

Inductively Coupled Plasma (ICP-OES & ICP-MS)



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ICP instruments that can rapidly measure lower levels of metals are finding their way into more and more labs. Because of the increasing popularity of ICP and ICP-MS, CPI International has increased our product line to meet the growing demand. Our products include a full line of high quality torches, spray chambers, nebulizers and other sample introduction supplies.

Inductively Coupled Plasma

CPI offers a wide-ranging selection of ICP-MS supplies to meet your varying instrument and analysis needs. All of our products for ICP-MS have been carefully selected to meet or exceed your analytical requirements ensuring maximum performance.

Our comprehensive list is growing as this exciting technology continues to progress. Check out our web site for the latest additions.



O-ring Free Sapphire Injectors for ICP and ICP-MS

Our sapphire injectors for ICP and ICP-MS are made from single-crystal sapphire tubes fitted into a PFA Teflon support. Sapphire injectors are ideal for the analysis of HF-containing samples, high-purity chemicals, and organic solvents. Adsorption, memory effects, and contamination problems found with molded alumina tubes are eliminated. These products achieve long lifetime due to the strength and chemical resistance of sapphire.

Agilent® 4500 and 7500

Torches and Bonnets

Description	CPI P/N	Agilent® P/N
Torch, 1.0mm Injector	4060-010453	
Torch, 1.5mm Injector, 7500	4060-010792	
Torch, 2.5mm Injector, 7500	4060-010454	
Torch, 2.5mm Injector, 4500	4060-010077	G1820-65028
Torch, Demountable HF Resistant, 4500	4060-010078	G1820-65035
Torch Shield	4060-010806	

Injectors, Supports and Adapters

Description	CPI P/N	Agilent® P/N
Injector, Alumina	4060-010079	
Injector Support, Teflon	4060-010080	G1820-65015
Ball and Socket Adapter, Quartz	4060-010196	G1820-80237

Spray Chambers

Description	CPI P/N	Agilent® P/N
Spray Chamber, Quartz, 90°	4060-010139	G1820-80443
Spray Chamber, 90°, Extended Inner Tube	4060-010165	G1820-80417
Spray Chamber, Cyclonic	4060-010200	N/A

Nebulizers

Description	CPI P/N	Agilent® P/N
Babbington V-Groove Nebulizer	4060-54	5063-5261
End Cap for Babbington	4060-691	5063-5262
High Solids Cross Flow for HP4500	4060-010390	G1820-65033
Nebulizer, Micro, 0.4ml/min, 35 PSI	4060-010158	
PFA MicroFlow Nebulizer, 100mL/min	4060-010192	

Cones

Description	CPI P/N	Agilent® P/N
Nickel Sampler (25mm Ni Insert)	4060-010032	G1820-65238
Nickel Skimmer	4060-010033	G1820-65265
Platinum Sampler (10mm Pt Insert)	4060-010034	G1820-65239
Platinum Sampler (18mm Pt Insert)	4060-010035	G1820-65360
Platinum Skimmer (7.2mm Pt Insert)	4060-010036	G1820-65237
Nickel Skimmer - 7500 Collision Cell	4060-010423	G1833-65497
Pt Ni Skimmer - 7500 Collision Cell	4060-010426	G1833-65092

Electron Multiplier

Description	CPI P/N	Agilent® P/N
Multiplier Assembly, complete, 4500	4200-010007	G1820-80386
Multiplier Assembly, complete, 7500	4200-010240	G1833-65420

Pump Tubing

Description	CPI P/N	Agilent® P/N
White-White, 0.040" Tygon Type, 12/pk	4062-440	G1820-65214
White-White, 0.040" Silicone, 6/pk	4062-240	G1820-65217
Yellow-Blue, 0.060" Mediprene, 6/pk	4062-019060	G1820-65216
Pump Tubing Kit for Internal Standard	4062-010015	G1820-65219
Orange-Red, 0.0075" Tygon Type, 12/pk For internal standard addition	4062-407	G1820-65520
Tygon type tubing, 0.060", 10ft	4062-018056	G1820-65104

PE® - SCIEX

Description	CPI P/N	PE® P/N	Elan® 9000 Series	Elan® 6000 Series	Elan® 5000 Series	Elan® 500 Series	Elan® 250 Series
Torches and Bonnets							
Torch, SHORT, ELAN	4060-010059					X	X
Torch, Long Form, 36.5mm*	4060-010057	N810-2001				X	X
Torch, ELAN, Demountable	4060-010058	N812-2006	X	X	X		
Bonnet, ELAN	4060-010060		X	X	X	X	X
* Standard Version							
Injectors							
Injector Tip, Quartz, 2.0mm	4060-010005	N069-5441			X	X	X
Quartz Injector Tip, 1.6mm, Type 1	4060-091	0047-3292	X	X	X	X	X
Quartz Injector Tip, 1.2mm	4060-092	N068-1631	X	X	X	X	X
Sample Injector Tip, Alumina, 1.5mm	4060-010180	N812-6040	X	X			
Sample Injector Tip, Alumina, 1.8mm	4060-010182	N/A	X	X			
Sample Injector Tip, Sapphire 2.0mm	4060-010184	N/A	X	X	X		
Spray Chambers							
Spray Chamber	4060-010186	N810-2031				X	X
Cyclonic Spray Chamber*	4060-010152	N812-0150	X	X	X		
Cyclonic Spray Chamber, Jacketed*	4060-010188	N/A	X	X	X		
*Requires Concentric Nebulizer							
Nebulizers							
PFA Microconcentric 20ul/min	4060-010191	N/A	X	X	X	X	X
PFA Microconcentric 50ul/min	4060-010190	N/A	X	X	X	X	X
PFA Microconcentric 100ul/min	4060-010192	N/A	X	X	X	X	X
PFA Microconcentric 400ul/min	4060-010194	N/A	X	X	X	X	X
PFA ST Microflow Nebulizer	4060-010193	N/A	X	X	X	X	X
PFA Sample Introduction Kits							
PFA High Purity Acid Resistant Upgrade Kit	4060-010540		X	X	X	X	X
PFA Semi-conductor Upgrade	4060-010577		X	X	X	X	X
PFA Organic Upgrade Kit	4060-010579		X	X	X	X	X
Cones							
Nickel Sampler	4060-010020	N810-2101				X	X
Nickel Skimmer	4060-010021	N810-2111				X	X
Nickel Sampler	4060-010022	WE01-3087			X		
Nickel Skimmer	4060-010023	N812-2000			X		
Nickel Sampler	4060-010028	WE02-1140	X	X			
Nickel Skimmer	4060-010029	WE02-1137	X	X			
Platinum Sampler	4060-010024	N810-2131				X	X
Platinum Skimmer	4060-010025	N810-2141				X	X
Platinum Sampler	4060-010026	WE10-3088			X		
Platinum Skimmer	4060-010027	N812-2035			X		
Platinum Sampler	4060-010030	WE01-4815	X	X			
Platinum Skimmer	4060-010031	WE01-4816	X	X			
Insertion Tool	4060-010085		X	X			
Electron Multipliers							
Multiplier Assembly	4200-010009	N810-1069			X	X	X
Multiplier Assembly	4200-010010	WE02-0328			5000A		
Multiplier Assembly	4200-010011	N810-5001	X	X			
Pump Tubing							
Black-Black, 0.030" PVC, 12/pk	4062-530	0990-8587	X	X	X	X	X
Red-Red, 0.045" PVC, 12/pk	4062-445	N068-0375	X	X	X	X	X
Black-Black, 0.030" Solvent Flex, 12/pk	4062-130A	0047-3550	X	X	X	X	X
Red-Red, 0.045" Solvent Flex, 12/pk	4062-145	N068-0376	X	X	X	X	X
Black-Black, 0.030" Silicone, 6/pk	4062-230	N0047-3552	X	X	X	X	X
Orange-Red, 0.0075" Tygon Type, 12/pk	4062-010005	N069-5476	X	X	X	X	X
Black-White, 0.125" Tygon Type, 12/pk	4062-4125	N812-2012	X	X			

Inductively Coupled Plasma

NEW!

**Convenience,
Corrosion Resistance,
Complete Control!**



Get it all in the ModBlock!
See page 18

**NEW! PC³
Peltier Cooled Cyclonic
Spray Chamber!**



This cooled inlet reduces oxide formation and improves sensitivity - See page 69 for more information.

**Ask about our
Internal Standard
Mixing Kit to replace
PE® part number
N069-0673;
CPI P/N 4062-019100**

**Inductively
Coupled Plasma**

**Increase ICP-MS
Sensitivity
More Than 10 Times!**



See more information on the Apex High Sensitivity Inlet System on page 72.



**For our complete
selection of CPI
Peak Performance™
Standards for ICP-MS,
see pages 74 to 91**

VG® Elemental

Torches and Bonnets

Description	CPI P/N	VG® P/N
Torch, 1.5mm	4060-010061	3201192
Torch, 2.0mm	4060-010062	3201732
Demountable Quartz Torch Body	4060-010204	1200080
Torch Body, Corrosion Resistant (CR)	4060-010206	3203095
Torch, 2.0mm	4060-010860	

Injectors

Description	CPI P/N	VG® P/N
Injector Tip, Alumina	4060-010064	1200079
Torch for Sapphire/Pt Injector	4060-010384	

Spray Chambers

Description	CPI P/N	VG® P/N
Spray Chamber, Concentric, Horizon	4060-010210	N/A
Spray Chamber, Water cooled, Quartz	4060-010212	3200841
Spray Chamber, Impact, Water Cooled	4060-010214	3204313
Quartz Torch Shield	4060-010216	3203789
Elbow Ball/Socket	4060-010218	N/A
Elbow Ball/Socket, Quartz	4060-010220	3200727

Nebulizers

Description	CPI P/N	VG® P/N
PFA Microconcentric 20ul/min	4060-010191	N/A
PFA Microconcentric 50ul/min	4060-010190	N/A
PFA Microconcentric 100ul/min	4060-010192	N/A
PFA Microconcentric 400ul/min	4060-010194	N/A
PFA ST MicroFlow Nebulizer	4060-010193	N/A

Cones

Description	CPI P/N	VG® P/N
Nickel Sampler	4060-010013	3004661
Nickel Mini-Skimmer	4060-010014	3004866
Nickel Micro-Skimmer, Enhanced Interface	4060-010015	3200860
Platinum Sampler (18mm insert)	4060-010016	3200262
Platinum Mini-Skimmer	4060-010109	N/A
Platinum Micro-Skimmer, Enhanced Interface	4060-010017	3201101
Platinum Plasmatrace Skimmer	4060-010018	3202005
Nickel Plasmatrace Skimmer	4060-010019	3200456
Platinum Plasmatrace 2 Micro Skimmer	4060-010110	3201941
Nickel Plasmatrace 2 Micro Skimmer	4060-010111	3201457
Nickel Skimmer, 0.4mm	4060-010121	3201585

Pump Tubing

Description	CPI P/N	VG® P/N
Black-Black, 0.030" PVC, 12/pk	4062-530	N/A
Red-Red, 0.045" PVC, 12/pk	4062-445Kit	N/A
Black-Black, 0.030" Solvent Flex, 12/pk	4062-130A	N/A
Red-Red, 0.045" Solvent Flex, 12/pk	4062-145Kit	N/A
Black-Black, 0.030" Silicone, 6/pk	4062-230	N/A
Orange-Red, 0.0075" Tygon Type, 12/pk	4062-407	N/A
Black-White, 0.125" Tygon Type, 12/pk	4062-0125	N/A

ORDERING COLITAG SPE TOX/AOX GC AAS ICP STANDARDS INDEX

Varian® Ultramass®

*Inductively
Coupled Plasma*

Torches and Bonnets

Description	CPI P/N	Varian® P/N
Torch, ICP-MS	4060-010068	20-100783-00
Torch Body, HF Demountable, ICP-MS	4060-010222	20-100793-90

Injectors and Holders

Description	CPI P/N	Varian® P/N
Sample Injector Tip, Quartz, 1.8mm 3/pk	4060-010144	99-100570-00
Sample Injectors, Quartz 0.8mm 3/pk	4060-010145	99-100775-00
Sample Injector Tip, Alumina, 1.8mm	4060-010071	99-100675-90
Injector Tube Holder, Teflon®	4060-010072	99-100573-00

Spray Chambers

Description	CPI P/N	Varian® P/N
Cyclonic Spray Chamber	4060-010156	20-100817-00

Nebulizers

Description	CPI P/N	Varian® P/N
PFA Micro-concentric 50µl/min	4060-010190	
PFA Micro-concentric 100µl/min	4060-010192	
PFA Micro-concentric 400µl/min	4060-010194	
Twin Bore Nebulizer, 30 psi, 3ml/min	4060-010588	20-100765-00/20-100816-00
See Page 66 for our complete line of nebulizers		

Cones

Description	CPI P/N	Varian® P/N
Nickel Sampler, (Copper Base w/1.5" Ni Insert)	4060-010105	99-100698-00
Nickel Skimmer	4060-010106	99-100699-00
Platinum Sampler (18mm Pt Insert)	4060-010107	99-100700-00
Platinum Skimmer (7.2mm Pt Insert)	4060-010108	99-100701-00
High Performance Sampler Cones, Ni	4060-010169	99-100940-00
High Performance Skimmer Cones, Ni	4060-010170	99-100941-00

Electron Multipliers

Description	CPI P/N	Varian® P/N
Multiplier Assembly	4200-010013	79-100181-00

Pump Tubing

Description	CPI P/N	Varian® P/N
Black-Black, 0.32 ml/min PVC, 12/pk	4062-430	37-100272-00
White-White, 0.60 ml/min PVC, 12/pk	4062-440	37-100344-00
Gray-Gray, 1.00 ml/min PVC, 12/pk	4062-451	37-100345-00
Blue-Blue, 1.60 ml/min PVC, 12/pk	4062-465	37-100346-00
Purple-Purple, 2.50 ml/min PVC, 12/pk	4062-481	37-100273-00

Please see page 70 for our complete line of pump tubing

See our complete
selection of pump
tubing on page 70



**Inductively
Coupled Plasma**



**O-ring Free Sapphire
Injectors for ICP and
ICP-MS**

Our sapphire injectors for ICP and ICP-MS are made from single-crystal sapphire tubes fitted into a PFA Teflon support. Sapphire injectors are ideal for the analysis of HF-containing samples, high-purity chemicals, and organic solvents. Adsorption, memory effects, and contamination problems found with molded alumina tubes are eliminated. These products achieve long lifetime due to the strength and chemical resistance of sapphire.

See our complete line
of PFA Teflon Nebulizers
and Spray Chambers on
page 68.

Finnigan® ICP-MS

Torches and Bonnets

Description	CPI P/N	Finnigan® P/N
Torch Standard, 1 piece	4060-010073	
Torch Demountable	4060-010074	
Torch, Fixed Element	4060-010075	

Injectors, Holders and Elbows

Description	CPI P/N	Finnigan® P/N
Injector, Quartz	4060-010076	
Elbow Ball/Socket Borosilicate	4060-010226	
Elbow Ball/Socket, Quartz	4060-010332	

Spray Chambers

Description	CPI P/N	Finnigan® P/N
Spray Chamber, Water Cooled, Borosilicate	4060-010228	
Spray Chamber, Water Cooled, Quartz	4060-010230	
Spray Chamber Element, Water Cooled	4060-010232	
Spray Chamber, Element, Water Cooled, Quartz	060-010234	

Nebulizers

Description	CPI P/N	Finnigan® P/N
PFA Microconcentric 20ul/min	4060-010191	N/A
PFA Microconcentric 50ul/min	4060-010190	N/A
PFA Microconcentric 100ul/min	4060-010192	N/A
PFA Microconcentric 400ul/min	4060-010194	N/A
PFA ST MicroFlow Nebulizer	4060-010193	N/A

Cones

Description	CPI P/N	Finnigan® P/N
Nickel Sampler, (Copper Base w/1.5" Ni Insert)	4060-010100	TS067014
Nickel Skimmer	4060-010101	FS067021
Nickel Accelerator	4060-010102	FS067019
Platinum Sampler (18mm Pt Insert)	4060-010103	TS067004
Platinum Skimmer (7.2mm Pt Insert)	4060-010104	TS067016
Platinum Skimmer (N) (6.35) - TS067016	4060-010086	1067510
Nickel Skimmer (N) - TS067015	4060-010087	1044540
Skimmer Fitting Tool - FS067017B	4060-010088	1044850
Aluminum Sample Cone	4060-010089	1044530-AI
Aluminum Sample Cone (H)	4060-010090	1067600-AI

Electron Multipliers

Description	CPI P/N	Finnigan® P/N
Multiplier Assembly, for Element I	4200-010242	
Multiplier Assembly, for Element II	4200-010243	

Pump Tubing

Description	CPI P/N	Finnigan® P/N
Black-Black, 0.030" PVC, 12/pk	4062-530	N/A
Red-Red, 0.045" PVC, 12/pk	4062-445Kit	N/A
Black-Black, 0.030" Solvent Flex, 12/pk	4062-130A	N/A
Red-Red, 0.045" Solvent Flex, 12/pk	4062-145Kit	N/A
Black-Black, 0.030" Silicone, 6/pk	4062-230	N/A
Orange-Red, 0.0075" Tygon Type, 12/pk	4062-010005	N/A
Black-White, 0.125" Tygon Type, 12/pk	4062-4125	N/A

ICP-MS Standards

ICP-MS Calibration Standard			
CPI P/N		Volume	
4400-ICP-MSCS		250mL	
µg/mL in 5% HNO ₃ + tr HF			
Al	10	Mn	10
As	10	Mo	10
Ag	10	Na	10
Ba	10	Ni	10
Be	10	Pb	10
B	10	Sb	10
Ca	10	Sc	10
Co	10	Se	10
Cd	10	Sr	10
Cr	10	Th	10
Cu	10	Tl	10
Eu	10	U	10
Ho	10	V	10
La	10	Yb	10
Li	10	Zn	10
Mg	10		

ICP-MS Interference Check Solutions					
CPI P/N		Volume			
4400-ICP-MS-ICS		100mL			
µg/mL in 2% HNO ₃ + tr HF					
Solution A			Solution B		
Al	500.0	Ag	0.10	Mg	500.00
C	1000.0	Al	500.00	Mo	10.00
Ca	500.0	As	0.10	Mn	0.10
Cl	3600.0	C	1000.00	Na	500.00
Fe	500.0	Ca	500.00	Ni	0.20
K	500.0	Cd	0.05	P	500.00
Mg	500.0	Cl	3600.00	Se	0.10
Mo	10.0	Co	0.20	S	500.00
Na	500.0	Cr	0.10	Ti	10.00
P	500.0	Cu	0.10	V	0.20
S	500.0	Fe	500.00	Zn	0.10
Ti	10.0	K	500.00		

Calibration Standard			
CPI P/N		Volume	
4400-ICPMS-250		250mL	
µg/mL in 2% HNO ₃ + tr HF			
Be	10	Pb	10
Bi	10	Mg	10
Ce	10	Ni	10
Co	10	U	10
In	10		

Standard I			
CPI P/N		Volume	
4400-ICPMS1		250mL	
µg/mL in 5% HNO ₃			
Ce	10	Pr	10
Dy	10	Sm	10
Er	10	Sc	10
Eu	10	Tb	10
Gd	10	Th	10
Ho	10	Tm	10
La	10	Yb	10
Lu	10	Y	10
Nd	10		

Standard III			
CPI P/N		Volume	
4400-ICPMS3		250mL	
µg/mL in 10% HCl			
Au	10	Rh	10
Hf	10	Ru	10
Ir	10	Sb	10
Pd	10	Sn	10
Pt	10	Te	10

Standard IV			
CPI P/N		Volume	
4400-010027		250mL	
µg/mL in 5% HNO ₃ + tr HF			
B	10	S	10
Ge	10	Si	10
Mo	10	Ta	10
Nb	10	Ti	10
P	10	W	10
Re	10	Zr	10

Internal Standard			
CPI P/N		Volume	
4400-010034		100mL	
µg/mL in 1% HNO ₃			
⁶ Li	100	⁸⁹ Y	100
⁴⁵ Sc	100	¹¹⁵ In	100
¹⁵⁹ Tb	100	²⁰⁹ Bi	100

Tuning Solution for HP 4500®			
CPI P/N		Volume	
4400-010035		100mL	
µg/mL in 5% HNO ₃			
Ce	10	Tl	10
Li	10	Y	10

*Inductively
Coupled Plasma*



*For our complete
selection of CPI
Peak Performance™
Standards for ICP-MS,
see pages 74 to 91*

NEW!

**Convenience,
Corrosion Resistance,
Complete Control!**



Get it all in the ModBlock!
See page 18

Inductively Coupled Plasma



Multiplier for PE-SCIEX 6000,
CPI P/N 4200-010011



Multiplier for HP/Agilent 4500 ICP-MS,
CPI P/N 4200-010007



Multiplier for VG PQ2/2+
with SXP 300 Rods,
CPI P/N 4200-010015



Noble RF Load Coil

ICP-MS Electron Multipliers

CPI offers electron multipliers for PE/Sciex®, VG® Elemental, Hewlett-Packard®, Varian® and TJA® ICP-MS systems. These products are direct replacements for the OEM installed multiplier and are guaranteed to meet your expectations for performance. Count on CPI to serve all your electron multiplier needs.

Description	CPI P/N	Replaces OEM p/n
PerkinElmer®/Sciex® Type Multipliers		
Multiplier Assembly, ELAN® 250/500/5000	4200-010009	N810-1069
Multiplier Assembly, ELAN® 5000A	4200-010010	WE02-0328
Multiplier Assembly, ELAN® 6000	4200-010011	N812-5001
VG Elemental® Type Multipliers		
Multiplier, VG PQ2, PQ2+ (12-12 Rods)	4200-010014	
Multiplier, VG PQ2, PQ2+ (SXP Rods)	4200-010015	2027814
Multiplier, VG Genesis	4200-010016	2201718
Multiplier, VG PQ3 (Dual Mode)	4200-010017	2027814
Multiplier, VG PQ3 (Single Mode)	4200-010015	2027814
HP/Agilent® Type Multipliers		
Multiplier Assembly, 4500	4200-010007	G1820-80386
Multiplier Assembly, 7500	4200-010240	G1833-65420
Varian® Type Multipliers		
Multiplier Assembly, Ultramass®	4200-010013	79-100181-00
TJA® Type Multipliers		
Multiplier Assembly, POEMS®	4200-010012	135784-01

RF Coils

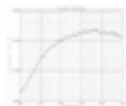
The Gold-Standard for ICP-MS

Introducing the Noble Coil - a new product with Patent Pending design features to create a barrier to prevent copper atom migration.

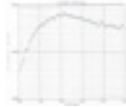
Today's ICP-MS applications are demanding on instrumentation. The Noble Coil will eliminate virtually all oxidation and scaling. Its unique design provides for optimum RF coupling efficiency for the life of the coil. The Au metal surface decreases the possibility of arcing - a major cause of torch and coil destruction.

This patented design results in longer life when compared to standard copper coils.

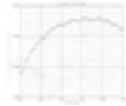
The representations below are RF power optimization plots of three RF coils on a PE Elan® 6000.



Maximum intensity 337,000 cts



Maximum intensity 281,000 cts (note misshapen curve)



Maximum intensity 358,000 cts

The instrument was fully optimized prior to this test. The test solution is 10ppb Rh in 1% nitric. Only the coils were changed between tests.



New Copper Coil



Four Month Old Copper Coil



Four Month Old Noble Coil

RF Coils

Noble Coil for PE Elan 9000/6X00/DRC	4060-010880
Standard Copper Coil for PE Elan 9000/6X00/DRC	4060-010881
Noble Coil for PE 5000	4060-010882
Standard Copper Coil for PE 5000	4060-010883

Cones For ICP-MS

CPI Skimmer and Sampler cones for popular ICP-MS instrumentation are the choice of leading instrument OEM's, and are guaranteed to meet or exceed your expectations. These highly precise components are produced using a proprietary combination of electroforming and CNC matching techniques. This allows the ability to produce the sharpest hole edges, highest surface finishes and perfectly tapered holes, all of which help minimize gas disturbances and cooling technology to conduct heat away from the tip. This prevents melting or burning due to the low thermal conductivity of nickel, and thus greatly expanding peak sensitivity and cone lifetime. You will be impressed with the quality and performance of these industry-leading products.

*Inductively
Coupled Plasma*



Cones For ICP-MS		
Description	CPI P/N	Replaces OEM P/N
VG® Elemental Type Cones		
Nickel Sampler - with Fixing Holes	4060-010093	3004661
Nickel Miniskimmer	4060-010014	3004866
Nickel Micro-Skimmer (N), Enhanced Interface	4060-010015	3200860
Nickel Skimmer, 0.4 Hole - Eclipse	4060-010121	3201585
Platinum Sampler (10mm insert)	4060-010016	3200262
Platinum Microskimmer (7.2mm insert)	4060-010017	3201101
Nickel Plasmatrace Skimmer	4060-010019	3200456
Platinum Skimmer PT2 (7.2mm insert)	4060-010749	3201941
Nickel Sampler (HP) "supercone" AXIOM	4060-010091	1600485
Platinum Sampler (HP) "supercone" AXIOM	4060-010092	1600335
PerkinElmer - SCIEX Type Cones		
Nickel Sampler-250/500	4060-010020	N810-2101
Nickel Skimmer-250/500	4060-010021	N810-2111
Nickel Sampler-5000	4060-010022	WE01-3087
Nickel Skimmer-5000	4060-010023	N812-2000
Platinum Sampler-250/500	4060-010024	N810-2131
Platinum Skimmer-250/500	4060-010025	N810-2141
Platinum Sampler-5000 (10mm insert)	4060-010026	WE10-3008
Platinum Skimmer-5000 (10mm insert)	4060-010027	N812-2035
Nickel Sampler-6000	4060-010028	WE02-1140
Nickel Skimmer-6000	4060-010029	WE02-1137
Platinum Sampler-6000 (10mm insert)	4060-010030	WE01-4815
Platinum Skimmer-6000 (7.2mm insert)	4060-010031	WE01-4816
6000 Cone Insertion Tool	4060-010085	WE01-7142
Hewlett Packard / Yokagawa / Agilent Type Cones		
Nickel Sampler (25mm Ni insert in Cu)	4060-010032	G1820-65238
Nickel Skimmer	4060-010033	G1820-65265
Platinum Sampler (10mm Pt insert)	4060-010034	G1820-65239
Platinum Skimmer (7.2mm Pt insert)	4060-010036	G1820-65237
Nickel Skimmer - HP7500 Collision cell	4060-010423	G1833-65497
Pt Ni Skimmer - HP7500 Collision cell	4060-010426	G1833-65092
Finnigan Type Cones		
Nickel Sampler - TS067014	4060-010100	1044530
Nickel Skimmer (H) - FS067021 -01141A	4060-010101	1067600
Nickel Accelerator - FS067019	4060-010102	067019A
Platinum Sampler (6.35) - TS067004	4060-010103	1067500
Platinum Skimmer (H) (6.35mm insert)	4060-010104	1047460
Platinum Skimmer (N) (6.35) - TS067016	4060-010086	1067510
Nickel Skimmer (N) - TS067015	4060-010087	1044540
Skimmer Fitting Tool - FS067017B	4060-010088	1044850
Aluminum Sample Cone	4060-010089	1044530-AI
Aluminum Sample Cone (H)	4060-010090	1067600-AI
Varian Type Cones		
Nickel Skimmer	4060-010106	99-100698-00



Inductively Coupled Plasma

Count on CPI

CPI supplies a full range of ICP glassware designed for all popular makes and models of ICP Spectrometers including Thermo Jarrell Ash®, PerkinElmer®, Leeman®, Spectro®, Varian®, ISA/Jobin Yvon®, Thermo ARL®, and Thermo Baird®. These parts are engineered for reliable performance and durability and made to exacting specifications. All CPI brand torches, spray chambers and nebulizers are guaranteed to be compatible with your instrumentation.



Ceramic Base Radial Torch for TJA ICP Spectrometers, CPI P/N 4060-36.



Cross Flow Nebulizer for TJA ICP's CPI P/N 4060-38. The platinum sample introduction stem is recessed to prevent breakage.



High Solids Teflon® Nebulizer for TraceScan®, CPI P/N 4060-694.

TJA®

Torches and Injectors

Description	CPI P/N	TJA® P/N	2000 2200, 2400	975, 9000, 61, 1100	61E PolyScan® AtomScan® 16, 25, Advantage® Radial Iris, POEMS	Trace® Advantage® Axial TraceScan®, Iris AP®
Torch, for ICP 2000-2400	4060-31	190400-73	x			
Torch and Removable Tip, Standard	4060-30	190400-54		x		
Torch and Tip (4060-30), and one spare tip	4060-30TT	N/A		x		
Ceramic Base Torch & Tip, High Flow/Low Flow	4060-36	126432-02			x	
Ceramic Base Torch & Tip, High Flow	4060-35	126432-01			x	
Ceramic Base Torch & Tip, High Flow Organics/Oils	4060-37	125124-01			x	
Ceramic Base Torch & Tip, Dual View	4060-010133					
Injector Tip, Aqueous	4060-35T	125407-00			x	x
Injector Tip, Organics/Oils	4060-36T	125407-01			x	x
Injector Tip, 2.0	4060-010048	136502-01			x	x
Injector Tip, 2.4	4060-010049	136502-02			x	x
Torch, Axial, with tip	4060-39	126440-03/126432-03				x
Injector Tube, Alumina, 1.5mm	4060-010160	136436-01			x	x
Injector Tube, Sapphire 1.8mm	4060-010322	N/A			x	x

Accessories

Description	CPI P/N	TJA® P/N	2000 2200, 2400	975, 9000, 61, 1100	61E PolyScan® AtomScan® 16, 25, Advantage® Radial Iris, POEMS	Trace® Advantage® Axial TraceScan®, Iris AP®
Torch Bonnet	4060-07	190400-75	x	x		
Torch Extension	4060-010284			x		
Torch Extension with Optical Port	4060-010286			x		
Anti Arc Cap, flat edge	4060-40	085207-01			x	
Anti-Arc Cap	4060-41	085207-00			x	
Center Tube O'Ring	4060-010161	125847-00			x	x

Spray Chambers & Accessories

Description	CPI P/N	TJA® P/N	2000 2200, 2400	975, 9000, 61, 1100	61E PolyScan® AtomScan® 16, 25, Advantage® Radial Iris, POEMS	Trace® Advantage® Axial TraceScan®, Iris AP®
Spray Chamber, for ICP 2000-2400	4060-32	127947-00	x			
Aerosol Baffle	4060-94	003952-00	x	x	x	
Cyclonic Spray Chamber	4060-010288	N/A	x	x		
Spray Chamber, HF Resistant, Teflon	4060-010008	N/A	x	x	x	x
Spray Chamber, Standard	4060-90	190400-65		x		
Spray Chamber, Curved Drain	4060-010290			x		
Spray Chamber, Open Ends	4060-92	130089-00			x	
Spray Chamber, Water Cooled, Open Ends	4060-010292				x	
Cyclonic Spray Chamber, 61E	4060-511	136120-00			x	
Cyclonic Spray Chamber, for TraceScan	4060-51	134620-00				x
Cyclonic Spray Chamber, two-part design	4060-52	134200-00				x
O'Ring for Spray Chamber, Iris (4060-511)	4060-010142	134556-00				x

TJA® (con't)

Nebulizers

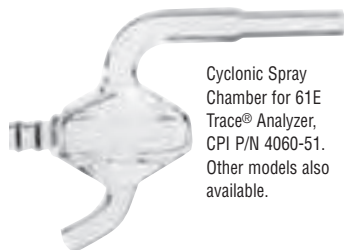
Description	CPI P/N	TJA® P/N	2000			61E PolyScan® AtomScan® 16, 25, Advantage® Radial Iris, POEMS	Trace® Advantage® Axial TraceScan®, Iris AP®
			2200, 2400	975, 9000, 61, 1100			
Cross Flow Nebulizer	4060-38	126989-00	x	x	x		
O-Ring for Cross Flow Nebulizer	4060-381	133202-50	x	x	x		
Argon Inlet Fitting for CPI Cross Flow Nebulizer, 1/pk	4060-382	N/A	x	x	x		
High Solids Teflon Nebulizer and fittings	4060-694	136388-00			x		x
Nebulizer, 30psi, 0.7 L/min Ar, 2ml/min w/ fitting	4060-010592	134365-00			x		x
PFA Microconcentric Nebulizer 50ul/min	4060-010190				x		x
PFA Microconcentric Nebulizer 100ul/min	4060-010192				x		x
PFA Microconcentric Nebulizer 400ul/min	4060-010194				x		x
Babbington, V-Groove Nebulizer, Peek	4060-54				x		x

General Tubing

Description	CPI P/N	Application/OEM P/N
Teflon® Tubing, 3/16 id x 5/16 od (Specify custom length)	4061-01	miscellaneous
Teflon® Tubing, .026 id x .050 od (Specify custom length)	4097-302	TJA® / 133006-00 / 042982-00
Teflon® Tubing, .020 id, for TJA® Sipping Probe, 1 ft	4097-308	See CPI P/N 4097-30
Teflon® Tubing, .031 id, for TJA® Sipping Probe, 1 ft	4097-309	See CPI P/N 4097-30
Teflon® Tubing, .063 id x .125 od (Specify custom length)	4097-322	TJA® / 043437-00
Teflon® Tubing, .6mm id, 10 ft	4060-38TT	TJA® / 311390-14

TJA® ICP Autosampler Supplies

Description	CPI P/N	TJA® P/N
Sipping Probe, for ISC-75, TJA-150, AS-300, 2/pk	4097-30	042982-00/133006-00
Injector Tip, FASTAC II, Autosampler, 5/pk	4060-110	043719-00
Ultem Tubing Probes, 50/pk	4060-010173	132971-50
Sample Tube, Polypropylene, 16-17mm x 100mm, 1000/pk	4092-320	n/a
Sample Tube, Polypropylene, 13mm x 100mm, 1000/pk	4092-327	n/a
Sample Tube, Polystyrene, 13mm x 100mm, 1000/pk	4092-324	n/a
Sample Tube, Polypropylene, 12mm x 75mm, 1000/pk	4092-330	n/a
Sample Tube, Polystyrene, 17mm x 100mm, 1000/pk	4092-010001	n/a



Cyclonic Spray Chamber for 61E Trace® Analyzer, CPI P/N 4060-51. Other models also available.



Ceramic Base Axial Torch for TraceScan® Analyzer, CPI P/N 4060-39.



Get it all in the ModBlock!
See page 18

Inductively Coupled Plasma

Try our Internal Standard Mixing Kit for TJA Tracescan® instrumentation, CPI P/N 4062-910. This product allows for the simultaneous introduction of sample and internal standard.

New!

**Try our Ozone-Free Mercury Lamp to replace TJA part number 126345-00
CPI P/N 4060-010140**

NEW!

Convenience, Corrosion Resistance, Complete Control!

**Inductively
Coupled Plasma**



Mini Spray Chamber for ARL®,
CPI P/N 4060-72.



Mini Torch for
ARL®, CPI P/N
4060-71.

ARL®

Torches and Injectors

Description	CPI P/N	ARL® Thermo P/N
Torch, Maxi	4060-70	139009-0003
Standard Torch, 20mm	4060-010236	
ICPQ Torch	4060-010238	137000-0000
Torch, Nitrogen	4060-010240	173127-0000
Torch Body, HF/C	4060-010043	173131-0000
Injector Tip, Alumina	4060-010064	1200079
Torch, Mini	4060-71	173463-0000
Torch Body, Mini, HF/CR	4060-010041	173473-0000
Torch, Nitrogen, Mini	4060-010242	170692-0000
Torch, Fisons/ARL Maxim 1 & 3	4060-701	S111403
Torch, Maxim, HF/CR	4060-010244	S213787
Torch Extension	4060-010246	

Accessories

Description	CPI P/N	ARL® Thermo P/N
Torch Extension with Optical Port	4060-010248	
Torch Bonnet	4060-010250	
Torch Bonnet, Induction Coil M/S	4060-010252	173251-0000
Argon Snout Tube	4060-010254	170631-0000
Teflon Insert for HF Torch	4060-010256	
Teflon Insert, Adjustable	4060-010258	
Teflon Coated O-rings for Torch 5/pk	4060-711	
Torch Bonnet, Mini	4060-010260	173252-0000
Argon Snout Tube, Mini	4060-010262	170693

Spray Chambers

Description	CPI P/N	ARL® Thermo P/N
Spray Chamber	4060-75	173142-0000
Spray Chamber, MDSN	4060-78	173142-0001
Teflon Insert for MDSN Chamber	4060-010264	
Spray Chamber with Impact Bead	4060-010266	139008-0000
Spray Chamber, Open End	4060-010268	
Cyclonic Spray Chamber, 12/5, 10mm	4060-010042	N/A
Spray Chamber, HF Resistant, Teflon	4060-010008	
Spray Chamber, Mini	4060-72	173142-0002
Spray Chamber, Mini, MDSN	4060-010270	173142-0003
Spray Chamber, Mini, Cooled	4060-76	173142-0004
Spray Chamber, Maxim, Cooled	4060-010272	S702174
Spray Chamber, Fisons/ARL Maxim 1 & 3 /I2000	4060-751	S702171
Drain Trap, Fisons/ARL Maxim 1 & 3 /I2000	4060-752	S702232
Teflon Coated O-rings for Chamber	4060-010274	
Spray Chamber	4060-25	3200841

Nebulizers

Description	CPI P/N	ARL® Thermo P/N
Glass Nebulizer 30psi, 1.0 L/Min Ar, 3ml/min	4060-010588	
Glass Nebulizer 35psi, 0.7 L/Min Ar, 2ml/min	4060-010276	

Torches and Injectors

Description	CPI P/N	Leeman® P/N	Precision P/N
Torch, with Ball Joint, Aqueous	4060-12	120-3748	550-20
Torch, with Ball Joint, Oils	4060-14	120-3749	550-22
Torch, Demountable	4060-88	318-0001	550-43
Quartz Injection Tube	4060-89	318-0004	550-45
Torch, Square End	4060-10	N/A	550-10
Torch, Beveled End (45 degree angle)	4060-11	318-0016	550-05
Torch, Direct Injection Nebulizer	4060-86	N/A	
Torch, Demountable, with Injector Tube	4060-84	120-3010	
Torch, Axial (PS Series), with Ball Joint	4060-121	120-00200-1	550-50
Torch, Aqueous, Tandem	4060-13	318-00026	550-30
Torch, Aqueous, Tandem Axial	4060-13A	318-00027	550-32
Torch, Aqueous, Dual View, DRE	4060-010146	318-00065	550-65
Torch, Aqueous, Axial, DRE	4060-010164	318-00064	550-64
Torch, Demountable, Axial, Aqueous/Organics	4060-010151	318-00063	550-69

Spray Chambers & Accessories

Description	CPI P/N	Leeman® P/N	Precision P/N
Spray Chamber, with Drain	4060-87	120-3751	50-25
Cyclonic Spray Chamber, Axial	4060-010155	N/A	OEM
Spray Chamber, Axial	4060-010167	310-00049	550-55

Nebulizers

Description	CPI P/N	Leeman® P/N	Precision P/N
Teflon Parallel Path, Long Nose	4060-694	N/A	

Pump Tubing

Description	CPI P/N	Leeman® P/N	Precision P/N
Orange, 0.020", PVC, 12/pk	4062-920	309-3551	
Black, 0.030", PVC, 12/pk	4062-930	309-3552	
Red, 0.045", PVC, 12/pk	4062-945	309-3538	
Disposable Uptake Line, for PS1000/2000/3000, 1/pk	4062-905	120-00168	

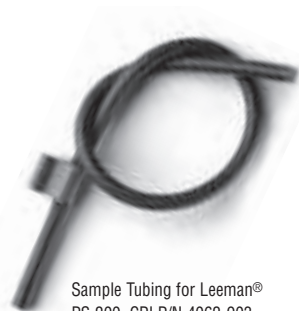
Inductively Coupled Plasma



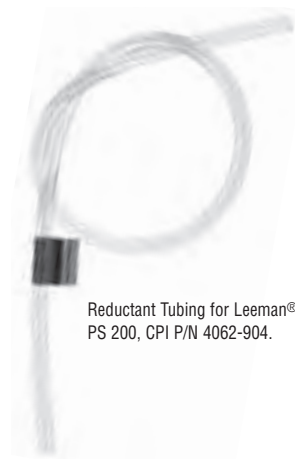
Torch with ball joint for aqueous samples (CPI P/N 4060-12) and Quartz Injector Tube for Demountable Torch (CPI P/N 4060-89).

CPI Performance Point

Did you know that the temperature of the plasma can reach 8000k?



Sample Tubing for Leeman® PS 200, CPI P/N 4062-903. Also available in PVC P/N 4062-010004



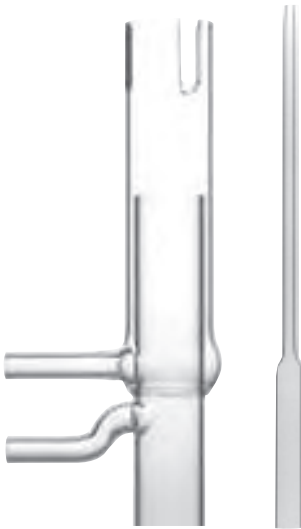
Reductant Tubing for Leeman® PS 200, CPI P/N 4062-904.



Disposable Sample Uptake Line for Leeman® PS 1000 / 2000 / 3000 ICP. CPI P/N 4062-905, 1/pk.

ORDERING COLTAG AXIAL SPE TOX/AX GC SPE AAS ICP STANDARDS IN

**Inductively
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Torch Body with slots, Type II (CPI P/N 4060-04) and Quartz Injector Tip (CPI P/N 4060-09).

See page 62 for
PE® OPTIMA®
type supplies.



Spray Chamber for PerkinElmer®, CPI P/N 4060-81.

PE® ICP

Torches

Description	CPI P/N	PE® P/N	Plasma®		ICP				
			1000, 2000	Plasma® II	Plasma® 40 & 400	5000 6000	ICP 5500	ICP 5500B	ICP 6500
Torch Body, Slots and Side Arms Type II	4060-04	N058-0528	x	x	x				x
Torch Body Type I, Demountable with Slots	4060-06	N058-0376		x	Plasma 40 Only				
Torch Body with Side Arms, Wear Metals Type II	4060-02	N068-1690			x				
Torch, One Piece with Ball Joint	4060-01	0047-2048				x	x	x	x
Torch Body, Demountable Type I	4060-05	N058-0233							x
Torch, No Slots, PE400	4060-010125	N/A			x				
Quartz Injector Tip, 1.2mm	4060-092	N068-1631	x	x	x				x
Quartz Injector Tip, 1.6mm	4060-091	0047-3292	x	x	x				x
Quartz Injector Tip, 1.2mm, Type I	4060-010356			x					x
Quartz Injector Tip, 1.6mm, Type I	4060-010358	N058-0449		x					x
Alumina Injector, 2.0mm Type II, OPTIMA 3000	4060-010172	N058-2184	x	x	x				x
Alumina Injector, 1.5mm Type II, OPTIMA 3000	4060-010163	N058-2185	x	x	x				x

Injectors

Description	CPI P/N	PE® P/N	Plasma®		ICP				
			1000, 2000	Plasma® II	Plasma® 40 & 400	5000 6000	ICP 5500	ICP 5500B	ICP 6500
Injector/Torch Support Adapter with O'rings	4060-010113	N058-2248	x	x	x				x
Quartz Bonnets	4060-08	N058-2235	x	x					
Purge Extension Window	4060-085	N058-1497	x	x					
Purge Extension	4060-010114	N068-1234			x				
Torch Extension	4060-010360	0047-3052				x		x	x
Torch Extension, Slotted	4060-010294	0047-3560				x		x	x
Torch Bonnet	4060-07	0047-2033				x	x	x	x
Purge Tube	4060-010296	0047-3187				x		x	x
Purge Tube for Slotted Extension	4060-010298	0047-3561				x		x	x

Spray Chambers and Accessories

Description	CPI P/N	PE® P/N	Plasma®		ICP				
			1000, 2000	Plasma® II	Plasma® 40 & 400	5000 6000	ICP 5500	ICP 5500B	ICP 6500
Spray Chamber, Type II, Glass	4060-82	N/A	x	x	x				x
Spray Chamber, Glass	4060-80	0047-2047				x	x	x	x
Spray Chamber, Concentric, Glass	4060-81	N/A				x	x	x	x
Spray Chamber, HF Resistant, Teflon	4060-010008	N/A	x	x	x	x	x	x	x

Nebulizers

Description	CPI P/N	PE® P/N	Plasma®		ICP				
			1000, 2000	Plasma® II	Plasma® 40 & 400	5000 6000	ICP 5500	ICP 5500B	ICP 6500
Twin Bore Nebulizer 30psi, 1L/min Ar, 3ml/min C-Type/ 0047-2020-A-Type	4060-010588	0047-2022-	x	x	x	x	x	x	x
Twin Bore Nebulizer 30psi, 0.7L/min Ar, 2-3ml/min	4060-010572	N068-1574	x	x	x	x	x	x	x

See our complete selection of nebulizers on page 66.

ORDERING COLITAG SPE TOX/AOX GC AAS ICP STANDARDS INDEX

PE[®] ICP (cont)

Pump Tubing

Description	CPI P/N	PE [®] P/N	Plasma [®]		ICP				
			1000, 2000	Plasma [®] II	Plasma [®] 40 & 400	5000 6000	ICP 5500	ICP 5500B	ICP 6500
Black-Black, 0.030" PVC, 12/pk	4062-530	0990-8587	x	x	x	x	x	x	x
Red-Red, 0.045" PVC, 12/pk	4062-445Kit	N068-0375	x	x	x	x	x	x	x
Black-Black, 0.030" Solvent Flex, 12/pk	4062-130A	0047-3550	x	x	x	x	x	x	x
Red-Red, 0.045" Solvent Flex, 12/pk	4062-145Kit	N068-0376	x	x	x	x	x	x	x
Black-Black, 0.030" Silicone, 6/pk	4062-230	N0047-3552	x	x	x	x	x	x	x
Orange-Red, 0.0075" Tygon Type, 12/pk	4062-010005	N069-5476	x	x	x	x	x	x	x
Black-White, 0.125" Tygon Type, 12/pk	4062-4125	N812-2012	x	x	x	x	x	x	x

Inductively Coupled Plasma

NEW!

Convenience, Corrosion Resistance, Complete Control!



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See page 18

Wavelength Calibration Standard

Wavecal 1 for PE [®] 40, 400, 1000, 2000				Wavecal 2 for PE [®] 6000, 6500 (XR)			
CPI P/N	Volume			CPI P/N	Volume		
4400-010130	100mL			4400-010128	100mL		
4400-010131	500mL			4400-010129	500mL		
µg/mL in 2% HCl				µg/mL in 2% HCl			
As	20	Mn	20	P	100	Ba	50
K	100	Mo	20	S	100	Mn	20
La	20	Na	20	Sc	20	Sc	20
Li	20	Ni	20	Be	20	Ni	20
				La	20	Zn	20

Wavecal

These standards are used to center the analyte peak in the instrument window prior to analysis.

Wavecal 3 for Optima 3000 [®] VIS				Wavecal 4 for Optima 3000 [®] UV			
CPI P/N	Volume			CPI P/N	Volume		
4400-010124	100mL			4400-010126	100mL		
4400-010125	500mL			4400-010127	500mL		
µg/mL in 2% HNO ₃				µg/mL in 2% HCl			
Ba	1	La	10	Mn	10	As	20
Ca	1	Li	10	Na	10	K	100
K	50			Sr	10	La	20
						Na	20
						Sc	20
						Li	20
						Ni	20

For a complete selection of CPI Peak Performance[™] Standards, see pages 74-91

Optima 3000 [®] Multielement Standard				Optima 3000 [®] Low UV Standard			
CPI P/N	Volume			CPI P/N	Volume		
4400-010200	100mL			4400-010202	100mL		
4400-010201	500mL			4400-010203	500mL		
µg/mL in 2% HNO ₃				µg/mL in 2% HNO ₃			
As	50	Mg	1	K	50	Al	10
Ba	1	Mn	10	Zn	10	P	10
La	10	Ni	10			S	10

NEW!

Specialized mixes for PerkinElmer[®] Optima[®] 3000 ICPs.

**Inductively
Coupled Plasma**

**NEW! PC³
Peltier Cooled Cyclonic
Spray Chamber!**



This cooled inlet reduces oxide formation and improves sensitivity – See page 69 for more information.



**O-ring Free Sapphire
Injectors for ICP and
ICP-MS**

Our sapphire injectors for ICP and ICP-MS are made from single-crystal sapphire tubes fitted into a PFA Teflon support. Sapphire injectors are ideal for the analysis of HF-containing samples, high-purity chemicals, and organic solvents. Adsorption, memory effects, and contamination problems found with molded alumina tubes are eliminated. These products achieve long lifetime due to the strength and chemical resistance of sapphire.

PE[®] OPTIMA[®]

Description	CPI P/N	PE [®] P/N	OPTIMA [®] 2000 & 4300	OPTIMA [®] 3000 & 3000 SC	OPTIMA [®] 3000 XL & 3000SC (X)	OPTIMA [®] 3000 DV
Torches and Injectors						
Torch Body, for OPTIMA 2000, 4000	4060-030	N077-0338	x			
Torch Body, for OPTIMA 3000 Radial	4060-03	N069-0568		x		
Horizontal Torch, for PE OPTIMA 3000XL	4060-031	N069-5379			x	
Torch OPTIMA, 3000DV, 1 Slot	4060-010051	N069-1662				x
Torch OPTIMA, 3000DV, 2 Slots	4060-032	N/A	x			
Quartz Injector 2.0mm ID, for Optima 2000, 4000	4060-010997		x			
Injector OPTIMA 3000, 1.2mm	4060-092	N069-1631		x		
Injector OPTIMA 3000, 1.6mm	4060-010052	N069-5448		x		
Injector OPTIMA 3000, 2.0mm	4060-010005	N069-5441		x		
Injector OPTIMA 3000 XL, 1.6mm	4060-034	N068-5449			x	x
Injector OPTIMA 3000 XL, 2.0mm	4060-033	N068-5442			x	x
Alumina Injector OPTIMA 3000 XL/DV 2.0mm	4060-010148	N069-5362			x	x
Alumina Injector, 2.0mm Type II, OPTIMA 3000	4060-010172	N058-2184		x		
Sapphire Injector	4060-010336					
Accessories						
Torch Bonnet OPTIMA, Flat Edge	4060-071	N069-5295		x		
Purge Extension Window	4060-085	N058-1497		x		
Quartz Bonnet, for OPTIMA 3000	4060-072	N069-5456		x		
Quartz Bonnet, for OPTIMA 3000DV	4060-010150	N069-1654			x	x
Purge Tube Window, Axial	4060-010157	N069-1678				x
Purge Tube Window, Radial	4060-010116	N069-1689				x
Purge Tube Window, Radial, Short	4060-010168	N069-0672				x
Purge Tube, OPTIMA DV	4060-010112	N069-1646				x
Spray Chambers & Accessories						
Spray Chamber with Baffle, for Optima 2000, 4000	4060-010927		x			
Spray Chamber without Baffle, for Optima 2000, 4000	4060-010790		x			
Spray Chamber, Type II, Glass	4060-82	N/A		x		
Cyclonic Spray Chamber, OPTIMA 3000	4060-010050	N/A		x		
Cyclonic Spray Chamber, OPTIMA 3000XL with Baffle	4060-083	N812-2188			x	x
Cyclonic Spray Chamber, OPTIMA 3000XL without Baffle	4060-010498				x	x
Nebulizers						
Twin Bore Nebulizer 30psi, 1L/min Ar, 3ml/min	4060-010588	0047-2022-C-Type		x	x	x
Twin Bore Nebulizer 30psi, 0.7L/min Ar, 2-3ml/min	4060-010572	N068-1574		x	x	x
See our complete selection of Nebulizers on page 66.						
Pump Tubing						
Black-Black, 0.030" PVC, 12/pk	4062-530	0990-8587		x	x	x
Red-Red, 0.045" PVC, 12/pk	4062-445Kit	N068-0375		x	x	x
Black-Black, 0.030" Solvent Flex, 12/pk	4062-130A	0047-3550		x	x	x
Red-Red, 0.045" Solvent Flex, 12/pk	4062-145Kit	N068-0376		x	x	x
Black-Black, 0.030" Silicone, 6/pk	4062-230	N0047-3552		x	x	x
Orange-Red, 0.0075" Tygon Type, 12/pk	4062-010005	N069-5476		x	x	x
Black-White, 0.125" Tygon Type, 12/pk	4062-4125	N812-2012		x	x	x

Torches and Bonnets

Description	CPI P/N	JY® P/N
Torch, one piece with ball joint	4060-01	49.010.100
Outer Quartz Tube	4060-65	31.023.722
Inner Quartz Tube	4060-66	31.023.723
Torch Bonnet	4060-07	49.010.101
Outer Quartz Tube, Axial	4060-010117	31.031.099
Sheath Gas, without fitting	4060-010127	21.356.040
Torch Assembly	4060-010132	21.356.110
Sheath Gas, Peek	4060-010135	20.925.160

Spray Chambers & Accessories

Description	CPI P/N	JY® P/N
Spray Chamber	4060-80	31.026.996
Cyclonic Spray Chamber, 12/5 4mm Drain	4060-515	31.030.809

Nebulizers

Description	CPI P/N	JY® P/N
Nebulizer, Fixed Cross Flow	4060-38	47.929.008

Pump Tubing

Description	CPI P/N	JY® P/N
Orange-Orange, 0.035" (0.89mm), 12/pk	4062-435	N/A
Gray-Gray, 0.051" (1.30mm), 12/pk	4062-451	N/A

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Coupled Plasma*



*For our complete
selection of CPI
Peak Performance™
Standards for ICP-MS,
see pages 74 to 91*

**Inductively
Coupled Plasma**

Varian®

Torches and Bonnets

Description	CPI P/N	Varian® P/N
Torch, Low Flow	4060-55	20-100696-90
Torch Body, Demountable	4060-56	20-100729-90
Torch, ICP-AES, with Ball Joint	4060-010067	20-100696-00B
Torch, Axial, low flow, right angle sample inlet	4060-010003	20-100904-00
Torch, Axial, Demountable	4060-010070	20-100834-00
Torch, Axial, High Solid	4060-010838	
Torch Bonnet	4060-45	20-100707-90
Demountable Torch Kit, HF Resistant Includes: Torch Body, Alumina Injector, Tube Holder	4060-010312	99-100568-00
Demountable Torch Kit, HF Resistant, Axial Includes: Torch Body, Alumina Injector, Tube Holder	4060-010314	99-100847-00

Injectors

Description	CPI P/N	Varian® P/N
Sample Injector Tip, Quartz, 1.8mm 3/pk	4060-010144	99-100570-00
Sample Injector Tip, Alumina, 1.8mm	4060-010071	24-100675-90
Sample Injector Tip, 0.8mm 3/pk	4060-010145	20-100775-00
Injector Tube Holder, Teflon	4060-010072	99-100573-00

Spray Chambers & Accessories

Description	CPI P/N	Varian® P/N
Cyclonic Spray Chamber, 8mm, top port	4060-010069	N/A
Cyclonic Spray Chamber, Single Path for Liberty II	4060-010156	20-100817-00

Nebulizers

Description	CPI P/N	Varian® P/N
Teflon Parallel Path, Long Nose	4060-694	N/A
V-Groove Nebulizer, Peek	4060-010012	99-100574-00
Glass Twin Bore, 30psi, 1L/min, 3ml/min	4060-010588	20-100816-00
Glass Twin Bore, 30psi, 0.7L/min, 3ml/min	4060-010572	20-100695-00

Pump Tubing

Description	CPI P/N	Varian® P/N
Black-Black, 0.32 ml/min PVC, 12/pk	4062-430	37-100272-00
White-White, 0.60 ml/min PVC, 12/pk	4062-440	37-100344-00
Gray-Gray, 1.00 ml/min PVC, 12/pk	4062-451	37-100345-00
Blue-Blue, 1.60 ml/min PVC, 12/pk	4062-465	37-100346-00
Purple-Purple, 2.50 ml/min PVC, 12/pk	4062-481	37-100273-00

CPI Performance Point

Teflon Parallel Path Nebulizers offer comparable analytical performance to concentric nebulizers with superior high solids capability.

Spectro®

Torches

Description	CPI P/N	Spectro® P/N
Torch, Spectroflame	4060-20	75060596
Torch, Demountable, Spectroflame	4060-202	75060545
Torch, EOP, 2.5mm Injector	4060-010065	48105052
Torch, EOP, 2.2mm Injector	4060-010300	N/A
Torch, EOP, 1.8mm injector	4060-010302	N/A
Torch, EOP, Sheath Gas System	4060-010066	75160537

Injectors

Description	CPI P/N	Spectro® P/N
Injector Tube, Quartz 1.5mm	4060-010304	45105008
Injector Tube, Quartz 1.8mm	4060-010306	45105010
Injector Tube, Quartz 2.5mm	4060-010308	45105009

Spray Chambers & Accessories

Description	CPI P/N	Spectro® P/N
Spray Chamber, Large Double Pass	4060-010310	48105006
Spray Chamber, Upward, Conical	4060-21	48105003
Cyclonic Spray Chamber, 12/5 4mm Drain	4060-515	N/A

Nebulizers

Description	CPI P/N	Spectro® P/N
Cross Flow Nebulizer	4060-22	75060502
Twin Bore Nebulizer, Low Flow	4060-01572	N/A

Pump Tubing

Description	CPI P/N	Spectro® P/N
Orange-Orange, 0.035" (0.89mm), 12/pk	4062-435	N/A
Gray-Gray, 0.051" (1.30mm), 12/pk	4062-451	N/A

Other ICP Instrument Supplies

Torches and Bonnets

Description	CPI P/N	Instrument Type	Replaces OEM P/N
Torch, 27 MHz	4060-01	Baird®	025515
Torch, Plasma, PSX®, HF Resistant	4060-010044	Baird®	075129
Torch, Plasma PST®, Low Flow	4060-61	Baird®	075542
Torch, Plasma PST®, Low Flow, HF Resistant	4060-62	Baird®	075145
Torch, Plasma, PSX®	4060-63	Baird®	075128
Torch, Plasma, PSX®, Early Style	4060-010045	Baird®	069972
Torch & Tip, AFS®	4060-010046	Baird®	676458
Tip Replacements, AFS®	4060-010047	Baird®	676459
Bonnet	4060-07	Baird®	025491
Standard Torch	4060-01	Plasma Therm®	
Torch, High Solids	4060-010054	Plasma Therm®	
Bonnet	4060-07	Plasma Therm®	
Spray Chamber	4060-010339	Plasma Therm®	350120
Torch, Beveled	4060-010131	Phillips®	
Standard Torch	4060-01	Leco®	701-030
Slotted Torch, DIN	4060-010118	Cetac®/DIN	
ASX100® Type Autosampler Probe	4060-010410	Cetac®	SP5616
ASX500® Type Autosampler Probe	4060-010412	Cetac®	SP5229

Spray Chambers & Accessories

Description	CPI P/N	Instrument Type	Replaces OEM P/N
Spray Chamber	4060-80	Baird®, Leco®	Baird 025492

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CPI Performance Point

Cyclonic spray chambers improve RSDs and reduce washout time.



Probe for Cetac® ASX100

CPI P/N 4060-010410

Inductively Coupled Plasma



CPI's Twin Bore Nebulizer, P/N 4060-010572

CPI Performance Point

Always optimize your nebulizer. A change of one or two PSI in your gas pressure can vary your detection limits up to 30%.



Cross Flow Nebulizer for TJA® ICP's, CPI P/N 4060-38. Also available for Spectro® ICP's, CPI P/N 4060-22.



CPI V-Groove Nebulizer, P/N 4060-54

ICP Nebulizers

CPI Glass Twin Bore Nebulizers have been manufactured for durability and performance. The sample path inner diameter is designed to be narrow enough to provide a fine, consistent aerosol but not so small that the nebulizer is susceptible to clogging. Each nebulizer tip is finished to precise specifications to ensure a uniform aerosol pattern. All dimensional and performance specifications are checked as part of quality control. These nebulizers are economically priced and guaranteed for performance in your ICP.

Glass Twin Bore Nebulizers

CPI P/N	Argon Press (PSI)	Argon Flow (Liters/min)	Sample Flow (mL/min)	Suggested Instrument Application
4060-010572	30	0.7	2-3	All (or 4060-010592 w/Sample Tube)
4060-010593	50	0.7	2-3	Jobin Yvon®
4060-010588	30	1	3	ARL® 3500 Series, Varian® Axial, PerkinElmer®, Elan® 5000/6000
4060-010594	30	1	2	All (call for other sample flow rates)

Cross Flow Nebulizers

Our durable cross flow nebulizers for TJA® and Spectro® ICP's are made from PEEK plastic and include a sealing o-ring, argon inlet fitting and Teflon® sample uptake line. The platinum sample introduction stem is recessed into the body of the nebulizer to prevent breakage. A consistent, pinpoint aerosol is created via a precision sapphire orifice at the gas inlet. We guarantee our cross flow nebulizers to meet or exceed OEM specifications and to perform in your ICP.

Description	CPI P/N	OEM P/N
Cross Flow Nebulizer, for TJA®	4060-38	TJA® / 126989-00
Cross Flow Nebulizer, for Spectro®	4060-22	Spectro® / 75060502
High Solids Cross Flow Nebulizer, for HP®	4060-010390	HP® / G1820-65033
O-Ring for Cross Flow Nebulizer	4060-381	TJA® / 133202-50
Argon Inlet Fitting, for 4060-38 or 4060-22	4060-382	n/a

Endcaps

Description	CPI P/N
Teflon endcap, concentric/6mm nebulizers, 35mm	4060-010344
Teflon endcap, 1/2" nebulizers, 35mm	4060-691
PFA Teflon PureCap endcap, 47mm	4060-010600
Teflon endcap, 1/2" nebulizers, 34mm	4060-010342

V-Groove and Babbington Nebulizers

Description	CPI P/N
Babbington V-Groove Nebulizer, Peek, 1/2"OD	4060-54

Sample Tubes and Cups

As a complement to our ICP quartzware CPI is pleased to offer high quality polypropylene, polystyrene and polyethylene sample tubes and sample cups. We are committed to offering only the highest quality sample vessels to facilitate your analyses. Our use of pure plastics results in sample cups and centrifuge tubes that are free of metal contamination and do not need to be tediously washed prior to use. In addition, high precision molding ensures that all vessels are free of leaks and have consistent dimensions so they fit securely in your ICP sample tray. Please call for free product samples or quantity discounts on sample tubes and cups.

ICP Sample Tubes

Description	CPI P/N	Autosampler/OEM P/N
13 x 100mm Polypropylene Tube, 1000/pk	4092-327	TJA®, PE®, Varian®, most other ICP's
13 x 100mm Polystyrene Tube, 1000/pk	4092-324	TJA®, PE®, Varian®, most other ICP's
12 x 75mm Polypropylene Tube, 1000/pk	4092-330	TJA® / Technicon®
16-17mm x 100mm, Polypropylene Tube, 1000/pk	4092-320	PE® AS-90, most TJA
16-17mm x 100mm, Polypropylene Tube, 10,000/pk	4092-321	PE® AS-90, most TJA
15mL Conical Bottom Tube, Polystyrene, 125/pk	4092-314	PE® AS-50/51 / 0047-1441
Centrifuge Tube, 15ml, Polypropylene, METAL FREE, 500/pk	4092-316	PE® AS-90/91 / B019-3233
Centrifuge Tube, 50ml, Polypropylene, METAL FREE, 500/pk	4092-400	PE® AS-90/91 / B019-3234

ICP Nebulizers

Teflon® Parallel Path and Mira Mist Nebulizers

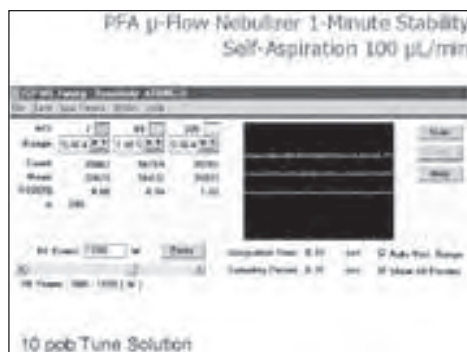
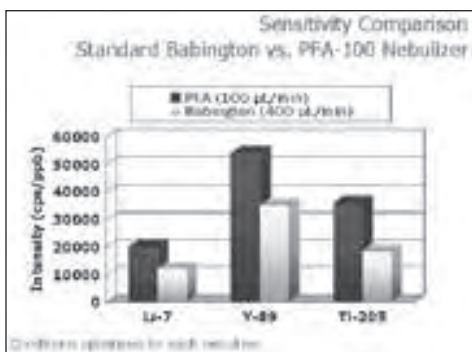
This Teflon Parallel Path Nebulizer has the convenience of concentric glass nebulizers with the advantage of a unique, unrestricted sample path. The sample path has a constant diameter from the pump to the gas orifice, so there is no capillary plugging. The Teflon Mira Mist is an enhanced Parallel Path Teflon Nebulizer operating on 0.2 ml/min to 2.5 ml/min. The PEEK Mira Mist is also available for most samples, but not concentrated acids, and not some organic solvents.

Description	CPI P/N	OEM P/N
Parallel Path Teflon Nebulizer, 25 to 45 psi	4060-69	n/a
Long Nose, High Solids Teflon Nebulizer and Fittings	4060-694	TJA® / 136388-00
Mira Mist Teflon Nebulizer	4060-010694	n/a
Mira Mist PEEK Nebulizer	4060-010695	n/a

Teflon® PFA MicroFlow Nebulizer

The Right Nebulizer Technology for ICP-MS and ICP-AES...

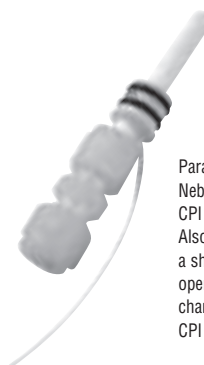
The MicroFlow PFA nebulizer is an all-Teflon low-flow micro-concentric nebulizer designed for ultratrace elemental determinations in a wide range of chemicals, including concentrated acids, HF, organic solvents and high dissolved solids solutions. Reliable self-aspiration is a key feature of this nebulizer that allows undiluted high-purity chemicals to be analyzed without contamination from peristaltic pump tubing. Constructed without any metal, sapphire, or other non-fluoropolymer parts permits aggressive cleaning using aqua regia (80°C) or HF/HNO₃ mixtures, ensuring long-lifetime and the lowest background (BEC) of any nebulizer on the market. MicroFlow PFA resists formation of salt deposits and is ideal for high dissolved solids solutions, such as acidified seawater. MicroFlow-PFA nebulizers have a 6mm OD, may be self-aspirated or used with a peristaltic pump.



Inductively Coupled Plasma



MiraMist Peek Nebulizer, CPI P/N 4060-010695.



Parallel Path Teflon Nebulizer, CPI P/N 4060-694. Also available with a short nose for open-ended spray chambers, CPI P/N 4060-69.



CPI's PFA Micro-Flow Teflon Nebulizer, available in 20, 50, 100 or 400µl/min.



The CPI PFA Micro-Flow Nebulizer produces a fine aerosol for high transport efficiency and high sensitivity.

Background (BEC) and Detection Limits (DL)

Isotope	²³ Na	²⁷ Al	³⁹ K	⁴⁴ Ca	⁵⁶ Fe	⁶³ Cu	⁶⁴ Zn
BEC (ppt)	0.8	0.2	0.3	0.9	0.2	0.2	0.6
DL (ppt)	0.09	0.06	0.05	0.5	0.07	0.08	0.1

Class 1 cleanroom, Finnigan® ELEMENT ICP-MS, PFA-100

PFA MicroFlow Nebulizers

Description	CPI P/N
PFA MicroFlow Nebulizer 20µl/min	4060-010191
PFA MicroFlow Nebulizer 50µl/min	4060-010190
PFA MicroFlow Nebulizer 100µl/min	4060-010192
PFA MicroFlow Nebulizer 400µl/min	4060-010194
PFA ST Nebulizer 20µl-2ml/min	4060-010193

Inductively Coupled Plasma



A complete PFA Upgrade Kit with PFA MicroFlow Nebulizer, Spray Chamber and O-ring Free Sapphire Injector.

Interested In Application-Specific Data?

CPI maintains a library of application data specific to PFA MicroFlow nebulizers, upgrade kits, PC³ inlets, APEX high sensitivity inlets, and other products in use on popular instrumentation. Visit our web site or call for more information.

Table Legend

All "Kits" include the following components:

- 2 PFA MicroFlow Nebulizers (specify desired flow rate)
- PFA O-ring Free Chamber Endcap
- PFA Teflon Spray Chamber
- O-ring Free Injector mounted in PFA base (injector material sapphire, Pt or quartz depending on kit selected)
- Quartz Torch designed for injector
- All required gas lines and fittings

All "PC³ Inlets" include the following components:

- Quartz Cyclonic Spray Chamber, O-ring Free with PFA ferrule-nut
- Peltier-cooled PC³ Housing
- 12 volt power supply

See feature section on the PC³ on page 69 opposite.

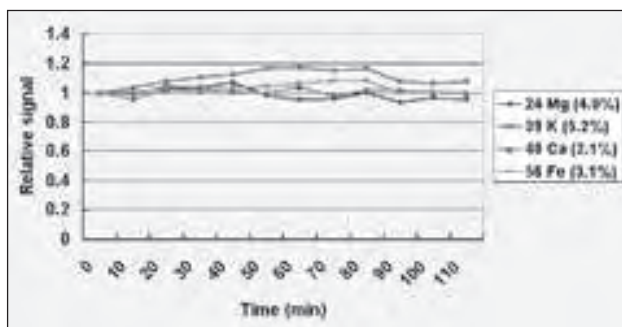
Note: Kits may be tailored to your specifications, including nebulizer selection, integrated autosampler probes and injector choice. Call for polypropylene spray chamber and other options in PC³ configuration.

PFA Teflon and Corrosion Resistant Inlets

CPI International offers a range of nebulizers and complete sample introduction kits specially designed for analytical laboratories running challenging samples by ICP-MS/AES. These systems are made from inert PFA Teflon, sapphire or platinum and allow contamination-free analysis of a wide range of samples, including organic solvents, aggressive chemicals and concentrated acids.

This product line includes self-aspirating, integrated-capillary PFA Teflon MicroFlow nebulizers, polypropylene nebulizers, o-ring-free PFA endcaps, o-ring-free sapphire or platinum injectors, o-ring-free demountable torches, PFA Teflon spray chambers, inert, non-contaminating autosampler probes, as well as complete PFA upgrade packages for all ICP-MS and ICP-AES instruments. Also featured are PFA Teflon pipette tips, digestion vessels and autosampler tubes.

Element	Std	HF (ppb)	DL (ppb)	50 ppt res (%) with SESA	50 ppt res (%) with 1% HNO ₃ EXT	50 ppt res (%) with 1% HNO ₃ EXT
B	11	86.3	30.6	111	423	81.2
Na	23	3.74	3.07	117	189	112
Mg	24	1.10	0.89	110	103	106
Al	27	3.00	1.47	100	147	119
K	39	2.47	1.34	109	189	84.3
Ca	40	3.35	1.51	87.5	114	118
Ti	48	1.90	0.77	102	149	191
Cr	52	8.0	12.4	101.1	18.3	48.8
Mn	55	2.29	1.26	107	102	102
Fe	56	2.20	0.88	118	101	10.3
Ni	58	7.23	1.18	103	147	142
Br	80	11.5	1.08	106	126	89.3
Cu	63	4.82	1.89	110	81.8	84.7
Zn	64	17.8	7.21	101	83.2	100
Pb	78	4.9	39.8	114	85.4	100
Sr	138	8.05	2.46	111	84.1	100
Y	121	1.82	1.25	116	89.6	104
Rb	187	9.68	3.34	103	142	81.3
Ba	208	8.38	6.19	104	173	87.8



This table summarizes the quantitative analysis of 40% HF run on a PerkinElmer ELAN DRC. The Sample introduction system is a PFA Upgrade Kit with Pt injector and a self-aspirated PFA MicroFlow 100uL/min nebulizer. Elements in light type are run in DRC mode.

This table is a 2 hour stability run of 0.5 ppb spiked in 500 ppm Si, on a PerkinElmer ELAN DRC. The Sample introduction system is a PFA Upgrade Kit with Pt injector and a self-aspirated PFA MicroFlow 20uL/min nebulizer.

Popular Upgrade Kits and Cooled Inlets - See Legend

Instrument	PFA Sapphire Kit	PFA Pt Kit	PFA Quartz Kit	PC ³ Inlet
ICP-MS Instrumentation				
Agilent/HP 4500	4060-010651	4060-010652	4060-010653	4060-530101-000
Agilent/HP 7500	4060-010955	4060-010954	4060-010857	4060-531101-000
Thermo-Finnigan Element	4060-010578	4060-010668	4060-011010	4060-502101-100
MicroMass Platform	4060-010888	4060-010889	4060-010891	4060-540101-100
MicroMass PT2	4060-010886	4060-010887	4060-010893	4060-543101-100
PE Elan 5000/6000/9000/DRC	4060-010994	4060-010995	4060-010993	4060-510101-100
Thermo-VG Excel	4060-010885	4060-010884	4060-010879	4060-522101-100
Thermo-VG PQ Series/Axiom	4060-010755	4060-010654	4060-010655	4060-521101-100(PQ) 4060-520101-100(AX)
ICP-AES Instrumentation				
PE Optima 3000 Series Radial	4060-010951	4060-010949	4060-010950	4060-511100-100
PE Optima 3000 Series Axial	4060-010735	4060-010734	4060-010733	4060-514100-100
PE Optima 3000 Series DV	4060-011012	4060-011014	4060-011016	4060-512100-100
PE Optima 2000/4000 Series DV	4060-010826	4060-010825	4060-010827	4060-513100-100
Varian Vista Axial	4060-010906	4060-011018	4060-011020	4060-550100-100
Spectro Ciros Radial	4060-010769	4060-011022	4060-011024	4060-561100-100
Spectro Ciros Axial	4060-010764	4060-011026	4060-011028	4060-560100-100
TJA 61E Radial	4060-010740	4060-010938	4060-011030	4060-571100-100
TJA Trace Axial	4060-010739	4060-011032	4060-011034	4060-570000-100
TJA Iris Radial	4060-010738	4060-011036	4060-011038	4060-571100-100
JY Axial	4060-011040	4060-011042	4060-011044	4060-597100-100
JY Radial	4060-011046	4060-011048	4060-011050	4060-596100-100

Note: Kit p/n's above include as standard 2 100uL/min nebs for ICP-MS, and 2 PFA-ST 1mL/min nebs for ICP-AES. However, you may select nebs with different flow rates if desired, simply call for information and a unique p/n will be provided for your neb configuration.

PFA Teflon and Corrosion Resistant Inlets

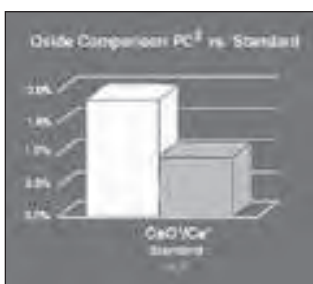
CPI offers three basic types of PFA Teflon nebulizers; the integrated capillary PFA MicroFlow nebulizer series, the removable capillary PFA-ST nebulizer series and the integrated autosampler probe series. All nebulizers offer chemical resistance, low spike-free BEC, resistance to clogging/salting, high transport efficiency and may be reliably self-aspirated or pumped. See page 67 for detail performance data on the PFA MicroFlow line of nebulizers or call CPI for data from a range of applications.

PFA MicroFlow Nebulizers, Sample Probes and Accessories

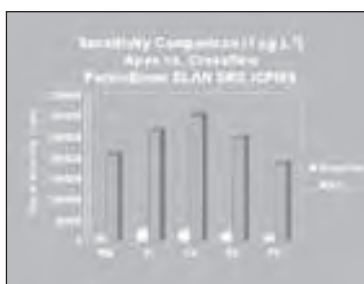
Description	CPI P/N
General use PFA Nebulizers	
PFA MicroFlow 20ul/min	4060-010191
PFA MicroFlow 50ul/min	4060-010190
PFA MicroFlow 100ul/min	4060-010192
PFA MicroFlow 400ul/min	4060-010194
PFA-ST Nebulizer, 1-2mL/min (specify flow)	4060-010193
PFA PureCap Endcap, 6mm nebs, 35mm ID	4060-010600
Specialty Nebulizers	
PFA MicroFlow Nebulizer, 20-A for MCN-6000/ARIDUS	4060-010215
PFA MicroFlow Nebulizer, 50-A for MCN-6000/ARIDUS	4060-010219
Complete Upgrade Kit for MCN-6000/ARIDUS (nebulizers, chimney, cap)	4060-010650
Apex PFA Nebulizer, 50ul/min	4060-011052
Apex PFA Nebulizer, 100ul/min	4060-011054
Apex-ST PFA Nebulizer, 100, 300, 500ul/min	4060-011056
PolyPro Polypropylene Nebulizer, 1-2mL/min	4060-010189
Sample Probes (may be ordered integrated, union-free, with any nebulizer)	
Probe, Autosampler, ASX-500, Standard Type, 1/pk	4060-010412
Probe, Autosampler, ASX-500, Low Flow Type, 1/pk	4060-010413
Probe, Autosampler, ASX-500/510, PFA, .25mm ID	4060-010414
Probe, Autosampler, PE AS90, PFA, 1/Pk	4060-010504
Probe, Autosampler, PE AS93, PFA	4060-010506
Probe, PFA, ASX-500	4060-010842
PFA and Polypropylene Spray Chambers	
Scott-type and cyclonic models in stock for all instrumentation	Call for desired configuration
PFA PureCap Endcap, 6mm nebs, 35mm ID	4060-010600
Other High Purity PFA Accessories	
PFA Vial, Conical, 7mL, w/ tray, 10pk	4060-010947
PFA Puretup, 1000uL, 100pk	4060-010405
PFA Puretup, 100uL, 100pk	4060-010403
PFA Sample Cup 1.5mL, for ASX 100/400, 10/pk	4060-010982
PFA Sample Cup, 4mL, For ASX 100/400, 10/pk	4060-010983

PC³ Peltier-Cooled Cyclonic Spray Chamber

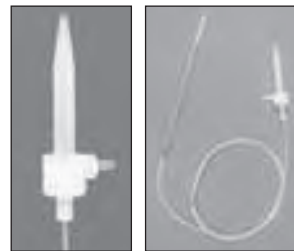
The PC³ is the first Peltier-cooled cyclonic spray chamber for ICP-MS/AES. The cyclonic chamber delivers low-memory effects, fast rinse-out, and higher transport efficiency. The PC³ cools the cyclonic spray chamber to a constant temperature, reducing polyatomic ion interferences, such as oxides, for ICP-MS analyses. The PC³ also reduces solvent loading when volatile organic solvents are analyzed. Thermal stabilization of the spray chamber also enhances long-term stability for both ICP-MS and ICP-AES, particularly for laboratories where room temperature is not constant. A PFA MicroFlow nebulizer or any 6 mm nebulizer may be used with the PC³. The nebulizer attaches to the o-ring-free cyclonic spray chamber using a one-piece Teflon PFA ferrule-nut. Cyclonic spray chambers for the PC³ are available in quartz, polypropylene, or glass.



Call CPI for additional performance data from specific instrumentation and applications.



Inductively Coupled Plasma



PFA MicroFlow 100ul/min Nebulizer.

PFA Nebulizers may be ordered with union-free integrated autosampler probes. Probes are also available separately.



CPI's PolyPro Polypropylene Nebulizer is an economical, corrosion resistant replacement for Glass Concentric Nebulizers. CPI P/N 4060-010189.



Polypropylene Cyclonic Chambers for popular ICP-MS/AES – Call for part numbers.



PC³ Integrated Peltier-cooled Cyclonic Spray Chamber. Fits popular ICP-MS/AES instruments. (See ordering table on opposite page 68).

PC³ Performance Features:

- Increased sensitivity over Scott-type chamber
- Reduced washout – high sample throughput
- User selectable temperature +2°C/-5°C
- Reduces oxide interferences
- Reduces organic solvent loading
- Plug & play – no water lines to connect

Inductively Coupled Plasma



- 2-stop tubing overall length is 16", with a 6" center pumping section separated by two color-coded stops.
- CPI also offers 3 stop tubing per OEM specifications.
- Viton® Tubing for Mercury analyzers has an overall length of 7" and also includes two stops.

Please call for quantity discounts on CPI tubing products.

Call For Pricing On Tubing Sizes Not Shown.

Peristaltic Pump Tubing

As a complement to our ICP Quartzware and Sample Tubes, CPI offers a comprehensive selection of multipurpose peristaltic pump tubing. All tubing features color-coded stops for easy determination of size and is available in Standard PVC or Solvent Resistant PVC (yellow tinted), Viton, Silicone or Santoprene.

Two-Stop Peristaltic Pump Tubing

Description	Standard PVC (12/pk)	Solvent Resistant (12/pk)	Santoprene (12/pk)	Silicone (6/pk)	Viton (12/pk)
	CPI P/N	CPI P/N	CPI P/N	CPI P/N	CPI P/N
org-blk, 0.13mm	4062-413	4062-113	4062-019013	4062-213	4062-8713
red-org 0.19mm	4062-407	4062-107	4062-019007	4062-207	4062-8707
org-blu, 0.25mm	4062-410	4062-110	4062-019010	4062-210	4062-8710
org-grn, 0.38mm	4062-415	4062-115	4062-019015	4062-215	4062-8715
org-yel, 0.51mm	4062-420	4062-120	4062-019020	4062-220	4062-8720
org-wht, 0.64mm	4062-425	4062-125	4062-019025	4062-225	4062-8725
blk-blk, 0.76mm	4062-430	4062-130	4062-019030	4062-230	4062-8730
org-org, 0.89mm	4062-435	4062-135	4062-019035	4062-235	4062-8735
wht-wht, 1.02mm	4062-440	4062-140	4062-019040	4062-240	4062-8740
red-red, 1.14mm	4062-445	4062-145	4062-019045	4062-245	4062-8745
gry-gry, 1.30mm	4062-451	4062-151	4062-019051	4062-251	4062-8751
yel-yel, 1.42mm	4062-456	4062-156	4062-019056	4062-256	4062-8756
yel-blu, 1.52mm	4062-460	4062-160	4062-019060	4062-260	4062-8760
blu-blu, 1.65mm	4062-465	4062-165	4062-019065	4062-265	4062-8765
blu-grn, 1.75mm	4062-495	4062-195	4062-019095	4062-295	4062-8795
grn-grn, 1.85mm	4062-473	4062-173	4062-019073	4062-273	4062-8773
pur-pur, 2.06mm	4062-481	4062-181	4062-019081	4062-281	4062-8781
pur-blk, 2.29mm	4062-490	4062-190	4062-019090	4062-290	4062-8790
pur-wht, 2.79mm	4062-4109	4062-1109	4062-0190109	4062-2109	4062-87109
blk-wht, 3.18mm	4062-4125	4062-1125	4062-0190125	4062-2125	4062-87125

Three-Stop Peristaltic Pump Tubing

Description	Standard PVC (12/pk)	Solvent Resistant (12/pk)	Santoprene (12/pk)	Silicone (6/pk)	Viton (12/pk)
	CPI P/N	CPI P/N	CPI P/N	CPI P/N	CPI P/N
org-red-org 0.19mm	4062-5008	4062-6008	4062-0191008	4062-7008	4062-8008
org-blu-org, 0.25mm	4062-510	4062-610	4062-019110	4062-710	4062-810
org-grn-org, 0.38mm	4062-5015	4062-6015	4062-0191015	4062-7015	4062-8015
org-yel-org, 0.51mm	4062-520	4062-620	4062-019120	4062-720	4062-820
org-wht-org, 0.64mm	4062-525	4062-625	4062-019125	4062-725	4062-825
blk-blk-blk, 0.76mm	4062-530	4062-630	4062-019130	4062-730	4062-830
org-org-org, 0.89mm	4062-535	4062-635	4062-019135	4062-735	4062-835
wht-wht-wht, 1.02mm	4062-540	4062-640	4062-019140	4062-740	4062-840
red-red-red, 1.14mm	4062-545	4062-645	4062-019145	4062-745	4062-845
gry-gry-gry, 1.30mm	4062-550	4062-650	4062-019150	4062-750	4062-850
yel-yel-yel, 1.42mm	4062-555	4062-655	4062-019155	4062-755	4062-855
yel-blu-yel, 1.52mm	4062-560	4062-660	4062-019160	4062-760	4062-860
blu-blu-blu, 1.65mm	4062-565	4062-665	4062-019165	4062-765	4062-865
blu-grn-blu, 1.75mm	4062-595	4062-695	4062-019195	4062-795	4062-895
grn-grn-grn, 1.85mm	4062-573	4062-673	4062-019173	4062-773	4062-873
pur-pur-pur, 2.06mm	4062-581	4062-681	4062-019181	4062-781	4062-881
pur-blk-pur, 2.29mm	4062-590	4062-690	4062-019190	4062-790	4062-890
pur-wht-pur, 2.79mm	4062-946	4062-646	4062-019146	4062-746	4062-846
blk-wht-blk, 3.18mm	4062-5125	4062-6125	4062-0191125	4062-7125	4062-8125

Capillary and General Use Tubing

These products are available for miscellaneous applications and as replacement components of other CPI products, such as our Cross Flow Nebulizer and Sample Probes.

Description	CPI P/N	Application / OEM P/N
Teflon® Tubing, 3/16 id x 5/16 od (Specify custom length)	4061-01	miscellaneous
Teflon® Tubing, .026 id x .050 od (Specify custom length)	4097-302	TJA® / 133006-00 / 042982-00
Teflon® Tubing, .020 id, for TJA® Sipping Probe, 1 ft	4097-308	See CPI P/N 4097-30
Teflon® Tubing, .031 id, for TJA® Sipping Probe, 1 ft	4097-309	See CPI P/N 4097-30
Teflon® Tubing, .063 id x .125 od (Specify custom length)	4097-322	TJA® / 043437-00
Teflon® Tubing, .6mm id, 10 ft	4060-38TT	PE® / 0990-8265, TJA® / 311390-14
Viton® Tubing, for Hydride Cell (Specify custom length)	4090-255	Varian® / 37-100263-90

Specialty OEM Pump Tubing

In addition to multipurpose pump tubing, CPI also offers custom pump tubing designs to accommodate material and dimensional requirements of certain OEM applications. These products incorporate Standard PVC, Solvent Flex PVC, Accu-Rated PVC, Silicon or Viton® material as per OEM specifications.

Description	CPI P/N	OEM P/N
TJA® Type 3-Stop Pump Tubing		
Orange-Red-Orange, .0075", PVC, 12/pk	4062-5008	
Orange-Green-Orange, .015", PVC, 12/pk	4062-5015	
Orange-Orange, 0.035" (.89mm), Standard PVC, 12/pk	4062-535	130177-00
Red-Red, 0.045" (1.14mm), Standard PVC, 12/pk	4062-545	130177-01
Orange-Orange, 0.035" (.89mm), Silicone, 6/pk	4062-735	130177-02
Red-Red, 0.045" (1.14mm), Silicone, 6/pk	4062-745	130177-03
Orange-Orange, 0.035" (.89mm), Viton, 6/pk	4062-835	130177-04
Red-Red, 0.045" (1.14mm), Viton, 6/pk	4062-845	130177-05
Purple-Black-Purple, 0.081" (2.06mm), Viton, 1/pk	4062-881	131856-00
Yellow-Yellow, .056" (1.42mm), Viton, 12/pk	4062-356	
Internal Standard Mixing Kit, 4/pk	4062-910	136708-00
<i>This product allows for simultaneous introduction of sample and internal standard.</i>		
PerkinElmer® Type 2-Stop Pump Tubing		
Black-Black, 0.030" (.76mm), Standard PVC, 12/pk	4062-430	0990-8587
Red-Red, 0.045" (1.14mm), Standard PVC, 12/pk	4062-445Kit	N068-0375
Black-Black, 0.030" (.76mm), Solvent Flex, 12/pk	4062-130A	0047-3550
Red-Red, 0.045" (1.14mm), Solvent Flex, 12/pk	4062-145Kit	N068-0376
Black-Black, 0.030" (.76mm), Silicone, 6/pk	4062-230	0047-3552
PerkinElmer® Type 3-Stop Pump Tubing		
Black-Black, 0.030" (.76mm), Standard PVC, 12/pk	4062-530	B050-6058
White-White, 0.040" (1.02mm), Solvent Flex, 12/pk	4062-640	B050-7692
Red-Red, 0.045" (1.14mm), Standard PVC, 12/pk	4062-545	B019-3160
Yellow-Blue-Yellow, 0.060" (1.52mm), Std PVC, 12/pk	4062-560	B019-3161
Purple-Purple, 0.081" (2.06mm), Standard PVC, 12/pk	4062-581	B019-9034
Black-White-Black, 0.125" (3.18mm), Std PVC, 12/pk	4062-5125	B050-8310
Varian® Type 2-Stop Pump Tubing		
Black-Black, 0.32 ml/min, Accu-Rated PVC, 12/pk	4062-430	37-100272-00
White-White, 0.60 ml/min, Accu-Rated PVC, 12/pk	4062-440	37-100344-00
Gray-Gray, 1.00 ml/min, Accu-Rated PVC, 12/pk	4062-451	37-100345-00
Blue-Blue, 1.60 ml/min, Accu-Rated PVC, 12/pk	4062-465	37-100346-00
Purple-Black, 2.50 ml/min, Accu-Rated PVC, 12/pk	4062-481	37-100273-00
Leeman® PS 200 Type Tubing		
Drain Tubing, for PS 200, 12/pk	4062-902	902-00014
Sample Tubing, for PS 200, 12/pk, PVC	4062-010004	125-00114-2
Sample Tubing, for PS 200, 12/pk, Viton®	4062-903	309-00030/32
Reductant Tubing, for PS 200, 12/pk	4062-904	309-00033
Leeman® PS 1000 / 2000 / 3000 Type Tubing		
Orange, 0.020", PVC, 12/pk	4062-920	309-3551
Black, 0.030", PVC, 12/pk	4062-930	309-3552
Red, 0.045", PVC, 12/pk	4062-945	309-3538
Disposable Uptake Line, for PS 1000/2000/3000, 1/pk	4062-905	120-00168

Disposable Sample Uptake Line for Leeman® PS 1000 / 2000 / 3000 ICP

If you are experiencing sample carryover on your Leeman® PS 1000 / 2000 / 3000 ICP, this product can help solve your problem! Made from high quality PVC tubing, this sample line is designed to be a disposable replacement for the Uptake Tubing Kit provided as original equipment. Instead of using separate sections of tubing which independently need replacing, this product is made from a single strand of tubing to deliver the sample from the probe to the pump and on to the nebulizer without connectors. The tubing inner diameter and stop positioning are consistent with OEM specifications. In addition to eliminating carryover and simplifying the sample path, this product costs less than replacing the original uptake line. **Order CPI P/N 4062-905.**

Inductively Coupled Plasma

Try our Internal Standard Mixing Kit for TJA® TraceScan® instrumentation, CPI P/N 4062-910. This product allows for simultaneous introduction of sample and internal standard.

Internal Standard Mixing Kits

Description	CPI P/N
Internal Std Mixing Kit, TJA, 4pk	4062-910
Internal Mixing Kit - 2stop, org-wht (2), org-red (1), 4 pk	4062-914
Internal Mixing Kit - 2stop, grn-grn (2), org-blk (1), 4pk	4062-916
Internal Std Mixing Kit, 2stop, 4pk	4062-947



Sample Tubing for Leeman® PS 200, CPI P/N 4062-903. Also available in PVC P/N 4062-010004.



Reductant Tubing for Leeman® PS 200, CPI P/N 4062-904.



Disposable Sample Uptake Line for Leeman® PS 1000 / 2000 / 3000 ICP. CPI P/N 4062-905, 1/pk.

Inductively Coupled Plasma



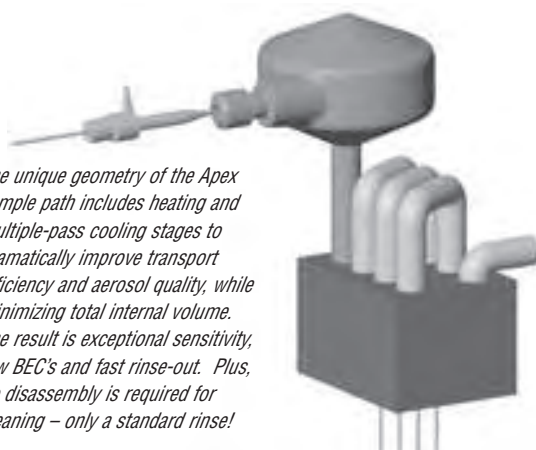
Apex Performance Features:

- Patent-pending technology increases instrument sensitivity more than 10 times over the standard inlet, even for challenging elements such as Na, Al, K, Ca, Fe, Ni and Zn.
- Utilizes proven MicroFlow PFA nebulizer technology for self-aspiration of 20 $\mu\text{L}/\text{min}$ to 1 mL/min with improved stability.
- Patented geometry and reduced sample adhesion produce faster rinse-out times; cleans quickly and easily between applications without concentrated acids or solvents.
- Installs on popular ICP-MS/AES instruments in minutes; connects directly to torch injector.
- Allows existing instrumentation to be leveraged into new applications with Apex's significantly improved sensitivity and reduced backgrounds.
- Excellent transport efficiency; delivers nearly 100% of sample in usable form to the ICP.
- Non-contaminating inlet; utilizes an o-ring-free PFA Teflon and quartz sample path to achieve maximum chemical resistance and minimize BEC's (also available with a complete PFA sample path for samples containing hydrofluoric acid).
- Reduces oxide formation and interferences; ideal for isotope ratio analyses.
- 12 volt operation for reliability and simplicity.

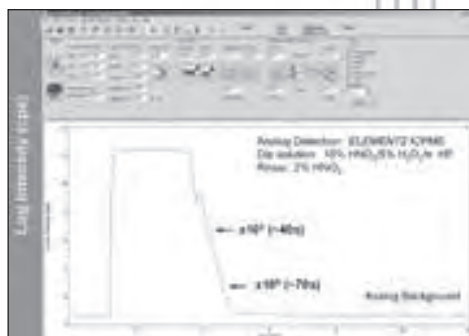
APEX High Sensitivity Inlet Systems



The Apex is a fully integrated, high sensitivity sample introduction system that connects in minutes to the OEM injector on popular ICP-MS/AES instrumentation.

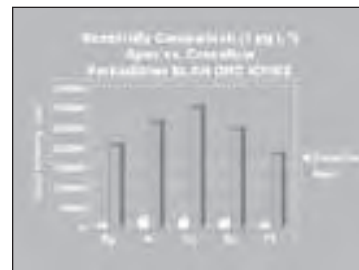


The unique geometry of the Apex sample path includes heating and multiple-pass cooling stages to dramatically improve transport efficiency and aerosol quality, while minimizing total internal volume. The result is exceptional sensitivity, low BEC's and fast rinse-out. Plus, no disassembly is required for cleaning – only a standard rinse!



Rinse-out performance for the Apex IR, configured with a PFA MicroFlow 100 μL nebulizer. Shown here, ^{232}Th rinse-out greater than 100000x down to analog background in less than 1.5 minutes.

The Apex family of high sensitivity and low background sample introduction systems are designed to increase signal intensity while often reducing relative background contamination for ICP-MS and ICP-AES analyses. The Apex improves sensitivity more than 10 times over the standard inlet primarily by increasing both sample transport efficiency and the quality of aerosol introduced to the ICP instrument. The Apex controls background contamination by employing high-purity, inert, and o-ring-free wetted surfaces. When combined with a self-aspirating MicroFlow PFA nebulizer even aggressive and concentrated chemicals may be analyzed at very high sensitivity and very low background. The Apex may be used with self-aspirated or pumped nebulizers operating over a wide range of sample flow rates from 20 $\mu\text{L}/\text{min}$ to over 1 mL/min. An optional ACM actively cooled Nafion fluoropolymer membrane desolvation module is available for addition to the Apex.



The Apex includes an integrated four-channel peristaltic pump to drain from four locations in the sample path, preventing spiking, preserving high transport efficiency and ensuring fast rinse-out.

APEX High Sensitivity Inlet Systems

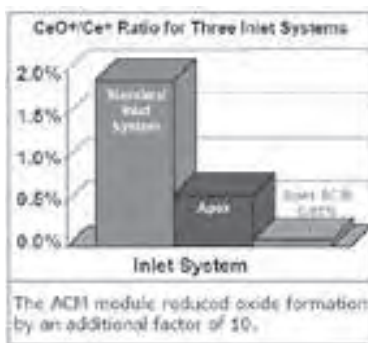
ACM Membrane Desolvator

The ACM is a cooled Nafion® fluoropolymer membrane desolvation module designed to operate with the Apex system that reduces the intensity of solvent-derived polyatomic ion interferences in the ICP-MS mass spectrum. Polyatomic ions such as oxides, hydrides and others may form when oxygen or hydrogen derived from water or other solvents combine with species present in the sample or in the ICP. In many cases these interferences limit the accuracy or precision of ICP-MS determinations.

Solvent vapor from the sample aerosol stream permeates through the membrane and evaporates into an external stream of dry sweep gas. The dried sample aerosol stream exits the ACM module through a fluoropolymer tube and is conducted to the ICP-MS injector. The microporous Nafion® fluoropolymer membrane does not allow the sweep gas to permeate into the sample aerosol stream, improving long-term flow and signal stability. The ACM membrane tolerates a variety of complicated sample matrices without plugging.



The ACM membrane desolvator easily mounts/demounts from the Apex exit port. Thus, the Apex may be used either with or without an ACM to best suit specific applications. No cooling lines are needed – simply plug the ACM into the 12 VDC power supply included with the unit and switch it on.



With the ACM membrane desolvation module, oxides and other ICP-MS interferences are further reduced. For example, CeO⁺/Ce⁺ was reduced to < 0.05% when using the Apex with the ACM module membrane desolvation.

APEX E - Environmental ICP/AES Applications



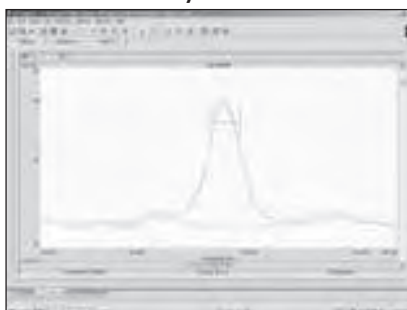
Today's requirements for ICP-AES EPA environmental analyses require unprecedented sensitivity, now you can meet and exceed these detection limits using your existing instrumentation! Introducing the Apex E, a fully-integrated high sensitivity inlet system optimized for the analysis of environmental samples on ICP-AES. The system incorporates CPI's revolutionary MicroFlow Nebulizer technology and combines it with a highly effective desolvation and stabilization unit.

Standard Cyclonic Chamber



Spectra shown above was collected on a Varian Vista ICP-AES with a standard cyclonic spray chamber inlet. As is shown at 10 ppb.

Apex E



Spectra shown above was collected on the same Varian Vista ICP-AES with the Apex E high sensitivity inlet system. As is shown at 10 ppb.

Inductively Coupled Plasma

ACM Performance Features:

- Chemical resistance similar to Teflon®
- Improved Desolvation Efficiency
- Reduced oxides and other interferences
- Easier optimization than macroporous membranes
- Sweep gas does not enter sample stream
- Resistant to clogging
- Fast rinse-out

Apex E Performance Features:

- Increases instrument sensitivity more than 8 times
- Excellent transport efficiency.
- Non-contaminating inlet; o-ring-free; polypropylene and glass sample path for maximum chemical resistance and low BECs.
- Installs on popular ICP-AES instruments in minutes.



Innovative Solutions
in Analytical Science and
Technology

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800.878.7884

Welcome to CPI International's 2005 Standards Line

CPI International has a proven reputation for manufacturing certified reference materials of the highest quality. As Laboratory Director, I am committed to upholding that reputation. To reflect our pride and confidence in our products, CPI International has added the new "Peak Performance" logo to all of our standards.

Peak Performance[®] means that all of our standards are prepared from high-purity starting materials, sub-boiling distilled acids and 18-megohm de-ionized water. We use only Class A calibrated glassware and balances calibrated with Class F NIST-traceable weights. All of our solutions are bottled in pre-cleaned, MSPE Passport 100 bottles and secured with heat-shrink seals. The accuracy of the single-element line is guaranteed to $\pm 0.1\%$, and we have a $\pm 0.5\%$ guarantee of accuracy on all of our stock mixes and custom blends.

Our Peak Performance[®] commitment goes beyond product quality. It extends all the way into our customer service level that includes 1-day quoting, 7-day turn-around on custom blends and same day shipping on all stock solutions.

Along with the new Peak Performance[®] logo, this catalog also highlights the many new products CPI International has to offer. CPI International is the only standards manufacturer providing parts and supplies for AA, ICP, ICP-MS, GC and GC/MS. We are committed to being "full service" not only in our certified reference materials, but also in our ability to help you save time and money throughout the lab.

Please feel free to contact me if you ever have any questions or comments about our Peak Performance[®] products.

Sincerely,

Katie Ketyla
Laboratory Director