Ca/Mg	5610108800
Calcium/Magnesium – Ca/Mg	5610107100
Cobalt/Chromium/Copper/Iron/Manganese/Nickel – Co/Cr/Cu/Fe/Mn/Ni	5610107600
Copper/Iron/Manganese/Zinc – Cu/Fe/Mn/Zn	5610109600
Copper/Iron/Silicon/Zinc – Cu/Fe/Si/Zn	5610109700
Copper/Zinc – Cu/Zn	5610119200
Silver/Cadmium/Lead/Zinc – Ag/Cd/Pb/Zn	5610108700
Silver/Chromium/Copper/Iron/Nickel – Ag/Cr/Cu/Fe/Ni	5610109500
Sodium/Potassium – Na/K	5610107000

Uncoded Multi-Element Lamps – for economical operation and universal compatibility

Element	Part No.
Calcium/Magnesium – Ca/Mg	5610129100
Cobalt/Chromium/Copper/Iron/Manganese/Nickel – Co/Cr/Cu/Fe/Mn/Ni	5610129200
Copper/Zinc – Cu/Zn	5610129300
Sodium/Potassium – Na/K	5610129000



Uncoded multi-element lamp, Co/Cr/Cu/Fe/Mn/Ni,
5610129200

High Intensity UltrAA Coded Single Element Lamps

- Emission intensity is increased by 3 to 5 times, for lower noise
- Sensitivity is increased by up to 40 % due to the sharper emission profile, allowing determinations at even lower levels
- Element coded for automatic lamp recognition, preventing errors

UltrAA lamps are high intensity, boosted discharge hollow cathode lamps. They use the standard lamp current, but apply an additional boost discharge within the lamp to increase the emission intensity. The boost current is supplied from a secondary control module (either integrated into the instrument or supplied from an external module).

UltrAA lamps are manufactured from the purest cathode materials, and every lamp is QA/QC tested to guarantee performance and reliability. These lamps are coded for automatic lamp recognition (except for 55 AA, SpectrAA-50/55 and SpectrAA-5 models), eliminating the risk of time-consuming errors when reprogramming the lamp position.



High intensity UltrAA lamp, As, 561018100

High Intensity UltrAA Coded Single Element Lamps

Element	Part No.
Antimony – Sb	5610108000
Arsenic – As	5610108100
Bismuth – Bi	5610134200
Boron – B	5610135700
Cobalt – Co	5610134100
Copper – Cu	5610109100
Germanium – Ge	5610134300
Gold – Au	5610109000
Iron – Fe	5610108600
Lead – Pb	5610108200
Manganese – Mn	5610133700
Nickel – Ni	5610108500
Palladium – Pd	5610135800
Platinum – Pt	5610135900
Selenium – Se	5610108300
Silicon – Si	5610133400
Tellurium – Te	5610134000
Thallium – Tl	5610108400
Tin – Sn	5610133900

High Intensity UltrAA Multi-Element Lamps

- Unique combinations of compatible elements extend the versatility and performance of any AA spectrometer
- Save time by avoiding the need to warm up a new lamp
- Same excellent performance as provided by Agilent single element, UltrAA coded lamps

High Intensity UltrAA Coded Multi-Element Lamps

Element	Part No.
Aluminum/Calcium/Magnesium – Al/Ca/Mg	5610133600
Cobalt/Chromium/Copper/Iron/Manganese/Nickel – Co/Cr/Cu/Fe/Mn/Ni	5610134500
Cobalt/Molybdenum/Lead/Zinc – Co/Mo/Pb/Zn	5610135200
Copper/Iron/Manganese/Zinc – Cu/Fe/Mn/Zn	5610135000
Copper/ Iron/Silicon/Zinc – Cu/Fe/Si/Zn	5610135100
Copper/Zinc – Cu/Zn	5610134600
Silver/Cadmium/Lead/ Zinc – Ag/Cd/Pb/Zn	5610108900
Silver/Chromium/Copper/Iron/Nickel – Ag/Cr/Cu/Fe/Ni	5610134900



High intensity UltrAA lamp, Ag/Cd/Pb/Zn,
5610108900

High Intensity UltrAA Uncoded Multi-Element Lamps

Element	Part No.
Arsenic/Copper/Iron – As/Cu/Fe	5610135300
Nickel/Selenium – Ni/Se	5610135400



High intensity UltrAA lamp, As/Cu/Fe, 5610135300

Background Correction Lamps

Deuterium background correction lamps provide accurate and fast correction over the widest possible absorbance range and are QC-selected for optimal lifetime.



Deuterium lamp for AA instruments, G8431-80000

Background Correction Lamps

Element	Part No.
Deuterium background correction lamp for AA systems	G8431-80000

ACT-80 Atom Concentrator Tube

The ACT-80 Atom Concentrator Tube is a quartz tube that is positioned in the air-acetylene flame to enhance the sensitivity of flame AA by 2–3 times when compared to that of normal flame AA. An improvement in detection limit is also achieved.

ACT-80 Atom Concentrator Tube

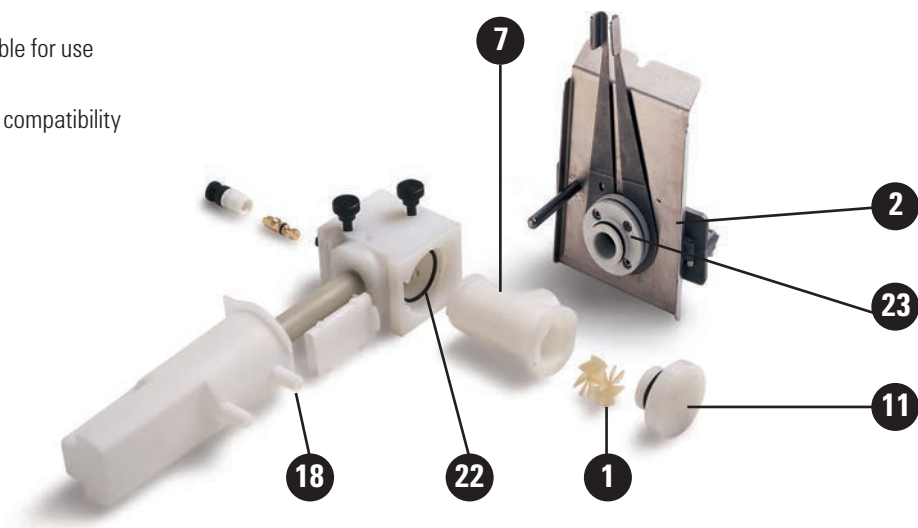
Description	Unit	Part No.
ACT-80 atom concentrator tube, for Mark 7 air-acetylene burner		110656800
Spare quartz atomization cells, for ACT-80	10/pk	9910054400

TIPS AND TOOLS

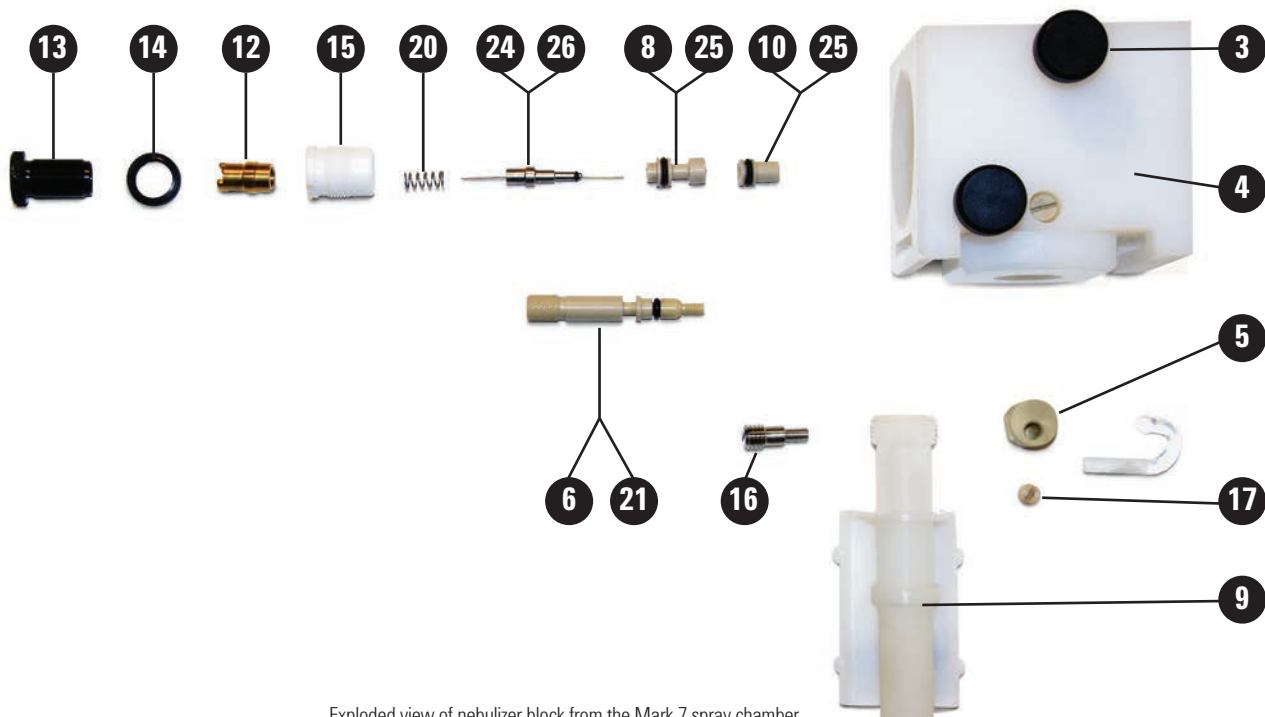
Deuterium background correction is only usable over the range from 185 to around 430 nm. There is no usable output from the lamp at higher wavelengths.

Mark 7 Flame Atomization System

- Simple-to-use twist and lock assembly makes for easy cleaning and routine maintenance
- Flexible operation with the capability to tune performance using the externally adjustable impact bead, fit mixing paddles for better precision, or both
- Inert construction makes spray chamber suitable for use with aqueous and organic solutions
- Fit organic resistant O-rings to ensure organic compatibility



Complete Mark 7 spray chamber assembly, 110634490 (shown with optional Mark 7 air-acetylene burner (item 2), ordered separately)



Exploded view of nebulizer block from the Mark 7 spray chamber

Mark 7 Spray Chamber

Item	Description	Part No.
	Complete Mark 7 spray chamber assembly, aqueous, for use with aqueous solutions (fitted with standard O-rings)	110634490
	Complete Mark 7 spray chamber assembly, organic, for use with organic solvents (fitted with organic resistant O-rings)	110866890
1	Mixing paddle, fluorinated	110637000
	Mixing paddles, fluorinated, 5/pk	9910093600
2	Mark 7 air-acetylene burner	210164000
	Mark 7 nitrous oxide-acetylene burner	210164100
7	Spray chamber body, fluorinated	6210092090
11	Spray chamber bung, fluorinated	1610118800
11	O-ring for spray chamber bung, nitrile for aqueous solutions	6910012100
11	O-ring for spray chamber bung, organic solvent compatible	6910015200
18	Kit, fluorinated liquid trap, drain tube with integrated float and magnet	9910105800
22	O-ring spray chamber, nitrile	6910037000
22	O-ring spray chamber, organic solvent compatible	6910036800
23	O-ring burner base, nitrile, for aqueous solutions	6910010500
23	O-ring burner base, organic solvent compatible	6910013100

Nebulizer Components For Mark 7 Spray Chamber

Item	Description	Part No.
3	Spray chamber mounting screw	1510226600
4	Nebulizer block, fluorinated (excludes integrated nebulizer and spray chamber mounting screws)	9910093100
5	Clamp bead adjuster	810133400
6	Screw bead adjuster	1510225000
8	Nebulizer capillary guide	810134400
9	Kit, fluorinated liquid trap, drain tube with integrated float and magnet	9910105800
10	Venturi nebulizer, PEEK	1610117390
12	Clamp bush guide	810134300
13	Screw capillary adjuster	1510226800
14	Nut lock M12 x 0.5	1510226700
15	Bearing bush nebulizer	310046600
16	Screw lock dog point M8	1510226000
17	Screw M6 x 6 Ertalyle	1510226500

(Continued)

Nebulizer Components For Mark 7 Spray Chamber

Item	Description	Part No.
18	Kit, fluorinated liquid trap, drain tube with integrated float and magnet	9910105800
20	Nebulizer spring	4610017400
21	O-ring screw bead adjuster, nitrile	6910000100
21	O-ring screw bead adjuster, organic solvent compatible	6910036900
24	O-ring, 1/32 inch id x 3/32 inch od x 1/32 inch, nitrile	6910009700
25	O-ring, 3/16 inch id x 5/16 inch od x 1/16 inch, nitrile	6910009800
25	O-ring, 3/16 inch id x 5/16 inch od x 1/16 inch, organic solvent compatible	6910013600
26	Nebulizer capillary kit Includes capillary assembly, capillary guide, nebulizer spring, nebulizer cleaning wire, Hi-Vac capillary tubing, and standard capillary tubing	9910093000
	Glass impact beads, 5/pk	9910025700
	PTFE impact beads, for use with HF digests, 5/pk	9910053300
	Mark 7 O-ring kit, for aqueous samples	9910093400
	Mark 7 O-ring kit, for organic solvents	9910093500
	Drain tubing for aqueous solutions, per m, 2 m required	3710009200
	Drain tubing for organic solvents, nitrile rubber, per m, 2 m required	3710011700
	Venturi extraction tool	7210027700
	Nebulizer capillary extraction tool	7210027600
	Stand for Mark V, VI, and 7 spray chambers	9910049800

TIPS AND TOOLS

Store a spare set of compatible O-rings, glass impact beads, and nebulizer springs for the spray chamber. During routine maintenance, replace O-rings if they are visibly worn or cracked, and change the glass impact bead if the surface of the bead is worn or pitted.

Mark 7 Flame Atomization System Operating Kit

Typical operation supplies required for moderate use of Flame Atomic Absorption Spectrometer Systems with Mark 7 spray chamber.

Mark 7 Flame Atomization System Operating Kit

Description	Kit Quantity	Unit	Part No.
Mark 7 operating supplies kit			190034100
Kit Contents			
Venturi nebulizer, PEEK	1	1	1610117390
Nebulizer capillary kit Includes capillary assembly, capillary guide, nebulizer spring, nebulizer cleaning wire, Hi-Vac capillary tubing, and standard capillary tubing	1		9910093000
Nebulizer block, fluorinated (excludes integrated nebulizer and spray chamber mounting screws)	1		9910093100
Glass impact beads	1	5/pk	9910025700
High solids capillary tubing, 3 m	1	3 m	9910024800
Mark 7 O-ring kit, for aqueous samples	1	1/pk	9910093400
Mixing paddles, fluorinated	1	5/pk	9910093600
Burner cleaning and alignment cards	1	100/pk	9910053900

Burners

The Mark 7 burner fits all current AA instruments and the earlier SpectrAA series instruments and is compatible with the Mark V, VI, and 7 spray chambers.

Burners

Description	Part No.
Mark 7 air-acetylene burner	210164000
Mark 7 nitrous oxide-acetylene burner	210164100
Burner cleaning and alignment cards, 100/pk	9910053900



Mark 7 air/acetylene burner, 210164000

TIPS AND TOOLS

The best way to clean the burner is to polish the inside of the burner slot using the burner cleaning strips and a liquid metal polish. Then clean the outside of the burner slot with a clean rag. Then sonicate for a few minutes in a detergent solution, rinse, and dry. Ensure the burner is dry before refitting and igniting the flame.



Glass impact beads, 9910025700



PTFE impact beads, 9910053300

Impact Beads

Description	Use With	Unit	Part No.
Glass impact beads, 5/pk	Mark V, VI, and 7 spray chambers	5/pk	9910025700
PTFE impact beads, for use with HF digests, 5/pk	Mark V, VI, and 7 spray chambers	5/pk	9910053300

TIPS AND TOOLS

To avoid damaging the bead when replacing, ensure the adjusting screw is turned fully clockwise. Then fit the bead and tighten the locking screw.

Nebulizers and Nebulizer Maintenance

Description	Kit Contents	Use With	Part No.
Barrel nebulizer, adjustable		Mark V and VI spray chambers	9910043500
Barrel nebulizer, high vacuum		Mark V and VI spray chambers	9910043700
Spare Venturi kit, PEEK	Includes PEEK Venturi, O-rings, nebulizer spring, nebulizer tool, and instructions	Mark V and VI spray chambers	9910024400
Pt/Ir capillary spares kit	Includes capillary assembly, capillary guide, nebulizer spring, nebulizer tool, nebulizer cleaning wire, Hi-Vac capillary tubing, and standard capillary tubing	Mark V and VI spray chambers	9910024500
High solids capillary tubing, 3 m		Mark V, VI, and 7 spray chambers	9910024800
High vacuum capillary tubing, 3/pk		Mark V, VI, and 7 spray chambers	9910044000
Nebulizer capillary kit	Includes capillary assembly, capillary guide, nebulizer spring, nebulizer cleaning wire, Hi-Vac capillary tubing, and standard capillary tubing	Mark 7 spray chamber	9910093000
Nebulizer cleaning wire, 3 x 0.3 m		Mark V, VI, and 7 spray chambers	9910024700
Nebulizer O-ring kit		Barrel nebulizers	9910035200



Capillary spares kit, 9910024500



High solids capillary tubing, 9910024800



Nebulizer cleaning wire, 9910024700



High vacuum capillary tubing, 9910044000

Mark VI Flame Atomization System Operating Kit

Typical operation supplies required for moderate use of Flame Atomic Absorption Spectrometer Systems with the Mark VI spray chamber.

Mark VI Flame Atomization System Operating Kit – For use with aqueous samples

Description	Kit Quantity	Unit	Part No.
Mark VI operating supplies kit			190024800
Kit Contents			
Spare Venturi kit, PEEK	1		9910024400
Pt/Ir capillary spares kit	1		9910024500
Barrel nebulizer, high vacuum	1	1/ea	9910043700
Nebulizer O-ring kit	1		9910035200
High vacuum capillary tubing	1	3/pk	9910044000
High solids capillary tubing, 3 m	1		9910024800
O-ring/gasket kit	1		9910026500
Mixing paddles	1	5/pk	9910063600
Burner cleaning and alignment cards	1	100/pk	9910053900

TIPS AND TOOLS

Store a spare set of compatible O-rings, glass impact beads, and nebulizer springs for the spray chamber. During routine maintenance, replace O-rings if they are visibly worn or cracked, and change the glass impact bead if the surface of the bead is worn or pitted.

Mark VI Standard Spray Chambers

The Mark VI spray chamber was used with older model Agilent AA instruments. It has many of the design features and benefits of the Mark 7 design.

Mark VI Standard Spray Chambers - For use with aqueous samples

Description	Part No.
O-ring/gasket kit	9910026500
Mixing paddles, 5/pk	9910063600
Liquid trap and float assembly	9910061600
Drain tubing for aqueous solutions, per m, 2 m required	3710009200
Nebulizer bung assembly Requires nebulizer	110351990
Complete Mark VI spray chamber assembly Requires nebulizer	110351790



Liquid trap and float assembly, 9910061600

Mark VI Universal Spray Chamber - For use with organic solvents*

Description	Part No.
Mixing paddles, 5/pk	9910063600
Liquid trap and float assembly	9910061600
O-ring/gasket kit	9910045700
Pressure relief bung	9910063100
Drain tubing for organic solvents, nitrile rubber, per m, 2 m required	3710011700

*Also suitable for use with aqueous solutions



SIPS 20 Sample Introduction Pump System for flame AA



SIPS 10/20 pump tubing, 9910075900



Constant pressure head bottle, rectangular, 110533590



Pump bands, 9910077600



SIPS 20 3-way T-piece assembly, 110585790

SIPS 10/20 Supplies

The Sample Introduction Pump System (SIPS) is an innovative sample introduction and dilution system for flame AA that eliminates the task of manual preparation of multiple calibration standards, providing fast, accurate online dilution of over-range samples.

SIPS 10/20 Operating Supplies Kit

Description	Kit Contents	Part No.
SIPS 10/20 operating supplies kit	Includes 2 constant pressure bottles, 500 mL (110533590), 1 L diluent bottle (6610014600), SIPS 3-way T-piece assembly for SIPS 20 (110585790), SIPS pump tubing, 6/pk (9910075900), SIPS tubing kit (9910076100), SIPS pump bands, 10/pk (9910077600)	190025400

SIPS 10/20 Maintenance Supplies

Description	Part No.
Peristaltic pump tubing, orange/orange, 6/pk	9910075900
Tubing kit for SIPS 10/20, to connect constant pressure head bottle to T-piece	9910076100
Constant pressure head bottle, rectangular, 1 L	110766690
Constant pressure head bottle, rectangular, 500 mL	110533590
Pump bands, 10/pk	9910077600
SIPS 10 2-way T-piece assembly	110651090
SIPS 20 3-way T-piece assembly	110585790

VGA 77 Supplies

The Vapor Generation Accessory (VGA 77) is ideal for $\mu\text{g/L}$ determination of Hg and the hydride-forming elements.

Operating Supplies Kit

Description	Kit Contents	Part No.
VGA 77 operating supplies kit	Includes 2 tubes and connectors (9910061900), 2 packs pump tubes, black/black, 12/pk (3710027200), 2 packs pump tubes, purple/black, 12/pk (3710027300), pump bed kit (9910050700), gas liquid separator (9910071100), mercury flow-through cell (9910040700), 2 boxes hydride absorption cells, 2/box (9910040000), spare plumbing module (9910062100)	190025200

Hydride Modules*

Description	Part No.
AA hydride module VGA 77	9910062100
ICP hydride module VGA 77P	9910062200

*A separate hydride module should be used exclusively for Hg determinations to reduce cross contamination

Absorption Cells

Description	Use With	Part No.
Flow-through mercury absorption cell, single cell	VGA 76/77	9910040700
Hydride absorption cells, quartz, 2/pk	VGA 76/77	9910040000



VGA 77 Vapor Generation Accessory



AA hydride module VGA 77, 9910062100



Flow-through mercury absorption cell, 9910040700



Hydride absorption cells, quartz, 9910040000



Tubing and connector kit, 9910061900



Transfer tubing, VGA 76/77, 3710026390

Tubing

Description	Kit Contents	Use With	Part No.
Peristaltic pump tubing for reagent, black/black tabs, 12/pk		VGA 76/77	3710027200
Peristaltic pump tubing for sample, purple/black tabs, 12/pk		VGA 76/77	3710027300
Tubing and connector kit	Includes 1 sample and 2 reagent peristaltic pump tubes, inlet tubing for sample and reagents (3 x 0.4 m), connectors, acid-resistant connecting tubing, gas inlet tubing to gas-liquid separator, reaction coil, and O-ring strap to secure gas-liquid separator	VGA 77 for AA	9910061900
Tubing and connector kit	Includes 2 sample and 2 reagent peristaltic pump tubes, inlet tubing for sample and reagents, (3 x 0.4 m), connectors, acid-resistant connecting tubing, gas inlet tubing to gas-liquid separator, reaction coil, and O-ring strap to secure gas-liquid separator	VGA 77 for ICP	9910061800
Drain tubing for aqueous solutions, per m, 2 m required		VGA 76/77	3710009200
Transfer tubing Gas-liquid separator to absorption cell		VGA 76/77	3710026390
Tubing and connector kit	Includes 1 sample and 2 reagent peristaltic pump tubes, inlet tubing for sample and reagents, (3 x 0.4 m), connectors, acid-resistant connecting tubing, gas inlet tubing to gas-liquid separator, and reaction coil	VGA 76	9910039900

VGA 76/77 Miscellaneous Supplies

Description	Part No.
Reagent vessel, cap, high density polyethylene, square, 500 mL	6610011600
Pump tube beds kit	9910050700
VGA cell support for Mark 7 burner	110654990
VGA cell support for Mark VI burner	110375990
O-ring strap to secure gas-liquid separator	6910018900
Bracket to mount VGA 77 on the 700 Series ICP-OES	410427590
Spare thumbscrews to secure VGA 77 mounting bracket to 700 Series ICP-OES (4 required)	1510267900



Pump tube beds kit, 9910050700

Reagents for VGA 76/77 Operation

Description	Part No.
Sodium tetrahydroborate, 500 g	8210029100



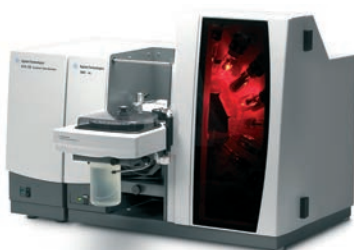
AA gas-liquid separator for VGA 77, 9910071100

Gas-liquid Separators

Description	Use With	Part No.
Gas-liquid separator	VGA 77 for AA	9910071100
	VGA 77 for ICP	9910062000
	VGA 76 for AA	9910040200



Gas-liquid separator, 9910062000



280Z dedicated Zeeman graphite furnace Atomic Absorption Spectrometer



GTA 120 Deuterium furnace operating supplies kit, 190067900



Graphite shroud for GTA 120, 6310003100

Graphite Furnace Parts and Supplies

Maximize your uptime by keeping one of these kits handy.

Kit for GTA 120 Furnace System

Description	Part No.		
GTA 120 Deuterium furnace operating supplies kit	190067900		
Kit Contents	Kit Quantity	Unit	Part No.
Graphite electrodes For GTA 120	2	1 pair	6310003400
Graphite shroud for GTA 120	1		6310003100
Omega platform tubes, pyrolytically coated	5	10/pk	6310003700
Syringe, 100 µL	1	1/pk	4710003200
Capillary assembly	1	5/pk	9910115100
Plastic beakers, low density polyethylene, 10 mL	1	5/pk	9910115600
Autosampler cups, 2.0 mL conical, polyethylene	1	1,000/pk	9910028200

Kit for GTA 120 Zeeman Furnace System

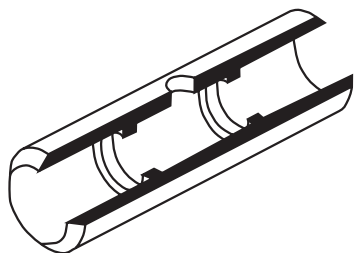
Description	Part No.		
GTA 120 Zeeman furnace operating supplies kit	190068000		
Kit Contents	Kit Quantity	Unit	Part No.
Graphite electrodes for GTA 120 Zeeman	2	1 pair	6310003500
Graphite shroud for GTA 120 Zeeman	1		6310003600
Omega platform tubes, pyrolytically coated	5	10/pk	6310003700
Syringe, 100 µL	1	1/pk	4710003200
Capillary assembly	1	5/pk	9910115100
Plastic beakers, low density polyethylene, 10 mL	1	5/pk	9910115600
Autosampler cups, 2.0 mL conical, polyethylene	1	1,000/pk	9910028200

Kits for GTA 100/GTA 110 Furnace Systems

Description				Part No.
GTA 110 Deuterium furnace operating supplies kit				190024900
GTA 110 Zeeman furnace operating supplies kit				190025000
Kit Contents	Kit Quantity	Unit	Part No.	
Omega platform tubes, pyrolytically coated	5	10/pk	6310003700	
Syringe, 100 μ L	1	1/pk	4710002300	
Plunger for 100 μ L syringe, PTFE-tipped	1	1/pk	4710003100	
Capillary assembly	1	5/pk	9910032300	
Glass beakers, 25 mL	1	5/pk	6610008200	
Autosampler cups, 2.0 mL conical, polyethylene	1	1,000/pk	9910028200	
And				
Graphite electrodes for GTA 95/96/97/100/110	2	1 pair	6310001600	
Or				
Graphite electrodes for GTA 96/100/110 Zeeman	2	1 pair	6310001700	



GTA 110 Deuterium furnace operating supplies kit,
190024900



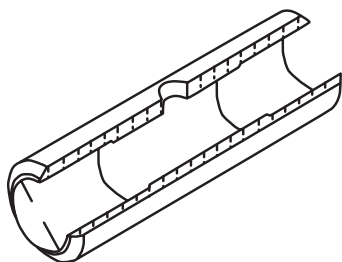
Partitioned tubes, 6310001200



Omega platform tubes, 6310003700



Solid pyrolytic graphite platforms, 6310001300



Plateau tubes, 6310001100

Graphite Tubes and Platforms

Graphite tubes are quality tested to ensure each batch passes our demanding performance specifications for contamination, sensitivity, precision, electrical resistance, and lifetime.

Use partitioned tubes for general purpose work and when you need the best detection limits with samples that have low background. These are also ideal when measuring organic solutions, or samples with low viscosity that may spread throughout the tube, potentially degrading precision.

Omega platform tubes combine ease-of-use with perfect atomization. The integrated platform ensures a perfect thermal profile to produce dense atom clouds for good signal-to-noise ratios and the best detection limits.

The combination of the solid pyrolytic platforms and plateau tubes provides continuity with older methods, and gives the best platform effect. This ensures best performance with samples that have high background or interferences. More operator skill is required for best results.

- High purity graphite reduces spurious absorption from trace contaminants and improves signal-to-noise ratio
- Every tube is individually tested for reproducible and reliable results
- Perform fewer repeats and increase productivity

Graphite Tubes and Platforms

Description	Unit	Part No.
Partitioned tubes, pyrolytically coated	10/pk	6310001200
Omega platform tubes, pyrolytically coated	10/pk	6310003700
Solid pyrolytic graphite platforms Only for use with plateau tubes, p/n 6310001100	10/pk	6310001300
Plateau tubes, pyrolytically coated Only for use with pyrolytic platforms, p/n 6310001300	10/pk	6310001100

Graphite Electrodes

- Spare electrodes maximize uptime
- Good electrical contact ensures optimum performance and maximizes tube life
- High purity graphite reduces spurious absorption from trace contaminants and improves signal-to-noise ratio

Graphite Electrodes

Description	Unit	Part No.
Graphite electrodes For GTA 120	1 pair	6310003400
Graphite electrodes for GTA 120 Zeeman	1 pair	6310003500
Graphite electrodes for GTA 95/96/97/100/110	1 pair	6310001600
Graphite electrodes for GTA 96/100/110 Zeeman	1 pair	6310001700

Graphite Shrouds

Graphite Shrouds

Description	Part No.
Graphite shroud for GTA 120	6310003100
Graphite shroud for GTA 120 Zeeman	6310003600
Graphite shroud for GTA 95/96/97/100/110	6310001800
Graphite shroud for GTA 96/100/110 Zeeman	6310001900



Graphite electrodes for GTA 120, 6310003400



Graphite electrodes for GTA 95/96/97/100/110,
6310001600



Graphite shroud for GTA 120, 6310003100



Graphite shroud for GTA 120 Zeeman, 6310003600



Electrode extractor tool, 9910031200

Graphite Furnace Tools

Graphite Furnace Tools

Description	Part No.
Graphite tube alignment tool	7210034200
Graphite tube removal tool	7210018900
Electrode extractor tool for GTA 96/97/100/110/120, 2 draw bars	9910031200
Shroud removal tool for GTA 96/97/100/110/120	9910033300
Electrode extractor tool for GTA 96/100/110/120 Zeeman, 2 draw bars	9910049300
Shroud removal tool for GTA 96/100/110/120 Zeeman	9910050400



High capacity carousel kit, 9910113100

Optional Accessories for Graphite Furnace AAS

Description	Used With	Part No.
GTA viewing and fume extraction accessory Mounts on sample compartment to remove fumes from the GTA workhead and improves viewing of the tube for easier alignment; connects to a 150 mm (6 inch) or 125 mm (5 inch) exhaust duct	GTA 120	210190000
High capacity carousel kit Includes carousel disk (130 samples), 1.1 mL vials (2,000/pkg), and five 10 mL plastic beakers for bulk solutions	GTA 120	9910113100
Bubble-free syringe update kit	PSD 97/100	9910116800

Programmable Sample Dispenser (PSD) Supplies (used with Graphite Furnace AA)

Spares and Supplies

Description	Use With	Part No.
Sample vials, polyethylene, 1.1 mL, 2,000/pk	PSD 120 high capacity sample carousel	6610025900
Autosampler cups, 2.0 mL conical, polyethylene, 1,000/pk	PSD 95/96/97/100/120	9910028200
Glass beakers, 25 mL	PSD 95/96/97/100	6610008200
Plastic beakers, low density polyethylene, 10 mL	PSD 120	9910115600
Rinse bottle, Nalgene, 1 L	PSD 97/100/120	6610012100
Cap for rinse bottle	PSD 97/100/120	1610094600
Capillary assembly, 5/pk	PSD 120	9910115100
	PSD 95/96/97/100	9910032300
Carousel adapters, 5/pk	PSD 120	9910116900
Allows use of 2 mL sample vials in the central carousel locations		
Syringe, 100 μ L	PSD 120	4710003200
	PSD 95/96/97/100	4710002300
Plunger for 100 μ L syringe, PTFE-tipped	PSD 96/97/100/110	4710003100
Replacement carousel plate	PSD 100/120	5410056900
Replacement carousel plate for 130-sample carousel	PSD 120	5410046300
Furnace workhead viewing mirror	GTA 110/120	9910091200
Furnace workhead viewing mirror	GTA 96/97/100	9910032700
Screw Knurled M4, Retaining Block, 1/pk		1510146800
Carousel adapters, 5/pk	PSD 120	9910116900



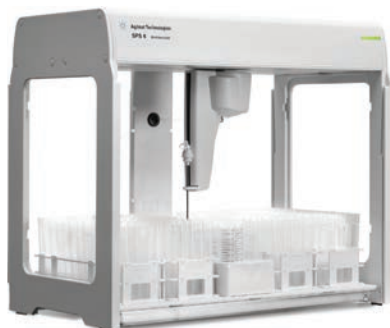
Glass beakers, 6610008200



Sample vials, 2 mL, 9910028200



Plastic beakers, 9910115600



Autosampler Supplies

SPS 4 Autosampler Supplies

The next-generation SPS 4 is a high-performance autosampler for atomic spectroscopy applications. Designed to meet the needs of high-throughput laboratories requiring a fast, high-capacity (up to 360 samples or 768 microtiter wells), reliable autosampler. Small, quiet, easy-to-use, and affordable, the SPS 4 is suitable for ultratrace analysis by ICP-MS and rugged and robust enough for FAAS, MP-AES, and ICP-OES users.

Built around an innovative gantry design that supports the mechanical components between two rigid pillars, the SPS 4 provides improved accuracy and precision, high speed, ease of access, and corrosion resistance. All contained within a footprint that is nearly 40 % smaller than other autosamplers in its class.

SPS 4 Autosampler Probes

Description	Notes	Part No.
SPS 4 probe, 0.25 mm id, red markers, inert, FEP sleeved,	Recommended when using the Agilent SPS 4 autosampler with ICP-MS instruments	G8410-80100
SPS 4 probe, 0.5 mm id, yellow markers, inert, FEP sleeved	Recommended when using the Agilent SPS 4 autosampler with ICP-MS instruments	G8410-80101
SPS 4 probe, 0.8 mm id, green markers, inert, FEP sleeved	Recommended when using the Agilent SPS 4 autosampler with AA, ICP-OES, MP-AES, and ICP-MS instruments	G8410-80102
SPS 4 probe, 1.0 mm id, blue markers, inert, FEP sleeved	Recommended when using the Agilent SPS 4 autosampler with AA, ICP-OES, and MP-AES instruments	G8410-80103
SPS 4 probe, 1.2 mm id, black markers, inert, FEP sleeved	Recommended when using the SPS 4 autosampler with AA, ICP-OES, and MP-AES instruments with viscous solutions and high matrix samples	G8410-80104

Miscellaneous SPS 4 Tubing

Description	Notes	Part No.
Flexible ducting, PVC, 50 mm id, for SPS 4 autosampler, 5 m length	Spare ducting to enable removal of fumes from the autosampler with the cover fitted. Fitted with 56mm od cuffs.	5043-0065
Waste tubing, PVC, for SPS4, 8 mm od, 5 mm id, 2 m length	Replacement tubing to connect from waste outlet of rinse station of SPS 4 autosampler	G8410-80122
Tubing, for supply of rinse solution to rinse station of SPS 4, 2.5 mm id, 1 m length	Replacement tubing to connect from rinse solution supply to inlet of rinse station of SPS 4 autosampler	G8410-80123
Tubing, solvent-resistant, 2.36 mm (0.093 inch) id, 2 m length	Replacement tubing for inlet solvent line to rinse station of SPS 4 autosampler. Allows use of low volatile organic solvents in rinse station	G8410-20012
Tubing, solvent-resistant, 4.75 mm (0.187 inch) id, 2 m length	Replacement tubing for waste solvent outlet of rinse station of SPS 4 autosampler. Allows use of low volatile organic solvents in rinse station	G8410-20013

**SPS 4 Autosampler Probe Compatibility**

Probe Type	Flame AAS	MP-AES	ICP-OES	ICP-MS
0.25 mm id				✓
0.5 mm id				Standard
0.8 mm id	Standard	Standard	Standard	✓
1.0 mm id	✓	✓	✓	✓
1.2 mm id	✓	✓	✓	
✓ Compatible part				



SPS 4 Standard Racks and Compatible Vessels

Description	Comments	Part No.
Standards rack, 34 position, for SPS 4 autosampler	Rack provides 12 positions for 50 mL, 30 mm od, centrifuge tubes plus 22 positions for 18 mm od test tubes. Standard rack for AA/MP-AES and ICP-OES configuration (not supported with the ICP-MS MassHunter software)	G8410-40000
Standards rack, 5 position, for SPS 4 autosampler	Rack provides five positions for 250 mL, 60 mm od, narrow neck sample containers. Standard rack for ICP-MS configuration (not supported with the atomic absorption SpectrAA software)	G8410-40001
Sample bottle, 250 mL, for 5 x 60 mm standard rack	Narrow neck, 60 mm od, LDPE, for five position standard rack used with SPS 4 autosampler	5043-0064

Optional Update Kits for the SPS 4

Description	Comments	Part No.
High uptake volume rinse kit, for SPS 4	Recommended for use with the AVS 6/7, SVS 2+, or ISIS 3. Allows rinse uptake rate to be increased to 25mL/min. Includes sample quantity wide bore peristaltic pump tubing with purple/black tabs (four pump tubes only), barb connectors, and PTFE tubing 2 m	G8410-68260
SPS 4 rinse tube kit, for low volatile organics	Allows use of low volatile organic solvents in rinse station. Includes capillary tubing 1 m, sample quantity of 3-bridged grey/grey PVC Solvaflex peristaltic pump tubing (four pump tubes only), barb connector 2.5–1.5 mm, and solvent-resistant tubing for solvent inlet and waste outlet from the rinse station	G8410-68261
Pump drain kit for SPS 4 autosampler	Provides the components required to allow the liquid overflow to be pumped from the rinse station. Includes sample quantity of wide bore peristaltic pump tubing with purple/white tabs (four pump tubes only), barb connectors, and PVC Solvaflex tubing 2.5 m to enable connection to a remote pump (not supplied)	G8410-68262
SPS 4 Autosampler cover kit	Encloses the autosampler to help reduce sample and standard contamination from dust and drafts. Provision for optional purge or exhaust connection to remove corrosive or solvent fumes (requires but does not include the ducting hose, p/n 5043-0065, which should be ordered separately)	G8410-60100

Optional Update Kits for the SPS 4 used with ICP-MS (Only)

Description	Comments	Part No.
Well plate startup kit for SPS 4	Allows sampling from deep well 96 well plates. Includes well plates 10/pk, well plate adapter, and sample probe. Supported when using MassHunter software with the ICP-MS	G8410-68270
Microflow nebulizer PFA (200) with SPS 4 probe kit	Microflow PFA(200) nebulizer, with integrated probe for SPS 4 autosampler, flow rate 200 μ L/min, sample uptake tube ends as a sampling probe. Used with 7700,7800,7900, and 8800 Series ICP-MS for high purity and hydrofluoric acid samples.	G3139-68000
Nebulizer probe mount kit for SPS 4 autosampler	Required to mount a nebulizer-integrated sample probe (supplied separately) onto the probe arm of the SPS 4 autosampler. Note, order G3139-68000 if ordering the PFA nebulizer together	G8410-60180

Well Plate Supplies for use with SPS 4 (ICP-MS)

Description	Comments	Part No.
Well plate tray adaptor kit for SPS 4	Allows 96 position deep-well plates to be positioned on the sample tray of the SPS 4 autosampler (raises the height of the well plate on the autosampler). Requires, but does not include the sample probe.	G8410-40003
SPS 4 sample probe, suits SPS 4 microtiter tray	Required when using the SPS 4 autosampler with microtiter tray for sampling from a 96 position well plate. Requires, but does not include the well plate tray adaptor kit or any compatible well plates.	G8410-80105
Well plates, 96 position, 0.5 mL, polypropylene, 10/pk	Spare well plates suitable for use with the SPS 4 autosampler when using the optional microtiter tray for sampling from a 96 position well plate.	5042-1386
Well plates, 96 position, 0.5 mL, polypropylene 120/pk	Spare well plates suitable for use with the SPS 4 autosampler when using the optional microtiter tray for sampling from a 96 position well plate.	5042-1385

Miscellaneous SPS 4 Supplies

Description	Comments	Part No.
Single port fixed wash reservoir for SPS 4		G8410-60140
Dual port fixed wash reservoir for SPS 4		G8410-60150
Standard rack location mat for SPS 4		G8410-80111
Spill tray kit for SPS 4 autosampler		G8410-80605
Tube anchor for SPS 4 autosampler, 2/pk	Secures transfer tubing from probe to instrument on arm of probe carriage to eliminate tangling.	G8410-40004
Cable ducting for SPS 4 autosampler		G8410-40005
Barb connector, straight through, 4.8–2.4 mm id		0100-2846
Barb connector, straight-through, 2.4 mm id		0100-2848
Nipple, 5 mm id, PVDF, SPS 4 rinse station	Replacement nipple for outlet waste from rinse station of SPS 4 autosampler.	G8410-80120
Nipple, 2.5 mm id, polypropylene, SPS 4 rinse station	Replacement nipple for inlet rinse supply to rinse station of SPS 4 autosampler.	G8410-80121
Barb connector, 2.5 mm–1.5 mm id, for SPS 4	Straight-through connector for rinse tube kit used with low volatile organics when using low volatile organic solvents in SPS 4 rinse station.	G8410-80124
Cable ties, natural, polypropylene, 10/pk		G8410-67001

SPS 3 Autosampler Supplies

The fast spectroscopy autosampler from Agilent meets the diverse requirements of high-throughput analytical laboratories.

SPS 3 Start-up and Operating Supplies Kit

Description	Kit Quantity	Unit	Part No.
SPS 3 start-up and operating supplies kit			190065400
Kit Contents			
0.8 mm id inert probe, PTFE-sleeved	1	each	9910111900
Pump tubing, PVC Solvaflex, 3-bridged, gray/gray	2	12/pk	3710049000
Silicon tubing, 1 mm id, 3 mm od	1	each	3710026400
Tubing, 1/8 inch id, 1/4 inch od, 1/16 inch wall, per m	2	meter	3710031500
Nebulizer capillary tubing, per m	2	meter	2410020500
Rinse reservoir, 10 L	1	each	6610011800
Polypropylene tubes, 16 mm od	1	1,000/pk	190049700
Sample rack for 30 mm od tubes, 21 positions	3	each	6610026600
Centrifuge tubes, screw-capped, 29 mm od, 50 mL polypropylene	1	500/pk	190065200



SPS 3 Autosampler for AA, MP-AES, ICP-OES, and UV-Vis instruments



Autosampler cover, 910245400

Optional Accessories for SPS 3

Description	Comments	Part No.
Autosampler cover, transparent	Prevents contamination of samples and standards from dust and drafts Has provision for optional purge connection and/or exhaust outlet to enable removal of corrosive or solvent fumes	910245400
Exhaust port connection	Installs on rear panel of cover and allows safe removal of corrosive or solvent fumes; suitable for connection to 2 inch (50 mm) diameter exhaust ducting	9910130600

SPS 3 Autosampler Probes

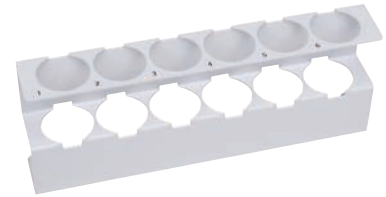


0.8 mm id inert probe, PTFE-sleeved,
9910111900

Description	Comments	Part No.
0.8 mm id inert probe, PTFE-sleeved	For use with MP-AES and ICP-OES instruments without diluter	9910111900
1.0 mm id inert probe, PTFE-sleeved	For use with AA, MP-AES, ICP-OES, and UV-Vis instruments (or diluter)	9910112000
1.3 mm id inert probe, PTFE-sleeved	For use with viscous solutions and high matrix samples	9910130900
1.2 mm id inert, carbon fiber probe	For use with strong acid digests Straighter than a PTFE probe with good rigidity, meaning less chance of damage if it hits a tube Replacement probe only Requires carbon fiber update kit to be fitted	G8480-80002
Carbon fiber probe update kit	Allows installation of a carbon fiber probe in place of a standard PTFE probe. Includes 3.0 mm od x 1.2 mm id carbon fiber probe, mounting block, nut and ferrule, 1.5 m x 0.8 mm id FEP sample tubing, cable ties, and tube anchors	G8480-80001

Standard Racks for SPS 3 Autosampler

Description	Part No.
Standard rack for 16 mm od tubes, 11 positions	810166900
Standard rack for 29 mm od tubes, 6 positions	810167000



Standard rack for 29 mm od tubes, 810167000

Diluter Spares

Description	Kit Contents	Part No.
Syringe, 20 mL		4710003000
Replacement tubing kit for auto diluter, screw fittings	Includes all tubing and connectors	9910083100
Rinse reservoir, 10 L		6610011800



Rinse reservoir, 6610011800

Miscellaneous SPS 3 Supplies

Description	Use With	Part No.
Tubing, 1/8 inch id, 1/4 inch od, 1/16 inch wall, per m	For outlet rinse vessel	3710031500
Silicon tubing, 1 mm id, 3 mm od	For connecting nebulizer capillary to SPS probe line	3710026400
Replacement spill tray		6610025100



Replacement spill tray, 6610025100



Integrated Autosampler (I-AS) Supplies

The integrated autosampler (I-AS) for ICP-MS is ideal for ultratrace analysis and small sample volumes (as low as 0.5 mL). It features a pumped rinse station and offers flexible rack configurations with a maximum capacity of 89 vials, plus three rinse vials. (Not compatible with Agilent AA, MP-AES, and ICP-OES instruments).

Integrated Autosampler (I-AS) Supplies



Tray B, 53-position for 18 mL vials, polypropylene,
G3160-80061



Peristaltic pump tubing set with connectors,
G3160-65326

Description	Unit	Common Part No.
Tray A, 89-position, for 6 mL vials, polypropylene		G3160-80060
Tray B, 53-position, for 18 mL vials, polypropylene		G3160-80061
Tray C, 18-position for 50 mL vials, polypropylene		G3160-80062
Tray D, 79 x 2 mL + 10 x 18 mL positions, polypropylene		G3160-80063
Tray E, 79 x 6 mL + 10 x 18 mL positions, polypropylene		G3160-80064
Tray F, 15-position, for use in special semiconductor applications, holds 15 vials of up to 48 mm od x 55 mm high, polypropylene		G3160-80065
Tray G, 28-position, for 20 mL PFA vials of up to 28 mm od, 58 mm tall, polypropylene		G3160-80066
Vial, PFA, 1.5 mL, for use with Tray D	10/pk	G3160-65317
Vial, polypropylene, 6 mL, for use with tray A and E	200/pk	G3160-65303
Vial, polypropylene, 18 mL, for use with tray B, D, and E	55/pk	G3160-65304
Vial, polypropylene, 50 mL, for use with tray C	20/pk	G3160-65305
Vial, polyethylene, 2 mL, for use with tray D	200/pk	G3160-65315
Needle, PFA, 0.3 mm id, standard probe		G3160-65306
Rinsing bottle, 100 mL	6/pk	G3160-65307
Tray cover		G3160-65321
Rinse fluid inlet/outlet tubing (for I-AS with diaphragm pump)		G3160-65320
Needle, PFA, 0.8 mm id, for use with the ISIS		G3160-65324
Tubing holder, PEEK, for use with MicroFlow nebulizer (without a sampling probe) and 2 mL vials		G3160-65325
Needle holder		G3160-80041
Holder, for carry tray cover		G3160-60015
Peristaltic pump tubing set with connectors	1 set	G3160-65326
Peristaltic pump tubing set with connectors	5/pk	G3160-65327
Drain tubing, Tygon, from peristaltic pump to rinse bottle or drain bottle	2/pk	G3160-65328
Serial-USB converter cable, for use with G7201A MassHunter		G3160-80200
I-AS table, for 7900		G3160-60016

ASX-500 Series Autosampler Supplies

The ASX-500 Series autosampler is fully automated, making it ideal for medium to high sample throughput applications. It features a pumped rinse station and offers flexible rack configurations with a maximum capacity of four racks providing up to 360 vial positions with 5 x 250 mL bottle positions and bottles for rinse and tune solutions.

ASX-500 Series Autosampler Supplies

Description	Common Part No.
Sample rack, 21-position, 50 mL vials	G3286-80103
Sample rack for 25 mm od tubes, 24 positions	6610026500
Sample rack for 20 mm od tubes, 40 positions	6610025500
Sample rack, 60-position, 14 mL vials	G3286-80106
Sample rack for 13 mm od tubes, 90 positions	6610026400
Sample probe, 0.8 mm id (red band)	G3286-80100
Sample probe, 0.3 mm id (black band)	G3286-80101
Sample probe, 0.5 mm id (blue band)	G3286-80102
Carbon fiber sample probe, 0.8 mm id (red band)	G3286-80110
Carbon fiber sample probe, 0.3 mm id (black band)	G3286-80111
Carbon fiber sample probe, 0.5 mm id (blue band)	G3286-80112
Carbon fiber sample probe, 1.0 mm id (2 blue bands) For use with G3286-80300 Z-drive assembly	G3286-80119
Rinse/drain tubing hookup kit	G3286-80117
Drain pump tubing and connector kit (Tygon)	G3286-80118
Z-axis drive assembly with nylon cable, PEEK, antikink	G3286-80330
Rinse station	G3286-80224
USB 2.0 cable, 10 feet, for use with G7201A MassHunter	G1680-63720



ASX-520 Autosampler



Sample rack, 60-position, G3286-80106



Sample probe, G3286-80102

Drain pump tubing and connector kit (Tygon),
G3286-80118

Rinse station, G3286-80224

Common Autosampler Supplies



Sample rack, 6610025400 (shown with the optional rack overlay kit, p/n 6610026100, fitted)



Rack overlay for 60-position sample rack, 6610026100



Pump tubing, PVC Solvaflex, 3710049000

Racks for SPS 3/4 and ASX 500 Autosamplers

Description	Part No.
Sample Racks	
Sample rack for 13 mm od tubes, 90 positions	6610026400
Sample rack for 16 mm od tubes, 60 positions	6610025400
Sample rack for 20 mm od tubes, 40 positions	6610025500
Sample rack for 25 mm od tubes, 24 positions	6610026500
Sample rack for 30 mm od tubes, 21 positions	6610026600
Rack Overlays for Sample Racks	
Rack overlay for 60-position sample rack Allows 13 mm od tubes to be used in 60-position rack (2 recommended per rack)	6610026100
Rack overlay for 40-position sample rack Allows 18 mm od tubes to be used in 40-position rack (2 recommended per rack)	6610026000

Peristaltic Pump Tubing for SPS 3/4

Description	Use With	Part No.
Peristaltic pump tubing, PVC Solvaflex, 3 bridged, purple/white tabs, 12/pk	For use with SPS 4 when pumping acidic or aqueous based rinse	5043-0063
Peristaltic pump tubing, PVC Solvaflex, 3 bridged, black/black tabs, 12/pk	For use with SPS 4 when pumping low volatile organic solvents	3710034800
Pump tubing, PVC Solvaflex, 3-bridged, gray/gray	Standard tubing supplied with the autosampler for the rinse pump. For use with aqueous samples on AA, MP-AES, ICP-OES, and ICP-MS instruments	3710049000
Pump tubing, Santoprene, 3-bridged, gray/gray, 6/pk	For ketone-based solvents on AA, MP-AES, ICP-OES, and ICP-MS instruments	3710057500
Pump tubing, PVC Solvaflex, 3-bridged, orange/yellow, flared ends, 12/pk	For use with low volatile organic solvents on AA, MP-AES, ICP-OES, and ICP-MS instruments	3710069000
Pump tubing, PVC Solvaflex, 3-bridged, yellow/yellow, 12/pk	For use with low volatile organic solvents on AA, MP-AES, ICP-OES, and ICP-MS instruments	3710069300
Pump tubing, PVC Solvaflex, 3-bridged, purple/black, 12/pk	For use with aqueous samples on UV instruments	3710052000
Pump tubing, FPM, 3-bridged, black/black, flared ends, 12/pk	For use with aromatic organic solvents on AA, MP-AES, ICP-OES, and ICP-MS instruments	3710069100
Pump tubing, PVC Solvaflex, 3-bridged, black/black, flared ends, 12/pk	For use with low volatile organic solvents on AA, MP-AES, ICP-OES, and ICP-MS instruments	3710069200

Test and Digestion Tubes

Description	Unit	Part No.
Polypropylene tubes, 16 mm od, 125 mm height	125/pk	3710051100
	1,000/pk	190049700
Test tubes, 16 x 150 mm, 21 mL	250/pk	5190-9092
Polypropylene test tubes, 17 mm od, 16.5 mL	1,000/pk	00000001600L
Centrifuge tubes, screw-capped, 29 mm od, 50 mL polypropylene	500/pk	190065200
Digestion tubes, polypropylene, for 36- and 54-well hot block	500/pk	190047900



Polypropylene test tubes, 3710051100

Sample Filtration

Description	Part No.
Agilent Captiva Syringe Filters	
Captiva premium syringe filter, PTFE membrane, 15 mm diameter, 0.45 µm pore, 100/pk	5190-5085
Captiva premium syringe filter, PTFE membrane, 25 mm diameter, 0.45 µm pore, 100/pk	5190-5087
Captiva Econofilter, PTFE membrane, 13 mm diameter, 0.45 µm pore, 1000/pk	5190-5266
Captiva Econofilter, PTFE membrane, 25 mm diameter, 0.45 µm pore, 1000/pk	5190-5268
FilterMate(TM) Filtration System*	
FilterMate, 0.45 µm PTFE-faced polypropylene filter, 100/pk	190048100
FilterMate, 2 µm PTFE-faced polypropylene filter, 100/pk	190048000

*For use with digestion tubes, p/n 190047900



AA/MP-AES, ICP-OES, and ICP-MS Standards

Agilent offers a comprehensive range of single and multi-element standards, ionization buffers, metallo-organic and biodiesel standards, solvents, and environmental standards for atomic spectroscopy. With the assurance of NIST traceability, Agilent's Certified Reference Materials and standard mixes offer accurate, reliable calibrations at great value.

Every solution is manufactured using high purity starting materials, which are regularly tested in accordance with NIST guidelines to provide traceability. All Agilent inorganic spectroscopy standards include a Certificate of Analysis (CoA) that details the certified concentration, measurement uncertainty, and actual concentration values for up to 68 trace impurities (assayed using an Agilent ICP-MS for ICP-OES/ICP-MS standards).

In addition, the CoA details the method used for certification, intended use, instructions for proper use, and recommendations for appropriate conditions of storage.

- Gives you confidence in your AAS, ICP-OES or ICP-MS, and MP-AES results
- Standards shipped from stock to maximize uptime
- Supplied with a Material Safety Data Sheet (MSDS) and CoA for complete assurance
- All standards packaged in preleached HDPE bottles, secured with a tamper-evident seal

AA, MP-AES, and ICP-OES Standards

Wavelength Calibration Solutions for 5100/5110 ICP-OES, 700 Series, and Vista Series ICP-OES and MP-AES

Description	Comments	Part No.
Wavelength calibration concentrate, for ICP-OES and MP-AES	500 mL, contains 50 mg/L Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn, and 500 mg/L K in 5 % HNO ₃ Dilute 10 times prior to use	6610030000
Wavelength calibration solution, for ICP-OES and MP-AES	500 mL, contains 5 mg/L Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn, and 50 mg/L K in 5 % HNO ₃ Ready to use	6610030100
Calibration blank solution for ICP-OES and MP-AES	500 mL 0 ppm, contains pure ASTM Type 1A water with 5 % HNO ₃ Suitable for use as a calibration blank or for dilution of the wavelength calibration concentrate Ready to use	5190-7001

IntelliQuant Calibration Standards for 5100/5110 SVDV/VDV ICP-OES

Agilent's IntelliQuant feature for the 5100/5110 Dual View ICP-OES identifies and calculates a semiquantitative concentration in a sample, expanding the capabilities of a classic ICP-OES analysis. This allows analysts to quickly check the semiquantitative concentration of many elements in their sample, without changing their routine methods or preparing extra multi-element standards, which can be technically challenging and time consuming.

IntelliQuant includes default calibrations, available for axial, radial and synchronous vertical dual view modes, which allow the estimation of up to 70 elements in a sample without the need to analyze any additional standards. If more accurate results are required, just update the default calibrations by using the multi-element IntelliQuant calibration standards (either individually or the complete kit). When measured, this updates the default IntelliQuant calibration for all 69 elements. These standards are ideal for labs requiring more accurate semiquantitative analysis without time consuming standard preparation.

For more details, please see Rapid Sample Assessment and Simplified Method Development with IntelliQuant, Agilent publication 5991-6876EN.

IntelliQuant Calibration Standards for 5100/5110 SVDV/VDV ICP-OES

Description	Comments	Part No.
IntelliQuant calibration kit, for 5110 DV ICP-OES	Contains four solutions that are used to update the presupplied IntelliQuant calibration to achieve a greater level of accuracy for semiquantitative analysis. Includes multi-element standard #1 (p/n 5190-9422), #2 (p/n 5190-9423), and #3 (p/n 5190-9424) plus the nitric acid blank (p/n 5190-7001)*	5190-9425
Individual IntelliQuant Standards		
IntelliQuant multi-element standard #1, 500 mL, 100 ppm (ready to use)	Multi-element standard #1 used to update the presupplied IntelliQuant calibration for semiquantitative analysis with 5110 DV ICP-OES. 500 mL bottle Contains 100 mg/L of Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ho, In, K, La, Li, Lu, Mg, Mn, Na, Nd, Ni, P, Pb, Pr, Rb, Re, Sc, Se, Sm, Sr, Tb, Th, Tl, Tm, U, V, Y, Yb, and Zn in 5 % HNO ₃ .	5190-9422
IntelliQuant multi-element standard #2, 500 mL, 100 ppm (ready to use)	Multi-element standard #2 used to update the presupplied IntelliQuant calibration for semiquantitative analysis with 5110 DV ICP-OES. 500 mL bottle Contains 100 mg/L of Ag, Ge, Hf, Mo, Nb, Sb, Si, Sn, Ta, Ti, W, and Zr in 5 % HNO ₃ with trace HF.	5190-9423

(Continued)

IntelliQuant Calibration Standards for 5100/5110 SVDV/VDV ICP-OES

Description	Comments	Part No.
IntelliQuant multi-element standard #3, 500 mL, 100 ppm (ready to use)	Multi-element standard #3 used to update the presupplied IntelliQuant calibration for semiquantitative analysis with 5110 DV ICP-OES. 500 mL bottle Contains 100 mg/L of Au, Ir, Os, Pd, Pt, Rh, Ru, and Te in 10 % HCl.	5190-9424
IntelliQuant single element standard for Hg, 100 mL, 10 ppm (ready to use)	Single element Hg standard used to update the presupplied IntelliQuant calibration for semiquantitative analysis with 5110 DV ICP-OES. 100 mL bottle of 10 mg/L Hg in 5 % HNO ₃ .	5190-8575
Bottle calibration blank solution for ICP-OES, 500 mL, 0 ppm (ready to use)	Pure ASTM Type 1A water with 5 % HNO ₃ . 500 mL bottle. Suitable for use as a calibration blank when updating the presupplied IntelliQuant calibration for semiquantitative analysis with 5110 DV ICP-OES.	5190-7001

*A Hg standard is not part of this kit. If a Hg solution is required, it must be ordered as a separate line item

Multi-element Calibration Standards

Description	Part No.
Calibration mix 1 125 mL, contains 100 mg/L Sb, Mo, Sn, and Tl in 2 % HNO ₃ + 0.5 % HF	6610030500
Calibration mix 2 125 mL, contains 100 mg/L Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Se, Tl, Th, U, V, and Zn in 5 % HNO ₃	6610030600
Calibration mix majors 125 mL, contains 500 mg/L Ca, Fe, K, Mg, and Na in 5 % HNO ₃	6610030700

TIPS AND TOOLS

Store standards at controlled room temperature per USP 35 (10.30.60). Do not freeze, heat, or expose to direct sunlight. Minimize exposure to moisture or high humidity.



Copper (Cu) standard, 5190-8280

1,000 µg/mL Single Element Standards for AA and MP-AES

Description	Matrix	Part No. 100 mL	Part No. 500 mL
Aluminum (Al)	5 % HCl	5190-8256	5190-8257
Antimony (Sb)	30 % HCl	5190-8258	5190-8259
Arsenic (As)	5 % HNO ₃	5190-8260	5190-8261
Barium (Ba)	5 % HNO ₃	5190-8262	5190-8263
Beryllium (Be)	5 % HNO ₃	5190-8264	5190-8265
Bismuth (Bi)	5 % HNO ₃	5190-8266	5190-8267
Boron (B)	H ₂ O	5190-8268	5190-8269
Cadmium (Cd)	5 % HNO ₃	5190-8270	5190-8271
Calcium (Ca)	5 % HNO ₃	5190-8272	5190-8273
Cesium (Ce)	5 % HNO ₃	5190-8274	
Chromium (Cr)	5 % HCl	5190-8275	5190-8276
Cobalt (Co)	5 % HNO ₃	5190-8277	5190-8278
Copper (Cu)	5 % HNO ₃	5190-8279	5190-8280
Gold (Au)	20 % HCl	5190-8282	5190-8283
Indium (In)	5 % HNO ₃	5190-8284	
Iron (Fe)	5 % HNO ₃	5190-8285	5190-8286
Lead (Pb)	5 % HNO ₃	5190-8287	5190-8288
Lithium (Li)	5 % HNO ₃	5190-8289	5190-8290
Magnesium (Mg)	5 % HNO ₃	5190-8291	5190-8292
Manganese (Mn)	5 % HNO ₃	5190-8293	5190-8294
Mercury (Hg)	5 % HNO ₃	5190-8295	5190-8296

(Continued)

1,000 µg/mL Single Element Standards for AA and MP-AES

Description	Matrix	Part No. 100 mL	Part No. 500 mL
Molybdenum (Mo)	1 % NH ₄ OH	5190-8297	
Nickel (Ni)	5 % HNO ₃	5190-8298	5190-8299
Palladium (Pd)	20 % HCl	5190-8300	5190-8301
Platinum (Pt)	20 % HCl	5190-8302	5190-8303
Potassium (K)	5 % HNO ₃	5190-8304	5190-8305
Selenium (Se)	5 % HNO ₃	5190-8306	5190-8307
Silicon (Si)	H ₂ O	5190-8308	
Silver (Ag)	5 % HNO ₃	5190-8309	5190-8310
Sodium (Na)	5 % HNO ₃	5190-8311	5190-8312
Strontium (Sr)	5 % HNO ₃	5190-8313	5190-8314
Tellurium (Te)	5 % HNO ₃	5190-8315	
Thallium (Tl)	5 % HNO ₃	5190-8316	5190-8317
Tin (Sn)	20 % HCl	5190-8318	5190-8319
Titanium (Ti)	H ₂ O	5190-8320	5190-8321
Vanadium (V)	5 % HNO ₃	5190-8323	5190-8324
Zinc (Zn)	5 % HNO ₃	5190-8325	5190-8326
Zirconium (Zr)	5 % HNO ₃	5190-8327	

TIPS AND TOOLS

The shelf life defines the time that the standard can be stored without undergoing physical or chemical change. The chemical stability and transpiration losses (water loss) determine shelf life. Replace standards well before the expiry date to ensure accuracy and minimize contamination risks.



Mixed palladium nitrate/magnesium nitrate,
5190-8340

Buffers/Ionization Suppressant for Flame AA

Supplied in 500 mL bottles

Description	Part No.
Cesium buffer solution Contains 1 % Cs (from carbonate) in 5 % nitric acid	5190-8343
Lanthanum buffer solution – 10 % 100,000 mg/L La in 5 % HNO ₃	5190-8801
Potassium buffer solution – 10 % 100,000 mg/L K in 5 % HNO ₃	5190-9420
Strontium buffer solution – 10 % 100,000 mg/L Sr in 5 % HNO ₃	5190-9419

Matrix Modifiers for Graphite Furnace AA

Description	Matrix	Part No.
Palladium nitrate, 0.1 % Pd, 100 mL	5 % HNO ₃	5190-8335
Palladium nitrate, 1 % Pd, 100 mL	10 % HNO ₃	5190-8336
Ammonium phosphate, 10 % NH ₄ H ₂ PO ₄ , 100 mL	2 % HNO ₃	5190-8337
Magnesium nitrate, 1 % Mg(NO ₃) ₂ , 100 mL	2 % HNO ₃	5190-8338
Nickel nitrate, 1 % Ni(NO ₃) ₂ , 100 mL	2 % HNO ₃	5190-8339
Palladium nitrate, magnesium nitrate, 750 µg/mL Pd, 500 µg/mL Mg(NO ₃) ₂ , 250 mL	2 % HNO ₃	5190-8340
Palladium nitrate, magnesium nitrate, 1,000 µg/mL Pd, 600 µg/mL Mg(NO ₃) ₂ , 250 mL	2 % HNO ₃	5190-8341
Ammonium phosphate, magnesium nitrate, 10 mg/mL, 600 µg/mL Mg(NO ₃) ₂ , 250 mL	2 % HNO ₃	5190-8342
Triton X-100 surfactant, 50 mL		CP3418

1,000 µg/mL Single Element Standards for ICP-OES and MP-AES

Description	Matrix	Part No. 100 mL	Part No. 500 mL
Aluminum (Al)	5 % HNO ₃	5190-8242	5190-8243
Antimony (Sb)	1 % HNO ₃ , trace tartaric acid	5190-8244	5190-8245
Arsenic (As)	5 % HNO ₃	5190-8246	5190-8247
Barium (Ba)	5 % HNO ₃	5190-8248	5190-8249
Beryllium (Be)	5 % HNO ₃	5190-8250	5190-8251
Bismuth (Bi)	5 % HNO ₃	5190-8252	5190-8253
Boron (B)	H ₂ O	5190-8254	5190-8255
Cadmium (Cd)	5 % HNO ₃	5190-9414	5190-8328

(Continued)

1,000 µg/mL Single Element Standards for ICP-OES and MP-AES

Description	Matrix	Part No. 100 mL	Part No. 500 mL
Calcium (Ca)	5 % HNO ₃	5190-8329	5190-8330
Cerium (Ce)	5 % HNO ₃	5190-8331	5190-8332
Cesium (Cs)	5 % HNO ₃	5190-8333	5190-8334
Chromium (Cr)	5 % HNO ₃	5190-8344	5190-8345
Cobalt (Co)	5 % HNO ₃	5190-8346	5190-8347
Copper (Cu)	5 % HNO ₃	5190-8348	5190-8349
Dysprosium (Dy)	5 % HNO ₃	5190-8350	5190-8351
Erbium (Er)	5 % HNO ₃	5190-8237	5190-8238
Europium (Eu)	5 % HNO ₃	5190-8239	5190-8240
Gadolinium (Gd)	5 % HNO ₃	5190-8241	5190-8456
Gallium (Ga)	5 % HNO ₃ , 0.5 % HCl	5190-8457	5190-8458
Germanium (Ge)	5 % HNO ₃ , trace HF	5190-8459	5190-8460
Gold (Au)	20 % HCl	5190-8461	5190-8462
Hafnium (Hf)	5 % HCl	5190-8463	5190-8464
Holmium (Ho)	5 % HNO ₃	5190-8465	5190-8466
Indium (In)	5 % HNO ₃	5190-8467	5190-8468
Iridium (Ir)	20 % HCl	5190-8469	5190-8470
Iron (Fe)	5 % HNO ₃	5190-8471	5190-8472
Lanthanum (La)	5 % HNO ₃	5190-8473	5190-8474
Lead (Pb)	5 % HNO ₃	5190-8475	5190-8476
Lithium (Li)	5 % HNO ₃	5190-8477	5190-8478
Lutetium (Lu)	5 % HNO ₃	5190-8479	5190-8480
Magnesium (Mg)	5 % HNO ₃	5190-8481	5190-8482
Manganese (Mn)	5 % HNO ₃	5190-8483	5190-8484
Mercury (Hg)	5 % HNO ₃	5190-8485	5190-8486
Molybdenum (Mb)	1 % NH ₄ OH	5190-8487	5190-8488
Neodymium (Nd)	5 % HNO ₃	5190-8489	5190-8490
Nickel (Ni)	5 % HNO ₃	5190-8491	5190-8492
Niobium (Nb)	2 % HF	5190-8493	5190-8494
Osmium (Os)	20 % HCl	5190-8495	5190-8496
Palladium (Pd)	5 % HNO ₃	5190-8497	5190-8498
Phosphorus (P)	5 % HNO ₃	5190-8499	5190-8500
Platinum (Pt)	20 % HCl	5190-8501	5190-8502
Potassium (K)	5 % HNO ₃	5190-8503	5190-8504

(Continued)

TIPS AND TOOLS

Use balances, not pipettes, for diluting. Try to dilute on a weight/weight basis using calibrated balances; the uncertainty of a balance is much lower than a pipette.

1,000 µg/mL Single Element Standards for ICP-OES and MP-AES

Description	Matrix	Part No. 100 mL	Part No. 500 mL
Praseodymium (Pr)	5 % HNO ₃	5190-8505	5190-8506
Rhenium (Re)	5 % HNO ₃	5190-8507	5190-8508
Rhodium (Rh)	20 % HCl	5190-8509	5190-8510
Rubidium (Rb)	5% HNO ₃	5190-8511	5190-8512
Ruthenium (Ru)	20 % HCl	5190-8513	5190-8514
Samarium (Sm)	5 % HNO ₃	5190-8515	5190-8516
Scandium (Sc)	5 % HNO ₃	5190-8517	5190-8518
Selenium (Se)	5 % HNO ₃	5190-8519	5190-8520
Silicon (Si)	H ₂ O	5190-8521	5190-8522
Silver (Ag)	5 % HNO ₃	5190-8523	5190-8524
Sodium (Na)	5 % HNO ₃	5190-8525	5190-8526
Strontium (Sr)	5 % HNO ₃	5190-8527	5190-8528
Sulfur (S)	H ₂ O	5190-8529	5190-8530
Tantalum (Ta)	2 % HF	5190-8531	5190-8532
Tellurium (Te)	30 % HCl	5190-8533	5190-8534
Terbium (Tb)	5 % HNO ₃	5190-8535	5190-8536
Thallium (Tl)	5 % HNO ₃	5190-8537	5190-8538
Thorium (Th)	5 % HNO ₃	5190-8539	5190-8540
Thulium (Tm)	5 % HNO ₃	5190-8541	5190-8542
Tin (Sn)	20 % HCl	5190-8543	5190-8544
Titanium (Ti)	H ₂ O	5190-8545	5190-8546
Tungsten (W)	5 % HNO ₃ , trace HF	5190-8547	5190-8548
Uranium (U)	5 % HNO ₃	5190-8549	5190-8550
Vanadium (V)	5 % HNO ₃	5190-8551	5190-8552
Ytterbium (Yb)	5 % HNO ₃	5190-8553	5190-8554
Yttrium (Y)	5 % HNO ₃	5190-8555	5190-8556
Zinc (Zn)	5 % HNO ₃	5190-8557	5190-8558
Zirconium (Zr)	5 % HCl	5190-8559	5190-8560

10,000 µg/mL Single Element Standards for ICP-OES and MP-AES

Description	Matrix	Part No. 100 mL	Part No. 500 mL
Aluminum (Al)	5 % HNO ₃	5190-8352	5190-8353
Antimony (Sb)	1 % HNO ₃ , 1 % tartaric acid	5190-8354	5190-8355
Arsenic (As)	5 % HNO ₃	5190-8356	5190-8357
Barium (Ba)	5 % HNO ₃	5190-8358	5190-8359
Beryllium (Be)	5 % HNO ₃	5190-8360	5190-8361
Bismuth (Bi)	5 % HNO ₃	5190-8362	5190-8363
Boron (B)	1 % NH ₄ OH	5190-8364	5190-8365
Cadmium (Cd)	5 % HNO ₃	5190-8366	5190-8367
Calcium (Ca)	5 % HNO ₃	5190-8368	5190-8369
Cerium (Ce)	5 % HNO ₃	5190-8370	5190-8371
Cesium (Cs)	5 % HNO ₃	5190-8372	5190-8373
Chromium (Cr)	5 % HNO ₃	5190-8374	5190-8375
Cobalt (Co)	5 % HNO ₃	5190-8376	5190-8377
Copper (Cu)	5 % HNO ₃	5190-8378	5190-8379
Dysprosium (Dy)	5 % HNO ₃	5190-8380	5190-8381
Erbium (Er)	5 % HNO ₃	5190-8382	5190-8383
Europium (Eu)	5 % HNO ₃	5190-8384	5190-8385
Gadolinium (Gd)	5 % HNO ₃	5190-8386	5190-8387
Gallium (Ga)	5 % HNO ₃ , 0.5 % HCl	5190-8388	5190-8389
Germanium (Ge)	5 % HNO ₃ , trace HF	5190-8390	5190-8391
Gold (Au)	20 % HCl	5190-8392	5190-8393
Hafnium (Hf)	5 % HCl	5190-8394	5190-8395
Holmium (Ho)	5 % HNO ₃	5190-8396	5190-8397
Indium (In)	5 % HNO ₃	5190-8398	5190-8399
Iridium (Ir)	20 % HCl	5190-8400	5190-8401
Iron (Fe)	5 % HNO ₃	5190-8402	5190-8403
Lanthanum (La)	5 % HNO ₃	5190-8404	5190-8405
Lead (Pb)	5 % HNO ₃	5190-8406	5190-8407
Lithium (Li)	5 % HNO ₃	5190-8408	5190-8409
Lutetium (Lu)	5 % HNO ₃	5190-8410	5190-8411
Magnesium (Mg)	5 % HNO ₃	5190-8412	5190-8413
Manganese (Mn)	5 % HNO ₃	5190-8414	5190-8415
Mercury (Hg)	5 % HNO ₃	5190-8416	5190-8417
Molybdenum (Mb)	1% NH ₄ OH	5190-8418	5190-8419
Neodymium (Nd)	5 % HNO ₃	5190-8420	5190-8421
Nickel (Ni)	5 % HNO ₃	5190-8422	5190-8423

(Continued)

TIPS AND TOOLS

"Matrix matching" of major sample components can be valuable with many spectrometric techniques. Our 1 % (10,000 µg/mL) standards work well as stock materials for matrix matching.

10,000 µg/mL Single Element Standards for ICP-OES and MP-AES

Description	Matrix	Part No. 100 mL	Part No. 500 mL
Niobium (Nb)	2 % HF	5190-8424	5190-8425
Palladium (Pd)	10 % HNO ₃	5190-8426	5190-8427
Phosphorus (P)	5 % HNO ₃	5190-8428	5190-8429
Platinum (Pt)	20% HCl	5190-8430	5190-8431
Potassium (K)	5 % HNO ₃	5190-8432	5190-8433
Praseodymium (Pr)	5 % HNO ₃	5190-8434	5190-8435
Rhenium (Re)	5 % HNO ₃	5190-8436	5190-8437
Rhodium (Rh)	20 % HCl	5190-8438	5190-8439
Rubidium (Rb)	5 % HNO ₃	5190-8440	5190-8441
Ruthenium (Ru)	20 % HCl	5190-8442	5190-8443
Samarium (Sm)	5 % HNO ₃	5190-8444	5190-8445
Scandium (Sc)	5 % HNO ₃	5190-8446	5190-8447
Selenium (Se)	5 % HNO ₃	5190-8448	5190-8449
Silicon (Si)	H ₂ O	5190-8450	5190-8451
Silver (Ag)	5 % HNO ₃	5190-8452	5190-8453
Sodium (Na)	5 % HNO ₃	5190-8454	5190-8206
Strontium (Sr)	5 % HNO ₃	5190-8207	5190-8208
Sulfur (S)	H ₂ O	5190-8209	5190-8210
Tantalum (Ta)	2 % HF	5190-8211	5190-8212
Tellurium (Te)	30 % HCl	5190-8213	5190-8214
Terbium (Tb)	5 % HNO ₃	5190-8215	5190-8216
Thallium (Tl)	5 % HNO ₃	5190-8217	5190-8218
Thulium (Tm)	5 % HNO ₃	5190-8219	5190-8220
Tin (Sn)	20 % HCl	5190-8221	5190-8222
Titanium (Ti)	H ₂ O	5190-8224	5190-8225
Tungsten (W)	5 % HNO ₃ , trace HF	5190-8226	5190-8227
Vanadium (V)	5 % HNO ₃	5190-8228	5190-8229
Ytterbium (Yb)	5 % HNO ₃	5190-8230	5190-8231
Yttrium (Y)	5 % HNO ₃	5190-8232	5190-8233
Zinc (Zn)	5 % HNO ₃	5190-8234	5190-8235
Zirconium (Zr)	5 % HNO ₃	5190-8236	

Environmental Standards for ICP-OES

Description	Application	Part No.
INTF-A quality control standard, 500 mL Contains Al, Ca, and Mg at 5,000 mg/L; Fe at 2,000 mg/L in 20 % HCl, 500 mL	Interference check standard, for preparation of US EPA CLP standards ICSA and ICSAB	5190-8599
ICV quality control standard, in 5 % HNO ₃ with traces of tartaric acid, 500 mL Contains Ca, Mg, K & Na at 500 mg/L; Al and Ba at 200 mg/L; Fe at 100 mg/L; Sb at 60 mg/L; Co & V at 50 mg/L; Ni at 40 mg/L; Cu at 25 mg/L; Zn at 20 mg/L; Mn at 15 mg/L; As, Cr, Ag & Tl at 10 mg/L; Be, Cd, Pb, and Se at 5 mg/L	Initial/continuing calibration verification standard, for US EPA CLP analyses	5190-9408
QCSTD-27 quality control standard, 100 mL Contains Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Si, Ag, Sr, Na, Tl, Ti, V, and Zn at 100 mg/L	Quality control standard, for environmental analyses	5190-9418

Internal Standard/Ionization Suppressant for ICP-MS/ICP-OES/MP-AES

Description	Unit	Part No.
Cesium buffer solution Contains 1 % Cs (from carbonate) in 5 % nitric acid	500 mL bottle	5190-8343
Yttrium solution – 1 % 10,000 mg/L in 5 % nitric acid Also used for instrument optimization	500 mL bottle	5190-8233
ICP internal standard contains 100 mg/L ⁶ Li, Sc, Y, In, Tb, and Bi in 5 % HNO ₃	125 mL bottle	6610030400
Multi-element internal standard (mix 4) Contains 50 µg/mL ⁶ Li, Sc, 25 µg/mL Ge, Te, 10 µg/mL Bi, In, Tb in 2 % HNO ₃ with trace HF	100 mL bottle	5190-8593

TIPS AND TOOLS

Don't underestimate the importance of good mixing when preparing standards.
A simple swirl is not enough. Make a habit of inverting and shaking the container several times.

ICP-MS Standards

Installation and Check-out Solutions

Description	Kit Contents	Part No.
ICP-MS checkout solutions for 7700/8800 and 7500 ce/cx/cs, system installation kit	Contains tuning solution, dual mode (1), dual mode (2), wash, and water blank solutions	5185-5850
ICP-MS Checkout Solution for 7500s system installation kit	Contains tuning solution, dual mode (1), dual mode (2), abundance sensitivity (1), abundance sensitivity (2), detection limit solution, high sensitivity tune, wash, and water blank solutions	5184-3564
ICP-MS Checkout Solution for 7500a 7500i /i/c system installation kit	Contains tuning solution, dual mode (1), dual mode (2), wash, and water blank solutions	5184-3565

Tuning Solution

Description	Part No.
PA tuning solution kit Tuning 1: 20 mg/L each of Zn, Be, Cd, and As; 10 mg/L each of Ni, Pb, and Mg; 5 mg/L each of Tl, Na, Al, U, Cu, Th, Ba, Co, Sr, V, Cr, Mn, ⁶ Li, Sc, In, Lu, and Bi; 2.5 mg/L each of Y, and Yb; matrix 2-5 % HNO ₃ Tuning 2: 10 mg/L each of Mo, Sb, Sn, Ge, Ru, and Pd; 5 mg/L of Ti, and Ir; matrix 10 % HCl and 1 % HNO ₃ with trace amounts of HF	5188-6524
PA tuning solution kit Li, Y, Ce, Tl and Co; 100 mL, 10 mg/L; matrix 2 % HNO ₃	5188-6564
PA tuning solution kit Li, Mg, Y, Ce, Tl and Co; 100 mL, 10 mg/L; matrix 2 % HNO ₃	5190-0465
Tuning solution Li, Y, Ce, Tl and Co; 2 x 500 mL, 10 µg/L; matrix 2 % HNO ₃	5184-3566
Tuning solution Li, Mg, Y, Ce, Tl, and Co; 2 x 500 mL, 1 µg/L; matrix 2 % HNO ₃	5185-5959

Aqueous Internal Standards

Supplied in 100 mL bottles

Description	Matrix	Part No.
Aqueous internal standard, 10 µg/mL iridium (Ir)	2% HCl	5190-8588
Aqueous internal standard, 10 µg/mL lithium (⁶ Li)	2 % HNO ₃	5190-8589
Aqueous internal standard, 10 µg/mL terbium (Tb)	2 % HNO ₃	5190-8590
Aqueous internal standard, 10 µg/mL lutetium (Lu)	2 % HNO ₃	5190-8591
Aqueous internal standard, 10 µg/mL germanium (Ge)	2% HNO ₃ , trace HF	5190-8592

Multi-Element Calibration Standards

Description	Part No.
Multi-element calibration standard-1, 100 mL: 10 mg/L of Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Th, Tm, Y, Yb; matrix 5 % HNO ₃	8500-6944
Multi-element calibration standard-2A, 2 x 100 mL: 1 bottle: 10 mg/L of Ag, Al, As, Ba, Be, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, K, Li, Mg, Mn, Na, Ni, Pb, Rb, Se, Sr, Ti, U, V, Zn; matrix 5 % HNO ₃ 2 bottles: 10mg/L Hg in 5 % HNO ₃	8500-6940
Multi-element calibration standard-3, 100 mL: 10 mg/L of Sb, Au, Hf, Ir, Pd, Pt, Rh, Ru, Te, Sn; matrix 10 % HCl/1 % HNO ₃	8500-6948
Multi-element calibration standard-4, 100 mL: 10 mg/L of B, Ge, Mo, Nb, P, Re, S, Si, Ta, Ti, W, Zr; matrix HNO ₃ /trace HF	8500-6942

10 µg/mL Single Element Standards for ICP-MS

Description	Matrix	Part No.
Aluminum (Al)	5 % HNO ₃	5190-8561
Antimony (Sb)	1 % HNO ₃ , trace tartaric acid	5190-8562
Arsenic (As)	2 % HNO ₃	5190-8563
Barium (Ba)	2 % HNO ₃	5190-8564
Beryllium (Be)	2 % HNO ₃	5190-8565
Boron (B)	H ₂ O	5190-8566
Cadmium (Cd)	2 % HNO ₃	5190-8567
Chromium (Cr)	2 % HNO ₃	5190-8568
Copper (Cu)	2 % HNO ₃	5190-8569
Iridium (Ir)	2 % HCl	5190-8570
Lead (Pb)	2 % HNO ₃	5190-8571
Lithium (Li)	2 % HNO ₃	5190-8572
Lutetium (Lu)	2 % HNO ₃	5190-8573
Manganese (Mn)	2 % HNO ₃	5190-8574
Mercury (Hg)	5 % HNO ₃	5190-8575
Nickel (Ni)	2 % HNO ₃	5190-8576
Platinum (Pt)	5 % HCl	5190-8577
Scandium (Sc)	2 % HNO ₃	5190-8578
Selenium (Se)	2 % HNO ₃	5190-8579
Silver (Ag)	2 % HNO ₃	5190-8580
Strontium (Sr)	2 % HNO ₃	5190-8581
Terbium (Tb)	2 % HNO ₃	5190-8582
Tin (Sn)	5 % HCl	5190-8583
Uranium (U)	2 % HNO ₃	5190-8584
Vanadium (V)	5 % HNO ₃	5190-8585
Yttrium (Y)	2 % HNO ₃	5190-8586
Zinc (Zn)	2 % HNO ₃	5190-8587

TIPS AND TOOLS

10 and 100 µg/mL standards are ideal for ICP-MS, GFAA, or other trace level elemental techniques

10 and 100 µg/mL Single Element Standards for ICP-OES and ICP-MS

Description	Matrix	Part No.
Bismuth (Bi), 10 µg/mL	2 % HNO ₃	8500-6936
Cobalt (Co), 10 µg/mL	2 % HNO ₃	8500-6947
Gold (Au), 100 µg/mL	2 % HCl	8500-7000
Indium (In), 10 µg/mL	2 % HNO ₃	8500-6946
Mercury (Hg), 10 µg/mL	5 % HNO ₃	8500-6941
Rhodium (Rh), 10 µg/mL	2 % HCl	8500-6945

Interference Check Mixes

Description	Part No.
6020 interference check solution A, 100 mL: 20,000 mg/L of Cl; 3,000 mg/L of Ca; 2,500 mg/L each of Fe and Na; 2,000 mg/L of C; 1,000 mg/L each of Al, Mg, P, K, and S; 20 mg/L each of Ti and Mo; matrix 5 % HNO ₃ with trace amounts of HF	5188-6526
6020 interference check solution B, 100 mL: 20 mg/L each of Cr, Co, Cu, Mn, Ni, and V; 10 mg/L each of As, Cd, Se, and Zn; 5 mg/L of Ag; matrix 5 % HNO ₃	5188-6527

Environmental Standards

Description	Part No.
Environmental calibration standard, 100 mL 1,000 mg/L of Fe, K, Ca, Na, and Mg; 10 mg/L of Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Ti, V, Zn, Th, and U; matrix 5 % HNO ₃ with trace amounts of tartaric acid	5183-4688
Initial calibration verification standard, 100 mL 1,000 mg/L of Fe, K, Ca, Na, and Mg; 100 mg/L of Sr; 10 mg/L of Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Ti, V, Zn, Th, and U; matrix 5 % HNO ₃ with trace amounts of tartaric acid	5183-4682
Internal standard mix, 100 mL 100 mg/L of ⁶ Li, Sc, Ge, Rh, In, Tb, Lu, and Bi; matrix 10 % HNO ₃	5188-6525
Internal standard mix, 100 mL 10 mg/L of ⁶ Li, Sc, Ge, Y, In, Tb, and Bi; matrix 5 % HNO ₃	5183-4681
Environmental spike mix, 100 mL 1,000 mg/L of Fe, K, Ca, Na, and Mg; 100 mg/L of Ag, Al, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Ti, V, Zn, and U; matrix 5% HNO ₃	5183-4687

EPA Method Standards

Description	Matrix	Volume (mL)	Similar to PerkinElmer Part No.	Part No.
ICS interference A for EPA 200.7 Contains 5,000 µg/mL Al, Ca, and Mg; 2,000 µg/mL Fe	20 % HCl	500		5190-8599
CLP instrument calibration solution 1 Contains 5,000 µg/mL Ca, Mg, K, and Na	5 % HNO ₃	125	N9300218	5190-9409
CLP instrument calibration mix 4 Contains 100 µg/mL As and Tl; 50 µg/mL Cd and Se; 30 µg/mL Pb	5 % HNO ₃	125	N9300221	5190-9412

Initial Calibration Verification Standards

Description	Matrix	Volume (mL)	Similar to PerkinElmer Part No.	Part No.
Alternate trace metal drinking pollution and wastewater standards I for ICP and AA Contains 20 µg/mL Al, Fe, and V; 10 µg/mL Co, Cu, Mn, Ni, and Zn; 5 µg/mL Sb, Be, and Tl	2 % HNO ₃	100	N9300214	5190-9406
Alternate trace metal drinking pollution and wastewater standards II for ICP and AA Contains 500 µg/mL Ca and Na; 100 µg/mL Mg and K	2 % HNO ₃	100	N9300215	5190-9407
Initial calibration verification for ICP, AA, or GFAA Contains 500 µg/mL Ca, K, Mg, and Na; 200 µg/mL Al and Ba; 100 µg/mL Fe; 60 µg/mL Sb; 50 µg/mL Co and V; 40 µg/mL Ni; 25 µg/mL Cu; 20 µg/mL Zn; 15 µg/mL Mn; 10 µg/mL Ag, As, Cr, and Tl; 5 µg/mL Be, Cd, and Se; 3 µg/mL Pb	5 % HNO ₃ , trace tartaric acid	500	N9300224	5190-9408



ICP-MS Semi-Quant standard, 5190-8594

Semi-Quant Standards for ICP-MS

Description	Matrix	Part No.
ICP-MS semiquantitative standard I Contains 10 µg/mL Ag, Al, As, Ba, Bi, Ca, Cd, Ce, Dy, Er, Eu, Ga, Gd, Ho, La, Lu, Mg, Na, Nd, P, Pb, Pr, Rb, Sc, Se, Sm, Sr, Tb, Th, Tl, Tm, U, Y, and Yb	40 % aqua regia	5190-8594
ICP-MS semiquantitative standard II Contains 10 µg/mL Au, B, Be, Co, Cr, Cu, Fe, Ge, Hf, Ir, K, Li, Mn, Mo, Nb, Ni, Os, Pd, Pt, Re, Rh, Ru, Sb, Si, Sn, Ta, Te, Ti, V, W, Zn, and Zr	40 % aqua regia, trace HF	5190-8595

Wear Metal and Metallo-organic Standards

- Highest quality metallo-organic mixes in the industry manufactured in accordance with the requirements of ISO Guide 34 and ISO 17025
- Accuracy ensured by quality testing with NIST Standard Reference Materials
- CoA includes trace metal concentrations confirmed by ICP-OES

Wear Metal Standards

Description	Unit ($\mu\text{g/g}$)	Matrix	Part No.
A21 Wear metal standards, 100 g Contains Ag, Al, B, Ba, Ca, Cd, Cr, Cu, Fe, Mg, Mn, Mo, Na, Ni, P, Pb, Si, Sn, Ti, V, and Zn	100	75 cSt hydrocarbon oil	5190-8603
	300	75 cSt hydrocarbon oil	5190-8604
	500	75 cSt hydrocarbon oil	5190-8605
	900	75 cSt hydrocarbon oil	5190-8706
A21+K Wear metal standards, 100 g Contains all A21 elements plus K	100	75 cSt hydrocarbon oil	5190-8710
	300	75 cSt hydrocarbon oil	5190-8711
	500	75 cSt hydrocarbon oil	5190-8712
	900	75 cSt hydrocarbon oil	5190-8713

Base Oil and Solvents

Description	Matrix	Quantity	Part No.
Base mineral oil, < 1 µg/g Used for blending and preparation of calibration standards for spectrometric analysis of metals in hydrocarbon/petrochemical samples.	75 cSt mineral oil	500 mL 1/2 gal	5190-8715 5190-8716
V-Solv solvent Used for diluting metallo-organic standards, oils and other organic solutions when preparing for spectrometric analysis of metals in hydrocarbon/petrochemical samples. Use as a matrix blank and as a diluent.	Proprietary solvent	1 gal	5190-8717
Biodiesel blank Excellent matrix match for almost all biodiesel fuels. Use as calibration blanks for analysis of metals or sulfur in biodiesel.	B100 biodiesel	100 mL 500 mL	5190-8718 5190-8719

TIPS AND TOOLS

Many of these compounds are sulfonate-based, and therefore contain high levels of sulfur. If absence of sulfur is important for your application, use sulfur-free standards.

Internal Standard for Oil Analysis (200 g)

Description	Matrix	Part No.
Cobalt internal standard Contains 5,000 µg/g Co	Hydrocarbon oil	5190-8714

Single Element Standards in Hydrocarbon Oil, 50 g

Description	Matrix	Conc. (µg/g)	Part No.
Aluminum (Al)	75 cSt hydrocarbon oil	1,000	5190-8731
		5,000	5190-8732
Antimony (Sb)	75 cSt hydrocarbon oil	1,000	5190-8733
		5,000	5190-8734
Arsenic (As)	75 cSt hydrocarbon oil	1,000	5190-8735
Barium (Ba)	75 cSt hydrocarbon oil	1,000	5190-8736
		5,000	5190-8737
Beryllium (Be)	75 cSt hydrocarbon oil	1,000	5190-8738
Bismuth (Bi)	75 cSt hydrocarbon oil	1,000	5190-8739
Boron (B)	75 cSt hydrocarbon oil	1,000	5190-8740
		5,000	5190-8741
Cadmium (Cd)	75 cSt hydrocarbon oil	1,000	5190-8742
		5,000	5190-8743
Calcium (Ca)	75 cSt hydrocarbon oil	1,000	5190-8744
		5,000	5190-8745
Cerium (Ce)	75 cSt hydrocarbon oil	1,000	5190-8746
		5,000	5190-8747
Chromium (Cr)	75 cSt hydrocarbon oil	1,000	5190-8748
		5,000	5190-8749
Cobalt (Co)	75 cSt hydrocarbon oil	1,000	5190-8750
		5,000	5190-8751
Copper (Cu)	75 cSt hydrocarbon oil	1,000	5190-8752
		5,000	5190-8753
Iron (Fe)	75 cSt hydrocarbon oil	1,000	5190-8754
		5,000	5190-8755
Lanthanum (La)	75 cSt hydrocarbon oil	1,000	5190-8756
		5,000	5190-8757
Lead (Pb)	75 cSt hydrocarbon oil	1,000	5190-8758
		5,000	5190-8759
Lithium (Li)	75 cSt hydrocarbon oil	1,000	5190-8760
		5,000	5190-8761
Magnesium (Mg)	75 cSt hydrocarbon oil	1,000	5190-8762
		5,000	5190-8763

(Continued)

TIPS AND TOOLS

Thorough mixing is especially important when using oil-based standards. Due to their viscosity they are difficult to homogenize. For best results, always mix the standard by vigorously shaking the container for at least a few minutes. Alternately, shake the container and sonicate the standard in an ultrasonic bath for a few minutes.

TIPS AND TOOLS

Store metallo-organic standards in a cool, dry place.

Single Element Standards in Hydrocarbon Oil, 50 g

Description	Matrix	Conc. (µg/g)	Part No.
Manganese (Mn)	75 cSt hydrocarbon oil	1,000	5190-8764
		5,000	5190-8765
Mercury (Hg)	75 cSt hydrocarbon oil	1,000	5190-8766
Molybdenum (Mo)	75 cSt hydrocarbon oil	1,000	5190-8767
		5,000	5190-8768
Nickel (Ni)	75 cSt hydrocarbon oil	1,000	5190-8769
		5,000	5190-8770
Phosphorus (P)	75 cSt hydrocarbon oil	1,000	5190-8771
		5,000	5190-8772
Potassium (K)	75 cSt hydrocarbon oil	1,000	5190-8773
		5,000	5190-8774
Scandium (Sc)	75 cSt hydrocarbon oil	1,000	5190-8775
Selenium (Se)	75 cSt hydrocarbon oil	1,000	5190-8776
Silicon (Si)	75 cSt hydrocarbon oil	1,000	5190-8777
		5,000	5190-8778
Silver (Ag)	75 cSt hydrocarbon oil	1,000	5190-8779
		5,000	5190-8780
Sodium (Na)	75 cSt hydrocarbon oil	1,000	5190-8781
		5,000	5190-8782
Strontium (Sr)	75 cSt hydrocarbon oil	1,000	5190-8783
Sulfur (S)	75 cSt hydrocarbon oil	1,000	5190-8784
		5,000	5190-8785
Thallium (Tl)	75 cSt hydrocarbon oil	1,000	5190-8786
Tin (Sn)	75 cSt hydrocarbon oil	1,000	5190-8787
		5,000	5190-8788
Titanium (Ti)	75 cSt hydrocarbon oil	1,000	5190-8789
		5,000	5190-8790
Tungsten (W)	75 cSt hydrocarbon oil	1,000	5190-8791
		5,000	5190-8792
Vanadium (V)	75 cSt hydrocarbon oil	1,000	5190-8793
		5,000	5190-8794
Yttrium (Y)	75 cSt hydrocarbon oil	1,000	5190-8795
		5,000	5190-8796
Zinc (Zn)	75 cSt hydrocarbon oil	1,000	5190-8797
		5,000	5190-8798
Zirconium (Zr)	75 cSt hydrocarbon oil	1,000	5190-8799
		5,000	5190-8800

Biodiesel Standards

Metals in Biodiesel Standards

- Formulated specifically for analysis of metals in biodiesel fuel to ASTM D6751 and EN14214
- Matrix is 100 % biodiesel to eliminate matrix variations
- Made from soybean oil, which is an excellent matrix match for most biodiesels

Metals in Biodiesel Standards, 100 g

Description	Matrix	Conc. ($\mu\text{g/g}$)	Part No.
Metals additives standard, MA5 Contains Ba, Ca, Mg, P, and Zn	75 cSt hydrocarbon oil	900	5190-8720
		5	5190-8721
Metals in biodiesel standard Contains Ca, K, Mg, Na, and P	B100 biodiesel	10	5190-8722
		20	5190-8723

Sulfur in Biodiesel Standards

- Formulated specifically for analysis of sulfur in biodiesel fuel to ASTM D2622, D4294, D5453, D6751, and others
- Matrix is 100 % biodiesel to eliminate matrix variations
- Made from soybean oil, which is an excellent matrix match for most biodiesels

Sulfur in Biodiesel Standards

Supplied in 100 mL bottles

Description	Matrix	Conc. ($\mu\text{g/g}$)	Part No.
Sulfur in biodiesel standard Contains S	B100 biodiesel	10	5190-8724
		15	5190-8725
		20	5190-8726
		25	5190-8727
		50	5190-8728
		100	5190-8729
		500	5190-8730

Agilent Recirculating Chiller

Reliable smart-cooling to reduce downtime

Benefits of the Agilent recirculating chiller

- Robust, reliable cooling
- Remote access through ICP Expert
- View key parameters at-a-glance on the touchscreen display
- On-screen error notifications
- Automatic 'chiller off' end-of-run action



Reduce time-wasting with a full integration into ICP Expert software

In most labs, chillers are kept in separate rooms for noise and heat control. Walking to a separate room to operate a chiller wastes time - especially detrimental in high-throughput labs. The remote-control capability of the Agilent recirculating chiller eliminates this, with full automation within Agilent's ICP Expert software.

Want to run samples unattended or overnight? There is an end-of-run 'chiller off' action, so you do not have to worry about the chiller wasting power when it is not in use.

Smart software integration tools for ease-of-use and troubleshooting

The large, full-color LCD touchscreen display provides key information at-a-glance. Key chiller parameters, such as temperature and fluid level, can also be viewed within ICP Expert. This smart software integration means that users can monitor key chiller parameters remotely at anytime and receive error notifications if the chiller malfunctions. This removes the need for time-consuming troubleshooting.

ETC 60 Electrothermal Temperature Controller

The Agilent ETC 60 Electrothermal Temperature Controller is an electrically heated quartz cell used for hydride analysis. Since it heats the quartz cell without a flame, the ETC 60, when used with the SPS 4 autosampler and the VGA 77, allows safe, unattended analysis of up to 270 samples with Agilent atomic absorption instruments.

By combining the ETC 60 with the VGA 77, Agilent Zeeman instruments can determine the hydride elements using the vapor-generation technique. The lower atomization temperatures used with the ETC 60 also increase sensitivity by up to 30% compared to flame atomization.



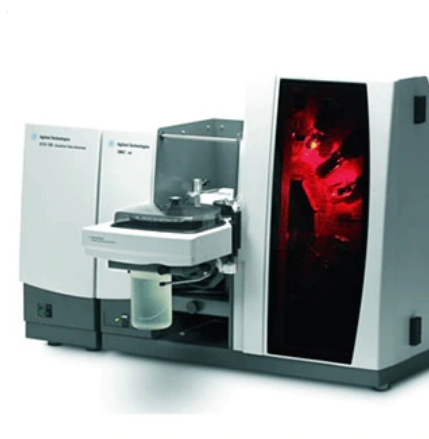
| Features

- Flameless atomization for vapor generation AA
- Reduced running costs because no acetylene gas is required
- Enables the determination of Hg and the six hydride-forming elements
- Allows unattended operation for maximum productivity
- Eliminates flame flicker noise
- Improves sensitivity by 20-30%
- SpectrAA software controls the ETC 60 temperature directly (with Version 5 or later)
- The ETC 60 is compatible with any instrument that can use the VGA 77.

GTA120 Graphite Tube Atomizer

The GTA 120 Graphite Tube Atomizer provides superior graphite furnace performance, no matter how difficult the sample, making it ideal for applications as diverse as chemical, petrochemical, food, and agriculture.

The GTA 120 is compatible with the 280FS AA and 240FS AA instruments.



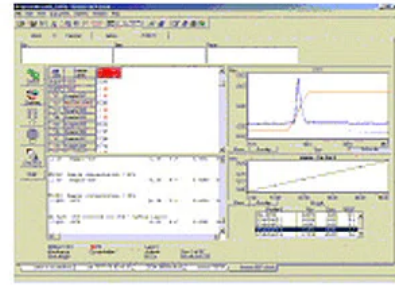
| Features

- Delivers extremely fast atomization even with difficult sample matrices
 - Long atomization cell ensures the highest sensitivity and lowest detection limits for best signal-to-noise
 - Gas minimizing technology (GMT) extends tube lifetimes, reduces gas consumption by 40%, and lowers analysis costs
 - With an ultra-stable mounting and position lock, the programmable sample dispenser (PSD 120) furnace autosampler offers plug-and-play mounting, eliminating realignment
 - Get simple method development by using Tube-CAM (optional) to set accurate probe dispensing heights and confirm optimum drying temperatures, and the SRM wizard to optimize the ashing and atomization temperatures
 - Carousel capacity for 135 solutions minimizes changes for high-throughput labs, enabling longer unattended runs
-

SpectrAA Software

Agilent SpectrAA Software is user-friendly software that provides access to all instrument controls, sample results, and signal graphics from one window. The intuitive user interface accommodates users of all skill levels, and the PROMT measurement mode can reduce sample analysis time and increase productivity. SpectrAA Software also includes a suite of useful workflow capabilities, including simple method development, powerful reporting options, tracking of consumables usage, and compliance support for regulated industries.

SpectrAA software is available as SpectrAA Base, SpectrAA Pro with extra quality control capabilities, and SpectrAA CFR for pharmaceutical laboratories.



| Features

- Simple method development with the Surface Response Methodology (SRM) wizard
- Reduce downtime and running costs by tracking the operating lifetime of key consumables such as lamps, electrodes, and pump tubing
- Display a variety of results, including final concentrations or raw signals
- Color-coded results can highlight out-of-range results, uncalibrated results, or other errors
- Report sample results in units independent of those used for calibration, and create reports in sequential or multi-element formats
- Use RANDOM sample function to schedule urgent sample measurement immediately after the current sample is complete, then resume normal sequence
- Simplify label entry with autocopy and unique pattern recognition, read barcoded samples directly, and import labels from laboratory information management systems (LIMS)
- All current US EPA tests are built in to help ensure EPA compliance
- Built-in technical controls ensure the security of your data, control access, and facilitate compliance as defined by US FDA 21 CFR Part 11, EU Annex 11 and similar national electronic record regulations.

Autosampler Sampling Capillaries

Agilent provides a range of supplies for the PSD 100/120 Programmable Sample Dispenser used with Agilent GFAAS systems, including sample vials, beakers, adapters, dispensing capillary assemblies, dispensing syringe and replacement plungers.



Product List

Part Number	Product Description	Unit
110291390	Assembly, capillary rinse GTA, 1/pk	1
9910115100	Capillary assembly, 5/pk	5 Each
9910032300	Capillary assembly, 5/pk	5 Each
110289290	Capillary tube assembly, PSD 95, 1/pk	1 Each
9910034200	Kit 5 rinse bottle capillaries, 1/pk	5 Each

Features

- Dispensing capillary assemblies are made from PTFE tubing, making them ideal for collecting and dispensing a variety of corrosive matrices and organic solutions
- Works well with solvent and acid-resistant sampling components
- PTFE capillary tips and capillaries reduce contamination
- Easy replacement by the user

ICP-OES SUPPLIES

ICP-OES Torches

Available in a wide range of styles from 0 to 3 slots, depending on instrument and application needs. The slots in the side of the torch allow the plasma to be viewed through the slot and not the quartz. This ensures the best performance, while maintaining optimum shielding of the plasma from entrained air. Torches without slots are recommended for fusions and high TDS samples. One-slot torches are the standard torch for aqueous solutions. Three-slot torches are typically used for organic analysis.



ICP-OES torch, demountable, 1-slot, 8003-0344



ICP-OES torch, demountable, 1-slot, 8003-0346



ICP-OES torch, demountable, 3-slot, 8003-0347



ICP-OES torch, demountable, short, 8003-0348



O-ring kit, 8003-0360



O-ring kit, for vertical torch 8003-0361

Torches and Supplies

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
Optima 8x00	Torch, demountable, 1-slot, using 1-piece quartz tubing for plasma and auxiliary gas flow	N0780130	8003-0344
Optima 8x00	Torch, demountable, 0-slot, using 1-piece quartz tubing for plasma and auxiliary gas flow	N0780133	8003-0470
Optima 8x00	Torch, demountable, 3-slot, using 1-piece quartz tubing for plasma and auxiliary gas flow	N0780132	8003-0345
Optima 2/4/5/7x00 DV	Torch, demountable, 1-slot, using 1-piece quartz tubing for plasma and auxiliary gas flow	N0770338	8003-0346
Optima 2/4/5/7x00 DV	Torch, demountable, 3-slot, using 1-piece quartz tubing for plasma and auxiliary gas flow	N0772005	8003-0347
Optima 2/4/5/7x00 DV	Torch, demountable, 0-slot, short version, using 1-piece quartz tubing for plasma and auxiliary gas flow	N0770344	8003-0348
Optima 8x00	O-ring kit, complete, includes all O-rings used in the demountable torch	N0780437	8003-0359
Optima 2/4/5/7x00 DV	O-ring kit, complete, includes all O-rings used in the demountable torch	N0770437	8003-0360
Optima 4300V/5300V/7300V	O-ring kit, complete, for vertical torch	N0770916	8003-0361

(Continued)



Torch igniter tape, copper, 8003-0362



Torch igniter tape, copper, squares, 8003-0363

Torches and Supplies

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
Optima 8x00	Torch igniter tape, copper, 50 pcs	N0781097	8003-0362
Optima 2/4/5/7x00 DV	Torch igniter tape, copper, 120 squares	N0775297	8003-0363
Optima 2/4/5/7x00 DV	Torch bonnet for Optima, used as spacer between torch and RF coil	N0775289	8003-0364

Quick Change Torch Modules

Complete torch and sample introduction module including single-slot demountable torch, mounting block, 2 mm alumina injector, spray chamber and nebulizer.

Having a second module provides a convenient and quick way to change the sample introduction system when switching between different sample types.

Quick Change Torch Modules

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
Optima 8x00	Quick-change torch module Includes glass cyclonic spray chamber and concentric nebulizer	N0780607	8003-0336
Optima 8x00	Quick-change torch module Includes inert Scott spray chamber and GemTip Cross-Flow II nebulizer	N0780606	8003-0339
Optima 2x00/4x00/5x00/7x00/8x00	Mounting block, for quick-change torch, does not include torch, injector, spray chamber, or nebulizer	N0770600	8003-0338
Optima 2x00/4x00/5x00/7x00	Quick-change torch module Includes inert glass cyclonic spray chamber and concentric nebulizer	N0770607	8003-0337
Optima 2x00/4x00/5x00/7x00	Quick-change torch module Includes Scott spray chamber and GemTip Cross-Flow II nebulizer	N0770606	8003-0340
Optima 4300V/5300V/7300V/DV	Quick-change torch module for HF analysis Includes GemCone high dissolved solids nebulizer, alumina 2.0 mm id injector, quartz 3-slot torch, HF-resistant baffled cyclonic spray chamber.	N0770911	8003-0342
Optima 4300V/5300V/7300V	Quick-change torch module for oil analysis. Includes GemCone nebulizer, alumina 1.2 mm id injector, quartz 3-slot torch, baffled cyclonic spray chamber.	N0770910	8003-0343

AGILENT SUPPLIES FOR PerkinElmer ICP-OES



Injector, alumina, 1.2 mm id, 8003-0365



Injector, alumina, 2.0 mm id, 8003-0366



Top: Injector, quartz, 2.0 mm id, 8003-0374
Bottom: Injector, quartz, 0.8 mm id, 8003-0372

TIPS & TOOLS

Alumina injectors are corrosion-resistant to all mineral acids, including HF and aqua regia, but they can also be used with less volatile organic solvents, e.g., xylene. The 2.0 mm id alumina injector is the standard injector, but a range of other sizes are available.

TIPS & TOOLS

Quartz injectors are recommended for organic solvents and non-HF matrices. Use narrow-bore injectors for more volatile organic solvents such as gasoline.

Torch Injectors

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
Optima 8x00	Injector, alumina, 2.0 mm id	N0781014	8003-0366
Optima 8x00	Injector, quartz, 2.0 mm id	N0781050	8003-0370
Optima 8x00	Injector, quartz, 3.0 mm id	N0781017	8003-0371
Optima 8x00	Injector, alumina, 1.2 mm id	N0781015	8003-0952
Optima 8x00	Injector, alumina, 1.2 mm id (entire length of tube)	N0781007	8003-0365
Optima 8x00	Injector, quartz, 1.2 mm id	N0781019	8003-0369
Optima 8x00	Injector, quartz, 0.8 mm id	N0781018	8003-0368
Optima 2x00/4x00/ 5x00/7x00 DV	Injector, alumina, 2.0 mm id	N0775177	8003-0453
Optima 2x00/4x00/ 5x00/7x00 DV	Injector, quartz, 2.0 mm id	N0775014	8003-0374
Optima 2x00/4x00/ 5x00/7x00 DV	Injector, quartz, 3.0 mm id	N0775224	8003-0375
Optima 2x00/4x00/ 5x00/7x00 DV	Injector, alumina, 1.2 mm id (entire length of tube)	N0776093	8003-0367
Optima 2x00/4x00/ 5x00/7x00 DV	Injector, quartz, 1.2 mm id	N0775226	8003-0373
Optima 2x00/4x00/ 5x00/7x00 DV	Injector, quartz, 0.8 mm id	N0775225	8003-0372

Injector Support Adaptors

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
Optima 4300V/ 5300V/7300V	Injector support adaptor, bottom, for cyclonic spray chambers	N0771526	8003-0376
Optima 4300V/ 5300V/7300V	Injector support adaptor, top, for cyclonic spray chambers	N0771527	8003-0377
Optima 2x00/4x00/ 5x00/7x00/DV/8x00	O-ring kit, for injector support adapter	N0770438	8003-0378

AGILENT SUPPLIES FOR PerkinElmer ICP-OES



OneNeb inert concentric nebulizer, 8003-0951



Nebulizer, GemCone, 8003-0321



Sample capillary adapter, 8003-0322



Nebulizer, GemTip, Cross-Flow II, 8003-0325

Nebulizers and Supplies

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
Optima 2x00/ 4x00/5x00/ 7x00 DV/8x00	Nebulizer, OneNeb, inert concentric nebulizer Includes sample connector and quick-release gas connector. Ideal for routine analysis of samples up to 25% TDS with good precision and better sensitivity than a SeaSpray; inert construction makes it suitable for most solution types. OneNeb nebulizer requires an end cap (8003-0335) for use with the Scott spray chamber	Not Applicable	8003-0951
Optima 2x00/ 3x00 XL/ 3x00 DV/ 3000SCX/ 4x00/5x00/ 7x00/8x00	Nebulizer, Conikal Includes Ezyfit sample connector (0.75 mm id x 700 mm) and EzyLok gas connector. For routine analysis of organic solvents and samples to 5% TDS.	N0777487	2010106800
Optima 2x00/ 4x00/5x00/ 7x00/8x00	Nebulizer, GemCone GemCone nebulizers require an end cap for Scott spray chambers.	N0770358	8003-0320
Optima 2x00/ 4x00/5x00/ 7x00/8x00	Nebulizer, GemCone, high dissolved solids For samples (up to 20%). Allows you to handle samples with higher dissolved solids concentration than a Cross-Flow nebulizer. GemCone nebulizers require an end cap (8003-0335) for use with Scott spray chambers.	N0690670	8003-0321
Optima 2x00/ 4x00/5x00/ 7x00/8x00	Sample capillary adapter, for GemCone nebulizer	N0371505	8003-0322
Optima 2x00/ 4x00/5x00/ 7x00/8x00	Tubing, quick-disconnect with Swagelok, for GemCone nebulizer	N0770336	8003-0324
Optima 8000	Nebulizer, GemTip, Cross-Flow II, for analysis of strong mineral acids and samples with less than 5% dissolved solids. Features chemically resistant GemTips made of sapphire and ruby in a chemically resistant end cap.	N0780546	8003-0325
Optima 2x00/ 4x00/5x00/7x00	Nebulizer, GemTip, Cross-Flow II, for analysis of strong mineral acids and samples with less than 5% dissolved solids. Features chemically resistant GemTips made of sapphire and ruby in a chemically resistant end cap.	N0770546	8003-0326

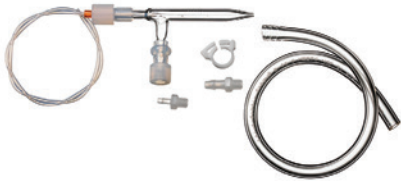
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AGILENT SUPPLIES FOR PerkinElmer ICP-OES

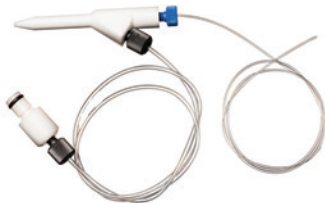
Nebulizers and Supplies



GemTip Cross-Flow II nebulizer tip kit, 8003-0328



Nebulizer, type C1, for samples with high dissolved solids, for Optima 5/7/8x00, 1.0 mL/min uptake, 8003-0461



Nebulizer, Mira Mist, PEEK, 8003-0974

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
Optima 8x00	Nebulizer, GemTip, Cross-Flow II tip kit Includes clear sapphire and red ruby argon tips for maximum corrosion resistance. The tips are constructed of PEEK with the gem insert.	N0780676	8003-0328
Optima 2x00/ 4x00/5x00/7x00	Nebulizer, GemTip, Cross-Flow II tip kit Includes clear sapphire and red ruby argon tips for maximum corrosion resistance. The tips are constructed of PEEK with the gem insert.	N0690676	8003-0327
Optima	Replacement Cross-Flow nebulizer tips, GemTip Not compatible with Cross-Flow II nebulizers	N0580624	8003-0454
Optima 5/7/8x00	O-ring kit for GemTip, Cross-Flow II nebulizers Includes all O-rings used in the Cross-Flow and Cross-Flow II nebulizers.	N9300067	8003-0456
Optima 2x00/ 3x00/4x00/ 5x00/7x00/8x00	Nebulizer, type C1, 1.0 mL/min uptake For samples with high dissolved solids	00472022	8003-0461
Optima 2x00/ 3x00/4x00/ 5x00/7x00/8x00	O-ring, small, for type A/C/K nebulizers	00473194	8003-0464
Optima 2x00/ 3x00/4x00/ 5x00/7x00/8x00	Nebulizer, Mira Mist, PEEK Includes 0.5 m sample capillary (0.044 inch od x 0.018 inch id) and gas connector. For routine analysis of samples to 20% TDS (not recommended for aggressive acids or organic solvents).	N0775330	8003-0974
Optima 2x00/ 3x00 XL/ 3x00 DV/ 3000SCX/ 4x00/5x00/ 7x00/8x00	Nebulizer, concentric, U-series, SeaSpray, 2.0 mL/min uptake For routine analysis of samples to 20% TDS. Includes UniFit sample connector (0.75 mm id x 700 mm) and EzyLok gas connector.	N0775345	G8010-60255

Multimode Sample Introduction System (MSIS)

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
Optima 2x00/4x00/5x00/7x00 DV/8x00	Multimode Sample Introduction System (MSIS) Provides simultaneous vapor generation of environmentally sensitive elements including As, Se, and Hg with low µg/L detection limits. It provides better performance than conventional nebulization through thin-film hydride technology, while offering a choice of three modes that eliminates changeover and allows routine and hydride elements to be determined using the same setup.	Not Applicable	8003-0817
	Peristaltic pump tubing, black/black, 12/pk. Required to pump reagents to MSIS.	Not Applicable	3710027200
	Peristaltic pump tubing, black/white, 12/pk. Required to pump waste from MSIS.	N8122012	3710068900

Spray Chambers

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
Optima 2x00/4x00/5x00/7x00/8x00	Tracey, single-pass, cyclonic spray chamber for high-sensitivity analyses, 50 mL, borosilicate glass, O-ring-free	N0775351	8003-0329
Optima 2x00/4x00/5x00/7x00/8x00	Twister, double-pass, cyclonic spray chamber with helix nebulizer seal, 50 mL, borosilicate glass, O-ring-free	N0775352	8003-0330
Optima 2x00/4x00/5x00/7x00/8x00	Tracey, single-pass, TFE cyclonic spray chamber for high-sensitivity analyses, with helix nebulizer seal, 50 mL, inert (HF-resistant), O-ring-free	N0777496	8003-0331
Optima 2x00/4x00/5x00/7x00/8x00	Cyclonic spray chamber adapter	N0770614	8003-0332
Optima 2x00/4x00/5x00/7x00/8x00	Drain cap assembly, for drain bottle assembly	N0690271	8003-0333
Optima 2x00/4x00/5x00/7x00/8x00	Scott spray chamber assembly made from corrosion-resistant Ryton material, inert to most mineral acids including HF, aqua regia, and most organic solvents; helps to minimize pulsation from the peristaltic pump	N0770357	8003-0334
Optima 2x00/4x00/5x00/7x00/8x00	End cap, allows use of concentric nebulizers with Scott spray chamber	N0680504	8003-0335
Optima 2x00/4x00/5x00/7x00/8x00	Spray chamber drain fitting with tubing and drain adapter, to pump out waste solution through spray chamber drain (does not include peristaltic pump tubing)	N0690268	8003-0457
Optima 2x00/4x00/5x00/7x00/8x00	Tubing, PTFE, 1 mm id, for spray chamber drain, per meter, 12/pk	N8221152	8003-0460
Optima 2x00/4x00/5x00/7x00/8x00	Tracey single-pass, cyclonic spray chamber for high-sensitivity analyses, 50 mL, borosilicate glass, with bung fitting for nebulizer	N0776052	8003-0462
Optima 2x00/4x00/5x00/7x00 DV/8x00	Nebulizer adaptor, 16/6, for spray chambers that have a bung fitting for the nebulizer, not compatible with spray chambers that use the Helix seal	N0776006	8003-0953
Optima 5/7/8x00	End cap O-ring, for spray chamber with type A/C/K nebulizers	09902033	8003-0463



Multimode Sample Introduction System (MSIS),
8003-0817



Scott spray chamber assembly, 8003-0334



End cap, for concentric nebulizers
with Scott spray chamber, 8003-0335

AGILENT SUPPLIES FOR PerkinElmer ICP-OES



Top: Window, radial, 8003-0472
Bottom: Window, axial, 8003-0385



Window tube, 8003-0386



O-ring, for dual-view radial purge tube, 8003-0388



O-ring for dual-view axial purge window, 8003-0389



O-ring for torch clamp on vertical torch module, 8003-0390



O-ring for dual-view radial purge tube, 8003-0391



O-ring for dual-view axial purge window, 8003-0392

Purge Extension Windows

The axial view purge extension window fits into the purge extension between the torch and the optics.

The radial view purge extension is a replaceable tube that fits into the mount between the torch and the optics for the radial view.

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
Optima 2x00/7000/8000	Window, dual-view, axial, quartz	09992731	8003-0383
Optima 2x00/7000/8000	Window tube, dual-view, radial, short tube, quartz	N0690672	8003-0384
Optima 3x00/4x 00/5x00/7100/7200/7300 DV/8300	Window, dual-view, axial, quartz	N0771116	8003-0385
Optima 5x00/7100/7200/7300 DV/8300	Window tube, dual-view, radial, quartz	N0770944	8003-0386
Optima 3000/3000 SCR/3x00 RL/4300V/5300V/7300V	Window tube, radial view	N0581497	8003-0387
Optima 3000/3000 SCR/3x00 RL/4300V/5300V/7300V	Purge extension, ceramic	N0581455	8003-0394
Optima 4x00 DV/5x00 DV Pre November 2004	Window, dual-view radial	N0770322	8003-0472
Optima 5x00/7100/7200/7300 DV/8300	O-ring, for dual-view radial purge tube	09200064	8003-0388
Optima 5x00/7100/7200/7300 DV/8300	O-ring, for dual-view axial purge window	09902143	8003-0389
Optima 5x00/7100/7200/7300 DV/8300	O-ring, for torch clamp on vertical torch module	09902155	8003-0390
Optima 2100/7000/8000	O-ring, for dual-view radial purge tube	09921036	8003-0391
Optima 2100/7000/8000	O-ring, for dual-view axial purge window	09921062	8003-0392
Optima 2100/7000/8000	O-ring, purge outlet	09921057	8003-0393

AGILENT SUPPLIES FOR PerkinElmer ICP-OES

Peristaltic Pump Tubing

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
Optima 5/7/8x00	Peristaltic pump tubing, black/black, 12/pk. Required to pump reagents to MSIS.	09908587	3710027200
Optima 5/7/8x00	Peristaltic pump tubes, PVC, 2 stop, red/red, for drain, 12/pk	09908585	8003-0459



Load coil, 8003-0379



Load coil, 8003-0380

RF Load Coils and Accessories

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
Optima 2x00/4x00/5x00/7x00 DV	Load coil	N0775300	8003-0379
Optima 4300V/5300V/7300V	Load coil	N0771536	8003-0380
Optima 5/7/8x00	Nylon igniter standoff	09989859	8003-0381
	Igniter spark gap assembly, for type II demountable torch	N0680275	8003-0382

Miscellaneous Supplies

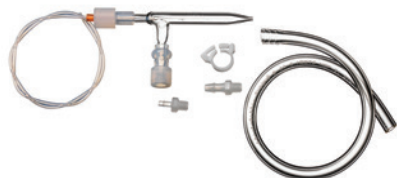
Instrument	Description	Similar to OEM Part No.	Agilent Part No.
Optima 3x00	Filter, air, for RF generator inlet	02509115	8003-0455
Optima 2x00/3x00/4x00/5x00/7x00	Filter cartridge, cooling water	09904846	8003-0469
Optima	ICP-OES chiller coolant mix, 5 half-gallon bottles	N0776099	8003-0473

TIPS & TOOLS

For a listing of supplies for AS-90/90A/90plus/91/93plus/S10 Autosamplers, please see the *Agilent supplies for PerkinElmer AA spectrometers catalog*, publication number 5991-6431EN

ICP-MS SUPPLIES

Nebulizers and Supplies



Nebulizer, glass, concentric, type K3, 8003-0476



Clip for type A/C/K nebulizers, 8003-0480



Sample inlet fitting for type A/C/K nebulizers, 8003-0481



Connector, low-dead-volume, PEEK, 8003-0482



Nebulizer, U-series, MicroMist micro-uptake, 8003-0489

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
ELAN 9000/ 6xX00/DRC/ NexION	Nebulizer, glass, concentric, type C3, for samples that have high TDS, argon flow, 1 L/min, uptake 3 mL/min	N8102011	8003-0475
	Nebulizer, GemClean Cross-Flow II with an end cap, a GemTip clear sapphire sample tip and a GemTip red ruby argon tip, optimized for ICP-MS (0.009 and 0.013 inch orifices), specially manufactured and cleaned for ultratrace analysis	N8120516	8003-0483
ELAN 9000/ 6xX00/DRC	Nebulizer, quartz, type A3, high-sensitivity, for ultra-trace applications, argon flow, 1 L/min, uptake 3 mL/min	WE024371	8003-0477
NexION	Nebulizer, quartz, type A0.5, high-sensitivity, for ultra-trace applications, argon flow, 1 L/min, uptake 0.5 mL/min	N8145011	8003-0478
	Nebulizer, glass, type C0.5, for samples that have high TDS, argon flow, 1 L/min, uptake 0.5 mL/min	N8145012	8003-0479
	Nebulizer, glass, concentric, type K3, for samples that have high TDS, argon flow, 1 L/min, uptake 3 mL/min	N0681574	8003-0476
ELAN 9000/ 6xX00/DRC/ NexION	Clip for type A/C/K concentric nebulizers	N0777460	8003-0480
	Sample inlet fitting for type A/C/K concentric nebulizers, 4 inch x 0.020 inch id, 0.062 inch od, flanged onto female CTFE fitting, with male barb CTFE fitting	N8145016	8003-0481
ELAN 9000/ 6xX00/DRC	Connector, low-dead-volume, PEEK, for type A/C/K concentric nebulizer, requires 0.062 inch (1.59 mm) od tubing	WE024372	8003-0482
ELAN 9000/ 6xX00/DRC/ NexION	Nebulizer, U-series, MicroMist micro-uptake, glass, concentric, uptake 0.4 mL/min, with EzyFit connector with 700 mm x 0.50 mm id x 1.3 mm od sample tubing	N0775341	8003-0489

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Nebulizer, OpalMist PFA, concentric, 8003-0500



Nebulizer, PFA-ST PTFE ultra clean, 8003-0505



Nebulizer, MicroMist, micro-uptake, 8003-0589



Capillary, PTFE, for ST nebulizer, 8003-0509

Nebulizers and Supplies

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
ELAN 9000/ 6xX00/DRC/ NexION	Nebulizer, U-series, SeaSpray, concentric, uptake 2.0 mL/min, with EzyFit connector with 700 mm x 0.50 mm id x 1.3 mm od sample tubing	N0775340	8003-0490
ELAN 9000/ 6xX00/DRC/ NexION	Nebulizer, U-series, SeaSpray, concentric, uptake 0.4 mL/min, with EzyFit connector with 700 mm x 0.50 mm id x 1.3 mm od sample tubing	N0777484	8003-0492
ELAN 9000/ 6xX00/DRC/ NexION	Nebulizer, OpalMist PFA, concentric, uptake 0.4 mL/min, for high-precision analyses requiring high chemical resistance to HF, alkalis, and organics. Also ideal for trace analyses.	N0777485	8003-0500
ELAN 9000/ 6xX00/DRC/ NexION	Nebulizer, PFA-ST3, PTFE, microflow, high performance, clog resistant and chemically inert nebulizer for ICP-MS	N8145101	8003-0507
ELAN 9000/ 6xX00/DRC/ NexION	Nebulizer, PFA-ST PTFE ultra clean, with exchangeable capillaries to provide flow rates from 100-400 μ L/min	N8122192	8003-0505
ELAN 9000/ 6xX00/DRC/ NexION	Nebulizer, MicroMist, micro-uptake, glass, concentric, uptake 0.2 mL/min, high performance for small sample volumes, with EzyFit connector with 0.50 mm id x 700 mm x 1.3 mm od sample tubing	N0775342	8003-0589
ELAN 9000/ 6xX00/DRC/ NexION	Nebulizer, concentric, U-series, SeaSpray, 1.0 mL/min uptake with EzyFit connector with 700 mm x 0.50 mm id x 1.3 mm od sample tubing	N0774069	8003-0964
	Obstruction removal kit, for PFA nebulizers	N8145236	8003-0508
	Capillary, PTFE, for ST nebulizer, 1.0 mm id, uptake 1 mL/min	N8145138	8003-0509
	Capillary, PTFE, for ST nebulizer, 0.5 mm id, uptake 0.4 mL/min	N8122384	8003-0510
	Sample inlet (UniFit) fitting for U-series concentric glass nebulizer, 0.75 mm id x 700 mm x 1.3 mm od	N0774077	G8010-80035

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AGILENT SUPPLIES FOR PerkinElmer ICP-MS



Fitting, male barb, CTFE, 8003-0502



Fitting, female barb, CTFE, 8003-0503



Sample capillary, PTFE, 8003-0504



Union, CTFE, for PFA-ST nebulizer, 8003-0506

Nebulizers and Supplies

Description	Similar to OEM Part No.	Agilent Part No.
EzyLok kit for nebulizer gas side arm Includes EzyLok connector for 4 mm tubing, EzyLok 6 mm hose adaptor and nebulizer hose clip.	N0777413	9910127800
Cross-Flow II replacement GemTips, constructed of PEEK for maximum corrosion resistance, orifice sizes color-coded, argon, 0.23 mm (0.009 inch) ruby red, sample, 0.34 mm (0.013 inch) clear sapphire	N8120515	8003-0484
Ferrule kit, for Cross-Flow II nebulizer Includes sample and argon ferrules, suits all GemClean Cross-Flow II nebulizers after September 1998.	N0680612	8003-0486
Ferrule, argon, for Cross-Flow II nebulizer	09920515	8003-0485
Ferrule, sample, for Cross-Flow II nebulizer, suits all GemClean Cross-Flow II nebulizers after September 1998	09920518	8003-0488
Sample inlet (UniFit) fitting for U-series concentric glass nebulizer, 0.75 mm id x 700 mm x 1/16 inch od	N0774080	8003-0493
Clip, for nebulizer pressure hose, 10/pk	N0773197	8003-0495
Fitting, male barb, chlorotrifluoroethylene (CTFE), for sample inlet fitting used with type A/C/K nebulizers	N8145017	8003-0502
Fitting, female barb, chlorotrifluoroethylene (CTFE), for sample inlet fitting used with type A/C/K nebulizers	N8145018	8003-0503
Sample capillary, PTFE, 0.062 inch od, 0.020 inch id, for sample inlet fitting used with type A/C/K nebulizers	CT-0022T-10	8003-0504
Union, CTFE, for PFA-ST nebulizer, connects to UltraClean sampler probe	N8122355	8003-0506

Spray Chambers and Supplies



Spray chamber drain fitting, 8003-0501



Spray chamber, baffled, glass, 8003-0515



O-ring, for baffled quartz cyclonic spray chamber, 8003-0516



Spray chamber, baffled, glass, 8003-0514

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
ELAN 9000/6xX00/ DRC/NexION	Spray chamber drain fitting, 24 inch x 0.030 inch id, 0.062 inch od	N8145015	8003-0501
ELAN DRC/ DRC Plus/DRC II	Spray chamber, baffled, glass, cyclonic, with ball-joint, for ball-joint injectors	N0773196	8003-0515
ELAN 9000/6xX00/ DRC/NexION	O-ring, for baffled quartz cyclonic spray chamber (PTFE O-ring type) with ball-joint	09210011	8003-0516
ELAN 9000/ 6xX00/DRC/ NexION	End cap, for Cross-Flow II nebulizer, suits all GemClean Cross-Flow II nebulizers after September 1998	N8122239	8003-0487
ELAN	Spray chamber with auxiliary gas port, 7 mm baffle, quartz, cyclonic, drain line included, connects directly to ESI injectors	N0777034	8003-0519
ELAN 9000/6x00/ 5x00/DRC-e	Spray chamber, glass, cyclonic, O-ring-free	N0775350	8003-0520
ELAN 9000/6x00/ 5x00/DRC-e	Spray chamber, water-cooled, glass, cyclonic, O-ring-free	N0775354	8003-0521
ELAN 9000/6x00/ 5x00/DRC-e	Connector, EzyLok, for jacketed spray chamber	N0774101	8003-0496
NexION/ELAN 9000/ 6x00/5x00/DRC-e	Scott spray chamber, HF-resistant	N8120124	8003-0522
NexION/ELAN 9000/ 6x00/5x00/DRC-e	O-ring, large, for Scott spray chamber	WE013060	8003-0523
NexION/ELAN 9000/ 6x00/5x00/DRC-e	Retaining ring, for Scott spray chamber	WE014081	8003-0524
ELAN 9000/6x00/ DRC	Mounting for cyclonic spray chamber	WE014034	8003-0588
NexION	Drain tubing, 1/16 inch od, 0.038 inch id PTFE tubing	02506495	8003-0605
NexION	Spray chamber, baffled, glass, cyclonic, with ball-joint, for ball-joint injectors	N8145014	8003-0514
NexION	Spray chamber, high purity, quartz, cyclonic, O-ring-free, provides excellent sensitivity and stability with low background	N8145120	8003-0517

(Continued)

AGILENT SUPPLIES FOR PerkinElmer ICP-MS

Spray Chambers and Supplies

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
NexION	Spray chamber, borosilicate glass, cyclonic, O-ring-free	N8145119	8003-0518
NexION	Spray chamber, baffled quartz, cyclonic (PTFE O-ring type) with ball-joint	N8145013	8003-0614
NexION	Spray chamber, UltraClean, low volume Scott-style PFA spray chamber, for concentric nebulizers with PFA end cap	N8142000	8003-0946
NexION	Spray chamber, UltraClean, low volume Scott-style PFA spray chamber, for concentric nebulizers. Requires PFA injector assembly and PFA end cap	N8122356	8003-0947
NexION	End cap, for low volume Scott-style PFA spray chamber, for concentric nebulizer	N8122357	8003-0948
NexION	IsoMist temperature controlled spray chamber. Provides the benefits of a temperature-controlled ICP sample introduction system in a compact, convenient package. Temperature range is between -10 °C and +60 °C in 1 °C increments. Includes software, polymer coated PFA double-pass spray chamber, torch interface, and mounting kit.	N8141426	8003-0963
	Helix seal for O-ring-free spray chamber, suits any ICP spray chamber that uses the Helix fitting to secure the nebulizer in the side arm	N0777439	G8010-80042
	Helix locking screw for O-ring-free spray chamber, suits any ICP spray chamber that uses the Helix fitting to secure the nebulizer in the side arm	N0777438	G8010-80043



IsoMist temperature controlled spray chamber, 8003-0963

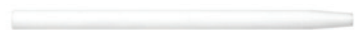
LEARN MORE

A Complete Method for Drinking Water Analysis Using Nexion 300D ICP-MS to EPA 200.8 (Agilent publication 5991-6510EN).

Torch Injectors



Injector, alumina, 8003-0530



Injector, alumina, 8003-0532



Injector, quartz, 2.0 mm id, 8003-0590



Injector, quartz ball-joint, 8003-0535



Injector, ball-joint twist-type, 8003-0536



Injector, ball-joint cassette-type, 8003-0537

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
NexION/ELAN DRC-e/9000/6x00/5000/500	Injector, alumina, 2.0 mm id	N8126041	8003-0530
NexION/ELAN DRC-e/9000/6x00/5000/500	Injector, alumina, 1.5 mm id	N8126040	8003-0531
NexION/ELAN DRC-e/9000/6x00/5000/500	Injector, alumina, 0.85 mm id	N8126039	8003-0532
NexION/ELAN DRC/DRCplus/DRC II	Injector, quartz ball-joint, 2.0 mm id, general purpose, for pass-through ball-joint injector support adapter	WE023948	8003-0533
NexION/ELAN DRC-e/9000/6x00/5000	Injector, quartz, 2.0 mm id	N8125029	8003-0590
NexION/ELAN DRC/DRCplus/DRC II	Injector, quartz ball-joint, 1.5 mm id, for organics, for pass-through ball-joint injector support adapter	WE027005	8003-0534
NexION/ELAN DRC/DRCplus/DRC II	Injector, quartz ball-joint, 0.85 mm id, for volatile organics, for pass-through ball-joint injector support adapter	WE027030	8003-0535
ELAN DRC/DRCplus/DRC II	Support adaptor, for twist-type ball-joint injector	WE023951	8003-0536
ELAN DRC II/NexION	Support adaptor, for cassette-type ball-joint injector	W1012406	8003-0537

(Continued)

TIPS & TOOLS

Alumina injectors are compatible with twist-type and cassette torch mounts. They are corrosion-resistant to all mineral acids, including HF and aqua regia, but can also be used with less volatile organic solvents, e.g., xylene. The 2.0 mm id alumina injector is the standard injector, but a range of other sizes are available.

TIPS & TOOLS

Quartz injectors are compatible with twist-type and cassette torch mounts. They are recommended for organic solvents and non-HF matrices. Use narrow-bore injectors for more volatile organic solvents such as gasoline.

AGILENT SUPPLIES FOR PerkinElmer ICP-MS



Injector tube, sapphire, 8003-0538



Injector assembly, PFA-Quartz, 8003-0539



Injector assembly, PFA-Quartz, 8003-0540



Injector assembly, PFA-Sapphire twist-type, 8003-0541



Injector assembly, PFA-Sapphire cassette-type, 8003-0542



Injector assembly, PFA-Platinum twist-type, 8003-0543



Injector assembly, PFA-Platinum cassette-type, 8003-0544

Torch Injectors

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
NexION/ELAN DRC-e/ 9000/6x00/5000/5000	Injector tube, sapphire, 2.0 mm id, demountable injector, for HF-resistant sample introduction system	N0695495	8003-0538
NexION/ELAN DRC-e/ 9000/6x00/5000/5000	Injector assembly, PFA-Quartz twist-type, 1.5 mm id	N8122394	8003-0539
NexION/ELAN DRC-e/ 9000/6x00/5000/5000	Injector assembly, PFA-Quartz, cassette-type, 1.5 mm id	N8122413	8003-0540
NexION/ELAN DRC-e/ 9000/6x00/5000/5000	Injector assembly, PFA-Sapphire twist-type, 1.8 mm id, for high matrix geochemistry and HF applications where low ppt Al is not required	N8122358	8003-0541
NexION/ELAN DRC-e/ 9000/6x00/5000/5000	Injector assembly, PFA-Sapphire cassette-type, 1.8 mm id, for environmental, geochemistry and HF applications	N8122411	8003-0542
NexION/ELAN DRC-e/ 9000/6x00/5000/5000	Injector assembly, PFA-Platinum twist-type, 2.0 mm id	N8122359	8003-0543
NexION/ELAN DRC-e/ 9000/6x00/5000/5000	Injector assembly, PFA-Platinum cassette-type, 2.0 mm id	N8122412	8003-0544

(Continued)

AGILENT SUPPLIES FOR PerkinElmer ICP-MS



Injector support adapter, twist-type, 8003-0545



Injector support adapter, twist-type, 8003-0546



O-ring kit, for injector support adapter, 8003-0547



Injector support adapter, 8003-0548



O-ring, for injector support adapter, external twist/cassette-type, 8003-0549



O-ring, for injector support adapter, internal twist/cassette-type, 8003-0551

Torch Injectors

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
ELAN DRC-e/ 9000/6x00/5000	Injector support adapter, twist-type, for corrosion-resistant torch and Ryton Scott spray chamber and twist-type torch mounts before April 2005	N8122007	8003-0545
ELAN DRC-e/ 9000/6x00/5000	Injector support adapter, twist-type, assembled with O-rings, for corrosion-resistant torch and Ryton Scott spray chamber and twist-type torch mounts before April 2005	N8120116	8003-0546
NexION/ELAN DRC-e/ 9000/6x00/5000/500	O-ring kit, for injector support adapter	N8120100	8003-0547
NexION/ELAN DRC-e/ 9000/6x00/5000/500	Injector support adapter, for cassette-type non-ball-joint injectors	W1013266	8003-0548
NexION/ELAN DRC-e/ 9000/6x00/5000/500	O-ring, for injector support adapter, internal, twist/cassette-type, 4/pk	09210011	8003-0549
NexION/ELAN DRC-e/ 9000/6x00/5000/500	O-ring, for injector support adapter, external (large) cassette-type	W1013545	8003-0550
NexION/ELAN DRC-e/ 9000/6x00/5000/500	O-ring, for injector support adapter, external, twist/cassette-type	09210012	8003-0551
ELAN 9000/6x00/DRC	Fitting, Swagelok, stainless steel nut, 1/4 inch	09903464	8003-0593
ELAN 9000/6x00/DRC	Tube fitting	09903465	8003-0594

AGILENT SUPPLIES FOR PerkinElmer ICP-MS



Torch, demountable, quartz, 8003-0552



Torch, demountable, quartz, high-efficiency, 8003-0553

Torches and Supplies

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
NexION/ELAN	Torch, quartz, demountable, used with a fully replaceable sample injector made of fused alumina, quartz, or sapphire (supplied separately)	N8122006	8003-0552
ELAN 9000/6x00/DRCs/NexION	Torch, demountable, quartz, high-efficiency, for reduced argon gas flow, requires the high-efficiency torch kit for first-time installation	W1008384	8003-0553
ELAN 9000 and 6x00	Torch kit, high-efficiency Includes high-efficiency torch and flow restrictors to enable operation with reduced argon gas flow.	W1007468	8003-0554
NexION/ELAN 9000/6x00/DRCs	Torch alignment tool, to align the torch in the load coil	WE015554	8003-0555
NexION	Mount, for cassette torch, excludes demountable torch and injector	W1037485	8003-0556
ELAN 9000/6x00/DRC	O-ring kit, for type II torch	09903094	8003-0591





Sampler cone, nickel, large-orifice, 8003-0571



Skimmer cone, nickel, 8003-0572



Skimmer cone, nickel, 1.1 mm orifice, 8003-0573



Skimmer cone, nickel, 0.9 mm orifice, 8003-0574



Hyper skimmer cone, 8003-0579



Screw, for hyper skimmer cone, 8003-0581



O-ring, for sampler cone, 8003-0582



O-ring, for skimmer cone, 8003-0583



Tool, for cone removal, 8003-0586

Interface Cones and Supplies

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
NexION	Sampler cone, nickel, large-orifice, for high and low sample-uptake conditions	W1033612	8003-0571
NexION	Skimmer cone, nickel	W1026356	8003-0572
NexION	Sampler cone, platinum	W1033614	8003-0575
NexION	Skimmer cone, platinum	W1026907	8003-0576
NexION	Hyper skimmer cone	W1033995	8003-0579
NexION	O-ring, for hyper skimmer cone	09902123	8003-0580
NexION	Screw, for hyper skimmer cone	09919737	8003-0581
NexION	Sampler gasket for hyper skimmer cone	W1040148	8003-0584
NexION	Tool, for cone removal	W1034694	8003-0585
ELAN 9000/6x00/DRC	Sampler cone, nickel, 1.1 mm orifice, not compatible with NexION	WE021140	8003-0573
ELAN 9000/6x00/DRC	Skimmer cone, nickel, 0.9 mm orifice, not compatible with NexION	WE021137	8003-0574
ELAN 9000/6x00/DRC	Sampler cone, platinum, not compatible with NexION	WE027802	8003-0577
ELAN 9000/6x00/DRC	Skimmer cone, platinum, not compatible with NexION	WE027803	8003-0578
ELAN 9000/6x00/DRC	O-ring, for sampler cone, 5/pk	N8120511	8003-0582
ELAN 9000/6x00/DRC	O-ring, for skimmer cone, 5/pk	N8120512	8003-0583
ELAN 9000/6x00/DRC	Tool, for cone removal	WE017142	8003-0586

TIPS & TOOLS

Nickel interface cones provide the most economical operation as it is a rugged and long-lasting material. They are recommended for the majority of sample types.

Platinum interface cones provide better resistance to chemical attack and are required for analysis of aggressive acids (e.g. hydrofluoric acid) and other more corrosive sample types.

AGILENT SUPPLIES FOR PerkinElmer ICP-MS



Ion lens, Series II, 8003-0564

Ion Lenses

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
ELAN 9000/6x00/DRCs manufactured after January 1998	Ion lens, Series II	WE018034	8003-0564
ELAN 9000/DRCs manufactured after April 2005	Cassette lens shadow stop	W1013361	8003-0566

Detectors

Instrument	Description	Similar to OEM Part No.	Agilent Part No.
NexION	SimulScan dual-stage detector	N8145000	8003-0561
ELAN 9000/6x00/DRCs* manufactured prior to April 2005	SimulScan dual-stage detector, original	N8125001	8003-0562
ELAN 9000/6x00/DRCs manufactured after April 2005	SimulScan dual-stage detector, improved	N8125050	8003-0563

Sample Introduction Kits

Description	Similar to OEM Part No.	Agilent Part No.
Sample introduction kit (PFA-Platinum), for NexION, HF-resistant. Recommended for analysis of semiconductor-grade chemicals and Si wafer samples. Includes 2 PFA MicroFlow nebulizers, PFA endcap with additional gas port, PFA spray chamber, Pt injector, Pt Shield, and quartz torch.	N8142001	8003-0511
Sample introduction kit (PFA-Sapphire), for NexION, HF-resistant. Provides a chemically inert and clean introduction system. Includes a PFA-ST nebulizer, PFA endcap with additional gas port, PFA spray chamber, Sapphire injector, Pt Shield, and quartz torch.	N8142002	8003-0512
Sample introduction kit (HF-resistant), for NexION. Includes Scott spray chamber with a Cross-Flow II nebulizer, 2 mm alumina injector, injector support adapter, O-rings, tubing, and connectors.	N8140507	8003-0513

TIPS & TOOLS

For a listing of supplies for AS-90/90A/90plus/91/93plus/S10 Autosamplers, please see the *Agilent supplies for PerkinElmer AA spectrometers catalog*, publication number 5991-6431EN

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