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*
*Plasma***PURE High Purity Acids & Reagents** ... *119*
Certificate of Analysis ... *121*
*Plasma***CAL ICP AES & MS Standards** ... *123*
Certificate of Analysis ... *131*
Single Element Standards Quote Request Form ... *134*
Custom Multi-Element Standards Quote Request Form ... *135*
Certified Reference Materials ... *136*
Certificate of Analysis ... *137*
Performance Evaluation Standards ... *141*
Certificate of Analysis ... *144*
*Accu***SPEC Ion Chromatography Standards** ... *147*
Certificate of Analysis ... *149*
Ion Chromatography Standards Quote Request Form ... *150*
Atomic Absorption Standards ... *151*
Certificate of Analysis ... *152*
Sulfur in Oil Standards ... *153*
Certificate of Analysis ... *155*
Metallo-Organic Standards ... *156*
Certificate of Analysis ... *158*
Oil Based Standards Quote Request Form ... *160*

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.

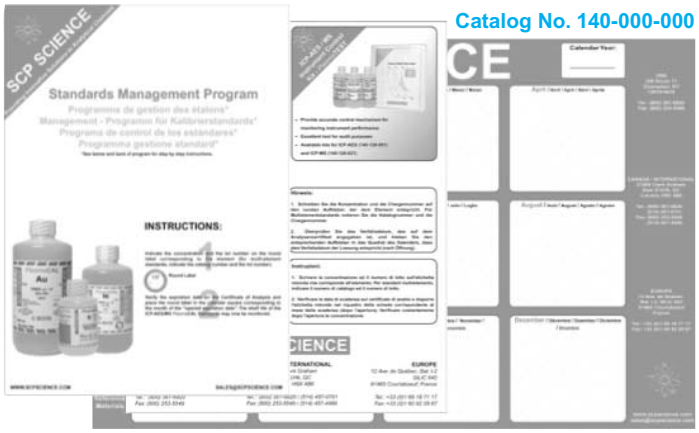
Always striving to better ourselves and to meet or exceed the needs of our customers, we are working on conforming to the stringent requirements of ISO 17025 in order to officially accredit the competency of our laboratory. The scope of our accreditation will include activities such as metals analysis 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 *Plasma***CAL** 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

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *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

*Plasma*PURE *Plus* Acids & Reagents

*Plasma***PURE** *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_3COOH	60.05	64-19-7	13.56	✓ ⑧	250-036-101	250-036-103	250-036-105	---
Ammonia Solution	20-22% NH_3	17.03	7664-41-7	---	✓ ⑧ ⑥	250-036-107	250-036-109	250-036-111	---
Hydrochloric Acid	32-35% HCl	36.46	7647-01-0	13.4801	✓ ⑧	250-036-113	250-036-115	250-036-117	250-036-119
Hydrofluoric Acid	47-51% HF	20.01	7664-39-3	---	✓ ⑧	250-036-121	250-036-123	250-036-125	250-036-127
Hydrogen Peroxide	30%	---	---	---	✓ ⑧ ⑤	---	250-036-145	---	---
Nitric Acid	67-70% HNO_3	63.01	7697-37-2	13.6608	✓ ⑧ ⑤	250-036-129	250-036-131	250-036-133	250-036-135
Sulphuric Acid	93-98% H_2SO_4	98.08	7664-93-9	13.9064	✓ ⑧ ⑥	250-036-137	250-036-139	250-036-141	250-036-143

PlasmaPURE Plus Accessories

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


Catalog No. 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* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *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

*Digi*TUBEs - 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

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Fax: (800) 253-5549

Canada / International
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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

*Plasma*PURE Acids

*Plasma***PURE** 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	Catalog Number 500 ml cs/6	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 ⊗	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% $HN0_3$	63.01	7697-37-2	13.6608	✓ ⑧ ⊗ ⑤	250-037-129	250-037-131	250-037-133	---
Sulphuric Acid	94-98% H_2SO_4	98.08	7664-93-9	13.9064	✓ ⑧ ⊗ 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*

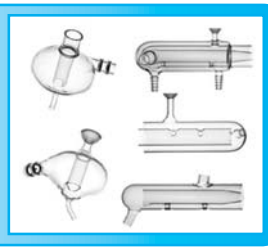
Food, Beverage, Nutrition:
- *Food additives*

⊗ *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

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

*Plasma*PURE *Plus* **NITRIC ACID (67-70% HNO_3)**

Catalogue Number:	**250-036-131**
Lot Number:	**SC5NS01**
Assay (HNO_3 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.scpscience.com

Certificate of Analysis:
*Plasma*PURE Acid

Certificate of Analysis

*Plasma*PURE **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**

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.scpscience.com

*Plasma*CAL Single ICP-AES & MS Calibration Standards 1000 µg/ml

"The Best Quality at the Best Value" - is what defines *Plasma***CAL** Single Element Calibration Standards for ICP-AES and ICP-MS. *Plasma***CAL** 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_20		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_20		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* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *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

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*

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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

*Plasma*CAL Single ICP-AES & MS Calibration Standards 1000 µg/ml

Element	Symbol	Matrix	Code	Catalog Number 125 ml	250 ml	500 ml
				1000 µg/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_20		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_20		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_20		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_20/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_20		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_20/tr. HF		140-050-221	140-050-222	140-050-225
Tungsten	W	H_20		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**
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

*Plasma*CAL 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	✓ ⑧	140-061-131	140-061-132	140-061-135
Aluminum	Al	HCl	✓ ⑧	140-062-131	140-062-132	140-062-135
Antimony	Sb	HNO_3*	✓ ⑧	140-061-511	140-061-512	140-061-515
Arsenic	As	HNO_3	✓ ⑧	140-061-331	140-061-332	140-061-335
Barium	Ba	HNO_3	✓ ⑧	140-061-561	140-061-562	140-061-565
Beryllium	Be	HNO_3	✓ ⑧	140-061-041	140-061-042	140-061-045
Bismuth	Bi	HNO_3	✓ ⑧	140-061-831	140-061-832	140-061-835
Boron	B	H_20		140-060-051	140-060-052	140-060-055
Cadmium	Cd	HNO_3	✓ ⑧	140-061-481	140-061-482	140-061-485
Calcium	Ca	HNO_3	✓ ⑧	140-061-201	140-061-202	140-061-205
Cerium	Ce	HNO_3	✓ ⑧	140-061-581	---	---
Cesium	Cs	HNO_3	✓ ⑧	140-061-551	---	---
Chromium	Cr	HNO_3	✓ ⑧	140-061-241	140-061-242	140-061-245
Chromium	Cr	HCl	✓ ⑧	140-062-241	140-062-242	140-062-245
Cobalt	Co	HNO_3	✓ ⑧	140-061-271	140-061-272	140-061-275
Copper	Cu	HNO_3	✓ ⑧	140-061-291	140-061-292	140-061-295
Dysprosium	Dy	HNO_3	✓ ⑧	140-061-661	---	---
Erbium	Er	HNO_3	✓ ⑧	140-061-681	---	---
Europium	Eu	HNO_3	✓ ⑧	140-061-631	---	---
Gadolinium	Gd	HNO_3	✓ ⑧	140-061-641	---	---
Gallium	Ga	HNO_3	✓ ⑧	140-061-311	140-061-312	140-061-315
Germanium	Ge	H_20		140-060-321	---	---
Gold	Au	HCl	✓ ⑧	140-062-791	140-062-792	140-062-795
Hafnium	Hf	HCl	✓ ⑧	140-062-721	---	---
Holmium	Ho	HNO_3	✓ ⑧	140-061-671	---	---
Indium	In	HNO_3	✓ ⑧	140-061-491	---	---
Iridium	Ir	HCl	✓ ⑧	140-062-771	---	---
Iron	Fe	HNO_3	✓ ⑧	140-061-261	140-061-262	140-061-265
Lanthanum	La	HNO_3	✓ ⑧	140-061-571	---	---
Lead	Pb	HNO_3	✓ ⑧	140-061-821	140-061-822	140-061-825
Lithium	Li	HNO_3	✓ ⑧	140-061-031	140-061-032	140-061-035
Magnesium	Mg	HNO_3	✓ ⑧	140-061-121	140-061-122	140-061-125
Manganese	Mn	HNO_3	✓ ⑧	140-061-251	140-061-252	140-061-255
Mercury	Hg	HNO_3	✓ ⑧	140-061-801	140-061-802	140-061-805
Molybdenum	Mo	H_20		140-060-421	140-060-422	140-060-425
Neodymium	Nd	HNO_3	✓ ⑧	140-061-601	---	---
Nickel	Ni	HNO_3	✓ ⑧	140-061-281	140-061-282	140-061-285
Niobium	Nb	HF	✓ ⑧	140-060-411	---	---
Palladium	Pd	HCl	✓ ⑧	140-062-461	140-062-462	140-062-465
Phosphorus	P	H_20		140-060-151	140-060-152	140-060-155
Potassium	K	HNO_3	✓ ⑧	140-061-191	140-061-192	140-061-195
Praseodymium	Pr	HNO_3	✓ ⑧	140-061-591	---	---

** Traces of tartaric acid*

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* 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

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

*Plasma*CAL Single ICP-AES & MS Calibration Standards 10 000 µg/ml

Element	Symbol	Matrix	Code	Catalog Number 125 ml	250 ml 10 000 µg/ml	500 ml
Rhodium	Rh	HCl	✓ ⑧	140-062-451	---	---
Rubidium	Rb	HNO_3	✓ ⑧	140-061-371	---	---
Ruthenium	Ru	HCl	✓ ⑧	140-062-441	---	---
Samarium	Sm	HNO_3	✓ ⑧	140-061-621	---	---
Scandium	Sc	HNO_3	✓ ⑧	140-061-211	140-061-212	140-061-215
Selenium	Se	HNO_3	✓ ⑧	140-061-341	140-061-342	140-061-345
Silicon	Si	H_20/tr. HF		140-060-141	140-060-142	140-060-145
Silver	Ag	HNO_3	✓ ⑧	140-061-471	140-061-472	140-061-475
Sodium	Na	HNO_3	✓ ⑧	140-061-111	140-061-112	140-061-115
Strontium	Sr	HNO_3	✓ ⑧	140-061-381	140-061-382	140-061-385
Sulfur	S	H_20		140-060-161	140-060-162	140-060-165
Tantalum	Ta	HF	✓ ⑧	140-060-731	---	---
Tellurium	Te	HCl	✓ ⑧	140-062-521	---	---
Terbium	Tb	HNO_3	✓ ⑧	140-061-651	---	---
Thallium	Tl	HNO_3	✓ ⑧	140-061-811	140-061-812	140-061-815
Thorium	Th	HNO_3	✓ ⑧	140-061-901	---	---
Thulium	Tm	HNO_3	✓ ⑧	140-061-691	---	---
Tin	Sn	HCl	✓ ⑧	140-062-501	140-062-502	140-062-505
Titanium	Ti	H_20/tr. HF		140-060-221	140-060-222	140-060-225
Uranium	U	HNO_3	✓ ⑧	140-061-921	---	---
Vanadium*	V	HNO_3	✓ ⑧	140-061-231	140-061-232	140-061-235
Ytterbium	Yb	HNO_3	✓ ⑧	140-061-701	---	---
Yttrium	Y	HNO_3	✓ ⑧	140-061-391	140-061-392	140-061-395
Zinc	Zn	HNO_3	✓ ⑧	140-061-301	140-061-302	140-061-305
Zirconium	Zr	HNO_3	✓ ⑧	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	✓ ⑧	140-041-201
Magnesium	Mg	HNO_3	✓ ⑧	140-041-121
Potassium	P	HNO_3	✓ ⑧	140-041-191
Sodium	Na	HNO_3	✓ ⑧	140-041-111

Glass Container
*Dangerous Goods**
⑥ *Poison*
⑧ *Corrosive*
③ *Flammable*
⑤ *Oxidant*

* as defined by :
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Did you get your 10-Pak?

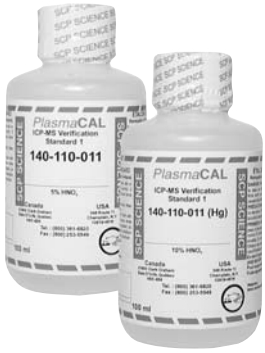
- The 10-PAK of ICP-AES/MS Standards is a cost effective solution for your calibration standard requirements. Save over 10% with every order of ten 1000 µg/ml standards
- The following elements are excluded from all special offers: Au, Ir, Lu, Os, Pd, Pt, Re, Rh, Ru, Sc, & Tm

"Courage is fear holding on a minute longer." -Gen. George S. Patton-

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

*Plasma***CAL** 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% HNO_3

Catalog Number	Code	Volume
140-102-011	✓ ⑧	100 ml
140-102-012	✓ ⑧	250 ml
140-102-015	✓ ⑧	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% HNO_3

Catalog Number	Code	Volume
140-102-021	✓ ⑧	100 ml
140-102-022	✓ ⑧	250 ml
140-102-025	✓ ⑧	500 ml

Quality Control Set

(includes one of QC-1 & QC-2)

Catalog Number	Code	Volume
140-102-031	✓ ⑧	100 ml
140-102-032	✓ ⑧	250 ml
140-102-035	✓ ⑧	500 ml

⊗ Glass Container *⑥ Poison* *③ Flammable*
*✓ Dangerous Goods** *⑧ Corrosive* *⑤ Oxidant*

* as defined by :
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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% HNO_3

Catalog Number	Code	Volume
140-102-051	✓ ⑧	100 ml
140-102-052	✓ ⑧	250 ml
140-102-055	✓ ⑧	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% HNO_3

Catalog Number	Code	Volume
140-102-041	✓ ⑧	100 ml
140-102-042	✓ ⑧	250 ml
140-102-045	✓ ⑧	500 ml

⊗ Glass Container *⑥ Poison* *③ Flammable*
*✓ Dangerous Goods** *⑧ Corrosive* *⑤ Oxidant*

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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 - *Plasma*TEST 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

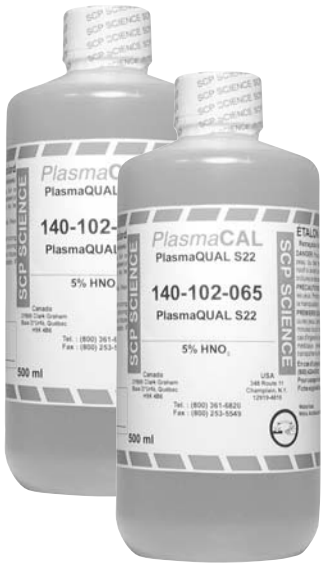
"A hunch is creativity trying to tell you something." -Frank Capra-

Instrument Calibration Standards

*Plasma*QUAL 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

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



SCP-28-AES for Thermo® ICP-AES

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

Matrix: 5% HNO_3
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	Catalog Number 500 ml
10ppm	✓ ⑧	140-130-331	140-130-335

Matrix: 5% HNO_3
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	Catalog Number 500 ml
10ppm	✓ ⑧	140-130-321	140-130-325

Matrix: 5% HNO_3
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 *⑥ Poison* *③ Flammable*
*✓ Dangerous Goods** *⑧ Corrosive* *⑤ Oxidant*

* as defined by :
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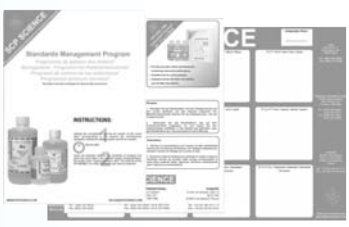
Free Standards Management Program

- Accurately track the expiry dates of your standards
- An invaluable tool when compliance auditing of standards is required
- Free with any *Plasma***CAL** 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% HNO_3

Catalog Number	Volume	Code
140-128-111	100 ml	✓ ⑧
140-128-112	250 ml	✓ ⑧
140-128-115	500 ml	✓ ⑧

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% HNO_3

Catalog Number	Volume	Code
140-128-141	100 ml	✓ ⑧
140-128-142	250 ml	✓ ⑧
140-128-145	500 ml	✓ ⑧

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% HNO_3

Catalog Number	Volume	Code
140-128-231	100 ml	✓ ⑧
140-128-232	250 ml	✓ ⑧
140-128-235	500 ml	✓ ⑧

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% HNO_3

Catalog Number	Volume	Code
140-128-201	100 ml	✓ ⑧
140-128-202	250 ml	✓ ⑧
140-128-205	500 ml	✓ ⑧

SCP-12-AES for Thermo® IRIS Tuning Solution

Concentration	Code	Catalog Number	
		125 ml	500 ml
100ppm	✓ ⑧	140-130-311	140-130-315

Matrix: 5% HNO_3
Element Blend Containing: Al, As, Ba, Cd, Cu, K, Mn, Pb, S, Se, Tl, Zn
***Note: Ba = 10ppm**

SCP-14-AES for Varian® Vista Tuning Solution

Concentration	Code	Catalog Number	
		125 ml	500 ml
50ppm	✓ ⑧	140-130-341	140-130-345

Matrix: 5% HNO_3
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% HNO_3
Element Blend Containing: Al, As, Ba, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Se, Sr, Zn, K*
***Note: K = 500ppm**

⊗ Glass Container *⑥ Poison* *③ Flammable*
*✓ Dangerous Goods** *⑧ Corrosive* *⑤ Oxidant*

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Certificate of Analysis

Mg

Catalogue Number : **140-051-121 / 140-051-122 / 140-051-125**
Description : ***Plasma*CAL 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% HNO_3**
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)
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	*: Not Tested	

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 meghom/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 Quality Control Standard

Certificate of Analysis

Catalogue Number : **140-102-051/140-102-052/140-102-055**
Description : ***Plasma*CAL- 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% HNO_3**

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

Catalogue Number : **901-6A8-102**
Description : ***Plasma*CAL - 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% HNO_3**

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

SCP SCIENCE
www.scpscience.com

*Plasma*CAL Single Element Standards Quote Request Form

Complete this form to place an order or to receive a quotation for your specific *Plasma***CAL** 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:

		125 ml	250 ml	500 ml	1000 µg/ml	10 000 µg/ml
Al	Aluminum (HNO_3)	☐	☐	☐	☐	☐
Al	Aluminum (HCl)	☐	☐	☐	☐	☐
Ag	Silver	☐	☐	☐	☐	☐
As	Arsenic	☐	☐	☐	☐	☐
Au	Gold	☐	☐	☐	☐	☐
B	Boron	☐	☐	☐	☐	☐
Ba	Barium	☐	☐	☐	☐	☐
Be	Beryllium	☐	☐	☐	☐	☐
Bi	Bismuth	☐	☐	☐	☐	☐
Ca	Calcium	☐	☐	☐	☐	☐
Cd	Cadmium	☐	☐	☐	☐	☐
Ce	Cerium	☐			☐	☐
Co	Cobalt	☐	☐	☐	☐	☐
Cr	Chromium (HNO_3)	☐	☐	☐	☐	☐
Cr	Chromium (HCl)	☐	☐	☐	☐	☐
Cs	Cesium	☐			☐	☐
Cu	Copper	☐	☐	☐	☐	☐
Dy	Dysprosium	☐			☐	☐
Er	Erbium	☐			☐	☐
Eu	Europium	☐			☐	☐
Fe	Iron	☐	☐	☐	☐	☐
Ga	Gallium	☐	☐	☐	☐	☐
Gd	Gadolinium	☐			☐	☐
Ge	Germanium	☐			☐	☐
Hf	Hafnium	☐			☐	☐
Hg	Mercury	☐	☐	☐	☐	☐
Ho	Holmium	☐			☐	☐
In	Indium	☐			☐	☐
Ir	Iridium	☐			☐	☐
K	Potassium	☐	☐	☐	☐	☐
La	Lanthanum	☐			☐	☐
Li	Lithium	☐	☐	☐	☐	☐
Lu	Lutetium	☐			☐	☐
Mg	Magnesium	☐	☐	☐	☐	☐
Mn	Manganese	☐	☐	☐	☐	☐
Mo	Molybdenum	☐	☐	☐	☐	☐
Na	Sodium	☐	☐	☐	☐	☐
Nb	Niobium	☐			☐	☐
Nd	Neodymium	☐			☐	☐
Ni	Nickel	☐	☐	☐	☐	☐
Os	Osmium	☐			☐	
P	Phosphorus	☐	☐	☐	☐	☐
Pb	Lead	☐	☐	☐	☐	☐
Pd	Palladium	☐	☐	☐	☐	☐
Pr	Praseodymium	☐			☐	☐
Pt	Platinum	☐	☐	☐	☐	
Rb	Rubidium	☐			☐	☐
Re	Rhenium	☐			☐	☐
Rh	Rhodium	☐			☐	☐
Ru	Ruthenium	☐			☐	☐
S	Sulfur	☐	☐	☐	☐	☐
Sb	Antimony	☐	☐	☐	☐	☐
Sc	Scandium	☐	☐	☐	☐	☐
Se	Selenium	☐	☐	☐	☐	☐
Si	Silicon	☐	☐	☐	☐	☐
Sm	Samarium	☐			☐	☐
Sn	Tin	☐	☐	☐	☐	☐
Sr	Strontium	☐	☐	☐	☐	☐
Ta	Tantalum	☐			☐	☐
Tb	Terbium	☐			☐	☐
Te	Tellurium	☐			☐	☐
Th	Thorium	☐			☐	☐
Ti	Titanium	☐	☐	☐	☐	☐
Tl	Thallium	☐	☐	☐	☐	☐
Tm	Thulium	☐			☐	☐
U	Uranium	☐			☐	☐
V	Vanadium	☐	☐	☐	☐	☐
W	Tungsten	☐	☐	☐	☐	
Y	Yttrium	☐	☐	☐	☐	☐
Yb	Ytterbium	☐			☐	☐
Zn	Zinc	☐	☐	☐	☐	☐
Zr	Zirconium	☐	☐	☐	☐	☐

Fax form back to:

USA	**(800) 253-5549**
Canada / International	**(800) 253-5549 / (514) 457-4499**
Europe	**+33 (0)1 60 92 05 67**

"Every new adjustment is a crisis in self-esteem." **-Eric Hoffer-**

*Plasma*CAL 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		
Hf	Hafnium	Ru	Ruthenium		
Hg	Mercury	S	Sulfur		
Ho	Holmium	Sb	Antimony		

Matrix Required: _____

Rate of Use (L/yr): _____

Special Requirements: _____

Custom Name: _____

Fax form back to:

USA	**(800) 253-5549**
Canada / International	**(800) 253-5549 / (514) 457-4499**
Europe	**+33 (0)1 60 92 05 67**

Certified Reference Materials
*Enviro*MAT™ & *Agro*MAT™

*Enviro*MAT™ & *Agro*MAT™ 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

Coming Soon!
New Mat Standards for
TOC • Fertilizer • Moss
• Plastic • Electronic
Circuit Cards

*Enviro*MAT™ 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

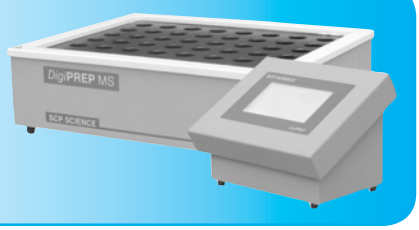
*Agro*MAT™ Standards	Symbol	Code	Quantity	Catalog Number
Soil, Clay	AG-1		175 g	140-025-101
Soil, Sandy	AG-2		175 g	140-025-102
Compost	CP-1		100 g	140-025-111

⊗ Glass Container *⑥ Poison* *③ Flammable*
*✓ Dangerous Goods** *⑧ 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

*Digi*PREP 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 *Digi*PROBE for improved accuracy in sample temperature control



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

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

Date of receipt : _____

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:
*Enviro*MAT™ 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 ^{0}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.

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: 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:

$$x \pm ks$$

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

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Canada / International
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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

Certificate of Analysis:
*Enviro*MAT™ Example

Catalog number : **140-025-011**

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

*pe*CHECK Performance Evaluation Standards - Solids

***pe*CHECK** 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

Sample Parameters	Level 1 Solids 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

Sample Parameters	Level 2 Solids 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

Sample Parameters	Level 3 Solids 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

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *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

*pe*CHECK Performance Evaluation Standards - Nutrients

Sample Parameters	Unit	Level 1 Nutrients 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

Sample Parameters	Unit	Level 2 Nutrients 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

Sample Parameters	Unit	Level 3 Nutrients 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

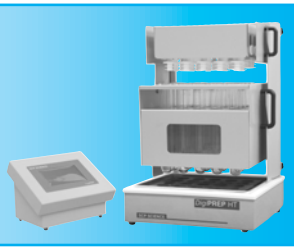
⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* 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

High Temperature Digestion System - *Digi*PREP HT

The *Digi***PREP 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
- Kjeldahl / TKN
- Plant
- Compost
- Plastics
- Oils



peCHECK Performance Evaluation Standards - Minerals

Sample Parameters	Level 1 Minerals 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	✓ ⑧	20 ml

Sample Parameters	Level 2 Minerals 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	✓ ⑧	20 ml

Sample Parameters	Level 3 Minerals 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	✓ ⑧	20 ml

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *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

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.

Certificate of Analysis: *pe*CHECK Minerals

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

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

Certificate of Analysis: *pe*CHECK 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:

*pe***CHECK 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 Disolved 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

*Accu*SPEC 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 125 ml (1000 µg/ml)	Catalog Number 500 ml (1000 µg/ml)	Catalog Number 125 ml (10 000 µg/ml)	Catalog Number 500 ml (10 000 µg/ml)
Acetate	CH_3COO^-	H_2O		250-220-100	250-220-101	---	---
Ammonia-Nitrogen	NH_3 as N	H_2O		250-220-115	250-220-116	---	---
Bromate	BrO_3^-	H_2O		250-220-220	250-220-221	---	---
Bromide	Br^-	H_2O		250-220-235	250-220-236	250-221-235	250-221-236
Chlorate	ClO_3^-	H_2O		250-220-355	250-220-356	---	---
Chloride	Cl^-	H_2O		250-220-370	250-220-371	250-180-231	250-180-235
Fluoride	F^-	H_2O		250-220-400	250-220-401	250-221-400	250-221-401
Formate	$HCOO^-$	H_2O		250-220-415	250-220-416	---	---
Nitrate	NO_3^-	H_2O		250-220-505	250-220-506	250-221-505	250-221-506
Nitrate-Nitrogen	NO_3^- as N	H_2O		250-220-520	250-220-521	---	---
Nitrite	NO_2^-	H_2O		250-220-535	250-220-536	250-221-535	250-221-536
Nitrite-Nitrogen	NO_2^- as N	H_2O		250-220-550	250-220-551	---	---
Oxalate	$C_2O_4^{2-}$	H_2O		250-220-565	250-220-566	---	---
Perchlorate	$ClO4^-$	H_2O		250-220-580	250-220-581	---	---
Phosphate	PO_4^{3-}	H_2O		250-220-595	250-220-596	250-221-595	250-221-596
Phosphate-Phosphorus	PO_4^{3-} as P	H_2O		250-220-610	250-220-611	---	---
Sulfate	SO_4^{2-}	H_2O		250-220-700	250-220-701	250-221-700	250-221-701
Sulfate-Sulfur	SO_4^{2-} as S	H_2O		250-220-715	250-220-716	---	---

Cation Standard	Symbol	Matrix	Code	Catalog Number 125 ml (1000 µg/ml)	Catalog Number 500 ml (1000 µg/ml)	Catalog Number 125 ml (10 000 µg/ml)	Catalog Number 500 ml (10 000 µg/ml)
Ammonium	NH_4^+	H_2O		250-220-130	250-220-131	---	---
Barium	Ba^{2+}	H_2O		250-220-175	250-220-176	---	---
Calcium	Ca^{2+}	H_2O		250-220-250	250-220-251	250-221-250	250-221-251
Lithium	Li^+	H_2O		250-220-445	250-220-446	---	---
Magnesium	Mg^{2+}	H_2O		250-220-460	250-220-461	250-221-460	250-221-461
Potassium	K^+	H_2O		250-220-625	250-220-626	250-221-625	250-221-626
Sodium	Na^+	H_2O		250-220-640	250-220-641	250-221-640	250-221-641
Strontium	Sr^{2+}	H_2O		250-220-685	250-220-686	---	---

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *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

*Accu*SPEC 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: H_2O

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: H_2O

Catalog Number	Code	Volume
141-315-011		125 ml
141-315-015		500 ml

Solution B

Ion	Concentration
NO_2^-	10 µg/ml

Matrix: H_2O

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: H_2O

Catalog Number	Code	Volume
251-225-011		125 ml
251-225-015		500 ml

Solution B

Ion	Concentration
NO_2^-	100 µg/ml

Matrix: H_2O

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: H_2O

Catalog Number	Code	Volume
251-225-101		125 ml
251-225-105		500 ml

Solution B

Ion	Concentration
NO_2^-	1000 µg/ml

Matrix: H_2O

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* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *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

Certificate of Analysis

Cl-

Catalogue numbers : **250-220-370/250-220-371**
Description : *Accu*SPEC – **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

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

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	Cation Custom Multi-Ion Standard
Acetate (CH_3COO^-)	Ammonium (NH_4^+)
Ammonia as Nitrogen (NH_3 as N)	Barium (Ba^{2+})
Bromate (BrO_3^-)	Calcium (Ca^{2+})
Bromide (Br^-)	Lithium (Li^+)
Chlorate (ClO_3^-)	Magnesium (Mg^{2+})
Chloride (Cl^-)	Potassium (K^+)
Fluoride (F^-)	Sodium (Na^+)
Formate ($HCOO^-$)	Strontium (Sr^{2+})
Nitrate (NO_3^-)	**Matrix Required:** _____
Nitrate as Nitrogen (NO_3^- as N)	_____
Nitrite (NO_2^-)	
Nitrite as Nitrogen (NO_2^- as N)	**Rate of Use (L/yr):** _____
Oxalate ($C_2O_4^{2-}$)	_____
Perchlorate (ClO^{4-})	
Phosphate (PO_4^{3-})	**Special Requirements:** _____
Phosphate as Phosphorus (PO_4^{3-} as P)	_____
Sulfate (SO_4^{2-})	
Sulfate as Sulfur (SO_4^{2-} as S)	**Custom Name:** _____

☐ Please Send me a Quotation

☐ Please Enter my Purchase Order # _____

Fax form back to:

USA	**(800) 253-5549**
Canada / International	**(800) 253-5549 / (514) 457-4499**
Europe	**+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	Catalog Number 1000 µg/ml 500 ml
Aluminum	Al	HCl	✓ ⑧	140-002-131	140-002-135
Antimony	Sb	HNO_3 / tr. Tartaric Acid	✓ ⑧	140-001-511	140-001-515
Arsenic	As	HNO_3	✓ ⑧	140-001-331	140-001-335
Barium	Ba	HNO_3	✓ ⑧	140-001-561	140-001-565
Beryllium	Be	HNO_3	✓ ⑧	140-001-041	140-001-045
Bismuth	Bi	HNO_3	✓ ⑧	140-001-831	140-001-835
Boron	B	H_2O		140-000-051	140-000-055
Cadmium	Cd	HNO_3	✓ ⑧	140-001-481	140-001-485
Calcium	Ca	HNO_3	✓ ⑧	140-001-201	140-001-205
Chromium	Cr	HCl	✓ ⑧	140-002-241	140-002-245
Cobalt	Co	HNO_3	✓ ⑧	140-001-271	140-001-275
Copper	Cu	HNO_3	✓ ⑧	140-001-291	140-001-295
Gold	Au	HCl	✓ ⑧	140-002-791	140-002-795*
Iron	Fe	HNO_3	✓ ⑧	140-001-261	140-001-265
Lead	Pb	HNO_3	✓ ⑧	140-001-821	140-001-825
Lithium	Li	HNO_3	✓ ⑧	140-001-031	140-001-035
Magnesium	Mg	HNO_3	✓ ⑧	140-001-121	140-001-125
Manganese	Mn	HNO_3	✓ ⑧	140-001-251	140-001-255
Mercury	Hg	HNO_3	✓ ⑧	140-001-801	140-001-805
Molybdenum	Mo	H_2O		140-000-421	140-000-425
Nickel	Ni	HNO_3	✓ ⑧	140-001-281	140-001-285
Potassium	K	HNO_3	✓ ⑧	140-001-191	140-001-195
Selenium	Se	HNO_3	✓ ⑧	140-001-341	140-001-345
Silicon	Si	H_2O / tr. HF		140-000-141	140-000-145
Silver	Ag	HNO_3	✓ ⑧	140-001-471	140-001-475
Sodium	Na	HNO_3	✓ ⑧	140-001-111	140-001-115
Strontium	Sr	HNO_3	✓ ⑧	140-001-381	140-001-385
Tin	Sn	HCl	✓ ⑧	140-002-501	140-002-505
Titanium	Ti	H_2O / tr. HF		140-000-221	140-000-225
Vanadium	V	HNO_3	✓ ⑧	140-001-231	140-001-235
Zinc	Zn	HNO_3	✓ ⑧	140-001-301	140-001-305

⊗ Glass Container *Poison* *③ Flammable*
*✓ Dangerous Goods** *Corrosive* *⑤ 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% HNO_3**

Certified by : _____ **Date of certification : January 28, 2005**
Alketa Mixha, Chemist

This AA 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 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

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *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

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* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *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

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)

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

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**
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

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 *⑥ Poison* *③ Flammable*
*✓ Dangerous Goods** *⑧ 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

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)

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

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 : _____
Alketa Mixha, Chemist

Date : December 10, 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 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)

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

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 µg/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	**(800) 253-5549**
Canada / International	**(800) 253-5549 / (514) 457-4499**
Europe	**+33 (0)1 60 92 05 67**