

AVIO 200 ICP-OES CONSUMABLES AND SUPPLIES



INTRODUCTION AND OVERVIEW

Capable of handling even the most difficult, high-matrix samples without dilution, the Avio® 200 brings a whole new level of performance and flexibility to ICP.

Better yet, that unprecedented performance comes with unparalleled ease-of-use. Unique hardware features and the industry's most intuitive software combine to make multielement measurements as easy as a single-element analysis.

The smallest ICP on the market, the Avio 200 offers the most efficient operation, reliable data, and lowest cost of ownership by delivering:

- The lowest argon consumption of any ICP.
- The fastest ICP startup (ready in just 10 minutes from power off).
- The best sensitivity and resolution at all wavelengths.
- The fastest analysis times with minimized sample preparation.

Reliable. Capable. Affordable.

The Avio 200 is everything you're looking for in an ICP.

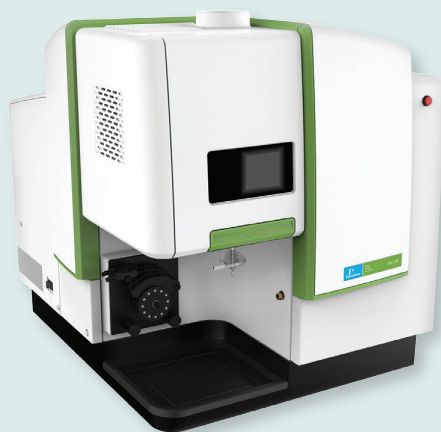
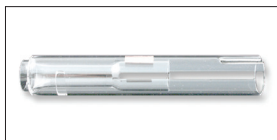


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Demountable Torches

Demountable design using one-piece quartz tubing for plasma and auxiliary gas flow. Available in a wide range of styles from 1-3 slots, depending on your application needs. 1-slot torches are the standard torch for aqueous solutions. 3-slot torches are typically used for organic analysis.

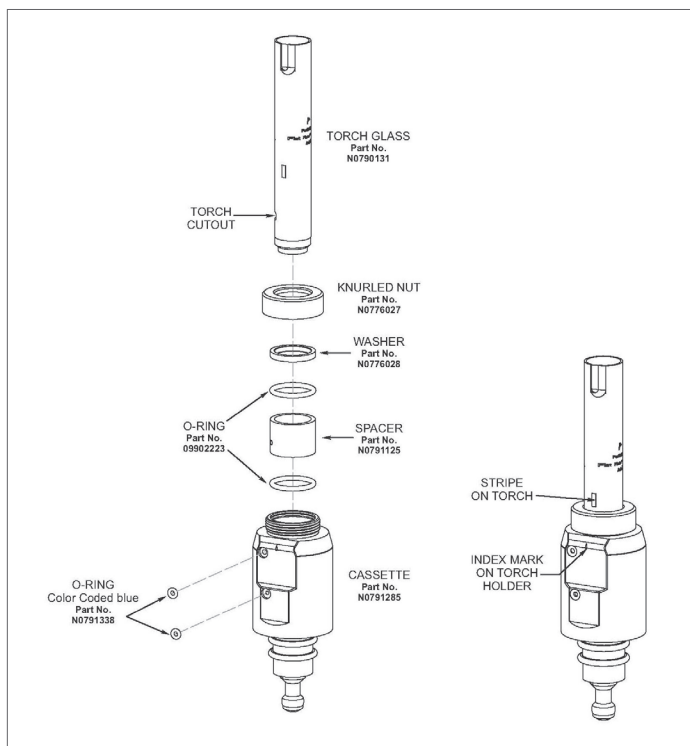


Quartz Torches

Description	# of Slots	Part No.
Standard	1	N0790131
Hybrid XLT Organics	3	N0790249

Torch O-Rings and Removal Tool

# of Slots	Qty	Part No.
O-Ring Kit for Adjustable Torch		N0790437
<i>Includes:</i>		
O-Ring – 0.799 ID 0.103 WD	2	09902223
O-Ring – 0.101 ID 0.070 WD	2	N0791334
O-Ring Kit for Scott Injector		N0790440
<i>Includes:</i>		
O-Ring - 8.74 ID 1.78 WD	2	09200518
O-Ring - 0.239 ID 0.70 WD	2	09902207
O-Ring - 0.344 ID 0.070 WD	2	N0791333
O-Ring Kit for Cyclonic Injector		N0790441
<i>Includes:</i>		
O-Ring - 0.239 ID 0.70 WD	2	09902207
O-Ring - 0.301 ID 0.70 WD	2	09926070
O-Ring - 0.344 ID 0.070 WD	2	N0791333
O-Ring Removal Tool		09920410
Torch Cassette Complete		N0790138



Torch Assemblies



Torch Assemblies

Description	Part No.
Quick Change Torch Module -	N0790606
Scott Spray Chamber/Cross-Flow Nebulizer	
<i>Includes: GemTip Cross-Flow Nebulizer (N0780546), 1-Slot Quartz Torch (N0790131), 2.0 mm Alumina Injector (N0791183), Scott Spray Chamber (N0791499).</i>	
Quick Change Torch Module -	N0790607
Cyclonic Spray Chamber/Concentric Nebulizer	
<i>Includes: Type K1 Standard Nebulizer (N0777707), 1-Slot Quartz Torch (N0790131), 2.0 mm Alumina Injector (N0791183), Baffled Cyclonic Spray Chamber (N0791352).</i>	

Nebulizers

PerkinElmer offers high-quality sample introduction components for a wide variety of applications.



MEINHARD® Nebulizers

Provide excellent sensitivity and precision for aqueous solutions and samples with few dissolved solids (less than 1%). MEINHARD® Nebulizers are self-aspirating and must not be used with solutions containing hydrofluoric acid. All require an end cap for use with Ryton® Scott spray chambers.

Type	Application	Part No.
Type K1 (standard)	Ar low-flow, High dissolved solids	N0777707
Type K3	Reduced flow, and organics	N0681574

MEINHARD® Nebulizer Parts

Description	Part No.
Liquid-End Connector Kit, 10" length by 0.020" ID x 0.062" OD	N0791018
Nebulizer Clip for MEINHARD® Nebulizers	N0777460

End Cap for Concentric Glass, GemCone and Similar Nebulizers

Description	Part No.
Scott Spray Chamber End Cap	N0680504



MicroMist Nebulizers

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

SeaSpray Nebulizers

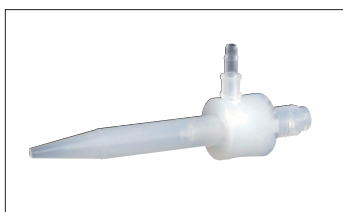
Ar Flow Rate	Uptake Rate	Part No.
0.7 L/min	2 mL/min	N0775345



PEEK MiraMist® Nebulizer

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

Description	Uptake Rate	Part No.
PEEK MiraMist®	0.2 to 2.5 mL/min	N0775330
PTFE Mira Mist	0.02 to 2.5 mL/min	N0777031
Ari Mist	0.05 to 1.0 mL/min	N0777032
T2100	0.5 to 3.0 mL/min	N0777033



MicroFlow Nebulizers

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

Description	Part No.
PolyPro ST Nebulizer	N0777219
PFA-ST Nebulizer	N0777049
PFA-ST3 Microflow Nebulizer	N0777676

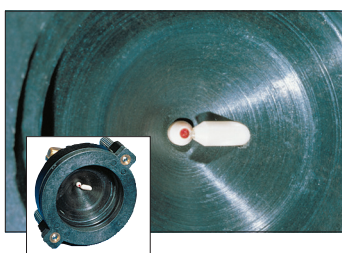
Nebulizers, continued



GemCone™ and GemTip™ Nebulizers

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

Description	Part No.
GemCone™ Low-Flow Nebulizer	N0770358
GemCone™ High Dissolved Solids	N0690670
GemCone™ Sample Capillary Adapter	N0371505
Scott Spray Chamber End Cap for GemCone™ Nebulizers	N0680504
Quick Disconnect Tubing	N0770336



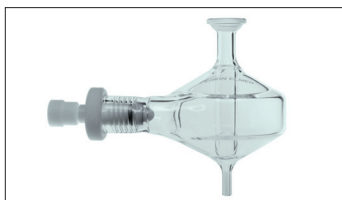
GemTip™ Cross-Flow II Nebulizers

Excellent general purpose nebulizer for the analysis of strong mineral acids (including HF) and samples with less than 5% dissolved solids.

Description	Part No.
GemTip™ Cross-Flow II Nebulizer	N0780546
GemTip™ Cross-Flow II Tip Kits	N0780676
GemTip™ Cross-Flow Nebulizer O-Ring Kit	N9300067
<i>Includes: 09902001 qty. 2, 09902033 qty. 2, 09902151 qty. 3, 09921003 qty. 1, 3 cm of Teflon® sample tubing.</i>	

Spray Chambers

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



Cyclonic Spray Chambers

Description	Part No.
Baffled Cyclonic (Standard)	N0791352
HF Resistant Cyclonic Spray Chamber	N0790373
TFE PTFE O-Ring free, 50 mL with grounding strap included.	



Scott Spray Chamber*

The Scott Spray Chamber is corrosion-resistant and is inert to most mineral acids including HF, aqua regia and all organic solvents normally used in ICP analyses.

Description	Part No.
Scott Spray Chamber	N0790384
Scott Spray Chamber Clamp Adapter	N0790296

**Product image shown may vary from actual product.*

Injectors and Injector Support Adapters



Alumina Injectors

Alumina injectors are corrosion-resistant to all mineral acids including HF and aqua regia. They are also used with less volatile organic solvents, e.g., xylene.

Description	Part No.
0.80 mm i.d.	N0791180
1.2 mm i.d.	N0791181
1.2 mm i.d. (1.2 mm entire length of tube)	N0791182
2.0 mm i.d. (standard with Avio instrument)	N0791183

Injectors and Injector Support Adapters, continued



Quartz Injectors

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

Dimensions	Part No.
0.80 mm i.d.	N0791185
1.2 mm i.d.	N0791186
1.2 mm i.d. (1.2 mm entire length of tube)	N0791187
1.6 mm i.d.	N0791188
2.0 mm i.d.	N0791189
3.0 mm i.d.	N0791190

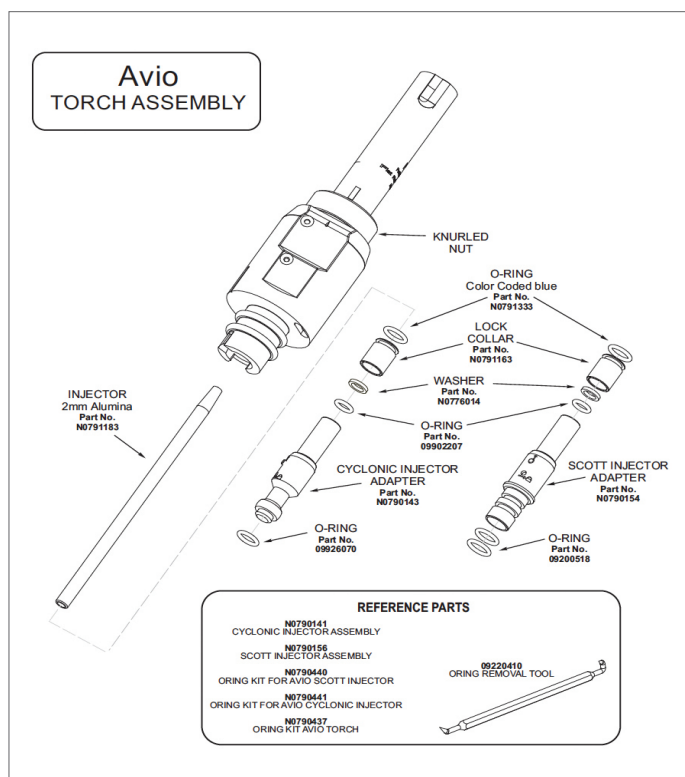
Sapphire Injectors

Sapphire injectors are ideal for silicon applications.

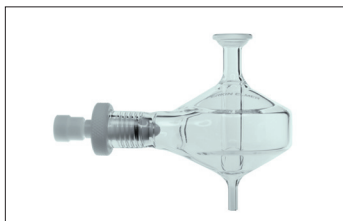
Dimensions	Part No.
2.0 mm i.d.	N0791184

Injector Support Adapter Kits and O-Rings

Dimensions	Part No.
Injector Adapter Kit-Cyclonic (includes o-rings)	N0790141
Injector Adapter Kit-Scott (includes o-rings)	N0790156
Injector Adapter O-Ring Kit Cyclonic (incl. 09902207 qty. 2, 09926070 qty. 2, N0791333 qty. 2)	N0790441
Injector Adapter O-Ring Kit Scott (incl. 09902207 qty. 2, 09200518 qty. 2, N0791333 qty. 2)	N0790440



Sample Introduction Kits



Cyclonic/Concentric Kit

	Part No.
Cyclonic/Concentric Kit*	N0790608
<i>Includes:</i>	
1 Slot Quartz Torch	N0790131
2.0 mm i.d. Alumina Injector	N0791183
Baffled Cyclonic Spray Chamber	N0791352
MEINHARD® Type K1 Nebulizer	N0777707
Injector Adapter	N0790141

*Includes one of each.



Scott/Cross-Flow II Kit

	Part No.
Scott/Cross-Flow II Kit*	N0790609
<i>Includes:</i>	
1 Slot Quartz Torch	N0790131
2.0 mm i.d. Alumina Injector	N0791183
Scott Spray Chamber*	N0790384
GemTip™ Cross-Flow II Nebulizer	N0780546
Injector Adapter	N0790156
Scott Spray Chamber Clamp Adapter	N0790296

*Includes one of each.



Organics Kit

	Qty.	Part No.
Organics Kit*		N0790610
<i>Includes:</i>		
3 Slot Quartz Torch	2	N0790249
1.2 mm i.d. Alumina Injector	2	N0791181
Baffled Cyclonic Spray Chamber	1	N0791352
GemCone™ Low-Flow Nebulizer	1	N0770358
Cyclonic Spray Chamber Adapter	1	N0790141

Purge Windows



Purge Extension Windows

ICP Model	View	Part No.
Avio 200	Axial	09992731
Avio 200	Radial*	N0690672
Optical Kit (incl. Windows and O-Rings)	Axial/Radial	N0790439
Axial Flat Mirror Kit	Axial	N0790196

*Product not shown.

Autosampler Tubes



Autosampler Graduated Tubes with Red Caps

Capacity	Size	Type	Qty	Part No.
15 mL*	17 mm x 120 mm	Conical Bottom	500/50 per bag	B0193233
50 mL*	28 mm x 115 mm	Conical/Freestanding	500/25 per bag	B0193234

Autosampler Tubes

Capacity	Size	Type	Qty	Part No.
8 mL	13 mm x 100 mm	Round Bottom	1,200 bulk	N0777156
15 mL	17 mm x 100 mm	Round Bottom	1,200 bulk	N0777167
	Plugs for N0777167	(blue) Plugs Only	1,200 bulk	N0777599
	Plugs for N0777071	(white) Plugs Only	1,000 bulk	N0777072
50 mL*	30 mm x 115 mm	Conical	500 bulk with teal flat caps	N0777693
50 mL*	30 mm x 115 mm	Conical	500/50 per bag with teal flat caps	N0777691

*Graduated tubes

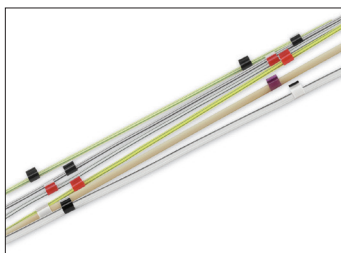
Spares



Spares

Description	Part No.
Air Filter (intake) – Requires 2	09995098
Air Filter Assembly for Instrument Air Supply	N0775325
Replacement Air Filter Element for N0775325	N9306067
Polyscience WhisperCool Chiller Replacement Air Filter	N0777095
Chiller Coolant Mix 30 Plus-Five 1/2 Gallons	N0776200

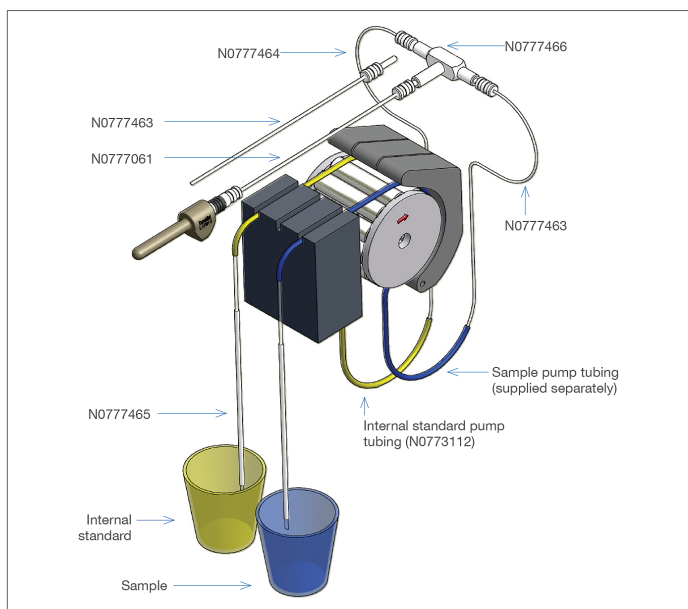
Pump Tubing



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

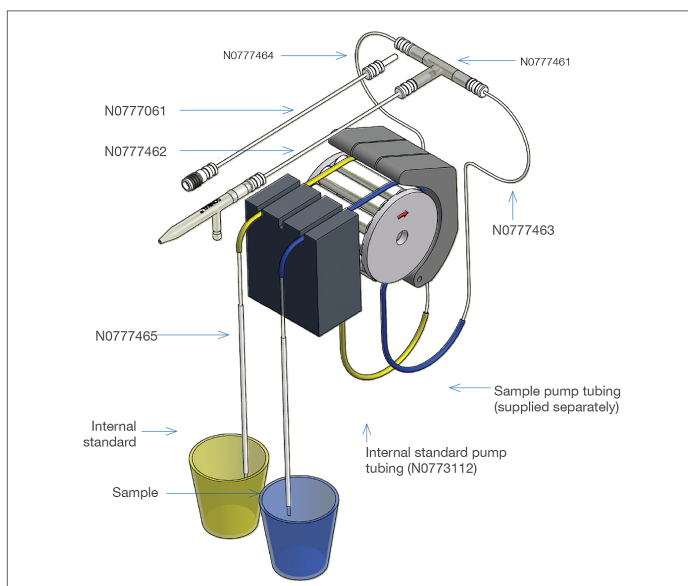
Internal Standard Kits

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



HF-Resistant Internal Standard Kit

Description	Part No.
HF-Resistant Internal Standard Kit	N0774067
<i>Includes:</i>	
HF Mixing T-piece	N0777466
Internal Standard Sample Probe 0.25 mm ID	N0777465
EzyFit Sample Tube 0.5 mm ID	N0777463
UniFit-EzyFit Sample Tube	N0777061
EzyFit Internal Standard Tube 0.25 mm ID	N0777464
Vitex® Gripper Paper - Qty. 6	N0777848
Orange-Blue Flared End PVC Tubing 0.25 mm ID – Qty. 12	N0773112



Non HF-Resistant Internal Standard Kit

Description	Part No.
Non HF-Resistant Internal Standard Kit	N0774068
<i>Includes:</i>	
EzyFit Glass Mixing T-piece	N0777461
Internal Standard Sample Probe 0.25 mm ID	N0777465
EzyFit Sample Tube - Twin	N0777462
EzyFit Sample Tube 0.5 mm ID	N0777463
EzyFit Internal Standard Tube 0.25 mm ID	N0777464
Vitex® Gripper Paper - Qty. 6	N0777848
Orange-Blue Flared End PVC Tubing 0.25 mm ID – Qty. 12	N0773112
UniFit-EzyFit Sample Tube	N0777061

PerkinElmer Pure Standards



Single-Element Standards – 1,000 µg/mL

Whatever your application, you can depend on PerkinElmer Pure Standards to yield reliable, accurate results. PerkinElmer offers a wide selection of atomic spectroscopy calibration standards. Each solution is supplied with a comprehensive Certificate of Analysis that documents the quality and reliability. Please visit our website for a complete listing of Atomic Spectroscopy Standards.

Element	Symbol	Matrix	125 mL Part No.	500 mL Part No.
Aluminum	Al	2% HNO ₃	N9300184	N9300100
Cadmium	Cd	2% HNO ₃	N9300176	N9300107
Calcium	Ca	2% HNO ₃	N9303763	N9300108
Chromium	Cr	2% HNO ₃	N9300173	N9300112
Copper	Cu	2% HNO ₃	N9300183	N9300114
Iron	Fe	2% HNO ₃	N9303771	N9300126
Lead	Pb	2% HNO ₃	N9300175	N9300128
Mercury	Hg	10% HNO ₃	N9300174	N9300133
Sodium	Na	2% HNO ₃	N9303785	N9300152
Zinc	Zn	2% HNO ₃	N9300178	N9300168

Multi-Element Standards

Matrix	Contents	Vol.	Part No.
Multi-Element Solution 1			
2% HNO ₃	10 µg/mL: Be, Bi, Ce, Co, In, Mg, Ni, Pb, U	125 mL	N9300231
Multi-Element Solution 2			
5% HNO ₃	10 µg/mL: Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Th, Tm, Y, Yb	125 mL	N9300232
Multi-Element Solution 3			
5% HNO ₃	10 µg/mL: Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, Hg*, In, K, Li, Mg, Mn, Na, Ni, Pb, Rb, Se, Sr, Tl, U, V, Zn *Supplied in separate bottle.	125 mL	N9300233
Multi-Element Solution 3 without Mercury			N9301720
Multi-Element Solution 4			
5% HCl/1% HNO ₃	10 µg/mL: Au, Hf, Ir, Pd, Pt, Rh, Ru, Sb, Sn, Te	125 mL	N9300234
Multi-Element Solution 5			
H ₂ O/tr HF	10 µg/mL: B, Ge, Mo, Nb, P, Re, S, Si, Ta, Ti, W, Zr	125 mL	N9300235
PerkinElmer Pure I			
5% HNO ₃	400 µg/mL: Tl 200 µg/mL: Bi, In, Pb 150 µg/mL: Ga 100 µg/mL: Al 50 µg/mL: Ag, Ni 25 µg/mL: Cr 20 µg/mL: Cd, Co, Cu, Zn 15 µg/mL: B, Fe 5 µg/mL: Ba, Mn 1 µg/mL: Be, Sr	125 mL	N9303940

PerkinElmer Pure Standards, continued

Multi-Element Standards, continued

Matrix	Contents	Vol.	Part No.
PerkinElmer Pure IV			
10% HNO ₃	1000 µg/mL: Ag, Al, B, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, In, 125 mL K, Li, Mg, Mn, Na, Ni, Pb, Sr, Tl, Zn	125 mL	N9303941
PerkinElmer Pure VIII			
5% HNO ₃	100 µg/mL: Al, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, 125 mL Li, Mg, Mn, Na, Ni, Pb, Se, Sr, Te, Tl, Zn	125 mL	N9303942
PerkinElmer Pure IX			
5% HNO ₃	100 µg/mL: As, Be, Pb, Cd, Cr, Ni, Se, Tl	125 mL	N9303943
Mercury	100 µg/mL		
5% HNO ₃	100 µg/mL: Mercury in 5% HNO ₃	125 mL	N9300223
PerkinElmer Pure X			
2% HNO ₃	35,000 µg/L: Ca 15,000 µg/L: Mg 8,000 µg/L: Na 3,000 µg/L: K 100 µg/L: B, Fe, Mo, Sr 50 µg/L: As, Ba, Ni, V, Zn 30 µg/L: Mn 25 µg/L: Co, Pb 20 µg/L: Be, Cd, Cr, Cu 10 µg/L: Bi, Se, Tl	125 mL	N9303944
Mercury	8 µg/mL		
5% HNO ₃	8 µg/mL: Mercury in 5% HNO ₃	125 mL	N9303954
PerkinElmer Pure XI			
5% HNO ₃	2500 µg/mL: Zn 900 µg/mL: Cr, Pb 800 µg/mL: Cu 200 µg/mL: Ni 10 µg/mL: Cd	125 mL	N9303945
Mercury	5 µg/mL		
5% HNO ₃	5 µg/mL: Mercury in 5% HNO ₃	125 mL	N9303949
PerkinElmer Pure XIII			
5% HNO ₃	500 µg/mL: Al 250 µg/mL: V 100 µg/mL: As, Be, Co, Cr, Cu, Fe, Mn, Ni, Pb, Zn 25 µg/mL: Cd, Se	125 mL	N9303946
PerkinElmer Pure XVII			
15% HCL/trace HF	100 µg/mL: Hf, Ir, Sb, Sn, Ta, Ti, Zr	125 mL	N9303948

PerkinElmer Pure Standards, continued

Interference Check Standards

Matrix	Contents	Vol.	Part No.
Interferents A			
5% HNO ₃	5,000 µg/mL: Al, Ca, Mg 2,000 µg/mL: Fe	500 mL	N9300226
Alternate Interferents A			
5% HNO ₃	1,000 µg/mL: Cr, Cu, Mn, Ni, Ti, V	500 mL	N9300228
Analytes B			
5% HNO ₃ /tr Tartaric Acid/tr HF	100 µg/mL: Cd, Ni, Zn 60 µg/mL: Sb 50 µg/mL: Ba, Be, Co, Cr, Cu, Mn, V 20 µg/mL: Ag 10 µg/mL: As, Tl	125 mL	N9300227
Alternate Analytes B			
5% HNO ₃ /tr Tartaric Acid/tr HF	100 µg/mL: Al, As, B, Mo, Na, Sb, Se, Tl 10 µg/mL: Ca, Fe, Mg, Si	125 mL	N9300229

Every day, you can count on PerkinElmer to provide you with solutions that deliver reliable performance, control operating costs and maximize operational time. Our complete portfolio of consumables, parts, supplies, training and service helps you meet both routine and demanding measurement challenges. We invest heavily in testing and validating our products to ensure you receive guaranteed compatibility and performance – on-time, for every instrument in your laboratory.

For a complete listing of consumables and supplies, please visit www.perkinelmer.com/supplies