

SCP SCIENCE

Instruments & Supplies

- Sample Preparation
- Evaporation & Digestion Systems
- Solid Phase Extraction
- Chemical Oxygen Demand
- ICP-AES & ICP-MS Supplies
- Atomic Absorption Supplies
- X-Ray Fluorescence Supplies
- Calibration & Quality Control Standards
- Graphite Products



Instruments & Supplies

2nd Edition

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Introduction

Dear Valued Customer:

Thank you for your interest in **SCP SCIENCE** Instruments and Supplies.

We proudly celebrated 25 years of service to the scientific laboratory market in 2005 and look forward to continuing the tradition into the future. The **SCP SCIENCE** "Instruments and Supplies" catalogue is redesigned and is an excellent tool for ordering your laboratory supplies. This 2nd Edition incorporates ten (10) sections and over fifty (50) subsections. In addition, we offer new products and services to better serve our customers.

New Products within the last 4 years include the following:

- Heavy-duty Jaw Crusher for 5" x 7" samples, SP-5000
- High-volume *DigiPREP LS* metal digestion system (72-position)
- Programmable PC Classic Controller with optional PC Data Station software
- Variety of *DigiSEP* Solid Phase Extraction cartridges
- Cost effective *AccuSPEC* COD tubes in multiple concentrations
- Wide range of *PlasmaPURE* high purity acids
- Complete line of prefused blended *AccuSPEC* fusion fluxes for ICP-MS, AA and XRF spectroscopy

Services recently introduced:

- Integrated ERP software to reduce delivery delays and improve service
- Material Safety Data Sheets (MSDS) and Certificates of Analysis available on-line at www.scpscience.com
- Our Paris, France facility maintains a stock of regular **SCP SCIENCE** products for improved service to European customers
- User friendly cross reference indexes for
 - Product groups and subjects
 - Catalog number versus page number listings
 - OEM cross referencing

For additional information, please contact your **SCP SCIENCE** sales representative or local distributor. Our website, at www.scpscience.com, contains up to date information on all our products.

We look forward to serving your laboratory needs.

Yours truly,



George Feilders
President

Statement of Quality Assurance

At **SCP SCIENCE**, quality is not only related to the actual product, but to the entire process. When you interface with our company, we strive to provide you with quality throughout the process - information requests, quotations, order entry, product manufacturing, shipping, and after-sales service. Our staff has been extensively trained and is profoundly dedicated to providing a superior quality of service.

SCP SCIENCE operates a Quality Management System that is certified to the ISO 9001:2000 international standard. Our objective is to ensure full customer satisfaction through the manufacture and distribution of top quality products. By adhering to the requirements of an internationally recognized standard, our customers are guaranteed to receive a quality product, time and time again.

Always striving to better ourselves and to meet or exceed the needs of our customers, we are working on conforming to the stringent requirements of ISO 17025 in order to officially accredit the competency of our laboratory and ISO Guide 34 to accredit our competency as a certified reference material producer. The scope of our ISO 17025 accreditation will include activities such as metals analysis by ICP spectroscopy, ion analysis by ion chromatography (IC), conductivity and pH certifications, and acid-base titration. The scope of our Guide 34 accreditation will include the majority of certified reference materials that we produce.

SCP SCIENCE is a member of the Chemical Reference Material Manufacturers' Association (CRMMA); an association of the major manufacturers of calibration standards whose mandate is "...to promote the production and marketing of high quality materials and to promote continuous improvement of industry products and standards..."

SCP SCIENCE is a leader in the field of standards and volumetric solutions and yet one of our key goals is to continually improve to serve you better. This catalogue includes many new products in response to your requests and to the new requirements of governments and organizations. Should you require a product that is not listed in this catalog, please do not hesitate to contact our Customer Service Group.



Quality in Production

SCP SCIENCE has served the inorganic analytical chemistry market since 1980. We bring to our customers specialized products for atomic spectroscopy and inorganic analytical chemistry manufactured in the U.S.A., Canada and world wide.

The company has grown substantially in recent years through internal and contracted manufacturing, acquisition, and expansion of its sales distribution network around the world. Three unique departments (Instrumentation, Standards and Reagents, and Scientific Glassware manufacturing) provide quality products with quick turnaround times. Implementation of ISO 9001:2000 throughout the company and 17025 in the companies laboratories ensures consistently reliable products and services.



Instruments:

Engineer new sample preparation instruments for metal analysis

- Created the *DigiPREP LS* - 72 position digestion system to meet the needs of high production laboratories

Develop innovative products to service analytical laboratories

- Redefined total temperature control with the Touch Screen Controller and PC Classic Controller/Software



Standards and Reagents:

Manufacture products according to an ISO 9001:2000 Quality Management System

- Provide consistent quality throughout every product group

Material Safety Data Sheets (MSDS) and Certificates of Analysis are available online at www.scpscience.com

- Fast access to updated information at your fingertips



Glassblowing:

Glassware manufactured and inspected to tight tolerances

- Reassurance of high quality items

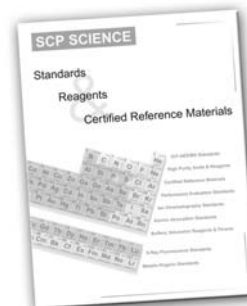
Produce OEM replacement and custom ICP-AES and ICP-MS glassware

- Offer a complete line of ICP supplies

Standards, Reagents & Certified Reference Materials Catalog

In addition to our spectroscopy and sample preparation products found in this catalog, **SCP SCIENCE** provides a comprehensive range of Standards, Reagents and Certified Reference Materials (CRMs) for most inorganic analytical methods. Popular products as well as many difficult to find reagents are available in a large variety of volumes, normalities and molarities.

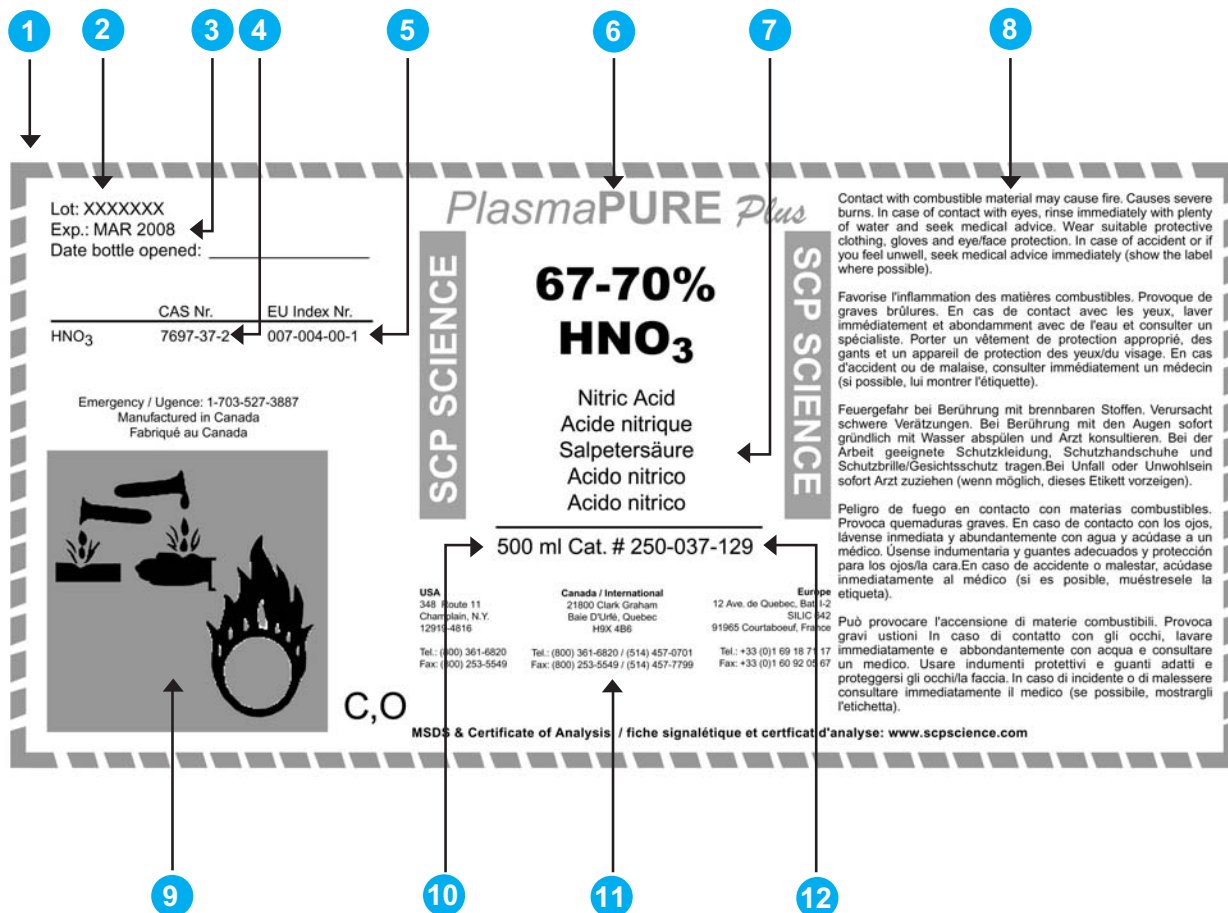
Call (800) 361-6820 in North America, +33 (0)1 69 18 71 17 in Europe or +1 (514) 457-0701 worldwide to request a copy today or fax the request to (800) 253-5549 in North America, +33 (0)1 60 92 05 67 in Europe or +1 (514) 457-4499 worldwide. For Internet users, visit our website at www.scpscience.com and download the latest edition or email you request to sales@scpscience.com.



Catalog No. 140-000-005

SCP SCIENCE labeling provides technical and safety information in easy-to-read format. Products are supplied with region specific labels meeting each North American, European, and International set of regulation. For Material Safety Data Sheets (MSDS) and Certificates of Analysis, please visit www.scpscience.com.

Label 1: European Approved Label Format

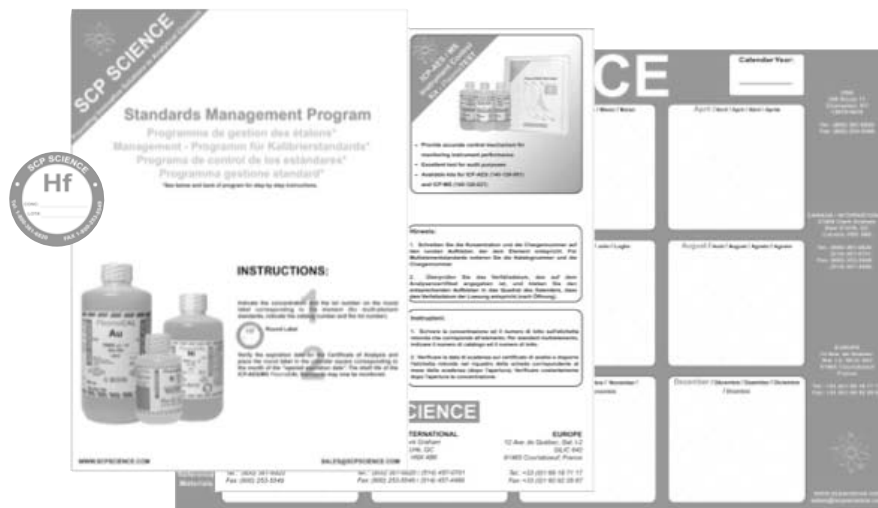


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Our Special Customer Programs

Standards Management Program

The Standards Management Program (catalog no. 140-000-000) is an exclusive **SCP SCIENCE** feature which assists labs in tracking and stocking calibration standards. With your first order of *PlasmaCAL* standards, you will receive a 12-month calendar and individual stickers for each standard on your order. Simply affix each sticker to the calendar in the square for the month corresponding to the expiry date. You now have a convenient, visual reminder of expiration dates.



Catalog No. 140-000-000

Standards Bank Savings Program*

Use the **SCP SCIENCE** Standards Bank to reduce shipping costs when you qualify for a free standard or to synchronize standards expiration dates. If you have qualified for a free 125 ml, 1000 µg/ml *PlasmaCAL* ICP-AES/MS standard (or a 125 ml, 1000 µg/ml AA standard), but do not wish to take receipt at the time of the order, simply request that the standard be placed in your "Bank Account". Simply withdraw the standard(s) when you are placing a *PlasmaCAL* standards order.



* Hazardous shipment charges are not included. The following elements are excluded from all special offers: Au, Ir, Lu, Os, Pd, Pt, Re, Rh, Ru, Sc & Tm.

Technical Sales and Customer Service Representatives are ready to respond to your lab needs. It would be our pleasure to receive your order, respond to inquiries, and offer the support you deserve. When placing orders, please clearly indicate quantity, catalog number, and a brief description of each product. Written confirmation of phone orders is required when tax exemptions have been requested. Credit card orders must be confirmed with a signed fax. In North America, a minimum order of \$50.00 is requested; in Europe, a minimum order of 80 Euros is requested; outside North America and Europe, customers should consult their distributor for minimum order requirements.

To place an order or for more information:

SCP SCIENCE (in North America)

Hours: Monday - Friday
8: 30 AM - 7 PM (EST)

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Email: sales@scpscience.com

Website: www.scpscience.com

Canadian

Mail: SCP SCIENCE
21800 Clark Graham
Baie D'Urfé, Québec
H9X 4B6
CANADA

USA

Mail: SCP SCIENCE
348 Route 11
Champlain, N.Y.
12919-4816
U.S.A

SCP SCIENCE (in Europe)

Hours: Monday - Friday
9:00 AM - 17:30 PM (GMT + 1)

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Fax: +33 (0)1 60 92 05 67
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Email: sales@scpscience.com

Website: www.scpscience.com

Europe

Mail: SCP SCIENCE
12, avenue du Québec Bat. I-2
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SCP SCIENCE (Outside North American and Europe)

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(24 hours)

Email: sales@scpscience.com

Website: www.scpscience.com

Terms and Conditions

Terms of Payment:

"Net 30 Days" with established credit, unless otherwise arranged. New customers are asked to complete a Credit Application Form, listing their bank and three commercial references. For the convenience of customers without established credit, prepayment, including transportation charges (if applicable) and taxes, will release orders immediately for shipment. Visa, MasterCard, and American Express (US only) are accepted.



Shipment:

Courier or truck F.O.B. our Warehouses in Canada: Baie D'Urfé, QC; USA: Champlain, NY; Europe: Courtaboeuf, Paris, France. Insurance covering the full value of the shipment is included with the transportation charges. If you wish to select a specific carrier, and/or have insurance to cover your shipment, please contact us immediately.

Claims:

SCP SCIENCE takes great care in the packaging of goods prior to shipment. In the event that breakage occurs during shipment, claims for damaged merchandise must be made to the transport company and reported to **SCP SCIENCE** within 5 days of receipt of order. The damaged goods along with the original packaging must be kept, and a Damage Report Claim filed with the transport company. Claims for short-shipments should be made immediately with **SCP SCIENCE**.

Returns:

Returns must be authorized. Please contact **SCP SCIENCE** for a Return Authorization Number and proper shipping instructions before returning merchandise. No returns can be accepted without prior approval. Restocking charges may be applicable.

Customer Response:

SCP SCIENCE is at your service. We appreciate comments, criticism, and suggestions, and we will make every effort to meet your expectations for high-quality products and services.

Disclaimer:

Products supplied are for laboratory use only and should not be used for any household, medical, or therapeutic application. **SCP SCIENCE** presumes that only trained and qualified individuals, familiar with procedures suitable to the products ordered, will handle them. Our customers are solely responsible for the safe storage, handling, and the use of these products.

Distribution:

SCP SCIENCE products are available worldwide through a network of distributors. Please contact **SCP SCIENCE** directly for the name and contact information of your local distributor. Distributor terms and conditions may vary.

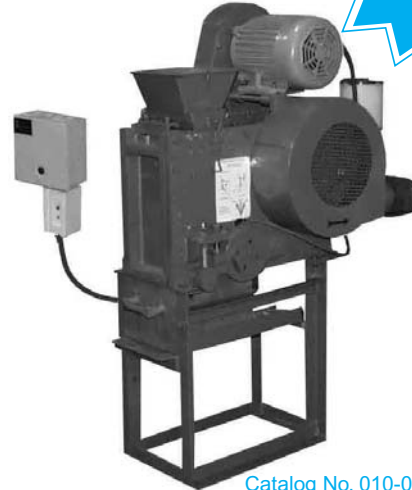
*Sample pretreatment equipment, such as the **NEW SP-5000 Jaw Crusher**, excels in quality, reliability, and affordability. Depending on the application, **SCP SCIENCE** can provide the proper equipment to satisfy your analytical needs and maximize the precision of your final analytical results.*

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Jaw Crusher SP-5000

A sturdier machine with a more powerful motor than previous models, the Jaw Crusher SP-5000 is manufactured for customers with heavy workloads. Grinder crushes 5" x 7" (13cm x 18cm) samples to -10 mesh in one pass (93%-95%). Complete with one set of smooth or serrated jaws. Improvements include: more powerful motor (5 HP), moving jaw bearings which are 5 to 10 times stronger; moving jaw shaft ½" diameter longer offering twice the load capacity; and pusher and flange bearings which have twice the capacity.

- Integrated forced blown air system to reduce bearing temperatures
 - Provides a longer life span for system parts
- Applications include:
 - Rocks, core samples, cements, ingots, glass, and friable materials



Catalog No. 010-010-106

Specifications

Jaw Crusher SP-5000	
Catalog Number	010-010-106 (208V, 60HZ)
Catalog Number	010-010-108 (230V, 50Hz)
Capacity (in./cm)	5 x 7 / 13 x 18
Power	3 Phase, 60 cycles, 5HP
Size (in./cm)	22W x 41D x 59H / 56W x 104D x 150H
Weight (lb/kg)	1000/455

Optional Accessories

Description	Catalog Number
Hopper/Feeder	010-010-110
Steel Stand	010-010-111
Dust Collection Hopper	010-010-112

Jaw Sets

Jaw Style	Alloy	Catalog Number
Serrated	Chrome-Moly Steel	010-010-120
Serrated	Chrome Steel	010-010-121
Serrated	Mild Steel	010-010-122
Serrated	Manganese	010-010-123
Smooth	Chrome-Moly Steel	010-010-130
Smooth	Chrome Steel	010-010-131
Smooth	Mild Steel	010-010-132
Smooth	Manganese	010-010-133

Applications

Agriculture:

- Fertilizer - raw materials

Mineralogy and Metallurgy:

- Mining - ore samples
- Metal processing slags
- Cement - raw materials

Chemistry:

- General chemistry lab

Mesh Size Equivalents

Mesh Size	Microns	Millimeters	Inches
20	840	0.84	0.0328
50	297	0.30	0.0116
100	149	0.15	0.0058
200	74	0.07	0.0029
325	44	0.04	0.0017
400	37	0.038	0.0015
625	20	0.02	0.0008
1250	10	0.01	0.0004

Swing Mill Grinder SP-2000

Used for pulverizing, mixing, and homogenizing 10 to 500 gram sample sizes, this swing mill grinder reduces samples to 100 to 400 mesh (see mesh size on page 11). A maximum sample of 13 mm is placed in a grinding container with a puck and ring. Once the container is covered and installed in the grinder, vibration action reduces the sample. A manual self-adjusting clamp maintains sealing pressure to prevent sample loss during grinding. Applications include wet and dry production samples, mineral, soil, rock, cement and glass.



Catalog No. 010-010-200

- Manufactured with a steel frame and sound dampening lining
 - Provides low maintenance grinding
- Includes control panel with an emergency button
 - Offers added user security

Grinding Dishes are precision-machined from accurately formulated alloys to ensure long life and minimal cross-contamination. Each grinding dish is supplied complete with rings and puck and is sealed with a rubber ring to prevent sample loss during wet or dry grinding. A uniquely engineered groove retains the o-ring eliminating the need for glues or bonding agents.

Specifications

SP-2000 Swing Mill Grinder	
Catalog Number	010-010-200 (208V, 60 cycle)
Catalog Number	010-010-250 (230V, 50 cycle)
Capacity (in/cm)	5 x 7 / 13 x 18
Power	3 Phase, 1HP
Size (in./cm)	25W x 25D x 41H* / 64W x 64D x 104H*
Weight (lb/kg)	480/1056

* When door swings open the total height is 59" (150cm).

Adapter Plates

Description	Catalog Number
Adapter Plate	
For one 20 ml or 50 ml grinding dish	010-010-221
Adapter Plate	
For three 20 ml or 50 ml grinding dishes	010-010-222

Standard Grinding Dishes

Alloy	Capacity (ml)	Diameter (mm)	Adapter Required	Catalog Number
Chrome-Moly Steel	50	108	Yes	010-010-201
Chrome-Moly Steel	100	140	No	010-010-202
Chrome-Moly Steel	250	222	No	010-010-203
Chrome Steel	50	108	Yes	010-010-204
Chrome Steel	100	140	No	010-010-205
Chrome Steel	250	222	No	010-010-206

Special Order Grinding Dishes

Alloy	Capacity (ml)	Diameter (mm)	Adapter Required	Catalog Number
Tungsten Tool Steel	100	140	No	010-010-207
Tungsten Tool Steel	250	222	No	010-010-208
Chrome-Moly Steel	20	86	Yes	010-010-209
Chrome-Moly Steel	150	156	No	010-010-210
Chrome Steel	20	86	Yes	010-010-211
Chrome Steel	150	156	No	010-010-212
Mild Steel	50	108	Yes	010-010-214
Mild Steel	100	140	No	010-010-215
Mild Steel	250	222	No	010-010-216
Ceramic	150	156	No	010-010-217
Tungsten Carbide	20	86	Yes	010-010-218
Tungsten Carbide	50	108	Yes	010-010-219
Tungsten Carbide	150	140	No	010-010-220

Soft Material Grinder SP-3000

Ideal instrument to reduce 20 to 80 grams of medium to soft material into the desired mesh size. Complete with a metal plate preformed with 1/16" (10 mesh) holes. A set of rotating knives cuts and shears the sample against a set of stationary knives in the grinding chamber. The process continues until the material is fine enough to pass through the mesh screen at the bottom of the chamber.

- Easily-removable, sealed, sample receptacle
 - Allows for maintenance-free operation
- Manufactured with a dual-stage feeding hopper
 - Eliminates dust from escaping

Specifications

SP-3000 Soft Material Grinder	
Catalog Number	010-010-300 (208V, 60 cycle)
Catalog Number	010-010-305 (230V, 50 cycle)
Capacity	20-80 grams
Power	3 Phase, 1HP
Size (in./cm)	17W x 28D x 40H / 43W x 71D x 102H
Weight (lb/kg)	120/264



Catalog No. 010-010-300

When specifying screen size, note that the average particle size of the ground material that passes through a screen is always much smaller than the holes in that screen. For example, a typical medium-hard sample passed through a 35 mesh (.425 mm) screen, yields a particle distribution in which 95% of the material particle size is less than 115 mesh (.125 mm) and 40% is less than 270 mesh (.053 mm).

Optional Accessories

Description	Catalog Number
10 Mesh Screen (1.58 mm)	Included
20 Mesh Screen (.850 mm)	010-010-311
28 Mesh Screen (.600 mm)	010-010-312
35 Mesh Screen (.425 mm)	010-010-313
48 Mesh Screen (.300 mm)	010-010-314
70 Mesh Screen (.201 mm)	010-010-315
100 Mesh Screen (.150 mm)	010-010-316

Applications

Agriculture:

- Grass, compressed fibers, straw, peat, husks, hay, hops, roots

Industrial Products:

- Plastics (PET, PP, PVC, etc...)
- Resins, synthetic fibers, leather, rubber, general chemistry lab, paper

Food:

- Spices, tobacco

Environment:

- Pellets, wood, soft soil

Sample Preparation

X-Ray Fluorescence Analysis

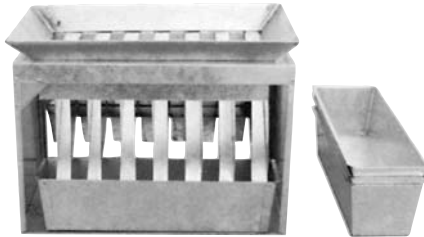
A variety of sample preparation and supply items are available.

- Complete line of manual and automated hydraulic presses
- Plastic sample cups for major XRF instrument manufacturers
- A range of thin film materials



Open Pan Riffle Sample Splitter

Constructed in stainless or galvanized steel, the sample splitter has a wide application since it can be used for fine aggregates as well as many coarse sizes. Sample is poured into the hopper chute and the riffle splitter divides it into two equal portions that discharge into separate pans. The split is then repoured until the desired number of representative samples are obtained. The sample splitters are available with riffle openings of 3/8" or larger, and with splitter sizes of 229 mm x 305 mm (9" x 12") and 229 x 457 mm (9" x 18").



Catalog No. 010-010-801

- Customized sizes available (please ask for technical assistance)

Applications

Agriculture:

- Grass, compressed fibers, straw, peat, husks, hay, hops, roots

Environment:

- Pellets, wood, soft soil, sand, minerals, ore, slag, coke, glass

Ordering Information

Catalog # (Prefix)	Stainless (Suffix)	Galvanized (Suffix)	Description	Riffle Size (in./mm)	Number of Riffles
010-010	-801	-802	Riffle, 229 x 305 mm ID, complete with (1) Pan and Stand	0.375 / 9.53	32
010-010	-803	-804	Riffle, 229 x 305 mm ID, complete with (1) Pan and Stand	0.5 / 12.7	24
010-010	-805	-806	Riffle, 229 x 305 mm ID, complete with (1) Pan and Stand	0.625 / 15.9	18
010-010	-807	-808	Riffle, 229 x 457 mm ID, complete with (1) Pan and Stand	0.375 / 9.53	48
010-010	-809	-810	Riffle, 229 x 457 mm ID, complete with (1) Pan and Stand	0.5 / 12.7	32
010-010	-811	-812	Riffle, 229 x 457 mm ID, complete with (1) Pan and Stand	0.625 / 15.9	28

Spare Pans

Catalog # (Prefix)	Stainless (Suffix)	Galvanized (Suffix)	Description
010-010	-850	-851	Sample Pan, Small for 229 x 305 mm Riffle
010-010	-852	-853	Sample Pan, Large for 229 x 457 mm Rifle

DigiPREP HP, Hot Plate

DigiPREP HP has solved the problem of "hot spots" due to localized heat sources in traditional hot plates. This is achieved through a heating mat which covers the entire bottom of the Teflon® coated graphite plate. The graphite plate offers corrosion resistance and superior thermal conductivity compared to conventional hot plate surfaces and has a $\pm 1^\circ\text{C}$ variation across its surface. Direct sample heating is monitored and controlled by a Teflon® coated thermocouple probe (**DigiPROBE**, optional, see page 27) placed in a control sample or in the well located in the graphite plate. **DigiPREP HP** operates with the KeyPad, PC Classic or Touch Screen controller (sold separately, see page 23 and 24 for more details) and is CE, UL, and CSA approved.



Catalog No. 010-500-220

Catalog No. 010-505-230

- Corrosion resistant
 - Constructed for long life
- Uniform heating ($\pm 1^\circ\text{C}$)
 - Delivers even heating to all samples

Specifications

DigiPREP HP			
Catalog Number	010-505-230	Stability	$\pm 0.5^\circ\text{C}$
Temperature	Ambient - 180°C	Heating	Teflon® Coated Graphite
Uniformity	$\pm 1^\circ\text{C}$	Remote Controller	KeyPad, Touch Screen or PC Classic
Time to Temperature	Ambient to 95°C , 25 min.	Power	925W
Over-Temp Protection	Yes	Size (in.)	19W x 15D x 3H
Heating Surface Area	214 cm ² / 33.2 in ²	Size (cm)	48W x 38D x 8H
Stability	$\pm 0.5^\circ\text{C}$	Certification	CE/UL/CSA

100 ml, 250 ml &
500 ml Teflon®
Beakers
available!
see page 16

Autosampler Hood, HEPA® Filtered

The Autosampler hood* offers an effective and economical means to protect samples from laboratory air contamination and to contain sample vapors. Ideal for autosamplers, water baths, *DigiPREP HP, Jr.*, and **MS** (see page 22). Designed to fit on a standard laboratory bench, the hood provides an effective and economical solution for many commercial, medical, laboratory and industrial applications.

- Increase in height by 6" compared to the standard *DigiPREP* Fume Hood system (catalog no. 010-500-039)
 - Made to accommodate movement of autosampler arm
- Constructed from Lexan®
 - Eliminates corrosion seen in conventional fume hoods



Specifications

Autosampler Hood	
Catalog Number	010-500-049
Material	Corian and Lexan®
Size (in.)	26W x 23.5D x 25H
Size (cm)	66W x 60D x 60H
Weight (lb/kg)	54/24

Accessories

Description	Quantity	Catalog Number
New variable speed blower unit (115V/230V)	1	010-500-032
- 3 foot exhaust hose w/90° elbow to connect hood & blower unit	1	
- 6 foot exhaust hose to connect blower unit to fume hood or fume duct	1	
10" Exhaust Hose Extension	1	010-500-034
HEPA Filter Disks	12/pk	010-500-040

Quartz-Fiber-Ashing Crucibles

Quartz Fiber Crucibles improve ashing times by dramatically increasing oxidation and reducing cooling times. The low-mass, porous crucible permits air to circulate through the crucible increasing the rate of oxidation. Analysis time is further reduced by the quick cooling time of the crucibles; crucibles cool from 1000°C to ambient temperature in seconds. Ashing disks are placed on top of the sample to reduce loss of residue due to airflow.

- Ideal for use in both microwave and conventional muffle furnaces
- Available in 20, 50 and 100 ml sizes



Ordering Information

Description	Diameter (mm)	Height (mm)	Quantity	Catalog Number
20 ml Ashing Crucible	44	13	100	010-070-101
50 ml Ashing Crucible	44	43	50	010-070-103
100 ml Ashing Crucible	61	40	16	010-070-104
Ashing Disk (for 20 & 50 ml Crucibles)	43	n/a	200	010-070-102
Ashing Disk (for 100 ml Crucibles)	60	n/a	100	010-070-106

Sample Preparation Accessories

Teflon® Beakers & Watchglasses



Molded from pure PTFE, with a super smooth internal finish and pouring spout, Teflon® Beakers are essential in any trace metal laboratory. These beakers are designed for use up to 280°C and/or with HF for silicate and refractory mineral digestion. They are constructed with flat bottoms providing better contact with hot plate surfaces and thus better thermal transfer efficiency.

Ordering Information

Beakers, PTFE	Size (mm)	Catalog Number	Watchglasses, PTFE	Size (mm)	Catalog Number
100 ml	69 x 59	130-013-001	For 100 ml Beaker	75	130-013-011
250 ml	97 x 66	130-013-002	For 250 ml Beaker	80	130-013-012
500 ml	106 x 80	130-013-003	For 500 ml Beaker	100	130-013-013

High Temperature Marking Pen



Disappearing labels on ashing crucibles is a thing of the past when you use the High Temperature Marking Pen. Usable on most types of ashing crucibles and guaranteed to remain visible, even after extended exposure to temperatures of 1000°C.

Ordering Information

Description	Quantity	Catalog Number
High Temperature Marking Pen	1	010-070-020

Weighing/Drying Pans



SCP SCIENCE offers oil-free weighing/drying pans which are ideal for general purpose weighing, dispensing, storage and drying. Excellent for Oil & Grease or Total Petroleum Hydrocarbon solvent evaporation.

Ordering Information

Description	Quantity	Catalog Number
7 cm Drying Pan	pk/50	130-028-001
10 cm Drying Pan	pk/50	130-028-002

Kimwipe® Delicate Task Wipers



Ideal for polishing glassware and cleaning instruments. Wipes clean and exhibits low characteristics. Available in 2 different sizes for convenience.

Ordering Information

Description	Size (cm)	Quantity	Catalog Number
Kimwipes®	11 x 21	280/box	130-074-001
Kimwipes®	38 x 43	140/box	130-074-002

DigiPREP sample digestion systems are manufactured with graphite block technology proven to meet harsh laboratory environments. DigiPREP systems have been sold worldwide to meet food, biological, agricultural, industrial, and environmental digestion applications. Together with innovative accessories, such as the sample temperature controlling DigiPROBE and disposable DigiTUBE vessels, DigiPREP digestion systems meet all the sample digestion and evaporation needs of analytical chemists and spectroscopists.

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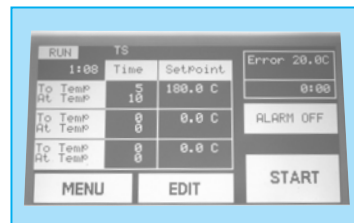
Evaporation & Digestion Systems - DigiPREP Blocks

DigiPREP blocks are Teflon® coated to resist aggressive corrosive attack for guaranteed long life in harsh laboratory environments. Three sizes - 24-position *DigiPREP Jr.*, 48-position *DigiPREP MS*, and 72-position *DigiPREP LS* - offer the latest in graphite block digestion technology. *DigiPREPs* are effective for the digestion and evaporation of samples. All three *DigiPREP* blocks are accepted and used in Environmental Protection Agency (E.P.A.) Office of Water Methods (i.e. 200.2, 200.7, 200.8, 200.9, 245.1, and 365.1) and Office of Solid Waste SW846 Methods (i.e. 3010a, 3020b, 3050b, and 3060). Manufactured under an ISO 9001:2000 certified quality program. CE, UL and CSA approved.



DigiPREP Jr., *DigiPREP MS* and *DigiPREP LS* systems have a temperature range from ambient to 180°C. All systems have a sample-to-sample temperature uniformity of +/-1°C by directly coupling the graphite block to a specialized heating mat which covers the entire base of the block. The systems also provide temperature stability of +/-0.2°C from one corner of the block to the other. This is especially important for evaporation methods.

An over-temperature protection feature comes standard with each system to protect against a runaway temperature situation. The power to the heating mat is immediately shut-off and samples are saved from being evaporated to dryness. For optimum results, **SCP SCIENCE** offers *DigiTUBE*s (catalog no. 010-500-261) - disposable sample digestion vessels - which are designed to fit the sample wells of all three systems.



DigiPREP blocks operate with either the *DigiPREP KeyPad, Touch Screen* and **PC Classic** controller. Both controllers have programmable options such as: temperature set-point to 0.1°C, timer (in minutes) with shut off option, and operating language option (English, French, Japanese, Chinese*, Korean*, German, Italian, Spanish, Dutch). A **SCP SCIENCE** Technical Sales Representative or distributor, trained in the applications of *DigiPREP* systems, can suggest the right combination of block and controller to fit your needs.

* Available soon.

Method Development Guide:

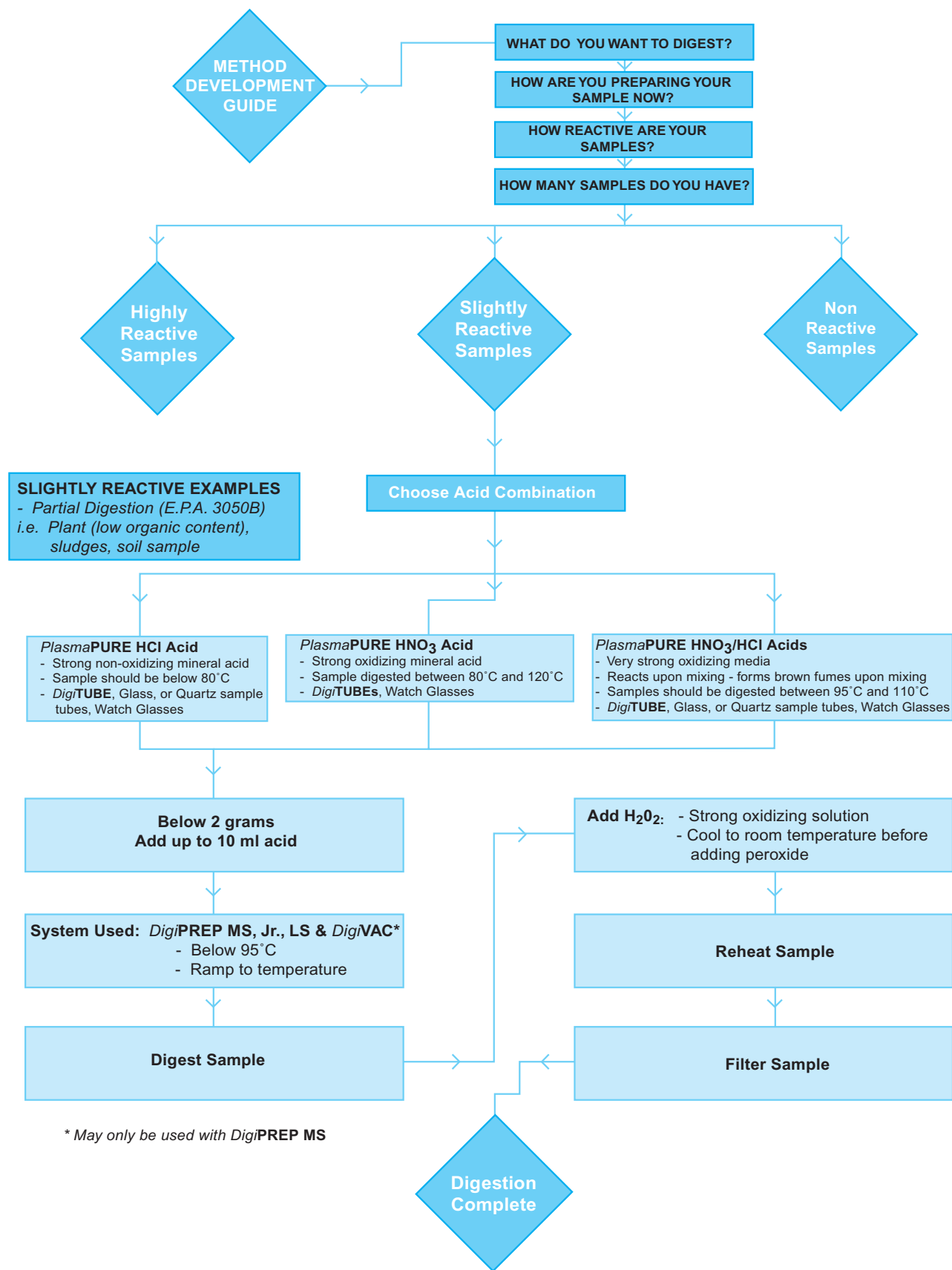
To offer added support in selecting the proper *DigiPREP* system and controller, our Research and Development lab has provided a detailed method development guide. Starting from the sample, determine its reactivity, type of acid to be used (i.e. HCl, HNO₃, H₂SO₄), and *DigiPREP* system. This is a valuable starting point to develop customized digestion applications. Contact your Sales Representative or local distributor for help in determining the right *DigiPREP* system and controller for your lab samples.

Specifications

Description	<i>DigiPREP Jr.</i>	<i>DigiPREP MS</i>	<i>DigiPREP LS</i>
Catalog Number (115V/230V)	010-505-205	010-500-205	010-500-210
Includes	RackLock rack (1), 24 position	RackLock rack (2), 24 position	RackLock rack (3), 24 position
Temperature	Ambient - 180°C	Ambient - 180°C	Ambient - 180°C
Uniformity	± 1.0°C (In <i>DigiTUBE</i> at 95°C)	± 1.0°C (In <i>DigiTUBE</i> at 95°C)	± 1.0°C (In <i>DigiTUBE</i> at 95°C)
Stability	± 0.2°C	± 0.2°C	± 0.2°C
Time to Temperature	25 min. ambient to 95°C	35 min. ambient to 95°C	35 min. ambient to 95°C
Recovery Time	40 min. ambient to 95°C	30 min. ambient to 95°C	35 min. ambient to 95°C
Over-Temp Protection	Yes	Yes	Yes
Heating Block	Teflon® Coated Graphite	Teflon® Coated Graphite	Teflon® Coated Graphite
Power	750 W	925 W	2625 W
Size (in.)	13W x 9.5D x 4.75H	18W x 14D x 4.75H	19W x 21D x 6H
Size (cm)	33W x 24D x 12H	46W x 36D x 12H	48W x 53D x 15H
Weight (lb/kg)	18.5/8.5	53/24	75/34

Method Development Guide - Slightly Reactive Samples

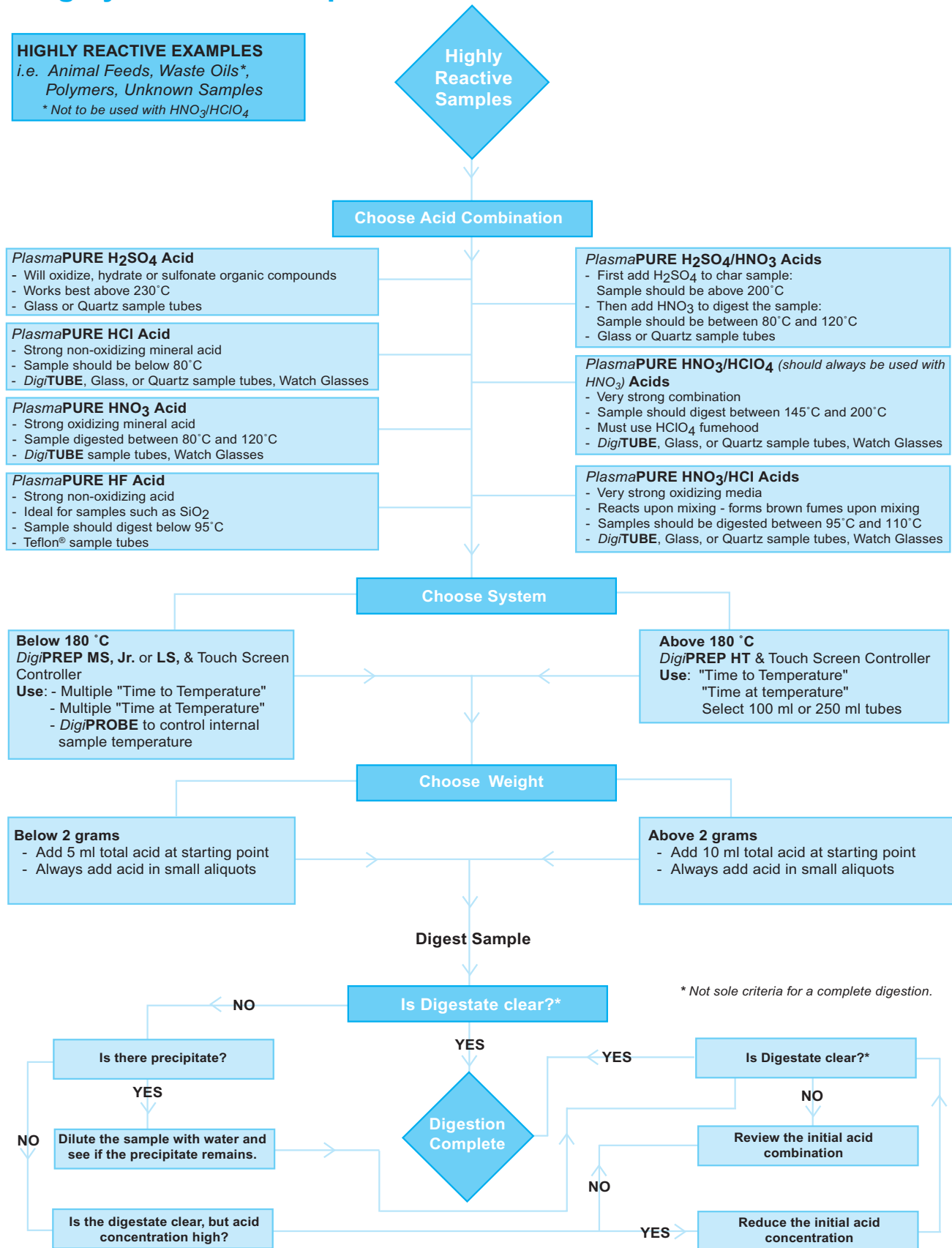
Evaporation & Digestion Systems



Method Development Guide - Highly Reactive Samples

HIGHLY REACTIVE EXAMPLES
i.e. *Animal Feeds, Waste Oils*,
Polymers, Unknown Samples*
** Not to be used with HNO₃/HClO₄*

Evaporation &
Digestion Systems



Method Development Guide -
Non Reactive Samples

NON REACTIVE EXAMPLES
i.e. Drinking Water, Waste Water Sample, (Hg analysis) - Water/Soil



Choose Acid Combination

PlasmaPURE HCl Acid
- Strong non-oxidizing mineral acid
- Sample should be between 65°C and 95°C
- DigiTUBE, Glass, or Quartz sample tubes, Watch Glasses

PlasmaPURE HNO₃ Acid
- Strong oxidizing mineral acid
- Sample digested between 65°C and 95°C
- DigiTUBEs, Watch Glasses

PlasmaPURE HNO₃/HCl Acids
- Very strong oxidizing media
- Reacts upon mixing - forms brown fumes upon mixing
- Samples should be digested between 65°C and 95°C
- DigiTUBE, Glass, or Quartz sample tubes, Watch Glasses

System Used: DigiPREP MS*
DigiPREP LS*
DigiPREP Jr.*
* Used with KeyPad, PC Classic or Touch Screen

SOLID

LIQUID

Suggestion for Hg in Water Only
To prevent pressure build-up, loosen the cap by 1/4 turn.

2 grams of solid sample
- max 10 ml acid

- 50 ml of liquid sample
- Can use closed caps *

Digest Sample

Digest and Concentrate

DigiSET
- used for unattended evaporation

Filter Sample (if necessary)



Evaporation &
Digestion Systems

DigiPREP Jr. Digestion System

The 24 position *DigiPREP Jr.** responds to the needs of smaller labs with limited sample loads. The digestion system comes complete with one 24-position RackLock rack (catalog no. 010-505-021). A "COM" port facilitates the addition of a *DigiPROBE* for direct sample temperature control. Manufactured under an ISO 9001:2000 certified quality program. CE, UL, and CSA approved. Operates with a KeyPad, PC Classic or Touch Screen controller.



Catalog No. 010-505-205

- Teflon® coated graphite block and acid resistant Kydex exterior construction
 - Eliminates sample contamination from digestion system
 - Corrosion resistant for long life

* Requires KeyPad, Touch Screen or PC Classic Controller (see page 24 and 25).

Specifications

DigiPREP Jr.			
Catalog Number	010-505-205 (115V/230V)	Stability	± 0.2°C
Capacity	24 Tubes	Heating Block	Teflon® Coated Graphite
Tube Volume	65 or 115 ml tubes	Power	750 W
Temperature	Ambient - 180°C	Size (in.)	13W x 9.5D x 4.75H
Uniformity	±1.0°C (In <i>DigiTUBE</i> at 95°C)	Size (cm)	33W x 24D x 12H
Over-Temp Protection	Yes	Weight (lb/kg)	18.5/8.4
Time to Temperature	25 min. Ambient to 95°C	Certification	CE/UL/CSA

DigiPREP MS Digestion System

The 48-position *DigiPREP MS** responds to the needs of regular size labs. The digestion system comes complete with two 24-position RackLock racks (catalog no. 010-500-021). For optimum results, **SCP SCIENCE** recommends *DigiTUBES* (catalog no. 010-500-261) - disposable, sample digestion tubes - which are designed for intimate contact with the block for maximum heat transfer. Manufactured under an ISO 9001:2000 certified quality program. Block is CE, UL and CSA approved. Operates with a KeyPad, PC Classic or Touch Screen controller.



Catalog No. 010-500-205

- Teflon® coated graphite block and acid resistant Kydex exterior construction
 - No sample contamination from digestion system
 - Corrosion resistant for long life

* Requires KeyPad, Touch Screen or PC Classic Controller (see page 24 and 25).

Specifications

DigiPREP MS			
Catalog Number	010-500-205 (115V/230V)	Stability	± 0.2°C
Capacity	48 Tubes	Heating Block	Teflon® Coated Graphite
Tube Volume	65 or 115 ml tubes	Power	925 W
Temperature	Ambient - 180°C	Size (in.)	18W x 14D x 4.75H
Uniformity	± 1.0°C (In <i>DigiTUBE</i> at 95°C)	Size (cm)	46W x 36D x 12H
Over-Temp Protection	Yes	Weight (lb/kg)	53/24
Time to Temperature	35 min. Ambient to 95°C	Certification	CE/UL/CSA

DigiPREP LS Digestion System

The 72 position *DigiPREP LS** provides maximum sample throughput levels for high production laboratories. The digestion system comes complete with three 24 position RackLock Racks (catalog no. 010-500-021). Manufactured under ISO 9001:2000 certified quality program. CE, UL and CSA approved. Operates with a Keypad, PC Classic or Touch Screen controller.

- Manufactured with a heating mat which covers the entire graphite block
 - Offers excellent heat uniformity
- Evaporate or digest 72 samples simultaneously
 - Allows for hundreds of samples to be digested per day

* Requires Keypad, Touch Screen or PC Classic Controller (see page 24 and 25).



Catalog No. 010-500-210

Evaporation & Digestion Systems

Specifications

DigiPREP LS			
Catalog Number	010-500-210 (230 V)	Stability	± 0.2°C
Capacity	72 Tubes	Heating Block	Teflon® Coated Graphite
Tube Volume	65 or 115 ml tubes	Power	2625 W
Temperature	Ambient - 180°C	Size (in.)	19W x 21D x 6H
Uniformity	±1.0°C (In DigiTUBE at 95°C)	Size (cm)	48W x 53D x 15H
Over-Temp Protection	Yes	Weight (lb/kg)	75/34
Time to Temperature	35 min. Ambient to 95°C	Certification	CE/UL/CSA

Start-up Kits For DigiPREP Systems

DigiPREP Jr. Start-up Kit (010-505-066)

Includes	Quantity	Catalog Number
RackLock DigiTUBEs	500	010-500-061
Disposable Watch Glasses	1000	010-500-081
24 Position RackLock Rack	1	010-505-021
Foam Storage Racks	5	010-500-028

DigiPREP MS Start-up Kit (010-500-067)

Includes	Quantity	Catalog Number
RackLock DigiTUBEs	500	010-500-061
Disposable Watch Glasses	1000	010-500-081
24 Position RackLock Racks	2	010-500-021
Foam Storage Racks	5	010-500-028

DigiPREP LS Start-up Kit (010-500-069)

Includes	Quantity	Catalog Number
RackLock DigiTUBEs	500	010-500-061
Disposable Watch Glasses	1000	010-500-081
24 Position RackLock Racks	3	010-500-021
Foam Storage Racks	10	010-500-028

DigiPREP Controllers & Accessories

Possible Configurations - Compatibility Chart

Instrument	Keypad Controller (see page 24)	Touch Screen Controller (see page 25)	PC Classic Controller (see page 25)	Go2TEMP Software (see page 30)	DigiREMOTE (see page 30)	DigiConnect (see page 30)	DigiPROBE (see page 27)	DigiSET (see page 28)	DigiMAC (see page 28)	DigiPREP Fume Hood (see page 29)	Universal Fume Scrubber (see page 34)
DigiPREP Jr.	X	X	X	X*	X	X	X	X	X		
DigiPREP MS	X	X	X	X*	X	X	X	X	X	X	X
DigiPREP LS	X	X	X	X*	X	X	X	X	X	X	
DigiPREP HT	X	X	X	X*	X	X					X
DigiPREP HP	X	X	X	X*	X	X	X	X	X	X	

* If used with PC Classic Controller

DigiPREP Controllers

DigiPREP KeyPad, Touch Screen and PC Classic controllers are used with **DigiPREP** digestion systems. Controllers may be placed inside or outside of the fume hood to minimize exposure to acid fumes and to provide ideal space arrangements. Each controller has programmable options such as: temperature set-point to 0.1°C and timer (in minutes) shut down option. **KeyPad** and **Touch Screen** controllers have an alarm for the end of the timed segment. They are manufactured using the same corrosion resistant material as the **DigiPREP** blocks to eliminate sample contamination and provide long corrosion free life. Manufactured under an ISO 9001:2000 certified quality program. CE, UL, and CSA approved.

DigiPREP KeyPad Controller

When an application requires a one-step set-point temperature (see chart 1), the KeyPad controller offers all the required features to respond to your needs. A total of 16 pre-defined keys which include a "target temperature" button to input the desired operating temperature; "target time" button to enter both the time required at the designated "target temperature" and the time delay before the alarm will sound if the alarm is activated; and an "audible alarm" button to activate the alarm. Inputting operating parameters is made simply and easily. A liquid crystal display (LCD) screen presents information clearly. A "Com" port at the back of the KeyPad provides the option of using **DigiSET** (catalog no. 010-500-014). For direct control and monitoring of actual sample temperature, we recommend the 6" **DigiPROBE** (catalog no. 010-505-115) for **DigiTUBEs** or the 10" **DigiPROBE** (catalog no. 010-505-116) for 115 ml borosilicate glass tube (catalog no. 010-520-068) calibrated at the 50 ml and 100 ml mark.



Catalog No. 010-500-220

Specifications

DigiPREP KeyPad*

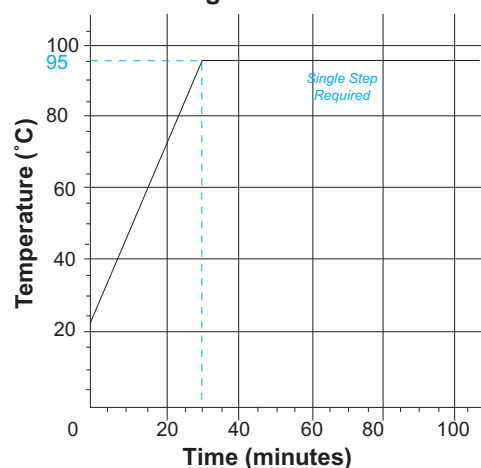
Catalog Number (115V/230V)	010-500-220
Programmable	Time with shut down option Temperature set-point to 0.1°C Alarm for end of segment
Display	Actual sample temperature** Actual time remaining in sequence Seven different languages
Size (in./cm)	5.5W x 7.25D x 4.25H / 14W x 43.8D x 10.2H
Weight (lb/kg)	2.6/1.5
Certification	CE/UL/CSA

* For use with the **DigiPREP Jr., MS, LS, HP, & HT.**

** If **DigiPROBE** option is used (sold separately)

- Programmable temperature set-point to 0.1°C
 - Control temperature parameters at your fingertips
- Usable in several different languages
(English, French, German, Japanese, Chinese*, Korean*, Italian, Spanish, and Dutch)
* Available soon

Chart 1: Typical KeyPad Controller Program for Drinking Water



Application Notes

Our Application Chemists have created application notes to help laboratories optimize sample digestions with **DigiPREP Jr., MS, LS** and **HT** systems.

- A valuable starting point to develop customized digestion applications
- Contact your Sales Representative or local distributor to inquire about an application note for your lab samples



Touch Screen Controller

Applications which have multiple “target temperature” stages are facilitated by the use of the Touch Screen Controller. A touch-sensitive, liquid crystal display (LCD) monitor (size: 4 3/4” x 2 2/3”) provides information at your fingertips. The Touch Screen controller offers all the features included in the KeyPad controller such as multiple user language settings (English, French, German, Japanese, Chinese*, Korean*, Italian, Spanish and Dutch). In addition, a programmable menu screen gives the option of entering 10 complete digestion application profiles. In each profile, 3 programmable levels of “Time to Temperature” and “Time at Temperature” may be set. This offers more flexibility in creating digestion applications. A “Com” port located at the back of the Touch Screen controller provides the option of using *DigiSET* (catalog no. 010-500-014) for automated shut-off at a preset volume during evaporation. For direct control and monitoring of actual sample temperature, we recommend the 6” *DigiPROBE* (catalog no. 010-505-115) for *DigiTUBEs* or the 10” *DigiPROBE* (catalog no 010-505-116) for 115 ml borosilicate glass tubes (catalog no. 010-520-068) that are calibrated at the 50 ml and 100 ml marks.

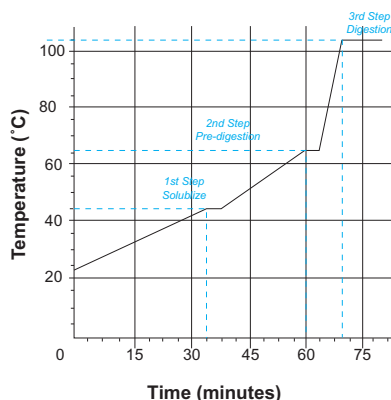
*Available soon

- Ramped, multi-stage and variable temperature heating control
 - Automate complex temperature profiles
- Ideal for difficult sample digestion applications:
 - Animal feed, human hair, tobacco leaves, plastics



Catalog No. 010-500-225

Chart 2: Typical Touch Screen Controller Program for Animal Feed



Specifications

DigiPREP Touch Screen**	
Catalog Number (115V/230V)	010-500-225
Description	Includes all <i>DigiPREP</i> KeyPad features, plus; <ul style="list-style-type: none"> - 10 programmable methods can be created, stored, and recalled - each method offers 3 programmable levels of: <ul style="list-style-type: none"> • Time to temperature (ramp) • Time at temperature (soak)
Size (in./cm)	10W x 7.5D x 7H / 25W x 18D x 17.5H
Weight (lb/kg)	5.5/2.5
Certification	CE/UL/CSA

** For use with *DigiPREP* Jr., MS, LS, HT & HP

PC Classic Controller

Facilitate PC control of *DigiPREP* systems with the **PC Classic** controller. Used in combination with *Go2Temp*® software (see page 29), digestions are monitored, controlled and temperature profiles can be data logged for up to 16 systems simultaneously.

- Connect up to sixteen *DigiPREP* systems to form a PC data station*
 - Save set-up time for multiple application methods
- Program and monitor remote *DigiPREP* digestion systems
 - Control and monitor temperature parameters of multiple and remote *DigiPREP* systems

Specifications

PC Classic Controller**			
Catalog Number	010-500-280	Size (cm)	17.8W x 15.2D x 20.3H
Description	80 - 240 V	Weight (lb/kg)	15/6.8
Size (in.)	7W x 6D x 8H	Certification	CE/UL/CSA

* *Go2Temp*® or *DigiREMOTE* software must be installed on to the desktop computer (sold separately).

** For use with *DigiPREP* Jr., MS, LS, HP & HT



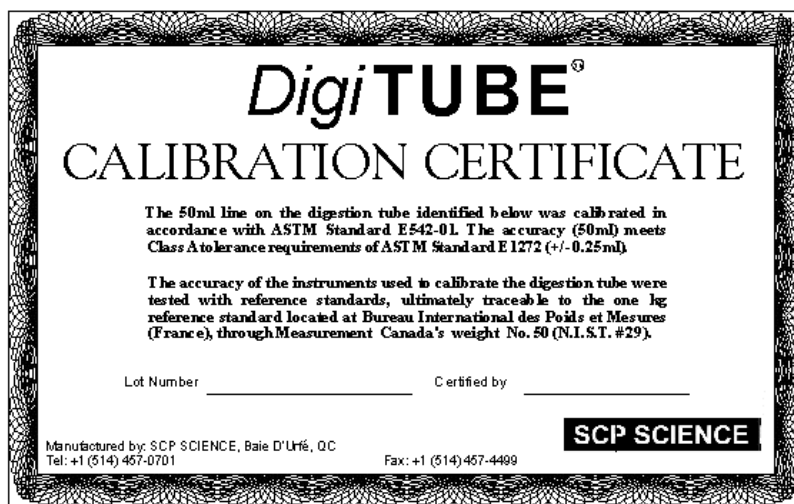
Catalog No. 010-500-280

Evaporation & Digestion Systems

DigiPREP Accessories - DigiTUBEs

DigiTUBEs are recognized as the best disposable digestion vessels on the market. Manufactured using virgin polypropylene which has been verified for leachable metals by ICP-MS. Low leachable catalytic/additive metal content, excellent visibility and good acid resistance are guaranteed. **DigiTUBEs** come complete with leak free, polyethylene screw caps with no metallic additives.

In 2005, **SCP SCIENCE** introduced its second generation **DigiTUBE** (catalog no. 010-500-261). Tubes are graduated, in 5 ml increments, up to the 50 ml graduation mark. The 50 ml graduation mark is certified accurate to +/- 0.25 ml in accordance with ASTM Class "A" volumetric standards. This reduces and eliminates the need for graduated cylinders and volumetric flasks. In fact, a **DigiTUBE** replaces 5 vessels in the lab (i.e. digestion beaker, graduated cylinder, volumetric flask, autosampler tube, and storage container). Save time and lower costs with the use of **DigiTUBEs**.



Second generation **DigiTUBEs** offer a flatter bottom than previous models providing a more intimate contact with the base of the **DigiPREP** well. This results in faster heat up times and faster sample temperature response times. For critical applications, **DigiTUBEs** are available in shrink-wrapped bundles, Handy-Pak (catalog no. 010-500-362), to protect against dust infiltration during storage and handling. To promote gentle refluxing, disposable watch glasses (catalog no. 010-500-081) are available.

- Made from virgin polypropylene
 - Offer ultra low leachable metal content
- Provide a 50 ml graduation mark with accuracy equal to ASTM Class "A" specifications
 - Reduces the need for graduated cylinders and volumetric flasks
 - Certificate included with each case
- Manufactured with a RackLock Design - **Exclusive**
 - Locks **DigiTUBE** in position within a rack allowing easy, one-handed closure of the screw cap



Ordering Information

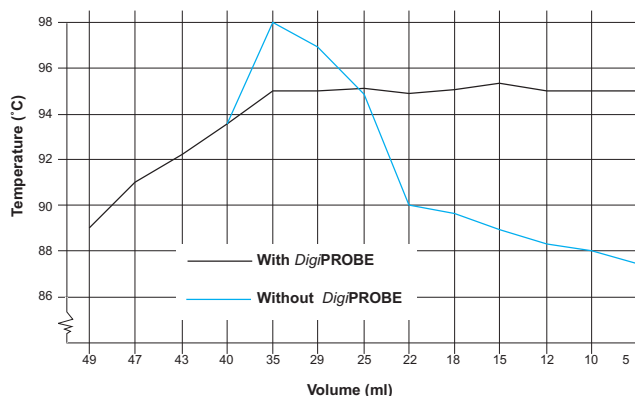
Description	Quantity	Catalog Number
DigiTUBE, RackLock	750	010-500-261
DigiTUBE, RackLock, w/o caps	750	010-500-262
DigiTUBE, Non RackLock	750	010-500-263
DigiTUBE, Non RackLock, w/o caps	750	010-500-264
DigiTUBE, RackLock, Handy-Pak	30 x 25	010-500-362
DigiTUBE, Non RackLock, Handy-Pak	30 x 25	010-500-364
Watch Glasses, Disposable	1000	010-500-081

DigiPREP Accessories - DigiPROBE

DigiPROBE is a PFA coated temperature probe which provides direct control and monitoring of the sample temperature when placed in a **DigiTUBE** (catalog no. 010-500-261). During evaporation or digestion, sample temperature may deviate from the “Target Temperature” of the **DigiPREP** system without **DigiPROBE** (see chart 3). **DigiPROBE** provides direct sample temperature feedback to the controller which can then adjust the temperature of **DigiPREP** block on a continuous basis.

The 6” **DigiPROBE** (catalog no. 010-505-115) is used with **DigiTUBES** (catalog no. 010-500-261 and 010-500-264) and the 10” **DigiPROBE** (catalog no. 010-505-116) is used with 115 ml borosilicate glass tubes (catalog no. 010-500-068) that are calibrated at the 50 ml and 100 ml marks.

Chart 3: Sample Temperature vs Sample Volume During Evaporation*



* **DigiPREP** system’s “Target Temperature” is set to 95°C.

DigiPROBEs are supplied with acid resistant **DigiPROBE** holders to support and position the **DigiPROBE** in the tube.

DigiPROBEs:

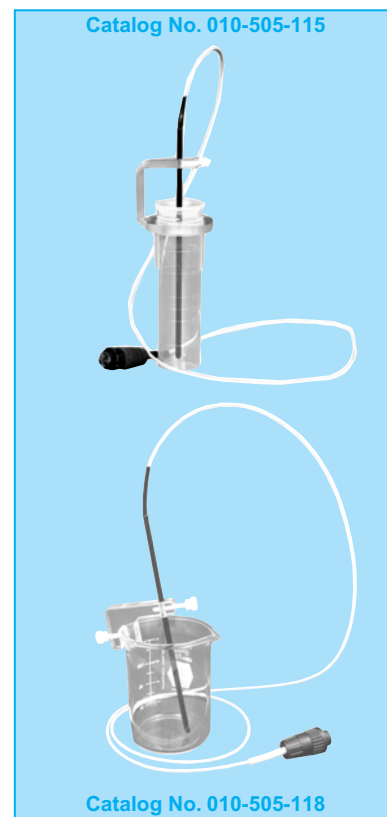
- Provide constant sample temperature control throughout the entire digestion process
 - Offer consistent sample evaporation and digestion results
- Monitor the sample temperature automatically
 - No longer a need to manually monitor sample temperature to ensure samples are processed at

Ordering Information

Description	Quantity	Catalog Number
6” DigiPROBE (for beakers)	1	010-505-117
10” DigiPROBE (for beakers)	1	010-505-118
6” DigiPROBE (for DigiTUBES)	1	010-505-115
10” DigiPROBE (for 115 ml borosilicate glass tubes)	1	010-505-116

Accessories

Description	Quantity	Catalog Number
DigiPROBE Watch Glasses (For use with all DigiPROBEs)	25	010-500-019
DigiPROBE Holder for DigiTUBES , replacement	1	010-500-035
DigiPROBE Holder for DigiPREP HP	1	010-505-036
DigiPROBE Holder for 115 ml Tubes, replacement	1	010-500-038
Glass Storage Wells for DigiPREP Jr./MS/LS	10	010-500-041
Dongle for DigiPROBE port (4 pin male)	1	010-505-052



Evaporation & Digestion Systems

DigiFILTERS and Accessories

Filter wastewater, soil or dirty samples with *DigiFILTERS* prior to AA or ICP analysis. Made from virgin polypropylene, *DigiFILTERS* offer low leachable metal content. An acid washed, ashless, qualitative filter paper is inserted into every *DigiFILTER* to guarantee 98% particulate retention. *DigiFILTERS* with alternative media are currently in development. Please inquire for additional information.



Catalog No. 010-500-070

- Made from disposable virgin polypropylene
 - Reduce metal contamination
- Delivers vacuum assisted sample filtration (VAF)
 - Offers a faster and more complete filtration
- Filter up to 12 dirty samples simultaneously per *DigiFILTER* manifold
 - Lower sample preparation time and improve productivity levels

Up to twelve *DigiFILTERS* connect to one *DigiFILTER* manifold. The manifold draws suction from a sturdy vacuum pump to help filter a dirty sample into a clean *DigiTUBE*. Tests have shown consistent sample filtrations at each position across the manifold. For busy labs, the *DigiFILTER* manifold may be connected in a daisy chain to multiple *DigiFILTER* manifolds. Manufactured under an ISO 9001:2000 certified quality program.



Catalog No. 010-500-230



Catalog No. 010-500-235



Catalog No. 010-790-503*

* Not exactly as shown

	<i>DigiFILTER</i>	<i>DigiFILTER</i> Manifold	Vacuum Pump	Collection Vessel
Catalog Number	010-500-070	010-500-230	010-500-235	010-790-503
Description	Dual-head polypropylene cup with a filter paper	For use with <i>DigiFILTER</i> , connect up to 4 <i>DigiFILTER</i> manifolds in series, made of polypropylene	Provide excellent suction for <i>DigiFILTER</i> system	To hold excess liquid
Size (in.)	1.6W x 1.3D x 1.3H	7W x 14D x 10H	4W x 7.5D x 6.75H	7.9W x 7.9D x 13.8H
Size (cm)	4.2W x 3.4D x 3.2H	18W x 35.5D x 25H	10W x 21D x 17H	18W x 18D x 35H
Weight (lb/kg)	4.4 / 2.0	2.1 / 0.45	3 / 1.36	1.1/2.3
Quantity	100/pk	1	1	1
Certification	---	---	CE/UL/CSA	---

DigiTUBES - Disposable Digestion Vessels

Manufactured using virgin polypropylene which has been verified for leachable metals by ICP-MS.

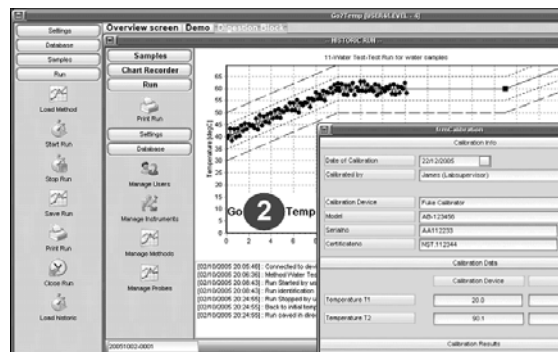
- Provide a 50 ml graduation mark with accuracy equal to ASTM Class "A" specifications
 - Reduces the need for graduated cylinders and volumetric flasks
- Manufactured with a RackLock design - *Exclusive*



DigiPREP Software - Go2Temp® Temperature Control Software

Install Go2Temp® software on your desktop to simultaneously control up to sixteen DigiPREP systems. Fully database driven; one can input temperature methods and instrument settings to facilitate multiple DigiPREP digestions systems or evaporations simultaneously. Requires at least one DigiPREP digestion block and DigiPREP PC Classic controller (see page 25).

- Generate reports containing graphical representation and realized temperature of the application method
 - Ideal for audit purposes
- Define four different user levels (Normal, Super, Systems Administration & Service Engineer)
 - Provide added security to important information
- Connect up to 16 DigiPREP systems with Go2Temp®-LX



Catalog No. 010-500-185

PC Recommendations:

Windows® 2000/XP, Minimum Pentium/900 MHz, 256 MB RAM, 1024 x 768 pixels, 64K colors (16 Bit - High Color), and USB port.

Each Go2Temp® run is saved on the hard disk or LIMS and contains a full temperature profile, alarms and log files (i.e. limit violations, start/stop info, errors and user names). Ideal for audit trailing. Information may be stored in Microsoft® Excel, XML or Acrobat PDF formats.

Access forty skins to change the appearance of the software and personalize the set-up. Optional electronic signature for signing each run by a supervisor (license add-on module) for added security. Complete with one year **Free** Internet support and software updates. View complete details at www.go2temp.com.

Specifications

Name	Description	Catalog Number
Go2Temp®-L1	Software to control up to 16 DigiPREP heating systems Includes: 1 line cord to connect to DigiPREP system 1 external robust industrial USB to RS485 connector Software card for CAL controller 25" (8 meters) of communication cable (extra lengths available)	010-500-185
Go2Temp®-Lx	2nd to 16th DigiPREP add-on for Go2Temp®-L1 software Includes: RS485 software card for CAL Controller 25" (8 meters) of communication cable (extra lengths available)	010-500-186
Go2Temp®-Au	Licence add-on for Enhanced Authorization (Electronic Signature)	010-500-187
Go2Temp®-IM	Licence add-on for Import Sample list from LIMS or External Drive	010-500-188
Go2Temp®-SC	Licence add-on Module for scheduling a run, so the run starts at a later date/time	010-500-189
Go2Temp®-SU	3-Year Service/Support Subscription for Internet Support and Free updates	010-500-190
Communication Cable	Additional length of communication cable (per foot)	010-500-012

DigiPREP PC Classic Controller

Facilitate PC control of your DigiPREP system with the PC Classic controller.

- Programmable temperature set-point to 0.1°C
 - Control temperature parameters at your fingertips
- To be used in combination with Go2Temp® software
 - Can connect up to 16 DigiPREP systems simultaneously



Evaporation & Digestion Systems

DigiPREP Accessories - Automatic Shut-off System - DigiSET

Designed to shut off *DigiPREP* heating systems once a predetermined volume of sample is reached in a *DigiTUBE*. Combining a visual alarm with auto shut-off, *DigiSET* offers a level of sample preparation control not available with any other graphite block digestion system. *DigiSET* is designed for evaporation methods where samples require volume reduction (volume control ± 2.5 ml). Manufactured under an ISO 9001:2000 certified quality program. CE, UL and CSA approved.



Catalog No. 010-500-014

- Automatic shut-off of *DigiPREP* system with no lab supervision
 - Allows for overnight digestions and evaporations
 - Increase lab efficiency by automatically processing samples off-hours
- Manufactured with a corrosion resistant case
 - Eliminates sample contamination from instrument
 - Corrosion resistant for long life

Ordering Information

Description	Quantity	Catalog Number
<i>DigiSET</i> (85V to 240V)	1	010-500-014

Accessories

Description	Quantity	Catalog Number
<i>DigiSET</i> Probe Holder, replacement	1	010-500-036
<i>DigiSET</i> Probe for use with <i>DigiTUBE</i> s (6")	1	010-500-037
<i>DigiSET</i> Probe for use with <i>DigiVAC</i>	1	010-500-058
Dongle for <i>DigiSET</i> Port (2 pin female)	1	010-500-051

DigiPREP Accessories - DigiVAC Fume System

A lower cost alternative to the use of a traditional fume hood for metal digestions and perfect for mobile environmental laboratories. Manufactured with three distinct "airfoils" to direct air flow patterns ensuring constant volume reduction during evaporation with no cross contamination. The system is installed by replacing the standard Corian ring with the pre-assembled *DigiVAC* Housing Corian base. Comes complete with a clear Lexan® hood which covers the graphite block. May be connected to an in-house evacuation system.



Catalog No. 010-500-032

Catalog No. 010-500-031

Ordering Information

Description	Quantity	Catalog Number
<i>DigiVAC</i> Hood, Corian Ring & 2 <i>DigiVAC</i> Racks, 24 position	1	010-500-031

The withdrawal of acid fumes is facilitated by use of a variable speed blower unit (catalog no. 010-500-032). Comes complete with an acid resistant hose to connect the variable speed blower unit to the *DigiVAC* hood; and a second length hose to connect the blower to a fume duct or fume hood.

Ordering Information

Description	Quantity	Catalog Number
New <i>DigiVAC</i> Blower System (115V/230V),	1	010-500-032
- Exhaust hose w/90° elbow to connect hood & blower unit, 3 foot	1	
- Exhaust hose to connect blower unit to fume hood or fume duct, 6 foot	1	
<i>DigiVAC</i> Exhaust Hose, 10 feet, extra	1	010-500-034

DigiPREP Accessories - HEPA Filtering Fume Hood System

To eliminate trace metal contamination from lab environments or corroding fume hoods, the *DigiPREP* Fume Hood is the right choice for trace metal digestions. An ergonomic, bench-top fume hood designed for *DigiPREP* HP, *DigiPREP* Jr., *DigiPREP* MS, and *DigiPREP* LS. Also can be used for the storage of clean ICP-MS supplies (i.e. torches, spray chambers, cones, etc...). Ambient air is drawn through HEPA filter ports (2) offering clean and even air circulation. The hood is exhausted from the top port which may be connected to a 10 foot exhaust hose (sold separately, see 010-500-034). An optional variable speed blower (catalog no. 010-500-032) may be connected to the top of the exit port for additional suction.

A front mounted, integrated Lexan® door slides effortlessly for easy access to samples. Universal ports (2) offer a means to insert power cords or a *DigiSET* probe (catalog no. 010-500-014) to enhance the efficiency of *DigiPREP* systems or lab instruments without compromising air quality. Manufactured under an ISO 9001:2000 certified quality program. The Fume Hood is shipped flat and be assembled in 90 seconds without tools.

- Filter air through HEPA filter disks for cleaner air flow
- Integrated “roll back” door
 - Slides effortlessly for easy access
- Constructed from Lexan®
 - Provides durable and see-through construction



Catalog No. 010-500-039
(*DigiPREP* MS and Keypad controller are sold separately)

Specifications

DigiPREP Fume Hood System	
Catalog Number	010-500-039
Material	Corian and Lexan®
Size (in.)	26L x 23.5D x 20H
Size (cm)	66L x 60W x 51H
Weight (lb/kg)	49/22.7

Accessories

Description	Quantity	Catalog Number
New variable speed blower unit (115V/230V)	1	010-500-032
- 3 foot exhaust hose w/90° elbow to connect hood & blower unit	1	
- 6 foot exhaust hose to connect blower unit to fume hood or fume duct	1	
10" Exhaust Hose Extension	1	010-500-034
HEPA Filter Disks	12/pk	010-500-040

Evaporation & Digestion Systems

Autosampler Hood

Offers an effective and economical means to protect samples from laboratory air contamination and to contain sample vapors.

- Increase in height by 6" compared to the standard *DigiPREP* Fume Hood system
 - Made to accommodate movement of autosampler arm
- Constructed from Lexan® to eliminate rusting seen in conventional fume hoods



DigiPREP Digestion Vessels & Accessories

Teflon® Digestion Tubes, 65 ml Tubes



For special applications which use hydrofluoric acid, use Teflon® (or PTFE) digestion tubes. Manufactured with an exclusive “view lens” to allow visibility of the 50 ml graduation mark. Comes complete with leak free polyethylene screw caps, tinted blue, with no metallic additives.

Description	Quantity	Catalog Number
Digestion Tubes 50 ml, PTFE	6/pk	010-500-066
Screw Caps for Digestion Tubes	250/pk	010-500-060

Disposable Watch Glasses, 35 mm



Unique ribbed watch glasses are designed to fit *DigiTUBEs* (catalog no. 010-500-261) and Teflon® tubes (catalog no. 010-500-066) to help promote gentle refluxing. Manufactured using virgin polypropylene with ultra low metal content.

Description	Quantity	Catalog Number
Watch Glasses, disposable	1000/box	010-500-081

Borosilicate Glass Tubes



For analysis above 130°C, use Borosilicate Glass Tubes. The 115 ml volume tubes are calibrated at the 50 ml and 100 ml marks which conforms to ASTM class “A” tolerance.

Description	Quantity	Catalog Number
Glass Digestion Tubes, 115 ml, Class ‘A’ Calibrated at 50 & 100 ml mark	6/pk	010-500-068
Glass Digestion Tubes, 65 ml, uncalibrated	6/pk	010-500-077
Glass Digestion Tubes, 65 ml, calibrated at 50 ml	6/pk	010-500-079

DigiTUBE Racks



Facilitate the handling of samples with *DigiTUBE* racks which hold 24 *DigiTUBEs* or Teflon® vessels. Racks are made from Lexan and are acid and heat resistant. Exclusive RackLock feature locks tube in position within rack allowing for easy, one-handed closure of screw cap.

Description	Quantity	Catalog Number
24 position RackLock Rack for <i>DigiPREP</i> Jr.	1	010-505-021
24 position RackLock Rack for <i>DigiPREP</i> MS & LS	1	010-500-021
18 position RackLock Rack for HotBlock® Users	1	010-500-025

Borosilicate Glass Tube Racks

Keep samples safe and secure in the 2-Tier rack for 115 ml borosilicate glass tubes (catalog no. 010-500-068). Racks are made from Lexan and are acid and heat resistant

Description	Quantity	Catalog Number
24 position 2-Tier rack, for <i>DigiPREP Jr.</i>	1	010-505-023
24 position 2-Tier rack, for <i>DigiPREP MS/LS</i>	1	010-500-023



Catalog No. 010-505-023

Storage Racks for *DigiTUBEs*

After analysis, retain the digested samples using convenient styrofoam storage racks. Racks holds up to 24 *DigiTUBEs* and may be stacked to save bench space.

Description	Quantity	Catalog Number
Foam Storage Racks, 24 position	5/pk	010-500-028



Catalog No. 010-500-028

Autosampler Racks

Compatible autosampler racks for CETAC, Gilson, and SPECTRO autosamplers. Convenience of using 65 ml *DigiTUBEs* (catalog no. 010-500-261) as autosampler tubes to eliminate sample transfer. Custom racks for your autosampler are available.

Description	Quantity	Catalog Number
Autosampler Racks for Gilson & SPECTRO (12 position)	1	010-510-050
Autosampler Racks for CETAC (24 position)	1	010-510-051



Catalog No. 010-510-050

16 mm Inserts

Acid resistant, Teflon® coated, graphite inserts are designed to fit into the 30 mm wells of *DigiPREP Jr.*, **MS**, and **LS**. Inserts allow for micro-digestions for Hg, PO₄, and Chemical Oxygen Demand (COD) analysis using conventional 16 mm glass tubes.

Description	Quantity	Catalog Number
Acid Resistant Inserts	6/pk	010-500-090



Catalog No. 010-500-090

High Temperature Digestion System - DigiPREP HT

DigiPREP HT incorporates several state-of-the-art design features in an affordable package. Available in two models: *DigiPREP HT 100* with a capacity of 40 tubes; and *DigiPREP HT 250* with a capacity of 20 tubes. Comes complete with a *DigiPREP HT* block dual zone tube rack, Teflon® exhaust manifold, and Teflon® tube adapters. *DigiPREP HT* systems have a temperature range from ambient to 450°C.

DigiPREP HT is constructed with an all-Teflon® manifold exhaust system, which eliminates breakage typical with all-glass manifolds. The manifold's Teflon® tube adapters float in each digestion tube eliminating sample loss while removing fumes resulting from the digestion process. Teflon manifold® is used in conjunction with a running water jet (010-520-030, included with instrument) or the **SCP SCIENCE** Universal Scrubber System. *DigiPREP HT* digestion systems were designed to minimize bench space with small "footprint" and all movement of components (manifold, tube rack) up and down while using the specially constructed up-right positions.

DigiPREP HT is uniquely engineered with a corrosion resistant, graphite heating block. The graphite block's heating mat is tuned to distribute heat evenly across the entire surface and maintain a temperature uniformity of $\pm 3^\circ\text{C}$ resulting in reproducible digestions. Compared to heating blocks constructed from aluminum, *DigiPREP HT* graphite blocks will not warp, bend or corrode.



Catalog No. 010-500-225

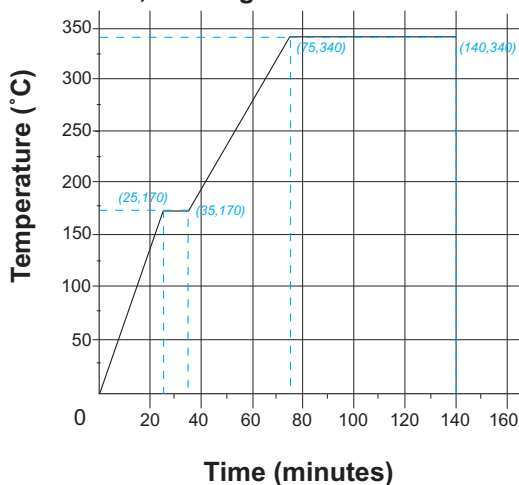
Catalog No. 010-520-222

- Manufactured with an all-Teflon® manifold
 - Prevents toxic fumes from escaping and promotes refluxing
 - Eliminates cross contamination
 - Eliminates broken glass manifolds
- Complete with a sturdy two-tier dual zone tube rack
 - Reduce valuable fume hood space requirements
 - Includes viewing window to monitor digestion progress

Specifications

Description	<i>DigiPREP HT 100</i>	<i>DigiPREP HT 250</i>
Catalog Number	010-520-202	010-520-222
Capacity	40 samples	20 samples
Tube Capacity (Nominal)	100 ml	250 ml
Tube Capacity (Max)	115 ml	300 ml
Temperature (Max)	450°C	450°C
Temperature Uniformity	$\pm 3.0^\circ\text{C}$	$\pm 3.0^\circ\text{C}$
Over-Temp Protection	Yes	Yes
Heating Block	Coated Graphite	Coated Graphite
Power	2760 W	2760 W
Fume Scrubber	Optional	Optional
Voltage	230V, 50/60 Hz. 12A	230V, 50/60 Hz. 12A
Size (in.)	17W x 17.5D x 27H	17W x 17.5D x 27H
Size (cm)	43.2W x 44.5D x 68.6H	43.2W x 44.5D x 68.6H
Weight (lb/kg)	49 / 22	46 / 21
Certification	CE/UL/CSA	CE/UL/CSA

Chart 3: Typical Touch Screen Controller Program for Determination of Cd, Cr, Pb & Hg in Plastics



Applications

Agriculture: Grains, compost, feed pellets, soils, compost
Biology: Grass, wood, leaves, cellulose/paper
Chemistry & Plastics: Plastics (PET, PP, PVC, etc.), resins, synthetic fibers
Food: Protein (Kjeldahl digestions)
Medicine & Pharmaceutical: Plant Tissue
Mineralogy and Metallurgy: Carbon, coal, gold
Environment: Kjeldahl (TKN), sewage sludge, Total Phosphorous
Industry: WEEE RoHS, Electrical components, waste products

High Temperature Digestion System - DigiPREP HT

DigiPREP HT blocks operate with the KeyPad, PC Classic or Touch Screen controller. All controllers have programmable options such as: temperature set-point to 0.1°C, timer with shut off option (in minutes), and operating language* options (English, French, Japanese, Chinese**, Korean**, German, Italian, Spanish, and Dutch). Your **SCP SCIENCE** Technical Sales Representative or distributor trained in the applications of high temperature digestion systems, can suggest the right combination of DigiPREP and controller to fit your needs.

* Available only for KeyPad and Touch Screen controller.

** Available soon

DigiPREP HT 100 and 250 Components

System Catalog Number	Component Catalog Number	Component Quality	Component Description
010-520-202	<i>DigiPREP HT 100 (230V) consists of:</i>		
	010-520-010	1	DigiPREP HT 100 Insert Rack
	010-520-100	1	Exhaust Manifold Rack, 100 ml
	010-520-205	1	DigiPREP HT 100 (230V) block with Hi-rise
	010-520-300	1	Glass Water Jet
	010-520-302	40/pk	Boiling Rods
010-520-222	<i>DigiPREP HT 250 (230V) consists of:</i>		
	010-520-030	1	DigiPREP HT 250 Insert Rack
	010-520-225	1	DigiPREP HT 250 (230V) block with Hi-rise
	010-520-250	1	Exhaust Manifold Rack, 250 ml
	010-520-300	1	Glass Water Jet
	010-520-302	40/pk	Boiling Rods

DigiPREP HT Controllers

Controller	Catalog Number
KeyPad	010-500-220
Touch Screen	010-500-225
PC Classic	010-500-180

Please see page 24 - 25 for more information.

DigiPREP HT Options

Description	Catalog Number
Universal Fume Scrubber	010-520-060
DigiPREP Chiller System	010-520-072

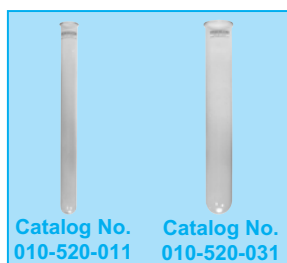
Please see page 36 for more information.

DigiPREP HT 100 Accessories

Description	Quantity	Catalog Number
HT 100 Digestion Tubes, uncalibrated	1	010-520-011
HT 100 Digestion Tubes, calibrated* - calibrated at the 100 ml mark	1	010-520-111
HT 100 Digestion Tubes, Quartz	1	010-520-085
Glass Water Jet, Extra	1	010-520-300
Boiling Rods, Extra	40/pk	010-520-302
Dual Probe for HT**	1	010-520-310
Ball Glass Condenser	1	010-520-318
Releasing Agent, WEEE RoHS	1	250-240-103

* Custom calibrations available upon request.

** Replaces existing thermal probe to allow user validation of temperature control system with an external temperature display.



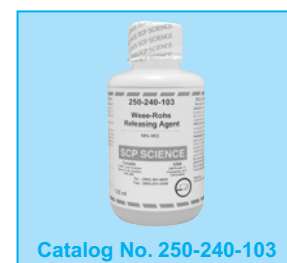
Catalog No. 010-520-011 Catalog No. 010-520-031



Catalog No. 010-520-316



Catalog No. 010-520-312



Catalog No. 250-240-103

DigiPREP HT 250 Accessories

Description	Quantity	Catalog Number
HT 250 Digestion Tubes, uncalibrated	1	010-520-031
HT 250 Digestion Tubes, calibrated* - calibrated at the 250 ml mark	1	010-520-131
HT 250 Digestion Tubes, Quartz	1	010-520-087
Glass Water Jet, Extra	1	010-520-300
Boiling Rods, Extra	40/pk	010-520-302
Dual Probe for HT**	1	010-520-310
Ball Glass Condenser	1	010-520-312
Releasing Agent, WEEE RoHS	1	250-240-103
Cooling Finger, Ground Glass, w/Male Joint	1	010-520-316
Digestion Tube, Ground Glass, w/Female Joint	1	010-520-320

* Custom calibrations available upon request.

** Replaces existing thermal probe to allow user validation of temperature control system with an external temperature display.

Evaporation & Digestion Systems

Digestion System - Universal Fume Scrubber

Remove and neutralize acid fumes in TKN or other digestions easily and safely. Acid fumes travel through a series of bottles in a vacuum environment. The generated fumes are first drawn through a NaOH solution for neutralization. Fumes then enter a condensing unit* to remove the remaining moisture from the air stream. The third bottle in the series is used to collect the condensate. An adapter is included to connect the Universal Fume Scrubber to a *DigiPREP HT 100* or *HT 250*. CE, UL, and CSA approved.



Catalog No. 010-520-060

- Manufactured with corrosion resistant material
 - Offers low maintenance for many years
- Low water consumption with optional Chiller system (catalog no. 010-520-072)
 - Save money and be more environmentally friendly

Specifications

Universal Fume Scrubber	
Catalog Number	010-520-060
Vacuum	42 CFM draw (at 0" H ₂ O) 33 CFM draw (at 10" H ₂ O)
Sound rating	55 db-c
Power	115V/230V (user selectable)
Size - Bottle (in./cm)	8.5 x 25 / 22 x 63
- Pump)in./cm)	12 x 12 / 30 x 30
Certification	CE/UL/CSA

* Tap water or a chiller system (sold separately) must be used to cool the condenser.

DigiPREP Chiller System

Lightweight, CFC-free chiller for use with the *DigiPREP* Universal Fume Scrubber system (catalog no. 010-520-060). Provides excellent cooling capacity and reliability. Hot gas by-pass system provides a stable flow of coolant eliminating on/off cycling to extend compressor life span. CE approved.



Catalog No. 010-520-072

- Compact size
 - Save valuable bench space

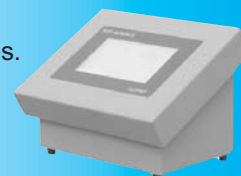
Specifications

DigiPREP Chiller			
Catalog Number	010-520-072 (115 V)	Flow Rate at 15 psi	4.5L/min
Catalog Number	010-520-074 (230 V)	Size (in.)	19.3W x 8.3D x 19.3H
Temperature Range	0 - 35°C	Size (cm)	49W x 21.1D x 49H
Cooling Capacity	500 W	Weight (lb/kg)	55/25
Stability	± 0.3°C	Certification	CE

DigiPREP Touch Screen Controller

A touch-sensitive, liquid crystal display (LCD) monitor provides information at your fingertips.

- Allow for ramped multi-stage / variable temperature heating
 - Automated complex temperature profiles
- Ideal for difficult sample digestion applications such as:
 - WEEE, RoHS, protein (Kjeldahl), tobacco leaves, plastics,



Solid Phase Extraction (DigiSEP SPE) is a novel technique to isolate and concentrate desired analytes from complex matrices. DigiSEP provides an effective and innovative solution to improve detection limits of elements through pre-concentration, or alternatively, to remove interfering matrices prior to ICP-OES and ICP-MS analysis.

Metal Extraction Cartridge, DigiSEP - Blue Label	... 39
Anion Extraction Cartridge, DigiSEP - Red Label	... 39
Cation Removal Cartridge, DigiSEP - Green Label	... 40
Matrix Removal Cartridge, DigiSEP - Orange Label	... 40
Molecular Recognition Technology Gel, DigiSEP	... 41
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Solid Phase Extraction

SPE (Solid Phase Extraction) is a technique whereby a desired analyte, a cation or an anion, is concentrated and separated from a complex sample matrix onto a sorbent stationary phase. The interfering matrix, which is not retained, is effectively eliminated. As a result, the analyte can be analyzed at the best possible sensitivity range of the analytical technique, e.g. Inductively Coupled Plasma-Optical Emission Spectroscopy (ICP-OES), without the risk of matrix interference.

In recent years another technique has become very popular, the technique of Matrix Component Retention. In this case, the sorbent is selected to retain unwanted components in the matrix and the analytes of interest are not retained. Again, because the potentially interfering components have been removed, better sensitivity is obtained in sample analysis. This technique is seen most often in the food industry.

In both cases, the sorbent is placed in cartridges or liquid chromatography columns that can hold varying quantities of unprocessed samples.

In general, the SPE method should follow 4 steps:

Step One: **Conditioning** - The sorbent is prepared for the sample.

Step Two: **Retention** - Filter the desired analyte(s) or the unwanted matrix components.

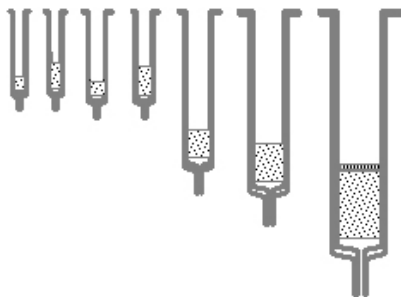
Step Three: **Rinsing** - Any possible undesired component that may have been absorbed on the sorbent is washed away.

Step Four: **Elution** - The selective desorption and collection of the analyte of interest from the cartridge or column.



The Bed Volume and the Retention Capacity

To use the SPE method effectively, choose the cartridge or column volume and the appropriate sorbent type and mass for the analyte of interest. Normally the total retention capacity (including interferences) of the cartridge or column is approximately 5% of the sorbent mass.



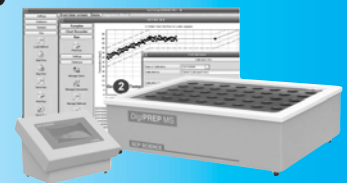
Applications

- Sample preparation for the analysis of heavy metals in ground water
- Removal of matrix from food and feed digests for improved transition metal element analysis
- Removal of matrix from blood and serum digests for improved heavy metal element analysis
- Concentration and desalination for the analysis of seawater samples
- Enhance the sensitivity of XRF for water samples through SPE preconcentration
- Reduce the weight of water sample transportation (carry only collected samples in cartridges)

DigiPREP MS - Sample Preparation for Metal Analysis

Delivers uniform heating across the block which provides even sample digestion/evaporation results

- Teflon® Coated Graphite Block
 - Resists aggressive, corrosive attack
- Ideal for applications such as: water, soil, sludge and feed



Solid Phase Extraction

DigiSEP - Blue Label Metal Extraction Cartridges

A general purpose, single use, cation removal cartridge. This highly selective exchange cartridge is ideal for retaining transition metals in samples that contain high concentrations of potassium and sodium such as sea water.

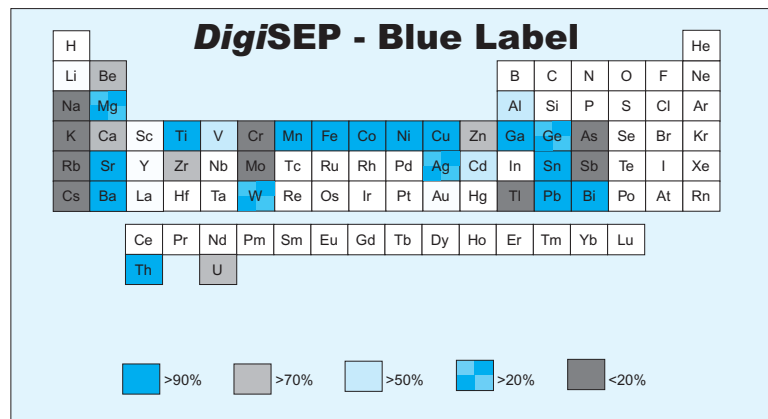
DigiSEP - Blue Label

Base Material	Functional Group	Capture (g)
Methacrylate	Amino di acetate	Cu ion 0.29 - 0.34 mmol / g

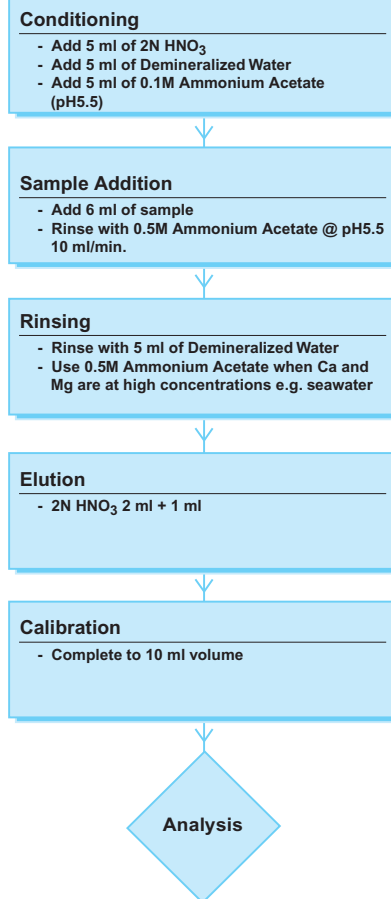
Ordering Information

Description	Particle (µm)	Surface (m ² /g)	Quantity	Catalog Number
DigiSEP - Blue Label 100 mg / 3 ml	60 - 75	70 - 100	50 per box	010-700-010
DigiSEP - Blue Label 250 mg / 6 ml	60 - 75	70 - 100	25 per box	010-700-012
DigiSEP - Blue Label 500 mg / 6 ml	60 - 75	70 - 100	25 per box	010-700-014

Diagram 1: Metal Retention on DigiSEP - Blue Label Cartridge



DigiSEP - Blue Label Procedure for pre-concentration on Cation Cartridge



Solid Phase Extraction

DigiSEP - Red Label Anion Extraction Cartridges

A general purpose, single use, anion removal cartridge.

DigiSEP - Red Label

Base Material	Functional Group	Capture (g)
Methacrylate	Ammonium NH ₄ ⁺	Anion 0.55 - 0.66 meq / g

Ordering Information

Description	Particle (µm)	Surface (m ² /g)	Quantity	Catalog Number
DigiSEP - Red Label 100 mg / 3 ml	60 - 75	220 - 270	50 per box	010-700-026
DigiSEP - Red Label 250 mg / 6 ml	60 - 75	220 - 270	25 per box	010-700-028
DigiSEP - Red Label 500 mg / 6 ml	60 - 75	220 - 270	25 per box	010-700-030

Solid Phase Extraction

DigiSEP - Green Label Cation Removal Cartridges

A general purpose, single use, cation removal cartridge. This cartridge is best suited for samples that have low concentrations of alkali and alkaline earth metals.

DigiSEP - Green Label

Base Material	Functional Group	Capture (g)
Methacrylate	Sulfonate SO_4^{2-}	Cation 0.55 - 0.65 meq / g

Ordering Information

Description	Particle (μm)	Surface (m^2/g)	Quantity	Catalog Number
DigiSEP - Green Label 100 mg / 3 ml	60 - 75	90 - 110	50 per box	010-700-032
DigiSEP - Green Label 250 mg / 6 ml	60 - 75	90 - 110	25 per box	010-700-034
DigiSEP - Green Label 500 mg / 6 ml	60 - 75	90 - 110	25 per box	010-700-036



DigiSEP - Orange Label Matrix Removal Cartridges

A general purpose, single use, matrix clean-up.

DigiSEP - Orange Label

Base Material	Functional Group	Capture (g)
SDB/Methacrylate	---	General Matrix Clean-up

Ordering Information

Description	Particle (μm)	Surface (m^2/g)	Quantity	Catalog Number
DigiSEP - Orange Label 30 mg / 1 ml	60 - 75	620 - 660	100 per box	010-700-020
DigiSEP - Orange Label 60 mg / 3 ml	60 - 75	620 - 660	100 per box	010-700-022
DigiSEP - Orange Label 250 mg / 6 ml	60 - 75	620 - 660	25 per box	010-700-024
DigiSEP - Orange Label Mini 230 mg	46 - 52	620 - 660	50 per box	010-700-038



Catalog No. 010-700-038

DigiSEP Molecular Recognition Technology Gel

Sample preparation and complex matrices represent two of the greatest challenges in Atomic Spectroscopy.

In the first case, if the samples are not prepared, i.e. digested and pre-treated prior to analysis, the data obtained can be meaningless. In the second case, if the matrices are composed of a complex mixture of salts, viscous acids and/or particulates, it may be next to impossible to detect very low levels of metals.

SCP SCIENCE can now help the Atomic Spectroscopist with both of these problems. We have seen in the previous chapter by carefully monitoring and controlling sample temperature, the digested metal recoveries can be improved. However, the problem of complex matrices remains a real hurdle in the analysis of metals by Atomic Spectroscopy; independent of whether it is Atomic Absorption-Graphite Furnace (GFAA), Inductively Coupled - Atomic Emission or Mass Spectroscopy.

DigiSEP Molecular Recognition Technology Gel

The solution to elemental analysis in complex matrices comes in the form of sample preparation using *DigiSEP* Cartridges. Highly selective (MRT: Molecular Recognition Technology) gel is ideal for Alkali and Alkaline Earth Metals, Precious metals, Cr (exclusively), and Hg (exclusively) retention. *DigiSEP* Cartridges can also be used to remove NO₃⁻, SO₄⁻, and Cl⁻ ions from a sample matrix. In addition, new MRTs are in development.

Some of the key features of *DigiSEP* Cartridges are:

- Chelating Resins can separate difficult to analyse transition metals from high Alkali matrices
- Metal ions can be collected from acid digestion matrices
- Heavy metals can be separated from oil and other organic matrices
- Hg can be captured, collected, and concentrated
- Precious metals can be collected and retained
- Pb can be collected and separated from other elements
- Radioactive elements can be collected for nuclear fuel industry

The Binding Resins are on a Silica Gel base and can be regenerated between uses. The product is available in cartridge form (3 ml/500mg), in 50 and 100 mm x 4.6 mm PEEK body liquid chromatography columns and powder form in bottles of 10 grams.

Solid Phase
Extraction

Application Guide

Table 1. Alkali and Alkaline Earth Metals

The presence of large quantities (above 1%) of Alkali and Alkaline elements causes a matrix interference in the analysis of transition metals. The AM and AE series of cartridges allow selective removal of these interfering elements.

Specifications

Product Type	Target Analyte	Matrix	Range (pH)	Optimal Flow Rate (ml/g/minute)	Remarks
<i>DigiSEP</i> AM-01	Ca ²⁺ , Na ⁺	Water	2.0 - 10.0	---	Water, EDTA, elutable
<i>DigiSEP</i> AM-02	Ca ²⁺ , Na ⁺	Water	> 6.0	---	acid elutable
<i>DigiSEP</i> AM-03	Na ⁺ , K ⁺ , Rb ⁺ , Ca ²⁺ , Sr ²⁺ , Ba ²⁺ (Mg ²⁺ , Li ⁺ , weakly)	Water	2.0 - 10.0	---	Water, EDTA, elutable
<i>DigiSEP</i> AM-04	K ⁺ , Na ⁺ , Rb ⁺ , Ca ²⁺ , Sr ²⁺	Water	> 6.0	---	Acid elutable
<i>DigiSEP</i> AM-05	Li ⁺	Water	> 6.0	---	Acid elutable
<i>DigiSEP</i> AM-06	Ba ²⁺ , Pb ²⁺ , Tl ⁺ , Sr ²⁺ , K ⁺	Water	> 6.0	---	Acid elutable
<i>DigiSEP</i> AE-01	Ca ²⁺ , Mg ²⁺ , other +2 and +3 cations	Water	> 5.0	---	Acid elutable
<i>DigiSEP</i> AE-02	Ca ²⁺	Water	> 6.0	---	Acid elutable
<i>DigiSEP</i> AE-03	All alkali and alkaline earths except Li ⁺ , Mg ²⁺ , Ba ²⁺	Water	2.0 - 10.0	---	Water, EDTA, elutable
<i>DigiSEP</i> AE-04	Sr ²⁺ , Ca ²⁺ , Ba ²⁺ , Na ⁺ , K ⁺ , Cs ⁺	Water	2.0 - 10.0	---	Water, EDTA, elutable

Ordering Information

Product Type	Columns (each)		Cartridge (5/pk)	Powder (10 g)
	4.6 x 50 mm	4.6 x 100 mm		
<i>DigiSEP</i> AM-01	010-750-095	010-751-095	010-720-095	010-790-095
<i>DigiSEP</i> AM-02	010-750-097	010-751-097	010-720-097	010-790-097
<i>DigiSEP</i> AM-03	010-750-099	010-751-099	010-720-099	010-790-099
<i>DigiSEP</i> AM-04	010-750-101	010-751-101	010-720-101	010-790-101
<i>DigiSEP</i> AM-05	010-750-103	010-751-103	010-720-103	010-790-103
<i>DigiSEP</i> AM-06	010-750-105	010-751-105	010-720-105	010-790-105
<i>DigiSEP</i> AE-01	010-750-107	010-751-107	010-720-107	010-790-107
<i>DigiSEP</i> AE-02	010-750-109	010-751-109	010-720-109	010-790-109
<i>DigiSEP</i> AE-03	010-750-111	010-751-111	010-720-111	010-790-111
<i>DigiSEP</i> AE-04	010-750-113	010-751-113	010-720-113	010-790-113

Solid Phase Extraction

Table 2. Anions and Halogens

Sulfuric acid (H₂SO₄) is a powerful oxidizing acid and using the appropriate *DigiPREP* Digestion System (See Method Development Guide-pg 19), sulfuric acid can digest almost any organic matrix. However, it is extremely viscous even at low concentrations and requires long washout times through the ICP spray chamber. The AN-01 cartridge will avoid this problem.

At present, the only way to digest SiO₂ is to use an excess of HF (hydrofluoric acid) which creates problems with ICP spectroscopy. The resulting F⁻ excess can precipitate elements of interest such as Mg and Al. In the past, Boric Acid has been added to the complex remaining F⁻ ions. However, this solution results in a more complex matrix increasing the analytical difficulty. Now with the *DigiSEP* F-01 and F-02 cartridges, the excess F⁻ ions can be removed.

Specifications

Product Type	Target Analyte	Matrix	Range (pH)	Optimal Flow Rate (ml/g/minute)	Remarks
<i>DigiSEP</i> AN-01	SO ₄ ²⁻ , SeO ₄ ²⁻ , >SeO ₃ ²⁻ , >NO ₃ ⁻ , >Cl ⁻	mM (acid)	< 3.0	---	Base elutable
<i>DigiSEP</i> AN-02	SO ₄ ²⁻ , SeO ₄ ²⁻ , >SeO ₃ ²⁻ , >NO ₃ ⁻ , >Cl ⁻	water	< 10	---	Base elutable
<i>DigiSEP</i> Ha-01	Cl ⁻ , Br ⁻ , I ⁻	HNO ₃ , H ₂ SO ₄	< 2.0	0.5	Removal of 100 ppb
<i>DigiSEP</i> F-01	F ⁻ , >SO ₄ ²⁻ , >Cl ⁻	Water	< 4	---	Base elutable
<i>DigiSEP</i> F-02	F ⁻	Water	< 1 - 8	0.5	Base elutable

Ordering Information

Product Type	Columns (each)		Cartridge (5/pk)	Powder (10 g)
	4.6 x 50 mm	4.6 x 100 mm		
<i>DigiSEP</i> AN-01	010-750-001	010-751-001	010-720-001	010-790-001
<i>DigiSEP</i> AN-02	010-750-003	010-751-003	010-720-003	010-790-003
<i>DigiSEP</i> Ha-01	010-750-005	010-751-005	010-720-005	010-790-005
<i>DigiSEP</i> F-01	010-750-007	010-751-007	010-720-007	010-790-007
<i>DigiSEP</i> F-02	010-750-009	010-751-009	010-720-009	010-790-009

Table 3. Toxic Metals

The most toxic form of Chromium is the Cr⁶⁺ form. However, ICP-AES can only determine the total amount of Chromium. Now with the Cr series cartridges, the more toxic form can be effectively isolated and then analyzed.

The benefit of today's modern Hg analysers is improved detection limits for this toxic and elusive metal. However, improved detection limits are hampered by base line stability problems. Through pre-concentration and matrix removal, improved sensitivities for Hg can be obtained. The Hg-01 to 03 cartridges provide this benefit.

Specifications

Product Type	Target Analyte	Matrix	Range (pH)	Optimal Flow Rate (ml/g/minute)	Remarks
<i>DigiSEP</i> Cd-01	Cd ²⁺	Waste Water	2 - 9.5	0.5	Removal 1 ppb
<i>DigiSEP</i> Cr-01	CrO ₄ ²⁻	Waste Water	---	---	---
<i>DigiSEP</i> Cr-02	CrO ₄ ²⁻	Waste Water	2.0 - 8.0	---	---
<i>DigiSEP</i> Hg-01	Hg ²⁺	Drinking Water	---	---	Thiourea or HBr elutable
<i>DigiSEP</i> Hg-02	Hg ²⁺	Salt Water (Sea	---	0.5	< 20 ppt; thiourea elutable
<i>DigiSEP</i> Hg-03	Hg ²⁺	water)	6.5 - 9.5	---	removal of 20 ppt
<i>DigiSEP</i> Pb-01	Pb ²⁺	Water	1 - 9.5	0.5	removal of 5 ppb
<i>DigiSEP</i> Pb-02	Pb ²⁺ (>Pb-01)	Water	1 - 9.5	0.5	removal of 20 ppt
<i>DigiSEP</i> Pb-03	Pb ²⁺ (>Pb-02)	Water	6.5 - 9.5	0.5	Acid elutable, removal of 10 ppt
<i>DigiSEP</i> Pb-04	Pb ²⁺	Water	7.0 - 9.5	---	Acid elutable, removal of 100 - 1000 ppt

Ordering Information - continued

Product Type	Columns (each)		Cartridge (5/pk)	Powder (10 g)
	4.6 x 50 mm	4.6 x 100 mm		
DigiSEP Cd-01	010-750-011	010-751-011	010-720-011	010-790-011
DigiSEP Cr-01	010-750-013	010-751-013	010-720-013	010-790-013
DigiSEP Cr-02	010-750-015	010-751-015	010-720-015	010-790-015
DigiSEP Hg-01	010-750-017	010-751-017	010-720-017	010-790-017
DigiSEP Hg-02	010-750-019	010-751-019	010-720-019	010-790-019
DigiSEP Hg-03	010-750-021	010-751-021	010-720-021	010-790-021
DigiSEP Pb-01	010-750-023	010-751-023	010-720-023	010-790-023
DigiSEP Pb-02	010-750-025	010-751-025	010-720-025	010-790-025
DigiSEP Pb-03	010-750-027	010-751-027	010-720-027	010-790-027
DigiSEP Pb-04	010-750-029	010-751-029	010-720-029	010-790-029

Table 4. Precious Metals

The mining industry is constantly on the search for precious metals. Rock samples require grinding and then digestion by the appropriate DigiPREP Digestion System (See Method Development Guide pg 19). However, precious metals are found in limited quantities versus other metals in the same sample. Hence, their analysis may be more difficult. The PM series DigiSEP Cartridges will retain and concentrate precious metals. The metals can then be eluted and analyzed at higher concentrations in the absence of interferences.

Specifications

Product Type	Target Analyte	Matrix	Range (pH)	Optimal Flow Rate (ml/g/minute)	Remarks
DigiSEP Pd-01	Pd ²⁺	---	---	---	---
DigiSEP Pd-02	Pd ²⁺	---	---	---	---
DigiSEP Pd-03	Pd ²⁺	Minimum 6 M HCl	< 1 - 4.0	---	---
DigiSEP PM-01	Ir ³⁺ , Ru ³⁺ , and/or Rh ³⁺	Minimum 6 M HCl	---	0.5	---
DigiSEP PM-02	Au ³⁺ , Ag ¹⁺ , Pd ²⁺ , Pt ²⁺ , Pt ⁴⁺ , Ru ³⁺	Minimum 6 M HCl	< 1 - 9.5	---	---
DigiSEP PM-03	Pd ²⁺ , Pd ⁴⁺ (>Pm-05)	Minimum 6 M HCl	< 1 - 4	---	Thiourea elutable
DigiSEP PM-05	Pd ²⁺ , Pd ⁴⁺	Minimum 6 M HCl	< 1 - 4	0.5	NH ₃ elutable
DigiSEP PM-06	Pd ²⁺ , Pt ²⁺	---	< 1 - 9.5	0.5	---
DigiSEP PM-07	Au ³⁺ , Ag ¹⁺ , Pd ²⁺ , Pt ²⁺ , Pt ⁴⁺ , Ru ³⁺ (>Pm-02)	Minimum 6 M HCl	---	---	---
DigiSEP PM-08	Ir ³⁺ , Rh ³⁺ , and Ru ³⁺	Minimum 6 M HCl	1 - 9.5	0.5	selectively elutable
DigiSEP PM-09	Au ³⁺ , Pt ²⁺ , Pt ⁴⁺ , Pd ²⁺	Minimum 6 M HCl	1 - 9.5	0.5	selectively elutable
DigiSEP PM-10	Ir ³⁺ , Ru, and/or Rh ³⁺	Minimum 6 M HCl	< 1.0	---	---

Ordering Information

Product Type	Columns (each)		Cartridge (5/pk)	Powder (10 g)
	4.6 x 50 mm	4.6 x 100 mm		
DigiSEP Pd-01	010-750-031	010-751-031	010-720-031	010-790-031
DigiSEP Pd-02	010-750-033	010-751-033	010-720-033	010-790-033
DigiSEP Pd-03	010-750-035	010-751-035	010-720-035	010-790-035
DigiSEP PM-01	010-750-037	010-751-037	010-720-037	010-790-037
DigiSEP PM-02	010-750-039	010-751-039	010-720-039	010-790-039
DigiSEP PM-03	010-750-041	010-751-041	010-720-041	010-790-041
DigiSEP PM-05	010-750-045	010-751-045	010-720-045	010-790-045
DigiSEP PM-06	010-750-047	010-751-047	010-720-047	010-790-047
DigiSEP PM-07	010-750-049	010-751-049	010-720-049	010-790-049
DigiSEP PM-08	010-750-051	010-751-051	010-720-051	010-790-051
DigiSEP PM-09	010-750-053	010-751-053	010-720-053	010-790-053
DigiSEP PM-10	010-750-055	010-751-055	010-720-055	010-790-055

Solid Phase Extraction

Table 5. Transition Metals

Transition metals can represent a challenge in ICP analysis. These important metals can be retained on TE cartridges separating them from other interfering elements. The eluted transition metals can then be analyzed without the original matrix interferences.

Specifications

Product Type	Target Analyte	Matrix	Range (pH)	Optimal Flow Rate (ml/g/minute)	Remarks
DigiSEP TE-01	Ag ¹⁺ , Au ³⁺ , Cd ²⁺ , Co ²⁺ , Cu ²⁺ , Fe ²⁺ , Hg ²⁺ , Ni ²⁺ , Pb ²⁺ , Pd ²⁺ , Zn ²⁺	Water	4 - 9.5	0.5	acid elutable, > 1 ppm
DigiSEP TE-02	Ag ¹⁺ , Au ³⁺ , Cd ²⁺ , Co ²⁺ , Cu ²⁺ , Fe ²⁺ , Hg ²⁺ , Ni ²⁺ , Pb ²⁺ , Pd ²⁺ , Zn ²⁺ , Fe ³⁺ , Mn ²⁺	Water	4 - 9.5	0.5	6 M HCl elutable, > 0.1 ppm
DigiSEP TE-03	Au ³⁺ , Co ²⁺ , Cu ²⁺ , Hg ²⁺ , Fe ³⁺ , Pd ²⁺ , Zn ²⁺ (all pH range). Ag ¹⁺ , Cd ²⁺ , Pb ²⁺ , (pH>3), Cu ²⁺ (pH<3)	Water	1 - 9.5	0.5	EDTA, 6 M elutable; < 100 ppb
DigiSEP TE-04	Au ³⁺ , Co ²⁺ , Cu ²⁺ , Hg ²⁺ , Ni ²⁺ , Pd ²⁺ , Zn ²⁺ (all pH range). Ag ¹⁺ , Cd ²⁺ , Pb ²⁺ , (pH>3), Cu ²⁺ (pH<3)	Water	1 - 9.5	0.5	EDTA, 6 M elutable; < 100 ppb
DigiSEP TE-05	Fe ³⁺ , Co ³⁺ , Cu ²⁺ , Hg ²⁺ , Ni ²⁺ , Pd ²⁺ , Zn ²⁺ (all pH range), Mn ²⁺ , Cd ²⁺ , Zn ²⁺ and Pb ²⁺ (pH>3)	Water	1 - 9.5	0.5	Acid elutable
DigiSEP TE-06	Cu ²⁺	Water	2.0 - 9.5	0.5	Acid elutable
DigiSEP TE-07	Most +2, +3 and +4 metal ions as a group	Water	> 2.0	---	6 M HCl elutable
DigiSEP TE-09	Au ³⁺ , Pb ²⁺ , Hg ²⁺ , Pd ²⁺ , Ag ²⁺	Water	---	---	---
DigiSEP TE-10	Cu ²⁺ , Ni ²⁺ , Co ²⁺ , Zn ²⁺	Water	0.5 - 3.0	---	6 M HCl elutable
DigiSEP TE-11	Ni ²⁺ , Co ²⁺ , Cu ²⁺ , Zn ²⁺	Water	0.5 - 2.0	---	6 M HCl elutable
DigiSEP TE-12	Ni ²⁺ , Co ²⁺ , Cu ²⁺ , Zn ²⁺	Water	0.5 - 2.0	---	6 M HCl elutable
DigiSEP TE-13	Ge ²⁺ , Sn ⁴⁺ , MoO ₄ ²⁻ , borate as a group	Multiple	1 - 12	---	HCl elutable

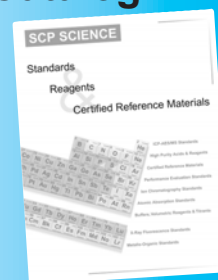
Ordering Information

Product Type	Columns (each) 4.6 x 50 mm	Columns (each) 4.6 x 100 mm	Cartridge (5/pk)	Powder (10 g)
DigiSEP TE-01	010-750-071	010-751-071	010-720-071	010-790-071
DigiSEP TE-02	010-750-073	010-751-073	010-720-073	010-790-073
DigiSEP TE-03	010-750-075	010-751-075	010-720-075	010-790-075
DigiSEP TE-04	010-750-077	010-751-077	010-720-077	010-790-077
DigiSEP TE-05	010-750-079	010-751-079	010-720-079	010-790-079
DigiSEP TE-06	010-750-081	010-751-081	010-720-081	010-790-081
DigiSEP TE-07	010-750-083	010-751-083	010-720-083	010-790-083
DigiSEP TE-09	010-750-085	010-751-085	010-720-085	010-790-085
DigiSEP TE-10	010-750-087	010-751-087	010-720-087	010-790-087
DigiSEP TE-11	010-750-089	010-751-089	010-720-089	010-790-089
DigiSEP TE-12	010-750-091	010-751-091	010-720-091	010-790-091
DigiSEP TE-13	010-750-093	010-751-093	010-720-093	010-790-093

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Catalog No. 140-000-005

Table 6. Radioactive Nucliotides

The potential of teeth as a biological indicator of ⁹⁰Sr²⁺ accumulation in the body has been pointed out since the early 1950's. The *DigiSEP* Sr-01 cartridges can be used to isolate Sr²⁺ from the digested tooth sample.

Specifications

Product Type	Target Analyte	Matrix	Range (pH)	Optimal Flow Rate (ml/g/minute)	Remarks
<i>DigiSEP</i> Pu-01	Pu ³⁺	> 2 M Acid	< 1 - 9.5	---	6 M HCl elutable
<i>DigiSEP</i> Pu-02	Pu ³⁺	2 M acid	1.0 - 9.5	---	> 6 M HCl elutable
<i>DigiSEP</i> Sr-01	Sr ²⁺	Waste Water	1 - 10.0	0.5	EDTA eluted
<i>DigiSEP</i> Cs-01	Cs ⁺	Water	< 0 - 9.5	---	removal to 500 ppt
<i>DigiSEP</i> Tc-01	TcO ₄ ⁻	---	1 - 14	0.1	---
<i>DigiSEP</i> Tc-02	TcO ₄ ⁻	1 MH ⁺ or 0.1 M Na ⁺ or 0.01 MK ⁺	1 - 14	0.1	---
<i>DigiSEP</i> Ra-01	Ra ²⁺	Water	< 0 - 9.5	< 0 - 9.5	EDTA elutable

Ordering Information

Product Type	Columns (each)		Cartridge (5/pk)	Powder (10 g)
	4.6 x 50 mm	4.6 x 100 mm		
<i>DigiSEP</i> Pu-01	010-750-057	010-751-057	010-720-057	010-790-057
<i>DigiSEP</i> Pu-02	010-750-059	010-751-059	010-720-059	010-790-059
<i>DigiSEP</i> Sr-01	010-750-061	010-751-061	010-720-061	010-790-061
<i>DigiSEP</i> Cs-01	010-750-063	010-751-063	010-720-063	010-790-063
<i>DigiSEP</i> Tc-01	010-750-065	010-751-065	010-720-065	010-790-065
<i>DigiSEP</i> Tc-02	010-750-067	010-751-067	010-720-067	010-790-067
<i>DigiSEP</i> Ra-01	010-750-069	010-751-069	010-720-069	010-790-069

Solid Phase
Extraction

***DigiSEP* IC-Ion Chromatography Columns**

Ordering Information

Product Type	Application	Size	Catalog Number
<i>DigiSEP</i> IC-1	Br, I, Cr	4.6 x 100 mm	010-700-044
<i>DigiSEP</i> IC-2	As	4.6 x 150 mm	010-700-046
<i>DigiSEP</i> IC-3	Se	4.6 x 150 mm	010-700-048
<i>DigiSEP</i> IC-4	Normal Ion Chromatography	4.6 x 100 mm	010-700-050
<i>DigiSEP</i> IC-G	Guard Column	4.6 x 10 mm	010-700-052

Cross Referencing

Product Type	Dionex®	Metrohm®	Agilent®
<i>DigiSEP</i> IC-1	Ion Pac AS14A / IC-Pac A25S	IC 1H-424 / IC SI-90	---
<i>DigiSEP</i> IC-2	---	---	G3154-65001
<i>DigiSEP</i> IC-3	IonPac AS14S / IC-Pac A25S	IC 1H-424 / IC SI-90	---
<i>DigiSEP</i> IC-4	---	IC NI-424	---
<i>DigiSEP</i> IC-G	---	---	---

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Solid Phase Extraction

DigiSEP Reagents

Reagents	Description	Concentration	Code	Catalog Number		
				500 ml	1 L	5 L
Ammonium Acetate	CH ₃ COONH ₄	2 M		250-220-145	250-220-146	250-220-147
Nitric Acid	HNO ₃	2 N	✓ ⑧	250-035-250	250-035-251	250-035-252
Water, Deionized, ASTM Type I	H ₂ O	18 Megohm/cm		---	---	250-310-820

Coming Soon:

High purity Ammonium Acetate. No clean up required. Buffer has been prepared through ion exchange to facilitate immediate use.

DigiSEP Accessories



Description	Quantity	Catalog Number
SPE Vacuum Manifold Set	each	010-790-501
Excess Liquid Collection Vessel with Pump Tubing	2/pkg	010-790-503
Teflon® Luer Stop Cocks	10/pkg	010-790-505
SPE Cartridge Adaptor	5/pkg	010-790-507
Vacuum Pump	1	010-790-509
Borosilicate Tube with screw caps at both ends For making your own cartridges	1	010-790-511
Polypropylene Frit 10 µm pore size	2	010-790-513
12 Place Rack (12 position)	1	010-510-050



* Not exactly as shown

⊗ Glass Container
✓ Dangerous Goods*

⑥ Poison
⑧ Corrosive

③ Flammable
⑤ Oxidant

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

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- Quartzware (ex. torches, injectors, bonnets, etc...)
- ICP-MS Cones (ex. samplers, skimmers, o-rings, etc...)
- Calibration standards (ex. single, multi, custom blends)



The DigiPREP CUBE and AccuSPEC COD pre-filled digestion tubes are ideal for labs that test for chemical oxygen demand (COD). A free vial of Certified Reference Material is included with SCP SCIENCE COD digestion tubes.

COD Reactor - DigiPREP CUBE ... 48
COD Digestion Tubes, AccuSPEC ... 49

COD Reactor - DigiPREP CUBE

Designed for fast determination of chemical oxygen demand (COD) in wastewater and environmental water effluents. The **DigiPREP CUBE** digests up to 25 samples simultaneously and is compatible with 16 mm COD vials. Comes complete with a built-in temperature controller, timer, and graphic display. Use the keypad to change settings which include: time and temperature in 2 user defined programs, 3 predefined programs are also included. Manufactured under an ISO 9001:2000 quality program. CE, UL, and CSA approved.



Catalog No. 010-510-003

- Teflon® Coated Graphite Block
 - Resists aggressive corrosive attack, guaranteed for long life
- Digital Display
 - Displays temperature and time (accuracy of +/- 0.1°C and +/- 0.1 second)
- Offers 3 predefined programs
 - COD DIN @ 148 °C in 120 minutes
 - Fast COD @ 150 °C in 15 minutes
 - COD EPA @ 150 °C in 120 minutes
- Offers 2 user defined programs
 - Customize programs for other methods

Specifications

DigiPREP CUBE			
Catalog Number	010-510-003 (115V)	Over-Temp Protection	Yes
Catalog Number	010-510-004 (230V)	Stability	± 0.2°C
Capacity	25 tubes	Heating Block	Teflon® Coated Graphite
Tube Size	16 mm tubes	Controller	Integrated
Temperature	20 min. ambient - 150°C	Size (in.)	8W x8D x 8.75H
Timer	0 to 360 minutes	Weight (lb/kg)	41 / 18.6
Power (010-510-003)	115 V / 3 A	Certification	CE/UL/CSA
Power (010-510-004)	230 V / 1.5 A		

Certified Reference Materials - *EnviroMAT* Standards

- CRM's for wastewater, groundwater, and drinking water are available in low and high concentrations
- Includes Certificate of Analysis listing Consensus Values, Confidence and Tolerance Intervals, and instructions for use
 - Complete documentation for audit purposes



AccuSPEC Solutions for APHA Methods

- Prepared as per guidelines from "Standard Methods for the Examination of Water & Wastewater", 20th Edition
- Manufactured and tested under an ISO Certified Quality Program
- See page 81 in our Standards, Reagents & Certified Reference Materials Catalog



COD Digestion Tubes, *AccuSPEC*

Chemical Oxygen Demand determines the quantity of oxygen required to oxidize the organic matter in waste samples. A strong oxidant is used to react with both organic and inorganic components of a sample. The amount of oxidant consumed is expressed in terms of its oxygen equivalence and measured either by titration or by colorimetry.

AccuSPEC COD Digestion Tubes use standard 16 mm tubes that have been pre-filled with the digestion reagent. Three different ranges - 0-150 mg/L, 0-1500 mg/L and 0-15000 mg/L - are offered for COD measurement. Each box of 25 is complete with a [Free Certified Reference Material](#).

- Fully compatible with Environmental Protection Agency (E.P.A.) 410.4 and Standard Methods 5220
- Compatible with *DigiPREP CUBE* (see page 48 for more details) standard reactors and spectrophotometers
- Manufactured and tested under an ISO Certified Quality Program
 - Consistency between product lots

The solution contains mercuric sulfate (HgSO₄) to remove up to 2000 ppm of chloride interference. Simply add 2 ml of sample to the tube, tightly replace the screw cap, and mix the contents by inverting the tube a few times. Place the vials in the *DigiPREP CUBE* (catalog no. 010-510-003/004), set to 150°C, and allow to reflux for 2 hours. Once cooled to room temperature, the samples can be measured using a UV-visible spectrophotometer.



Chemical Oxygen Demand

Ordering Information

Description	Hach#	Concentration	CODE	Catalog Number 25/pk
COD Digestion Tubes (25), with Free CRM	21258-15/25	0-150 ppm	✓ ⊗ ⊗	250-130-006*
COD Digestion Tubes (25), with Free CRM	21259-15/25	0-1500 ppm	✓ ⊗ ⊗	250-130-016*
COD Digestion Tubes (25), with Free CRM	24159-15/9	0-15000 ppm	✓ ⊗ ⊗	250-130-026*

Solution	Hach#	Concentration	CODE	Catalog Number			
				125 ml	500 ml	1 L	4 L
COD Control Solution	---	100 mg/l O ₂		250-130-512	250-130-550	250-130-551	---
COD Control Solution	2253929	1000 mg/l O ₂		250-130-602	250-130-600	250-130-601	---
COD Control Solution	---	10 000 mg/l O ₂		250-130-652	250-130-650	250-130-651	---
Ferrous Ammonium Sulfate, Fe(NH ₄) ₂ (SO ₄) ₂ *	2335753	0.00282 N	✓ ⊗	---	250-130-150	250-130-151	250-130-152
Ferrous Ammonium Sulfate, Fe(NH ₄) ₂ (SO ₄) ₂ *	181153	0.25 N	✓ ⊗	---	250-130-300	250-130-301	250-130-302
1, 10-Phenanthroline, C ₁₂ H ₈ N ₂ *	---	0.1%	⊗	250-120-521	250-120-522	250-120-523	---

* Additional concentrations are available upon request

⊗ Glass Container
✓ Dangerous Goods*

⊗ Poison
⊗ Corrosive

Flammable
Oxidant

* as defined by :

• Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
• Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
• International Air Transport Association - Dangerous Goods Regulation, 40th Edition

High Temperature Digestion System - *DigiPREP HT*

The *DigiPREP HT* is available in two models - a 40 tube (100 ml) or a 20 tube (250 ml) system. Ideal for digestion applications such as:

- Kjeldahl / TKN
- Plant
- Plastics
- Soil
- Compost
- Oils



ICP Supplies: Notes

NOTES

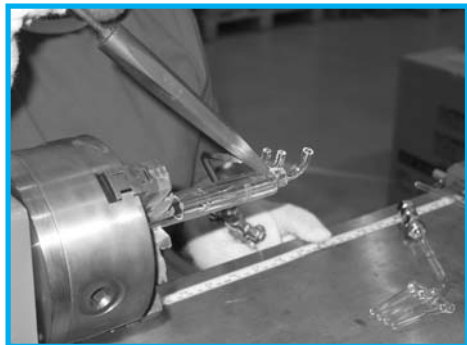


ICP-AES / MS products include a variety of nebulizers for different applications; replacement torches, spray chambers, and other glass / quartzware; pump tubing; ICP-MS cones; and a complete range of ICP-AES / MS Calibration Standards. Replacement products are unconditionally guaranteed to meet or exceed the original manufacturer's specifications. Many new and innovative products are included, which may enhance signal, lower background, or improve detection limits.

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ICP Glassware

From the older instruments still in use, to the latest innovations in ICP-AES and ICP-MS spectroscopy design, a full range of glassware and quartzware is maintained to keep your instrument running. Ask about our **FREE** 125 ml, **PlasmaCAL** ICP-AES and ICP-MS calibration standard promotion.



- Offering **New** and innovative products
 - Enhance signal, lower background noise, and improve detection limits
- Unconditionally guaranteed to meet or exceed original manufacturer's specifications
 - Ensure accuracy and peace of mind
- Offering a complete product line of nebulizers, torches, and spray chambers
 - Ask us about our new additions

SCP SCIENCE Innovation--Demountable PEEK Injector Support

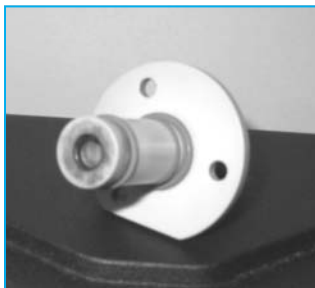
SCP SCIENCE's glassblowing department offers new and innovative products for ICP-AES and ICP-MS spectroscopists. For example, a PEEK adaptor is being used with the Perkin Elmer® 3300 XL ICP spectrometer. This adapter (OEM part no. N0695400) is used to connect the torch body, injector and spray chamber together. This part is degraded by the UV light from the torch and as a result needs to be replaced. At present, the entire torch and spray chamber assembly is demounted and the entire part is disposed of. In addition, if there is a change in the spray chamber type, the entire assembly is replaced.

In the **SCP SCIENCE** configuration, the injector support is demountable. **SCP SCIENCE** offers two parts (020-050-425 torch support and 020-050-435 spray chamber support) that will directly replace the OEM part no. N0695400. However, in this new design, when the torch support requires replacing, the spray chamber support can be retained, as it is not damaged by the UV light.

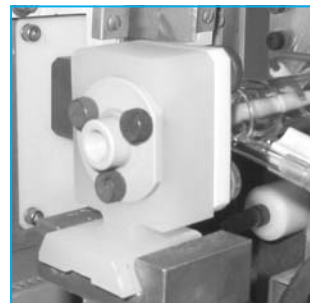
OEM Part no. N0695400



UV degradation of PEEK



SCP SCIENCE Torch Support



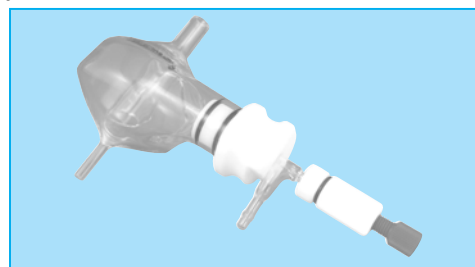
SCP SCIENCE PEEK torch support with 12/5 ball joint connected and a quartz baffle spray chamber with 12/5 socket

The new **SCP SCIENCE** configuration also allows you to change the style of spray chamber without having to remove and replace the entire injector support. With the **SCP SCIENCE** design the 11 mm spray chamber support (catalog no. 020-050-450) or the 12/5 socket member spray chamber support (catalog no. 020-050-445) can now be used. Interchanging the spray chamber adapter end, without having to change the entire adaptor, saves demount-mount time while lowering the cost of the adaptors. The user is provided with maximum flexibility, simplicity and time saving.

SCP SCIENCE Innovation--Teflon® Insert for Cyclonic Spray Chamber

The primary function of the spray chamber is to ensure that only the droplets that are smaller than 2µm reaches the torch. Depending on the nebulizer/spray chamber, this may represent less than 2% of the sample. The rest of the sample has to go somewhere. It has been demonstrated 90% of it goes down the drain. However, that leaves approximately 8% that stays in the spray chamber. Eventually, this residual material needs to be removed. Unfortunately, in traditional, all-glass (borosilicate or quartz) designs, the best cleaning technique is an acid spray inside the chamber. In a classical spray chamber design, it is very difficult to remove the o-rings that support the nebulizer should the user wish to immerse the spray chamber in an acid bath. In addition, when o-rings are removed, the glass nebulizer support is often broken. Hence, the analyst makes due with the ever increasing background noise resulting from the deposits in the spray chamber.

However, **SCP SCIENCE** has designed a unique Teflon® Insert. This Teflon® Insert can be easily removed and the interior of the spray chamber easily cleaned. Now, because the spray chamber has no o-rings, it can be immersed in an aqua regia bath without fear of destroying the o-rings.



The Teflon Insert has other features that have been suggested by analysts.



1-A special groove is cut at the bottom to allow for easy removal of the nebulizer from the Teflon® Insert.



2-A specially designed second groove to facilitate the removal of the Teflon® insert from the spray chamber.



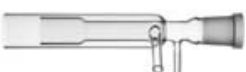


3-A notch on the inside prevents liquid build-up during analysis thereby reducing signal spikes upon nebulization.




SCP SCIENCE is constantly looking for new products to improve sample introduction and lower detection limits. Other innovative products include: a cross-flow nebulizer made from Ultem; a fully adjustable Varian® stand to facilitate and support sample introduction setup for Varian Vista and Liberty ICP Instruments; and much more. Contact your sales representative or local distributor to inquire what new ICP glassware is available.

Agilent® 4500, 7500 & 9500 (Hewlett Packard®)


Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 020-050-139	One Piece Torch, 2.5 mm Injector & 12/5 Ball Joint (HP 4500) Standard torch with 4500; Not suitable for samples containing Hydrofluoric acid.	G182065028 020-050-139
 020-050-161	One Piece Torch, 1.5 mm Injector & 12/5 Ball Joint (Agilent® 7500) Not suitable for samples containing hydrofluoric acid.	G183365424 020-056-002
 020-050-135	One Piece Torch, 2.5 mm Injector & 12/5 Ball Joint (Agilent® 7500) Not suitable for samples containing hydrofluoric acid.	G183365423 020-050-161
Demountable Torch, Inert (HP 4500) Quartz torch for inert sample introduction; Resistant to Hydrofluoric acid.	G182065035	020-050-135
Demountable Torch, Inert (Agilent® 7500)	G183365422	020-050-270
Quartz Injector (HP 4500 & 7500)	---	020-056-051
Alumina Injector (HP 4500 & 7500) Resistant to Hydrofluoric acid.	---	020-050-003
Injector Holder, Teflon® (HP 4500 & 7500) Used with inert torch and alumina injector.	G182065015	020-050-136
Quartz Bonnet (HP 4500 & 7500) (pk/2)	G183365421	020-056-052

Spray Chambers and Accessories


Description / Features	Cross Reference	Catalog Number
 020-056-101	Scott Chamber, Inner/Outer Tube Flush, Drain & Exit 90°, (HP 4500 & 7500)	G182065336 020-056-123
 020-050-132	Quartz Scott Chamber, Inner/Outer Tube Flush, Drain & Exit 90°, (HP 4500 & 7500) Used for Babbington, Concentric, and Micro-Concentric Nebulizers.	G182065337 020-056-101
 020-050-301	Quartz Scott Chamber, Inner Tube Extended, Drain & Exit 90°, (HP 4500 & 7500) Used with Cross Flow Nebulizer.	G182065339 020-056-102
Scott Chamber, Inner/Outer Tube Flush, Drain & Exit 180°, (HP 4500 & 7500)	---	020-050-131
Quartz Scott Chamber, Inner/Outer Tube Flush, Drain & Exit 180°, (HP 4500 & 7500)	---	020-050-132
Cyclonic Spray Chamber, Pyrex with Baffle (HP 4500 & 7500)	---	020-056-104
Cyclonic Spray Chamber, Quartz with Baffle	---	020-056-124
Cyclonic Spray Chamber, MLN For use with Modified Lichte Nebulizer	---	020-050-301
Ball and Socket Adapter Pyrex, 56 mm long (HP 4500) Connects the Quartz Spray Chamber to the Torch	G182080327	020-056-201
Ball and Socket Adapter (HP 7500)	G183365426	020-050-272
Quartz Ball Adapter (HP 4500 & 7500)	---	020-050-138
Quartz Socket Adapter (HP 4500 & 7500)	---	020-050-134
Stainless Steel Clamps	---	020-049-620
End cap for Babbington (020-060-005)	G183365476	020-050-151

Nebulizers

Description / Features	Cross Reference	Catalog Number
 020-060-002	Concentric (A-Type, 3.0 ml/min @ 35 psi)	G182065030 020-060-002
Concentric, Quartz (A-Type, 1.0 ml/min @ 35 psi)	G182061138	020-060-011
Concentric (C-Type, 1.0 ml/min @ 35 psi)	---	020-060-003
Concentric (C-Type, 3.0 ml/min @ 23 psi)	---	020-060-007
Modified Lichte Nebulizer Requires specific spray chamber	---	020-060-132

**Agilent® 4500, 7500 & 9500
(Hewlett Packard®)**

Nebulizers


Description / Features	Cross Reference	Catalog Number
 Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	G3161A#001	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	G3161A#002	020-060-308
Ari Mist® HP, PEEK (0.005 - 1.0 ml/min @ 35 - 80 psi)	---	020-060-307
Mira Mist® CE, PEEK (0.005 - 2.5 ml/min @ 80 - 90 psi)	---	020-060-312
Cross-Flow Nebulizer, 35 mm Inner Diameter, Ultem	G182065033	020-060-603
Babbington V-Groove	---	020-060-605

020-060-306

020-060-603

Horiba® Jobin Yvon® (JY) / Instruments SA®

Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 Torch, One Piece with Ball Joint	49.010.100	020-053-001
Demountable Torch Assembly, Complete	21.356.110	020-053-002
Demountable Torch, Body Only	---	020-053-301
Inner Quartz Tube	31.023.723	020-050-038
Outer Quartz Tube, 71 mm, Radial	31.023.722	020-050-037
Outer Quartz Tube, 82.5 mm, Radial	---	020-053-302
Outer Quartz Tube, Axial	31.031.099	020-053-303
O-ring Kit for Torch Body	---	020-053-201
Torch Bonnet (pk/2)	49.010.101	020-060-379
Torch Extension	---	020-060-378
Quartz Injector	---	020-050-175
Quartz Injector, 3.0 mm	---	020-050-510
Alumina Injector		
Resistant to Hydrofluoric acid.	31.021.589	020-050-041
Alumina Injector and Teflon® Insert	21.356.130	020-050-084
Insert, Teflon®	31.021.730	020-050-040
Centering Ring, Teflon®	31.023.724	020-050-039
Sheath Gas, Glass with Quick Disconnect	31.356.040	020-050-176
Sheath Gas, PEEK, with Quick Disconnect	20.925.160	020-053-376
Sheath Gas, 12/5 Socket with Quick Disconnect	---	020-053-377

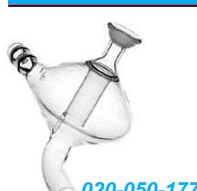
020-053-001

020-050-037

020-053-376

ICP Supplies

Spray Chambers and Accessories



Description / Features	Cross Reference	Catalog Number
 Cyclonic Spray Chamber, Borosilicate, with Baffle, 4 mm Drain	31.030.809	020-060-124
Cyclonic Spray Chamber, Borosilicate, no Baffle, 4 mm Drain	31.031.279	020-060-129
Cyclonic Spray Chamber, Axial	---	020-053-100
Cyclonic Spray Chamber, 12 mm Drain	---	020-050-177
Quartz Scott Spray Chamber, 12 mm Drain	---	020-053-102
Cyclonic Spray Chamber, Ground Joint Drain	---	020-053-107
Quartz Scott Spray Chamber, Ground Joint Drain	---	020-053-104
Scott Spray Chamber, 12 mm Drain	---	020-053-101
Scott Spray Chamber, 12 mm Drain, For Concentric Nebulizer	---	020-053-105
Scott Spray Chamber, Ground Joint Design	31.026.996	020-050-036
Teflon® Endcap for Open end Scott Spray Chamber	31.023.549	020-060-601
U-Drain Trap	31.026.997	020-053-108

020-050-177

020-053-108




Horiba® Jobin Yvon® (JY) / Instruments SA®

Nebulizers



Description / Features	Cross Reference	Catalog Number
 020-060-003	Concentric (C1-50, 1 L/min Ar @ 50 psi)	47.929.001 020-060-005
	Concentric (C-Type, 2.0 ml/min, Ar @ 35 psi)	47.929.002 020-060-006
	Concentric (C-Type, 3.0 ml/min, Ar @ 35 psi)	47.929.003 020-060-007
	Concentric (C-Type, 0.5 ml/min, Ar @ 50 psi)	47.929.004 020-060-004
	Concentric (C-Type, 1.0 ml/min, Ar @ 35 psi)	47.929.006 020-060-003
 020-060-603	Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	--- 020-060-306
	Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	47.929.024 020-060-308
	Cross-Flow Nebulizer, 35 mm Inner Diameter, Ultem	47.929.008 020-060-603

ARL® 3500 Maxi (Thermo® Electron)

Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 020-050-031	Maxi Torch	1390090003 020-050-157
	Maxi Torch, 20 mm, Outer Shield	--- 020-050-016
	Maxi Torch, Wear Metals, Outer Shield	--- 020-057-002
	Torch, ICPQ	1370000000 020-057-003
	Torch, HF/CR Resistant Body	1731310000 020-050-028
	Torch, Nitrogen, 3" Port, 28/15 Ball Joint	1731270000 020-050-031
 020-050-020	Alumina Injector	
	Resistant to Hydrofluoric acid.	1200079 020-050-029
	PTFE Insert for HF Torch	
	Resistant to Hydrofluoric acid.	--- 020-057-040
	PTFE Insert, Adjustable, for HF Torch	
	Resistant to Hydrofluoric acid.	--- 020-057-041
	O-Ring for Torch, PTFE Coated Viton	--- 020-050-042
	Torch Extension	--- 020-057-070
	Torch Extension with Optical Port	--- 020-050-019
	Torch Bonnet (pk/2)	--- 020-057-071
 020-057-072	Torch Bonnet, Induction Coil M/S (pk/2)	1732510000 020-050-020
	Argon Snout Tube	1706310000 020-057-072


Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 020-057-100	Cyclonic Spray Chamber, 10 mm Drain	--- 020-057-120
	Cyclonic Spray Chamber, 10 mm Drain, Water-Cooled	--- 020-057-121
	Conical Spray Chamber, Open End, with Impact Bead	1390080000 020-057-100
	Conical Spray Chamber, Open End, with Drain	--- 020-057-101
	Conical Spray Chamber, for Concentric Nebulizer	1731420000 020-050-017
	Conical Spray Chamber, for MDSN*	1731420001 020-050-018
 020-050-017	PTFE Insert to allow 020-050-018 to use a Concentric Nebulizer	--- 020-050-030
	O-Ring for Spray Chamber, PTFE Coated Viton	--- 020-050-043

*MDSN - Maximum Dissolved Solids Nebulizer

ARL 3500 Maxi (Thermo® Electron)

Nebulizers

Description / Features	Cross Reference	Catalog Number
 Concentric (A-Type, 3.0 ml/min @ 35 psi)	914319	020-060-002
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	13638800	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-308
Noordermeer V-Groove MDSN* Glass Nebulizer	915817	020-060-602


**MDSN - Maximum Dissolved Solids Nebulizer*

020-060-306

020-060-602

ARL 3400/3500 Accuris Mini (Thermo® Electron)

Torches and Accessories


Description / Features	Cross Reference	Catalog Number
 Mini Torch, 1.0 mm Injector	---	020-057-004
Mini Torch, 1.5 mm Injector	1734630000	020-050-021
Mini High-Solids Torch	---	020-050-164
Mini Nitrogen Torch	1706920000	020-050-163
Mini HF/CR Torch Body	1734730000	020-050-022
Alumina Injector for Mini Torch Assembly		
Resistant to Hydrofluoric acid.	144857	020-050-156
O-Ring for Torch, PTFE Coated Viton	---	020-050-042
Argon Snout, Nitrogen	1706930000	020-050-205
Torch Mount	144860	020-049-622
Torch Bonnet (pk/2)	1732520000	020-050-025

020-050-021

020-050-022

020-050-025

Spray Chambers and Accessories


Description / Features	Cross Reference	Catalog Number
 Conical Spray Chamber, Mini, for Concentric Nebulizer	1731420002	020-050-023
Conical Spray Chamber, for Babington MDSN*	1731420003	020-050-024
Conical Spray Chamber, Water-Cooled, for Concentric Nebulizer	1731420004	020-050-026
Cyclonic Spray Chamber, 10 mm Drain	---	020-057-120
Cyclonic Spray Chamber, 10 mm Drain, Water-Cooled	---	020-057-121
Quartz Conical Spray Chamber, Mini, for Concentric Nebulizer	---	020-050-274
Quartz Cyclonic Spray Chamber, Water-Cooled, 10 mm Drain	---	020-057-123
O-Ring for Spray Chamber, PTFE Coated Viton	---	020-050-043

**MDSN - Maximum Dissolved Solids Nebulizer*

020-050-023

020-050-026

Nebulizers



Description / Features	Cross Reference	Catalog Number
 Concentric (Type K, 2 ml/min @ 35 psi)	915375000M	020-060-008
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	13638800	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-308
Noordermeer V-Groove MDSN* Glass Nebulizer	9158170000	020-060-602
Babington MDSN*		
Resistant to Hydrofluoric acid.	1732590000	020-060-605

**MDSN - Maximum Dissolved Solids Nebulizer*

020-060-605


020-060-306

ARL® Maxim 1 & 3
(Thermo® Electron)
Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 Maxim Torch	S111403	020-050-027
 Maxim CR Torch	S213787	020-050-159
O-Ring for Torch, PTFE Coated Viton	---	020-050-042


020-050-027

Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 Spray Chamber, for Concentric Nebulizer	S702171	020-050-160
Spray Chamber, for Concentric Nebulizer, Water-Cooled,	S702174	020-050-162
Quartz Spray Chamber, for Concentric Nebulizer	---	020-057-101
O-Ring for Spray Chamber, PTFE Coated Viton	---	020-050-043
Drain Trap	S702232	020-050-158

020-050-160


Nebulizers

Description / Features	Cross Reference	Catalog Number
 Concentric (Type K, 3 ml/min @ 42 psi)	915375	020-060-009
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	13638800	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-308
Noordermeer V-Groove MDSN* Glass Nebulizer	915817	020-060-602
Babbington MSDN, Resistant to Hydrofluoric acid, (0.7 L/min @ 35 psi)	173259	020-060-605

020-060-602

*MDSN - Maximum Dissolved Solids Nebulizer

Baird®
(Thermo® Electron)
Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 Torch, Plasma Standard	25515	020-050-004
Torch, Low-Flow	75542	020-050-152
Plasma Low-Flow Torch (Old PSX)	666011	020-050-155
PSX Labtest Low-Flow Torch	75128	020-050-006
Demountable Torch Body	69987	020-050-009
PSX Low-Flow HF/CR Torch	75129	020-058-052
Demountable Torch Body	69987	020-050-009
Demountable Torch, Low-Flow	75145	020-058-053
AFS/ICP Torch and Tip	676458	020-058-054
AFS/ICP Tip Replacements	676459	020-058-355
Alumina Injector, Length of 4.8"		
Resistant to Hydrofluoroic acid	75132	020-058-356
Alumina Injector, Length of 5.6", Resistant to Hydrofluoroic acid		
Resistant to Hydrofluoroic acid	75144	020-058-357
Alumina Injector, Length of 7.7", Resistant to Hydrofluoroic acid		
Resistant to Hydrofluoroic acid	75145	020-050-154
Torch Bonnet (pk/2)	25492	020-050-014
PTFE Insert, Fixed	---	020-050-011
PTFE Insert, Adjustable	---	020-050-012
Torch Extension	---	020-050-013
Extension, Ball and Socket	62607	020-050-015
Quartz Extension, Ball and Socket, PSQ and PSX	---	020-058-360
Entrance Tube, Plasma Labtest, PSQ and PSX	---	020-058-361
PST Purge Window	77200	020-058-358
Window Tube	77611	020-058-359


020-050-004

020-050-015

020-058-054

020-058-359

Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 020-050-007	25492	020-050-007
Scott Spray Chamber, for Concentric Nebulizer	---	020-050-008
Scott Spray Chamber, Water-Cooled	---	020-058-109




Nebulizers

Description / Features	Cross Reference	Catalog Number
 020-060-306	025493	020-060-001
Concentric (Type C, 1 ml/min @ 35 psi)	---	020-060-003
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	13638800	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-308
Noordermeer V-Groove MDSN* Glass Nebulizer	915817	020-060-602
Cross-Flow Nebulizer, 35 mm Inner Diameter, Ultem	---	020-060-603



*MDSN - Maximum Dissolved Solids Nebulizer

Finnigan Element and TS/Sola
(Thermo® Electron)

Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 020-059-010	---	020-059-010
Torch & Injector, TS Sola	---	020-059-013
Demountable Torch, TS Sola	---	020-059-016
Quartz Injector, TS Sola, with Ball Joint	---	020-059-312
Alumina Injector, TS Sola	---	020-059-310
 020-059-016	---	020-059-011
Torch, Element, CD Option	---	020-059-012
Demountable Torch, Element	1091250	020-059-014
Quartz Injector, Element, with Ball Joint	---	020-059-311
Quartz Bonnet for Demountable Torch, Element (pk/2)	---	020-059-105
 020-059-312	199710	020-059-061

Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 020-059-101	---	020-059-101
Scott Spray Chamber, Quartz, Water-Cooled, TS Sola	---	020-059-102
Scott Spray Chamber, Pyrex, Water-Cooled, Element	---	020-059-103
Scott Spray Chamber, Quartz, Water-Cooled, Element	---	020-059-104
Ball and Socket Elbow, Pyrex	---	020-059-106
Ball and Socket Elbow, Quartz	---	020-059-107
 020-059-107	1127121	020-059-108

Finnigan Element and TS/Sola (Thermo® Electron)

Nebulizers

Description / Features	Cross Reference	Catalog Number
Concentric (Type C, 1 ml/min @ 35 psi)	---	020-060-003
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	13638800	020-060-306
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-308



020-060-003

VG® PlasmaQuad 1-3 & Genesis

Torches & Accessories

Description / Features	Cross Reference	Catalog Number
Torch, 1.5 mm	3201192	020-050-216
Torch, 2.0 mm	3201732	020-050-165
Torch Body, Demountable	1200080	020-050-046
Torch Body, Demountable with Quartz Injector	---	020-050-049
Torch Body, Corrosion Resistant	3203095	020-048-301
Quartz Injector with Ball Joint	---	020-050-047
Alumina Injector		
Resistant to Hydrofluoric acid	1200079	020-050-048
Torch Bonnet (pk/2)	---	020-048-302
Torch Bonnet, 72 mm in Length (pk/2)	3204703	020-048-305
Torch Bonnet Cap	1200274	020-048-303
Torch Shield	3203789	020-048-306
Torch Extension	---	020-048-307
RF Insulator Shield	3203025	020-048-304



020-050-046



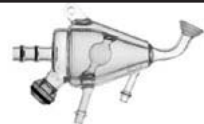
020-048-301



020-048-303

Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
Scott Spray Chamber, Water-Cooled, Pyrex	---	020-050-032
Scott Spray Chamber, Water-Cooled, Quartz	3200841	020-050-033
Conical Spray Chamber, Pyrex, Water-Cooled	3204313	020-048-101
Conical Spray Chamber, Quartz, Water-Cooled	---	020-049-624
Conical Spray Chamber, Pyrex, Water-Cooled, Ball Joint Drain	3203739	020-048-100
Conical Spray Chamber, with Impact Bead, Quartz	3600170	020-048-309
Quartz Elbow, for use with 020-048-309	3600169	020-050-221
Conical Spray Chamber, with Impact Bead, for Concentric Nebulizer	---	020-050-079
Ball and Socket Elbow, Pyrex	---	020-050-034
Ball and Socket Elbow, Quartz	3200727	020-050-035



020-048-100



020-050-034



Nebulizers

Description / Features	Cross Reference	Catalog Number
Concentric (Type C, 1 ml/min @ 35 psi)	1040894	020-060-003
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-308



020-060-003

Accessories



Description / Features	Cross Reference	Catalog Number
 020-048-203	Clamp, Stainless Steel, No. 12	1201261 020-048-201
	Clamp, Stainless Steel, No. 18	1202081 020-048-202
 020-050-172	UV Laser Sample Cell	3007383 020-048-203
	Micro Probe UV Laser Sample Cell	--- 020-048-204
	Probe UV Laser Sample Cell	3201104 020-050-166
	Quartz Sleeve	3202287 020-050-167
	Quartz Sleeve, No. 2	3200176 020-050-168
	Quartz Sleeve, Silica	3201070 020-050-169
	Quartz Tube	3201759 020-050-170
	Quartz Socket Tube Adapter	3200004 020-050-172
Glass Probe	1041167 020-050-173	

**VG® X Series
(Thermo® Electron)**

Torches and Accessories

Description / Features	Cross Reference	Catalog Number
Torch Collision Cell Double Ball Joint, 0.8 mm	---	020-056-310
Torch Collision Cell Double Ball Joint, 1.5 mm	---	020-056-312
Torch Collision Cell Double Ball Joint, 2.0 mm	---	020-056-314
Torch for Plastic Holder, 1.5 mm	3601145	020-056-316
Torch for Plastic Holder, 2.0 mm	3601147	020-056-318
Torch Stainless Steel Clip, 1.5 mm	3600969	020-056-320
Torch Stainless Steel Clip, 2.0 mm	3201732	020-056-322
Demountable Torch	3600146	020-056-324
Demountable Torch Body	3601146	020-056-330
Demountable Torch Adapter	---	020-056-332
Quartz Injector, 1.5 mm	---	020-056-326
Quartz Injector, 2.0 mm	---	020-056-328

Spray Chambers and Accessories


Description / Features	Cross Reference	Catalog Number	
 020-048-100	Scott Spray Chamber, Water-Cooled, Pyrex	--- 020-050-032	
	Scott Spray Chamber, Water-Cooled, Quartz	3200841 020-050-033	
 020-050-034	Conical Spray Chamber, Pyrex, Water-Cooled	3204313 020-048-101	
	Conical Spray Chamber, Quartz, Water-Cooled	---	020-049-624
	Conical Spray Chamber, Pyrex, Water-Cooled, Ball Joint Drain	3203739	020-048-100
	Conical Spray Chamber, with Impact Bead, Quartz	3600170	020-048-309
	Quartz Elbow, for use with 020-048-309	3600169	020-050-221
	Conical Spray Chamber, with Impact Bead, for Concentric Nebulizer	---	020-050-079
	Ball and Socket Elbow, Pyrex	---	020-050-034
	Ball and Socket Elbow, Quartz	3200727	020-050-035

Nebulizers

Description / Features	Cross Reference	Catalog Number	
 020-060-003	Concentric (Type C, 1 ml/min @ 35 psi)	1040894 020-060-003	
	Ari Mist® HP, PEEK (0.005 - 1.0 ml/min @ 30 - 80 psi)	4600495 020-060-307	
	Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306
	Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	4600356	020-060-308


TJA 2000-2400 Series (Thermo® Electron)

Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 Torch	---	020-050-112
Torch Bonnet (pk/2)	19040075	020-049-300


020-050-112

Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 Scott Spray Chamber, Standard	12794700	020-050-114
Aerosol Baffle for catalog no. 020-050-114	00395200	020-050-069
Cyclonic Spray Chamber, 50 ml, 12/5 Socket Top, 4 mm Drain	---	020-050-174
O-Ring for Spray Chamber, PTFE Coated Viton	---	020-050-043
For cyclonic chambers or Scott end caps with 6 mm nebulizer inlet	---	---

020-050-114


Nebulizers

Description / Features	Cross Reference	Catalog Number
 Cross-Flow Nebulizer, 35 mm Inner Diameter, Ultem	12698900	020-060-603
O-Ring Kit for 020-060-603, Viton	13320250	020-050-147
Argon Inlet Fittings for 020-060-603	---	020-050-149

020-060-603

TJA 975, 9000, 61 and 1100 (Thermo® Electron)


Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 Standard Low Flow Torch, TJA	---	020-050-121
Demountable Torch with Removable 1.0 mm Tip	19040054	020-050-110
Demountable Torch with 2 Removable 1.0 mm Tips	---	020-050-111
Demountable Torch with Removable 1.25 mm Tip	---	020-050-195
Demountable Torch with Removable 1.5 mm Tip	---	020-050-196
Demountable Torch with Removable 1.7 mm Tip	---	020-049-196
Demountable Torch with Removable Tip, High Solids	---	020-050-120
HF/CR Torch Body for Alumina/Sapphire Injector	---	020-050-193
Torch Bonnet (pk/2)	19040075	020-049-300
Torch Extension	---	020-050-117
Torch Extension with Optical Port	---	020-049-301

020-050-111


020-050-117

Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 Spray Chamber, Standard	12794700	020-050-114
Aerosol Baffle for 020-050-114	00395200	020-050-069
Scott Spray Chamber	19040065	020-050-113
Scott Spray Chamber, Curved Drain	---	020-050-115
Scott Spray Chamber, Open Ends, Water-Cooled	---	020-050-190

020-050-113


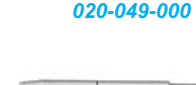

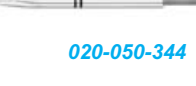








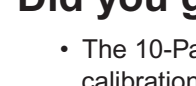
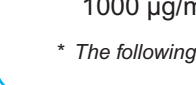
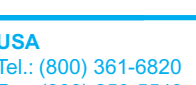

Nebulizers

Description / Features	Cross Reference	Catalog Number
 Cross-Flow Nebulizer, 35 mm Inner Diameter, Ultem	12698900	020-060-603
O-Ring Kit for 020-060-603, Viton	13320250	020-050-147
Argon Inlet Fittings for 020-060-603	---	020-050-149

020-060-603





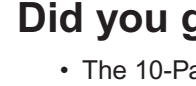
TJA 61E Polyscan, Atomscan 16 & 25, Advantage Radial, IRIS and POEMS

Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 020-049-000	Ceramic Base Torch, High Flow with 1.0 mm Injector (Organics) Torch body has a double red line and the injector has a double red line	12512401 020-050-125
 020-050-119	Ceramic Base Torch, High Flow with 1.5 mm Injector Torch body has a double red line and the injector has a single red line	12643201 020-050-124
 020-050-344	Ceramic Base Torch, High Flow with 1.5 mm Alumina Injector Torch body has a double red line and the injector is HF resistant	12717901 020-049-000
 020-050-344	Ceramic Base Torch, High Flow without Injector Torch body has a double red line	12644001 020-050-137
 020-049-303	Ceramic Base Torch, High/Low Flow with 1.5 mm Injector Torch body has a single red line and the injector has a single red line	12643202 020-050-123
 020-050-119	Quartz Injector, 1.0 mm, 87 mm length, double red line Used for Volatile Organic Samples	12540701 020-050-118
 020-050-344	Quartz Injector, Standard, 1.5 mm 87 mm length, single red line	12540700 020-050-119
 020-050-344	Quartz Injector, 2.0 mm, 87 mm length, single blue line Designed for samples with high dissolved solids up to 10%	13650201 020-051-340
 020-050-344	Quartz Injector, 2.4 mm, 87 mm length, double blue line Designed for samples with high dissolved solids 10% and higher	13650202 020-051-344
 020-049-303	Alumina Injector, 1.0 mm, 87 mm length Resistant to Hydrofluoric acid	--- 020-049-302
 020-049-303	Alumina Injector, 1.5 mm, 87 mm length Resistant to Hydrofluoric acid	13643601 020-051-300
 020-049-303	O-Ring for Injector Tube	--- 020-051-346
 020-049-303	Argon Fittings for Ceramic Base Torches	--- 020-051-200
 020-049-303	PTFE Adapter, Torch	13420400 020-050-201
 020-049-303	Anti-arc Cap	08520700 020-049-303
 020-049-303	Anti-arc Cap, Flat Edge	08520701 020-050-127

ICP Supplies

Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 020-050-116	Spray Chamber, Open End	13008900 020-050-116
 020-050-116	Cyclonic Spray Chamber, non baffled, Radial 4 mm O.D. Pump Drain Tubing Connector. Has an 30 mm neck.	14054200 020-051-100
 020-050-116	Cyclonic Spray Chamber, non baffled, Radial, Long neck 4 mm O.D. Pump Drain Tubing Connector. Has an 80 mm neck.	13966300 020-051-123
 020-051-123	Cyclonic Spray Chamber, non baffled, Radial, 12 mm gravity drain Has an 80 mm neck. Includes a pump tubing drain connection kit.	13610500 020-051-108
 020-051-123	Water Cooled Cyclonic Spray Chamber, non baffled, Radial, 12 mm gravity drain Can be water cooled to 4°C to improve analysis on volatile organic samples. Has an 80 mm neck. Includes a pump drain tubing connection kit.	--- 020-051-109

Did you get your 10-Pak?


- The 10-Pak* of ICP-AES or ICP-MS standards is a cost effective solution for your calibration standard requirements. Save over 10% with every order of ten 1000 µg/ml standards.

* The following elements are excluded from all special offers: Au, Ir, Lu, Os, Pd, Pt, Re, Rh, Ru, Sc & Tm



TJA 61E Polyscan, Atomscan 16 & 25, Advantage Radial, IRIS and POEMS

Nebulizers and Accessories

Description / Features	Cross Reference	Catalog Number
 Internal Standard Mixing Kit	---	020-049-601
Concentric (K-Type, 3.0 ml/min @ 35 psi)	---	020-060-009
Mira Mist [®] , Teflon [®] (0.2 - 2.5 ml/min @ 40 psi)	13638800	020-060-306
Mira Mist [®] , PEEK (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-308
Noordermeer V-Groove MDSN* Glass Nebulizer	---	020-060-602
Kynar Endcap for use with Open-End Spray Chambers		
For use with 6 mm nebulizers (Concentric, Burgener, V-groove)	---	020-060-601
Cross-Flow Nebulizer, 35 mm Inner Diameter, Ultem	12698900	020-060-603
O-Ring Kit for 020-060-603, 35 mm Diameter (pk/2)	13320250	020-050-147
Argon Inlet Fittings, Cross-Flow nebulizer (pk/4)	---	020-050-149


020-060-602

020-060-603

*MDSN - Maximum Dissolved Solids Nebulizer

TJA - Trace Advantage Axial, Trace Scan, IRIS AP and POEMS (Thermo[®] Electron)

Torches and Accessories


Description / Features	Cross Reference	Catalog Number
 Ceramic Base Torch, DV, with 1.5 mm Injector	13856200	020-051-192
Ceramic Base Torch, Trace, with 1.5 mm Injector		
Torch body has a double red line. Injector as a single red line	12643203	020-050-192
Ceramic Base Torch, Trace, without Injector	12644003	020-051-193
Quartz Injector, 1.0 mm, 87 mm length, double red line		
Used for Volatile Organic Samples	12540701	020-050-118
Quartz Injector, Standard, 1.5 mm 87 mm length, single red line	12540700	020-050-119
Quartz Injector, 2.0 mm, 87 mm length, single blue line		
Designed for samples with high dissolved solids up to 10%	13650201	020-051-340
Quartz Injector, 2.4 mm, 87 mm length, double blue line		
Designed for samples with high dissolved solids 10% and higher	13650202	020-051-344
Alumina Injector, 1.0 mm		
Resistant to Hydrofluoric acid	---	020-049-302
Alumina Injector, 1.5 mm		
Resistant to Hydrofluoric acid	13643601	020-051-300
PTFE Adapter, Torch	13420400	020-050-201
Optic Sleeve for DV Torch	13856300	020-049-304

020-051-192

020-050-119


020-050-201

Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 Cyclonic Spray Chamber, non baffled, Axial Neck		
4 mm O.D. Pump Drain Tubing Connector	13966200	020-051-195
Cyclonic Spray Chamber, non-baffled, Short Axial Neck 5 mm	13612000	020-051-112
Cyclonic Spray Chamber, non-baffled, Long Axial Neck 30 mm		
10 mm O.D Gravity Drain. Includes a pump drain tubing connection kit	13462000	020-050-191
Cyclonic Spray Chamber, Water-Cooled, 12 mm Drain, Trace	---	020-049-101

020-050-191

TJA - Trace Advantage Axial, Trace Scan IRIS AP and POEMS (Thermo® Electron) Nebulizers and Accessories

Description / Features	Cross Reference	Catalog Number
 Concentric (K-Type, 3.0 ml/min @ 35 psi)	---	020-060-009
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	13638800	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-308
Noordermeer V-Groove MDSN* Glass Nebulizer	---	020-060-602
Kynar Endcap for use with Open-End Spray Chambers		
For use with 6 mm nebulizers (Concentric, Burgener, V-groove)	---	020-060-601
Cross-Flow Nebulizer, 35 mm Inner Diameter, Ultem	12698900	020-060-603
Argon Inlet Fittings, Cross-Flow nebulizer (pk/4), replacement	---	020-050-149


*MDSN - Maximum Dissolved Solids Nebulizer

020-050-149

020-060-308

Perkin Elmer® Plasma 1000, 2000, II, 40 and 400

Torches and Accessories


Description / Features	Cross Reference	Catalog Number
 Torch Tube, Type I Slotted (Plasma 40)	N0580376	020-050-065
Torch Tube, Type II	N0580528	020-050-063
Torch Tube, Type II, Demountable, with Side Inlets	N8122006	020-050-072
Torch Tube, Type II, Wear Metals		
Designed for Wear Metals Analysis. More resistant to organic based samples	N0681690	020-050-068
Torch Extension	O0473052	020-051-303
Quartz Injector, 1.2 mm, Type I	---	020-051-301
Quartz Injector, 1.6 mm, Type I	N0580449	020-050-067
Quartz Injector, 1.2 mm	N0681631	020-050-182
Quartz Injector, 1.6 mm		
Designed for samples with high Total Dissolved Solids (TDS) between 2% and 5%	O0473292	020-050-183
Quartz Bonnet pk/2	N0582235	020-050-066
PEEK Injector Support adapter provided with O-Rings	N0582248	020-051-313
O-Ring Kit for Injector Support Adapter	N0580539	020-051-315
Purge Extension	N0681234	020-050-214
Purge Extension Window	N0581497	020-050-213

020-050-063

020-051-313

020-050-214

Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 Scott Spray Chamber	---	020-051-115
Scott Spray Chamber, Type II	---	020-050-211
Quartz Cyclonic Spray Chamber, 50 ml		
Ideal for Boron analysis	---	020-051-118
Cyclonic Spray Chamber, 50 ml, Optima	---	020-051-116
Cyclonic Spray Chamber, 50 ml, Water-Cooled		
Can be water cooled to produce a more uniform droplet size	---	020-051-117
Cyclonic Spray Chamber, 50 ml, 12/5 Socket, 4 mm Drain, Jacketed		
Can be water cooled to produce a more uniform droplet size	---	020-051-125

020-051-116



Nebulizers

Description / Features	Cross Reference	Catalog Number
 Concentric (C-Type, 3.0 ml/min @ 30 psi)	N8102011	020-060-007
Concentric (K-Type, 3.0 ml/min @ 30 psi)	N0681574	020-060-009
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	N0775330	020-060-308

020-060-009


Perkin Elmer® ICP 5000, 5500, 5500B, 6000 and 6500 (non SCIEX ICP-MS)

Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 Torch, One Piece with Ball Joint	O0472048	020-051-003
 Torch Tube, Type I	N0580233	020-050-064
Torch Tube, Type II	N0580528	020-050-063
Quartz Injector, 1.2 mm	N0681631	020-050-182
Quartz Injector, 1.6 mm	O0473292	020-050-183
Quartz Injector, 1.2 mm, Type I	---	020-051-301
Quartz Injector, 1.6 mm, Type I	N0580449	020-050-067
Quartz Injector, 2.0 mm, Type I	---	020-050-010
Torch Bonnet (pk/2)	O0472033	020-051-309
Torch Extension	O0473052	020-051-303
Torch Extension, Slotted	O0473560	020-050-061
Torch Extension with Optical Port	---	020-051-305
Purge Tube	O0473187	020-050-218
Purge Tube for Slotted Extension	O0473561	020-050-217


020-051-309

Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 Scott Spray Chamber	O0472047	020-050-007
Cyclonic Spray Chamber, 50 ml	N8120150	020-051-119
Cyclonic Spray Chamber, 50 ml, Quartz	---	020-051-120
Ideal for Boron Analysis	---	020-051-120
Cyclonic Spray Chamber, 50 ml, Water-Cooled	---	020-051-121
Water cooled to produce a more uniform droplet size	---	020-051-121
Cyclonic Spray Chamber, 50 ml, MLN	---	020-051-122
Ideal for use with Modified Lichte Nebulizer (020-060-132)	---	020-051-122
Cyclonic Spray Chamber, 50 ml, 12/5 Socket, 4 mm Drain	---	020-051-125
Cyclonic Spray Chamber, 50 ml, Water Cooled, 12/5 Socket, 4 mm Drain	---	020-060-124
Water cooled to produce a more uniform droplet size	---	020-060-124

020-051-125

Nebulizers

Description / Features	Cross Reference	Catalog Number
 Concentric (C-Type, 3.0 ml/min @ 30 psi)	N8102011	020-060-007
Concentric (K-Type, 3.0 ml/min @ 30 psi)	N0681574	020-060-009
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306
Ari Mist® HP, PEEK (0.005 - 1.0 ml/min @ 30 - 80 psi)	---	020-060-307
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	N0775330	020-060-308
Mira Mist® CE, Peek (0.005 - 2.5 ml/min @ 80 - 90 psi)	---	020-060-312
Modified Lichte Nebulizer	---	020-060-132
Requires specific spray chamber (020-051-122)	---	020-060-132

020-060-603

High Purity Acids & Reagents - PlasmaPURE Plus




High purity acids used for sample and standards preparation.

- Complete with a Certificate of Analysis including lot number, expiry date, actual lot analysis for over 60 elements
- Packaged in a Class 100 clean room
 - Supplied in pre leached Teflon® bottles for optimum quality




Perkin Elmer® Optima
3000 Series Radial


Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 020-050-181	Torch Body, Optima, Radial, Single Slot	N0690568 020-050-181
	Torch Body, Radial, Wear Metals	--- 020-050-186
	Quartz Injector, 1.2 mm	N0691631 020-050-182
	Quartz Injector, 1.6 mm	N0695448 020-050-238
	Quartz Injector, 2.0 mm	N0695441 020-050-234
 020-051-313	Alumina Injector, 0.85 mm	
	Resistant to Hydrofluoric acid	N8126039/N0582186 020-051-316
	Alumina Injector, 1.5 mm	
	Resistant to Hydrofluoric acid	N0582185/N8126040 020-051-314
	Alumina Injector, 2.0 mm	
	Resistant to Hydrofluoric acid. Specifically designed for samples with high Total Dissolved Solids (TDS) (~10%)	N8126041/N0582184 020-050-256
 020-051-316	Torch Bonnet, Flat Edge (Optima Instruments before Sept 1994), pk/2	N0695295 020-050-185
	Torch Bonnet, Flat Edge (Optima Instruments after Sept 1994), pk/2	N0695456 020-050-204
	PEEK Injector Support Adapter with O-Rings	N0582248 020-051-313
	Purge Extension Window	N0581497 020-050-213

Spray Chambers and Accessories



Description / Features	Cross Reference	Catalog Number
 020-050-211	Scott Spray Chamber, Type II	--- 020-050-211
	Scott Spray Chamber, Optima	--- 020-051-116
	Cyclonic Spray Chamber, 50 ml, Optima, PE 3000, Baffled	--- 020-060-128
	Cyclonic Spray Chamber, 50 ml, PE Radial, MLN	--- 020-060-132
	For use with Modified Lichte Nebulizer (020-060-120)	

Nebulizers

Description / Features	Cross Reference	Catalog Number
 020-060-007	Concentric (C-Type, 3.0 ml/min @ 30 psi)	N8102011 020-060-007
	Concentric (K-Type, 3.0 ml/min @ 30 psi)	N0681574 020-060-009
	Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	--- 020-060-306
	Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	N0775330 020-060-308
	Modified Lichte Nebulizer	
	Requires specific spray chamber (020-060-132)	--- 020-060-120

Perkin Elmer® Optima
3000 Series XL and SC (X)



Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 020-050-202	Torch Body, Optima XL, No Slots	N0695379 020-050-202
	Quartz Injector, 1.2 mm	N0695460 020-050-242
	Quartz Injector, 1.6 mm	N0695449 020-050-240
	Quartz Injector, 2.0 mm	N0695442 020-050-203
	Quartz Injector, 2.0 mm x 109 mm	--- 020-050-241
 020-050-242	Alumina Injector, 2.0 mm	
	Resistant to Hydrofluoric acid. Specifically designed for samples with high Total Dissolved Solids (TDS) (~10%)	N0695362 020-050-252
	Torch Bonnet (pk/2)	N0691664 020-050-207

ICP Supplies


Perkin Elmer® Optima 3000 Series XL and SC (X)

Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 Cyclonic Spray Chamber, 50 ml, 11.3 mm exit	N8122188	020-051-140
 Cyclonic Spray Chamber, 50 ml, for MLN Ideal for use with Modified Lichte Nebulizer (MLN)	---	020-050-250

020-051-140






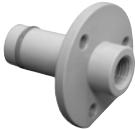
Nebulizers

Description / Features	Cross Reference	Catalog Number
 Concentric (C-Type, 3.0 ml/min @ 30 psi)	N8102011	020-060-007
Concentric (K-Type, 3.0 ml/min @ 30 psi)	N0681574	020-060-009
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	N0775330	020-060-308
Modified Lichte Nebulizer (MLN) Requires specific spray chamber (020-060-128)	---	020-060-120

020-060-007

Perkin Elmer® Optima 3000 Series DV

Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 Torch Body, Optima DV, 1 Slot	N0691662	020-050-246
 Torch Body, Optima DV, 1 Slot, Wear Metals Designed for Wear Metals Analysis and is more resistant to organic based samples	---	020-050-247
 Torch Body, Optima DV, 2 Slot Can replace the single slotted torch. The additional slot improves the sheath gas flow.	---	020-050-200
 Torch Body, Optima DV, 3 Slot Can replace the single slot torch. Additional slots improve the sheath gas flow	---	020-050-249
Quartz Injector, 1.2 mm	N0695460	020-050-242
Quartz Injector, 1.6 mm	N0695449	020-050-240
Quartz Injector, 2.0 mm Designed for samples with high Total Dissolved Solids (TDS) (~10%)	N0695442	020-050-203
 Alumina Injector, 2.0 mm Resistant to Hydrofluoric acid and is designed for samples with high Total Dissolved Solids (TDS) (~10%)	N0695362	020-050-252
Torch Bonnet (pk/2)	N0691664	020-050-207
Purge Tube Window, Radial, Short	N0691646/N0690672	020-050-254
Purge Tube Window, Radial, Long Version	N0691689	020-050-206
Axial Purge Window	B0066549/N0771116	020-051-351
Purge Tube Window, Axial	N0691678	020-050-208
 Torch Support, PEEK®, Includes O-Rings Requires a spray chamber support adapter (Spray Chamber Section)	N0695400	020-050-425

020-050-249

020-050-206

020-050-425


Nebulizers

Description / Features	Cross Reference	Catalog Number
 Concentric (C-Type, 3.0 ml/min @ 30 psi)	N8102011	020-060-007
Concentric (K-Type, 3.0 ml/min @ 30 psi)	N0681574	020-060-009
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	N0775330	020-060-308

020-060-007


Perkin Elmer® Optima
3000 Series DV

Spray Chambers and Accessories


Description / Features	Cross Reference	Catalog Number
 020-050-248		
Cyclonic Spray Chamber, 50 ml, Baffled		
Improves sensitivity for samples with low (<1%) TDS.	---	020-050-248
Cyclonic Spray Chamber, 50 ml, Baffled, Quartz	---	020-051-133
Cyclonic Spray Chamber, 50 ml, Baffled, Water-Cooled		
Water cooled to produce a more uniform droplet size	---	020-051-134
Cyclonic Spray Chamber, 50 ml, Non Baffled	N8122188	020-050-109
Cyclonic Spray Chamber, 50 ml, Non Baffled, Quartz	---	020-051-140
O-Ring Kit for Perkin Elmer®(PE) Optima DV	N0690769	020-051-311
11.3 mm Spray Chamber Support, PEEK®, Includes O-Rings		
Designed for spray chambers with 11.3 mm ID neck	---	020-050-450
12 mm Spray Chamber Support, PEEK®, Includes O-Rings		
Designed for spray chambers with 12 mm ID neck	---	020-050-435
Ball/Socket Style Spray Chamber Support, PEEK®, Includes O-Rings		
Designed for spray chambers with 12/5 socket member	---	020-050-445

Perkin Elmer® Optima
2000/4000/5000 Series

Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 020-051-002		
Torch Body, Optima 2000/4000/5000 DV	N0770338	020-051-002
Torch Body, Radial, 4300V	N0771500	020-051-005
Torch Body, Short Version	N0770344	020-051-098
Quartz Injector, 0.8 mm	N0775225	020-051-310
Quartz Injector, 1.2 mm	N0775226	020-051-308
Quartz Injector, 1.6 mm	N0775223	020-051-306
Quartz Injector, 2.0 mm		
Designed for samples with high Total Dissolved Solids (TDS) (~10%)	N0775014	020-051-302
Quartz Injector, 3.0 mm		
Designed for samples with high Total Dissolved Solids (TDS) (~10%)	N0775224	020-051-304
Alumina Injector, 0.8 mm		
Resistant to Hydrofluoric acid	N0775227	020-051-317
Alumina Injector, 1.2 mm		
Resistant to Hydrofluoric acid	N0775228	020-051-318
Alumina Injector, 1.2 mm, 4300V	N0771531	020-050-258
Alumina Injector, 2.0 mm		
Resistant to Hydrofluoric acid and designed for samples with high		
Total Dissolved Solids (TDS) (~10%)	N0775177	020-051-319
Torch Bonnet, pk/2	N0775289	020-051-350
Purge Tube Window, Radial, Short	N0690672	020-050-254
Radial Purge Window, 4000/5000	N0770322	020-051-256
Axial Purge Window	N0771116/B0066549	020-051-351
Axial Window, Optima 2000	09992731	020-050-221
Copper Foil for Torch Body Optima 2000/4000/5000 (pk/10)	N0775297	020-051-001
O-Ring kit for Torch	N0770437	020-050-513


Nebulizers

Description / Features	Cross Reference	Catalog Number
 020-060-007		
Concentric (C-Type, 2.0 ml/min @ 30 psi)	N8102011	020-060-006
Concentric (K-Type, 3.0 ml/min @ 30 psi)	N0681574	020-060-009
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	N0775330	020-060-308

ICP Supplies

Perkin Elmer® Optima 2000/4000/5000 Series


Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 Mini Cyclonic Spray Chamber for Optima 2000, 20 ml	---	020-051-107
Cyclonic Spray Chamber, 50 ml, Baffled	N0776053	020-051-113
Cyclonic Spray Chamber, 50 ml, No Baffle	N0776052	020-051-114
Cyclonic Spray Chamber, 50 ml, 4 mm Baffle	N0776090	020-051-138
Quartz Cyclonic Spray Chamber, 50 ml, No Baffle	N0776052Q	020-051-154
Nebulizer Adapter for Cyclonic Spray Chamber, PEEK	---	020-060-134

020-051-113

Perkin Elmer®/SCIEX ELAN 250 and 500


Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 Short Form Torch (135 mm overall length)	N8102001	020-050-070
Long Form Torch (151 mm overall length)	N8102006	020-051-099
Quartz Injector, 1.2 mm	N0681631	020-050-182
Quartz Injector, 1.6 mm	O0473292	020-050-183
Quartz Injector, 2.0 mm		
Designed for samples with high Total Dissolved Solids (TDS) (~10%)	N8120529	020-050-184
Alumina Injector Tip, 0.85 mm		
Resistant to Hydrofluoric acid and designed for volatile organic samples	N8126039	020-051-316
Alumina Injector Tip, 1.5 mm		
Resistant to Hydrofluoric acid	N8126040	020-051-314
Alumina Injector Tip, 2.0 mm		
Resistant to Hydrofluoric acid and designed for samples with high Total Dissolved Solids (TDS) (~10%)	N8126041	020-050-256
Torch Bonnet (pk/2)	---	020-051-352

020-050-070

020-051-352

Spray Chambers, Nebulizers and Accessories


Description / Features	Cross Reference	Catalog Number
 Scott Spray Chamber	N8102031	020-050-073
Quartz Scott Spray Chamber	---	020-050-074
Scott Spray Chamber, Water Cooled		
Water cooled to produce a more uniform droplet size	---	020-050-075
Scott Spray Chamber, Vacuum Jacketed		
Vacuum cooled to produce a more uniform droplet size	---	020-050-076
Concentric (A-Type, 2.0 ml/min @ 30 psi)	---	020-060-001
Concentric (K-Type, 2.0 ml/min @ 30 psi)	---	020-060-006
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	N0775330	020-060-308

020-050-074

020-060-306

Perkin Elmer®/SCIEX ELAN 5000, 6000 Series, 9000 Series & DRC II




Torches & Accessories

Description / Features	Cross Reference	Catalog Number
 Torch Body, Elan	N8122006	020-050-072
Quartz Injector, 1.2 mm	N0681631	020-050-182
Quartz Injector, 1.6 mm	O0473292	020-050-183
Quartz Injector, 2.0 mm	N8120529	020-050-184
Quartz Injector, 6100DRC and DRC II, 1.5 mm, with Ball Joint	WE027005	020-051-357
Quartz Injector, 6100DRC and DRC II, 2.0 mm, with Ball Joint	WE023948	020-051-355

020-050-072





Perkin Elmer®/SCIEX ELAN
5000, 6000 Series, 9000 Series & DRC II

Torches & Accessories (continued)

Description / Features	Cross Reference	Catalog Number
 Alumina Injector, 0.85 mm		
Resistant to Hydrofluoric acid	N8126039/N0582186	020-051-316
 Alumina Injector, 1.5 mm		
Resistant to Hydrofluoric acid	N8126040/N0582185	020-051-314
 Alumina Injector, 2.0 mm		
Resistant to Hydrofluoric acid	N0582184/N8126041	020-050-256
Injector Support/Torch Base	N8120116	020-051-353

020-051-355


Spray Chamber & Accessories

Description / Features	Cross Reference	Catalog Number
 Scott Spray Chamber	---	020-050-073
Quartz Scott Spray Chamber	---	020-050-074
 Scott Spray Chamber, Water Cooled		
Water cooled to produce a more uniform droplet size	---	020-050-075
Cyclonic Spray Chamber, 50 ml	N8120150	020-051-119
 Quartz Cyclonic Spray Chamber, 50 ml		
Ideal for Boron analysis	---	020-051-120
Cyclonic Spray Chamber, Water Cooled, 50 ml		
Water cooled to produce a more uniform droplet size	---	020-051-121
 Quartz Cyclonic Spray Chamber, 6100DRC, 50 ml, Baffled		
Ideal for Boron analysis	WE025221	020-051-136

020-050-075

020-051-121







Nebulizers

Description / Features	Cross Reference	Catalog Number
 Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	N0775330	020-060-308
Mira Mist® CE, PEEK (0.005 - 2.5 ml/min @ 80 - 90 psi)	---	020-060-312
Ari Mist® HP, PEEK (0.005 - 1.0 ml/min @ 30 - 80 psi)	---	020-060-307

020-060-308

Spectro Analytical

Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 Torch, Spectroflame, 1.0 mm	48205001	020-055-010
Torch, Spectroflame, 1.8 mm, Standard	75060596	020-050-090
Torch, Spectroflame, 2.5 mm	---	020-050-092
 Demountable Torch, Spectroflame	48206002	020-050-091
Nitrogen Torch	---	020-055-011
Demountable Torch, Nitrogen	---	020-055-012
 EOP Flared End Torch, 1.8 mm	---	020-055-013
EOP Flared End Torch, 1.8 mm, with fittings	75160592	020-055-019
EOP Flared End Torch, 2.5 mm	48105052	020-050-230
EOP Flared End Torch, 2.5 mm, with fittings	75160526	020-055-021
EOP Fixed Sheath Gas System Torch	75160537	020-050-229
Demountable EOP Torch	48206007	020-050-232
Demountable EOP Flared End Torch	---	020-050-231
 Housing for Demountable Torch, PTFE	75160538	020-050-233
 Quartz Injector, 1.5 mm, with Ball Joint	48105008	020-050-096
Quartz Injector, 1.8 mm, with Ball Joint	48105010	020-050-188
Quartz Injector, 2.5 mm, with Ball Joint, short taper, 175 mm overall length	48105009	020-050-189
Quartz Injector, 2.5 mm, with Ball Joint, long taper, 140 mm overall length	48105058	020-050-260
 Gas Adapter	---	020-055-051

020-050-090

020-050-232

020-055-051

Spectro Analytical

Spray Chambers and Accessories



020-060-130

Description / Features	Cross Reference	Catalog Number
Scott Spray Chamber, Double Pass, Large	48105006	020-050-095
Scott Spray Chamber, Double Pass, 90° Exit	48105051	020-055-120
Conical Spray Chamber, Slurry, Open End	---	020-050-187
Conical Spray Chamber, Vertical Exit, Open End	48105003	020-050-094
Cyclonic Spray Chamber, 50 ml, 13 mm Drain	---	020-055-100
Cyclonic Spray Chamber, 50 ml, MLN, 13 mm Drain		
For use with Modified Lichte Nebulizer (MLN), with Gravity Drain	---	020-060-130
Elbow Adapter, EOP Torch to Spray Chamber, Sharp 90° Angle	48105062	020-060-150
Elbow Adapter, EOP Torch to Slurry Spray Chamber		
Gradual 90° angle to handle slurry samples	48105002	020-055-311

Nebulizers and Accessories



020-060-606

Description / Features	Cross Reference	Catalog Number
Concentric (C-Type, 1.0 ml/min @ 25 psi)	76060510	020-060-003
Modified Lichte Nebulizer (MLN)	76060529	020-060-118
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-308
T2002	76060534	020-060-301
Fixed Cross-Flow, Ultem	75060502	020-060-606
O-Ring for 020-060-606 Cross-Flow	---	020-055-321

Leeman®

Torches and Accessories



020-050-050



020-054-055



020-054-302

Description / Features	Cross Reference	Catalog Number
1 Piece Torch with Ball Joint, Aqueous	120003361/1203748	020-050-053
1 Piece Torch with Ball Joint, Organics	120003362/1203749	020-050-054
1 Piece Torch with Ball Joint, Organics, with Fittings	120003362	020-050-262
1 Piece Torch, Beveled End, 1.0 mm Injector	3180016	020-050-050
Aqueous Torch, Axial, with Ball Joint	120002001	020-054-055
Aqueous Torch, Axial, with Ball Joint, 190 mm long	31800062	020-054-057
Aqueous Torch, Axial, Dual View, with Ball Joint	31800065	020-054-002
Demountable Torch	1203017/3180001	020-050-059
Demountable Torch, Axial, Aqueous	31800069	020-054-056
Demountable Torch, Dual View	31800070	020-054-003
Quartz Injector	3180004	020-050-060
Argon Hose with Fittings for Torch Side Arms (pk/2)	3093311	020-054-065
Purge Tube for Radial	31800068	020-054-301
Quartz Purge Window, radial	1210034	020-050-178
Purge Tube, V2, DV	31800067	020-054-302

Spray Chambers and Accessories



020-060-126



020-051-111

Description / Features	Cross Reference	Catalog Number
Scott Spray Chamber, Radial	1203751/3180017	020-050-055
Scott Spray Chamber, Axial	120002011	020-054-157
Cyclonic Spray Chamber, 50 ml, 12/5 Socket Top, 4 mm Pump Drain	---	020-050-174
Cyclonic Spray Chamber, 50 ml, 12/5 Socket, 4 mm Drain, Jacketed		
Can be water cooled to produce a more uniform droplet size	---	020-051-125
Cyclonic Spray Chamber, for Modified Lichte Nebulizer	---	020-060-126
Mini Cyclonic Spray Chamber	---	020-051-105
PTFE Cyclonic Spray Chamber, no baffle	---	020-051-110
Ultem Cyclonic Spray Chamber, no baffle	---	020-051-111
Modified Lichte Nebulizer		
Requires specific spray chamber (020-060-118)	---	020-060-132

Nebulizers and Accessories

Description / Features	Cross Reference	Catalog Number
Modified Lichte Nebulizer (MLN)		
Requires specific spray chamber (020-060-132)	---	020-060-118
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-308
Concentric (C-Type, 2.0 ml/min @ 30 psi)	---	020-060-006
Concentric (K-Type, 3.0 ml/min @ 30 psi)	---	020-060-009



020-060-308

Varian® / Seiko® ICP-AES

Torches and Accessories (Radial)

Description / Features	Cross Reference	Catalog Number
Low Flow Torch, One Piece, Radial	2010069690	020-050-140
Low Flow Torch, One Piece, with Ball Joint	2010069690B	020-050-002
Demountable Torch, Complete Kit for Radial (Includes 020-050-142, 020-050-145, 020-050-199)	9910056800	020-050-130
Torch, Demountable, Body Only, Radial	2010072900	020-050-142
Outer Shield Extension with Slot		
Eliminate atmospheric interferences	2010076400	020-052-001
Quartz Injector, 0.8 mm	2010077500	020-052-301
Quartz injector, 1.8 mm	2010073000	020-050-144
Alumina Injector, 1.8 mm		
Resistant to Hydrofluoric acid	2410067500	020-050-145
Alumina Injector, 2.5 mm		
Resistant to Hydrofluoric acid	---	020-052-346
PTFE Injector Holder	9910057300	020-050-199
Torch Bonnet (pk/2)	2010070700	020-050-143



020-050-002



020-050-143

Torches and Accessories (Axial)

Description / Features	Cross Reference	Catalog Number
Low Flow Torch, One Piece, Axial, Bend, 2.3 mm Injector	2010081200	020-052-002
Low Flow Torch, One Piece, Axial, 90° Bend, 2.4 mm Injector	2010090400	020-054-125
Low Flow Torch, One Piece, High Solids	2010094800	020-054-080
Long Life Low Flow Torch, One Piece, Axial, 90° Stem Bend	---	020-054-128
Organic Axial Torch, 90 degree stem bend, 0.8 mm Injector	2010104700	020-054-082
Demountable Torch, Complete Kit for Axial (020-052-300, 020-050-145, 020-050-199)	9910084700	020-052-003
Torch, Demountable, Body Only, Axial	2010083400	020-052-300
Quartz Injector, 0.8 mm	2010077500	020-052-301
Quartz Injector, 1.8 mm	2010073000	020-050-144
Alumina Injector, 1.8 mm		
Resistant to Hydrofluoric acid	2410067500	020-050-145
Alumina Injector, 2.5 mm		
Resistant to Hydrofluoric acid	---	020-052-346
Torch Bonnet (pk/2)	2010070700	020-050-143
PTFE Injector Holder	9910057300	020-050-199



020-050-199



020-054-125

Nebulizers




Description / Features	Cross Reference	Catalog Number
Concentric (C-Type, 1.0 ml/min @ 25 psi)	2010076500	020-060-003
Concentric (K-Type, 2.0 ml/min @ 30 psi)	2010069500	020-060-008
Concentric (K-Type, 3.0 ml/min @ 30 psi)	2010081600	020-060-009
High Solids V-Groove Nebulizer	9910057400	020-060-607
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-308
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306



020-060-003

ICP Supplies

Varian® / Seiko®
ICP-AES
Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
	7910043700	020-050-174
Cyclonic Spray Chamber, 50 ml Pyrex, Non-Baffle	208090600 / 2010081700	020-054-160
Cyclonic Spray Chamber, with Teflon Insert, 50 ml, Pyrex, Non-Baffle		
Same as 020-054-160, with additional Teflon® nebulizer insert which can be removed so that the spray chamber can be immersed in an acid bath for cleaning. (see page 53)	208090600 / 2010081700	020-054-162
Cyclonic Spray Chamber with Teflon Insert, 50 ml, Pyrex, w/Baffle		
Same as 020-054-160, with additional Teflon® nebulizer insert which can be removed so that the spray chamber can be immersed in an acid bath for cleaning. Furthermore, its baffle improves sensitivity for samples with a low (>1%) TDS. (see page 53)	---	020-054-314
		
Jacketed Cyclonic Spray with Teflon Insert, 50 ml, Pyrex, Non-Baffle		
Same as 020-054-160, with additional Teflon® nebulizer insert which can be removed so that the spray chamber can be immersed in an acid bath for cleaning. Furthermore, it can be water cooled to produce a more uniform droplet size. (see page 53)	208090129	020-054-164
Cyclonic Spray Chamber, 20 ml, Pyrex, Non-Baffle		
The smaller volume reduces the rinse out time. Ideal for use with micro-sample introduction.	208090183	020-054-166
Cyclonic Spray Chamber with Teflon Insert, 20 ml, Pyrex, Non-Baffle		
Same as 020-054-166, with additional Teflon® nebulizer insert which can be removed so that the spray chamber can be immersed in an acid bath for cleaning. (see page 53)	208090183	020-054-168
		
Jacketed Cyclonic Spray Chamber with Teflon Insert, 20 ml, Pyrex, Non-Baffle		
Same as 020-054-166, with additional Teflon® nebulizer insert which can be removed so that the spray chamber can be immersed in an acid bath for cleaning. Furthermore, it can be water cooled to produce a more uniform droplet size. (see page 53)	208090129	020-054-170
Variable Height Spray Chamber Support		
For Varian Vista and Liberty models	---	020-054-172

020-054-160

020-054-162

020-054-172

ICP Supplies


Varian® / Seiko®
Torches and Accessories

Description / Features	Cross Reference	Catalog Number
Quartz Torch	0422200163	020-058-001
Quartz Demountable Torch	---	020-058-002
Quartz Bonnet pk/2	---	020-058-004
Alumina Injector, Resistant to Hydrofluoric acid	---	020-058-005
Teflon® Holder	---	020-058-006
Centering Ring	---	020-058-007

Spray Chambers and Accessories


Description / Features	Cross Reference	Catalog Number
Spray Chamber	---	020-058-003
Varian Support Stand	---	020-054-172

Nebulizers

Description / Features	Cross Reference	Catalog Number
 Concentric (C-Type, 1.0 ml/min @ 25 psi)	2010076500	020-060-003
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-308
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306

020-060-003


Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 Torch, One Piece, Low Flow	2010078300	020-050-141
Demountable Torch, Complete	9910071700	020-052-004
Torch, Demountable, Body Only	2010079300	020-050-198
Quartz Injector, 0.8 mm	2010077500	020-052-301
Quartz Injector, 1.8 mm	2010073000	020-050-144
Alumina Injector, 1.8 mm		
Resistant to Hydrofluoric acid	2410067500	020-050-145
Alumina Injector, 2.5 mm		
Resistant to Hydrofluoric acid	---	020-052-346
PTFE Injector Holder	9910057300	020-050-199

020-050-198

020-050-141

Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 Cyclonic Spray Chamber, 50 ml, 12/5 Socket Top, 4 mm Pump Drain	7910043700	020-050-174
Cyclonic Spray Chamber, 50 ml, 8 mm Top, 4 mm Pump Drain	2010081700	020-054-160


020-050-174

Nebulizers

Description / Features	Cross Reference	Catalog Number
 Concentric (C-Type, 1.0 ml/min @ 30 psi)	2010076500	020-060-003
Concentric (K-Type, 3.0 ml/min @ 30 psi)	2010081600	020-060-009
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-308
Babbington Glass V-Groove, 1.0 L/min @ 35 psi	---	020-060-605


020-060-003

Torches and Accessories

Description / Features	Cross Reference	Catalog Number
 Torch 1.2 mm Injector	---	020-054-404
Torch 1.5 mm Injector	---	020-054-402

020-054-402

Spray Chambers and Accessories

Description / Features	Cross Reference	Catalog Number
 Cyclonic Spray Chamber 50 ml, Non Baffle, with 12/5 ball joint connector and ground glass drain	---	020-054-406
Cyclonic Spray Chamber, 20 ml, Non Baffle, with 4 mm pump drain	---	020-054-408

020-054-406

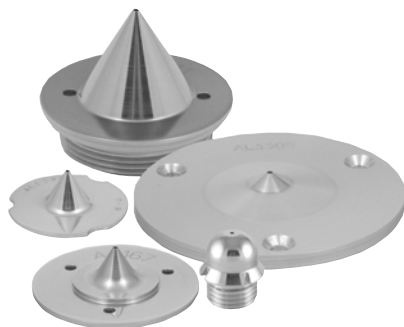
Nebulizers

Description / Features	Cross Reference	Catalog Number
 Concentric (A-Type, 2.0 ml/min @ 30 psi)	AR301FC1	020-060-006
Concentric (C-Type, 2.0 ml/min @ 30 psi)	AR301FS6	020-060-001
Mira Mist®, Teflon® (0.2 - 2.5 ml/min @ 40 psi)	---	020-060-306
Mira Mist®, PEEK (0.2 - 2.5 ml/min @ 40 psi))	---	020-060-308

020-060-306

PlasmaFORM Cones

PlasmaFORM Cones are an attractive alternative to the traditional method of manufacturing ICP-MS cones. Rather than being manufactured on CNC equipment, **PlasmaFORM** Cones are manufactured by the electroforming process. Electroformed cones are supplied with many ICP-MS instruments as standard equipment. Ask about our **FREE** 125 ml, **PlasmaCAL** ICP-MS calibration standard promotion.



- Offer superior edges and internal geometry to CNC cones
 - Minimize gas disturbances for a better performance
- Enhanced thermal characteristics
 - Ensure equal or extended lifetime compared to conventionally manufactured cones
- **FREE PlasmaCAL** Single Element calibration standard with each sampler or skimmer cone order

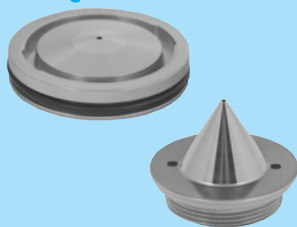
Perkin Elmer® - SCIEX

Description / Features	Cross Reference	Catalog Number
Nickel Sampler - 250 / 500	N8122101	020-101-060
Nickel Skimmer - 250 / 500	N8102111	020-101-061
Nickel Sampler - 5000	WE013087	020-101-062
Nickel Skimmer - 5000	N8122000	020-101-063
Nickel Sampler - 6000 / 6100 / 9000	WE021140	020-101-064
Nickel Skimmer - 6000 / 6100 / 9000	WE021137	020-101-065
Platinum Sampler - 250 / 500	N8102131	020-101-160
Platinum Skimmer - 250 / 500	N8102141	020-101-161
Platinum Sampler - 5000	N8122035 / WE103088	020-101-162
Platinum Skimmer - 5000	N8122035	020-101-163
Platinum Sampler - 6000 / 6100 / 9000	WE014815 / WE027802	020-101-164
Platinum Sampler - 6000 / 6100 / 9000	WE014816 / WE027803	020-101-165
Extraction tool for 6000 Sampler	N8122040 / WE017142	020-101-100
Skimmer Cone O-Rings (pk/5)	N8120512	020-101-102
Sampler Cone O-Rings (pk/5)	N8120511	020-101-104

Thermo Elemental® - VG®

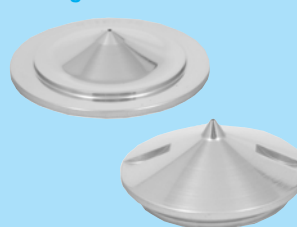
Description / Features	Cross Reference	Catalog Number
Nickel Sampler	3004661 / 4001690 (3+)	020-106-070
Nickel Sampler Cu Core (w/o Fixing Holes)	3004661	020-106-078
Nickel Mini-Skimmer	3004866 / 4001689 (3+)	020-106-071
Nickel Plasmatrace 2 Micro-Skimmer	3200860 / 4200846 (3+)	020-106-072
Nickel Plasmatrace 1 Skimmer	3201457 / 3200456	020-106-074
Nickel Skimmer (0.4 mm Insert)	3201585	020-106-075
Platinum Sampler (10 mm Insert)	3200262	020-106-170
Platinum Mini-Skimmer	---	020-106-171
Platinum Micro-Skimmer	3201101	020-106-172
Platinum Plasmatrace 1 Skimmer	3202005	020-106-173
Platinum Plasmatrace 2 Micro-Skimmer	3201941	020-106-174
Nickel Slide Screen	3204004	020-106-190
Nickel Slide Screen	3204269	020-106-192
Nickel Earth Transfer Cone	3204486	020-106-194

Catalog No. 020-101-064



Catalog No. 020-101-065

Catalog No. 020-106-070



Catalog No. 020-106-072

**PlasmaFORM
Cones**

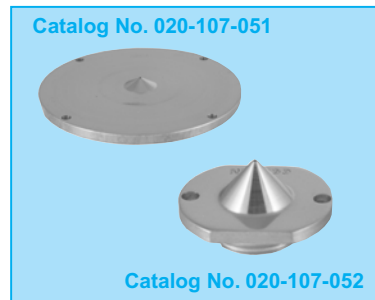
Varian®

Description / Features	Cross Reference	Catalog Number
Nickel Sampler F-Series Type	9910094000	020-107-070
Nickel Skimmer F-Series Type	9910094100	020-107-072



Agilent® / Hewlett Packard® (HP) / Yokagawa®

Description / Features	Cross Reference	Catalog Number
7500C Nickel Skimmer (Collision Cell)	G183365497	020-102-054
7500Ce Nickel Skimmer	G327065024	020-102-056
7500 a/i/s Nickel Skimmer	G182065050	020-102-057
7500 a/i/s Platinum Skimmer	G182065207	020-102-059
7500C Platinum Skimmer (Collision Cell)	G183365092	020-102-154
4500/7500 Nickel Sampler (25 mm Insert)	G182065238	020-107-051
4500 Nickel Skimmer	G182065265	020-107-052
4500/7500 Platinum Sampler (10 mm Insert)	G182065239	020-107-151
4500 Platinum Skimmer (7.2 mm Insert)	G182065237	020-107-152



Finnigan®

Description / Features	Cross Reference	Catalog Number
Nickel Sampler	1044530	020-102-050
Nickel Skimmer	1044540	020-102-051
Nickel Sampler, High Performance	1067600	020-105-052
Nickel Accelerator	067019A	020-102-055
Platinum Skimmer	1067510	020-102-061
Aluminum Sampler	---	020-102-063
Aluminum Skimmer	---	020-102-065
Platinum Sampler	1067500	020-102-150
Platinum Skimmer	1047460	020-102-151
Graphite Sampler Gasket / O-Ring (pk/3)	1042620	020-102-161



Micromass-Isoprobe®

Description / Features	Cross Reference	Catalog Number
Nickel Sampler, Cu Base	M695080B	020-103-010
Nickel Skimmer	M695011B	020-103-011
Nickel Collimator	M695064B	020-103-015
Platinum Sampler	M695162C	020-103-110
Platinum Skimmer	M695163C	020-103-111
Platinum Collimator	M695421C	020-103-115
Collimator Stainless Steel Mounting Flange	M695064B/2	020-103-127



ICP Supplies

Bonus Custom Standards Offer!!

- With the purchase of every 500 ml bottle of custom ICP-MS standard, receive an additional 500 ml of the same multi-element standard at 1/2 price!
- Large volume discounts also available



PlasmaFORM Cones



Micromass - Platform

Description / Features	Cross Reference	Catalog Number
Nickel Sampler	M695439B	020-103-020
Nickel Skimmer	M695440B	020-103-021
Nickel Collimator	M695475B	020-103-025
Sampler cone Gasket (pk/10)	M695461AD1	020-103-090
Platinum Sampler	M695508B	020-103-120
Platinum Skimmer	M695509B	020-103-121
Nickel Collimator Domed Shape 3 mm Hole	M695579B	020-103-123
Nickel Collimator Domed Shape 2 mm Hole	M695474B	020-103-125
Aluminum Sampler	M695439BD2	020-103-220
Aluminum Skimmer	M695461AD1	020-103-221



Nu®

Description / Features	Cross Reference	Catalog Number
Nickel Sampler	319285	020-105-023
Nickel Skimmer	319284 WA6	020-105-025
Nickel Skimmer	319497 WA6	020-105-027

PlasmaPURE Plus Acids & Reagents

PlasmaPURE Plus acids are manufactured with trace metal levels less than 10 ppt (0.01 ppb). Complete with a Certificate of Analysis with lot number, expiry date, and maximum concentration specification for over 60 elements. Commonly used in semiconductor, nuclear, clinical, pharmaceutical, and geochemical analysis. Used for sample and standards preparation for ICP-AES, ICP-MS, Flame AA and Graphite Furnace AA spectroscopy.

- 2 expiry dates (up to 3 years unopened and 15 months opened)
- Long shelf life for unopened bottles



Always in Stock

Description	Assay	Molecular Weight	CAS Number	Merck Index	Code	250 ml	Catalog Number		
							500 ml	1 L	2 L
Acetic Acid	>99% CH ₃ COOH	60.05	64-19-7	13.56	✓ ⊗	250-036-101	250-036-103	250-036-105	---
Ammonia Solution	20-22% NH ₃	17.03	7664-41-7	---	✓ ⊗ ⊕	250-036-107	250-036-109	250-036-111	---
Hydrochloric Acid	32-35% HCl	36.46	7647-01-0	13.4801	✓ ⊗	250-036-113	250-036-115	250-036-117	250-036-119
Hydrofluoric Acid	47-51% HF	20.01	7664-39-3	---	✓ ⊗	250-036-121	250-036-123	250-036-125	250-036-127
Hydrogen Peroxide	30%	---	---	---	✓ ⊗ ⊕	---	250-036-145	---	---
Nitric Acid	67-70% HNO ₃	63.01	7697-37-2	13.6608	✓ ⊗ ⊕	250-036-129	250-036-131	250-036-133	250-036-135
Sulphuric Acid	93-98% H ₂ SO ₄	98.08	7664-93-9	13.9064	✓ ⊗ ⊕	250-036-137	250-036-139	250-036-141	250-036-143

PlasmaPURE Plus Accessories

Description	Catalog Number
PlasmaPURE Plus Top Dispenser, Replacement Base	250-036-500
PlasmaPURE Plus Top Dispenser*, Complete Unit	250-036-501

* Dispenser only for 500 ml, 1 L and 2 L sizes.

⊗ Glass Container
✓ Dangerous Goods*

⊕ Poison
⊗ Corrosive

⊕ Flammable
⊕ Oxidant

* as defined by :

• Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
• Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
• International Air Transport Association - Dangerous Goods Regulation, 40th Edition

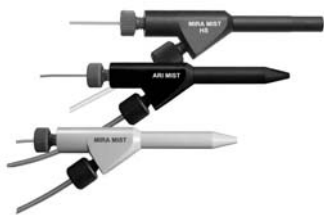
In addition to traditional glass concentric nebulizers, other nebulizer designs and material compositions are available to meet specific analytical requirements. The following table offers valuable information to choose the optimal nebulizer for your application.

Nebulizers

Nebulizer Type	Material / Chemical Resistance	Application	Sensitivity
 <p>Babbington V-Groove</p>	PEEK. Good chemical resistance for most acids and organic solvents.	For use with Scott style and cyclonic spray chambers. Great High solids capability.	Moderate sensitivity. Original V-Groove design.
 <p>Cross-Flow</p>	Ultem. Good chemical resistance for most acids and organic solvents.	For use with Scott style spray chambers. Great high-solids capability.	Moderate sensitivity due to wide range of droplet size.
 <p>Glass Concentric, Meinhard®</p>	Quartz or borosilicate. Good for most acids and organic solvents. Not recommended for Hydrofluoric (HF) acid.	For use with Scott style and cyclonic spray chambers. Not recommended for high solids applications.	Excellent mist and sensitivity.
 <p>Modified Lichte</p>	Quartz or borosilicate. Good for most acids and organic solvents. Not recommended for Hydrofluoric (HF) acid.	For use with Modified Lichte spray chamber. Unique patented design. Great high solids capability.	Great sensitivity. Patented design with impingement bead to further atomize aerosol resulting in uniform droplet size.
 <p>Noordermeer V-Groove</p>	Quartz or borosilicate. Good for most acids and organic solvents. Not recommended for HF.	For use with Scott style and cyclonic spray chambers. Great high solids capability. Same principal as Babbington nebulizer.	Moderate to high sensitivity for a high-solids nebulizer. Better efficiency than a Babbington V-Groove nebulizer.
 <p>Mira Mist®, PEEK</p>	PEEK body with Teflon® inner capillaries. Good chemical resistance for most acids and organic solvents. Not recommended for Hydrofluoric (HF) acid.	For use with Scott style and cyclonic spray chambers. Recommended for high-solids applications.	Excellent sensitivities and stability. Patented enhanced parallel path method to run high Total Dissolved Solids (TDS).
 <p>Mira Mist®, Teflon®</p>	All Teflon®. Good with all acids and organic solvents.	For use with Scott style and cyclonic spray chambers. Recommended for high-solids applications.	Excellent sensitivities and stability. Patented enhanced parallel path method to run high Total Dissolved Solids (TDS).

Burgener Nebulizers

Burgener Nebulizers are made with the patented enhanced parallel path method enabling them to run high total dissolved solids (TDS) while providing the best sensitivity and stability of any pneumatic nebulizer. Direct replacement for concentric nebulizers and fit cyclonic spray chambers.



- Provide excellent sensitivity with high transport rates
- Eliminate plugs due to salt or undissolved particles
- Deliver long term stability

P_C = Argon Pressure (psi)

R_a = Sample Uptake (ml/min)

Burgener Nebulizers

Name	Description	P_C Range	R_a Range	Body	Catalog Number
T2002®	Unpluggable - Ideal for high solids, slurries	35 - 45	0.5 - 3.0	Teflon®	020-060-301
Teflon® Mira Mist®	Excellent Mist, good with all acids, solvents	35 - 45	0.2 - 2.5	Teflon®	020-060-306
Ari Mist® HP	Micro flow for ICP-MS 5 to 1000 ul/min or for LC-ICP-MS interface	80	0.005 - 1.0	PEEK	020-060-307
PEEK Mira Mist®	Excellent Mist at a reasonable cost (no HF)	35 - 45	0.2 - 2.5	PEEK	020-060-308
Graphite Mira Mist® HS	Flat nose and 25% graphite body				
	For Agilent® instruments with drip problems	35 - 45	0.2 - 2.5	Teflon®	020-060-310
Mira Mist® CE	Maximum signal for CE or HPLC-ICP-MS interface	80 - 90	0.005 - 2.5	PEEK	020-060-312
PEEK Ari Mist® LP	Low flow, low particulate free samples	40 - 50	0.05 - 1.0	PEEK	020-060-314
Teflon® Ari Mist® LP	Low flow, low particulate free samples	40 - 50	0.05 - 1.0	Teflon®	020-060-316

Burgener Gas Fittings

Description	Catalog Number
1/4" Adapter for 1/4" gas line	020-060-348
1/8" Adapter for 1/8" gas line	020-060-349
Thermo Elemental® - TJA® ICP (Luer Lock Fitting)	020-060-351
Thermo Elemental® - VG® Elemental ICP-MS past 2002, JY	020-060-352
PE/SCIEX® Elan ICP-MS (1/4" Swagelok gas line), PE® Optima 3000 Series	020-060-353
Thermo Elemental® - VG® for instruments pre 2002	020-060-355
Perkin Elmer® (PE) Optima 2000, 4000 and 5000 series	020-060-356
Spectro	020-060-358
Agilent®/Hewlett Packard® (HP)	020-060-359
GBC®, Finnigan®, Leeman®, Varian®	020-060-380

Burgener Adapters & Replacement Sample Lines

Name	Description	Catalog Number
Adapter	Mira Mist/Ari Mist adapter for Scott Double Pass Spray Chambers	020-060-045
Adapter	T2002 Adapter for Scott Double Pass Spray Chambers	020-060-043
PTFE® Capillary Tubing	0.044" O.D. x 0.020" I.D. - 3 m Length	020-060-060
Polyethylene Capillary Tubing	0.044" O.D. x 0.017" I.D. - 3 m Length	020-060-061
Polyethylene Capillary Tubing with Blue Fitting	0.044" O.D. x 0.017" I.D. - 0.5 m Length	020-060-062
Polyethylene Capillary Tubing	0.044" O.D. x 0.017" I.D. - 30 m Length	020-060-320
Red PTFE® Capillary Tubing for Ari Mist® HP	0.035" O.D. x 0.008" I.D. - 3 m Length	020-060-322
Red PTFE® Capillary Tubing with Red Adapter for Ari Mist® HP	0.035" O.D. x 0.008" I.D. - 0.5 m Length	020-060-382

Burgener Nebulizers Cross References

SCP SCIENCE	Thermo®	Agilent®	Perkin Elmer®	Spectro®	JY®
Mira Mist®, Teflon®	---	G3161A#001	---	---	---
Mira Mist®, PEEK	4600356	G3161A#002	N0775330	---	47.929.024
Ari Mist®	4600495	---	---	---	---
T2002	---	---	---	76060534	---

Inert ICP Spray Chambers & Accessories

Concerns over trace contamination from glass and use of hydrofluoric (HF) acid for sample digestion, have led to the development of spray chambers constructed of inert materials such as Teflon® and Ultem. SCP SCIENCE continues to source and develop new configurations of inert material spray chambers. For additional information, please contact an SCP SCIENCE sales representative or local distributor.

Ordering Information

Description	Nebulizer Type	Composition	Catalog Number
Cyclonic Spray Chamber (no baffle)	Any nebulizer with 6 mm diameter	Teflon®	020-051-110
Cyclonic Spray Chamber (no baffle)	Any nebulizer with 6 mm diameter	Ultem	020-051-111
Cyclonic Spray Chamber (with baffle)	Any nebulizer with 6 mm diameter	Teflon®	020-051-210
Cyclonic Spray Chamber (with baffle)	Any nebulizer with 6 mm diameter	Ultem	020-051-211
Micro Chamber (less than 20 µl/min)	For Burgener Ari Mist® HP or Mira Mist® CE	Teflon®	020-060-350

Meinhard® Nebulizers

Dr. James E. Meinhard has been fabricating concentric glass nebulizers for ICP Spectroscopy since the technique's infancy in 1973. The first model featured a lapped, coplanar **Type A** nozzle and remains popular for use in general ICP applications. In 1983, Meinhard® introduced the **Type C** nebulizer for the analysis of samples high in dissolved solids. The **Type K**, designed to conserve argon, was developed in conjunction with an instrument manufacturer the following year. As hybrid systems grew popular in the early 1990's, the **High-Efficiency Nebulizer (HEN)** was developed for micro-sample analysis utilizing FIA and HPLC-ICP techniques.

The Meinhard® Nebulizers' exacting standards in design and manufacturing make them the industry choice worldwide. Advantages include free aspiration without a peristaltic pump as well as a reproducible and self-aligning aerosol.

Nozzle Geometry



Type	Type A	Type C	Type K
End surfaces	Lapped	Fire-polished	Lapped
Capillary tip recess	None, Coplanar	0.5 mm	0.5 mm
Uptake suction, atm	+	+	+
Calibration reference, Ar in L/min.	1.0	1.0	0.7
Stability of aerosol delivery	+	+	+
Popular ICP applications	General	High-Solids	Ar Low-Flow

Specifications

Configurations	Concentric, monolithic
Materials	Borosilicate Glass or Quartz
Tubulation Outer Diameter (O.D.)	Shell, 6 mm; fluid inputs, 4 mm
Nozzles	A, C or K, see selection guide (above)
Internal Liquid Volume	0.1 ml
Annular Separation at Nozzle	10 - 30 µm
Calibration -	Provided with each unit
P _c	Calibration input pressure at rated argon flow
Nominal P _c	(20, 30 or 50 psi)
R _a	Water uptake at P _c
Nominal R _a	(0.5, 1,2 or 3 ml/min)



FREE Fit Kit 3 included with every Meinhard® Nebulizer!

Meinhard® Nebulizers

Meinhard® Nebulizers

Type	Application	P _C Range	R _a Range	Catalog Number
A2, Flush, Lapped Nozzle	General	25 - 40	1.5 - 2.4	020-060-001
A3, Flush, Lapped Nozzle	General	25 - 40	2.5 - 3.5	020-060-002
C1, Recessed Cappillary, Vitreous Nozzle	Hi-Solids	25 - 40	0.7 - 1.4	020-060-003
C0.5, Recessed Cappillary, Vitreous Nozzle	Hi-Solids	41 - 60	0.3 - 0.6	020-060-004
50-C1, Recessed Cappillary, Vitreous Nozzle	Hi-Solids	41 - 60	0.7 - 1.4	020-060-005
C2, Recessed Cappillary, Vitreous Nozzle	Hi-Solids	25 - 40	1.5 - 2.4	020-060-006
C3, Recessed Cappillary, Vitreous Nozzle	Hi-Solids	25 - 40	2.5 - 3.5	020-060-007
K2, Recessed Cappillary, Vitreous Nozzle	Low Flow	25 - 40	1.0 - 2.2	020-060-008
K3, Recessed Cappillary, Vitreous Nozzle	Low Flow	25 - 40	2.3 - 4.0	020-060-009
High Efficiency Nebulizer (HEN)	High Efficiency	150 - 180	0.03 - 0.1	020-060-010
A2, Quartz, Flush, Lapped Nozzle	General	25 - 40	1.5 - 2.4	020-060-011
TQ-30-A3, Quartz	General	25 - 40	2.5 - 3.5	020-060-012
50-C1, Quartz	Hi-Solids	41 - 60	0.7 - 1.4	020-060-013
AO-5, Flush, Lapped Nozzle	General	25 - 40	0.3 - 0.6	020-060-014
CIR, Helium nebulizer	For LC-MS	50	---	020-060-015
DIHEN, Type A	Direct Injection	---	0.001 - 0.1	020-060-020
DIHEN, Quartz, Type A	Direct Injection	---	0.001 - 0.1	020-060-021

P_C = Argon Pressure (psi)
R_a = Sample Uptake (ml/min)

Adapters

Description	Catalog Number
Adapter, DIHEN Perkin Elmer® Elan 6000 MS	020-060-022
Adapter, DIHEN Perkin Elmer® Optima 3000/3000 DV	020-060-030
Adapter, DIHEN Micromass®	020-060-031
Adapter, DIHEN VG® Elemental	020-060-032
Adapter, DIHEN Agilent® 4500	020-060-033
Adapter, DIHEN Finnigan-Element 2	020-060-034
Adapter, DIHEN Shimadzu	020-060-035

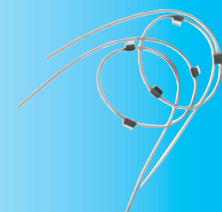
Meinhard® Nebulizer Cross Reference

SCP SCIENCE	ARL®/Fisons®/ VG®	Finnigan®	JY®	LECO®	Perkin Elmer®	Spectro®	TJA®	Varian®
020-060-002	914319000M/ 1040894	---	---	---	O0472020	---	---	---
020-060-003	---	---	---	---	---	76060510	---	---
020-060-004	---	---	47.929.004	---	N8102012	---	---	---
020-060-005	---	---	47.929.001	---	O0472022	---	---	---
020-060-006	---	---	47.929.002	---	---	---	---	2010076500
020-060-007	---	---	47.929.003 & 47.929.006	700612	N8102011	---	---	---
020-060-008	---	---	---	---	---	---	13960000 & 13918400	2010069500
020-060-009	915375000M	---	47.929.005	---	N0681574	---	---	2010081600
020-060-012	---	---	---	---	WE024371	---	---	---
020-060-015	---	7000598010	---	---	---	---	---	---

Peristaltic Pump Tubing

Affordable and reliable peristaltic pump tubing including: PVC, Solvent Flex, Silicone, Viton®, and Santoprene® compositions.

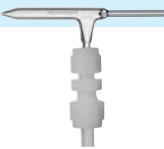


- Cross reference numbers for OEM products listed where available
- Custom sizes and compositions available
 - Designed for your specific application



Nebulizer Quick Connect Kit

Damaged nebulizers and bruised knuckles are a thing of the past with Quick Connect Kits for nebulizers. These kits make switching out nebulizers fast and easy. Quick Connect Kits are available for all styles of Meinhard® Nebulizers.

Ordering Information

Type	Description	Picture	Catalog Number
High Pressure Gas Connection	This Kit ties in the gas flow to the nebulizer. The union connects to the ¼" high pressure argon supply line. This fitting easily holds up to 190 psi.		020-060-052
4 mm Liquid Connection	This kit is designed to tie into all concentric glass nebulizers with a 4 mm input tube for the sample or pump.		020-060-053
DIHEN Liquid Connection	The DIHEN / Microbore fitting kit uses microbore 0.008" ID Teflon tubing to dramatically reduce dead volume in the sample uptake tubing to the nebulizer.		020-060-054

Nebulizers & Accessories

In addition to the traditional glass concentric nebulizer design, **SCP SCIENCE** provides a range of other nebulizer designs and compositions to meet your specific analytical requirements.

- Cross-Flow nebulizers are designed to work with open-ended Scott Spray Chambers
- Noordermeer and Babbington nebulizers are excellent designs to consider when working with high dissolved solids (HDS)



Catalog No. 020-060-603

Nebulizers

Description	Description	Catalog Number
Noordermeer	For high solids - fits standard 6 mm spray chamber inlet	020-060-602
Fixed Cross-Flow	For all instruments using 35 mm diameter spray chambers	020-060-603
Fixed Cross-Flow for Spectro Instruments	For all instruments using 34 mm diameter spray chambers	020-060-606
High Solids Cross-Flow	For high solids, same as above - also requires peristaltic pump	020-060-604
Babbington V-Groove	For high solids - ½" diameter - requires ½" adapter listed below	020-060-605
Babbington V-Groove	For high solids, 35 psi, for Varian® Liberty Series Vista	020-060-607



Catalog No. 020-060-603

Fixed Cross Flow Nebulizer, For all instruments using standard 35 mm diameter spray chambers. Ultem construction with sapphire (aluminum oxide crystal) argon jet and platinum-iridium sample port allows the use of most solutions including HF.



Catalog No. 020-060-602

Noordermeer Nebulizer, fits standard 6 mm spray chamber or 020-060-601 Teflon® Endcap. For samples containing high solids.



Catalog No. 020-060-605

Babbington V-Groove Nebulizer, ½" diameter, for use with Hydrofluoric (HF) acid and samples containing high solids. Use with 020-050-151 Endcap.

Nebulizers & Accessories

Accessories

Description	Description	Catalog Number
Swagelok Fitting	For Concentric Nebulizer Sample Inlet	020-050-146
Viton O-Ring (Cross-Flow)	For 020-060-603 or 020-060-604	020-050-147
Teflon® Sample Tube	For all Cross-Flow Nebulizers	020-050-148
Argon Fittings	For all Cross-Flow Nebulizers	020-050-149
Teflon® Sample Tube	For Babbington Nebulizers	020-050-150
Teflon® Endcap	For 35 mm Dia. Scott Open Spray Chamber - ½" Dia. Neb.	020-050-151
Teflon® Endcap	For 34 mm Dia. Scott Open Spray Chamber - 6 mm Dia. Neb.	020-050-210
Teflon® Endcap	For 34 mm Dia. Scott Open Spray Chamber - ½" Dia. Neb.	020-050-212
Teflon® Endcap	For 35 mm Dia. Scott Open Spray Chambers - 6 mm Dia. Neb.	020-060-601
Viton O-Ring (Nebulizer)	For 020-060-605	020-050-220
Viton O-Ring (Spray Chamber)	For 020-050-210 or 020-050-212	020-050-222
Viton O-Ring (Spectro Cross Flow)	For 020-060-606	020-050-224
Viton O-Ring (Nebulizer)	For 020-060-601 or 020-050-210	020-050-504
Viton O-Ring (Spray Chamber)	For 020-060-601 or 020-050-212	020-050-505

Modified Lichte Nebulizer / Cyclonic Spray

Catalog No. 020-060-122



Catalog No. 020-060-118



Studies performed on both a radial (Spectro Modula ICP) and an axial (Spectro EOP) inductively coupled plasma indicate that a 2 to 3 time improvement in sensitivity (and detection limits) can be obtained by changing from the conventional concentric nebulizer and Scott double-pass spray chamber arrangement to a Modified Lichte Nebulizer (MLN) and Cyclonic Spray Chamber.

The modified Lichte Nebulizer incorporates double bore glass tubing with an impact bead for fine aerosol dispersion. Operating principles are similar to that of the V-groove design where the face of the nebulizer encounters a high velocity stream of argon gas which converts the sample into a fine aerosol. This novel design allows improved detection limits over standard pneumatic nebulizers while allowing solutions containing higher dissolved solids to be run without clogging.

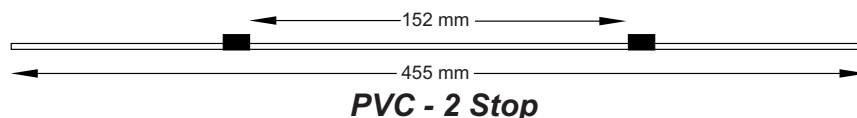
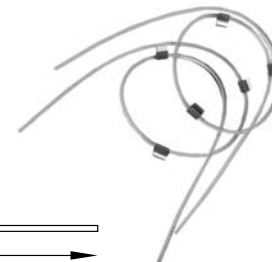
Ordering Information

Description	Application/Notes	Nebulizer Pressure	L/min Ar.	Catalog Number
Modified Lichte Nebulizer (MLN)	Specific version for Spectro	35	1.0	020-060-118
Modified Lichte Nebulizer (MLN)	---	35	0.7	020-060-120
Spray Chamber for MLN	Double Pass	---	---	020-060-122
Spray Chamber for MLN	No Baffle	---	---	020-060-125
Spray Chamber for MLN	Standard Cyclonic	---	---	020-060-126
Spray Chamber for MLN	For Perkin Elmer® 3000	---	---	020-060-128
Spray Chamber for MLN	For Spectro®	---	---	020-060-130
Spray Chamber for MLN	For Perkin Elmer® Radial Systems	---	---	020-060-132

Peristaltic Pump Tubing

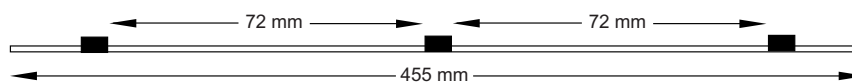
Affordable and reliable peristaltic pump tubing including: PVC (Tygon, clear tubing), Solvent Flex (yellow tinted tubing), Silicone (clear tubing), Viton® (solid black tubing), and Santoprene® (solid tan color) compositions. Cross reference numbers for OEM products listed where available. Choose the proper color, inner diameter (I.D.), and number of “stops” to confirm the right pump tubing. Additional pump tubing is available on request.

- Direct replacement for ICP-AES and ICP-MS instruments
 - Lower the cost of ordering ICP-AES and ICP-MS consumables
- Custom sizes and compositions available
 - Designed for your specific application



PVC - 2 Stop

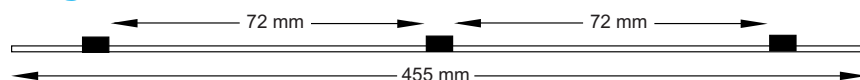
Color Code	Stops	Qty.	I.D.		Varian®	Agilent®	Perkin Elmer®	Leeman®	Catalog Number
			mm	in.					
Orange/Red	2	12	0.19	0.0075	---	G182065219	N0695476	---	020-030-002
Orange/Blue	2	12	0.25	0.010	---	---	---	---	020-030-003
Orange/Green	2	12	0.38	0.015	---	---	---	---	020-030-004
Orange/Yellow	2	12	0.51	0.020	---	---	---	---	020-030-005
Orange/White	2	12	0.64	0.025	---	---	---	---	020-030-006
Black/Black	2	12	0.76	0.030	3710027200	---	09908587	3093552	020-030-007
Orange/Orange	2	12	0.89	0.035	---	---	---	3093551	020-030-008
White/White	2	12	1.02	0.040	3710034400	G182065214	---	---	020-030-009
Red/Red	2	12	1.14	0.045	---	---	N0680375	3093538	020-030-010
Grey/Grey	2	12	1.30	0.050	3710034500	---	---	---	020-030-011
Yellow/Yellow	2	12	1.42	0.055	---	---	---	---	020-030-012
Blue/Blue	2	12	1.65	0.065	3710034600	---	---	---	020-030-013
Green/Green	2	12	1.85	0.075	---	---	---	---	020-030-014
Purple/Purple	2	12	2.06	0.080	---	---	---	---	020-030-015
Purple/Black	2	12	2.29	0.090	3710027300	---	---	---	020-030-016
Purple/Orange	2	12	2.54	0.100	---	---	---	---	020-030-017
Purple/White	2	12	2.79	0.100	---	---	---	---	020-030-018
Yellow/Blue	2	12	1.52	0.060	---	---	---	---	020-030-019
Black/White	2	12	3.18	0.125	---	---	N8122012	---	020-030-021
Blue/Green	2	12	1.75	0.070	---	---	---	---	020-030-022



PVC - 3 Stop

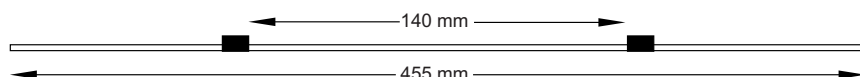
Color Code	Stops	Qty.	I.D.		TJA®	Perkin Elmer®	Catalog Number
			mm	in.			
Orange/Red	3	12	0.19	0.0075	---	---	020-033-002
Orange/Blue	3	12	0.25	0.010	---	---	020-033-003
Orange/Green	3	12	0.38	0.015	13017706	---	020-033-004
Orange/Yellow	3	12	0.51	0.020	---	---	020-033-005
Orange/White	3	12	0.64	0.025	---	---	020-033-006
Black/Black	3	12	0.76	0.030	---	B0506058	020-033-007
Orange/Orange	3	12	0.89	0.035	13017700	---	020-033-008
White/White	3	12	1.02	0.040	---	B0506742	020-033-009
Red/Red	3	12	1.14	0.045	13017701	B0193160	020-033-010
Grey/Grey	3	12	1.30	0.050	---	---	020-033-011
Yellow/Yellow	3	12	1.42	0.055	---	---	020-033-012
Blue/Blue	3	12	1.65	0.065	---	---	020-033-013

Peristaltic Pump Tubing



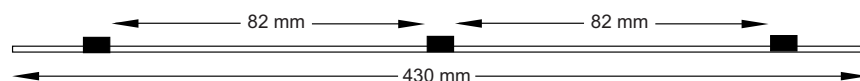
PVC - 3 Stop (Continued)

Color Code	Stops	Qty.	I.D.		TJA®	Perkin Elmer®	Catalog Number
			mm	in.			
Green/Green	3	12	1.85	0.075	---	---	020-033-014
Purple/Purple	3	12	2.06	0.080	---	B0199034	020-033-015
Yellow/Blue	3	12	1.52	0.060	---	B0193161	020-033-019
Black/White	3	12	3.18	0.125	---	B0508310	020-033-021
Purple/Orange	3	12	2.54	0.100	---	---	020-033-071
Purple/White	3	12	2.79	0.110	---	---	020-033-072



Solvent Flex - 2 Stop

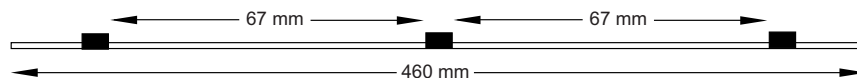
Color Code	Stops	Qty.	I.D.		Varian®	Perkin Elmer®	Catalog Number
			mm	in.			
Orange/Red	2	12	0.19	0.0075	---	---	020-030-102
Orange/Blue	2	12	0.25	0.010	---	---	020-030-103
Orange/Green	2	12	0.38	0.015	---	---	020-030-104
Orange/Yellow	2	12	0.51	0.020	---	---	020-030-105
Orange/White	2	12	0.64	0.025	---	---	020-030-106
Black/Black	2	12	0.76	0.030	3710034800	O0473550	020-030-107
Orange/Orange	2	12	0.89	0.035	---	---	020-030-108
White/White	2	12	1.02	0.040	---	---	020-030-109
Red/Red	2	12	1.14	0.045	---	N0680376	020-030-110
Grey/Grey	2	12	1.30	0.050	---	---	020-030-111
Yellow/Yellow	2	12	1.42	0.055	---	---	020-030-112
Blue/Blue	2	12	1.65	0.065	---	---	020-030-113
Green/Green	2	12	1.85	0.075	---	---	020-030-114
Purple/Purple	2	12	2.06	0.080	---	---	020-030-115
Purple/Black	2	12	2.29	0.090	---	---	020-030-116
Purple/Orange	2	12	2.54	0.100	---	---	020-030-117
Purple/White	2	12	2.79	0.110	---	---	020-030-118
Yellow/Blue	2	12	1.52	0.060	---	---	020-030-119
Blue/Green	2	12	1.75	0.070	---	---	020-030-122



Solvent Flex - 3 Stop

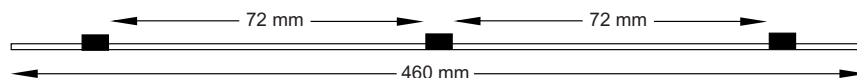
Color Code	Stops	Qty.	I.D.		Varian®	Perkin Elmer®	Catalog Number
			mm	in.			
Orange/Red	3	12	0.19	0.0075	---	---	020-033-102
Orange/Blue	3	12	0.25	0.010	---	---	020-033-103
Orange/Green	3	12	0.38	0.015	---	---	020-033-104
Black/Black	3	12	0.76	0.030	---	---	020-033-107
Orange/Orange	3	12	0.89	0.035	---	---	020-033-108
White/White	3	12	1.02	0.040	---	B0507692	020-033-109
Red/Red	3	12	1.14	0.045	---	---	020-033-110
Yellow/Yellow	3	12	1.42	0.055	---	---	020-033-112
Blue/Blue	3	12	1.65	0.065	---	---	020-033-113
Purple/Purple	3	12	2.06	0.080	---	---	020-033-115
Yellow/Blue	3	12	1.52	0.060	---	---	020-033-119

Peristaltic Pump Tubing



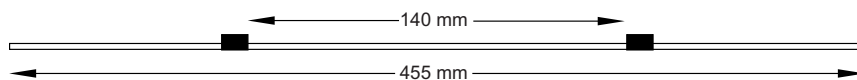
Solvent Flex - 3 Stop

Color Code	Stops	Qty.	I.D.		Catalog Number
			mm	in.	
Yellow/Yellow	3	12	1.42	0.055	020-035-112
Blue/Blue	3	12	1.65	0.065	020-035-113
Purple/Purple	3	12	2.06	0.080	020-035-115
Yellow/Blue	3	12	1.52	0.060	020-035-119



Solvent Flex - 3 Stop

Color Code	Stops	Qty.	I.D.		TJA®	Catalog Number
			mm	in.		
Orange/Orange	3	12	0.89	0.035	13173102	020-034-108
Red/Red	3	12	1.14	0.045	78532	020-034-110
Yellow/Yellow	3	12	1.42	0.055	78530	020-034-112
Blue/Blue	3	12	1.65	0.065	13173100	020-034-113
Purple/Purple	3	12	2.06	0.080	13173101	020-034-115



Silicone 2 - Stop

Color Code	Stops	Qty.	I.D.		Varian®	Agilent®	Perkin Elmer®	Catalog Number
			mm	in.				
Orange/Red	2	6	0.19	0.0075	---	---	---	020-030-202
Orange/Green	2	6	0.38	0.015	---	---	---	020-030-204
Orange/White	2	6	0.64	0.025	---	---	---	020-030-206
Black/Black	2	6	0.76	0.030	---	---	O0473552	020-030-207
Orange/Orange	2	6	0.89	0.035	---	---	---	020-030-208
White/White	2	6	1.02	0.040	9910060900	G182065217	---	020-030-209
Red/Red	2	6	1.14	0.045	---	---	N0691595	020-030-210
Grey/Grey	2	6	1.30	0.050	9910061000	---	---	020-030-211
Yellow/Yellow	2	6	1.42	0.055	---	---	---	020-030-212
Blue/Blue	2	6	1.65	0.065	---	---	---	020-030-213
Green/Green	2	6	1.85	0.075	---	---	---	020-030-214
Purple/Purple	2	6	2.06	0.080	---	---	---	020-030-215
Purple/Black	2	6	2.29	0.090	---	---	---	020-030-216
Purple/Orange	2	6	2.54	0.100	---	---	---	020-030-217
Purple/White	2	6	2.79	0.110	---	---	---	020-030-218
Yellow/Blue	2	6	1.52	0.060	---	---	---	020-030-219

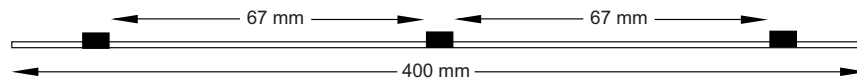
ICP Supplies

Instrument Control Kit - PlasmaTEST ICP-MS

- Perfect for instrument compliance auditing
- Monitor and document 14 different instrument parameters
- A single product providing instrument testing Quality Control for ICP-MS
- Detect operational and mechanical problems before analytical errors occur

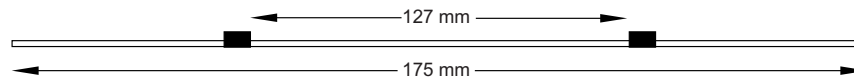


Peristaltic Pump Tubing



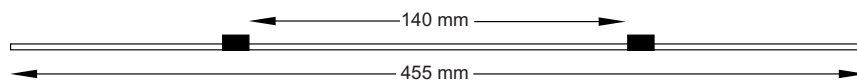
Silicone - 3 Stop

Color Code	Stops	Qty.	I.D.		Varian®	TJA®	Catalog Number
			mm	in.			
Orange/White	3	6	0.64	0.025	---	---	020-033-206
Black/Black	3	6	0.76	0.030	---	---	020-033-207
Orange/Orange	3	6	0.89	0.035	---	13017702	020-033-208
White/White	3	6	1.02	0.040	---	---	020-033-209
Red/Red	3	6	1.14	0.045	---	13017703	020-033-210
Yellow/Yellow	3	6	1.42	0.055	---	---	020-033-212
Blue/Blue	3	6	1.65	0.065	---	---	020-033-213
Green/Green	3	6	1.85	0.075	---	---	020-033-214
Purple/Purple	3	6	2.06	0.080	---	---	020-033-215
Purple/Black	3	6	2.29	0.090	---	---	020-033-216
Purple/Orange	3	6	2.54	0.100	---	---	020-033-217
Purple/White	3	6	2.79	0.110	---	---	020-033-218
Yellow/Blue	3	6	1.52	0.060	---	---	020-033-219



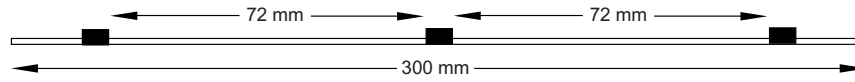
Viton® 2 - Stop

Color Code	Stops	Qty.	I.D.		Varian®	Perkin Elmer®	Leeman®	Catalog Number
			mm	in.				
Orange/Yellow	2	12	0.51	0.020	3710043500	---	---	020-030-305
Black/Black	2	12	0.76	0.030	3710043600	09908587	3093552	020-030-307
Orange/Orange	2	12	0.89	0.035	---	---	---	020-030-308
White/White	2	12	1.02	0.040	3710043700	---	---	020-030-309
Red/Red	2	12	1.14	0.045	---	---	---	020-030-310
Grey/Grey	2	12	1.30	0.050	3710043800	---	---	020-030-311
Yellow/Yellow	2	12	1.42	0.055	---	---	---	020-030-312
Blue/Blue	2	12	1.65	0.065	3710043900	---	---	020-030-313
Green/Green	2	12	1.85	0.075	---	---	---	020-030-314
Purple/Purple	2	12	2.06	0.080	---	---	---	020-030-315
Purple/Black	2	12	2.29	0.090	---	---	---	020-030-316
Purple/Orange	2	12	2.54	0.100	---	---	---	020-030-317
Purple/White	2	12	2.79	0.110	---	---	---	020-030-318
Yellow/Blue	2	12	1.52	0.060	---	---	---	020-030-319



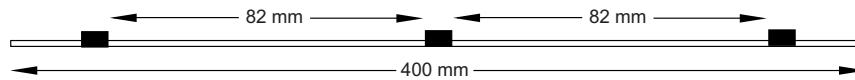
Viton® 2 - Stop

Color Code	Stops	Qty.	I.D.		Catalog Number
			mm	in.	
Black/Black	2	12	0.76	0.030	020-031-307
Red/Red	2	12	1.14	0.045	020-031-310



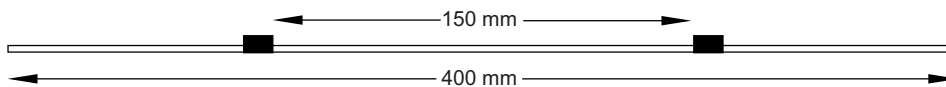
Viton® 3 - Stop

Color Code	Stops	Qty.	I.D.		TJA®	Catalog Number
			mm	in.		
Orange/Orange	3	12	1.14	0.045	13017705	020-033-320
Red/Red	3	12	1.42	0.055	---	020-033-322
Yellow/Yellow	2	12	0.89	0.035	13017704	020-033-328



Viton® 3 - Stop

Color Code	Stops	Qty.	I.D.		Catalog Number
			mm	in.	
Orange/Yellow	2	12	0.51	0.020	020-033-305
Black/Black	2	12	0.76	0.030	020-033-307
Orange/Orange	2	12	0.89	0.035	020-033-308
White/White	2	12	1.02	0.040	020-033-309
Red/Red	2	12	1.14	0.045	020-033-310
Yellow/Yellow	2	12	1.42	0.055	020-033-312
Blue/Blue	2	12	1.65	0.065	020-033-313
Green/Green	2	12	1.85	0.075	020-033-314
Purple/Purple	2	12	2.06	0.080	020-033-315
Purple/Black	2	12	2.29	0.090	020-033-316
Purple/Orange	2	12	2.54	0.100	020-033-317
Yellow/Blue	2	12	1.52	0.060	020-033-319

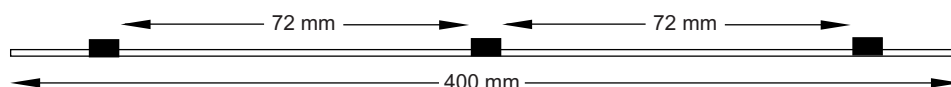


Santoprene® 2 - Stop

Color Code	Stops	Qty.	I.D.		Catalog Number
			mm	in.	
Orange/Green	2	12	0.38	0.15	020-030-404
Orange/White	2	12	0.64	0.025	020-030-406
Yellow/Blue	2	12	1.52	0.060	020-030-407
Orange/Orange	2	12	0.89	0.035	020-030-408
White/White	2	12	1.02	0.040	020-030-409
Red/Red	2	12	1.14	0.045	020-030-410
Grey/Grey	2	12	1.30	0.050	020-030-411
Blue/Blue	2	12	1.65	0.065	020-030-413
Green/Green	2	12	1.85	0.075	020-030-414
Purple/Purple	2	12	2.06	0.080	020-030-415
Black/Black	2	12	0.76	0.300	020-030-424
Yellow/Yellow	2	12	1.42	0.055	020-030-452

Note: Santoprene® is equivalent to Pharmed, Marprene & Duraprene

Peristaltic Pump Tubing



Santoprene® 3 - Stop

Color Code	Stops	Qty.	I.D.		Catalog Number
			mm	in.	
Red/Red	3	12	1.14	0.045	020-033-410
Grey/Grey	3	12	1.30	0.050	020-033-411
Blue/Blue	3	12	1.65	0.065	020-033-413
Purple/White	3	12	2.79	0.110	020-033-418
Yellow/Blue	3	12	1.52	0.060	020-033-419

Note: Santoprene® is equivalent to Pharmed, Marprene & Duraprene

Tubing for Leeman® Instruments

Color Code	Stops	Description	Leeman®	Catalog Number
Orange	1	PVC, 37.5" long, 19.5" to stop	309-3551	020-036-008
Red	1	PVC, 187 mm long, 25 mm to stop	309-00088-4	020-036-009
Red	1	PVC, 30" long, 12" to stop	309-3538	020-036-010
Blue	1	PVC, 137 mm long, 25 mm to stop	309-00088-2	020-036-011
Orange	1	Solvent Flex, 37" long	309-3550	020-036-108
Red	1	Solvent Flex, 30" long, 12" to stop	309-3536	020-036-110
Yellow/Orange	2	Solvent Flex, 16.5 cm between stops, 30.5 cm in total	309-0069-2	020-037-005
Black/Black	2	Solvent Flex, 16.5 cm between stops, 30.5 cm in total	309-00069-8	020-037-007
Red/Red	2	Solvent Flex, 16.5 cm between stops, 30.5 cm in total	309-0069-5	020-037-010

From Teflon® sample line tubing to Internal Standard Mixing Kits, **SCP SCIENCE** stocks additional tubing for ICP-AES and ICP-MS instruments. Contact **SCP SCIENCE** if you don't see your required product. We stock a wide range of additional products.

Miscellaneous Tubing

Item	Description	Qty	Catalog Number
Viton® Yellow/Yellow	For CETAC Hg Analyzer (SP5704), 150 mm between stops	pk/12	020-030-352
Santoprene® Yellow/Yellow	For CETAC Hg Analyzer (SP5705A), 150 mm between stops	pk/12	020-030-452
Santoprene® Black/Black	For CETAC Hg Analyzer (SP5705B), 150 mm between stops	pk/12	020-030-447
Transmission Tubing	PVC, 1.52 mm	15 m	020-039-001
Transmission Tubing	PVC, 2.29 mm	15 m	020-039-004
Transmission Tubing	PVC, 2.79 mm	15 m	020-039-007
Transmission Tubing	Solvent Flex, 0.06"	15 m	020-039-009
Thermo® - TJA® Internal Standard Mixing Kit	PVC, 3-stops, Orange/Orange:Orange/Green Cross Reference # 13670800	pk/4	020-049-601
Perkin Elmer® Internal Standard Mixing Kit	PVC, 2-stops, Black/Black:Orange/Red	pk/4	020-049-603
Teflon® Sample Tubing	0.56 mm ID	per meter	020-050-501
Drain Tubing	9.5 mm ID	per meter	020-050-503

Instrument Control Kit - PlasmaTEST ICP-AES

- Perfect for instrument compliance auditing
- Monitor and document 7 different instrument parameters
- A single product providing Quality Control testing for ICP-AES instruments
- Detect operational and mechanical problems before analytical errors occur



Peristaltic Pump Tubing Chemical Resistance

Chemical compatibility varies between different materials and solution. For example, Viton® tubing is resistant to many inorganic chemicals and even to some organic solvents. The chemical resistance table will help choose the correct pump tubing material for your application. Contact your Sales Representative or local distributor to inquire about the right pump tubing.

Chemical Classification	PVC	Solvent Flex	Silicone	Viton®	Santoprene®
Acetone	U	U	X	U	U
Alcohols	X	X	X	X	---
Aliphatic Hydrocarbons	X	U	U	U	---
Aqua Regia	U	X	---	O	U
Aromatic Hydrocarbons	U	U	O	X	---
Gasoline (non-aromatic)	U	U	U	X	U
Gasoline (high aromatic)	U	U	U	X	---
Hydrochloric Acid (diluted)	X	X	U	X	X
Kerosene	U	U	U	X	U
Ketones (MIBK)	U	U	U	U	X
Nitric Acid (diluted)	X	X	O	X	O
Oils, Animal	U	X	O	X	X
Oils, Mineral	U	U	O	X	X
Oils, Vegetable	O	X	X	X	X
Sulfuric Acid (diluted)	X	X	U	X	O
Water	X	X	X	X	X
Xylol	U	U	U	X	U

Legend: X - Satisfactory O - Use only after testing U - Unsatisfactory "----" - No data available

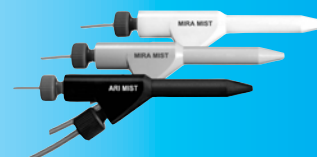
Autosampler Vials

Volume (ml)	Composition	Quantity	Cross Reference	Catalog Number
1.5 - 2.0, conical	Polystyrene	1000	B0119079	080-070-102
3.0 - 4.0, conical	Polystyrene	1000	B0129303	080-070-103
3.0 - 4.0	Polyethylene	1000	9910028400	080-070-105
6.0 (13 x 100 mm)	Polypropylene	1000	B0193235	130-012-001
15 ml Centrifuge Tube (17 x 120 mm)	Polypropylene	1000	N7301205	130-010-015
16 (16 x 100mm)	Polypropylene	1000	n/a	130-012-006
17.0	Polypropylene	1000	n/a	130-012-007
50 ml Centrifuge Tubes, w/caps	Polypropylene	500	n/a	130-010-051
Plug Stopper for 130-010-015	---	1000	n/a	130-010-115
Plug Stopper, 16 mm, for 130-012-016	---	1000	n/a	130-012-016
Plug Stopper, 17 mm, for 130-012-007	---	1000	n/a	130-012-017

Burgener Nebulizers

Made with the patented enhanced parallel path method enabling them to run high total dissolved solids (TDS).

- Provide excellent sensitivity with high transport rates
- Eliminate plugs due to salt or undissolved particles
- Deliver long term stability



Atomic Absorption Supplies: Notes

NOTES



Atomic Absorption
Supplies

*As part of a comprehensive line of Atomic Absorption (AA) supplies, **SCP SCIENCE** offers high performance Hollow Cathode Lamps in both the 1.5" and 2.0" diameter formats (coded and non-coded). High density, pyrolytically coated, Graphite Furnace Tubes; a complete range of Matrix Modifiers; AA Reference standards, and Hollow Cathode Lamps are stocked for prompt delivery. Inquire about our popular special offer of a free AA standard with the purchase of each package of graphite tubes or hollow cathode lamp.*

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Graphite Furnace Tubes

High purity, high density graphite is used to manufacture **SCP SCIENCE** graphite tubes. The tubes exhibit an extremely low Coefficient of Thermal Expansion (CTE) which ensures less stress placed upon the pyrolytic coating, thereby increasing their usable lifetime.



- Thermal conductivity is uniform
 - Allows consistent and even heating from tube to tube
- Provide high sensitivity and low noise characteristics
 - Tubes meet and exceed OEM specifications

Ordering Information

GBC® - Type	Description	Quantity	Cross Reference	Catalog Number
Standard Tube	Pyrolytically Coated	10	99000 5900	030-112-001
Platform	Pyrolytically Coated	10	9900 6000	030-112-002
Electrode Contacts	Pyrolytically Coated	2	9900 6100	030-112-003
GBC Shroud	Pyrolytically Coated	1	45 0004 00	030-112-005
Platform Set	Pre-inserted	10	---	030-112-006
Ultra Z Tube	Pyrolytically Coated	10	45 0012 00	030-112-007

Hitachi® - Type	Description	Quantity	Cross Reference	Catalog Number
Standard Tube	Pyrolytically Coated	10	180-7444, 180-7403	030-113-001
Standard Tube	Uncoated	10	180-7400	030-113-002
Forked Platform Tube	Pyrolytically Coated	10	190-6007	030-113-003
Forked Platform	Pyrolytically Coated	10	190-6008	030-113-006
Standard Platform	Pyrolytically Coated	10	180-7404	030-113-007
Tube for Extended Injec. Vol.	Pyrolytically Coated	10	190-6003	030-113-010
Forked Platform Set	Pre-inserted	10	190-0028	030-113-011
Contacts	Pyrolytically Coated	1	180-7401	030-113-013

Perkin Elmer® - Type	Description	Quantity	Cross Reference	Catalog Number
L'vov Platform Set	Pre-inserted	10	B011-2660 (pk/10), B300-0343 (pk/20)	030-111-001
Platform Tube	Pyrolytically Coated	10	B013-7111 (pk/5), B012-1092 (pk/10), B300-1254 (pk/20), B010-9322 (pk/50)	030-111-002
L'vov Platform	Pyrolytically Coated	10	B013-7112 (pk/5), B012-1091 (pk/10), B300-1256 (pk/20), B010-9324 (pk/50)	030-111-003
Standard Tube	Pyrolytically Coated	10	B013-5197 (pk/5), B013-5653 (pk/10), B300-0342 (pk/20), B009-1504 (pk/50)	030-111-004
Standard Tube	Uncoated	10	B013-7113 (pk/5), B300-1253 (pk/20), B007-0699 (pk/50)	030-111-005
HGA Contact Set	w/Sensor Hole	SET	B012-8490 (pk/1), B018-0363 (pk/5)	030-111-006
Zeeman Contacts	Pyrolytically Coated	SET	B011-6823 (pk/1), B018-0361 (pk/5)	030-111-007
HGA Contact Set	w/o Sensor Hole	SET	B012-8495 (pk/1), B313-0086 (pk/5)	030-111-008
Tube	Pyrolytic w/Fork Pit.		B050-5057 (pk/20)	030-111-010

Atomic Absorption Single Element Standards

Purchase a package of Graphite Furnace Tubes or a Hollow Cathode Lamp and receive a 1000 µg/ml, single element calibration standard of your choice.* See page 102 for a list of AA standards.

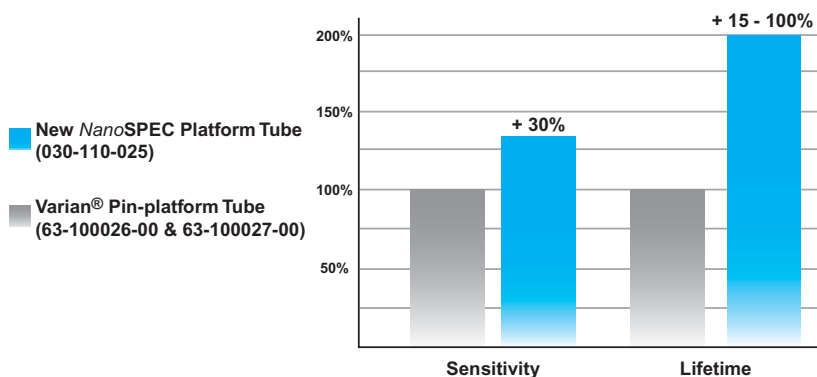
*Not included: Shipping and dangerous goods charges.
Precious metal standards from offer: Au



Graphite Furnace Tubes

Introducing the **NanoSPEC Platform Tubes** available for all Varian® graphite furnace atomic absorption (GFAA) instruments. These platform tubes have a semi-circular trough to hold up to 50 µl of sample. Two small extensions on the platform were designed to hold the platform in the center position of the graphite tube. The end result is improved tube lifetime, signal strength, and repeatability compared to the Varian® Universal/Pin-platform Tube (Varian® Part No. 63-100023-00 and 63-100027-00).

- Thermal conductivity is uniform
 - Allows consistent and even heating from tube to tube
- Provide high sensitivity and low noise characteristics
 - Tubes meet and exceed OEM specifications



Direct replacement for the Varian® Universal/Pin-platform Tube. (Varian® Part No. 63-100026-00 and 63-100027-00)

Ordering Information

Varian® - Type	Description	Quantity	Cross Reference	Catalog Number
Partition Tube	Pyrolytically Coated	10	63-100012-00	030-110-001
Partition Tube, High Purity	Pyrolytically Coated	10	63-100012-HP	030-110-011
Partition Tube, Extended Life	Pyrolytically Coated	10	63-100012-EL	030-110-021
NanoSPEC Platform Tube	Pyrolytically Coated	10	63-100026-00 63-100027-00	030-110-025
Plateau Tube	Pyrolytically Coated	10	63-100011-00	030-110-002
Plateau Tube	Uncoated	10	63-100014-00	030-110-014
Bone for Platform Plateau Tube	Pyrolytically Coated	10	63-100013-00	030-110-003
Forked Platform Tube	Pyrolytically Coated	10	63-100023-00	030-110-012
Forked Platform	Pyrolytically Coated	10	63-100024-00	030-110-013
Forked Platform Set	Pre-inserted	10	63-100023-90 190032700	030-110-004
MonoSnap Platform Set	Pre-inserted	2	63-100123-90	030-110-005
Electrode Contact	Pyrolytically Coated	1	63-100016-00	030-110-006
Shroud	Pyrolytically Coated	2	63-100018-00	030-110-007
Zeeman Electrode Contact	Pyrolytically Coated	1	63-100017-00	030-110-008
Zeeman Shroud	Pyrolytically Coated	---	63-100019-00	030-110-009
Shimadzu® - Type	Description	Quantity	Cross Reference	Catalog Number
Standard Tube with 5 holes	Pyrolytically Coated	10	200-54525RI	030-117-001
Standard Tube with 5 holes	Uncoated	10	200-54520RI	030-117-002
Platform Set, 60°	Pre-inserted	10	206-82541RI	030-117-003
Standard Tube	Uncoated	10	200-54520RI	030-117-005
Standard Tube	Pyrolytically Coated	10	200-54525RI	030-117-004
Tube for Extended Injection Volume	Uncoated	10	206-50587	030-117-007
Tube for Extended Injection Volume	Pyrolytically Coated	10	206-50588	030-117-006
Tube for Extended Injection Volume, 90°	Pyrolytically Coated	10	206-50588	030-117-009
Platform Set, 90°	Pre-inserted	10	205-50887	030-117-008

Atomic Absorption Supplies

Graphite Furnace Tubes

Thermo® - Unicam - Type	Description	Quantity	Cross Reference	Catalog Number
Standard Tube	Uncoated	10	9423 393 90031	030-116-001
Standard Tube	Pyrolytically Coated	10	9423 393 90091	030-116-002
Barrel Tube	Uncoated	10	9423 390 95031	030-116-003
Smooth Tube	Pyrolytically Coated	10	9423 393 95091	030-116-004
Partridged Tube, Extended Life (ELC)	Pyrolytically Coated	10	9423 393 95041	030-116-005
Partridged Tube	Uncoated	10	9423 393 95031	030-116-006
Partridged Tube	Pyrolytically Coated	10	9423 393 90191	030-116-007
Forked Tube Set	Pre-inserted	10	9423 393 95191	030-116-008
Tube with Slit.	Pyrolytically Coated	10	9423 393 95081	030-116-009
Partridged Tube (Smooth)	Pyrolytically Coated	10	9423 393 95071	030-116-010
Zeeman Electrode Contact	Pyrolytically Coated	2	9423 393 95161	030-116-115
Electrode Contact	Pyrolytically Coated	2	9423 393 95011	030-116-116
Probe	Pyrolytically Coated	10	9423 393 90081	030-116-119

Thermo® - T-JA - Type	Description	Quantity	Cross Reference	Catalog Number
Standard Tube	Uncoated	10	124544-03	030-118-001
Standard Tube	Pyrolytically Coated	10	124544-02	030-118-002
Forked Platform Set, ADM	Pre-inserted	10	130941-00	030-118-003
Forked Platform Tube	Pyrolytically Coated	10	---	030-118-004
Graphite Door Kit	Pyrolytically Coated	1	124778-00	030-118-010
Graphite Cell Body	Pyrolytically Coated	1	124818-00	030-118-011
Contact Electrodes	Pyrolytically Coated	2	124645-01	030-118-015

Autosampler Tubes

Volume (ml)	Composition	Quantity	Cross Reference	Catalog Number
1.5 - 2.0, conical	Polystyrene	1000	B0119079	080-070-102
3.0 - 4.0, conical	Polystyrene	1000	B0129303	080-070-103
3.0 - 4.0	Polyethylene	1000	9910028400	080-070-105
6.0 (13 x 100 mm)	Polypropylene	1000	B0193235	130-012-001
15 ml Centrifuge Tube (17 x 120 mm)	Polypropylene	1000	N7301205	130-010-015
16 (16 x 100mm)	Polypropylene	1000	n/a	130-012-006
17.0	Polypropylene	1000	n/a	130-012-007
50 ml Centrifuge Tubes, w/caps	Polypropylene	500	n/a	130-010-051
Plug Stopper for 130-010-015	---	1000	n/a	130-010-115
Plug Stopper, 16 mm, for 130-012-016	---	1000	n/a	130-012-016
Plug Stopper, 17 mm, for 130-012-007	---	1000	n/a	130-012-017

PlasmaPURE Plus Acids & Reagents

Manufactured with trace metal levels less than 10 ppt (0.01 ppb). Used for sample and standards preparation for Flame AA and Graphite Furnace AA spectroscopy.

- Complete with a Certificate of Analysis with lot number, expiry date and maximum concentration specification for over 60 elements
- Packaged in Class 100 cleanroom



Hollow Cathode Lamps - 1.5"

A selection of coded and non-coded lamps are visually, optically, and electrically inspected to insure the highest quality possible. Single-element and multi-element hollow lamps are available as direct replacements for popular AA spectrometer instruments. The 1.5" (37 mm) diameter lamp is designed for Varian®, Buck®, Shimadzu®, and other OEMs instruments. The 2.0" (50 mm) diameter lamp is designed for Perkin Elmer® instruments.

- Provide stable light output
 - Guaranteed for 2 years or 5.0 ampere hours
- Offer minimum noise and interference
- Offer after sales support with trained customer service



Element	Symbol	1.5" NON-CODED		1.5" CODED	
		Varian® Cross Reference	Catalog Number	Varian® Cross Reference	Catalog Number
Aluminum	Al	5610122000	030-150-134	5610100100	030-155-134
Antimony	Sb	5610122100	030-150-512	5610100200	030-155-512
Arsenic	As	5610122200	030-150-332	5610100300	030-155-332
Barium	Ba	5610122300	030-150-564	5610100400	030-155-564
Beryllium	Be	5610122400	030-150-042	5610100500	030-155-042
Bismuth	Bi	5610122500	030-150-832	5610100600	030-155-832
Boron	B	5610122600	030-150-052	5610100700	030-155-052
Cadmium	Cd	5610122700	030-150-482	5610100800	030-155-482
Calcium	Ca	5610122900	030-150-204	5610101000	030-155-204
Cerium	Ce	5610122000	030-150-582	5610101100	030-155-582
Cesium	Cs	5610123800	030-150-554	5610100900	030-155-554
Chromium	Cr	5610123100	030-150-244	5610101200	030-155-244
Cobalt	Co	5610123200	030-150-272	5610101300	030-155-272
Copper	Cu	5610123300	030-150-294	5610101400	030-155-294
Dysprosium	Dy	5610123400	030-150-664	5610101500	030-155-664
Erbium	Er	5610123500	030-150-684	5610101600	030-155-684
Europium	Eu	5610123600	030-150-634	5610101700	030-155-634
Gadolinium	Gd	5610123700	030-150-644	5610101800	030-155-644
Gallium	Ga	5610123800	030-150-312	5610101900	030-155-312
Germanium	Ge	5610123900	030-150-322	5610102000	030-155-322
Gold	Au	5610124000	030-150-792	5610102100	030-155-792
Hafnium	Hf	5610124100	030-150-722	5610102200	030-155-722
Holmium	Ho	5610124200	030-150-674	5610102300	030-155-674
Indium	In	5610124400	030-150-494	5610102500	030-155-494
Iridium	Ir	5610124500	030-150-772	5610102600	030-155-772
Iron	Fe	5610124600	030-150-262	5610102700	030-155-262
Lanthanum	La	5610124700	030-150-574	5610102800	030-155-574
Lead	Pb	5610124800	030-150-822	5610102900	030-155-822
Lithium	Li	5610124900	030-150-034	5610103000	030-155-034
Lutetium	Lu	5610125000	030-150-714	5610103100	030-155-714
Magnesium	Mg	5610125100	030-150-122	5610103200	030-155-122
Manganese	Mn	5610125200	030-150-252	5610103300	030-155-252
Mercury	Hg	5610125300	030-150-802	5610103400	030-155-802
Molybdenum	Mo	5610125400	030-150-424	5610103500	030-155-424
Neodymium	Nd	5610125500	030-150-604	5610103600	030-155-604
Nickel	Ni	5610125600	030-150-282	5610103700	030-155-282
Niobium	Nb	5610125700	030-150-414	5610103800	030-155-414

Atomic Absorption Supplies

Hollow Cathode Lamps - 1.5"

Element	Symbol	1.5" NON-CODED		1.5" CODED	
		Varian® Cross Reference	Catalog Number	Varian® Cross Reference	Catalog Number
Osmium	Os	5610125800	030-150-762	5610103900	030-155-762
Palladium	Pd	5610125900	030-150-462	5610104000	030-155-462
Phosphorus	P	5610126000	030-150-152	5610107700	030-155-152
Platinum	Pt	5610126100	030-150-782	5610104100	030-155-782
Potassium	K	5610126200	030-150-194	5610104200	030-155-194
Praseodymium	Pr	5610126300	030-150-594	5610104300	030-155-594
Rhenium	Re	5610126400	030-150-754	5610104400	030-155-754
Rhodium	Rh	5610126500	030-150-452	5610104500	030-155-452
Rubidium	Rb	5610126600	030-150-374	5610104600	030-155-374
Ruthenium	Ru	5610126700	030-150-444	5610104700	030-155-444
Samarium	Sm	5610126800	030-150-624	5610104800	030-155-624
Scandium	Sc	5610126900	030-150-214	5610104900	030-155-214
Selenium	Se	5610127000	030-150-342	5610105000	030-155-342
Silicon	Si	5610127100	030-150-142	5610105100	030-155-142
Silver	Ag	5610127200	030-150-474	5610105200	030-155-474
Sodium	Na	5610127300	030-150-114	5610105300	030-155-114
Strontium	Sr	5610127400	030-150-384	5610105400	030-155-384
Sulfur	S	---	030-150-162	---	030-155-162
Tantalum	Ta	5610127500	030-150-732	5610105500	030-155-732
Tellurium	Te	5610127600	030-150-522	5610105600	030-155-522
Terbium	Tb	5610127700	030-150-654	5610105700	030-155-654
Thallium	Tl	5610127800	030-150-812	5610105800	030-155-812
Thulium	Tm	5610128000	030-150-694	5610106000	030-155-694
Tin	Sn	5610128100	030-150-502	5610106100	030-155-502
Titanium	Ti	5610128200	030-150-224	5610106200	030-155-224
Tungsten	W	5610128300	030-150-742	5610106300	030-155-742
Vanadium	V	5610128500	030-150-234	5610106500	030-155-234
Ytterbium	Yb	5610128600	030-150-704	5610106600	030-155-704
Yttrium	Y	5610128700	030-150-394	5610106700	030-155-394
Zinc	Zn	5610128800	030-150-302	5610106800	030-155-302
Zirconium	Zr	5610128900	030-150-404	5610106900	030-155-404

1.5" Multi Element Lamps

Element	Varian® Cross Reference	Catalog Number
Ag, Cd, Pb, Zn	---	030-151-007
Al, Ca, Li, Mg	---	030-151-003
Al, Ca, Mg	---	030-151-001
Al, Cu, Si	---	030-151-002
Al, Cu, Cr, Fe, Ag, Mg	---	030-151-005
Ba, Ca, Sr, Mg	---	030-151-006
Ca, Mg	5610129100	030-151-008
Ca, Mg, Zn	---	030-151-009
Cu, Cd, Zn, Pb	---	030-151-010
Cu, Cr, Co, Fe, Mn, Ni	5610129200	030-151-011
Cu, Fe, Mn, Zn	---	030-151-012
Na, K	5610129000	030-151-014

Hollow Cathode Lamps - 2.0"

NOTE: **SCP SCIENCE** 2.0" Hollow Cathode Lamps require an adapter when used in Perkin Elmer® AAnalyst systems with a 4 pin Lumina plug-in. AAnalyst systems will not recognize coding found with **SCP SCIENCE** 12 pin lamps. Coding will only be recognized by older generation Perkin Elmer® instruments such as SIMAA 6000, 5100, 3300, 2100, 1100(B), 4110L and 4100(L) with 12 pin Intensitron plug-ins.

Element	Symbol	2.0" NON-CODED (9 pin)		2.0" CODED (12 pin)	
		Perkin Elmer® Cross Reference	Catalog Number	Perkin Elmer® Cross Reference	Catalog Number
Aluminum	Al	0303-6009	030-200-134	N0661290	030-205-134
Antimony	Sb	0303-6010	030-200-512	N0661284	030-205-512
Arsenic	As	0303-6011	030-200-332	N0661277	030-205-332
Barium	Ba	0303-6012	030-200-564	N0661237	030-205-564
Beryllium	Be	0303-6013	030-200-042	N0661287	030-205-042
Bismuth	Bi	0303-6014	030-200-832	N0661260	030-205-832
Boron	B	0303-6015	030-200-052	N0661269	030-205-052
Cadmium	Cd	0303-6016	030-200-482	N0661244	030-205-482
Calcium	Ca	0303-6017	030-200-204	N0661293	030-205-204
Cerium	Ce	0303-6019	030-200-582	---	030-205-582
Cesium	Cs	0303-6020	030-200-554	---	030-205-554
Chromium	Cr	0303-6021	030-200-244	N0661297	030-205-244
Cobalt	Co	0303-6022	030-200-272	N0661249	030-205-272
Copper	Cu	0303-6024	030-200-294	N0661296	030-205-292
Dysprosium	Dy	0303-6025	030-200-664	N0661268	030-205-664
Erbium	Er	0303-6026	030-200-684	N0661282	030-205-684
Europium	Eu	0303-6027	030-200-634	N0661271	030-205-634
Gadolinium	Gd	0303-6028	030-200-644	N0661200	030-205-644
Gallium	Ga	0303-6029	030-200-312	N0661241	030-205-312
Germanium	Ge	0303-6030	030-200-322	N0661201	030-205-322
Gold	Au	0303-6031	030-200-792	N0661253	030-205-792
Hafnium	Hf	0303-6032	030-200-722	N0661238	030-205-722
Holmium	Ho	0303-6033	030-200-674	N0661272	030-205-674
Indium	In	0303-6034	030-200-494	N0661242	030-205-494
Iridium	Ir	0303-6036	030-200-772	N0661210	030-205-772
Iron	Fe	0303-6037	030-200-262	N0661298	030-205-262
Lanthanum	La	0303-6038	030-200-574	N0661213	030-205-574
Lead	Pb	0303-6039	030-200-822	N0661299	030-205-822
Lithium	Li	0303-6040	030-200-034	N0661216	030-205-034
Lutetium	Lu	0303-6041	030-200-714	---	030-205-714
Magnesium	Mg	0303-6042	030-200-124	N0661292	030-205-122
Manganese	Mn	0303-6043	030-200-252	N0661294	030-205-252
Mercury	Hg	0303-6044	030-200-802	N0661291	030-205-802
Molybdenum	Mo	0303-6045	030-200-422	N0661225	030-205-422
Neodymium	Nd	0303-6046	030-200-604	N0661220	030-205-604
Nickel	Ni	0303-6047	030-200-282	N0661207	030-205-282
Niobium	Nb	0303-6023	030-200-414	N0661301	030-205-414
Osmium	Os	0303-6048	030-200-762	---	030-205-792
Palladium	Pd	0303-6049	030-200-462	N0661248	030-205-462
Phosphorus	P	0303-6080	030-200-152	N0661300	030-205-152
Platinum	Pt	0303-6051	030-200-782	N0661288	030-205-782
Potassium	K	0303-6052	030-200-194	N0661205	030-205-194
Praseodymium	Pr	0303-6053	030-200-594	N0661258	030-205-594
Rhenium	Re	0303-6056	030-200-754	N0661303	030-205-754
Rhodium	Rh	0303-6057	030-200-454	N0661267	030-205-454
Rubidium	Rb	0303-6058	030-200-374	---	030-205-374
Ruthenium	Ru	0303-6059	030-200-444	N0661302	030-205-444
Samarium	Sm	0303-6060	030-200-624	N0661230	030-205-624

Hollow Cathode Lamps - 2.0"

Element	Symbol	2.0" NON-CODED (9 pin)		2.0" CODED (12 pin)	
		Perkin Elmer® Cross Reference	Catalog Number	Perkin Elmer® Cross Reference	Catalog Number
Scandium	Sc	0303-6061	030-200-214	N0661280	030-205-214
Selenium	Se	0303-6062	030-200-342	N0661243	030-205-342
Silicon	Si	0303-6063	030-200-142	N0661204	030-205-142
Silver	Ag	0303-6064	030-200-474	N0661281	030-205-474
Sodium	Na	0303-6065	030-200-114	N0661203	030-205-114
Strontium	Sr	0303-6066	030-200-384	N0661274	030-205-384
Sulfur	S	0303-6067	030-200-162	---	030-205-162
Tantalum	Ta	0303-6068	030-200-732	N0661265	030-205-732
Tellurium	Te	0303-6069	030-200-522	N0661273	030-205-522
Terbium	Tb	0303-6070	030-200-654	N0661289	030-205-654
Thallium	Tl	0303-6071	030-200-812	N0661202	030-205-812
Thulium	Tm	0303-6073	030-200-694	N0661257	030-205-694
Tin	Sn	0303-6074	030-200-502	N0661206	030-205-502
Titanium	Ti	0303-6075	030-200-224	N0661278	030-205-224
Tungsten	W	0303-6076	030-200-742	N0661209	030-205-742
Vanadium	V	0303-6078	030-200-232	N0661221	030-205-232
Ytterbium	Yb	0303-6079	030-200-704	N0661286	030-205-704
Yttrium	Y	0303-6080	030-200-394	N0661212	030-205-394
Zinc	Zn	0303-6081	030-200-302	N0661295	030-205-302
Zirconium	Zr	0303-6082	030-200-404	N0661214	030-205-404

2.0" Multi Element Lamps

Element	2.0" NON-CODED (9 pin)		2.0" CODED (12 pin)	
	Perkin Elmer® Cross Reference	Catalog Number	Perkin Elmer® Cross Reference	Catalog Number
Al, Ca, Mg	0303-6099	030-201-001	---	---
Al, Ca, Zn, Si, Fe, Cu, Mg	---	030-201-004	---	030-206-008
Al, Cu, Cr, Fe, Ag, Mg	---	030-201-005	---	030-206-009
Ba, Ca, Sr, Mg	---	030-201-006	---	030-206-010
Cd, Ag, Pb, Zn	---	---	---	030-206-011
Ca, Mg	0303-6092	030-201-008	---	030-206-012
Ca, Mg, Zn	---	030-201-009	---	030-206-013
Cu, Cd, Zn, Pb	---	030-201-010	---	030-206-014
Cu, Cr, Co, Fe, Mn, Ni	0303-6103	030-201-011	---	---
Cu, Fe, Mn, Zn	0303-6105	030-201-012	---	---
Cu, Cr, Fe, Ag, Ni	---	030-201-013	---	---
Na, K	0303-6095	030-201-014	---	---

Hollow Cathode Lamp Adapters

Adapter	Description	Quantity	Cross Reference	Catalog Number
Size Adapter 1.5" to 2.0"	Allows 1.5" lamps to fit into 2.0" sockets.	1	---	030-021-001
Cable Adapter	Electrical adapter for 1.5" lamps to operate in Perkin Elmer® instruments.	1	---	030-021-002
Non-Coded 5100/3000 Adapter	Allows 9 pin non-coded lamps to be used with PE Models 5100 and 3300.	1	N0660122	030-021-011
Non-Coded AAnalyst Adapter	Allows 9 pin non-coded lamps to be used with AAnalyst instruments. Instrument must be manually set as there is no coding.	1	N3050197	030-021-013
Coded AAnalyst Adapter	Allows 12 pin coded Intesitron lamps to be used with AAnalyst. Coding will not be recognized automatically and must be set manually.	1	N3050196	030-022-013

"Let us be thankful for the fools. But for them the rest of us could not succeed." -Mark Twain-

Modifiers for Graphite Furnace (GFAA)

Matrix Modifiers allow the optimization of analytical conditions to provide better GFAA instrument response and better detection limits. Ionization buffers will increase the free-electron concentration, helping to stabilize the amount of ionization in your sample. Releasing agents bind up potential interfering ions, allowing the analyte ion to be available for analysis. All commonly used products are available in addition to custom formulations.

- Prepared from 99.999% pure starting materials
 - Extremely low level of metallic impurities in the final solution
- Custom formulations available
 - Designed for your specific application
- Complete Certificate of Analysis listing the actual concentration and the level of metallic impurities



Matrix Modifier	Formulation	Code	Catalog Number		
			100 ml	250 ml	500 ml
Magnesium Nitrate	2% Mg in 5% HNO ₃	✓ Ⓢ	140-003-031	140-003-032	140-003-035
Palladium Nitrate	0.2% Pd in 5% HNO ₃	✓ Ⓢ	140-003-061	140-003-062	140-003-065
Palladium Nitrate	2% Pd in 5% HNO ₃	✓ Ⓢ	140-003-091	140-003-092	140-003-095
Calcium Nitrate	2% Ca in 5% HNO ₃	✓ Ⓢ	140-003-121	140-003-122	140-003-125
Ammonium Phosphate	40% % in 2% HNO ₃	✓ Ⓢ	140-003-151	140-003-152	140-003-155
Ammonium Nitrate	5% % in 2% HNO ₃	✓ Ⓢ	140-003-181	140-003-182	140-003-185
Palladium/Magnesium Nitrate	0.3% Pd + 0.5% Mg in 1% HNO ₃	✓ Ⓢ	140-003-191	140-003-192	140-003-195
Nickel Nitrate	5% Ni in 5% HNO ₃	✓ Ⓢ	140-003-211	140-003-212	140-003-215

Ionization Buffers

Cesium Chloride	1% Cs in 2% HCl	✓ Ⓢ	140-003-241	140-003-242	140-003-245
Cesium Nitrate	1% Cs in 2% HNO ₃	✓ Ⓢ	140-003-271	140-003-272	140-003-275
Lithium Chloride	2% Li in 2% HCl	✓ Ⓢ	140-003-301	140-003-302	140-003-305
Lithium Nitrate	2% Li in 2% HNO ₃	✓ Ⓢ	140-003-331	140-003-332	140-003-335
Potassium Chloride	1% K in 2% HCl	✓ Ⓢ	140-003-361	140-003-362	140-003-365
Potassium Nitrate	1% K in 2% HNO ₃	✓ Ⓢ	140-003-391	140-003-392	140-003-395

Releasing Agents

Lanthanum Chloride	5% La in 5% HCl	✓ Ⓢ	140-003-421	140-003-422	140-003-425
Lanthanum Nitrate	5% La in 5% HNO ₃	✓ Ⓢ	140-003-451	140-003-452	140-003-455

⊗ Glass Container
✓ Dangerous Goods*

Ⓢ Poison
Ⓢ Corrosive

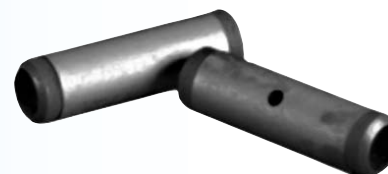
Flammable
Oxidant

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Graphite Furnace Tubes

- Made from high purity, pyrolytically coated graphite
- Cross references available for OEM products
- **FREE** Atomic Absorption standard with each package purchased



Single Element Calibration Standards

Popular standards are available for Flame and Graphite Furnace Atomic Absorption. Each standard includes a detailed Certificate of Analysis and direct traceability to NIST.



- Certificate of Analysis with actual matrix, actual concentration, and traceability to NIST 3100 Series Standards
 - Complete documentation for audit purposes
- 2 expiry dates (up to 21 months unopened & 15 months opened)
 - Longer shelf life for unopened bottles
- Immediate availability for most common elements
- With the purchase of a hollow cathode lamp or a package of graphite furnace tubes receive a free AA standard*

Element	Symbol	Matrix	Code	Catalog Number	
				1000 µg/ml 125 ml	1000 µg/ml 500 ml
Aluminum	Al	HCl	✓ ⊗	140-002-131	140-002-135
Antimony	Sb	HNO ₃ / tr. Tartaric Acid	✓ ⊗	140-001-511	140-001-515
Arsenic	As	HNO ₃	✓ ⊗	140-001-331	140-001-335
Barium	Ba	HNO ₃	✓ ⊗	140-001-561	140-001-565
Beryllium	Be	HNO ₃	✓ ⊗	140-001-041	140-001-045
Bismuth	Bi	HNO ₃	✓ ⊗	140-001-831	140-001-835
Boron	B	H ₂ O		140-000-051	140-000-055
Cadmium	Cd	HNO ₃	✓ ⊗	140-001-481	140-001-485
Calcium	Ca	HNO ₃	✓ ⊗	140-001-201	140-001-205
Chromium	Cr	HCl	✓ ⊗	140-002-241	140-002-245
Cobalt	Co	HNO ₃	✓ ⊗	140-001-271	140-001-275
Copper	Cu	HNO ₃	✓ ⊗	140-001-291	140-001-295
Gold	Au	HCl	✓ ⊗	140-002-791	140-002-795*
Iron	Fe	HNO ₃	✓ ⊗	140-001-261	140-001-265
Lead	Pb	HNO ₃	✓ ⊗	140-001-821	140-001-825
Lithium	Li	HNO ₃	✓ ⊗	140-001-031	140-001-035
Magnesium	Mg	HNO ₃	✓ ⊗	140-001-121	140-001-125
Manganese	Mn	HNO ₃	✓ ⊗	140-001-251	140-001-255
Mercury	Hg	HNO ₃	✓ ⊗	140-001-801	140-001-805
Molybdenum	Mo	H ₂ O		140-000-421	140-000-425
Nickel	Ni	HNO ₃	✓ ⊗	140-001-281	140-001-285
Potassium	K	HNO ₃	✓ ⊗	140-001-191	140-001-195
Selenium	Se	HNO ₃	✓ ⊗	140-001-341	140-001-345
Silicon	Si	H ₂ O / tr. HF		140-000-141	140-000-145
Silver	Ag	HNO ₃	✓ ⊗	140-001-471	140-001-475
Sodium	Na	HNO ₃	✓ ⊗	140-001-111	140-001-115
Strontium	Sr	HNO ₃	✓ ⊗	140-001-381	140-001-385
Tin	Sn	HCl	✓ ⊗	140-002-501	140-002-505
Titanium	Ti	H ₂ O / tr. HF		140-000-221	140-000-225
Vanadium	V	HNO ₃	✓ ⊗	140-001-231	140-001-235
Zinc	Zn	HNO ₃	✓ ⊗	140-001-301	140-001-305

* Precious metal standards exempt from offer (Au). Shipping and dangerous goods charges still apply.

⊗ Glass Container

✓ Dangerous Goods*

⊕ Poison

⊕ Corrosive

⊕ Flammable

⊕ Oxidant

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R


* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000

* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Quartz Cells

Available quartz cells for mercury, hydride and other analyzer systems.

Ordering Information

Description	Vendor Number	Catalog Number
 Perkin Elmer® 4000 Axial Purge Window	N077-1116	030-050-158
Perkin Elmer® Quartz Window	B006-6549	030-050-160
Perkin Elmer® MHS-10	B009-4415	030-050-150
Perkin Elmer® MHS-10 w/Windows	---	030-050-161
Perkin Elmer® MHS-20	B009-7694	030-050-151
Perkin Elmer® MHS-20 w/Windows	B009-7693	030-050-152
Spectro UV Windows Fused	---	030-050-155
TJA® Quartz Cell, 120 mm	85476	030-050-153
TJA® Quartz Cell, 150 mm	122910	030-050-154
TJA® T-Shaped Cell	131395	030-050-164
Varian® ACT-80 Atom Concentrator Tube	9910054400	030-150-175
Varian® M-65 Absorption Cell	110257690	030-150-170
Varian® M-65 Mercury Flow Through Cell	110255100	030-150-171
Varian® MCA-90 Flow Through Cell	9910058300	030-150-174
Varian® VGA-76/77 Mercury Flow Through Cell	9910040700	030-050-156
Varian® VGA-76/77 Hydride Absorption Cell	2010056000	030-050-157
Varian® VGA-76 Gas Liquid Separator	9910040200	030-150-172
Varian® VGA-77 Gas Liquid Separator	9910071100	030-150-173

PlasmaPURE Plus
Acids & Reagents

PlasmaPURE Plus acids are manufactured with trace metal levels less than 10 ppt (0.01 ppb). Complete with a Certificate of Analysis with lot number, expiry date, and maximum concentration specification for over 60 elements. Commonly used in semiconductor, nuclear, clinical, pharmaceutical, and geochemical analysis. Used for sample and standards preparation for ICP-AES, ICP-MS, Flame AA and Graphite Furnace AA spectroscopy.

- 2 expiry dates (up to 3 years unopened and 15 months opened)
 - Long shelf life for unopened bottles



Atomic Absorption
Supplies

Always in Stock

Description	Assay	Molecular Weight	CAS Number	Merck Index	Code	Catalog Number			
						250 ml	500 ml	1 L	2 L
Acetic Acid	>99% CH ₃ COOH	60.05	64-19-7	13.56	✓ Ⓢ	250-036-101	250-036-103	250-036-105	---
Ammonia Solution	20-22% NH ₃	17.03	7664-41-7	---	✓ Ⓢ Ⓣ	250-036-107	250-036-109	250-036-111	---
Hydrochloric Acid	32-35% HCl	36.46	7647-01-0	13.4801	✓ Ⓢ	250-036-113	250-036-115	250-036-117	250-036-119
Hydrofluoric Acid	47-51% HF	20.01	7664-39-3	---	✓ Ⓢ	250-036-121	250-036-123	250-036-125	250-036-127
Hydrogen Peroxide	30%	---	---	---	✓ Ⓢ Ⓣ	---	250-036-145	---	---
Nitric Acid	67-70% HNO ₃	63.01	7697-37-2	13.6608	✓ Ⓢ Ⓣ	250-036-129	250-036-131	250-036-133	250-036-135
Sulphuric Acid	93-98% H ₂ SO ₄	98.08	7664-93-9	13.9064	✓ Ⓢ Ⓣ	250-036-137	250-036-139	250-036-141	250-036-143

PlasmaPURE Plus Accessories

Description	Catalog Number
PlasmaPURE Plus Top Dispenser, Replacement Base	250-036-500
PlasmaPURE Plus Top Dispenser*, Complete Unit	250-036-501

* Dispenser only for 500 ml, 1 L and 2 L sizes.

⊗ Glass Container
✓ Dangerous Goods*

Ⓣ Poison
Ⓢ Corrosive

Ⓣ Flammable
Ⓣ Oxidant

* as defined by:

• Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
• Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
• International Air Transport Association - Dangerous Goods Regulation, 40th Edition

USA
Tel.: (800) 361-6820
Fax: (800) 253-5549

Canada / International
Tel.: (800) 361-6820 / +1 (514) 457-0701
Fax: (800) 253-5549 / +1 (514) 457-4499

Europe
Tel.: +33 (0)1 69 18 71 17
Fax: +33 (0)1 60 92 05 67

PlasmaPURE Acids

PlasmaPURE acids are manufactured with trace metals equal to or less than 1 ppb. Used for environmental and industrial applications in ICP-AES and flame atomic absorption spectroscopy.

- Complete with a Certificate of Analysis with lot number, expiry date, and maximum specification for over 60 analytes
 - Complete documentation for audit purposes
 - Available on-line at www.scpscience.com



Always in Stock

Element	Assay	Molecular Weight	CAS Number	Merck Index	Code	500 ml cs/6	Catalog Number		
							2.5L cs/6	2.5L SC* cs/6	4L cs/4
Hydrochloric Acid	34-37% HCL	36.46	7647-01-0	13.4801	✓ Ⓢ ⊗	250-037-113	250-037-115	250-037-117	250-037-119
Hydrofluoric Acid**	47-51% HF	20.01	7664-39-3	N/A	✓ Ⓢ	250-037-121	---	---	250-037-123
Nitric Acid	67-70% HNO ₃	63.01	7697-37-2	13.6608	✓ Ⓢ ⊗ Ⓢ	250-037-129	250-037-131	250-037-133	---
Sulphuric Acid	94-98% H ₂ SO ₄	98.08	7664-93-9	13.9064	✓ Ⓢ ⊗ Ⓢ	250-037-137	250-037-139	250-037-141	---

* Safety coated glass bottle

** Packaged in LDPE bottle

Helpful Hints for Graphite Tube Users

The lifetime of graphite components can vary for many reasons. Certain elements and solutions can be particularly damaging to them and will cause reduced lifetimes. Nothing can be done to avoid this; however, by following these hints, you will extend the lifetimes as much as possible. Always follow the manufacturer's instructions for instrument use. The following hints are offered only as general information for most of the common brands of instruments, and as such, cannot be as specific as the manufacturer's directions.



1. Before installing a new tube, always check the condition of the contacts (electrodes). Contacts will wear out through the course of normal operation. Such wear causes the tube to become loose during operation, resulting in reduced electrical contact area with subsequent erratic operation and results. If a contact is chipped, pitted, burned, or worn, it should be replaced immediately. Operating the instrument with a damaged contact maybe give erroneous readings and greatly decreased tube lifetimes.
2. Use a clean, plastic forcep (PTFE is best) to remove the tube from its container, and to position the tube during installation. Never touch a graphite tube with your hands! Touching the tube, for only a moment, will contaminate it and likely cause elevated readings for many elements including Ca, Na, and K.
3. Use the proper type of gas and flow rate. Using too little in an effort to reduce costs can decrease tube lifetime and can increase the chance of contamination of the contacts and shroud.
4. Once the tube is properly installed, you must condition it before use according to instructions provided by the instrument manufacturer.
5. Avoid overheating the tube. Overheating will dramatically decrease lifetimes. Generally speaking, the "tube clean" function programmed into most instruments will overheat the tube, and should not be used.
6. If you have been running the instrument for a while at lower temperatures, and need to run at a higher temperature for elements such as Ni, Cr, V, or Ti, you may experience a "memory effect" from temporary contamination of the cooler parts of the furnace. In such a case, it is recommended to run a few blank cycles at the new temperature, with maximum gas flow, to purge contaminants from the system.
7. When nearing the end of the tube's lifetime, offer it retirement at the proper time. Pushing the tube until it finally fails will greatly increase the likelihood of damaging the contacts.
8. Use of Sulphuric Acid will greatly reduce the lifetime of your graphite tube

"It is almost impossible to throw dirt on someone without getting a little on yourself." -Abigail Van Buren-

Certificate of Analysis:
Matrix Modifier

Certificate of Analysis

Catalog number : 140-003-331/140-003-332/140-003-335
 Description : Matrix Modifier - Lithium Nitrate Ionization Buffer
 Nominal Concentration : 20,000 µg/ml (2.0%) Li
 Starting Material : LiNO₃ 99.999%
 Lot Number : SC5208597
 Expiry Date : August 2007

Date bottle opened

Analysis of Solution by Inductively Coupled Plasma Spectroscopy (ICP-AES) traceable to NIST Standard Reference Material 3129a.

Actual Concentration : 20110 µg/ml
 Matrix : 2% HNO₃

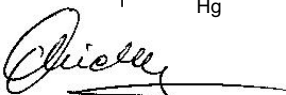
Metallic Impurities

1. Starting Material

Element	Conc. (ppm)
Ca	2-5
Ba, Si	1-3
Al, K, Na, Sr, Zr	< 1
Be, Cd, Co, Cr, Cu, Fe, Mg, Mn, Ni, Ti, V	Not detected

2. Final Solution

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	< 0.005	Ho	< 0.006	S	*		
Al	< 0.013	In	< 0.034	Sb	< 0.029		
As	< 0.001	Ir	< 0.016	Sc	< 0.002		
Au	< 0.004	K	< 0.093	Se	< 0.027		
B	< 0.017	La	< 0.004	Si	0.508		
Ba	< 0.0005	Li	N/A	Sm	< 0.003		
Be	< 0.001	Lu	< 0.0006	Sn	< 0.037		
Bi	< 0.026	Mg	0.030	Sr	< 0.001		
Ca	0.805	Mn	< 0.0002	Ta	< 0.013		
Cd	< 0.003	Mo	< 0.016	Tb	< 0.006		
Ce	< 0.019	Na	0.134	Te	< 0.014		
Co	< 0.007	Nb	< 0.009	Th	< 0.012		
Cr	< 0.004	Nd	< 0.018	Ti	< 0.001		
Cs	*	Ni	< 0.006	Tl	< 0.013		
Cu	< 0.0003	Os	*	Tm	< 0.007		
Dy	< 0.004	P	< 0.034	U	< 0.137		
Er	< 0.008	Pb	< 0.041	V	< 0.001		
Eu	< 0.002	Pd	< 0.007	W	< 0.015		
Fe	< 0.002	Pr	< 0.213	Y	< 0.003		
Ga	< 0.011	Pt	< 0.017	Yb	< 0.0008		
Gd	< 0.003	Rb	< 0.027	Zn	< 0.0008		
Ge	< 0.011	Re	< 0.004	Zr	< 0.007		
Hf	< 0.025	Rh	< 0.024				
Hg	*	Ru	< 0.008				



Certified by : Alketa Mixha, Chemist

Certification Date : August 2, 2005

This Matrix Modifier is guaranteed to be stable and accurate to within ± 1% of the actual concentration up to the expiry date, provided the solution is kept tightly capped and stored under normal laboratory conditions. For these solutions, 18 megohm/cm double deionized water, high-purity acids, Class A glassware and acid-cleaned bottles are used. The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Egalement disponible en Français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

SCP SCIENCE

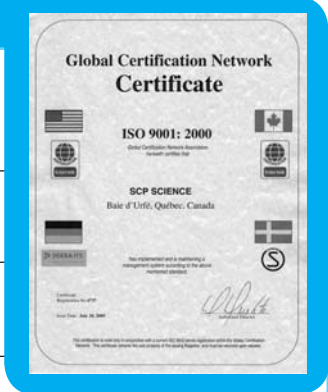
21800 Clark Graham, Baie D'Urfé, QC, Canada H9X 4B6
 Phone : (514) 457-0701 Fax : (514) 457-4499
 Web Site: www.scpscience.com



Atomic Absorption
Supplies

X-Ray Fluorescence Supplies: Notes

NOTES



X-Ray Fluorescence
Supplies

Presses for pelletizing samples for XRF analysis are complemented by a complete line of XRF supplies. Thin-film window material, sample cells, binding and blending agents, AluCAPs (aluminum pellet cups), and standards for XRF analysis of liquids, solids, and powders are offered.

A new line of AccuSPEC XRF fusion fluxes with a high bulk density of 1.4 g/cm³ is now available. Fluxes consist of homogenous, spherical (less than 500 um), vitreous particles that offer higher analytical precision of analysis.

Manual Hydraulic Press, 12 Ton and 25 Ton	... 108
Automated Hydraulic Press, 40 Ton	... 108
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Manual Hydraulic Press, 12 Ton and 25 Ton

The Model C (12 ton) and Model M (25 ton) are ideal for use with XRF pellet dies. Model C is ideal for smaller diameter pellets of more easily compressed material. Model M is suited for larger pellets and harder to press material.



Catalog No. 040-021-001

- Complete line of manual presses
 - 30, 40 and 50 ton manual presses are also available
 - Request a quote from your Sales Representative
- Offer calibrated gauges in pounds and metric tons
 - Ensures easy-to-read values
- Manufactured in cast iron and steel
 - Ensure precision and years of trouble-free use

Specifications

Model C (Cat. # 040-021-001)		Model M (Cat. # 040-021-002)	
Force	12 tons	Force	25 tons
Platen Movement	12.7 cm (5 in.)	Platen Movement	16.5 cm (6.5 in.)
Platen Size	15 x 15 cm (6 x 6 in.)	Platen Size	23 x 23 cm (9 x 9 in.)
Daylight	0 - 23 cm (0 - 9 in.)	Daylight	0 - 23 cm (0 - 9 in.)
Height	76 cm (30 in.)	Height	85 cm (33.5 in.)
Base	29 x 40 cm (11.5 x 15.75 in.)	Base	37 x 48 cm (14.5 x 19 in.)
Net Weight	63.5 kg (140 lbs.)	Net Weight	120 kg (264 lbs.)

Automated Hydraulic Press, 40 Ton

The T-40 press incorporates a microprocessor control panel which includes features such as: "Load" (4-40 ton, 1.0 ton increments), "pressing rate/time" (0-99 minutes, 1 second increments), and "press operation diagnostics". Accommodates optional heated platens and dies up to 20 cm in diameter. CE, UL, & CSA approved.



Catalog No. 040-020-001

- Offer high-throughput and versatile sample preparation
 - Handles many demanding pressing applications efficiently and cost effectively
- Constructed in a compact bench-top format
 - Allows for quick installation
- Manufactured with electronic interlocks and a high-impact guard
 - Ensure safe operation and simple maintenance

Specifications

T-40 Automatic Hydraulic Press (Cat. # 040-020-001)			
Maximum Load on Ram	40 tons	Maximum Daylight (optional)	152 mm
Load Applied Displayed to	0.1 tons	Minimum Daylight	35 mm
Digital Display Setting	4 to 40 tons	Width (sideplate to internal cover)	247.5 mm
Digital Display Increment	1 ton	Width (centralized)	210 mm
Die Locator Diameters	up to 200 mm	Depth (front guard to read guard)	240 mm
Top Bolster Diameter	32 mm	Depth (centralized)	210 mm
Top Bolster Adjustment	35 mm	Baseplate	280 x 500 mm
Ram Diameter	100 mm	Height (with control box)	568 mm
Ram Stroke	38 mm	Weight	145 kg
Ram Approach Rate	15.1 sec/cm	Voltage	110V/60Hz
Maximum Daylight (standard)	135 mm	(European voltage available)	220V/50Hz

XRF Pellet Dies

Each die is supplied with two stainless steel pellets and a knock-out ring for easy sample extraction. For hard, corrosive, or irregular shaped samples which need pressing, tungsten carbide pellets are recommended and are available for each die size. **SCP SCIENCE** recommends using *AluCAPs* (see page 110) as a backing medium. Replacement stainless steel and tungsten carbide pellets are also available separately and sold in sets of two.

- Complete line of XRF Pellet Dies
 - Available in 31 mm, 35 mm, 40 mm diameter sizes
- Manufactured from 316 stainless steel grade
 - Provide quality and reliability for years
- Designed to accept *AluCAPs* pellet reinforcing cups

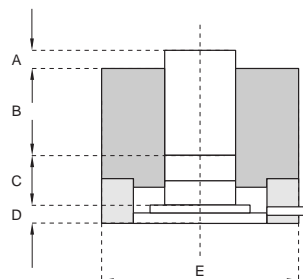


Ordering Information

Pellet Diameter & Load Limit	A (mm/in.)	B (mm/in.)	C (mm/in.)	D (mm/in.)	E (mm/in.)	Catalog Number
31 mm Die Set, 50 tons	21.33 / 0.84	35.74 / 1.41	19.05 / 0.75	27.76 / 1.09	68.33 / 2.69	040-022-200
35 mm Die Set, 70 tons	21.33 / 0.84	35.74 / 1.41	19.05 / 0.75	27.76 / 1.09	68.33 / 2.69	040-022-300
40 mm Die Set, 50 tons	21.33 / 0.84	35.74 / 1.41	19.05 / 0.75	27.76 / 1.09	95.25 / 3.75	040-022-400

Replacement & Optional Pellets

Composition	Pellet Diameter	Catalog Number
Stainless Steel	31 mm	040-022-201
Stainless Steel	35 mm	040-022-301
Stainless Steel	40 mm	040-022-401
Tungsten Carbide	31 mm	040-022-202
Tungsten Carbide	35 mm	040-022-302
Tungsten Carbide	40 mm	040-022-402



Binder & Blending Agents

The appropriate binder or blending agent will keep the pressed pellet from flaking or disintegrating. Though no single agent may resolve all types of samples, three popular types are available.

- Ideal applications for:
 - Cement, Ores, Fertilizers, Soil, Rock and Alumina

Ordering Information

Description (g/lb)	Chemical Composition	Catalog Number
X-Ray Mix, 454/1	48.7% C, 42.6% O, 8.12% H, 0.6% B	040-060-300
Spectro Blend, 454/1	81.0% C, 2.9% O, 13.5% H, 2.6% N	040-060-310
Boric Acid, 454/1	77.6% O, 17.5% B, 4.9% H	040-060-320

Swing Mill Grinder, SP-2000

Used for pulverizing, mixing, and homogenizing 10 to 500 gram sample sizes, this swing mill grinder reduces samples to -100 to -400 mesh.

- Manufactured with a steel frame and sound dampening lining
 - Provides low maintenance grinding for years to come
- Includes control panel with an emergency button



AluCAP - Pellet Reinforcing Cups

Used for the production of pressed-powder sample disks, **SCP SCIENCE** provides two sizes, 30 mm and 38 mm, of **AluCAPs** - pellet reinforcing cups. Made from aluminum **AluCAPs** provide lateral and bottom support during preparation and handling of pressed-powder samples.



- Manufactured with a thin-wall
 - Easily compress sample for XRF analysis
- Supplied in a convenient dispenser box
 - Provide sturdy storage packaging

Ordering Information

Description	AluCAP Diameter	For Die Set	Quantity	Catalog Number
AluCAP, straight wall	30 mm	31 mm (040-022-200)	1000	040-080-001
AluCAP, flared	38 mm	40 mm (040-022-400)	1000	040-080-005

XRF Sample Storage Dishes

Protect pressed pellets and fused disks from sample contamination and moisture accumulation. Snug fit lids eliminate moisture build-up. Available with or without absorbent pads.



- Made from sturdy, transparent plastic
 - Store and protect samples form accidental breakage
- May be stacked one-on-top of another
 - Maximize storage space
 - Come in sleeves of 20

Ordering Information

Description	Quantity	Catalog Number
50 mm Dishes without pads	case of 500	130-060-001
50 mm Dishes with pads	case of 500	130-060-002

Sulfur in Oil Calibration Standards

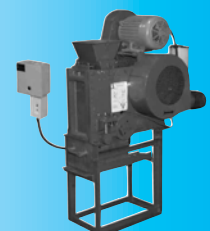
Available in #2 Diesel Fuel, White Mineral Oil, Kerosene, and **NEW** Iso-Octane

- Available as individual standards or complete sets
- Concentrations range from 0.0000% to 6%
- Complete with a Certificate of Analysis



Jaw Crusher - SP-5000

- Integrated forced blown air system to reduce bearing temperatures
 - Provides a longer life span for system parts
- Applications include:
 - Rocks, core samples, cement ingots, glass, and friable materials



XRF Fusion Fluxes

AccuSPEC fusion fluxes are supplied dust free, in homogeneous spherical vitreous particles with less than 0.05% moisture. Choose from a variety of our fused fluxes or request a custom blend for your application. Depending on your analytical requirements, two flux grades; Pure and Ultra Pure, are available. Used in cements, ceramics and glassmakers, mining industries, metal producers, and R & D laboratories - petrochemical plants.

- Eliminate risks associated with crucibles overflowing
 - High bulk density of 1.4g/cm³
- Offer higher analytical precision
 - Spherical (<500 um) and vitreous particles are easy to handle
- Two purity levels are available
 - Ultra Pure 99.999% best choice for ICP-AES/MS Analysis
 - Pure 99.99% most popular in XRF analysis
- Complete with a detailed Certificate of Analysis
 - Lot number and the concentration of analytes determined by ICP-AES



Ordering Information

Fusion Flux	Grade	Quantity	Code	Catalog Number
Lithium Metaborate (LiM)	PURE	1 kg		040-060-100
Lithium Metaborate (LiM)	ULTRA PURE	1 kg		040-060-102
Lithium Tetraborate (LiT)	PURE	1 kg		040-060-200
Lithium Tetraborate (LiT)	ULTRA PURE	1 kg		040-060-205
LiT/LiM/LiBr 49.75/49.75/0.50	PURE	1 kg		040-060-249
LiT/LiM 50/50	PURE	1 kg		040-060-250
LiT/LiM 50/50	ULTRA PURE	1 kg		040-060-252
LiT/LiM 67/33	PURE	1 kg		040-060-267
LiT/LiM/LiBr 66.67/32.83/0.50	PURE	1 kg		040-060-266
LiT/LiM/LiI 66.67/32.83/0.50	PURE	1 kg		040-060-268
LiT/LiM 35.3/64.7	PURE	1 kg		040-060-334
LiT/LiM 35.3/64.7	ULTRA PURE	1 kg		040-060-336
LiT/LiBr 99.50/0.50	PURE	1 kg		040-060-338

Ordering Information

Additives and Accessories	Description	Quantity	Code	Catalog Number
Scoop for flux, 2 g capacity	---	---		040-060-036
Lithium Nitrate	Oxidizing Agent	500 g		040-060-269
Lithium Bromide	Non Wetting Agent	15 ml		040-060-330
Lithium Fluoride Crystals	Fluidizing Agent	250 g		040-060-332

Other products and combinations are available. Contact your Customer Service Representative.

⊗ Glass Container
✓ Dangerous Goods*

Ⓢ Poison
Ⓢ Corrosive

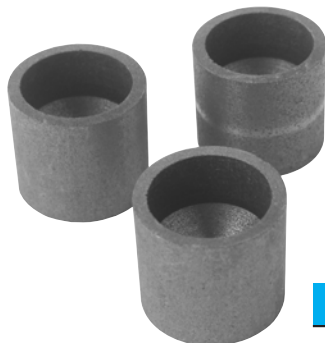
Ⓢ Flammable
Ⓢ Oxidant

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Graphite Fusion Crucibles

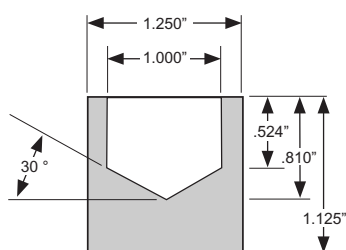
Regular and high-purity graphite fusion crucibles are available in four different formats. Regular graphite fusion crucibles have impurities ranging from 10 to 100 ppm of Mg, Fe, Al, Si and Cu (distributed evenly throughout the graphite).



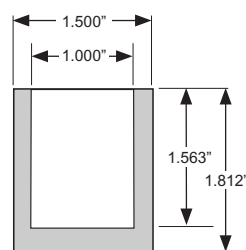
- High purity graphite contains a maximum combined impurity level of 2 ppm for all elements
 - Ideal for trace-level analysis
- Request for a quotation on special custom crucibles
 - See page 165 for quote request form

Ordering Information

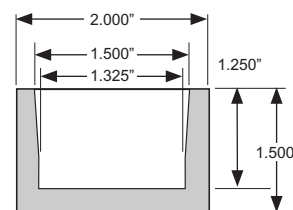
Type	Description	Grade	Quantity	Catalog Number
Graphite Crucible	9 ml volume	Regular	100	040-060-010
Graphite Crucible	9 ml volume	High Purity	10	040-060-011
Graphite Crucible	cylindrical	Regular	10	040-060-020
Graphite Crucible, large volume	20 ml volume	Regular	10	040-060-030
Graphite Crucible, large volume	20 ml volume	High Purity	10	040-060-031
Graphite Casting Crucible	casts 34mm disks	Regular	10	040-060-040
Graphite Casting Crucible	casts 34mm disks	High Purity	10	040-060-041



9 ml Crucible



20 ml Crucible



Casting Crucible

Thin Film Window Material

Continuous rolls, pre-cut sheets and easy snap sheets are available in different chemical compositions and uniform thickness. Minimum trace levels of impurities ensure reproducible day-to-day results. When selecting a film, resistance to chemical attack, transmission characteristics, and purity must be balanced for optimal results with a specific sample type.



Ordering Information

Continuous Roll	Thickness (mil/microns)	Width (mm)	Length (m)	Catalog Number
Mylar® Film	0.12/3.0	73	115	040-070-010
Mylar® Film	0.24/6.0	73	115	040-070-020
Mylar® Film	0.14/3.6	76	91	040-070-035
Mylar® Film	0.24/6.0	76	91	040-070-037
Kapton® Film	0.30/7.5	73	18.8	040-070-030
Polypropylene Film	0.24/6.0	76	91	040-070-040
Polypropylene Film	0.50/12.0	76	91	040-070-042
Prolene® Film	0.16/4.0	76	91	040-070-045
Microporous Film	1.00/2.5	64	5.1	040-070-050
Film Dispenser*	---	---	---	040-070-100

* Only for Mylar® and Kapton® film

Ordering Information

Pre-Cut Sheets	Style	Thickness (mil/microns)	Dimensions (mm)	Quantity	Catalog Number
Microporous	Circles	1.0/25.0	76	100	040-070-055
Mylar®	Circles	0.24/6.0	64	1000	040-070-105
Prolene®	Circles	0.16/4.0	64	1000	040-070-245
Mylar®	Squares	0.14/3.6	64 x 76	500	040-070-110
Mylar®	Squares	0.24/6.0	64 x 76	500	040-070-120
Kapton®	Squares	0.30/7.5	64 x 76	500	040-070-130
Polypropylene	Squares	0.24/6.0	64 x 76	500	040-070-140
Prolene®	Squares	0.16/4.0	64 x 76	500	040-070-145

Note: Hostaphan® is an alternate name for Mylar®

Ordering Information

Pre-Cut Sheets	Style	Thickness (mil/microns)	Dimensions (mm)	Quantity	Catalog Number
Prolene®	Easy Snap	0.16/4.0	76	100	040-070-147
Mylar®	Easy Snap	0.14/3.6	76	100	040-070-149
Etnom - S®	Easy Snap	0.12/3.0	64	100	040-070-153
Etnom - S®	Easy Snap	0.12/3.0	76	100	040-070-155



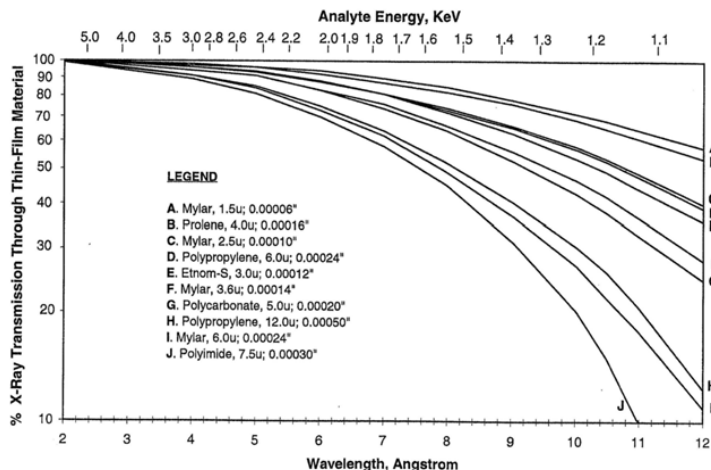
Catalog No. 040-070-149

Note: Easy Snap sheets consist of a thin film attached to a carrier frame for easy handling.

Chemical Resistance of Thin Films

Chemical Classification	Mylar	Polycarb.	Polypro.	Kapton	Prolene
Acid, Weak or Dilute	G	G	E	N	G
Acid, Concentrated	G	G	E	N	E
Alcohols, Aliphatic	N	G	E	G	E
Aldehydes	U	F	E	E	E
Alkalies, Concentrated	N	N	E	E	E
Esters	N	N	G	G	G
Ethers	F	N	N	U	N
Hydrocarbons, Aliphatic	G	N	G	G	G
Hydrocarbons, Aromatic	F	N	F	F	F
Hydrocarbons, Halogenated	F	N	N	F	N
Ketones	N	N	G	G	G
Oxidizing Agents	F	N	F	N	F

E - Excellent G - Good F - Fair N - Not Recommended U - Unknown



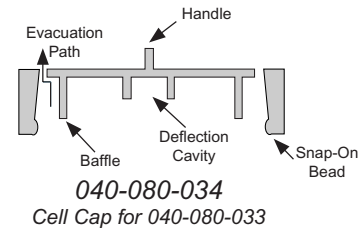
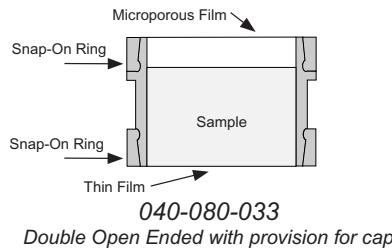
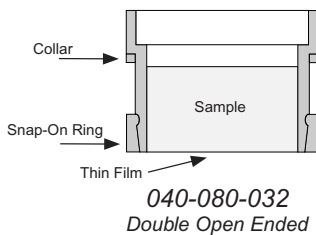
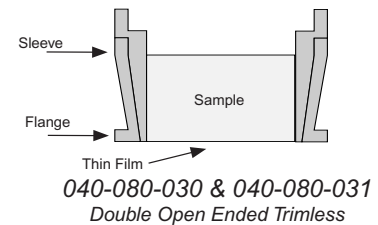
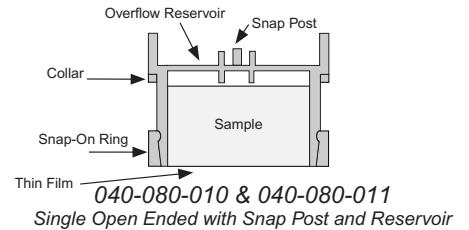
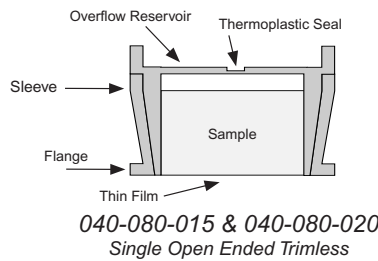
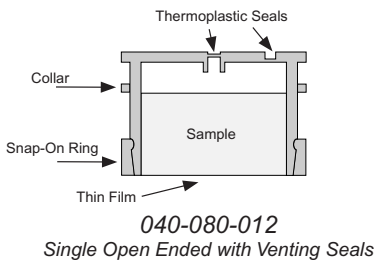
**Transmission Properties of
Various Thin Film Materials
and Gauges**

**X-Ray Fluorescence
Supplies**

XRF Sample Cells

Manufactured from high purity polyethylene and packaged in a convenient dispenser box. Single open-ended, double open ended, and accessories are in-stock and ready to ship.

- Wide selection of sample cells
 - Available 32 mm, 40 mm, and 47 mm sizes
- Other types and styles are available upon request



Ordering Information

Style	Description	Dia. mm	Height. mm	Vol. mm	Qty.	Catalog Number
Single Open Ended	Snap-Post & Reservoir	32	23	7	200	040-080-010
Single Open Ended	Snap-Post & Reservoir	40	23	13	100	040-080-011
Single Open Ended	Venting	32	23	7	200	040-080-012
Single Open Ended	Trimless	32	25	9	200	040-080-015
Single Open Ended	Trimless	40	25	16	100	040-080-017
Single Open Ended (Horiba)	Trimless	47	19	15	100	040-080-020
Double Open Ended (Horiba)	Trimless	47	19	15	100	040-080-022
Double Open Ended	Trimless	32	25	9	200	040-080-030
Double Open Ended	Trimless	40	25	16	100	040-080-031
Double Open Ended	---	40	35	26	100	040-080-032
Double Open Ended	Provision for Cap	32	23	12	200	040-080-033
Double Open Ended	Cap for 040-080-033	---	---	---	200	040-080-034
Single Open Ended	Reservoir & Venting	40	23	12	100	040-080-036
Single Open Ended	Trimless	45	42	8	100	040-080-038
Double Open Ended	Snap-Post & Reservoir	32	23	7	100	040-080-040
Double Open Ended	Venting	40	23	18	100	040-080-042
Double Open Ended	Snap-Post & Reservoir	40	23	12	100	040-080-044
Oxford Cell System*	Replaces aluminum holder	40	35	26	100	040-080-046
Disposable cell liner & caps (oxford)	---	32	---	---	100	040-080-048
Vent Hole Punch	---	---	---	---	1	040-080-100

* Does not work with autosampler

Certificate of Analysis

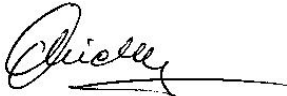
Li₂B₄O₇

Catalogue numbers **040-060-205**
 Description **AccuSPEC – Lithium Tetraborate,
 Anhydrous, Fused; Ultra Pure
 99.999%**
 Lot Number **SC4254064**

Assay (Li₂B₄O₇) :	100%
Apparent Density :	1.4
Loss on Ignition :	< 0.01% (2hrs @ 300°C)
Loss on Fusion :	< 0.01% (@ 1000°C)
Granulometry :	100% (< 500µm)

Trace Metallic Impurities

Elements	Concentration	Elements	Concentration
Ag	< 1 ppm	Mn	< 1 ppm
Al	< 1 ppm	Mo	< 1 ppm
Ba	< 1 ppm	Na	< 2 ppm
Be	< 1 ppm	Ni	< 1 ppm
Bi	< 1 ppm	P	< 3 ppm
Ca	2 ppm	Pb	< 2 ppm
Cd	< 1 ppm	S	< 3 ppm
Ce	< 1 ppm	Sc	< 1 ppm
Co	< 1 ppm	Si	< 3 ppm
Cr	< 1 ppm	Sr	< 1 ppm
Cu	< 1 ppm	Th	< 1 ppm
Eu	< 1 ppm	Ti	< 1 ppm
Fe	2 ppm	V	< 1 ppm
K	< 3 ppm	Y	< 1 ppm
La	< 1 ppm	Zn	< 1 ppm
Mg	< 1 ppm	Zr	< 1 ppm

Certified by :  Date of certification : September 10, 2004
 Alketa Mixha, Chemist

This material has been tested by Acidimetry (assay) and ICP-OES (impurities). The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Ce certificat est également disponible en français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

SCP SCIENCE
 21800 Clark Graham, Baie D'Urfé, QC, Canada H9X 4B6
 Phone : (514) 457-0701 Fax : (514) 457-4499
 Web Site: www.scpscience.com

**X-Ray Fluorescence
Supplies**

Calibration & Quality Control Standards

NOTES



Free On-line MSDS and Certificates of Analysis

- Fast access to updated information at your fingertips
- Detailed description of quality control data for each product and corresponding lot numbers
- Visit www.scpscience.com



SCP SCIENCE has been manufacturing calibration and quality control standards for inorganic analysis according to the guidelines set for by the ISO 9001:2000 international standard. Our ISO program ensures customer satisfaction through the manufacturing and distribution of top quality products. In addition to the products listed in the following pages, please consult a copy of the **SCP SCIENCE** "Standards, Reagents & Certified Reference Materials" catalog for a complete product listing.

Statement of Quality Assurance	... 118
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Statement of Quality Assurance

At **SCP SCIENCE**, quality is not only related to the actual product, but to the entire process. When you interface with our company, we strive to provide you with quality throughout the process - information requests, quotations, order entry, product manufacturing, shipping, and after-sales service. Our staff has been extensively trained and is profoundly dedicated to providing a superior quality of service.

SCP SCIENCE operates a Quality Management System that is certified to the ISO 9001:2000 international standards. Our objective is to ensure full customer satisfaction through the manufacture and distribution of top quality products. By adhering to the requirements of an internationally recognized standard, our customers are guaranteed to receive a quality product, time and time again.

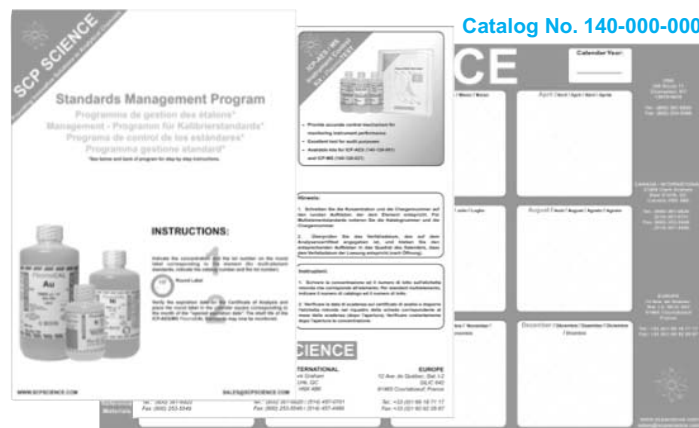
Always striving to better ourselves and to meet or exceed the needs of our customers, we are working on conforming to the stringent requirements of ISO 17025 in order to officially accredit the competency of our laboratory. The scope of our accreditation will include activities such as metals analysis by ICP spectroscopy, ion analysis by ion chromatography (IC), conductivity and pH certifications, and acid-base titration.

SCP SCIENCE is a member of the Chemical Reference Material Manufacturers' Association (CRMMA); an association of the major manufacturers of calibration standards whose mandate is "...to promote the production and marketing of high quality materials and to promote continuous improvement of industry products and standards..."

SCP SCIENCE is a leader in the field of standards and volumetric solutions and yet one of our key goals is to continually improve to serve you better. This catalogue includes many new products in response to your requests and to the new requirements of governments and organizations. Should you require a product that is not listed in this catalog, please do not hesitate to contact our Customer Service Group.

Standards Management Program

The Standards Management Program is an exclusive **SCP SCIENCE** feature which assists labs in tracking and stocking calibration standards. With your first order of *PlasmaCAL* standards, you will receive a 12-month calendar and individual stickers for each standard on your order. Simply affix each sticker to the calendar in the square for the month corresponding to the expiry date. You now have a convenient, visual reminder of expiration dates.



⊗ Glass Container
 ✓ Dangerous Goods*

Ⓢ Poison
 Ⓢ Corrosive

Ⓢ Flammable
 Ⓢ Oxidant

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
 * Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
 * International Air Transport Association - Dangerous Goods Regulation, 40th Edition

PlasmaPURE Plus Acids & Reagents

PlasmaPURE Plus acids are manufactured with trace metal levels less than 10 ppt (0.01 ppb). They are packaged in Class 100 clean room conditions and supplied in pre leached Teflon® bottles for optimum quality. Commonly used in semiconductor, nuclear, clinical, pharmaceutical, and geochemical analysis. Used for sample and standards preparation for ICP-AES, ICP-MS, Flame AA and Graphite Furnace AA spectroscopy.

- Complete with a Certificate of Analysis with lot number, expiry date, and maximum concentration specification for over 60 elements
 - Complete documentation for audit purposes
 - Available on-line at www.scpscience.com
- Available in sizes from 250 ml to 2 liters
 - Flexibility - Buy only what is required. Save money with large volumes
- 2 expiry dates (up to 3 years unopened and 15 months opened)
 - Long shelf life for unopened bottles



Always in Stock

Description	Assay	Molecular Weight	CAS Number	Merck Index	Code	Catalog Number			
						250 ml	500 ml	1 L	2 L
Acetic Acid	>99% CH ₃ COOH	60.05	64-19-7	13.56	✓ ⊗	250-036-101	250-036-103	250-036-105	---
Ammonia Solution	20-22% NH ₃	17.03	7664-41-7	---	✓ ⊗ ⊕	250-036-107	250-036-109	250-036-111	---
Hydrochloric Acid	32-35% HCl	36.46	7647-01-0	13.4801	✓ ⊗	250-036-113	250-036-115	250-036-117	250-036-119
Hydrofluoric Acid	47-51% HF	20.01	7664-39-3	---	✓ ⊗	250-036-121	250-036-123	250-036-125	250-036-127
Hydrogen Peroxide	30%	---	---	---	✓ ⊗ ⊕	---	250-036-145	---	---
Nitric Acid	67-70% HNO ₃	63.01	7697-37-2	13.6608	✓ ⊗ ⊕	250-036-129	250-036-131	250-036-133	250-036-135
Sulphuric Acid	93-98% H ₂ SO ₄	98.08	7664-93-9	13.9064	✓ ⊗ ⊕	250-036-137	250-036-139	250-036-141	250-036-143

PlasmaPURE Plus Accessories

Description	Catalog Number
PlasmaPURE Plus Top Dispenser, Replacement Base	250-036-500
PlasmaPURE Plus Top Dispenser*, Complete Unit	250-036-501



* Dispenser only for 500 ml, 1 L and 2 L sizes. Dispenses 0 - 5 ml of acids in 0.5 ml increments.

Applications

Pharmaceutical:

- Drug capsules contaminants

Nuclear Industry:

- Boiler water

Aerospace:

- Alloys, steel, metal powders, quartz, ceramics

Clinical, Biological:

- Tissues (liver, kidney), blood and blood products, Dental alloys and Implants

⊗ Glass Container
✓ Dangerous Goods*

⊕ Poison
⊕ Corrosive

⊕ Flammable
⊕ Oxidant

* as defined by :

• Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
• Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
• International Air Transport Association - Dangerous Goods Regulation, 40th Edition

DigiTUBEs - Disposable Digestion Vessels

- 50 ml graduation meeting Class "A" specifications for volumetric completion
- Made from virgin polypropylene - Ultra low metal content
- Replaces 5 vessels for convenience
 - Volumetric flasks
 - Digestion Tubes
 - Graduation cylinder
 - Autosampler tubes
 - Storage container



Calibration & Quality
Control Standards

PlasmaPURE

Acids

PlasmaPURE acids are manufactured with trace metals equal to or less than 1 ppb. Used for environmental and industrial applications in ICP-AES and flame atomic absorption spectroscopy.

- Complete with a Certificate of Analysis with lot number, expiry date, and maximum specification for over 60 analytes
 - Complete documentation for audit purposes
 - Available on-line at www.scpscience.com
- Refined for low level trace metal analysis
- 2 expiry dates (up to 3 years unopened and 15 months opened)
 - Long shelf life for unopened bottles



Always in Stock

Element	Assay	Molecular Weight	CAS Number	Merck Index	Code	500 ml cs/6	Catalog Number		
							2.5L cs/6	2.5L SC* cs/6	4L cs/4
Hydrochloric Acid	34-37% HCL	36.46	7647-01-0	13.4801	✓ ⑧ ⑩	250-037-113	250-037-115	250-037-117	250-037-119
Hydrofluoric Acid**	47-51% HF	20.01	7664-39-3	N/A	✓ ⑧	250-037-121	---	---	250-037-123
Nitric Acid	67-70% HNO ₃	63.01	7697-37-2	13.6608	✓ ⑧ ⑩ ⑤	250-037-129	250-037-131	250-037-133	---
Sulphuric Acid	94-98% H ₂ SO ₄	98.08	7664-93-9	13.9064	✓ ⑧ ⑩ ⑥	250-037-137	250-037-139	250-037-141	---

* Safety coated glass bottle

** Packaged in LDPE bottle

Applications

Environmental:

- Water, waste water effluents, air particulate and gases

Agriculture:

- Livestock feed, fertilizers, soil and plant tissue

Geology/Geoscience, Mineral Resources, Archaeology:

- Soil, rock, mineral, ice

Food, Beverage, Nutrition:

- Food additives

⑩ Glass Container
✓ Dangerous Goods*

⑥ Poison
⑧ Corrosive

③ Flammable
⑤ Oxidant

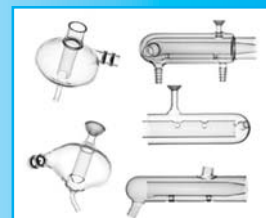
* as defined by :

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• Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
• International Air Transport Association - Dangerous Goods Regulation, 40th Edition

ICP Glassware

The latest innovations in ICP-AES and ICP-MS glassware and quartzware.

- Offer **NEW** and innovative products
 - Enhancing signal, lowering background noise, and improving detection limits
- Offering a complete product line of nebulizers, torches, and spray chambers



Certificate of Analysis:
PlasmaPURE Plus Acid

Certificate of Analysis

PlasmaPURE Plus

NITRIC ACID (67-70% HNO₃)

Catalogue Number: **250-036-131**
 Lot Number: **SC5NS01**
 Assay (HNO₃ w/w): **70%**
 Expiry Date: **January 2008**

Opened Bottle Expiry Information

15 months after opening, up to unopened expiration date

_____ Date bottle opened

Analyte	Maximum Specification	Actual Value (in ppt)	Analyte	Maximum Specification	Actual Value (in ppt)
Aluminum (Al)	20 ppt	<10	Neodymium (Nd)	1 ppt	< 0.05
Antimony (Sb)	10 ppt	<10	Nickel (Ni)	50 ppt	<10
Arsenic (As)	20 ppt	<10	Niobium (Nb)	1 ppt	<1
Barium (Ba)	10 ppt	<1	Palladium (Pd)	20 ppt	<10
Beryllium (Be)	10 ppt	<5	Platinum (Pt)	20 ppt	<1
Bismuth (Bi)	10 ppt	<0.1	Potassium (K)	10 ppt	<5
Boron (B)	20 ppt	<10	Praseodymium (pr)	1 ppt	<0.05
Cadmium (Cd)	10 ppt	<1	Rhenium (Re)	10 ppt	<1
Calcium (Ca)	20 ppt	<10	Rhodium (Rh)	10 ppt	<1
Cerium (Ce)	10 ppt	<0.05	Rubidium (Rb)	10 ppt	<1
Cesium (Cs)	10 ppt	<0.05	Ruthenium (Ru)	20 ppt	<10
Chromium (Cr)	20 ppt	<10	Samarium (Sm)	1 ppt	<0.01
Cobalt (Co)	10 ppt	<1	Scandium (Sc)	10 ppt	<20
Copper (Cu)	20 ppt	<3	Selenium (Se)	Information Only	<20
Dysprosium (Dy)	1 ppt	<0.01	Silver (Ag)	10 ppt	<2
Erbium (Er)	1 ppt	<0.01	Sodium (Na)	10 ppt	<5
Europium (Eu)	1 ppt	<0.01	Strontium (Sr)	10 ppt	<1
Gadolinium (Gd)	1 ppt	<0.01	Tantalum (Ta)	Information Only	<10
Gallium (Ga)	10 ppt	<1	Tellurium (Te)	1 ppt	<1
Germanium (Ge)	10 ppt	<1	Terbium (Tb)	1 ppt	<0.01
Gold (Au)	20 ppt	<10	Thallium (Tl)	10 ppt	<0.1
Hafnium (Hf)	10 ppt	<0.05	Thorium (Th)	1 ppt	<0.05
Holmium (Ho)	1 ppt	<0.01	Thulium (Tm)	1 ppt	<0.01
Indium (In)	1 ppt	<1	Tin (Sn)	20 ppt	<10
Iron (Fe)	20 ppt	<10	Titanium (Ti)	10 ppt	<10
Lanthanum (La)	1 ppt	<0.05	Tungsten (W)	10 ppt	<5
Lead (Pb)	10 ppt	<1	Uranium (U)	1 ppt	<0.01
Lithium (Li)	10 ppt	<1	Vanadium (V)	10 ppt	<1
Lutetium (Lu)	1 ppt	<0.01	Ytterbium (Yb)	1 ppt	<0.01
Magnesium (Mg)	10 ppt	<5	Yttrium (Y)	1 ppt	<1
Manganese (Mn)	10 ppt	<2	Zinc (Zn)	20 ppt	<5
Mercury (Hg)	100 ppt	<100	Zirconium (Zr)	10 ppt	<1
Molybdenum (Mo)	10 pt	<1			

Certified by: 
 Alketa Mixha, Chemist

Certification Date: **January 27, 2005**

To maintain product integrity and reduce the risk of trace metal contamination: the inner pack of plastic bags and bottle should be opened under CLASS 100 particle conditions to maintain the integrity of the product. The use of safety apparel, as well as eye protection, plastic gloves, hair net and a clean room suit is also advised. The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Ce certificat est également disponible en français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

SCP SCIENCE
 21800 Clark Graham, Baie D'Urfé, QC, Canada H9X 4B6
 Phone : (514) 457-0701 Fax : (514) 457-4499
 Web Site: www.spcscience.com



Calibration & Quality
Control Standards

Certificate of Analysis:

PlasmaPURE Acid

Certificate of Analysis

PlasmaPURE HYDROCHLORIC ACID (34-37% HCl)

Catalogue Number: **250-037-113**
 Lot Number: **SC5HS02**
 Assay (HCl w/w): **36%**
 Expiry Date: **January 2008**

Opened Bottle Expiry Information

15 months after opening, up to unopened expiration date

_____ Date bottle opened

Analyte	Maximum Specification	Actual Value (in ppb)	Analyte	Maximum Specification	Actual Value (in ppb)
Aluminum (Al)	1 ppb	<0.5	Neodymium (Nd)	0.5 ppb	<0.1
Antimony (Sb)	1 ppb	<0.1	Nickel (Ni)	1 ppb	<0.1
Arsenic (As)	1 ppb	<0.1	Niobium (Nb)	0.5 ppb	<0.1
Barium (Ba)	1 ppb	<0.1	Palladium (Pd)	Information Only	<1
Beryllium (Be)	1 ppb	<0.1	Platinum (Pt)	Information Only	<1
Bismuth (Bi)	1 ppb	<0.1	Potassium (K)	1 ppb	<0.1
Boron (B)	1 ppb	<0.5	Praseodymium (pr)	0.5 ppb	<0.1
Cadmium (Cd)	1 ppb	<0.1	Rhenium (Re)	0.5 ppb	<0.1
Calcium (Ca)	1 ppb	<0.5	Rhodium (Rh)	0.5 ppb	<0.1
Cerium (Ce)	0.5 ppb	<0.1	Rubidium (Rb)	0.5 ppb	<0.1
Cesium (Cs)	0.5 ppb	<0.1	Ruthenium (Ru)	0.5 ppb	<0.1
Chromium (Cr)	1 ppb	<0.1	Samarium (Sm)	0.5 ppb	<0.1
Cobalt (Co)	1 ppb	<0.1	Scandium (Sc)	0.5 ppb	<0.1
Copper (Cu)	1 ppb	<0.1	Selenium (Se)	1 ppb	<0.1
Dysprosium (Dy)	0.5 ppb	<0.1	Silver (Ag)	1 ppb	<0.1
Erbium (Er)	0.5 ppb	<0.1	Sodium (Na)	1 ppb	<0.5
Europium (Eu)	0.5 ppb	<0.1	Strontium (Sr)	1 ppb	<0.1
Gadolinium (Gd)	0.5 ppb	<0.1	Tantalum (Ta)	Information Only	<1
Gallium (Ga)	0.5 ppb	<0.1	Tellurium (Te)	0.5 ppb	<0.1
Germanium (Ge)	0.5 ppb	<0.1	Terbium (Tb)	0.5 ppb	<0.1
Gold (Au)	0.5 ppb	<0.1	Thallium (Tl)	0.5 ppb	<0.1
Hafnium (Hf)	0.5 ppb	<0.1	Thorium (Th)	1 ppb	<0.1
Holmium (Ho)	0.5 ppb	<0.1	Thulium (Tm)	0.5 ppb	<0.1
Indium (In)	0.5 ppb	<0.1	Tin (Sn)	1 ppb	<0.1
Iron (Fe)	1 ppb	<0.5	Titanium (Ti)	1 ppb	<0.1
Lanthanum (La)	0.5 ppb	<0.1	Tungsten (W)	0.5 ppb	<0.1
Lead (Pb)	1 ppb	<0.1	Uranium (U)	1 ppb	<0.1
Lithium (Li)	1 ppb	<0.1	Vanadium (V)	1 ppb	<0.1
Lutetium (Lu)	0.5 ppb	<0.1	Ytterbium (Yb)	0.5 ppb	<0.1
Magnesium (Mg)	1 ppb	<0.5	Yttrium (Y)	0.5 ppb	<0.1
Manganese (Mn)	1 ppb	<0.1	Zinc (Zn)	1 ppb	<0.5
Mercury (Hg)	1 ppb	<0.2	Zirconium (Zr)	1 ppb	<0.1
Molybdenum (Mo)	1 ppb	<0.1			

Certified by: 
 Alketa Mixha, Chemist

Certification Date: **January 27, 2005**

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Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

SCP SCIENCE

21800 Clark Graham, Baie D'Urfé, QC, Canada H9X 4B6
 Phone : (514) 457-0701 Fax : (514) 457-4499
 Web Site: www.scpscience.com



PlasmaCAL Single ICP-AES & MS Calibration Standards 1000 µg/ml

“The Best Quality at the Best Value” - is what defines *PlasmaCAL* Single Element Calibration Standards for ICP-AES and ICP-MS. *PlasmaCAL* Standards are directly traceable to National Institute of Standards and Technology (NIST). Our unique Standards Management Program included with each standard ensures that expiry dates are tracked.

- 2 expiry dates (up to 21 months unopened & 15 months opened)
 - Longer shelf life for unopened bottles
- Guaranteed to +/- 0.5% of actual concentration
 - Confidence in long-term stability and accuracy
- Calibration for testing using NIST 3100 Series
 - Direct traceability to NIST



Element	Symbol	Matrix	Code	Catalog Number		
				125 ml	250 ml 1000 µg/ml	500 ml
Aluminum	Al	HNO ₃	✓ ⑧	140-051-131	140-051-132	140-051-135
Aluminum	Al	HCl	✓ ⑧	140-052-131	140-052-132	140-052-135
Antimony	Sb	HNO ₃ *	✓ ⑧	140-051-511	140-051-512	140-051-515
Arsenic	As	HNO ₃	✓ ⑧	140-051-331	140-051-332	140-051-335
Barium	Ba	HNO ₃	✓ ⑧	140-051-561	140-051-562	140-051-565
Beryllium	Be	HNO ₃	✓ ⑧	140-051-041	140-051-042	140-051-045
Bismuth	Bi	HNO ₃	✓ ⑧	140-051-831	140-051-832	140-051-835
Boron	B	H ₂ O		140-050-051	140-050-052	140-050-055
Cadmium	Cd	HNO ₃	✓ ⑧	140-051-481	140-051-482	140-051-485
Calcium	Ca	HNO ₃	✓ ⑧	140-051-201	140-051-202	140-051-205
Cerium	Ce	HNO ₃	✓ ⑧	140-051-581	---	---
Cesium	Cs	HNO ₃	✓ ⑧	140-051-551	---	---
Chromium	Cr	HNO ₃	✓ ⑧	140-051-241	140-051-242	140-051-245
Chromium	Cr	HCl	✓ ⑧	140-052-241	140-052-242	140-052-245
Cobalt	Co	HNO ₃	✓ ⑧	140-051-271	140-051-272	140-051-275
Copper	Cu	HNO ₃	✓ ⑧	140-051-291	140-051-292	140-051-295
Dysprosium	Dy	HNO ₃	✓ ⑧	140-051-661	---	---
Erbium	Er	HNO ₃	✓ ⑧	140-051-681	---	---
Europium	Eu	HNO ₃	✓ ⑧	140-051-631	---	---
Gadolinium	Gd	HNO ₃	✓ ⑧	140-051-641	---	---
Gallium	Ga	HNO ₃	✓ ⑧	140-051-311	140-051-312	140-051-315
Germanium	Ge	H ₂ O		140-050-321	---	---
Gold	Au	HCl	✓ ⑧	140-052-791	140-052-792	140-052-795
Hafnium	Hf	HCl	✓ ⑧	140-052-721	---	---
Holmium	Ho	HNO ₃	✓ ⑧	140-051-671	---	---
Indium	In	HNO ₃	✓ ⑧	140-051-491	---	---

*Traces of tartaric acid

⊗ Glass Container
✓ Dangerous Goods*

Ⓢ Poison
Ⓢ Corrosive

Ⓢ Flammable
Ⓢ Oxidant

* as defined by :

• Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
• Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
• International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Calibration & Quality Control Standards

Did you get your 10-Pak?

- The 10-Pak* of ICP-AES or ICP-MS standards is a cost effective solution for your calibration standard requirements. Save over 10% with every order of ten 1000 µg/ml standards.

* The following elements are excluded from all special offers: Au, Ir, Lu, Os, Pd, Pt, Re, Rh, Ru, Sc & Tm



PlasmaCAL Single ICP-AES & MS Calibration Standards 1000 µg/ml

Element	Symbol	Matrix	Code	Catalog Number		
				125 ml	250 ml 1000 µg/ml	500 ml
Iridium	Ir	HCl	✓ ⑧	140-052-771	---	---
Iron	Fe	HNO ₃	✓ ⑧	140-051-261	140-051-262	140-051-265
Lanthanum	La	HNO ₃	✓ ⑧	140-051-571	---	---
Lead	Pb	HNO ₃	✓ ⑧	140-051-821	140-051-822	140-051-825
Lithium	Li	HNO ₃	✓ ⑧	140-051-031	140-051-032	140-051-035
Lutetium	Lu	HNO ₃	✓ ⑧	140-051-711	---	---
Magnesium	Mg	HNO ₃	✓ ⑧	140-051-121	140-051-122	140-051-125
Manganese	Mn	HNO ₃	✓ ⑧	140-051-251	140-051-252	140-051-255
Mercury	Hg	HNO ₃	✓ ⑧	140-051-801	140-051-802	140-051-805
Molybdenum	Mo	H ₂ O		140-050-421	140-050-422	140-050-425
Neodymium	Nd	HNO ₃	✓ ⑧	140-051-601	---	---
Nickel	Ni	HNO ₃	✓ ⑧	140-051-281	140-051-282	140-051-285
Niobium	Nb	HF	✓ ⑧	140-050-411	---	---
Osmium*	Os	HCl	✓ ⑧	140-052-761	---	---
Palladium	Pd	HCl	✓ ⑧	140-052-461	140-052-462	140-052-465
Phosphorus	P	H ₂ O		140-050-151	140-050-152	140-050-155
Platinum	Pt	HCl	✓ ⑧	140-052-781	140-052-782	140-052-785
Potassium	K	HNO ₃	✓ ⑧	140-051-191	140-051-192	140-051-195
Praseodymium	Pr	HNO ₃	✓ ⑧	140-051-591	---	---
Rhenium	Re	H ₂ O		140-050-751	---	---
Rhodium	Rh	HCl	✓ ⑧	140-052-451	---	---
Rubidium	Rb	HNO ₃	✓ ⑧	140-051-371	---	---
Ruthenium	Ru	HCl	✓ ⑧	140-052-441	---	---
Samarium	Sm	HNO ₃	✓ ⑧	140-051-621	---	---
Scandium	Sc	HNO ₃	✓ ⑧	140-051-211	140-051-212	140-051-215
Selenium	Se	HNO ₃	✓ ⑧	140-051-341	140-051-342	140-051-345
Silicon	Si	H ₂ O/tr. HF		140-050-141	140-050-142	140-050-145
Silver	Ag	HNO ₃	✓ ⑧	140-051-471	140-051-472	140-051-475
Sodium	Na	HNO ₃	✓ ⑧	140-051-111	140-051-112	140-051-115
Strontium	Sr	HNO ₃	✓ ⑧	140-051-381	140-051-382	140-051-385
Sulfur	S	H ₂ O		140-050-161	140-050-162	140-050-165
Tantalum	Ta	HF	✓ ⑧	140-050-731	---	---
Tellurium	Te	HCl	✓ ⑧	140-052-521	---	---
Terbium	Tb	HNO ₃	✓ ⑧	140-051-651	---	---
Thallium	Tl	HNO ₃	✓ ⑧	140-051-811	140-051-812	140-051-815
Thorium	Th	HNO ₃	✓ ⑧	140-051-901	---	---
Thulium	Tm	HNO ₃	✓ ⑧	140-051-691	---	---
Tin	Sn	HCl	✓ ⑧	140-052-501	140-052-502	140-052-505
Titanium	Ti	H ₂ O/tr. HF		140-050-221	140-050-222	140-050-225
Tungsten	W	H ₂ O		140-050-741	140-050-742	140-050-745
Uranium	U	HNO ₃	✓ ⑧	140-051-921	---	---
Vanadium	V	HNO ₃	✓ ⑧	140-051-231	140-051-232	140-051-235
Ytterbium	Yb	HNO ₃	✓ ⑧	140-051-701	---	---
Yttrium	Y	HNO ₃	✓ ⑧	140-051-391	140-051-392	140-051-395
Zinc	Zn	HNO ₃	✓ ⑧	140-051-301	140-051-302	140-051-305
Zirconium	Zr	HNO ₃	✓ ⑧	140-051-401	140-051-402	140-051-405

* Osmium (OS) has an expiry date of 12 months opened and 15 months unopened

⊗ Glass Container
✓ Dangerous Goods*

Ⓢ Poison
Ⓢ Corrosive

Ⓢ Flammable
Ⓢ Oxidant

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

PlasmaCAL Single ICP-AES & MS Calibration Standards 10 000 µg/ml

Element	Symbol	Matrix	Code	Catalog Number		
				125 ml	250 ml	500 ml
				10 000 µg/ml		
Aluminum	Al	HNO ₃	✓ ⊗	140-061-131	140-061-132	140-061-135
Aluminum	Al	HCl	✓ ⊗	140-062-131	140-062-132	140-062-135
Antimony	Sb	HNO ₃ *	✓ ⊗	140-061-511	140-061-512	140-061-515
Arsenic	As	HNO ₃	✓ ⊗	140-061-331	140-061-332	140-061-335
Barium	Ba	HNO ₃	✓ ⊗	140-061-561	140-061-562	140-061-565
Beryllium	Be	HNO ₃	✓ ⊗	140-061-041	140-061-042	140-061-045
Bismuth	Bi	HNO ₃	✓ ⊗	140-061-831	140-061-832	140-061-835
Boron	B	H ₂ O		140-060-051	140-060-052	140-060-055
Cadmium	Cd	HNO ₃	✓ ⊗	140-061-481	140-061-482	140-061-485
Calcium	Ca	HNO ₃	✓ ⊗	140-061-201	140-061-202	140-061-205
Cerium	Ce	HNO ₃	✓ ⊗	140-061-581	---	---
Cesium	Cs	HNO ₃	✓ ⊗	140-061-551	---	---
Chromium	Cr	HNO ₃	✓ ⊗	140-061-241	140-061-242	140-061-245
Chromium	Cr	HCl	✓ ⊗	140-062-241	140-062-242	140-062-245
Cobalt	Co	HNO ₃	✓ ⊗	140-061-271	140-061-272	140-061-275
Copper	Cu	HNO ₃	✓ ⊗	140-061-291	140-061-292	140-061-295
Dysprosium	Dy	HNO ₃	✓ ⊗	140-061-661	---	---
Erbium	Er	HNO ₃	✓ ⊗	140-061-681	---	---
Europium	Eu	HNO ₃	✓ ⊗	140-061-631	---	---
Gadolinium	Gd	HNO ₃	✓ ⊗	140-061-641	---	---
Gallium	Ga	HNO ₃	✓ ⊗	140-061-311	140-061-312	140-061-315
Germanium	Ge	H ₂ O		140-060-321	---	---
Gold	Au	HCl	✓ ⊗	140-062-791	140-062-792	140-062-795
Hafnium	Hf	HCl	✓ ⊗	140-062-721	---	---
Holmium	Ho	HNO ₃	✓ ⊗	140-061-671	---	---
Indium	In	HNO ₃	✓ ⊗	140-061-491	---	---
Iridium	Ir	HCl	✓ ⊗	140-062-771	---	---
Iron	Fe	HNO ₃	✓ ⊗	140-061-261	140-061-262	140-061-265
Lanthanum	La	HNO ₃	✓ ⊗	140-061-571	---	---
Lead	Pb	HNO ₃	✓ ⊗	140-061-821	140-061-822	140-061-825
Lithium	Li	HNO ₃	✓ ⊗	140-061-031	140-061-032	140-061-035
Magnesium	Mg	HNO ₃	✓ ⊗	140-061-121	140-061-122	140-061-125
Manganese	Mn	HNO ₃	✓ ⊗	140-061-251	140-061-252	140-061-255
Mercury	Hg	HNO ₃	✓ ⊗	140-061-801	140-061-802	140-061-805
Molybdenum	Mo	H ₂ O		140-060-421	140-060-422	140-060-425
Neodymium	Nd	HNO ₃	✓ ⊗	140-061-601	---	---
Nickel	Ni	HNO ₃	✓ ⊗	140-061-281	140-061-282	140-061-285
Niobium	Nb	HF	✓ ⊗	140-060-411	---	---
Palladium	Pd	HCl	✓ ⊗	140-062-461	140-062-462	140-062-465
Phosphorus	P	H ₂ O		140-060-151	140-060-152	140-060-155
Potassium	K	HNO ₃	✓ ⊗	140-061-191	140-061-192	140-061-195
Praseodymium	Pr	HNO ₃	✓ ⊗	140-061-591	---	---

* Traces of tartaric acid

⊗ Glass Container
✓ Dangerous Goods*

⊕ Poison
⊗ Corrosive

⊕ Flammable
⊕ Oxidant

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Calibration & Quality
Control Standards

PlasmaCAL Single ICP-AES & MS Calibration Standards 10 000 µg/ml

Element	Symbol	Matrix	Code	Catalog Number		
				125 ml	250 ml	500 ml
Rhodium	Rh	HCl	✓ Ⓢ	140-062-451	---	---
Rubidium	Rb	HNO ₃	✓ Ⓢ	140-061-371	---	---
Ruthenium	Ru	HCl	✓ Ⓢ	140-062-441	---	---
Samarium	Sm	HNO ₃	✓ Ⓢ	140-061-621	---	---
Scandium	Sc	HNO ₃	✓ Ⓢ	140-061-211	140-061-212	140-061-215
Selenium	Se	HNO ₃	✓ Ⓢ	140-061-341	140-061-342	140-061-345
Silicon	Si	H ₂ O/tr. HF		140-060-141	140-060-142	140-060-145
Silver	Ag	HNO ₃	✓ Ⓢ	140-061-471	140-061-472	140-061-475
Sodium	Na	HNO ₃	✓ Ⓢ	140-061-111	140-061-112	140-061-115
Strontium	Sr	HNO ₃	✓ Ⓢ	140-061-381	140-061-382	140-061-385
Sulfur	S	H ₂ O		140-060-161	140-060-162	140-060-165
Tantalum	Ta	HF	✓ Ⓢ	140-060-731	---	---
Tellurium	Te	HCl	✓ Ⓢ	140-062-521	---	---
Terbium	Tb	HNO ₃	✓ Ⓢ	140-061-651	---	---
Thallium	Tl	HNO ₃	✓ Ⓢ	140-061-811	140-061-812	140-061-815
Thorium	Th	HNO ₃	✓ Ⓢ	140-061-901	---	---
Thulium	Tm	HNO ₃	✓ Ⓢ	140-061-691	---	---
Tin	Sn	HCl	✓ Ⓢ	140-062-501	140-062-502	140-062-505
Titanium	Ti	H ₂ O/tr. HF		140-060-221	140-060-222	140-060-225
Uranium	U	HNO ₃	✓ Ⓢ	140-061-921	---	---
Vanadium*	V	HNO ₃	✓ Ⓢ	140-061-231	140-061-232	140-061-235
Ytterbium	Yb	HNO ₃	✓ Ⓢ	140-061-701	---	---
Yttrium	Y	HNO ₃	✓ Ⓢ	140-061-391	140-061-392	140-061-395
Zinc	Zn	HNO ₃	✓ Ⓢ	140-061-301	140-061-302	140-061-305
Zirconium	Zr	HNO ₃	✓ Ⓢ	140-061-401	140-061-402	140-061-405

* Vanadium (V) has an expiry date of 12 months opened and 15 months unopened

Single ICP-AES & MS Calibration Standards 50 000 µg/ml

Element	Symbol	Matrix	Code	Catalog Number
				125 ml 50 000 µg/ml
Calcium	Ca	HNO ₃	✓ Ⓢ	140-041-201
Magnesium	Mg	HNO ₃	✓ Ⓢ	140-041-121
Potassium	P	HNO ₃	✓ Ⓢ	140-041-191
Sodium	Na	HNO ₃	✓ Ⓢ	140-041-111

Glass Container
Dangerous Goods*

Ⓢ Poison
Ⓢ Corrosive

Ⓢ Flammable
Ⓢ Oxidant

* as defined by :

• Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
• Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
• International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Did you get your 10-Pak?

- The 10-PAK of ICP-AES/MS Standards is a cost effective solution for your calibration standard requirements. Save over 10% with every order of ten 1000 µg/ml standards
- The following elements are excluded from all special offers: Au, Ir, Lu, Os, Pd, Pt, Re, Rh, Ru, Sc, & Tm



Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

PlasmaCAL Multi-Element Standards for Environmental Protection Agency (EPA) & the Contract Laboratory Program (CLP) provide an economical alternative to preparing in-house multi-element standards. Available for a range of prescribed methods and in multiple volumes.

- Designed specifically for EPA 200.7, 200.8, 6010 and Superfund CLP
 - Save money and time in preparation
- Available in various sizes (100, 250 & 500 ml)
 - Save by buying only what is required
- Complete Certificates of Analysis listing actual concentrations and traceability to NIST
 - Complete documentation for audit purposes



** Note: Some manufacturers may list the same Multi-Element Standard with different element concentrations. Ask your Representative or local distributor about our Custom Multi-Element Standards where most combinations of elements and concentrations are possible.*

Quality Control Standards

Quality Control Standard 1 (QC 19)

Element	Concentration
Sb	100 µg/ml
As	100 µg/ml
Be	100 µg/ml
Cd	100 µg/ml
Ca	100 µg/ml
Cr	100 µg/ml
Co	100 µg/ml
Cu	100 µg/ml
Fe	100 µg/ml
Pb	100 µg/ml
Mg	100 µg/ml
Mn	100 µg/ml
Mo	100 µg/ml
Ni	100 µg/ml
Se	100 µg/ml
Tl	100 µg/ml
Ti	100 µg/ml
V	100 µg/ml
Zn	100 µg/ml

Matrix: 5% HNO₃

Catalog Number	Code	Volume
140-102-011	✓ Ⓢ	100 ml
140-102-012	✓ Ⓢ	250 ml
140-102-015	✓ Ⓢ	500 ml

Quality Control Standard 2 (QC 7)

Element	Concentration
Al	100 µg/ml
Ba	100 µg/ml
B	100 µg/ml
K	1000 µg/ml
Si	50 µg/ml
Ag	100 µg/ml
Na	100 µg/ml

Matrix: 5% HNO₃

Catalog Number	Code	Volume
140-102-021	✓ Ⓢ	100 ml
140-102-022	✓ Ⓢ	250 ml
140-102-025	✓ Ⓢ	500 ml

Quality Control Set (includes one of QC-1 & QC-2)

Catalog Number	Code	Volume
140-102-031	✓ Ⓢ	100 ml
140-102-032	✓ Ⓢ	250 ml
140-102-035	✓ Ⓢ	500 ml

Calibration & Quality Control Standards

⊗ Glass Container
✓ Dangerous Goods*

Ⓢ Poison
Ⓢ Corrosive

Ⓢ Flammable
Ⓢ Oxidant

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

Quality Control Standard 3 (QC 21)

Element	Concentration
Sb	100 µg/ml
As	100 µg/ml
Be	100 µg/ml
Cd	100 µg/ml
Ca	100 µg/ml
Cr	100 µg/ml
Co	100 µg/ml
Cu	100 µg/ml
Fe	100 µg/ml
Pb	100 µg/ml
Li	100 µg/ml
Mg	100 µg/ml
Mn	100 µg/ml
Mo	100 µg/ml
Nit	100 µg/ml
Se	100 µg/ml
Sr	100 µg/ml
Tl	100 µg/ml
Ti	100 µg/ml
V	100 µg/ml
Zn	100 µg/ml

Matrix: 5% HNO₃

Catalog Number	Code	Volume
140-102-051	✓ Ⓢ	100 ml
140-102-052	✓ Ⓢ	250 ml
140-102-055	✓ Ⓢ	500 ml

Quality Control Standard 4 (QC 26)

Element	Concentration
Al	100 µg/ml
Sb	100 µg/ml
As	100 µg/ml
B	100 µg/ml
Ba	100 µg/ml
Be	100 µg/ml
Ca	100 µg/ml
Cd	100 µg/ml
Co	100 µg/ml
Cr	100 µg/ml
Cu	100 µg/ml
Fe	100 µg/ml
K	1000 µg/ml
Mg	100 µg/ml
Mn	100 µg/ml
Mo	100 µg/ml
Na	100 µg/ml
Ni	100 µg/ml
Pb	100 µg/ml
Ag	100 µg/ml
Se	100 µg/ml
Si	50 µg/ml
Ti	100 µg/ml
Tl	100 µg/ml
V	100 µg/ml
Zn	100 µg/ml

Matrix: 5% HNO₃

Catalog Number	Code	Volume
140-102-041	✓ Ⓢ	100 ml
140-102-042	✓ Ⓢ	250 ml
140-102-045	✓ Ⓢ	500 ml

⊗ Glass Container
✓ Dangerous Goods*

Ⓢ Poison
Ⓢ Corrosive

Ⓢ Flammable
Ⓢ Oxidant

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Bonus Custom Standards Offer!!

- With the purchase of every 500 ml bottle of custom ICP AES/MS standard, receive an additional 500 ml of the same multi-element standard at 1/2 price!
- Larger volume discounts also available



Instrument Control Kit - PlasmaTEST ICP-MS

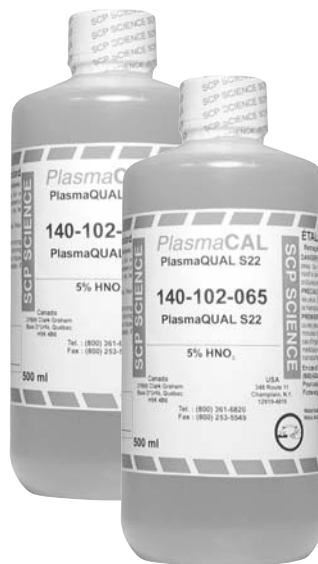
- Perfect for instrument compliance auditing
- A single product providing instrument testing QC for ICP-MS
- Monitor and document 14 different instrument parameters
- Detect operational & mechanical problems before analytical errors occur



Instrument Calibration Standards

PlasmaQUAL S22

Element	Concentration
Al	100 µg/ml
As	1000 µg/ml
Ba	10 µg/ml
Ca	10 µg/ml
Cd	100 µg/ml
Co	100 µg/ml
Cr	100 µg/ml
Cu	100 µg/ml
Fe	100 µg/ml
K	1000 µg/ml
Li	10 µg/ml
Mg	10 µg/ml
Mn	100 µg/ml
Na	100 µg/ml
Ni	100 µg/ml
Pb	100 µg/ml
Se	1000 µg/ml
Sr	10 µg/ml
Ti	10 µg/ml
Tl	1000 µg/ml
V	100 µg/ml
Zn	100 µg/ml



SCP-28-AES for Thermo® ICP-AES

Catalog Number	Volume	Code
140-102-061	100 ml	✓ ⑧
140-102-062	250 ml	✓ ⑧
140-102-065	500 ml	✓ ⑧

Concentration	Code	Catalog Number	
		125 ml	500 ml
100ppm	✓ ⑧	140-130-301	140-130-305

Matrix: 5% HNO₃
 Element Blend Containing: Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sr, Ti, Tl, V, Zn

SCP-11-MS for Thermo® and PE ICP-MS

Concentration	Code	Catalog Number	
		125 ml	500 ml
10ppm	✓ ⑧	140-130-331	140-130-335

Matrix: 5% HNO₃
 Element Blend Containing: Ba, Be, Ce, Co, In, K, Li, Mg, Pb, Rh, U

SCP-33-MS for Thermo® and PE ICP-MS

Concentration	Code	Catalog Number	
		125 ml	500 ml
10ppm	✓ ⑧	140-130-321	140-130-325

Matrix: 5% HNO₃
 Element Blend Containing: Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cu, Fe, K, La, Li, Mg, Mn, Mo, Na, Ni, Pb, Rb, Sb, Se, Sn, Sr, Ti, Tl, U, V, Zn

- ⊗ Glass Container
- ✓ Dangerous Goods*
- ⑧ Poison
- ⑨ Corrosive
- ③ Flammable
- ⑤ Oxidant

* as defined by :

- * Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
- * Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
- * International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Calibration & Quality Control Standards

Free Standards Management Program

- Accurately track the expiry dates of your standards
- An invaluable tool when compliance auditing of standards is required
- Free with any PlasmaCAL standards order



Instrument Calibration Standards

Wavecal Standard I for PE 40, 400, 1000, & 2000

Element	Concentration
Al	20 µg/ml
K	100 µg/ml
La	20 µg/ml
Li	20 µg/ml
Mn	20 µg/ml
Mo	20 µg/ml
Na	20 µg/ml
Ni	20 µg/ml
P	100 µg/ml
S	100 µg/ml
Sc	20 µg/ml

Matrix: 2% HNO₃

Catalog Number	Volume	Code
140-128-111	100 ml	✓ ③
140-128-112	250 ml	✓ ③
140-128-115	500 ml	✓ ③

Wavecal Standard II for PE 6000, 6500(XR)

Element	Concentration
Ba	50 µg/ml
Be	20 µg/ml
La	20 µg/ml
Mn	20 µg/ml
Ni	20 µg/ml
Sc	20 µg/ml
Zn	20 µg/ml

Matrix: 2% HNO₃

Catalog Number	Volume	Code
140-128-141	100 ml	✓ ③
140-128-142	250 ml	✓ ③
140-128-145	500 ml	✓ ③

Wavecal Standard III for Optima 3000

Element	Concentration
Ba	1 µg/ml
Ca	1 µg/ml
K	50 µg/ml
La	10 µg/ml
Li	10 µg/ml
Mn	10 µg/ml
Na	10 µg/ml
Sr	10 µg/ml

Matrix: 2% HNO₃

Catalog Number	Volume	Code
140-128-231	100 ml	✓ ③
140-128-232	250 ml	✓ ③
140-128-235	500 ml	✓ ③

SCP-12-AES for Thermo® IRIS Tuning Solution

Concentration	Code	Catalog Number	
		125 ml	500 ml
100ppm	✓ ③	140-130-311	140-130-315

Matrix: 5% HNO₃
Element Blend Containing: Al, As, Ba, Cd, Cu, K, Mn, Pb, S, Se, Ti, Zn

*Note: Ba = 10ppm

SCP-14-AES for Varian® Vista Tuning Solution

Concentration	Code	Catalog Number	
		125 ml	500 ml
50ppm	✓ ③	140-130-341	140-130-345

Matrix: 5% HNO₃
Element Blend Containing: Al, As, Ba, Cd, Co, Cr, Mn, Mo, Ni, Pb, Se, Sr, Zn, K*

*Note: K = 500ppm

SCP-15-AES for Varian® Vista Tuning Solution

Concentration	Code	Catalog Number	
		125 ml	500 ml
50ppm		140-130-351	140-130-355

Matrix: 5% HNO₃
Element Blend Containing: Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn, K*

*Note: K = 500ppm

Reprofiling Solution for Spectro CIROS

Element	Concentration
Fe	10 µg/ml
K	10 µg/ml
La	10 µg/ml
Mg	5 µg/ml
Mn	5 µg/ml
P	10 µg/ml
S	50 µg/ml
Sc	10 µg/ml
Ti	10 µg/ml

Matrix: 5% HCl / 2% HNO₃

Catalog Number	Volume	Code
140-128-201	100 ml	✓ ③
140-128-202	250 ml	✓ ③
140-128-205	500 ml	✓ ③

① Glass Container
✓ Dangerous Goods*

② Poison
④ Corrosive

③ Flammable
⑤ Oxidant

* as defined by :

① Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
② Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
③ International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Certificate of Analysis:
ICP-AES & MS Single Element Standard

Certificate of Analysis **Mg**

Catalogue Number : 140-051-121 / 140-051-122 / 140-051-125
 Description : PlasmaCAL Standard - Magnesium 1000 µg/ml
 Starting Material : Magnesium Metal 99.99%
 Lot Number : SC4363253
 Expiration Date : October 2006
 (Unopened Bottle)

Opened Bottle Expiry Information

15 months after opening, up to unopened expiration date

_____ Date bottle opened

Analysis of Solution Standard by Inductively Coupled Plasma Spectroscopy (ICP-AES) traceable to NIST Standard Reference Material 3131a.

Actual Concentration : **1004 µg/ml**
 Matrix : **4% HNO₃**
 Density : **1.021 g/ml @ 21.8 °C**

Trace Metallic Impurities

1. Starting Material

Element	Conc. (ppm)
Al, Fe, Si, Zn	5-15
Cu, Mn	5-10

2. Final Solution

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	< 0.005	Ho	< 0.006	S	*		
Al	< 0.013	In	< 0.034	Sb	< 0.029		
As	< 0.001	Ir	< 0.016	Sc	< 0.002		
Au	< 0.004	K	< 0.093	Se	< 0.027		
B	< 0.017	La	< 0.004	Si	< 0.005		
Ba	< 0.0005	Li	< 0.003	Sm	< 0.003		
Be	< 0.001	Lu	< 0.0006	Sn	< 0.037		
Bi	< 0.026	Mg	N/A	Sr	< 0.001		
Ca	0.014	Mn	0.019	Ta	< 0.013		
Cd	< 0.003	Mo	< 0.016	Tb	< 0.006		
Ce	< 0.019	Na	< 0.011	Te	< 0.014		
Co	< 0.007	Nb	< 0.009	Th	< 0.012		
Cr	< 0.004	Nd	< 0.018	Ti	< 0.001		
Cs	*	Ni	< 0.006	Tl	< 0.013		
Cu	< 0.0003	Os	*	Tm	< 0.007		
Dy	< 0.004	P	< 0.034	U	< 0.137		
Er	< 0.008	Pb	< 0.041	V	< 0.001		
Eu	< 0.002	Pd	< 0.007	W	< 0.015		
Fe	< 0.002	Pr	< 0.213	Y	< 0.003		
Ga	< 0.011	Pt	< 0.017	Yb	< 0.0008		
Gd	< 0.003	Rb	< 0.027	Zn	0.024		
Ge	< 0.011	Re	< 0.004	Zr	< 0.007		
Hf	< 0.025	Rh	< 0.024				
Hg	*	Ru	< 0.008				

Certified by : 
 Alketa Mixha, Chemist

Certification Date : **January 19, 2005**

This ICP-AES & ICP-MS Standard is guaranteed to be stable and accurate to within ± 0.5% of the actual concentration up to the unopened expiry date, if sealed, or 15 months after opening, up to the unopened expiry date, provided the solution is kept tightly capped and stored under normal laboratory conditions. For these solutions, 18 megohm/cm double deionized water, high-purity acids, Class A glassware and acid-cleaned bottles are used. The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Ce certificat est également disponible en français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

SCP SCIENCE
 21800 Clark Graham, Baie D'Urfé, QC, Canada H9X 4B6
 Phone : (514) 457-0701 Fax : (514) 457-4499
 Web Site : www.scpscience.com



Calibration & Quality
Control Standards

Certificate of Analysis: ICP-AES & MS Quality Control Standard

Certificate of Analysis

Catalogue Number : **140-102-051/140-102-052/140-102-055**
 Description : **PlasmaCAL- Q.C. Standard 3**
 Lot Number : **SC4365281**
 Expiration Date : **April 2006**

Analysis of Solution Standard by Inductively Coupled Plasma Spectroscopy (ICP-AES) traceable to NIST Standard Reference Materials : 3103a, 3105a, 3109a, 3108, 3113, 3112a, 3114, 3126a, 3129a, 3131a, 3132, 3134, 3136, 3128, 3102a, 3149, 3153a, 3162a, 3158, 3165, 3168a

Actual Concentrations

As :	100.5 µg/ml	Fe :	100.9 µg/ml	Sb :	101.0 µg/ml
Be :	99.8 µg/ml	Li :	100.5 µg/ml	Se :	100.1 µg/ml
Ca :	100.8 µg/ml	Mg :	101.0 µg/ml	Sr :	100.9 µg/ml
Cd :	100.3 µg/ml	Mn :	100.8 µg/ml	Ti :	100.7 µg/ml
Co :	100.7 µg/ml	Mo :	100.7 µg/ml	Tl :	100.3 µg/ml
Cr :	100.3 µg/ml	Ni :	100.5 µg/ml	V :	100.2 µg/ml
Cu :	99.4 µg/ml	Pb :	100.6 µg/ml	Zn :	100.4 µg/ml

Matrix : **5% HNO₃**

Certified by : 
 Alketa Mixha, Chemist

Certification Date : **January 13, 2005**

This ICP-AES & ICP-MS Standard is guaranteed to be stable and accurate to within plus or minus 1.0% of the actual concentration up to the expiry date, provided the solution is kept tightly capped and stored under normal laboratory conditions. For these solutions, 18 megohm/cm double deionized water, high-purity acids, Class A glassware and acid-cleaned bottles are used. The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Ce certificat est également disponible en français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

SCP SCIENCE

21800 Clark Graham, Baie D'Urfé, QC, Canada H9X 4B6
 Phone : (514) 457-0701 Fax : (514) 457-4499
 Web Site : www.scpscience.com



**Certificate of Analysis:
ICP-AES & MS Custom Multi Standard**

Certificate of Analysis

Catalogue Number : **901-6A8-102**
 Description : **PlasmaCAL - Multi-Element Standard**
 Lot Number : **SC5026493**
 Expiration Date : **February 2006**

Analysis of Solution Standard by Inductively Coupled Plasma Spectroscopy (ICP-AES) traceable to NIST Standard Reference Materials : 3151, 3101a, 3103a, 3107, 3104a, 3105a, 3106, 3109a, 3108, 3113, 3112a, 3114, 3126a, 3119a, 3141a, 3127a, 3129a, 3131a, 3132, 3134, 3152a, 3136, 3128, 3102a, 3149, 3153a, 3159, 3162a, 3158, 3165, 3168a

Actual Concentrations

Ag :	9.94 µg/ml	Cu :	9.95 µg/ml	Pb :	10.08 µg/ml
Al :	9.97 µg/ml	Fe :	10.03 µg/ml	Sb :	10.09 µg/ml
As :	10.06 µg/ml	Ga :	9.99 µg/ml	Se :	9.92 µg/ml
B :	10.05 µg/ml	K :	10.01 µg/ml	Sr :	10.04 µg/ml
Ba :	9.97 µg/ml	La :	9.97 µg/ml	Th :	9.98 µg/ml
Be :	9.90 µg/ml	Li :	10.01 µg/ml	Ti :	10.00 µg/ml
Bi :	10.03 µg/ml	Mg :	10.00 µg/ml	Tl :	9.99 µg/ml
Ca :	9.97 µg/ml	Mn :	10.05 µg/ml	V :	9.96 µg/ml
Cd :	9.98 µg/ml	Mo :	9.98 µg/ml	Zn :	9.98 µg/ml
Co :	9.90 µg/ml	Na :	10.01 µg/ml		
Cr :	9.94 µg/ml	Ni :	9.97 µg/ml		

Matrix : **5% HNO₃**

Certified by : 

 Alketa Mixha, Chemist

Certification Date : **February 3, 2005**

This ICP-AES & ICP-MS Standard is guaranteed to be stable and accurate to within plus or minus 1.0% of the actual concentration up to the expiry date, provided the solution is kept tightly capped and stored under normal laboratory conditions. For these solutions, 18 megohm/cm double deionized water, high-purity acids, Class A glassware and acid-cleaned bottles are used. The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Ce certificat est également disponible en français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

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 Web Site: www.scpscience.com



**Calibration & Quality
Control Standards**

PlasmaCAL Single Element Standards Quote Request Form

Complete this form to place an order or to receive a quotation for your specific *PlasmaCAL* Single Element Standard. Photocopy for use with multiple requests.

Contact Information:

Name: _____
 Title: _____
 Company: _____
 Mailing Address: _____
 City: _____ Province/State: _____ PC/Zip: _____ Country: _____
 Telephone: _____ Fax: _____
 E-mail: _____ Account No: _____

Please indicate the element, volume and concentration required:

Calibration & Quality Control Standards

	125 ml	250 ml	500 ml	1000 µg/ml	10 000 µg/ml		125 ml	250 ml	500 ml	1000 µg/ml	10 000 µg/ml		125 ml	250 ml	500 ml	1000 µg/ml	10 000 µg/ml
Al Aluminum (HNO ₃)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hg Mercury	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S Sulfur	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Al Aluminum (HCl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ho Holmium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sb Antimony	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ag Silver	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	In Indium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sc Scandium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
As Arsenic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ir Iridium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Se Selenium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Au Gold	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	K Potassium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Si Silicon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B Boron	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	La Lanthanum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sm Samarium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ba Barium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Li Lithium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sn Tin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Be Beryllium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lu Lutetium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sr Strontium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bi Bismuth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mg Magnesium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ta Tantalum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ca Calcium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mn Manganese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tb Terbium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cd Cadmium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mo Molybdenum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Te Tellurium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ce Cerium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Na Sodium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Th Thorium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Co Cobalt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Nb Niobium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ti Titanium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cr Chromium (HNO ₃)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Nd Neodymium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tl Thallium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cr Chromium (HCl)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ni Nickel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tm Thulium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cs Cesium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Os Osmium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	U Uranium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cu Copper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	P Phosphorus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	V Vanadium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dy Dysprosium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pb Lead	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	W Tungsten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Er Erbium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pd Palladium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Y Yttrium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eu Europium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pr Praseodymium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Yb Ytterbium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fe Iron	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pt Platinum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Zn Zinc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ga Gallium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Rb Rubidium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Zr Zirconium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gd Gadolinium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Re Rhenium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Ge Germanium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Rh Rhodium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Hf Hafnium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ru Ruthenium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						

Fax form back to:

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Canada / International
Europe

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(800) 253-5549 / (514) 457-4499
+33 (0)1 60 92 05 67

PlasmaCAL Custom
Standard Quote Request Form

Complete this form to receive a quotation for your specific Custom Multi-Element Standard. Purchase 500 ml of a custom standard and receive an additional 500 ml bottle of the same standard at 1/2 price. Photocopy for use with multiple requests.

Contact Information:

Name: _____
 Title: _____
 Company: _____
 Mailing Address: _____
 City: _____ Province/State: _____ PC/Zip: _____ Country: _____
 Telephone: _____ Fax: _____
 E-mail: _____ Account No: _____

Please indicate the concentration µg/ml (ppm) required for each element:

Al	Aluminum	In	Indium	Sc	Scandium
Ag	Silver	Ir	Iridium	Se	Selenium
As	Arsenic	K	Potassium	Si	Silicon
Au	Gold	La	Lanthanum	Sm	Samarium
B	Boron	Li	Lithium	Sn	Tin
Ba	Barium	Lu	Lutetium	Sr	Strontium
Be	Beryllium	Mg	Magnesium	Ta	Tantalum
Bi	Bismuth	Mn	Manganese	Tb	Terbium
Ca	Calcium	Mo	Molybdenum	Te	Tellurium
Cd	Cadmium	Na	Sodium	Th	Thorium
Ce	Cerium	Nb	Niobium	Ti	Titanium
Co	Cobalt	Nd	Neodymium	Tl	Thallium
Cr	Chromium	Ni	Nickel	Tm	Thulium
Cs	Cesium	Os	Osmium	U	Uranium
Cu	Copper	P	Phosphorus	V	Vanadium
Dy	Dysprosium	Pb	Lead	W	Tungsten
Er	Erbium	Pd	Palladium	Y	Yttrium
Eu	Europium	Pr	Praseodymium	Yb	Ytterbium
Fe	Iron	Pt	Platinum	Zn	Zinc
Ga	Gallium	Rb	Rubidium	Zr	Zirconium
Gd	Gadolinium	Re	Rhenium		
Ge	Germanium	Rh	Rhodium	Matrix Required:	_____
Hf	Hafnium	Ru	Ruthenium	Rate of Use (L/yr):	_____
Hg	Mercury	S	Sulfur	Special Requirements:	_____
Ho	Holmium	Sb	Antimony	Custom Name:	_____

Calibration & Quality Control Standards

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Certified Reference Materials

EnviroMAT™ & AgroMAT™

EnviroMAT™ & AgroMAT™ Certified Reference Materials (CRM) can be an invaluable component of any laboratory quality control program. Consensus certification removes any chance of analytical bias. A wide range of matrices are available.



- Each CRM is certified through a round-robin study employing specific methods of analysis
 - Independent verification from multiple laboratories
- Includes Certificate of Analysis listing Consensus Values, Confidence and Tolerance Intervals, and Instructions for Use
 - Complete documentation for audit purposes
- Each SCP SCIENCE CRM is economically priced



EnviroMAT™ Standards	Symbol	Code	Quantity	Catalog Number
Soil, Contaminated	SS-1		100 g	140-025-001
Soil, Contaminated	SS-2		100 g	140-025-002
Sludge, Sewage	BE-1		50 g	140-025-011
Water, Drinking, Low Level, Concentrate	EP-L-1	✓ ⑧	250 ml	140-025-031
Water, Drinking, High Level, Concentrate	EP-H-1	✓ ⑧	250 ml	140-025-032
Water, Drinking, High & Low	SET	✓ ⑧	250 ml	140-025-030
Water, Ground, Low Level, Concentrate	ES-L-1	✓ ⑧	250 ml	140-025-034
Water, Ground, High Level, Concentrate	ES-H-1	✓ ⑧	250 ml	140-025-035
Water, Ground, High & Low	SET	✓ ⑧	250 ml	140-025-033
Water, Waste, Low Level, Concentrate	EU-L-1	✓ ⑧	250 ml	140-025-037
Water, Waste, High Level, Concentrate	EU-H-1	✓ ⑧	250 ml	140-025-038
Water, Waste, High & Low	SET	✓ ⑧	250 ml	140-025-036
Oil, Used	HU-1		125 ml	140-025-041

AgroMAT™ Standards	Symbol	Code	Quantity	Catalog Number
Soil, Clay	AG-1		175 g	140-025-101
Soil, Sandy	AG-2		175 g	140-025-102
Compost	CP-1		100 g	140-025-111

⊗ Glass Container

Ⓢ Poison

Ⓣ Flammable

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R

* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000

* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

✓ Dangerous Goods*

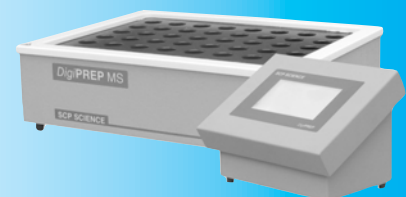
Ⓢ Corrosive

Ⓣ Oxidant

DigiPREP MS - Soil Testing Solutions

An acid resistant digestion system for multiple digestion applications:

- Complete with programmable digital controller
- 48 sample tube capacity, ideal for EPA 3000 Series digestions
- Optional DigiPROBE for improved accuracy in sample temperature control



"Speak when you are angry and you will make the best speech you will ever regret." -Ambrose Bierce-

Certificate of Analysis

General Information

Sewage Sludge
Certified Reference Material BE-1

Sample

Organization responsible for the certification:

SCP SCIENCE
Manufacturing Division
21800 Clark Graham
Baie d'Urfé, QC, Canada
H9X 4B6

Date of receipt : _____

Ph: (514) 457-0701

Fax: (514) 457-4499

Date of initial Certification: September 29, 1999
Date of last Verification: February 8, 2005

Description:

The Reference Standard BE-1 is a natural sewage sludge (not spiked or fortified) with a particle size of -200 mesh. It is designed to be used for quality control verification, internal standards validation or methods development for the analysis of the listed parameters using the indicated methods.

This certification is valid for 12 months from the shipping date or 24 months after the verification date, whichever comes first, provided the material is kept tightly capped and stored under normal laboratory conditions. **SCP SCIENCE** will monitor the stability of representative samples annually and, if any changes occur that invalidate this certification, **SCP SCIENCE** will notify purchasers.

Certificate of Analysis: EnviroMAT™ Example

Directions:

Before weighing, mix the material by shaking the container to avoid segregation in the bottle. In order to have a representative sample, the minimum use quantity must be 250 mg to conform with previous homogeneity testing. The procedure used for digestion is based on the EPA 3050 Method ie. strong acid digest. Do not use a total digestion procedure. The results are on a dry weight basis so you need to dry the material at 105 °C to constant weight before weighing.

Preparation method:

The initial sample has been dried and crushed. The “fines” portion has been further crushed and sieved with 80% of the material passing through a 200 mesh screen. The final material has then been packaged in 50 g containers and tested for homogeneity.

The homogeneity of the material has undergone third party verification by Particle Size Analysis and by Total Digestion using ICP-AES for analysis. 15 bottles were taken at random from the lot. 12 of these bottles were analysed once and the 3 remaining bottles were analysed 12 times each. The resulting data was analysed statistically and the elemental standard deviations were consistent with a homogenous material.

The method used for the determination of the homogeneity of the material is based on ISO Guide 35.

Certification and Calculation Methods:

The Certification Method is based on a round-robin analysis involving 18 laboratories. Each laboratory was asked to supply analysis data in duplicate for a specific list of parameters. Not all the laboratories supplied data for the different parameters. Certified Values are based on an average of 19 values per parameter (27 values being the highest and 10 values being the lowest). Values in brackets are not certified as less than 10 values were received. They are provided for information only.

The outliers were removed using the Dixon Test after confirmation that there was neither a connection between outliers and the methods used for analysis nor between the outliers and the nature of the sample.

Certificate of Analysis:
EnviroMAT™ Example

The Confidence Interval has been calculated using the 95% Confidence Level (equivalent to 2σ) using the following formula:

$$\bar{x} \pm \frac{ts}{\sqrt{n}}$$

where n: number of data
s: Standard Deviation of the Average
t: factor for Student Test
x: Reference Value

The Confidence Interval should be used for routine quality control.

The Tolerance Interval has been calculated using a 95% probability with a 95% inclusion of the population. The following formula was used:

$$\bar{x} \pm ks$$

where k: factor for two-sided Tolerance Limits
s: Standard Deviation of the Average
x: Reference Value

The Tolerance Interval is an indication of the lowest possible value and the highest possible value based on the complete set of data, exclusive of outliers, used to calculate the Certified Value.

The following table is a guideline on how to interpret the results:

Results within Confidence Interval	Method working properly
Results consistently outside Confidence Interval but within Tolerance Interval	Method needs improvement
Results outside Tolerance Interval	Method not working properly

References:

- ISO Guide 30 (1992): Terms and definitions used in connection with reference materials
- ISO Guide 31 (1981): Contents of certificates of reference materials
- ISO Guide 35 (1989): Certification of reference materials--General and statistical principles
- Standard Reference Materials-Handbook for SRM Users - John K. Taylor
- Quality Assurance of Chemical Measurements - John K. Taylor

Certificate of Analysis:

EnviroMAT™ Example

Catalog number : 140-025-011

Consensus Values for **EnviroMAT** – Sewage Sludge BE-1

Parameter	Unit	Consensus Value	Confidence Interval	Tolerance Interval
Ag	mg/kg	21	20 – 22	15 – 27
Al	mg/kg	43917	42324 – 45510	34552 – 53282
As	mg/kg	4.6	4.1 – 5.1	1.8 – 7.4
B	mg/kg	(9.9)	-----	-----
Ba	mg/kg	446	413 – 479	251 – 641
Be	mg/kg	0.21	0.17 – 0.25	0.01 – 0.41
Ca	mg/kg	28636	27185 – 30087	20253 – 37019
Cd	mg/kg	1.9	1.6 – 2.2	0 – 3.8
Co	mg/kg	2.3	2.1 – 2.5	0.9 – 3.7
Cr	mg/kg	34	31 – 37	18 – 50
Cu	mg/kg	408	392 – 424	305 – 511
Fe	mg/kg	8925	8478 – 9372	6254 – 11596
Hg	mg/kg	1.3	1.1 – 1.5	0.2 – 2.4
K	mg/kg	2273	2034 – 2512	970 – 3576
Li	mg/kg	3.6	3.0 – 4.2	0.7 – 6.5
Mg	mg/kg	3808	3600 – 4016	2605 – 5011
Mn	mg/kg	213	205 – 221	164 – 262
Mo	mg/kg	6.4	5.9 – 6.9	3.4 – 9.4
Na	mg/kg	1459	1260 – 1658	469 – 2449
Ni	mg/kg	14	13 – 15	6 – 22
P	mg/kg	29826	27906 – 31746	20757 – 38895
Pb	mg/kg	57	53 – 61	28 – 86
S	mg/kg	(8048)	-----	-----
Sb	mg/kg	(0.9)	-----	-----
Se	mg/kg	2.9	2.4 – 3.4	0 – 5.8
Sn	mg/kg	(16)	-----	-----
Sr	mg/kg	349	331 – 367	252 – 446
Ti	mg/kg	(91)	-----	-----
U	mg/kg	(2.1)	-----	-----
V	mg/kg	12	11.5 – 12.5	9 – 15
Zn	mg/kg	381	367 – 395	296 – 466

Note : Values in bracket are not certified. They are listed for information only.

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

SCP SCIENCE

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Phone : (514) 457-0701 Fax : (514) 457-4499

Web Site : www.scpscience.com

Page 4 of 4

peCHECK Performance Evaluation Standards - Solids

peCHECK standards are cost effective performance evaluation standards for routine analysis compliance testing. These standards are available for minerals, nutrients, and solids in water/wastewater matrices and are certified through a comprehensive round-robin study providing independent verification from multiple laboratories.

- 20 ml vials. No pipetting necessary. Just dilute to volume. Each standard dilutes to 1 L
 - Eliminate a source of potential error, save time with single step preparation
- Certificate of Analysis listing consensus values as well as confidence and tolerance intervals.
 - Monitor lab performance in a cost effective, simple manner
- Prepared in large batches
 - Same lot number available time after time allows the possibility of control charting



Level 1 Solids			
Sample Parameters	Unit	Consensus Value	Confidence Interval
Suspended Solids	mg/l	238	235 - 242
Dissolved Solids	mg/l	33.0	18.7 - 47.3
Total Solids	mg/l	254	242 - 267

Catalog Number	Code	Volume
140-702-101		20 ml

Level 2 Solids			
Sample Parameters	Unit	Consensus Value	Confidence Interval
Suspended Solids	mg/l	380	374 - 385
Dissolved Solids	mg/l	44.8	21.3 - 68.3
Total Solids	mg/l	400	380 - 419

Catalog Number	Code	Volume
140-702-102		20 ml

Level 3 Solids			
Sample Parameters	Unit	Consensus Value	Confidence Interval
Suspended Solids	mg/l	1928	1895 - 1961
Dissolved Solids	mg/l	46.0	25.3 - 66.8
Total Solids	mg/l	1970	1942 - 1999

Catalog Number	Code	Volume
140-702-103		20 ml

Calibration & Quality Control Standards

⊗ Glass Container
✓ Dangerous Goods*

Ⓔ Poison
Ⓕ Corrosive

Ⓒ Flammable
Ⓓ Oxidant

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

peCHECK Performance Evaluation Standards - Nutrients

Level 1 Nutrients			
Sample Parameters	Unit	Consensus Value	Confidence Interval
Ammonia (as N)	mg/l	0.97	0.91 - 1.03
Nitrate (as N)	mg/l	1.40	1.34 - 1.45
O-Phosphate (as P)	mg/l	0.74	0.69 - 0.80
Total Kjeldahl Nitrogen	mg/l	1.04	0.93 - 1.16
Total Phosphorus (as P)	mg/l	0.79	0.74 - 0.84

Catalog Number	Code	Volume
140-701-101		20 ml

Level 2 Nutrients			
Sample Parameters	Unit	Consensus Value	Confidence Interval
Ammonia (as N)	mg/l	8.59	7.98 - 9.21
Nitrate (as N)	mg/l	13.3	12.9 - 13.7
O-Phosphate (as P)	mg/l	4.42	4.17 - 4.66
Total Kjeldahl Nitrogen	mg/l	20.2	19.2 - 21.2
Total Phosphorus (as P)	mg/l	4.64	4.31 - 4.98

Catalog Number	Code	Volume
140-701-102		20 ml

Level 3 Nutrients			
Sample Parameters	Unit	Consensus Value	Confidence Interval
Ammonia (as N)	mg/l	14.7	14.2 - 15.2
Nitrate (as N)	mg/l	26.5	25.6 - 27.3
O-Phosphate (as P)	mg/l	9.33	9.11 - 9.55
Total Kjeldahl Nitrogen	mg/l	45.3	42.8 - 47.8
Total Phosphorus (as P)	mg/l	9.76	8.75 - 10.77

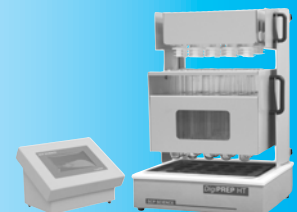
Catalog Number	Code	Volume
140-701-103		20 ml

⊗ Glass Container © Poison Ⓝ Flammable * as defined by : • Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
 ✓ Dangerous Goods* Ⓢ Corrosive Ⓟ Oxidant • Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
 • International Air Transport Association - Dangerous Goods Regulation, 40th Edition

High Temperature Digestion System - DigiPREP HT

The DigiPREP HT is available in two models - a 40 tube (100 ml) or a 20 tube (250 ml) system. Ideal for digestion applications such as:

- Soil
- Plant
- Plastics
- Kjeldahl / TKN
- Compost
- Oils



**peCHECK Performance
Evaluation Standards - Minerals**

Level 1 Minerals			
Sample Parameters	Unit	Consensus Value	Confidence Interval
Conductivity	µS	188	183 - 193
Total Hardness (CaCO ₃)	mg/l	11.6	11.3 - 12.0
Total Dissolved Solids	mg/l	102	91 - 112
Calcium (Ca)	mg/l	2.62	2.50 - 2.75
Potassium (K)	mg/l	8.77	8.46 - 9.08
Magnesium (Mg)	mg/l	1.22	1.16 - 1.27
Sodium (Na)	mg/l	18.1	17.4 - 18.7
Chloride (Cl)	mg/l	19.7	19.1 - 20.2
Fluoride (F)	mg/l	0.50	0.48 - 0.53
Sulfate (SO ₄)	mg/l	8.41	7.90 - 8.92

Catalog Number	Code	Volume
140-704-101	✓ Ⓢ	20 ml

Level 2 Minerals			
Sample Parameters	Unit	Consensus Value	Confidence Interval
Conductivity	µS	1980	1915-2044
Total Hardness (CaCO ₃)	mg/l	221	215-227
Total Dissolved Solids	mg/l	998	949-1048
Calcium (Ca)	mg/l	62.0	59.3-64.6
Potassium (K)	mg/l	164	155-172
Magnesium (Mg)	mg/l	15.3	14.8-15.8
Sodium (Na)	mg/l	90.9	88.2-93.6
Chloride (Cl)	mg/l	95.7	92.2-99.1
Fluoride (F)	mg/l	4.20	4.03-4.37
Sulfate (SO ₄)	mg/l	150	144-156

Catalog Number	Code	Volume
140-704-102	✓ Ⓢ	20 ml

Level 3 Minerals			
Sample Parameters	Unit	Consensus Value	Confidence Interval
Conductivity	µS	5803	5603-6002
Total Hardness (CaCO ₃)	mg/l	531	520-542
Total Dissolved Solids	mg/l	3051	2990-3111
Calcium (Ca)	mg/l	136	132-140
Potassium (K)	mg/l	466	434-497
Magnesium (Mg)	mg/l	45.4	44.9-46.0
Sodium (Na)	mg/l	342	331-353
Chloride (Cl)	mg/l	430	420-441
Fluoride (F)	mg/l	12.3	11.8-12.9
Sulfate (SO ₄)	mg/l	397	384-411

Catalog Number	Code	Volume
140-704-103	✓ Ⓢ	20 ml

Calibration & Quality Control Standards

⊗ Glass Container
✓ Dangerous Goods*

Ⓢ Poison
Ⓢ Corrosive

Ⓢ Flammable
Ⓢ Oxidant

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Certificate of Analysis:
*pe*CHECK Minerals

Certificate of Analysis

Sample

*pe*CHECK MINERALS, level 1
Certified Performance Evaluation Standard
140-704-101

Organization responsible for the certification:

SCP SCIENCE
Manufacturing Division
21800 Clark Graham
Baie d'Urfé, QC, Canada
H9X 4B6

Phone: (514) 457-0701
Fax: (514) 457-4499

Date of initial Certification: January 16, 2001
Date of last Verification: February 8, 2005

Description:

*pe*CHECK MINERALS level 1 is a concentrated performance evaluation standard in two bottles (Alpha and Beta) for drinking and waste water analysis. This standard was designed specifically for periodic quality control verification, and methods development for water analyses of the listed parameters.

Stability:

This certification is valid for 12 months from the shipping date or 24 months after the verification date, whichever comes first, provided the material is kept sealed and stored under normal laboratory conditions. **SCP SCIENCE** will monitor the stability of representative samples annually and if any changes occur that invalidate this certification, **SCP SCIENCE** will notify purchasers.

Page 1 of 3

Certification and Calculation Methods:

The Certification Method is based on a round-robin analysis involving 28 North American laboratories. Each laboratory was asked to supply analysis data in duplicate for a specific list of parameters. Not all the laboratories supplied data for the different parameters. Certified Values are based on an average of 22 values per parameter (25 values being the highest and 17 values being the lowest).

The outliers were removed using the Dixon Test after confirmation that there was neither a connection between outliers and the methods used for analysis, nor between the outliers and the nature of the sample.

The Confidence Interval has been calculated using the 95% Confidence Level (equivalent to 2σ) using the following formula:

$$x \pm \frac{ts}{\sqrt{n}}$$

where

- n: Number of data
- s: Standard Deviation of the Average
- t: Factor for Student Test
- x: Consensus value

The Tolerance Interval has been calculated using a 95% probability with a 95% inclusion of the population. The following formula was used:

$$x \pm ks$$

where

- k: Factor for two-sided Tolerance Limits
- s: Standard Deviation of the Average
- x: Consensus value

The Tolerance Interval is an indication of the lowest possible value and the highest possible value based on the complete set of data, exclusive of outliers, used to calculate the Certified Value.

The following table is a guideline on how to interpret the results:

Results within Confidence Interval	Method working properly
Results consistently outside Confidence Interval but within Tolerance Interval	Method needs improvement
Results outside Tolerance Interval	Method not working properly

References:

- ISO Guide 30 (1992): Terms and definitions used in connection with reference materials
- ISO Guide 35 (1989): Certification of reference materials--General and statistical principles
- Quality Assurance of Chemical Measurements - John K. Taylor

Certificate of Analysis:

peCHECK Minerals

Instructions:

1. Shake each bottle well before use;
2. Put 600ml of deionized water into a 1-liter volumetric flask;
3. Open both bottles (Alpha and Beta) carefully and transfer all contents of each bottle into the volumetric flask;
4. Ensure that all the standard is added to the flask by carefully rinsing each bottle AND each cap three times with deionized make-up water;
5. Dilute to the mark with deionized water, and mix;
6. Test as soon as possible for the listed parameters.

Consensus Values:

peCHECK MINERALS, level 1

Parameter	Unit	Consensus Value	Confidence Interval	Tolerance Interval
Conductivity	μS	188	183 – 193	158 – 218
Total Hardness (as CaCO ₃)	mg/l	11.6	11.3 – 12.0	9.8 – 13.5
Total Dissolved Solids	mg/l	102	91 – 112	37 – 166
Calcium (Ca)	mg/l	2.62	2.50 – 2.75	1.88 – 3.36
Potassium (K)	mg/l	8.77	8.46 – 9.08	6.89 – 10.65
Magnesium (Mg)	mg/l	1.22	1.16 – 1.27	0.89 – 1.55
Sodium (Na)	mg/l	18.1	17.4 – 18.7	14.1 – 22.0
Chloride	mg/l	19.7	19.1 – 20.2	16.2 – 23.1
Fluoride	mg/l	0.50	0.48 – 0.53	0.35 – 0.65
Sulfate	mg/l	8.41	7.90 – 8.92	5.32 – 11.50
Lot number : SC1018915			Catalogue number : 140-704-101	

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

SCP SCIENCE

21800 Clark Graham, Baie D'Urfé, QC, Canada H9X 4B6
 Phone : (514) 457-0701 Fax : (514) 457-4499
 Web Site: www.scpscience.com

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AccuSPEC Ion Chromatography Standards

Ion Chromatography is a vital component of inorganic analysis. Traditional single ion calibration standards, multi ion standards and eluents as well as custom solutions are available.

- Complete Certificate of Analysis is included with NIST traceability
 - Complete documentation for audit purposes
 - Available on-line at www.scpscience.com
- Multi-Element Standards available
 - Custom standards designed to your specifications
 - Popular "Off the Shelf" multi-element standards for quick delivery and cost savings
- Eluents available as concentrates or working solutions
 - Eluents prepared following rigid specifications
 - See Standards, Reagents and Certified Reference Materials catalog for specifications



Single Ion Chromatography Standards

Anion Standard	Symbol	Matrix	Code	Catalog Number		Catalog Number	
				125 ml 1000 µg/ml	500 ml	125 ml 10 000 µg/ml	500 ml
Acetate	CH ₃ COO ⁻	H ₂ O		250-220-100	250-220-101	---	---
Ammonia-Nitrogen	NH ₃ as N	H ₂ O		250-220-115	250-220-116	---	---
Bromate	BrO ₃ ⁻	H ₂ O		250-220-220	250-220-221	---	---
Bromide	Br ⁻	H ₂ O		250-220-235	250-220-236	250-221-235	250-221-236
Chlorate	ClO ₃ ⁻	H ₂ O		250-220-355	250-220-356	---	---
Chloride	Cl ⁻	H ₂ O		250-220-370	250-220-371	250-180-231	250-180-235
Fluoride	F ⁻	H ₂ O		250-220-400	250-220-401	250-221-400	250-221-401
Formate	HCOO ⁻	H ₂ O		250-220-415	250-220-416	---	---
Nitrate	NO ₃ ⁻	H ₂ O		250-220-505	250-220-506	250-221-505	250-221-506
Nitrate-Nitrogen	NO ₃ ⁻ as N	H ₂ O		250-220-520	250-220-521	---	---
Nitrite	NO ₂ ⁻	H ₂ O		250-220-535	250-220-536	250-221-535	250-221-536
Nitrite-Nitrogen	NO ₂ ⁻ as N	H ₂ O		250-220-550	250-220-551	---	---
Oxalate	C ₂ O ₄ ²⁻	H ₂ O		250-220-565	250-220-566	---	---
Perchlorate	ClO ₄ ⁻	H ₂ O		250-220-580	250-220-581	---	---
Phosphate	PO ₄ ³⁻	H ₂ O		250-220-595	250-220-596	250-221-595	250-221-596
Phosphate-Phosphorus	PO ₄ ³⁻ as P	H ₂ O		250-220-610	250-220-611	---	---
Sulfate	SO ₄ ²⁻	H ₂ O		250-220-700	250-220-701	250-221-700	250-221-701
Sulfate-Sulfur	SO ₄ ²⁻ as S	H ₂ O		250-220-715	250-220-716	---	---

Cation Standard	Symbol	Matrix	Code	Catalog Number		Catalog Number	
				125 ml 1000 µg/ml	500 ml	125 ml 10 000 µg/ml	500 ml
Ammonium	NH ₄ ⁺	H ₂ O		250-220-130	250-220-131	---	---
Barium	Ba ²⁺	H ₂ O		250-220-175	250-220-176	---	---
Calcium	Ca ²⁺	H ₂ O		250-220-250	250-220-251	250-221-250	250-221-251
Lithium	Li ⁺	H ₂ O		250-220-445	250-220-446	---	---
Magnesium	Mg ²⁺	H ₂ O		250-220-460	250-220-461	250-221-460	250-221-461
Potassium	K ⁺	H ₂ O		250-220-625	250-220-626	250-221-625	250-221-626
Sodium	Na ⁺	H ₂ O		250-220-640	250-220-641	250-221-640	250-221-641
Strontium	Sr ²⁺	H ₂ O		250-220-685	250-220-686	---	---

⊗ Glass Container
✓ Dangerous Goods*

Ⓢ Poison
Ⓢ Corrosive

Ⓢ Flammable
Ⓢ Oxidant

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Calibration & Quality Control Standards

AccuSPEC Multi-Ion Chromatography Standards

Multi-Ion Standard 1

Ion	Concentration
Cl ⁻	30 µg/ml
F ⁻	20 µg/ml
NO ₃ ⁻	100 µg/ml
PO ₄ ³⁻	150 µg/ml
SO ₄ ²⁻	150 µg/ml

Matrix: H₂O

Catalog Number	Code	Volume
140-315-001		125 ml
140-315-005		500 ml

Multi-Ion Standard 2

Solution A

Ion	Concentration
Cl ⁻	10 µg/ml
F ⁻	10 µg/ml
NO ₃ ⁻	10 µg/ml
PO ₄ ³⁻	10 µg/ml
SO ₄ ²⁻	10 µg/ml

Matrix: H₂O

Catalog Number	Code	Volume
141-315-011		125 ml
141-315-015		500 ml

Solution B

Ion	Concentration
NO ₂ ⁻	10 µg/ml

Matrix: H₂O

Catalog Number	Code	Volume
141-315-021		125 ml
141-315-025		500 ml

Solution A & B Set

Catalog Number	Code	Volume
140-315-011		125 ml
140-315-015		500 ml

Multi-Ion Standard 3

Solution A

Ion	Concentration
Br ⁻	100 µg/ml
Cl ⁻	100 µg/ml
F ⁻	100 µg/ml
NO ₃ ⁻	100 µg/ml
PO ₄ ³⁻	100 µg/ml
SO ₄ ²⁻	100 µg/ml

Matrix: H₂O

Catalog Number	Code	Volume
251-225-011		125 ml
251-225-015		500 ml

Solution B

Ion	Concentration
NO ₂ ⁻	100 µg/ml

Matrix: H₂O

Catalog Number	Code	Volume
251-225-021		125 ml
251-225-025		500 ml

Solution A & B Set

Catalog Number	Code	Volume
250-225-001		125 ml
250-225-005		500 ml

Multi-Ion Standard 4

Solution A

Ion	Concentration
Br ⁻	1000 µg/ml
Cl ⁻	1000 µg/ml
F ⁻	1000 µg/ml
NO ₃ ⁻	1000 µg/ml
PO ₄ ³⁻	1000 µg/ml
SO ₄ ²⁻	1000 µg/ml

Matrix: H₂O

Catalog Number	Code	Volume
251-225-101		125 ml
251-225-105		500 ml

Solution B

Ion	Concentration
NO ₂ ⁻	1000 µg/ml

Matrix: H₂O

Catalog Number	Code	Volume
250-220-535		125 ml
250-220-536		500 ml

Solution A & B Set

Catalog Number	Code	Volume
250-225-101		125 ml
250-225-105		500 ml

⊗ Glass Container
✓ Dangerous Goods*

Ⓢ Poison
Ⓢ Corrosive

Ⓢ Flammable
Ⓢ Oxidant

* as defined by:

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

**Certificate of Analysis:
Ion Chromatography Standard**

Certificate of Analysis

Catalogue numbers : **250-220-370/250-220-371**
Description : **AccuSPEC – IC Standard Chloride 1000 µg/ml**

Lot Number : **SC4328999**
Expiry Date : **September 2006**
(unopened bottle)

Opened Bottle Expiry Information

15 months after opening, up to unopened expiration date

Date bottle opened

CI-

This standard analyzed by Ion chromatography (IC) is traceable to NIST Standard Reference Material: 3182

Actual Value : **993 µg/ml**

Certified by :



Alketa Mixha, Chemist

Date of certification : December 7, 2004

This IC Standard is guaranteed to be stable and accurate to within ± 1% of the actual concentration up to the unopened expiry date, if sealed, or 12 months after opening of the bottle, up to the unopened expiry date provided the solution is kept tightly capped and stored, at 4°C, under normal laboratory conditions. For these solutions, 18 megohm/cm double deionized water, and Class A glassware are used. The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Ce certificat est également disponible en français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

SCP SCIENCE

21800 Clark Graham, Baie D'Urfé, QC, Canada H9X 4B6
Phone : (514) 457-0701 Fax : (514) 457-4499
Web Site : www.scpscience.com



**Calibration & Quality
Control Standards**

Ion Chromatography Standard Custom Quote Request

Complete this form to receive a quotation for your specific Custom Multi-Ion Standard or to enter your purchase order. Photocopy for use with multiple requests.

Contact Information:

Name: _____
 Title: _____
 Company: _____
 Mailing Address: _____
 City: _____ Province/State: _____ PC/Zip: _____ Country: _____
 Telephone: _____ Fax: _____
 E-mail: _____ Account No: _____

Please indicate the concentration required for each analyte:

Anion Custom Multi-Ion Standard

Acetate (CH₃COO⁻)
 Ammonia as Nitrogen (NH₃ as N)
 Bromate (BrO₃⁻)
 Bromide (Br⁻)
 Chlorate (ClO₃⁻)
 Chloride (Cl⁻)
 Fluoride (F⁻)
 Formate (HCOO⁻)
 Nitrate (NO₃⁻)
 Nitrate as Nitrogen (NO₃⁻ as N)
 Nitrite (NO₂⁻)
 Nitrite as Nitrogen (NO₂⁻ as N)
 Oxalate (C₂O₄²⁻)
 Perchlorate (ClO₄⁻)
 Phosphate (PO₄³⁻)
 Phosphate as Phosphorus (PO₄³⁻ as P)
 Sulfate (SO₄²⁻)
 Sulfate as Sulfur (SO₄²⁻ as S)

Cation Custom Multi-Ion Standard

Ammonium (NH₄⁺)
 Barium (Ba²⁺)
 Calcium (Ca²⁺)
 Lithium (Li⁺)
 Magnesium (Mg²⁺)
 Potassium (K⁺)
 Sodium (Na⁺)
 Strontium (Sr²⁺)

Matrix Required: _____

Rate of Use (L/yr): _____

Special Requirements: _____

Custom Name: _____

- Please Send me a Quotation
- Please Enter my Purchase Order # _____

Fax form back to:

USA
Canada / International
Europe

(800) 253-5549
(800) 253-5549 / (514) 457-4499
+33 (0)1 60 92 05 67

Atomic Absorption Single Element Calibration Standards

Popular standards are available for Flame and Graphite Furnace Atomic Absorption. Each standard includes a detailed Certificate of Analysis and direct traceability to NIST.

- Certificate of Analysis with actual matrix, actual concentration, and traceability to NIST 3100 Series Standards
 - Complete documentation for audit purposes
- 2 expiry dates (up to 21 months unopened & 15 months opened)
 - Longer shelf life for unopened bottles
- Immediate availability for most common elements



Element	Symbol	Matrix	Code	Catalog Number	
				1000 µg/ml 125 ml	1000 µg/ml 500 ml
Aluminum	Al	HCl	✓ ⊗	140-002-131	140-002-135
Antimony	Sb	HNO ₃ / tr. Tartaric Acid	✓ ⊗	140-001-511	140-001-515
Arsenic	As	HNO ₃	✓ ⊗	140-001-331	140-001-335
Barium	Ba	HNO ₃	✓ ⊗	140-001-561	140-001-565
Beryllium	Be	HNO ₃	✓ ⊗	140-001-041	140-001-045
Bismuth	Bi	HNO ₃	✓ ⊗	140-001-831	140-001-835
Boron	B	H ₂ O		140-000-051	140-000-055
Cadmium	Cd	HNO ₃	✓ ⊗	140-001-481	140-001-485
Calcium	Ca	HNO ₃	✓ ⊗	140-001-201	140-001-205
Chromium	Cr	HCl	✓ ⊗	140-002-241	140-002-245
Cobalt	Co	HNO ₃	✓ ⊗	140-001-271	140-001-275
Copper	Cu	HNO ₃	✓ ⊗	140-001-291	140-001-295
Gold	Au	HCl	✓ ⊗	140-002-791	140-002-795*
Iron	Fe	HNO ₃	✓ ⊗	140-001-261	140-001-265
Lead	Pb	HNO ₃	✓ ⊗	140-001-821	140-001-825
Lithium	Li	HNO ₃	✓ ⊗	140-001-031	140-001-035
Magnesium	Mg	HNO ₃	✓ ⊗	140-001-121	140-001-125
Manganese	Mn	HNO ₃	✓ ⊗	140-001-251	140-001-255
Mercury	Hg	HNO ₃	✓ ⊗	140-001-801	140-001-805
Molybdenum	Mo	H ₂ O		140-000-421	140-000-425
Nickel	Ni	HNO ₃	✓ ⊗	140-001-281	140-001-285
Potassium	K	HNO ₃	✓ ⊗	140-001-191	140-001-195
Selenium	Se	HNO ₃	✓ ⊗	140-001-341	140-001-345
Silicon	Si	H ₂ O / tr. HF		140-000-141	140-000-145
Silver	Ag	HNO ₃	✓ ⊗	140-001-471	140-001-475
Sodium	Na	HNO ₃	✓ ⊗	140-001-111	140-001-115
Strontium	Sr	HNO ₃	✓ ⊗	140-001-381	140-001-385
Tin	Sn	HCl	✓ ⊗	140-002-501	140-002-505
Titanium	Ti	H ₂ O / tr. HF		140-000-221	140-000-225
Vanadium	V	HNO ₃	✓ ⊗	140-001-231	140-001-235
Zinc	Zn	HNO ₃	✓ ⊗	140-001-301	140-001-305

Calibration & Quality
Control Standards

⊗ Glass Container
✓ Dangerous Goods*

Poison
Corrosive

Ⓢ Flammable
Ⓢ Oxidant

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Certificate of Analysis: Atomic Absorption Standard

Certificate of Analysis

Catalog number **140-001-285**
 Description **Nickel – AA Standard**
 Nominal Concentration **1000 µg/ml**
 Lot number **SC5004999**
 Expiration Date **October 2006**
(unopened bottle)
 Starting Material **Ni metal**


Opened Bottle Expiry Information

15 months after opening, up to unopened expiration date

Date bottle opened

Analysis of Solution Standard by Inductively Coupled Plasma Spectroscopy (ICP-AES) traceable to NIST Standard Reference Material 3136.

Actual Concentration : **1000 µg/ml**
 Matrix : **4% HNO₃**

Certified by :  Date of certification : **January 28, 2005**
 Alketa Mixha, Chemist

This AA Standard is guaranteed to be stable and accurate to within $\pm 0.5\%$ of the actual concentration up to the unopened expiry date, if sealed, or 12 months after opening of the bottle, up to the unopened expiry date provided the solution is kept tightly capped and stored under normal laboratory conditions. For these solutions, 18 megohm/cm double deionized water, ACS-grade acids and Class A glassware are used. The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Ce certificat est également disponible en français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

SCP SCIENCE

21800 Clark Graham, Baie D'Urfé, QC, Canada H9X 4B6
 Phone : (514) 457-0701 Fax : (514) 457-4499
 Web Site: www.scpscience.com



Sulfur in Oil Calibration Standards

XRF analysis for sulfur in oil requires matrix matching in order to guarantee accurate results. Sulfur in Oil Standards are available in #2 Diesel Fuel, White Mineral Oil, Kerosene, and NEW Iso-Octane. Expanded product lines offer more selection to meet your sulfur analysis requirements.

- Available as individual standards or complete sets
- Concentrations range from 0.0000% to 6%
- Complete with a Certificate of Analysis
 - Directly traceable to NIST



Sulfur in #2 Diesel Fuel (125 ml / 4 oz bottle)

Concentration (wt%)	Code	Catalog Number
0.0000	✓ ③ ⊗	140-081-002
0.0005	✓ ③ ⊗	140-081-018
0.0010	✓ ③ ⊗	140-081-001
0.0025	✓ ③ ⊗	140-081-005
0.0050	✓ ③ ⊗	140-081-003
0.0075	✓ ③ ⊗	140-081-020
0.0100	✓ ③ ⊗	140-081-004
0.0200	✓ ③ ⊗	140-081-006
0.0300	✓ ③ ⊗	140-081-008
0.0400	✓ ③ ⊗	140-081-010
0.0500	✓ ③ ⊗	140-081-012
0.0750	✓ ③ ⊗	140-081-014
0.1000	✓ ③ ⊗	140-081-016
0.1500	✓ ③ ⊗	140-082-002
0.3000	✓ ③ ⊗	140-082-004
0.5000	✓ ③ ⊗	140-082-006
0.7500	✓ ③ ⊗	140-082-009
1.0000	✓ ③ ⊗	140-082-010
1.5000	✓ ③ ⊗	140-082-012
2.0000	✓ ③ ⊗	140-082-014
3.0000	✓ ③ ⊗	140-082-016
4.0000	✓ ③ ⊗	140-082-018
5.0000	✓ ③ ⊗	140-082-020
6.0000	✓ ③ ⊗	140-082-022

Complete Set

Range	Code	Catalog Number
Low Range (0.00-0.10)	✓ ③ ⊗	140-081-000
High Range (0.15-6.0)	✓ ③ ⊗	140-082-000

Sulfur in Mineral Oil (125 ml / 4 oz bottle)

Concentration (wt%)	Code	Catalog Number
0.0000	⊗	140-083-002
0.0005	⊗	140-083-009
0.0010	⊗	140-083-001
0.0025	⊗	140-083-003
0.0050	⊗	140-083-005
0.0075	⊗	140-083-011
0.0100	⊗	140-083-004
0.0200	⊗	140-083-006
0.0300	⊗	140-083-008
0.0400	⊗	140-083-010
0.0500	⊗	140-083-012
0.0750	⊗	140-083-014
0.1000	⊗	140-083-016
0.1500	⊗	140-084-002
0.3000	⊗	140-084-004
0.5000	⊗	140-084-006
0.7500	⊗	140-084-008
1.0000	⊗	140-084-010
2.0000	⊗	140-084-014
3.0000	⊗	140-084-016
4.0000	⊗	140-084-018
5.0000	⊗	140-084-020

Complete Set

Range	Code	Catalog Number
Low Range (0.00-0.10)	⊗	140-083-000
High Range (0.15-5.0)	⊗	140-084-000

Calibration & Quality Control Standards

- ⊗ Glass Container
- ✓ Dangerous Goods*
- Ⓟ Poison
- Ⓢ Corrosive
- Ⓣ Flammable
- Ⓤ Oxidant

* as defined by :
 * Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
 * Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
 * International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Sulfur in Oil Calibration Standard

Sulfur in Residual Oil (125 ml / 4 oz bottle)

Concentration (wt%)	Code	Catalog Number
0.25	⊗	140-074-102
0.50	⊗	140-074-108
0.70	⊗	140-074-103
0.80	⊗	140-074-104
1.00	⊗	140-074-105
2.00	⊗	140-074-109
3.00	⊗	140-074-111
4.00	⊗	140-074-113
5.00	⊗	140-074-115

Complete Set

Range	Code	Catalog Number
Low Range (0.25-5.0)	⊗	140-074-000

Sulfur in Kerosene (125 ml / 4 oz bottle)

Concentration (wt%)	Code	Catalog Number
0.0010	✓ ③ ⊗	140-085-001
0.0050	✓ ③ ⊗	140-085-005
0.0100	✓ ③ ⊗	140-085-004
0.0300	✓ ③ ⊗	140-085-006
0.0500	✓ ③ ⊗	140-085-008
0.0750	✓ ③ ⊗	140-085-010
0.1000	✓ ③ ⊗	140-085-012

Complete Set

Range	Code	Catalog Number
Low Range (0.00-0.10)	✓ ③ ⊗	140-085-000

Sulfur in Iso-Octane (125 ml / 4 oz bottle)

Concentration (wt%)	Code	Catalog Number
0.0000	✓ ③ ⊗	140-077-001
0.0005	✓ ③ ⊗	140-077-002
0.0010	✓ ③ ⊗	140-077-004
0.0025	✓ ③ ⊗	140-077-006
0.0050	✓ ③ ⊗	140-077-008
0.0075	✓ ③ ⊗	140-077-010
0.0100	✓ ③ ⊗	140-077-012
0.0200	✓ ③ ⊗	140-077-014
0.0300	✓ ③ ⊗	140-077-016
0.0400	✓ ③ ⊗	140-077-018
0.0500	✓ ③ ⊗	140-077-020
0.0750	✓ ③ ⊗	140-077-022
0.100	✓ ③ ⊗	140-077-024
0.300	✓ ③ ⊗	140-077-028

Complete Set

Range	Code	Catalog Number
Low Range (0.000 - 0.300)	✓ ③ ⊗	140-077-000

⊗ Glass Container ⊕ Poison ③ Flammable
✓ Dangerous Goods* ⊕ Corrosive ⑤ Oxidant

* as defined by :

• Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
• Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
• International Air Transport Association - Dangerous Goods Regulation, 40th Edition

X-Ray Fluorescence Analysis

A variety of sample preparation and supply items are available.

- A range of thin film materials
- Plastic sample cups for major XRF instrument manufacturers
- Volume discounts on cups and film available



Oil-Based Standards

Oil-based metal standards are available for emission and XRF analysis.

- Common multi-element blends and single element standards are shipped from stock
- Custom formulations are available on special order



**Certificate of Analysis:
Sulfur in Oil Calibration Standard**

Certificate of Analysis

Catalog number	140-081-001
Description	Sulfur in #2 Diesel Fuel Standard S @ 0.0010 % w/w
Lot number	SC5032547
Expiration Date	July 2006

Concentrations :

S : 10 µg/g

Matrix :

#2 Diesel Fuel

Certified by : 

 Alketa Mixha, Chemist

Date : February 2, 2005

This solution is intended for use in the determination of total sulfur in #2 Diesel Fuel. The certified value is based upon gravimetric procedures used to prepare the final standard, which are traceable to NIST according to ME Report #2793ME and NIST Test #39760. In order to verify this certified value, the final solution was analyzed by x-ray fluorescence spectroscopy (XRF) against NIST SRM 2724b.

This standard is guaranteed to be accurate to within plus or minus 1% of the concentration shown above, up to the expiry date, provided the solution is kept tightly capped and stored under normal laboratory conditions. We recommend that the solution be thoroughly mixed, by shaking the bottle, immediately prior to use. The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Ce certificat est également disponible en français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

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**Calibration & Quality
Control Standards**

Metallo-Organic Single Element Standards

Metallo-Organic calibration standards are required for metal analysis in organic matrices. "Off the shelf" single element standards as well as multi-element standards are available.



- Single-element standards available
 - For spiking or matrix-matching, if necessary
- 21 element, multi-element standard (SCP-21) available in 7 different concentrations and in 2 sizes
 - Complete choice to reduce dilution errors
- Certificate of Analysis with each standard listing the lot number, the expiry date and the concentration or each element
 - Complete documentation for audit purposes
 - Available on-line at www.scpscience.com

Single Element	Symbol	Matrix	Code	Catalog Number		
				1000 µg/g 62.5 ml / 2 oz*	1000 µg/g 250 ml / 8 oz*	5000 µg/g 62.5 ml / 2 oz**
Aluminum	Al	Oil		140-074-132	140-076-138	140-071-132
Arsenic	As	Oil	⊗	140-072-332	---	---
Antimony	Sb	Oil		140-074-512	140-076-518	140-071-512
Barium	Ba	Oil		140-074-552	140-076-001	140-071-562
Beryllium	Be	Oil		140-071-042	140-076-048	---
Boron	B	Oil		140-074-055	---	140-071-055
Calcium	Ca	Oil		140-074-202	140-076-208	140-071-202
Cadmium	Cd	Oil		140-074-482	140-076-002	---
Chromium	Cr	Oil	⊗	140-074-242	140-076-248	140-071-242
Cobalt	Co	Oil		140-074-272	140-076-003	140-071-272
Copper	Cu	Oil	⊗	140-074-292	140-076-004	140-071-292
Iron	Fe	Oil	⊗	140-074-262**	140-076-005**	140-071-262
Lead	Pb	Oil		140-074-822	140-076-828	140-071-822
Lithium	Li	Oil		140-074-032	140-076-038	140-071-032
Magnesium	Mg	Oil		140-074-122	140-076-128	140-071-122
Manganese	Mn	Oil	⊗	140-074-252	140-076-258	140-071-252
Molybdenum	Mo	Oil		140-074-422	---	140-071-422
Nickel	Ni	Oil	⊗	140-074-282	140-076-006	140-071-282
Phosphorus	P	Oil		140-074-152	140-076-158	140-071-152
Potassium	K	Oil		140-074-192	140-076-198	140-071-192
Silicon	Si	Oil		140-074-142	140-076-148	140-071-142
Silver	Ag	Oil		140-074-472	---	140-071-472
Sodium	Na	Oil		140-074-112	140-076-118	140-071-112
Sulfur	S	Oil	⊗	140-074-162	---	140-071-162
Tin	Sn	Oil		140-074-502	140-076-508	140-071-502
Titanium	Ti	Oil	⊗	140-074-222	140-076-228	140-071-222
Vanadium	V	Oil		140-074-232**	140-076-007**	140-071-232
Yttrium	Y	Oil		140-071-390	140-076-398	140-071-392
Zinc	Zn	Oil		140-074-302	140-076-008	140-071-302

* In 20 cSt oil

** In 75 cSt oil

NOTE: Other elements and concentrations are available on request

⊗ Glass Container
✓ Dangerous Goods*

Ⓔ Poison
Ⓕ Corrosive

Ⓕ Flammable
Ⓔ Oxidant

* as defined by :

• Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
• Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
• International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Metallo-Organic Multi-Element Standards

SCP-12 Multi-Element Standard

Concentration (µg/g)	Code	Catalog Number	
		125 ml / 4 oz	250 ml / 8 oz
10		140-073-011	140-073-012
30		140-073-031	140-073-032
50		140-073-051	140-073-052
100		140-073-101	140-073-102
300		140-073-301	140-073-302
500		140-073-501	140-073-502
900		140-073-901	140-073-902

12 Element Blend Containing: Ag, Al, Cr, Cu, Fe, Mg, Na, Ni, Pb, Si, Sn, Ti

SCP-21 Multi-Element Standard

Concentration (µg/g)	Code	Catalog Number	
		125 ml / 4 oz	250 ml / 8 oz
10		140-072-011	140-072-012
30		140-072-031	140-072-032
50		140-072-051	140-072-052
100		140-072-101	140-072-102
300		140-072-301	140-072-302
500		140-072-501	140-072-502
900		140-072-901	140-072-902

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

SCP-21+K Multi-Element Standard

Concentration (µg/g)	Code	Catalog Number	
		125 ml / 4 oz	250 ml / 8 oz
10		140-072-211	140-072-212
30		140-072-231	140-072-232
50		140-072-251	140-072-252
100		140-072-111	140-072-112
300		140-072-311	140-072-312
500		140-072-511	140-072-512
900		140-072-911	140-072-912

22 Element Blend Containing: Ag, Al, B, Ba, Ca, Cd, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, P, Pb, Si, Sn, Ti, V, Zn

SCP-23 Multi-Element Standard

Concentration (µg/g)	Code	Catalog Number	
		125 ml / 4 oz	250 ml / 8 oz
10		140-078-001	140-078-002
30		140-078-003	140-078-004
50		140-078-005	140-078-006
100		140-078-007	---
300		140-078-009	140-078-010
500		140-078-011	140-078-012
900		140-078-013	140-078-014

23 Element Blend Containing: Ag, Al, B, Ba, Ca, Cd, Cr, Cu, Fe, K, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Si, Sn, Ti, V, Zn

Metal Additive Standard

Concentration (µg/g)	Code	Catalog Number	
		125 ml / 4 oz	250 ml / 8 oz
900		140-074-901	140-074-902
1000		140-074-903	140-074-904
3000		140-074-905	140-074-906
5000		140-074-907	140-074-908

5 Element Blend Containing: Ba, Ca, Mg, P, Zn

Stabilizer* in Mineral Oil

Viscosity	Code	Catalog Number
		62.5 ml / 2 oz
75 cSt	⊗	140-070-950

* Add 0.6% by weight



Matrix Oil

Viscosity	Code	Catalog Number	
		500 ml / 8 oz	3.7L / 1 gal
75 cSt		140-075-001	140-075-002
20 cSt		140-075-003	140-075-004

⊗ Glass Container
✓ Dangerous Goods*

Ⓢ Poison
Ⓢ Corrosive

Ⓢ Flammable
Ⓢ Oxidant

* as defined by :

* Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
* Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
* International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Calibration & Quality
Control Standards

Certificate of Analysis: Single Metallo-Organic Standard

Certificate of Analysis

Catalog number	140-071-272
Description	Metallo-Organic Standard
	Co @ 5000 µg/g
Lot number	SC4322893
Expiration Date	November 2005

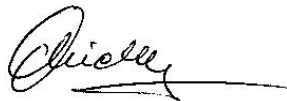
Concentrations :

Co : 4997 µg/g

Matrix :

75 cSt Hydrocarbon Oil

Certified by :



Alketa Mixha, Chemist

Date : November 18, 2004

This solution is intended for use as a calibration standard for plasma emission spectroscopy (ICP or DCP), rotating disk (rotrode) or atomic absorption spectroscopy (AAS). The certified values are based upon assayed concentrations of the raw materials and the gravimetric procedures used to prepare the final standard, which are traceable to NIST according to ME Report #2793ME and NIST test #39760. In order to verify these certified values, the final solution was analyzed by plasma emission spectroscopy (ICP or DCP).

This standard is guaranteed to be accurate to within plus or minus 1% of the concentration shown above, up to the expiry date, provided the solution is kept tightly capped and stored under normal laboratory conditions. We recommend that the solution be thoroughly mixed, by shaking the bottle, immediately prior to use. The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Ce certificat est également disponible en français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

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Web Site: www.scpscience.com



**Certificate of Analysis:
Multi Metallo-Organic Standard**


Certificate of Analysis

Catalog number	140-072-032
Description	Metallo-Organic Standard SCP-21 @ 30 µg/g
Lot number	SC4345116
Expiration Date	December 2005

Concentrations :

Ag :	29.9 µg/g	Fe :	30.0 µg/g	Si :	30.1 µg/g
Al :	29.9 µg/g	Mg:	29.9 µg/g	Sn :	29.9 µg/g
B :	29.9 µg/g	Mn	29.9 µg/g	Ti :	29.9 µg/g
Ba :	29.9 µg/g	Mo	29.9 µg/g	V :	30.0 µg/g
Ca :	31.1 µg/g	Na :	30.0 µg/g	Zn :	29.9 µg/g
Cd :	29.9 µg/g	Ni :	29.9 µg/g		
Cr :	29.9 µg/g	P :	29.9 µg/g		
Cu :	29.9 µg/g	Pb :	29.9 µg/g		

Matrix : **75 cSt Hydrocarbon Oil**

Certified by :  Date : December 10, 2004
 Alketa Mixha, Chemist

This solution is intended for use as a calibration standard for plasma emission spectroscopy (ICP or DCP), rotating disk (rotrode) or atomic absorption spectroscopy (AAS). The certified values are based upon assayed concentrations of the raw materials and the gravimetric procedures used to prepare the final standard, which is traceable to NIST according to ME Report #2793ME and NIST Test #39760. In order to verify these certified values, the final solution was analyzed by plasma emission spectroscopy (ICP or DCP), and is traceable to NIST SRM 1085b.

This standard is guaranteed to be accurate to within plus or minus 1% of the concentration shown above, up to the expiry date, provided the solution is kept tightly capped and stored under normal laboratory conditions. We recommend that the solution be thoroughly mixed, by shaking the bottle, immediately prior to use. The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Ce certificat est également disponible en français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

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**Calibration & Quality
Control Standards**

Metallo Organic Standard Custom Quote Request Form

Complete this form to receive a quotation for your specific oil based standard or to enter your purchase order number. Photocopy for use with multiple requests.

Contact Information:

Name: _____
 Title: _____
 Company: _____
 Mailing Address: _____
 City: _____ Province/State: _____ PC/Zip: _____ Country: _____
 Telephone: _____ Fax: _____
 E-mail: _____ Account No: _____

Please indicate the concentration $\mu\text{g/ml}$ (ppm) required for each element:

Al	Aluminum	Cu	Copper	Rh	Rhodium
Sb	Antimony	I	Iodine	Se	Selenium
As	Arsenic	Fe	Iron	Si	Silicon
Ba	Barium	La	Lanthanum	Ag	Silver
Be	Beryllium	Pb	Lead	Na	Sodium
Bi	Bismuth	Li	Lithium	Sr	Strontium
B	Boron	Mg	Magnesium	S	Sulfur
Br	Bromine	Mn	Manganese	Tl	Thallium
Cd	Cadmium	Hg	Mercury	Sn	Tin
Ca	Calcium	Mo	Molybdenum	Ti	Titanium
Ce	Cerium	Ni	Nickel	V	Vanadium
Cl	Chlorine	P	Phosphorus	Y	Yttrium
Cr	Chromium	K	Potassium	Zn	Zinc
Co	Cobalt	Pt	Platinum	Zr	Zirconium

Solvent: (place a check mark)

- Mineral Oil - Light Hydrocarbon (20 cSt)
 Heavy Hydrocarbon Oil (75 cSt)
 Xylene
 Kerosene
 Other: _____

Matrix Required: _____

Rate of Use (L/yr): _____

Special Requirements: _____

Application: _____

Custom Name: _____

Fax form back to:

USA
Canada / International
Europe

(800) 253-5549
(800) 253-5549 / (514) 457-4499
+33 (0)1 60 92 05 67

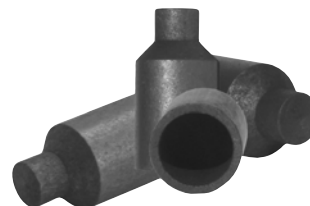
SCP SCIENCE provides high purity graphite products for all aspects of inorganic analysis. Combustion and fusion crucibles, supplies for tribology analysis, or electrodes for DC Arc Spectroscopy, are available at **SCP SCIENCE**.

Graphite Combustion Crucibles	... 163
Rotating Disk Electrodes & Graphite Rods	... 163
Graphite Fusion Crucibles	... 164
Crater & Counter Electrodes	... 164
Graphite Powder	... 164
Crucible Quote Request Form	
Fusion crucible	... 165

Graphite Combustion Crucibles

A range of graphite crucibles for combustion analysis is offered. Manufactured under strict quality control conditions, tight tolerance and controlled machining crucibles meet or exceed OEM specifications.

- Offer a wide selection of products
 - Cross referenced to LECO™ part numbers
- Request a quotation for special custom crucibles
 - Knowledge and experience to manufacture customized crucibles
- **SCP SCIENCE** has all the products of high purity
 - Have confidence in the quality and reliability



Ordering Information

Description	Dimensions	Quantity	Leco® Cross Reference	Catalog Number
High Temperature Crucible	0.500" OD x 0.600" Inner Depth	1000	782-720	110-100-501
Outer Crucible	0.585" OD x 0.815" Inner Depth	1000	775-433	110-100-502
Inner Crucible	0.500" OD x 0.588" Inner Depth	1000	775-431	110-100-503
Crucible	0.560" OD x 0.560" Inside Depth	1000	767-277	110-100-504
Crucible (for typical N/O analysis)	0.500" OD x 0.843" Inside Depth	1000	776-247	110-100-505
Crucible	N/A	1000	760-034	110-100-516
Crucible (RH/1E)	N/A	1000	762-213	110-100-517
Crucible (RH-1EN)	N/A	1000	764-330	110-100-518
Short Crucible (RH-2)	N/A	100	769-520	110-100-519
Tall Crucible (RH-3)	N/A	100	769-761	110-100-520
Cover (for 110-100-519/520)	N/A	100	769-569	110-100-521
Crucible	N/A	1000	760-414	110-100-523

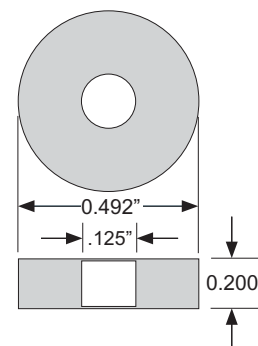
Rotating Disk Electrodes & Graphite Rods

Rotrodes and rods are manufactured from high purity graphite. Patented Chemical Vapor Purification (CVP) technology is used to process the graphite which produces excellent quality. Lot analysis is achieved through Littrow-type spectrography which ensures that the total maximum impurity level of all elements does not exceed 2 ppm.

- Meet ASTM tolerances and conform to Mil Spec. MIL-E-8971A
- Complete with a Certificate of Analysis
 - Detailed total metallic impurities, lot number, and elements detected

Ordering Information

Description	Dimensions	Quantity	Catalog Number
Rotating Disk Electrode (D-2)	see diagram	100	070-070-001
Graphite Rod (4")	.242" x 4"	50	070-071-001
Graphite Rod (6")	.242" x 6"	100	070-071-002
Graphite Rod (12")	.242" x 12"	100	070-071-003



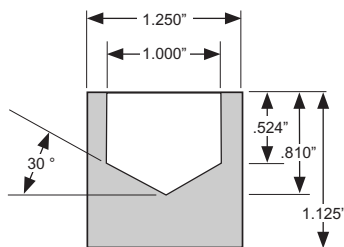
Graphite Fusion Crucibles

Regular and high-purity graphite fusion crucibles are available in four different formats. Impurities range from 10 to 100 ppm Mg, Fe, Al, Si and Cu; and are distributed evenly throughout the graphite.

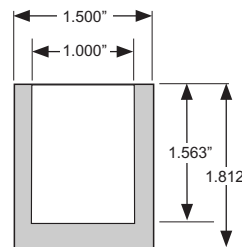
- High purity graphite contains a maximum impurity level of 2 ppm for all elements
 - Ideal for trace-level analysis
- See page 165 for a quote request form on special custom crucibles

Ordering Information

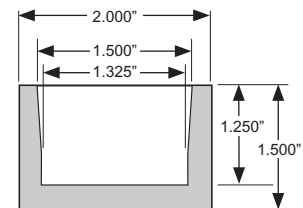
Type	Description	Grade	Quantity	Catalog Number
Graphite Crucible	9 ml volume	Regular	100	040-060-010
Graphite Crucible	9 ml volume	High Purity	10	040-060-011
Graphite Crucible, large volume	20 ml volume	Regular	10	040-060-030
Graphite Crucible, large volume	20 ml volume	High Purity	10	040-060-031
Graphite Crucible	cylindrical	Regular	10	040-060-020
Graphite Casting Crucible	casts 34mm disks	Regular	10	040-060-040
Graphite Casting Crucible	casts 34mm disks	High Purity	10	040-060-041



9 ml Crucible



20 ml Crucible



Casting Crucible

Crater & Counter Electrodes

Standard graphite crater and counter electrodes for DC ARC Spectroscopy are available from **SCP SCIENCE**. For additional styles, please contact your **SCP SCIENCE** Sales Representative or local distributor.

Ordering Information

Type	ASTM Designation	Length cm(")	Dia. cm(")	Tip	Qty.	Catalog Number
Necked Crater	S-4	3.81 (1.5)	.615 (.242)	.475 H x .16 Dia. cm Crater	100	060-070-001
Necked Crater	S-13	3.81 (1.5)	.615 (.242)	.478 H x .345 Dia. cm Crater	100	060-070-003
Necked Crater	1011	3.81 (1.5)	.457 (.180)	.318 H x .239 Dia. cm Crater	100	060-070-006
Toadstool	PD-1	3.81 (1.5)	---	---	5	060-070-020
Pointer Counter	C-1	3.81 (1.5)	.305 (.120)	8° Pointed	100	060-070-055
Rounded Counter	C-180	3.81 (1.5)	.457 (.180)	15° Rounded	100	060-070-060
Undercut Counter	C-8	3.81 (1.5)	.615 (.242)	Flat	100	060-070-070

Graphite Powder

Ordering Information

Type	Description	Mesh Size	Quantity	Catalog Number
Graphite Powder	Pelletizing grade, CVP purity	200	227 grams	060-060-001
Graphite Powder	Mixing grade, CVP purity	200	227 grams	060-060-002

* Use the powder as a buffer or diluent

Graphite Crucible Quote Request Form

Complete this form to receive a quotation for your specific graphite fusion crucible or to enter your purchase order number. Photocopy for use with multiple requests.

Contact Information:

Name: _____

Title: _____

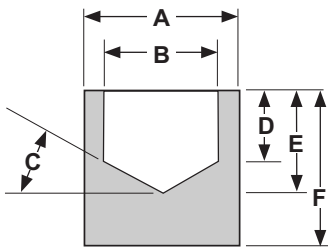
Company: _____

Mailing Address: _____

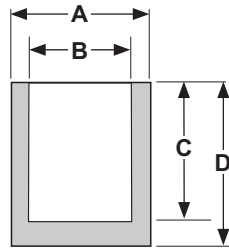
City: _____ Province/State: _____ PC/Zip: _____ Country: _____

Telephone: _____ Fax: _____

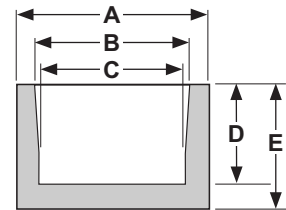
E-mail: _____ Account No: _____



Crucible, conical



Crucible, flat bottom



Casting Crucible

Crucible, conical	Crucible, flat bottom	Casting Crucible
A:	A:	A:
B:	B:	B:
C:	C:	C:
D:	D:	D:
E:		E:
F:		

Application: _____

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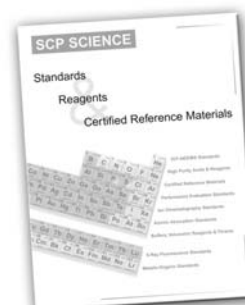
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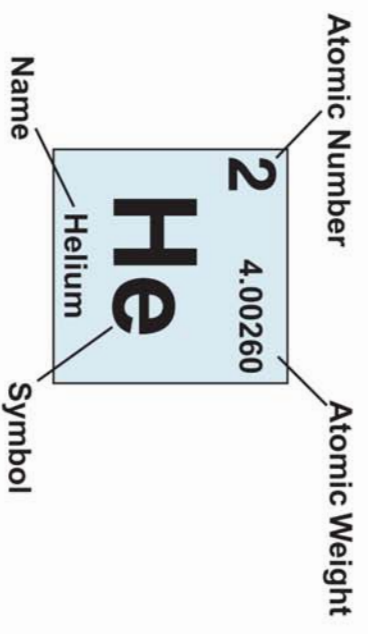
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Periodic Table of the Elements



1 H Hydrogen 1.00794	2 He Helium 4.00260	3 Li Lithium 6.941	4 Be Beryllium 9.01218	5 B Boron 10.811	6 C Carbon 12.011	7 N Nitrogen 14.0067	8 O Oxygen 15.9994	9 F Fluorine 18.99840	10 Ne Neon 20.1797
11 Na Sodium 22.98977	12 Mg Magnesium 24.305	13 Al Aluminum 26.98154	14 Si Silicon 28.0855	15 P Phosphorus 30.97376	16 S Sulfur 32.066	17 Cl Chlorine 35.4527	18 Ar Argon 39.948	19 K Potassium 39.0983	20 Ca Calcium 40.078
19 K Potassium 39.0983	20 Ca Calcium 40.078	21 Sc Scandium 44.9559	22 Ti Titanium 47.88	23 V Vanadium 50.9415	24 Cr Chromium 51.996	25 Mn Manganese 54.9380	26 Fe Iron 55.847	27 Co Cobalt 58.9322	28 Ni Nickel 58.6934
37 Rb Rubidium 85.4678	38 Sr Strontium 87.62	39 Y Yttrium 88.9059	40 Zr Zirconium 91.224	41 Nb Niobium 92.9064	42 Mo Molybdenum 95.94	43 Tc Technetium 98	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.9055	46 Pd Palladium 106.42
55 Cs Cesium 132.9054	56 Ba Barium 137.33	57 La Lanthanum 138.905	58 Ce Cerium 140.12	59 Pr Praseodymium 140.907	60 Nd Neodymium 144.24	61 Pm Promethium 145	62 Sm Samarium 150.36	63 Eu Europium 151.965	64 Gd Gadolinium 157.25
87 Fr Francium 223	88 Ra Radium 226.025	104 Rf Rutherfordium 261	105 Ha Hahnium 262	106 Db Dubnium 262	107 Ts Tennessine 289	108 Og Oganesson 289	109 Nh Nihonium 289	110 Ds Darmstadtium 289	111 Rg Roentgenium 289

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