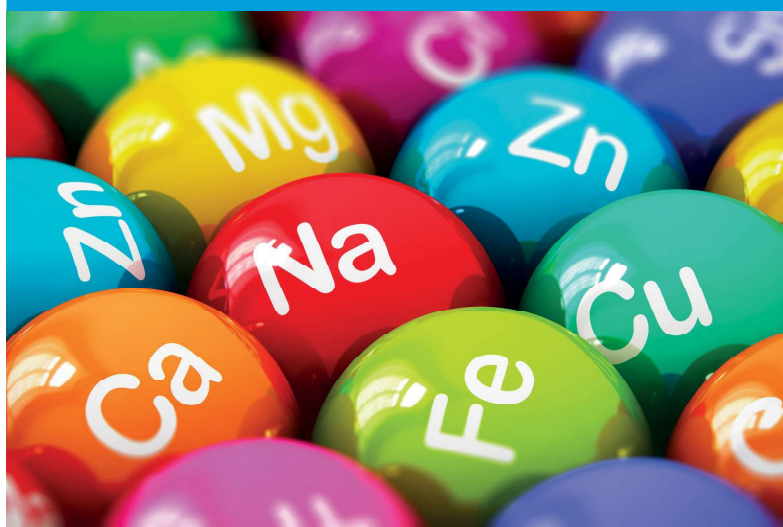




TOP INORGANIC STANDARDS



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

Quality Certification and Accreditation



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; 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% HNO₃

Ref N: MB56A K1.5N L5

Certified value/ Uncertainty:

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

Method(s) of certification used: CRM's calibration procedure(s):

(y) WQP 5.15.1.24

Notes:

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)

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[AgNO ₃] : 5N : T : 5 : O01
H ₂ AsO ₄ 99.999%	100 : As[H ₃ AsO ₄] : H ₂ O : TNH ₄ : 5 : K06
H ₂ BO ₃ 99.999%	5 : B[H ₃ BO ₃] : H ₂ O : T : 5 : O01
Ba(NO ₃) ₂ 99.999%	20 : Ba[Ba(NO ₃) ₂] : 2N : T : 5 : O08
Be ₂ O(C ₂ H ₃ O ₂) ₆ 99.9989%	20 : Be[Be ₂ O(C ₂ H ₃ O ₂) ₆] : 5N : T : 489 : O04
Bi 99.999%	50 : Bi[Bi] : 5N : T : 5 : N01
Ca(NO ₃) ₂ 99.998%	80 : Ca[Ca(NO ₃) ₂] : 5N : T : 48 : O06
Cd 99.999%	50 : Cd[Cd] : 5N : T : 5 : O01
Co(NO ₃) ₂ 99.999%	30 : Co[Co(NO ₃) ₂] : 8N : T : 5 : O02
Cr(NO ₃) ₃ 99.999%	50 : Cr[Cr(NO ₃) ₃] : 2N : T : 5 : O01
Cu 99.999%	60 : Cu[Cu] : 10N : T : 5 : O05
Fe 99.999%	50 : Fe[Fe] : 10N : T : 4 : O02
KNO ₃ 99.999%	50 : K[KNO ₃] : 5N : T : 5 : N05
Li ₂ CO ₃ 99.999%	55 : Li[Li ₂ CO ₃] : 2N : T : 5 : O01
Mg(NO ₃) ₂ 99.999%	60 : Mg[Mg(NO ₃) ₂] : 5N : T : 5 : O01
Mn 99.99%	50 : Mn[Mn] : 5N : T : 4 : O05
(NH ₄) ₂ MoO ₄ 99.999	20 : Mo[(NH ₄) ₂ MoO ₄] : 5N0.5F : T : 5 : O02
NaNO ₂ 99.9985%	50[100] : Na[NaNO ₂] : 5N : T : 485 : N07-12
Ni(NO ₃) ₂ 99.999%	50 : Ni[Ni(NO ₃) ₂] : 5N : T : 5 : O02
Pb(NO ₃) ₂ 99.999%	50 : Pb[Pb(NO ₃) 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[SrCO ₃] : 2N : T : 48 : N03
(NH ₄) ₂ TiF ₆ 99.999%	10 : Ti[(NH ₄) ₂ TiF ₆] : 5N0.5F : T : 5 : N04
Ti 99.999%	20 : Ti[Ti] : 5N : T : 5 : N03
NH ₄ VO ₃ 99.996%	20 : V[NH ₄ VO ₃] : 2N : T : 46 : O04
Zn 99.99	50 : Zn[Zn] : 5N : T : 4 : O02

1.042 g/cm³ at 20 °C

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

Date of opening:

* These values are not certified. (Recommended period of use should not exceed 12 months from date of opening)

Intended use: For Laboratory Use Only

Calibration of ICP-OES, AAS

Validation of analytical methods

Preparation of working reference samples

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.

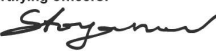
Hazardous situation:

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 AR-1839)
- 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.



Select Component

Type Name or Formula of the Component

↑ Type Name of the Component for suggestions or click the button to select from list and add as filter

Clear Filter **2 Components as Filter**

The suggested concentrations belong to the catalogue products

Conc Sodium [Na]

Conc Magnesium [Mg]

Click on red button to remove component filter

107 Inorganic Products by Selected Components Make Custom Request

Add a product from filtered components or Use the button above to define what components to be included in the product you are looking for!

	Ref.No	Vol.	Product Name	Ont	Pr.EUR
×	Filter	Filter	Filter	Filter	
i	91C8.1K.2N.L1	100 ml	ICP calibration standard 4 components: Calcium 10...	5	60.00
i	91C8.1K.2N.L5	500 ml	ICP calibration standard 4 components: Calcium 10...	5	118.00
i	91C8.10K.2N...	100 ml	Spiking Standard 2R - 4 components; 10000mg/l ea...	5	117.00
i	MS91C8.1K...	100 ml	ICP-MS Calibration Standard - 4 elements: 1000mg...	5	75.00
i	JYICP-MIXM...	100 ml	Standard for determination of 4 main elements - 5...	5	68.00
i	JYICP-MIXM...	500 ml	Standard for determination of 4 main elements - 5...	5	128.00
i	N9300218.L1	100 ml	Instrument Calibration Standard 1 - 4 components;...	5	68.00
i	N9300218.L5	500 ml	Instrument Calibration Standard 1 - 4 components;...	5	128.00

Description

1000 mg/l [Ca] Calcium
1000 mg/l [Mg] Magnesium
1000 mg/l [K] Potassium
1000 mg/l [Na] Sodium
2 % [HNO3] Nitric Acid

Quotation request form

If there isn't a stock product matching your needs, you can make a custom request at: www.cpaceh.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; Ti; Tl; 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; Ti 2mg/l; Zn 10mg/l in HNO ₃ 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 HNO ₃ 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 HNO ₃ 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; Ti; Zn; Si in HNO ₃ 4%	B09A.1K.4N
	100, 500
2 components; 100mg/l each of P; S in H ₂ O	F4AD.K1.W
	100, 500
12 components; Ca 3000mg/l; Mg 450mg/l; K 1200mg/l; Na 150mg/l; SO ₄ ²⁻ 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 HNO ₃ 2%	1B92.D2.2N
	100, 500
12 components; Ca 3000mg/l; Mg 450mg/l; K 1200mg/l; Na 3000mg/l; SO ₄ ²⁻ 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%	F8AA.30.2N
	100, 500

ICP-MS

Description	Ref. number
	volume (ml)
Standard 4 components; 1000mg/l each of Ca; Mg; K; Na in HNO ₃ 2%	MS91C8.1K.2N
	100
Tuning Solution for ICP-MS 6 components: 1ug/l each of Li; Mg; Y; Ce; Ti; Co in HNO ₃ 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 HNO ₃ 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





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 (NO ₂ -); Bromides (Br-); Nitrates (NO ₃ -); Sulphates (SO ₄ 2-); Phosphates (PO ₄ 3-) in Water	1521.1K.W
	100, 250
Mixed Anions Standard - 7 components; 100mg/l each of Chlorides (Cl-); Fluorides (F-); Sulphates (SO ₄ 2-); Nitrates (NO ₃ -); Nitrites (NO ₂ -); Bromides (Br-); Phosphates (PO ₄ 3-) in Water	1521.K1.W
	100, 500
	REAIC1035.L1
	100
7 components; 10mg/l each of Fluorides (F-); Chlorides (Cl-); Nitrites (NO ₂ -); Bromides (Br-); Nitrates (NO ₃ -); Sulphates (SO ₄ 2-); Phosphates (PO ₄ 3-) 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 (NO ₃ -); Sulphates (SO ₄ 2-) in Water	3905.1K.W
	100
3 components; Phosphates (PO ₄ 3-) 50mg/l; Chlorides (Cl-) 0.5mg/l; Sulphates (SO ₄ 2-) 0.5mg/l in Water	3784.D5.W
	100, 500
3 components; Phosphates (PO ₄ 3-) 20mg/l; Chlorides (Cl-) 0.2mg/l; Sulphates (SO ₄ 2-) 0.2mg/l in Water	3784.D2.W
	100, 500
6 components; 1000mg/l each of Nitrates (NO ₃ -); Chlorides (Cl-); Sulphates (SO ₄ 2-); Bromides (Br-); Phosphates (PO ₄ 3-); Fluorides (F-) in Water	E3A7.1K.W
	100
Standard Solution 6 components; 100mg/l each of Fluorides (F-); Chlorides (Cl-); Bromides (Br-); Nitrates (NO ₃ -); Phosphates (PO ₄ 3-); Sulphates (SO ₄ 2-) in Water	E3A7.K1.W
	100
2 components; Phosphates (PO ₄ 3-) 50mg/l; Chlorides (Cl-) 0.5mg/l in Water	3029.D5.W
	100, 500
2 components; Phosphates (PO ₄ 3-) 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. HNO ₃	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. HNO ₃	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





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; MgCl ₂ ·6H ₂ O 11.10g/l; Na ₂ SO ₄ 4.09g/l; CaCl ₂ 1.16g/l; KCl 0.69g/l; NaHCO ₃ 0.20g/l; KBr 0.1g/l; H ₃ BO ₃ 0.03g/l; SrCl ₂ 0.04g/l; NaF 0.003g/l in H ₂ O	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 HNO ₃ 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 HNO ₃ 2% for ICP/MS - (Rh as mono)	30D3.D006.2N
	100, 250, 500

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Ion Chromatography & Eluent Concentrates

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REQUEST FORM FOR CUSTOM-MADE MULTI-ELEMENT STANDARD SOLUTIONS

1. Specify the concentration of the chosen element in mg/l.

ELEMENT	CONCENTR. in mg/l	ELEMENT	CONCENTR. in mg/l	ELEMENT	CONCENTR. in mg/l
Ag (HNO ₃)		Ho (HNO ₃ or HCl)		S (H ₂ O; HNO ₃ or HCl)	
Al (HNO ₃ or HCl)		In (HNO ₃ or HCl)		Sb (HNO ₃ /tr.HF or HCl)	
As (HNO ₃ or HCl)		Ir (HNO ₃ /HCl or HCl)		Sc (HNO ₃ or HCl)	
Au (HNO ₃ /HCl or HCl)		K (H ₂ O; HNO ₃ or HCl)		Se (HNO ₃ or HCl)	
B (H ₂ O; HNO ₃ or HCl)		La (HNO ₃ or HCl)		Si (H ₂ O; HNO ₃ /tr.HF or HCl)	
Ba (H ₂ O; HNO ₃ or HCl)		Li (H ₂ O; HNO ₃ or HCl)		Sm (HNO ₃ or HCl)	
Be (HNO ₃ /tr.HF or HCl)		Lu (HNO ₃ or HCl)		Sn (HNO ₃ /tr.HF or HCl)	
Bi (HNO ₃)		Mg (H ₂ O; HNO ₃ or HCl)		Sr (H ₂ O; HNO ₃ or HCl)	
Ca (H ₂ O; HNO ₃ or HCl)		Mn (HNO ₃ or HCl)		Ta (HNO ₃ /tr.HF or HCl/tr.HF)	
Cd (HNO ₃ or HCl)		Mo (H ₂ O; HNO ₃ /tr.HF or HCl)		Tb (HNO ₃ or HCl)	
Ce (HNO ₃ or HCl)		Na (H ₂ O; HNO ₃ or HCl)		Te (HNO ₃ or HCl)	
Co (HNO ₃ or HCl)		Nb (HNO ₃ /tr.HF or HCl/tr.HF)		Th (HNO ₃ or HCl)	
Cr (H ₂ O; HNO ₃ or HCl)		Nd (HNO ₃ or HCl)		Ti (HNO ₃ /tr.HF or HCl)	
Cs (H ₂ O; HNO ₃ or HCl)		Ni (HNO ₃ or HCl)		Tl (HNO ₃ or HCl)	
Cu (HNO ₃ or HCl)		Os (HCl)		Tm (HNO ₃ or HCl)	
Dy (HNO ₃ or HCl)		P (H ₂ O; HNO ₃ or HCl)		U (HNO ₃ or HCl)	
Er (HNO ₃ or HCl)		Pb (HNO ₃)		V (HNO ₃ or HCl)	
Eu (HNO ₃ or HCl)		Pd (HNO ₃ or HCl)		W (H ₂ O; HNO ₃ /tr.HF or HCl)	
Fe (HNO ₃ or HCl)		Pr (HNO ₃ or HCl)		Y (HNO ₃ or HCl)	
Ga (HNO ₃ or HCl)		Pt (HNO ₃ /HCl or HCl)		Yb (HNO ₃ or HCl)	
Gd (HNO ₃ or HCl)		Rb (H ₂ O; HNO ₃ or HCl)		Zn (HNO ₃ or HCl)	
Ge (HNO ₃ /tr.HF or HCl)		Re (H ₂ O; HNO ₃ or HCl)		Zr (HNO ₃ /tr.HF or HCl/tr.HF)	
Hf (HNO ₃ /tr.HF or HCl)		Rh (HNO ₃ /HCl or HCl)			
Hg (HNO ₃ or HCl)		Ru (HNO ₃ /HCl or HCl)			

2. Specify the concentration of the chosen matrix, needed volume and quantities.

MATRIX	CONCENTRATION in mg/l	VOLUME in ml	NUMBER OF BOTTLES
HNO ₃			
HCl			
H ₂ O			
OTHER			

3. Complete

Name*

Company*

City* State/Prov

Zip/Postal Code* Country*

Telephone* Fax

E-mail*

* Required

Please, photocopy for future use and fax it to your local distributor
or CPAchem at: +359 42 607 716

REQUEST FORM FOR CUSTOM-MADE MULTI-ELEMENT STANDARD SOLUTIONS

1. Specify the concentration of the chosen element in mg/l.

ELEMENT	CONCENTR. in mg/l	ELEMENT	CONCENTR. in mg/l	ELEMENT	CONCENTR. in mg/l
Acetate		Hydrogen Phthalate		Phosphate as P	
Ammonium		Iodate (IO_3^-)		Potassium	
Ammonium as N		Iodide (I^-)		Propionate	
Barium		Lactate		Silicate	
Benzoate		Lithium		Sodium	
Bromate (BrO_3^-)		Magnesium		Strontium	
Bromide (Br^-)		Maleate		Succinate	
Calcium		Methane sulphonate		Sulphate (SO_4^{2-})	
Cesium		3-Methoxypropylamine		Sulphite	
Chromium (III)		Monoethalonamine		Tartrate	
Chromium (VI)		Monomethylamine		Thiocyanate	
Chlorate (ClO_3^-)		Nitrilotriacetate		Thiosulphate	
Chloride (Cl^-)		Nitrate (NO_3^-)		Triethanolamine	
Citrate		Nitrate as N		Triethylamine	
Cyanide		Nitrite (NO_2^-)		Trimethylamine	
Diethanolamine		Nitrite as N		Other	
Fluoride		Oxalate		Other	
Formate		Perchlorate		Other	
Glycolate		Phosphate			

2. Specify the concentration of the chosen matrix, needed volume and quantities.

MATRIX	CONCENTRATION in mg/l	VOLUME in ml	NUMBER OF BOTTLES
HNO_3			
CH_3CN			
HCl			
OTHER			

3. Complete

Name*

Company*

City* **State/Prov**

Zip/Postal Code* **Country***

Telephone* **Fax**

E-mail*

* Required

Please, photocopy for future use and fax it to your local distributor
or CPAchem at: +359 42 607 716

Organic Standards – Book 1

ISO and EN Methods, European and US, Pharmacopoeia methods,
International Regulations

https://www.cpachem.com/_data/_cpachem.com/Catalogs/CPAchem_Organic%20Catalog_Book%201.pdf



Organic Standards – Book 3

CPAchem's Most Popular Organic Mixtures

https://www.cpachem.com/_data/_cpachem.com/Catalogs/CPAchem_Organic%20Catalog_Book%203.pdf



Inorganic Catalogue

https://www.cpachem.com/_data/_cpachem.com/s0_pages/2015_Catalog-CPA_inorg.pdf



Analytical Reagents and Standards/ Pharmacopoeia products

https://www.cpachem.com/_data/_cpachem.com/s0_pages/2015_CPA_cat_Pharma.pdf





CPAchem

The Experts in Custom-made Inorganic and Organic Standards

CPAchem Ltd.
7-B-4 Han Asparuh Str.
6000 Stara Zagora
BULGARIA

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CPAchem

*The experts in custom-made
Certified Reference Materials*



5400 square meters
(58 125 square feet) including
modern manufacturing and
R&D laboratories, storage,
office and recreational space

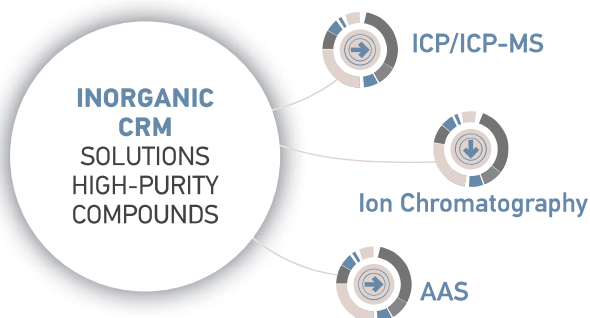
CPAchem IN BRIEF

CPAchem is an ISO 17034, ISO/IEC 17025 and ISO 9001 accredited producer of certified reference materials, analytical standards and products according to seven different Pharmacopoeias. The accreditation scope of CPAchem is one of the largest ones in the world; more than 7000 laboratories worldwide use products, prepared by CPAchem.



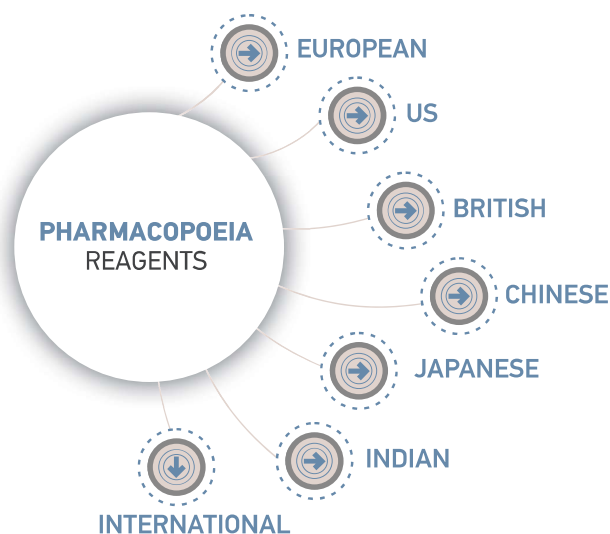
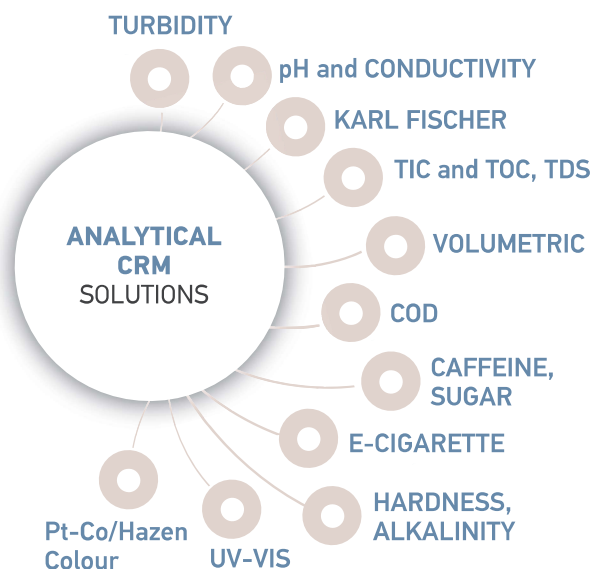
PRODUCT PORTFOLIO

CPAchem produces both Organic and Inorganic Certified Reference materials.



Decades of experience are brought in the production of certified reference materials to various analytical techniques.

CPAchem is the only producer in the world offering products according to seven different pharmacopoeias. Pharmacopoeia reagents are prepared according to the latest Pharmacopoeia edition recipes.



PRODUCTS SEARCH ENGINE

Detailed information about all of our stock products could be found at www.cpachem.com

The interactive search engine allows user-friendly searches, meeting clients criteria with regard to required composition and concentration among thousands of single and multi-component stock products. In case there is not a stock product, matching the criteria set, the client could send their custom-product specification right away.

CUSTOM PRODUCTS

The better the control of food production, water supply and environment is, the better becomes our society's quality of life. At the heart of this control lay the reliable laboratory measurements for which the analytical and testing laboratories around the world more and more use certified reference materials to calibrate measuring instruments, evaluate test procedures and for quality control purposes. As long as different countries legislations and quality control levels on the matter might well differ one from another, the laboratories more and more need custom-made certified reference materials exactly matching their specifications.

To successfully satisfy this market need and demand for custom-made certified reference materials CPAchem built a new, state-of-the art facility with 5400 square meters (58 125 square feet) modern manufacturing and R&D laboratories, storage, office and recreational space, which enables the company to produce more than 200 different types of custom-made standards per day for:

- ▶ ICP, ICP-MS, Ion Chromatography, AAS
- ▶ GC and GC-MS, LC and LC-MS
- ▶ Classical volumetric analyses

With this CPAchem further strengthens its position of a world leader in the production of Custom-made standards managing to ensure that:

- ▶ Custom-products Inquiries are answered on the day of their receipt
- ▶ The production Lead time – 2 to 5 days
- ▶ Emergency orders might be prepared and sent within 24 hours



Cost-effective solutions



Short lead time for preparation



2-5 business days delivery



24 hour Emergency orders



CERTIFICATION

Fully in tune with our company's philosophy we have been constantly trying to make our certificates more precise, detailed and easily accessible, meeting even the toughest demands of every user.

Get it online, be green

The users could access 24/7 each product's certificate and download it from our web-site simply using the QR codes printed on products' labels;

Sample CoAs for all stock products are also available on the web-site. All CRM certificates are designed in accordance with ISO Guide 31 and 35. The uncertainties refer to each of the components separately and not to the uncertainty of the whole mixture;

Inorganic CRM - the certified value(s) are obtained by a weighted mean of the results of two independent methods among instrumental/classical/gravimetric for both single and multi-component CRM's, if possible. Certified values and uncertainties for each component are traceable to SI (NIST, BAM);

Organic CRM - the certified value(s) are obtained gravimetrically and confirmed experimentally by GC-MS or HPLC. Full traceability of preparation is provided.



*The experts in custom-made
Certified Reference Materials*

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info@cpachem.com

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CERTIFIED REFERENCE MATERIAL

Ref No: SB47.50MG

Lot No: SAMPLE

Certification Date: xxxxxx

Barcode: 41651261

Expiry date: xxxxxx

Description: 2-Methylnaphthalene

CAS No: 91-57-6

Empirical formula: $C_{11}H_{10}$

MW: 142.197

Certified Purity / Uncertainty: 0.9902 +/- 0.0059 g/g (99.02 +/- 0.59 %) (Purity might vary per batch)

Purity=100% - Assay organic impurities - Water content (KF) - Assay inorganic impurities

Water content: 0.4 mg/g (determined by Karl-Fischer titration) ($U_{exp}=0.37\%$)

Storage Conditions: Store in a refrigerator at temperatures between 2°C to 8°C

Method of certification:	Concept of Certification and traceability statement:	Intended use:	Instructions for the correct use of this reference material:	Stability and storage:	Level of homogeneity:
CRM's calibration procedure (WQP 5.15.1/22). The following methods of analysis are used to determine purity (acc. to ISO 33407:2024): Characterization using indirect methods	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. Metrological traceability is established through in-house validated method. The measurement results are traceable to SI.	For Laboratory Use Only. This CRM is intended for: Calibration of TLC, GC/FID, GC/TCD, GC/ECD, GC/MS, GC/MS/MS, LC/UV, LC/MS and LC/MS/MS. Validation of analytical methods. Preparation of "working reference samples". Detection limit and linearity studies. This statement is not intended to restrict the use for other purposes.	This CRM can be used directly or can be diluted in an appropriate solvent. Only a clean glassware should be used. Hazardous situation: The normal laboratory safety precautions should be observed when working with this CRM. Further details for the handling of this chemical are available as safety data sheet.	This CRM is with a guaranteed purity +/- 2% deviation prior to the expiration date. Stability is guaranteed, provided that the material is kept in its original packaging, tightly closed stored, as written in the section: Storage Conditions.	The material was tested for homogeneity by analyzing randomly selected samples according to an in-house procedure. The level of homogeneity proved satisfactory for a sample volume of min. 2 mg. The uncertainty incorporates the sample standard deviation combined with the uncertainty calculated from homogeneity and stability studies.

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 0039638)

- Accredited according to ISO/IEC 17025

- Accredited according to ISO 17034

This document is designed and the certified value and uncertainty are determined in accordance with ISO 33401, ISO 33405, and Eurachem / CITAC Guides

Names of certifying officers:

Laboratory:



Margarita Bochukova

Manager:



Krassimira Taralova

Analytical Data:

Column: Chromolith® Performance RP-18e 4.6x100 mm, 2µm particle size
Column temperature: 20°C
Detector: DAD
Flow rate: 2.0 ml/min
Injection volume: 10µl
Mobile phase: A: Water B: Acetonitrile

Gradient elution (time)	A%	B%
0	80	20
7	0	100
8	0	100
9	80	20
11	80	20



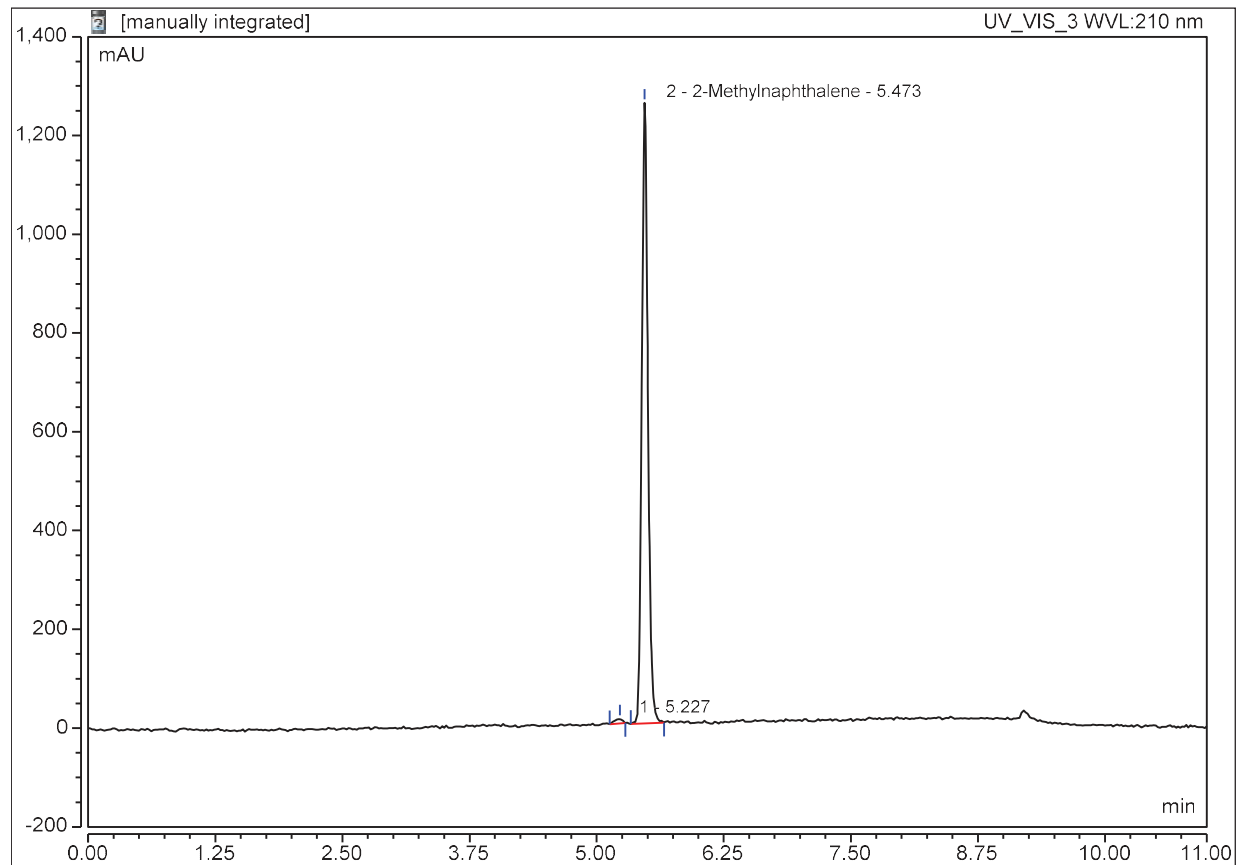
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for France, Belgium and Switzerland:
e-mail: acsd2@wanadoo.fr; tel.: 01 30 57 57 32 / fax: 01 30 57 57 33

Peak Integration Report

Sample Name:	2-Methylnaphthalene-6848-41651261	Inj. Vol.:	10.00
Instrument Method:	Chromolith short	Operator:RR	
Inj. Date / Time:	03-Mar-2026 / 04:26	Run Time:	11.00

No.	Time min	Peak Name	Peak Type	Area mAU*min	Height mAU	Rel.Area %
1	5.23		BMB*	0.825	9.480	0.917
2	5.47	2-Methylnaphthalene	BMB*	89.122	1256.622	99.083
TOTAL:				89.95	1266.10	100.00



Certificate of Analysis

CERTIFIED REFERENCE MATERIAL

Cloud point Standard acc to ASTM D2500 and ISO 3015 (diesel)

Lot N: xxxxx
Barcode: xxxx

Ref N: PPCPD.L25

Certification Date: xxxx

Parameter	Certified Value*	Uncertainty**	Test Methods
Cloud point	-7.2 °C	+/- 0.2 °C	ASTM D2500 / ISO 3015

* The certified values were obtained using testing acc. to internal procedures WQP 5.15.1/37

** 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.

Metrological traceability:

The metrological traceability is assured through testing on Cloud Point analyzer. The certified values and their uncertainties are based solely on the exploitation of the results of analyses obtained by methods recognized by ISO, ASTM and other associated organizations.

This certified reference material is produced from a petroleum product.

The measurement results are traceable to SI.

The thermometers and laboratory glassware 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.

Expiry date: 24 months

Storage Conditions: Store under normal laboratory conditions, at temperatures between 15°C to 25°C

Intended use: For Laboratory Use Only

This CRM is intended for:

- Calibration or adjustment of Cloud Point analyzer
- Internal Quality Control of the measurements
- Validation of analytical methods

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

Instructions for the correct use:

The certified values are valid only for freshly opened bottle, they are not valid for reused samples.

This certified reference material could be used directly.

To ensure the homogeneity gently invert bottle several times, without shaking, before use. Shaking adds air to the sample and may cause erroneous results.



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for France, Belgium and Switzerland:
e-mail: acsd2@wanadoo.fr; tel.: 01 30 57 57 32 / fax: 01 30 57 57 33

Stability and storage:

This CRM is with a guaranteed stability until +/- 0.5% of the certified value within its shelf-life. Stability is guaranteed, provided that the solution is kept in its original packaging, stored tightly closed, as written in the section: Storage Conditions. According to an internal procedure the producer will monitor this CRM at appropriate intervals and the purchasers will be notified of any significant changes resulting in recertification or withdrawal of the CRM during the stated period of its certificate's validity.

Hazardous situation:

The normal laboratory safety precautions should be observed while working with this CRM. Further details for the handling of this CRM are available in its safety data sheet.

Level of homogeneity:

The material was tested for homogeneity by analyzing randomly selected samples according to an internal procedure. The material was judged to be homogeneous. The level of homogeneity proved satisfactory for a sample volume of 2 ml. The uncertainty incorporates the sample standard deviation combined with the uncertainty calculated from the homogeneity and stability studies. To ensure sufficient homogeneity of the sample, please follow the Instruction for correct usage.

Names of certifying officers:

Laboratory: Nikola Pavlov

Manager: Krassimira Taralova

This certificate has been computer generated and does not signed

This document is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO 33401, ISO 33405, and Eurachem / CITAC Guides

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 0039638)
- Accredited according to ISO/IEC 17025
- Accredited according to ISO 17034

Certificate of Analysis

Indian Pharmacopeia Zinc Sulphate 0.1M

Lot N: xxxx

Description: zinc sulphate / water

Ref N: IP397

Performance test: passes test

Measured value: 0.1000 mol/l +/- 0.2%

Method: Titration with 0.1 M disodium edetate

Expiry date: 24 months

The reagent is specially intended for use in testing Indian Ph and monographs. This solution was produced according Indian Ph specifications using Indian Ph reagent quality components and water meeting the requirement for Purified Water of the Indian Pharmacopoeia.

Instruction for use

Standardise immediately before use.

The solution bottle should be open for the minimum time required to dispense the solution. After use, the bottle should be tightly recapped and stored under normal laboratory conditions

This certificate relates solely to the lot number given above.

Certification date: xxxxxx

Signed by: , Chemical Production Manager



Certificate of Analysis

CERTIFIED REFERENCE MATERIAL

Multi-Element Organometallic Oil Standards - 21 components: 900ppm each of Ag ; Al ; B ; Ba ; Ca ; Cd ; Cr ; Cu ; Fe ; Mg ; Mn ; Mo ; Na ; Ni ; P ; Pb ; Si ; Sn ; Ti ; V ; Zn in Base oil 75 cSt

Lot N: XXXX
Barcode: XXXX

Ref N: CPL116576.L1

Certification Date: XXXX

Component	Certified Value and uncertainty [mg/kg]	Metrological traceability
Ag	901.2 ± 3.3 (y)	NIST SRM No 1085c Lot 1123326
Al	901.1 ± 5.0 (y)	NIST SRM No 1085c Lot 1123326
B	902.6 ± 5.1 (y)	NIST SRM No 1085c Lot 1123326
Ba	900.2 ± 3.8 (y)	NIST SRM No 1085c Lot 1123326
Ca	900.0 ± 5.4 (y)	NIST SRM No 1085c Lot 1123326
Cd	900.1 ± 3.2 (y)	NIST SRM No 1085c Lot 1123326
Cr	900.6 ± 6.5 (y)	NIST SRM No 1085c Lot 1123326
Cu	900.5 ± 4.8 (y)	NIST SRM No 1085c Lot 1123326
Fe	900.3 ± 4.8 (y)	NIST SRM No 1085c Lot 1123326
Mg	900.7 ± 4.6 (y)	NIST SRM No 1085c Lot 1123326
Mn	900.5 ± 5.2 (y)	NIST SRM No 1085c Lot 1123326
Mo	900.2 ± 3.3 (y)	NIST SRM No 1085c Lot 1123326
Na	900.4 ± 3.7 (y)	NIST SRM No 1085c Lot 1123326
Ni	900.6 ± 5.5 (y)	NIST SRM No 1085c Lot 1123326
P	903.8 ± 4.7 (y)	NIST SRM No 1085c Lot 1123326
Pb	903.2 ± 9.5 (y)	NIST SRM No 1085c Lot 1123326
Si	901.1 ± 5.2 (y)	NIST SRM No 1085c Lot 1123326
Sn	902.5 ± 4.5 (y)	NIST SRM No 1085c Lot 1123326
Ti	901.9 ± 7.3 (y)	NIST SRM No 1085c Lot 1123326
V	901.8 ± 5.0 (y)	NIST SRM No 1085c Lot 1123326
Zn	901.2 ± 4.7 (y)	NIST SRM No 1085c Lot 1123326

Notes:

(y) WQP 5.15.1.24 The certified value was obtained by a weighted mean of the results of two independent testing methods among: Primary Gravimetric and Instrumental (ICP)

Starting Material, Batch

Org-Ag 100%	82137205
ORGAL 100%	82132842
Org-B 100%	82137069
ORGBA 100%	82137007
ORGCA 100%	82137014
Org-Cd 100%	82137151
ORGCr 100%	82107529



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for France, Belgium and Switzerland:

e-mail: acsd2@wanadoo.fr; tel.: 01 30 57 57 32 / fax: 01 30 57 57 33

Org-Cu 100%	82137120
Org-Fe 100%	82137106
ORGMG 100%	82137045
Org-Mn 100%	82137137
Org-Mo 100%	82137175
Org-Na 100%	82137083
Org-Ni 100%	82137076
ORGP 100%	82137021
Org-Pb 100%	82137090
Org-Si 100%	82137144
Org-Sn 100%	82137113
Org-Ti 100%	82137168
Org-V 100%	82137182
ORGZN 100%	82137038

Storage Conditions: Store at temperatures between 15°C to 25°C and protected from light

Expiry date: 12 months

Concept of Certification and traceability statement:

This certified reference material (CRM) is produced using a high purity starting materials.

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 using certified reference material traceable to SI of NIST (SRM) or BAM (CRM). 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.

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.

Intended use: For Laboratory Use Only

Calibration of ICP, AAS

Preparation of "working reference samples"

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

Validation of analytical methods

Detection limit and linearity studies

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 of the certified concentration within its shelf life. Stability is guaranteed, provided that the solution is kept in its original packaging, tightly closed stored, as written in the section: Storage Conditions. If storage of a partially used bottle is necessary, it is recommendable that the cap is tightly sealed and the bottle stored in refrigerator to minimize transpiration rate. The laboratory performs stability tests according to MQP 5.14.1 therefore solutions with one and the same bar-code number might have different expiration dates.

Hazardous situation:

The normal laboratory safety precautions should be observed when working with this CRM. Further details for the handling of this CRM 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

This document QF 5.17.1/1 version 1 is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO 33401, ISO 33405, and Eurachem / CITAC Guides

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 0039638)
- Accredited according to ISO/IEC 17025
- Accredited according to ISO 17034

Certificate of Analysis

CERTIFIED REFERENCE MATERIAL

Solution of 28 components : 100 mg/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; Matrix: 5% HNO₃

Lot N: xxxx
Barcode: xxxx

Ref N: MB56A.K1.5N.L1

Certification Date: xxxxx

Component	Certified Value and uncertainty [mg/l]	Metrological traceability
Al	99.71 ± 0.34 ^(y)	NIST SRM No 3101a Lot 140903
Ag	99.63 ± 0.28 ^(y)	NIST SRM No 3151 Lot 160729
As	100.10 ± 0.43 ^(y)	NIST SRM No 3103a Lot 100818
B	100.13 ± 0.29 ^(y)	NIST SRM No 3107 Lot 190605
Ba	99.80 ± 0.31 ^(y)	NIST SRM No 3104a Lot 140909
Be	100.08 ± 0.31 ^(y)	NIST SRM No 3105a Lot 090514
Bi	99.93 ± 0.35 ^(y)	NIST SRM No 3106 Lot 180815
Ca	100.04 ± 0.25 ^(y)	NIST SRM No 3109a Lot 130213
Cd	99.87 ± 0.34 ^(y)	NIST SRM No 3108 Lot 130116
Co	99.86 ± 0.42 ^(y)	NIST SRM No 3113 Lot 190630
Cr	99.83 ± 0.27 ^(y)	NIST SRM No 3112a Lot 170630
Cu	99.49 ± 0.25 ^(y)	NIST SRM No 3114 Lot 120618
Fe	99.73 ± 0.27 ^(y)	NIST SRM No 3126a Lot 140812
K	100.38 ± 0.28 ^(y)	NIST SRM No 3141a Lot 140813
Li	99.98 ± 0.33 ^(y)	NIST SRM No 3129a Lot 100714
Mg	100.85 ± 0.23 ^(y)	NIST SRM No 3131a Lot 140110
Mn	100.02 ± 0.32 ^(y)	NIST SRM No 3132 Lot 050429
Mo	100.06 ± 0.41 ^(y)	NIST SRM No 3134 Lot 130418
Na	99.89 ± 0.26 ^(y)	NIST SRM No 3152a Lot 200413
Ni	99.88 ± 0.35 ^(y)	NIST SRM No 3136 Lot 120619
Pb	99.60 ± 0.44 ^(y)	NIST SRM No 3128 Lot 101026
Sb	99.77 ± 0.41 ^(y)	NIST SRM No 3102a Lot 140911
Se	99.47 ± 0.51 ^(y)	NIST SRM No 3149 Lot 100901
Sr	100.48 ± 0.70 ^(y)	CPA CRM No SRNO3 Lot SL85028081
Ti	100.68 ± 0.25 ^(y)	NIST SRM No 3162a Lot 130925
Tl	99.87 ± 0.37 ^(y)	NIST SRM No 3158 Lot 151215
V	100.25 ± 0.29 ^(y)	NIST SRM No 3165 Lot 160906
Zn	99.59 ± 0.27 ^(y)	NIST SRM No 3168 Lot 120629

Notes:

(y) WQP 5.15.1.24 The certified value was obtained by a weighted mean of the results of two independent testing methods among: Classical Volumetric, Primary Gravimetric, Instrumental (ICP, ICP/MS or IC)

Density* 1.027 g/cm³ at 20°C

Starting Material, Purity*	Batch
Al 99.995%	82088125
AgNO ₃ 99.995%	82079932
As 99.9999%	82136819
H ₃ BO ₃ 99.999%	82134426



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Accredited to ISO 17034 (Cert No 7668.01) and ISO/IEC 17025 (Cert No 7668.02) by A2LA

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for France, Belgium and Switzerland:
e-mail: acsd2@wanadoo.fr; tel.: 01 30 57 57 32 / fax: 01 30 57 57 33

Ba(NO ₃) ₂ 99.991%	82139032
BeO 99.98%	82135362
Bi 99.995%	82132330
Ca(NO ₃) ₂ 99.998%	82107703
Cd 99.991%	82136017
Co(NO ₃) ₂ 99.997%	82134167
Cr(NO ₃) ₃ 99.998%	82134587
Cu(NO ₃) ₂ 99.999%	82134990
Fe(NO ₃) ₃ 99.999%	82134471
KNO ₃ 99.999%	82134273
Li ₂ CO ₃ 99.999%	82139827
Mg(NO ₃) ₂ 99.999%	82134402
Mn(NO ₃) ₂ 99.998%	82134266
(NH ₄) ₆ Mo ₇ O ₂₄ 99.991%	82134310
NaNO ₃ 99.998%	82134051
Ni(NO ₃) ₂ 99.994%	82118945
Pb(NO ₃) ₂ 99.999%	82139025
Sb 99.9999%	82139902
Se 99.98%	82139223
Sr(NO ₃) ₂ 99.991%	82128128
(NH ₄) ₂ TiF ₆ 99.999%	82130664
TiNO ₃ 99.997%	82135249
NH ₄ VO ₃ 99.974%	82139117
Zn 99.99%	82136123

* These values are not certified

Storage Conditions: Store under normal laboratory conditions, at temperatures between 15°C to 25°C

Expiry date: 36 months

Concept of Certification and traceability statement:

This certified reference material (CRM) is produced using a high purity starting material, acid from sub-boiling and 18 MOhm deionised water and filtered through a 0.2 micron filter.

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 using certified reference material traceable to SI of NIST (SRM) or BAM (CRM). 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.

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.

Intended use: For Laboratory Use Only

Calibration of ICP, AAS

Preparation of "working reference samples"

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

Validation of analytical methods

Detection limit and linearity studies

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. It is recommended to use 1 ml as the minimum sample size. 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 stored, as written in the section: Storage Conditions. If storage of a partially used bottle is necessary, it is recommendable that the cap is tightly sealed and the bottle stored in refrigerator to minimize transpiration rate. The laboratory performs stability tests according to MQP 5.14.1 therefore solutions with one and the same bar-code number might have different expiration dates.

Hazardous situation:

The normal laboratory safety precautions should be observed when working with this CRM. Further details for the handling of this CRM 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

This document QF 5.17.1/1 version 1 is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO 33401, ISO 33405, and Eurachem / CITAC Guides

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 0039638)
- Accredited according to ISO/IEC 17025
- Accredited according to ISO 17034

Certificate of Analysis

CERTIFIED REFERENCE MATERIAL

Solution for Determination of Colour Pt-Co/Hazen/APHA Colour Standard

Lot N: xxxxxx
Barcode: xxxxx

Ref N: HZN500.L1

Certification Date: xxxxx

Certified value:

497.6 +/- 2.7 mg/l Pt ^(y)
^(y) WQP 5, 15.1/34 The certified value was obtained gravimetrically and confirmed experimentally by ICP/OES

Concept of Certification and traceability statement:

This certified reference material is produced by gravimetric measurement and dissolving the individual substances in 100 ml/l HCl to volume acc. to ISO 7887:2011 p. 6.3.1 and ASTM D1209-05 p. 6.1.

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 and incorporates the uncertainties of the raw-material purity, the mass and the volume.

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 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 class E1 and class E2 analytical weights, traceable to SI (DKD), and are checked daily. 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.

Both, purity of the starting materials and solvent, were checked using appropriate analytical instrument.

Starting Material

Batch

CoCl₂.6H₂O
K₂[PtCl₆]

82135799
82134501

Shelf-life: 36 months

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

Analytical Test acc. to ASTM D1209-05:

Wavelength* (nm)	Absorbance* (AU)	Tolerance (AU)
430	0.111	0.110-0.120
455	0.1372	0.130-0.145
480	0.1128	0.105-0.120
510	0.0584	0.055-0.065

* These values are not certified

The spectrophotometer is checked prior to use for:

Control of wavelengths: VWR Ref N 86130 (Holmium Oxide Solution for Wavelengths Control acc. 2.2.25 of Ph Eur)

Control of absorbance: VWR Ref N 86124 (Set of 2x10 ml Potassium Dichromate Solution for Absorbance Control 235 - 350 nm and 6x10 ml blank acc. 2.2.25 of Ph Eur)

Limit of stray light: VWR Ref N 86128 (Potassium Chloride Solution for Stray Light Limit acc. 2.2.25 of Ph Eur).



Accredited to ISO 17034 (Cert No AR-1835) and ISO/IEC 17025 (Cert No AT-1836) by ANAB
Accredited to ISO 17034 (Cert No 7668.01) and ISO/IEC 17025 (Cert No 7668.02) by A2LA

CPAchem Ltd
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e-mail: info@cpachem.com; tel.: +359 42952901
for France, Belgium and Switzerland:
e-mail: acsd2@wanadoo.fr; tel.: 01 30 57 57 32 / fax: 01 30 57 57 33

Intended use:

For Laboratory Use Only

This CRM is intended for:

The examination of coloration of liquids related to ISO 7887, ASTM D1209-05, APHA (2120B), EPA (110.1), ACS and USP

Validation of analytical methods

Preparation of "working reference samples"

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. Only a clean class A glassware should be used. Do not pipet from container. Obtained concentration (in mg/l Pt) 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 +/-1% of the certified concentration within its shelf life. Stability is guaranteed provided that the solution is kept in its original packaging, tightly closed and stored protected from light. The laboratory performs stability tests according to MQP 5.14.1 therefore solutions with one and the same bar-code number might have different expiration dates.

Hazardous situation:

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

Level of homogeneity:

The material was tested for homogeneity by analyzing randomly selected samples according to an in-house procedure. The material was judged to be homogeneous. The level of homogeneity proved satisfactory for a sample volume of 10 ml. The uncertainty incorporates the sample standard deviation combined with the uncertainty calculated from homogeneity and stability studies. To ensure sufficient homogeneity of the sample follow the Instruction for the correct use.

Names of certifying officers:

Laboratory: Dinko Gospodinov

Manager: Krassimira Taralova

This document is designed and the certified value(s) and uncertainty(ies) are determined in accordance with ISO 33401,, ISO 33405 and Eurachem / CITAC Guides

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 0039638)

- Accredited according to ISO/IEC 17025

- Accredited according to ISO 17034

Signed by: , Chemical Production Manager

Certificate of Analysis

CERTIFIED REFERENCE MATERIAL

Trihalomethanes Standard Solution 4 components (EPA 501)
2000ug/ml each of Bromodichloromethane [CAS:75-27-4] ; Tribromomethane (Bromoform) [CAS:75-25-2] ;
Dibromochloromethane [CAS:124-48-1] ; Chloroform [CAS:67-66-3] in Methanol

Lot N: xxxx
Barcode: xxxx

Ref N: F112741

Certification Date: xxxxx

Component	Certified Value* and uncertainty [µg/ml]	CAS	Chemical Formula
Bromodichloromethane	2013.6 ± 21.0	75-27-4	CHBrCl ₂
Tribromomethane (Bromoform)	2008.5 ± 20.2	75-25-2	CHBr ₃
Dibromochloromethane	2011.8 ± 19.5	124-48-1	CHBr ₂ Cl
Chloroform	2008.5 ± 20.5	67-66-3	CHCl ₃

* WQP 5.15.1/2 The certified value was obtained gravimetrically and confirmed experimentally by GC/MS or HPLC

Density 0.7946 g/cm³ at 20°C

Starting Material	Purity, Batch
Bromodichloromethane	98.03% (41667460)
Tribromomethane (Bromoform)	98.26% (41599921)
Dibromochloromethane	97.94% (41646953)
Chloroform	99.92% (41648353)

Storage Conditions: Store in a refrigerator at temperatures between 2°C to 8°C

Expiry Date: 24 months

Concept of Certification and traceability statement:

This certified reference material is produced by gravimetric measurement and directly dissolving the individual substances in the corresponding solvent, when such is needed. In case direct dissolution is not possible, the individual substances are pre-dissolved in a suitable solvent and then gravimetrically added into the solution.

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 and incorporates the uncertainties of the raw-material purity, the mass and the volume.

The metrological traceability is defined as the "property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty".

The metrological traceability is ensured through gravimetric measurement and dissolving of certified reference material/s (traceable to SI) from laboratories/producers, accredited according to ISO 17034.

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 class E1 and class E2 analytical weights, traceable to SI (DKD), and are checked daily.

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.

Both, purity of the starting materials and solvent, were checked using appropriate analytical instrument.

Intended use: For Laboratory Use Only

This CRM is intended for:

Calibration of TLC, GC/FID, GC/TCD, GC/ECD, GC/MS, GC/MS/MS, LC/UV, LC/MS and LC/MS/MS

Validation of analytical methods

Preparation of "working reference samples"

Detection limit and linearity studies

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



Accredited to ISO 17034 (Cert No AR-1835) and ISO/IEC 17025 (Cert No AT-1836) by ANAB
Accredited to ISO 17034 (Cert No 7668.01) and ISO/IEC 17025 (Cert No 7668.02) by A2LA

CPAchem Ltd
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e-mail: info@cpachem.com; tel.: +359 42952901
for France, Belgium and Switzerland:
e-mail: acsd2@wanadoo.fr; tel.: 01 30 57 57 32 / fax: 01 30 57 57 33

Instructions for the correct use of this certified reference material:

The CRM should be used shortly after opening to avoid concentration changes due to evaporation.

It is recommended to use 1 ml as the minimum sample size.

This CRM can be used directly or can be diluted in an appropriate solvent. Only a clean class A glassware should be used. 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. For quantitative analysis, we recommend analyzing this mixture separately, without mixing it with other solutions, to ensure accurate results for every compound.

Stability and storage:

This CRM is with a guaranteed stability until $\pm 5\%$ of the certified concentration for a period of 24 months. Stability is guaranteed of an unopened original packaging stored, as written in the section: Storage Conditions. Even if the product is stable at normal laboratory conditions, in order to increase its stability, we highly recommend it to be stored in a refrigerator.

The product should be used shortly after opening to avoid concentration changes due to evaporation. Warranty does not apply to a product stored after opening.

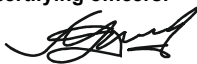
Hazardous situation:

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

Level of homogeneity

This solution was mixed according to an in-house procedure (MQP 5.13.1) and is guaranteed to be homogeneous. To ensure sufficient homogeneity of the sample prior to use thoroughly mix by inversion or sonicate.

Names of certifying officers:

Laboratory:  Margarita Dimitrova

Manager:  Krassimira Taralova

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- Accredited according to ISO 17034

Additional Information

Analytical Data:**GC Conditions:**

Column	Agilent CP9105 J&W VF-624ms 60m, 0.32mm, 1.80 μ m	Oven	Temperature	Hold
Flow rate	1.6 ml/min	Initial	40°C	2
Injector	200 °C	5°C/min	180°C	0
Injection volume	1 μ l split	20°C/min	220°C	3
Carrier gas	He, constant flow			

MS Conditions:

Transfer line	230°C	Ionization mode	El
MS Source	230°C	Mode	Scan
MS Quad	150°C		

Gravimetric Data

Component	Purity %	Source Lot No	Weighed quantity, g	Final quantity, g	Bulk/Standard Solution lot No	Concentration mg/kg	Chemist ID
Bromodichloromethane	98.03	41667460	0.1027	8.1341	93571135	12377.2	EB
		93571135	1.6269	7.9460	93571180	2534.16	EB
Tribromomethane (Bromoform)	98.26	41599921	0.1022	8.1341	93571135	12345.8	EB

		93571135	1.6269	7.9460	93571180	2527.74	EB
Dibromochloromethane	97.94	41646953	0.1027	8.1341	93571135	12365.7	EB
		93571135	1.6269	7.9460	93571180	2531.81	EB
Chloroform	99.92	41648353	0.1005	8.1341	93571135	12345.6	EB
		93571135	1.6269	7.9460	93571180	2527.69	EB

