CPAchem *The Experts in Custom-made Inorganic and Organic Standards*

TOP INORGANIC STANDARDS

ISO GUIDE 34 | ISO/IEC 17025 | ISO/IEC 17043 | ISO 9001

CPAchem is the world leader

in Certified Reference Materials production (Custom and Stock) with both ISO Guide 34 and ISO/IEC 17025 accreditations.

The four secrets of our success are:

- ✓ High-technology
- ✓ High-experienced staff
- ✓ High-quality
- ✓ High-speed

Quality Certification and Accreditation

ISO/IEC 17043:2010

Our scope

Inorganic Certified Reference Materials (CRMs)

Stock Inorganic solutions - AAS, ICP and ICP/MS, Ion Chromatography:

- Single and Multi-element
- AAS and ICP Modifiers, Buffers and Reagents
- IC Eluent concentrates

Custom-made solutions

CPAchem Ltd. is a world leader in manufacturing of custom reference solutions, prepared to specific customer requirements. CPAchem's team has gained enormous experience and knowledge on how to prepare custom organic solutions in order to satisfy even the most extraordinary clients' needs. The lead time - 2 to 5 days. Emergency orders within 24 hours. Flexibility, saving time, money and efforts.

Organic Certified Reference Materials (CRMs)

Stock and Custom-made solutions and substances for GC/GC-MS, HPLC/HPLC-MS:

- Single and Multi-component solutions;
- According to ISO, EN, International Regulations, European and US Pharmacopoeia methods, ASTM and EPA Methods, etc.
- Contaminant standards.

Synthesis

CPAchem is in the process of completing the range of Polybrominated diphenyl ethers (BDE).

CPAchem has entered the market with more than thousand new organic substances, most of which do not have a CRM substitute.

Volumetric and buffers Certified Reference Materials (CRMs)

Custom- made and Stock Volumetric solutions

Custom- made and Stock pH and conductivity buffers. Primary pH buffers (Harned Cell).

Pharmacopoeia products

Products according to the European, US, British, Indian, Japanese, and International Pharmacopoeias.

PT Schemes

We organize PT schemes for Water, Wine, Spirits, Pharmaceuticals and Custom-made.

What makes us different?

Our specially developed Computer Aided Manufacturing (CAM) software, in addition to the modern network SQL-based data collecting system controls all internal processes:

- ✓ Automated calculations;
- ✓ Barcode-driven movement;
- ✓ Computer control of balances and other hardware;
- ✓ Incoming control of the raw materials;
- ✓ Manufacturing and control of the intermediate solutions (bulks);
- ✓ Preparation of a custom-made solution (the program determines the needed weights and controls the gravimetric process on the analytical balances).
- ✓ Control of the final product (instrumental or classical);
- ✓ Evaluating the final data and calculating the certified values and uncertainties;
- ✓ Automatic printing of labels, certificates and MSDS;
- ✓ Automatic printing of Delivery Notes and e-mailing tracking numbers to clients.

CRM Certification

Main benefits of our certification in comparison to the ones given by other producers are to be found in the following:

✓ The Certificate of Analysis, reports the actual values and not simply the calculated ones;

✓ Created in accordance with ISO Guide 31 and ISO Guide 35;

✓ Certified values and uncertainties are obtained on the basis of two independent methods when possible (even for multi-element solutions);

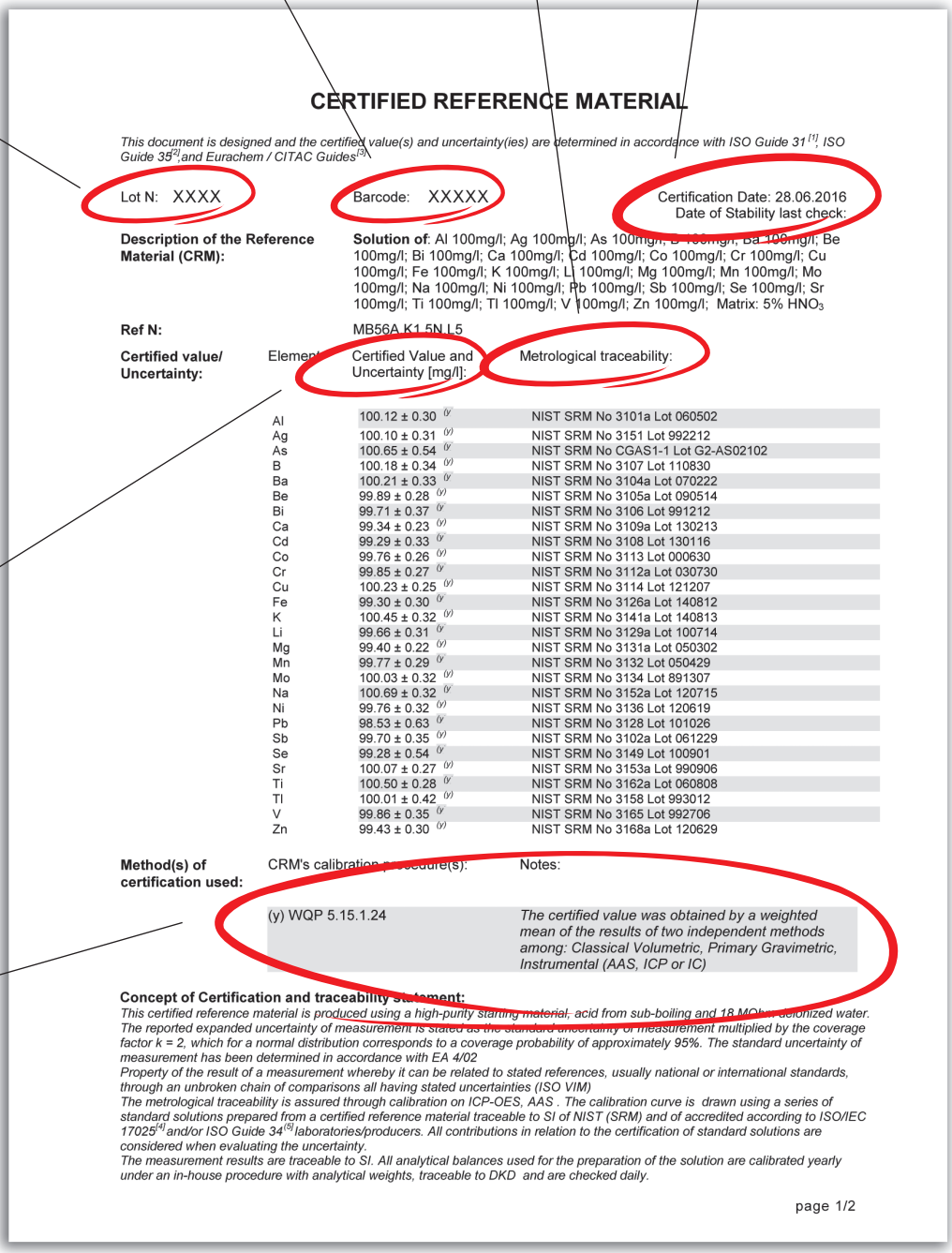
✓ The uncertainties refer to each of the components separately and not to the uncertainty of the whole mixture.

Each solution is barcode identified

Traceable to SI

Certification Date and Stability Check Date

Unique LOT number



CERTIFIED REFERENCE MATERIAL

This document is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO Guide 31 [1], ISO Guide 35 [2] and Eurachem / CITAC Guides [3]

Lot N: XXXX

Barcode: XXXXX

Certification Date: 28.06.2016
Date of Stability last check:

Description of the Reference Material (CRM):

Solution of: Al 100mg/l; Ag 100mg/l; As 100mg/l; B 100mg/l; Ba 100mg/l; Be 100mg/l; Bi 100mg/l; Ca 100mg/l; Cd 100mg/l; Co 100mg/l; Cr 100mg/l; Cu 100mg/l; Fe 100mg/l; K 100mg/l; Li 100mg/l; Mg 100mg/l; Mn 100mg/l; Mo 100mg/l; Na 100mg/l; Ni 100mg/l; Pb 100mg/l; Sb 100mg/l; Se 100mg/l; Sr 100mg/l; Ti 100mg/l; Tl 100mg/l; V 100mg/l; Zn 100mg/l; Matrix: 5% HNO_3

Ref N: MB56A.K1.5N.L5

Certified value/ Uncertainty:

Element	Certified Value and Uncertainty [mg/l]:	Metrological traceability:
Al	100.12 ± 0.30 (y)	NIST SRM No 3101a Lot 060502
Ag	100.10 ± 0.31 (y)	NIST SRM No 3151 Lot 992212
As	100.65 ± 0.54 (y)	NIST SRM No CGAS1-1 Lot G2-AS02102
B	100.18 ± 0.34 (y)	NIST SRM No 3107 Lot 110830
Ba	100.21 ± 0.33 (y)	NIST SRM No 3104a Lot 070222
Be	99.89 ± 0.28 (y)	NIST SRM No 3105a Lot 090514
Bi	99.71 ± 0.37 (y)	NIST SRM No 3106 Lot 991212
Ca	99.34 ± 0.23 (y)	NIST SRM No 3109a Lot 130213
Cd	99.29 ± 0.33 (y)	NIST SRM No 3108 Lot 130116
Co	99.76 ± 0.26 (y)	NIST SRM No 3113 Lot 000630
Cr	99.85 ± 0.27 (y)	NIST SRM No 3112a Lot 030730
Cu	100.23 ± 0.25 (y)	NIST SRM No 3114 Lot 121207
Fe	99.30 ± 0.30 (y)	NIST SRM No 3126a Lot 140812
K	100.45 ± 0.32 (y)	NIST SRM No 3141a Lot 140813
Li	99.66 ± 0.31 (y)	NIST SRM No 3129a Lot 100714
Mg	99.40 ± 0.22 (y)	NIST SRM No 3131a Lot 050302
Mn	99.77 ± 0.29 (y)	NIST SRM No 3132 Lot 050429
Mo	100.03 ± 0.32 (y)	NIST SRM No 3134 Lot 891307
Na	100.69 ± 0.32 (y)	NIST SRM No 3152a Lot 120715
Ni	99.76 ± 0.32 (y)	NIST SRM No 3136 Lot 120619
Pb	98.53 ± 0.63 (y)	NIST SRM No 3128 Lot 101026
Sb	99.70 ± 0.35 (y)	NIST SRM No 3102a Lot 061229
Se	99.28 ± 0.54 (y)	NIST SRM No 3149 Lot 100901
Sr	100.07 ± 0.27 (y)	NIST SRM No 3153a Lot 990906
Ti	100.50 ± 0.28 (y)	NIST SRM No 3162a Lot 060808
Tl	100.01 ± 0.42 (y)	NIST SRM No 3158 Lot 993012
V	99.86 ± 0.35 (y)	NIST SRM No 3165 Lot 992706
Zn	99.43 ± 0.30 (y)	NIST SRM No 3168a Lot 120629

The uncertainties are given for each component separately

Method(s) of certification used:

CRM's calibration procedure(s):	Notes:
(y) WQP 5.15.1.24	*The certified value was obtained by a weighted mean of the results of two independent methods among: Classical Volumetric, Primary Gravimetric, Instrumental (AAS, ICP or IC)*

The certified values are obtained by two independent methods

Concept of Certification and traceability statement:

This certified reference material is produced using a high-purity starting material, acid from sub-boiling and 18 MΩ cm deionized water. The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA 4/02

Property of the result of a measurement whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties (ISO VIM)

The metrological traceability is assured through calibration on ICP-OES, AAS . The calibration curve is drawn using a series of standard solutions prepared from a certified reference material traceable to SI of NIST (SRM) and of accredited according to ISO/IEC 17025 [4] and/or ISO Guide 34 [5] laboratories/producers. All contributions in relation to the certification of standard solutions are considered when evaluating the uncertainty.

The measurement results are traceable to SI. All analytical balances used for the preparation of the solution are calibrated yearly under an in-house procedure with analytical weights, traceable to DKD and are checked daily.

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Purity of Each Starting Material

Density for weight/ weight calculations

Intended usage

Class A laboratory glassware is used.
The results from temperature measurement are traceable to SI. The thermometers used for solution's calibration are calibrated from an ISO 17025 accredited laboratory. The ambient conditions are controlled with a hygrometer calibrated from an ISO 17025 accredited laboratory.

Starting material, purity * :

Al 99.999%	55 : Al[Al] :8N : T- : 5 : N06
$AgNO_3$ 99.999%	50 : Ag[AgNO3] :5N : T- : 5 : O01
H_3AsO_4 99.999%	100 : As[H3AsO4] :H2O : TNH4 : 5 : K06
H_3BO_3 99.999%	5 : B[H3BO3] :H2O : T- : 5 : O01
$Ba(NO_3)_2$ 99.999%	20 : Ba[Ba(NO3)2] :2N : T- : 5 : O08
$Be_4O(C_2H_3O_2)_6$ 99.9989%	20 : Be[Be4O(C2H3O2)6] :5N : T- : 489 : O04
Bi 99.999%	50 : Bi[Bi] :5N : T- : 5 : N01
$Ca(NO_3)_2$ 99.998%	80 : Ca[Ca(NO3)2] :5N : T- : 48 : O06
Cd 99.999%	50 : Cd[Cd] :5N : T- : 5 : O01
$Co(NO_3)_2$ 99.999%	30 : Co[Co(NO3)2] :8N : T- : 5 : O02
$Cr(NO_3)_3$ 99.999%	50 : Cr[Cr(NO3)3] :2N : T- : 5 : O01
Cu 99.999%	60 : Cu[Cu] :10N : T- : 5 : O05
Fe 99.99%	50 : Fe[Fe] :10N : T- : 4 : O02
KNO_3 99.999%	50 : K[KNO3] :5N : T- : 5 : N05
Li_2CO_3 99.999%	55 : Li[Li2CO3] :2N : T- : 5 : O01
$Mg(NO_3)_2$ 99.999%	60 : Mg[Mg(NO3)2] :5N : T- : 5 : O01
Mn 99.99%	50 : Mn[Mn] :5N : T- : 4 : O05
$(NH_4)_2MoO_4$ 99.999	20 : Mo[(NH4)2MoO4] :5N0.5F : T- : 5 : O02
$NaNO_3$ 99.9985%	50[100] : Na[NaNO3] : 5N : T- : 485 : N07-12
$Ni(NO_3)_2$ 99.999%	50 : Ni[Ni(NO3)2] :5N : T- : 5 : O02
$Pb(NO_3)_2$ 99.999%	50 : Pb[Pb(NO3)2] :5N : T- : 5 : N04
Sb 99.999%	50 : Sb[Sb] :10N2F : T- : 5 : O03
Se 99.999%	50 : Se[Se] :2N : T- : 5 : N02
$SrCO_3$ 99.998%	50 : Sr[SrCO3] :2N : T- : 48 : N03
$(NH_4)_2TiF_6$ 99.999%	10 : Ti[(NH4)2TiF6] :5N0.5F : T- : 5 : N04
Tl 99.999%	20 : Tl[Tl] :5N : T- : 5 : N03
NH_4VO_3 99.996%	20 : V[NH4VO3] :2N : T- : 46 : O04
Zn 99.99	50 : Zn[Zn] :5N : T- : 4 : O02

Density *: 1.042 g/cm^3 at 20 °C

Minimum shelf-life: 08.2018 (unopened bottle in aluminized bag)

Date of opening: .....

(Recommended period of use should not exceed 12 months from date of opening)

** These values are not certified*

Intended use: ***For Laboratory Use Only***

Calibration of ICP-OES, AAS
"Preparation of "working reference samples"
Validation of analytical methods
Detection limit and linearity studies

This statement is not intended to restrict the use for other purposes.

Instructions for the correct use of this reference material:
This certified reference material can be used directly or can be diluted in an appropriate high-purity matrix. Only a clean class A glassware should be used. Do not pipet from container. Obtained concentration (in mg/l) after dilution is a result from the multiplication of certified value of CRM concentration and the CRM's volume used for dilution and divided into the flask's volume used for dilution.

Stability and storage:
This CRM is with a guaranteed stability until ±0.5% of the certified concentration within its shelf-life. Stability is guaranteed provided that the solution is kept in its original packaging, tightly closed under normal laboratory conditions.

Hazardous situation:
The normal laboratory safety precautions should be observed when working with this RM. Further details for the handling of this RM are available as safety data sheet.

Level of homogeneity:
This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous.
To ensure sufficient homogeneity of the sample prior to use thoroughly mix by inversion.

Names of certifying officers:

Laboratory: Tihomir Stoyanov

Manager: Krassimira Taralova

[1] ISO Guide 31: Reference materials - Contents of certificates and labels
[2] ISO Guide 35: Reference materials - General and statistical principles for certification
[3] EURACHEM/CITAC Guide: Quantifying Uncertainty in Analytical Measurement
[4] ISO/IEC 17025: General requirements for the competence of testing and calibration laboratories
[5] ISO Guide 34: General Requirements for the Competence of Reference Material Producers

This certificate relates solely to the lot number given above.
All processes (including generating of this certificate) are completely controlled by the specialized Computer-Aided-Manufacturing (CAM) software.

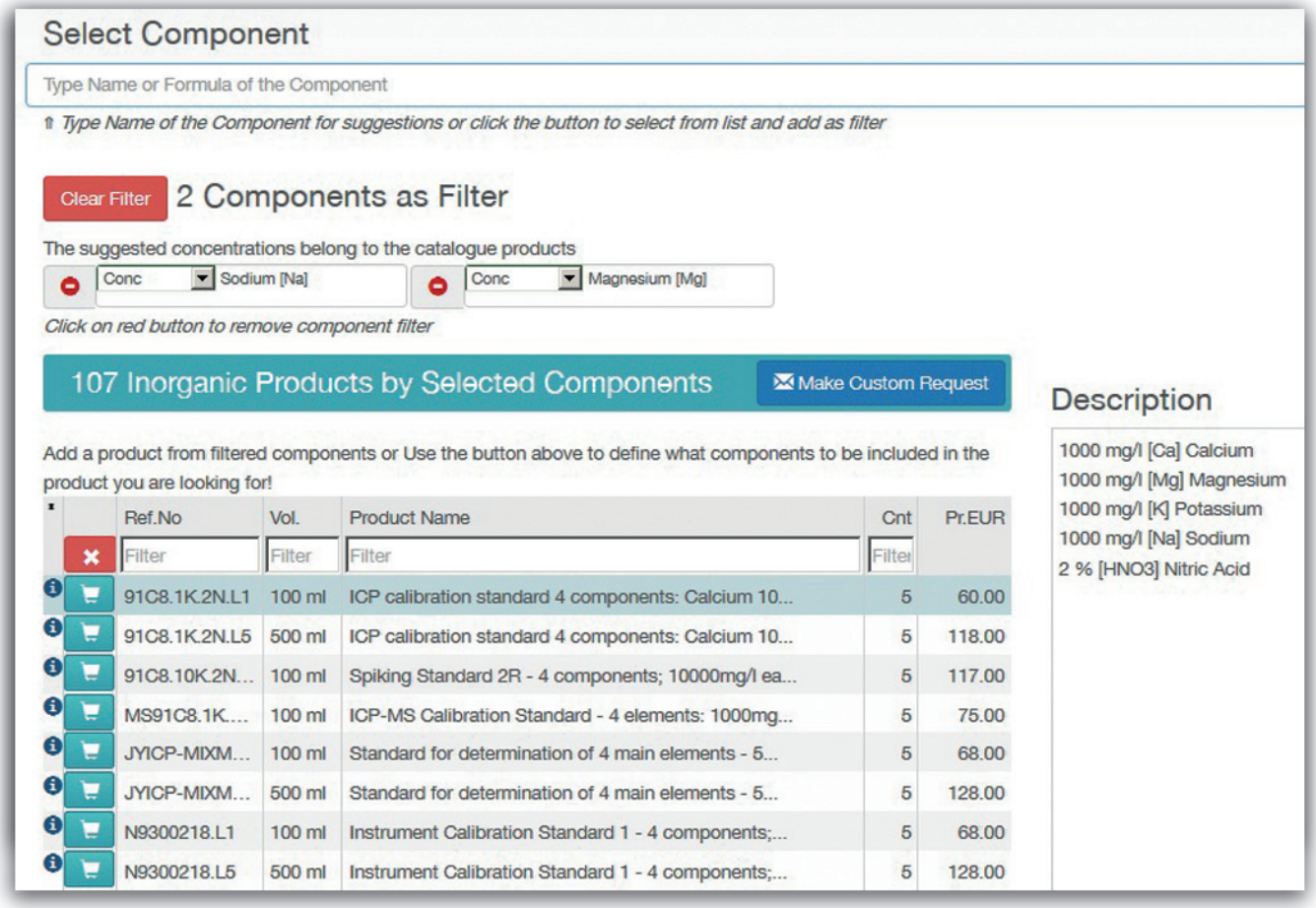
This Certified Reference Material was produced under a quality management system that is:
- Registered to ISO 9001 Quality Management System (Lloyd's Register Quality Assurance Ltd Cert No SOF0368072)
- Accredited according to ISO/IEC 17025 – Testing (ANAB Cert No AT-1836)
- Accredited according to ISO Guide 34 - Reference Material Producer (ANAB Cert No AR-1835)

Search Engine

This edition contains a selection of the most popular multi inorganic standards for ICP, ICP-MS, Ion Chromatography and also all of CPAchem's catalog mono inorganic standards for AAS, ICP & ICP-MS and Ion Chromatography.

In order to find the full list of our products, CPAchem Ltd. recommends you to use our most sophisticated search engine.

Our new Interactive multi-element solutions finder allowing a user-friendly search among thousands of single and multi-component inorganic stock products.



Quotation request form

If there isn't a stock product matching your needs, you can make a custom request at: www.cpachem.com/custom/inorganic

WE TAILOR THE FUTURE OF CRM!
CPAchem
invented the custom-made standards in solutions in 2001 and is a world leader in manufacturing of custom reference solutions, prepared to specific customer requirements:
they match exactly your needs and give you opportunities to quickly achieve your goals;
they are very cost-effective;
short lead time –
- from 2 to 5 days usually;
- emergency orders - 24 hours.
Experience the benefits of our tailor-made solutions!
Send us your request to sales@cpachem.com

ICP

Description	Ref. number volume (ml)
Standard Solution 100 mg/l Al, Ag, 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, in HNO3 5%	MB56A.K1.5N, 50, 100, 500
Standard Solution 1mg/l each of Al; Ag; 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 in HNO3 2%	MB56A.1.2N 100, 500
Standard Solution 100 mg/l Al, Ag, As, B, Ba, Be, Bi, Ca, Cd, Cs, Co, Cr, Cu, Fe, In, K, Li, Mg, Mn, Mo, Na, Ni, Nb, Pb, Rb, Sb, Se, Sr, Ti, Tl, V, U, Zn in HNO3 5%	M8A96.K1.5N 50, 100, 500
Standard Solution 1 mg/l each of Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Cs, Co, Cr, Cu, Fe, In, K, Li, Mg, Mn, Mo, Na, Ni, Nb, Pb, Rb, Sb, Se, Sr, Ti, Tl, V, U, Zn, in HNO3 5%	M8A96.1.5N 100, 500
ICP Calibration Standard (IV) 23 components; 1000mg/l each of Ag; Al; B; Ba; Bi; Ca; Cd; Co; Cr; Cu; Fe; Ga; In; K; Li; Mg; Mn; Na; Ni; Pb; Sr; Tl; Zn in HNO3 2%	8263.1K.2N 100
ICP Calibration Standard 4 components; 1000mg/l each of Ca; Mg; K; Na in HNO3 2%	91C8.1K.2N 100, 500
21 components; 100mg/l each of Al; As; B; Ca; Cd; Cr; Co; Cu; Fe; K; Mg; Mn; Mo; Na; Ni; Pb; P; Ti; Zn; Si; S in HNO3 5%	BE89.K1.5N 100, 500
Standard Solution 100 mg/l each of As, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sr, Ti, Tl, V, Zn, all in 5% HNO3	M52B5.K1.5N 50, 100, 500
Calibration solution - 26 components; 100ppm each of Al; As; Ba; Be; Bi; B; Cd; Ca; Cr; Co; Cu; Fe; Pb; Li; Mg; Mn; Mo; Ni; K; Se; Na; Sr; Tl; Ti; V; Zn in HNO3 5%	MU01100100 100
36 components; 10mg/l each of Ag; Al; As; Ba; B; Ca; Cd; Ce; Co; Cr; Cu; Dy; Er; Eu; Fe; Gd; Ho; K; La; Li; Lu; Mg; Mn; Na; Nd; Ni; P; Pb; Rb; Se; Sm; Sr; Tl; Tm; V; Zn in HNO3 2%	3256.10.2N 100, 500
Standard Solution 1 mg/l each of: As, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sr, Ti, Tl, V, Zn in 5% HNO3	M52B5.1.5N 100, 500
32 components; 100mg/l each of Ag; Al; Ba; Bi; Ca; Cd; Co; Cr; Cu; Fe; Ga; Ge; In; K; Li; Mg; Mn; Mo; Na; Nb; Ni; P; Pb; Re; Sb; Si; Sn; Ta; Ti; V; W; Zn in HNO3 5%	0C6A.K1.5N 100, 500

ICP

Description	Ref. number volume (ml)
17 components; Ag 2mg/l; Al 20mg/l; As 2mg/l; Ba 5mg/l; Cd 0.2mg/l; Cr 3mg/l; Cu 4mg/l; Fe 20mg/l; Mn 10mg/l; Mo 1mg/l; Ni 2mg/l; Pb 5mg/l; Se 0.5mg/l; Sb 2mg/l; Sn 5mg/l; Tl 2mg/l; Zn 10mg/l in HNO3 2%	006B.2.2N 100, 500
ICP-OES Wavelength Calibration Solution Concentrate 15 components; Al 50ug/ml; As 50ug/ml; Ba 50ug/ml; Cd 50ug/ml; Co 50ug/ml; Cr 50ug/ml; Cu 50ug/ml; Mn 50ug/ml; Mo 50ug/ml; Ni 50ug/ml; Pb 50ug/ml; Se 50ug/ml; Sr 50ug/ml; Zn 50ug/ml; K 500ug/ml in HNO3 5%	6610030000 100, 500
13 components; Ca 100mg/l; Mg 25mg/l; Cu 0.2mg/l; Zn 0.2mg/l; Mn 0.2mg/l; Fe 0.1mg/l; Na 50mg/l; K 25mg/l; Al 0.02mg/l; Ba 0.2mg/l; V 0.2mg/l; Mo 0.2mg/l; Be 0.2mg/l in HNO3 5%	9E24.D02.5N 100, 500
Solution ICP 21 components; 1000mg/l each of Ag; As; Al; B; Ba; Bi; Cd; Co; Cr; Cu; Fe; Ga; In; Li; Mn; Ni; Pb; Sr; Tl; Zn; Si in HNO3 4%	B09A.1K.4N 100, 500
2 components; 100mg/l each of P; S in H2O	F4AD.K1.W 100, 500
12 components; Ca 3000mg/l; Mg 450mg/l; K 1200mg/l; Na 150mg/l; SO42- 3000mg/l; P 234.8mg/l; Fe 30mg/l; Mn 30mg/l; Cu 15mg/l; Zn 15mg/l; B 30mg/l; Mo 6mg/l in Nitric Acid 2%	9C24.30.2N 100, 500
2 components; 200ug/l each of Cd; Pb in HNO3 2%	1B92.D2.2N 100, 500
12 components; Ca 3000mg/l; Mg 450mg/l; K 1200mg/l; Na 3000mg/l; SO42- 3000mg/l; P 234.8mg/; Fe 30mg/l; Mn 30mg/l; Cu 15mg/l; Zn 15mg/l; B 30mg/l; Mo 6mg/l in Nitric Acid 2%	F8AA.30.2N 100, 500

ICP-MS

Description	Ref. number volume (ml)
Standard 4 components; 1000mg/l each of Ca; Mg; K; Na in HNO3 2%	MS91C8.1K.2N 100
Tuning Solution for ICP-MS 6 components: 1ug/l each of Li; Mg; Y; Ce; Tl; Co in HNO3 2%	5185-5959 500
QC-MS 18 elements : Silver 10mg/l; Aluminium 10mg/l; Arsenic 10mg/l; Barium 10mg/l; Beryllium 10mg/l; Cadmium 10mg/l; Chromium 10mg/l; Cobalt 10mg/l; Copper 10mg/l; Manganese 10mg/l; Nickel 10mg/l; Lead 10mg/l; Selenium 10mg/l; Thorium 10mg/l; Thallium 10mg/l; Uranium 10mg/l; Vanadium 10mg/l; Zinc 10mg/l; Nitric Acid 2%;	MSBEDC.10.2N 100
Calibration Standard 31 components: Silver 10mg/l; Aluminium 10mg/l; Arsenic 10mg/l; Barium 10mg/l; Boron 10mg/l; Cadmium 10mg/l; Cerium 10mg/l; Cobalt 10mg/l; Chromium 10mg/l; Copper 10mg/l; Dysprosium 10mg/l; Erbium 10mg/l; Gadolinium 10mg/l; Holmium 10mg/l; Lanthanum 10mg/l; Lithium 10mg/l; Lutetium 10mg/l; Manganese 10mg/l; Neodymium 10mg/l; Nickel 10mg/l; Phosphorus 10mg/l; Lead 10mg/l; Rubidium 10mg/l; Selenium 10mg/l; Samarium 10mg/l; Strontium 10mg/l; Thallium 10mg/l; Thulium 10mg/l; Uranium 10mg/l; Vanadium 10mg/l; Zinc 10mg/l; Nitric Acid 2%;	MSE194.10.2N 100, 250
QC 31 components: Silver 0.01mg/l; Aluminium 0.01mg/l; Arsenic 0.01mg/l; Boron 0.01mg/l; Barium 0.01mg/l; Cadmium 0.01mg/l; Cerium 0.01mg/l; Cobalt 0.01mg/l; Chromium 0.01mg/l; Copper 0.01mg/l; Dysprosium 0.01mg/l; Erbium 0.01mg/l; Gadolinium 0.01mg/l; Holmium 0.01mg/l; Lanthanum 0.01mg/l; Lithium 0.01mg/l; Lutetium 0.01mg/l; Manganese 0.01mg/l; Neodymium 0.01mg/l; Nickel 0.01mg/l; Phosphorus 0.01mg/l; Lead 0.01mg/l; Rubidium 0.01mg/l; Selenium 0.01mg/l; Samarium 0.01mg/l; Strontium 0.01mg/l; Thallium 0.01mg/l; Thulium 0.01mg/l; Uranium 0.01mg/l; Vanadium 0.01mg/l; Zinc 0.01mg/l; Nitric Acid 1%;	MSE194.D01.1N 100, 500
4 components; 10mg/l each of Mo; Sb; Sn; Ti in HNO3 2%; HF 0.1%	D298.10.2N01F 100, 500
6020 Interference Check Solution A for ICP-MS systems 12 components; Chlorides (Cl-) 20000ug/ml; Calcium (Ca) 3000ug/ml; Iron (Fe) 2500ug/ml; Sodium (Na) 2500ug/ml; Carbon (C) 2000ug/ml; Aluminium (Al) 1000ug/ml; Magnesium (Mg) 1000ug/ml; Phosphorus (P) 1000ug/ml; Potassium (K) 1000ug/ml; Sulphur (S) 1000ug/ml; Molybdenum (Mo) 20ug/ml; Titanium (Ti) 20ug/ml in Nitric Acid 5%; Hydrofluoric acid tr%	5188-6526 100, 500

Find the full list of our stock products at www.cpachem.com/inorganic

ICP-MS

Description	Ref. number volume (ml)
12 components; As 2.5mg/l; Cd 0.5mg/l; Cr 5mg/l; Hg 0.2mg/l; Ni 5mg/l; Pb 5mg/l; Zn 5mg/l; Ba 2.5mg/l; Cu 5mg/l; Mo 3mg/l; Sb 0.5mg/l; Se 0.7mg/l in HNO3 2%	E9A6.2D5.2N 100, 500
12 components; 10mg/l each of Ba; Be; Ce; Co; Li; In; Mg; Pb; Rh; Tl; U; Y in HNO3 2% for ICP-MS	MS2047.10.2N 100, 250, 500
21 components; 100ug/ml each of Al; Ag; As; Ba; Be; Cd; Co; Cr; Cu; Fe; K; Mn; Mo; Ni; Pb; Sb; Se; Tl; V; Zn; Sn in HNO3 5%	E5B8.K1.5N 100, 250, 500
Tuning Solution for ICP-MS 6 components; 1ug/l each of Li; Mg; Y; Ce; Tl; Co in HNO3 2%	MS2768.D001.2N 100, 500
27 components; B 40mg/l; Be 40mg/l; Cd 40mg/l; Se 40mg/l; Tl 40mg/l; Li 40mg/l; Ti 40mg/l; In 40mg/l; Ag 50mg/l; Ba 50mg/l; Co 50mg/l; Cr 50mg/l; Cu 50mg/l; Fe 50mg/l; Mn 50mg/l; Ni 50mg/l; Sr 50mg/l; V 50mg/l; Zn 50mg/l; Al 80mg/l; As 80mg/l; K 80mg/l; Pb 80mg/l; Na 80mg/l; Mg 80mg/l; Ca 80mg/l; P 200mg/l in HNO3 2%	0F49.50.2N 100, 500
8 components; As 2mg/l; Cd 2mg/l; Cr 3mg/l; Cu 10mg/l; Fe 4mg/l; Ni 2mg/l; Pb 5mg/l; Zn 10mg/l in HNO3 2%	2407.2.2N 100, 250, 500
10 components; W 40mg/l; Rh 40mg/l; Pt 40mg/l; Pd 40mg/l; Te 40mg/l; Zr 40mg/l; Si 40mg/l; Mo 50mg/l; Sb 80mg/l; Sn 80mg/l in HCl 2%; HF tr	C304.50.2CtrF 100, 500
Tuning Solution for ICP/MS 9 components; 10mg/l each of Ba; Be; Ce; Co; In; Mg; Pb; Th; Tl in HNO3 2%	190024400 100, 500
Calibration standard 8 components: 10 mg/l each of Ge, Hf, Mo, Sb, Sn, Te, W, Zr, in HNO3 2%; HF 0.1%;	MSBD60.10.2N01F 100, 500
28 elements; Al 0.050mg/l; As 0.050mg/l; B 0.2mg/l; Ba 0.050mg/l; Bi 0.050mg/l; Ca 0.5mg/l; Cd 0.005mg/l; Co 0.050mg/l; Cr 0.1mg/l; Be 0.010mg/l; Cu 0.050mg/l; Fe 0.1mg/l; K 0.2mg/l; Na 0.5mg/l; Li 0.020mg/l; Mg 0.250mg/l; Mn 0.050mg/l; Mo 0.050mg/l; Ni 0.1mg/l; P 0.3mg/l; Pb 0.050mg/l; Se 0.05mg/l; Si 1mg/l; S 1mg/l; Ti 0.050mg/l; U 0.050mg/l; V 0.050mg/l; Zn 0.1mg/l; HNO3 5%;	0956.D05.5N 100, 500
ICP-MS Stock Tuning Solution- 5 components; 10mg/l each of Li; Y; Ce; Co; Tl in HNO3 2%	5188-6564 100

ICP-MS

Description	Ref. number volume (ml)
3 components; Cr 4mg/l; Sr 4mg/l; Fe 20mg/l in HNO3 2%	61D0.4.2N 100, 500
Multi-element calibration standard-2A for ICP-MS - 28 components; 10mg/l each of Ag; Al; As; Ba; Be; Ca; Cd; Co; Cr; Cs; Cu; Fe; Ga; Hg; K; Li; Mg; Mn; Na; Ni; Pb; Rb; Se; Sr; Tl; U; V; Zn in HNO3 5%	8500-6940 100
22 components; Ag 5mg/l; Al 30mg/l; As 10mg/l; B 30mg/l; Ba 10mg/l; Be 3mg/l; Cd 3mg/l; Co 5mg/l; Cr 10mg/l; Cu 10mg/l; Mn 5mg/l; Mo 3mg/l; Ni 10mg/l; Pb 5mg/l; Se 5mg/l; Sn 10mg/l; Tl 2mg/l; Te 10mg/l; V 10mg/l; Zn 100mg/l; Sr 100mg/l; Ti 3mg/l in HNO3 2%	MS069C.5.2N 100, 500
ICP/MS Calibration standard 4 components: Calcium 1000mg/l; Magnesium 1000mg/l; Potassium 1000mg/l; Sodium 1000mg/l; Iron 1000mg/l; Nitric Acid 2%	MS13BF.1K.2N 100, 250
16 components; 10ug/ml each of Cu; Sr; Mn; Li; Co; As; Zn; Se; Cs; Rb; Pb; Sc; Ni; V; Cr; Be in HNO3 5%	MSE5D8.10.5N 100, 500
ICP-MS Calibration Standard (XXI) - 29 components; 10mg/l each of Ag; Al; As; Ba; Be; Bi; Ca; Cd; Co; Cr; Cs; Cu; Fe; Ga; In; K; Li; Mg; Mn; Na; Ni; Pb; Rb; Se; Sr; Tl; U; V; Zn in HNO3 5%	109498, N9300233 100, 500
Multi-Element Solution 4 - 10 components; 10mg/l each of Au; Hf; Ir; Pd; Pt; Rh; Ru; Sb; Sn; Te in HCl 10%; HNO3 1%	N9300234 100
Tuning Solution for ICP/MS 9 components; 10mg/l each of Ba; Be; Ce; Co; In; Mg; Pb; Th; Tl in HNO3 2%	190024400 100

Ion Chromatography

Description	Ref. number volume (ml)
Standard 7 ions: 1000mg/l each of Fluorides (F-); Chlorides (Cl-); Nitrites (NO2-); Bromides (Br-); Nitrates (NO3-); Sulphates (SO42-); Phosphates (PO43-) in Water	1521.1K.W 100, 250
Mixed Anions Standard - 7 components; 100mg/l each of Chlorides (Cl-); Fluorides (F-); Sulphates (SO42-); Nitrates (NO3-); Nitrites (NO2-); Bromides (Br-); Phosphates (PO43-) in Water	1521.K1.W 100, 500 REAIC1035.L1 100
7 components; 10mg/l each of Fluorides (F-); Chlorides (Cl-); Nitrites (NO2-); Bromides (Br-); Nitrates (NO3-); Sulphates (SO42-); Phosphates (PO43-) in Water	1521.10.W 100, 500
Fluorides 5mg/l; Chlorides 10mg/l; Nitrites 15mg/l; Bromides 25mg/l; Nitrates 25mg/l; Phosphates 40mg/l; Sulphates 30mg/l; Water	ACE63.25.W 100, 500
Standard Solution 3 components; 1000mg/l each of Chlorides (Cl-); Nitrates (NO3-); Sulphates (SO42-) in Water	3905.1K.W 100
3 components; Phosphates (PO43-) 50mg/l; Chlorides (Cl-) 0.5mg/l; Sulphates (SO42-) 0.5mg/l in Water	3784.D5.W 100, 500
3 components; Phosphates (PO43-) 20mg/l; Chlorides (Cl-) 0.2mg/l; Sulphates (SO42-) 0.2mg/l in Water	3784.D2.W 100, 500
6 components; 1000mg/l each of Nitrates (NO3-); Chlorides (Cl-); Sulphates (SO42-); Bromides (Br-); Phosphates (PO43-); Fluorides (F-) in Water	E3A7.1K.W 100
Standard Solution 6 components; 100mg/l each of Fluorides (F-); Chlorides (Cl-); Bromides (Br-); Nitrates (NO3-); Phosphates (PO43-); Sulphates (SO42-) in Water	E3A7.K1.W 100
2 components; Phosphates (PO43-) 50mg/l; Chlorides (Cl-) 0.5mg/l in Water	3029.D5.W 100, 500
2 components; Phosphates (PO43-) 20mg/l; Chlorides (Cl-) 0.2mg/l in Water	3029.D2.W 100, 500
Standard Solution 6 components: Lithium 10mg/l; Sodium 20mg/l; Ammonium 40mg/l; Calcium 40mg/l; Magnesium 20mg/l; Potassium 20mg/l; Nitric Acid 0.1%	A3DCF.40.01N 100, 500

Ion Chromatography

Description	Ref. number volume (ml)
2 components; Phosphates (PO43-) 50mg/l; Chlorides (Cl-) 5mg/l in Water	23A9.5.W 100, 500
Multi-Ion Standard 4 components; 1000mg/l each of Sodium (Na+); Potassium (K+); Magnesium (Mg2+); Calcium (Ca2+) in Water	4C79.1K.W 100
Standard Solution 5 components; 100mg/l each of Ammonium (NH4+); Magnesium (Mg2+); Calcium (Ca2+); Sodium (Na+); Potassium (K+) in Water	1A15.K1.W 100
3 components; 1000mg/l each of Fluorides (F-); Bromides (Br-); Phosphates (PO43-) in Water	60DB.1K.W 100, 250, 500
6 components; Fluorides (F-) 100mg/l; Chlorides (Cl-) 300mg/l; Nitrites (NO2-) 50mg/l; Nitrates (NO3-) 100mg/l; Phosphates (PO43-) 100mg/l; Sulphates (SO42-) 300mg/l in Water	0F6C.K3.W 100, 250
Standard Solution 6 components: Lithium 0.5mg/l; Sodium 2mg/l; Ammonium 2.5mg/l; Potassium 5mg/l; Magnesium 2.5mg/l; Calcium 5mg/l; Nitric Acid 0.1%	A7A40.5.01N 100, 500
7 components; Chlorides (Cl-) 100mg/l; Fluorides (F-) 25mg/l; Sulphates (SO42-) 100mg/l; Nitrates (NO3-) 100mg/l; Nitrites (NO2-) 100mg/l; Bromides (Br-) 100mg/l; Phosphates (PO43-) 100mg/l in Water	7344.K1.W 100, 250, 500
5 components; Chlorides (Cl-) 40mg/l; Nitrites (NO2-) 10mg/l; Nitrates (NO3-) 40mg/l; Phosphates (PO43-) 20mg/l; Sulphates (SO42-) 100mg/l in Water	D371.40.W 100, 500

Water Check

Description	Ref. number volume (ml)
Calcium 1mg/l; Magnesium 0.2mg/l; Sodium 0.5mg/l; Potassium 0.5mg/l; Phosphorus 0.5mg/l; Sulphur 2mg/l; Silicon 1mg/l; Aluminium 0.005mg/l; Silver 0.005mg/l; Arsenic 0.01mg/l; Boron 0.05mg/l; Barium 0.005mg/l; Beryllium 0.002mg/l; Bismuth 0.01mg/l; Cadmium 0.0005mg/l; Cobalt 0.002mg/l; Chromium 0.002mg/l; Copper 0.005mg/l; Iron 0.01mg/l; Lithium 0.05mg/l; Manganese 0.002mg/l; Molybdenum 0.005mg/l; Nickel 0.005mg/l; Lead 0.005mg/l; Antimony 0.01mg/l; Selenium 0.01mg/l; Strontium 0.005mg/l; Titanium 0.002mg/l; Thallium 0.01mg/l; Vanadium 0.005mg/l; Zinc 0.01mg/l; Water/ tr. HNO3	QCCPAWater1 100, 400
Calcium 10mg/l; Magnesium 2mg/l; Sodium 5mg/l; Potassium 5mg/l; Phosphorus 5mg/l; Sulphur 20mg/l; Silicon 10mg/l; Aluminium 0.05mg/l; Silver 0.05mg/l; Arsenic 0.1mg/l; Boron 0.5mg/l; Barium 0.05mg/l; Beryllium 0.02mg/l; Bismuth 0.1mg/l; Cadmium 0.005mg/l; Cobalt 0.02mg/l; Chromium 0.02mg/l; Copper 0.05mg/l; Iron 0.1mg/l; Lithium 0.5mg/l; Manganese 0.02mg/l; Molybdenum 0.05mg/l; Nickel 0.05mg/l; Lead 0.05mg/l; Antimony 0.1mg/l; Selenium 0.1mg/l; Strontium 0.05mg/l; Titanium 0.02mg/l; Thallium 0.1mg/l; Vanadium 0.05mg/l; Zinc 0.1mg/l; Water/ tr. HNO3	QCCPAWater2 100, 400
Calcium 100mg/l; Magnesium 20mg/l; Sodium 5mg/l; Potassium 5mg/l; Phosphorus 5mg/l; Sulphur 20mg/l; Silicon 10mg/l; Aluminium 0.05mg/l; Silver 0.05mg/l; Arsenic 0.1mg/l; Boron 0.5mg/l; Barium 0.05mg/l; Beryllium 0.02mg/l; Bismuth 0.1mg/l; Cadmium 0.005mg/l; Cobalt 0.02mg/l; Chromium 0.02mg/l; Copper 0.05mg/l; Iron 0.1mg/l; Lithium 0.5mg/l; Manganese 0.02mg/l; Molybdenum 0.05mg/l; Nickel 0.05mg/l; Lead 0.05mg/l; Antimony 0.1mg/l; Selenium 0.1mg/l; Strontium 0.05mg/l; Titanium 0.02mg/l; Thallium 0.1mg/l; Vanadium 0.05mg/l; Zinc 0.1mg/l; Nitric Acid 2%	CPAWater3 100
Calcium 1000mg/l; Magnesium 200mg/l; Sodium 50mg/l; Potassium 50mg/l; Phosphorus 50mg/l; Sulphur 200mg/l; Silicon 100mg/l; Aluminium 0.5mg/l; Silver 0.5mg/l; Arsenic 1mg/l; Boron 5mg/l; Barium 0.5mg/l; Beryllium 0.2mg/l; Bismuth 1mg/l; Cadmium 0.05mg/l; Cobalt 0.2mg/l; Chromium 0.2mg/l; Copper 0.5mg/l; Iron 1mg/l; Lithium 5mg/l; Manganese 0.2mg/l; Molybdenum 0.5mg/l; Nickel 0.5mg/l; Lead 0.5mg/l; Antimony 1mg/l; Selenium 1mg/l; Strontium 0.5mg/l; Titanium 0.2mg/l; Thallium 1mg/l; Vanadium 0.5mg/l; Zinc 1mg/l; Nitric Acid 2%	CPAWater4 100

Water Check

Description	Ref. number volume (ml)
Calcium 2000mg/l; Magnesium 400mg/l; Sodium 100mg/l; Potassium 100mg/l; Phosphorus 100mg/l; Sulphur 400mg/l; Silicon 200mg/l; Aluminium 1mg/l; Silver 1mg/l; Arsenic 2mg/l; Boron 10mg/l; Barium 1mg/l; Beryllium 0.4mg/l; Bismuth 2mg/l; Cadmium 0.1mg/l; Cobalt 0.4mg/l; Chromium 0.4mg/l; Copper 1mg/l; Iron 2mg/l; Lithium 10mg/l; Manganese 0.4mg/l; Molybdenum 1mg/l; Nickel 1mg/l; Lead 1mg/l; Antimony 2mg/l; Selenium 2mg/l; Strontium 1mg/l; Titanium 0.4mg/l; Thallium 2mg/l; Vanadium 1mg/l; Zinc 2mg/l; Nitric Acid 5%	CPAWater5 100
CRM water 1 (Ca 1000 µg/l): Calcium 1mg/l; Magnesium 0.2mg/l; Sodium 0.5mg/l; Potassium 0.5mg/l; Phosphorus 0.5mg/l; Sulphur 2mg/l; Silicon 1mg/l; Aluminium 0.005mg/l; Silver 0.005mg/l; Arsenic 0.01mg/l; Boron 0.05mg/l; Barium 0.005mg/l; Beryllium 0.002mg/l; Bismuth 0.01mg/l; Cadmium 0.0005mg/l; Cobalt 0.002mg/l; Chromium 0.002mg/l; Copper 0.005mg/l; Iron 0.01mg/l; Lithium 0.05mg/l; Manganese 0.002mg/l; Molybdenum 0.005mg/l; Nickel 0.005mg/l; Lead 0.005mg/l; Antimony 0.01mg/l; Selenium 0.01mg/l; Strontium 0.005mg/l; Titanium 0.002mg/l; Thallium 0.01mg/l; Vanadium 0.005mg/l; Zinc 0.01mg/l; Nitric Acid 0.05%	WCEBF.D005.005N.L1 100
CRM water 2 (Ca 10 000 µg/l): Calcium 10mg/l; Magnesium 2mg/l; Sodium 5mg/l; Potassium 5mg/l; Phosphorus 5mg/l; Sulphur 20mg/l; Silicon 10mg/l; Aluminium 0.05mg/l; Silver 0.05mg/l; Arsenic 0.1mg/l; Boron 0.5mg/l; Barium 0.05mg/l; Beryllium 0.02mg/l; Bismuth 0.1mg/l; Cadmium 0.005mg/l; Cobalt 0.02mg/l; Chromium 0.02mg/l; Copper 0.05mg/l; Iron 0.1mg/l; Lithium 0.5mg/l; Manganese 0.02mg/l; Molybdenum 0.05mg/l; Nickel 0.05mg/l; Lead 0.05mg/l; Antimony 0.1mg/l; Selenium 0.1mg/l; Strontium 0.05mg/l; Titanium 0.02mg/l; Thallium 0.1mg/l; Vanadium 0.05mg/l; Zinc 0.1mg/l; Nitric Acid 0.5%	WCEBF.D05.05N.L1 100
CRM water 3 (Ca 100 000 µg/l): Calcium 100mg/l; Magnesium 20mg/l; Sodium 50mg/l; Potassium 50mg/l; Phosphorus 50mg/l; Sulphur 200mg/l; Silicon 100mg/l; Aluminium 0.5mg/l; Silver 0.5mg/l; Arsenic 1mg/l; Boron 5mg/l; Barium 0.5mg/l; Beryllium 0.2mg/l; Bismuth 1mg/l; Cadmium 0.05mg/l; Cobalt 0.2mg/l; Chromium 0.2mg/l; Copper 0.5mg/l; Iron 1mg/l; Lithium 5mg/l; Manganese 0.2mg/l; Molybdenum 0.5mg/l; Nickel 0.5mg/l; Lead 0.5mg/l; Antimony 1mg/l; Selenium 1mg/l; Strontium 0.5mg/l; Titanium 0.2mg/l; Thallium 1mg/l; Vanadium 0.5mg/l; Zinc 1mg/l; Nitric Acid 5%	WCEBF.D5.5N.L1 100

Find the full list of our stock products at www.cpachem.com/inorganic

Water Check

Description	Ref. number volume (ml)
CRM water 4 (Ca 1000 000 µg/l): Calcium 1000mg/l; Magnesium 200mg/l; Sodium 500mg/l; Potassium 500mg/l; Phosphorus 500mg/l; Sulphur 2000mg/l; Silicon 1000mg/l; Aluminium 5mg/l; Silver 5mg/l; Arsenic 10mg/l; Boron 50mg/l; Barium 5mg/l; Beryllium 2mg/l; Bismuth 10mg/l; Cadmium 0.5mg/l; Cobalt 2mg/l; Chromium 2mg/l; Copper 5mg/l; Iron 10mg/l; Lithium 50mg/l; Manganese 2mg/l; Molybdenum 5mg/l; Nickel 5mg/l; Lead 5mg/l; Antimony 10mg/l; Selenium 10mg/l; Strontium 5mg/l; Titanium 2mg/l; Thallium 10mg/l; Vanadium 5mg/l; Zinc 10mg/l; Nitric Acid 5%	WCEBF.5.5N.L1 100
CRM water 5 (Ca 2 000 000 mg/l): Calcium 2000mg/l; Magnesium 400mg/l; Sodium 1000mg/l; Potassium 1000mg/l; Phosphorus 1000mg/l; Sulphur 4000mg/l; Silicon 2000mg/l; Aluminium 10mg/l; Silver 10mg/l; Arsenic 20mg/l; Boron 100mg/l; Barium 10mg/l; Beryllium 4mg/l; Bismuth 20mg/l; Cadmium 1mg/l; Cobalt 4mg/l; Chromium 4mg/l; Copper 10mg/l; Iron 20mg/l; Lithium 100mg/l; Manganese 4mg/l; Molybdenum 10mg/l; Nickel 10mg/l; Lead 10mg/l; Antimony 20mg/l; Selenium 20mg/l; Strontium 10mg/l; Titanium 4mg/l; Thallium 20mg/l; Vanadium 10mg/l; Zinc 20mg/l; Nitric Acid 5%	WCEBF.10.5N.L1 100
Synthetic Sea Water acc. to ASTM D665 : 10 components; NaCl 24.54g/l; MgCl2x6H2O 11.10g/l; Na2SO4 4.09g/l; CaCl2 1.16g/l; KCl 0.69g/l; NaHCO3 0.20g/l; KBr 0.1g/l; H3BO3 0.03g/l; SrCl2 0.04g/l; NaF 0.003g/l in H2O	SSW 100, 500
Standard Quality Control for Chlorine - Chlorides (Cl-) 10000mg/l in Water	JYICP-QC2 100, 500
29 components; Al 120ug/l; Sb 10ug/l; As 80ug/l; Ba 50ug/l; Be 20ug/l; Bi 10ug/l; Cd 10ug/l; Ca 35000ug/l; Cr 20ug/l; Co 25ug/l; Cu 20ug/l; Fe 100ug/l; Pb 40ug/l; Li 20ug/l; Mg 9000ug/l; Mn 40ug/l; Mo 100ug/l; Ni 60ug/l; K 2500ug/l; Rb 10ug/l; Se 10ug/l; Ag 2ug/l; Na 6000ug/l; Sr 250ug/l; Te 3ug/l; Tl 10ug/l; U 10ug/l; V 30ug/l; Zn 70ug/l in HNO3 2%; HF 0.1%	A19C.D002.2N01F 100, 250
25 components; Ag 6ug/l; Al 10ug/l; Ba 4ug/l; Be 35ug/l; Bi 3ug/l; Ce 3ug/l; Co 8ug/l; Cs 3ug/l; Cu 15ug/l; Ga 10ug/l; Ho 3ug/l; In 3ug/l; Li 8ug/l; Mg 10ug/l; Mn 6ug/l; Ni 15ug/l; Rh 3ug/l; Sc 8ug/l; Sr 5ug/l; Ta 3ug/l; Tb 3ug/l; Tl 4ug/l; U 3ug/l; Y 3ug/l; Zn 20ug/l in HNO3 2% for ICP/MS - (Rh as mono)	30D3.D006.2N 100, 250, 500

CPAchem *The Experts in Custom-made Inorganic and Organic Standards*

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