

Ion-Lab® for IC and ISE

The Ion-Lab® products also includes a wide range of Single-Component and Multi-Component anion and cation solutions for ion chromatography (IC) and ion-selective electrode (ISE) analysis applications.

Ion	Code	Description	Conc.	Pack.	Source
F ⁻	CRMFW	Fluoride in H ₂ O	M-Y	●	NH ₄ F
Cl ⁻	CRMCLW	Chloride in H ₂ O	M-Y	●	NH ₄ Cl
Br ⁻	CRMBrW	Bromide in H ₂ O	M-Y	●	NH ₄ Br
I ⁻	CRMIW	Iodide in H ₂ O	M-Y	●	NH ₄ I
NO ₃ ⁻	CRMNO3W	Nitrate in H ₂ O	M-Y	●	NaNO ₃
NO ₂ ⁻	CRMNO2W	Nitrite in H ₂ O	M-Y	●	NaNO ₂
PO ₄ ³⁻	CRMPO4W	Phosphate in H ₂ O	M-Y	●	NH ₄ H ₂ PO ₄
SO ₄ ²⁻	CRMPO4W	Sulphate in H ₂ O	M-Y	●	Na ₂ SO ₄
BrO ₃ ⁻	CRMBrO3W	Bromate in H ₂ O	M	●	KBrO ₃
ClO ⁻	CRMCLOW	Hypochlorite in H ₂ O	M	●	NaClO
ClO ₂ ⁻	CRMCLO2W	Chlorite in H ₂ O	M	●	NaClO ₂
ClO ₃ ⁻	CRMCLO3W	Chlorate in H ₂ O	M	●	NaClO ₃
ClO ₄ ⁻	CRMCLO4W	Perchlorate in H ₂ O	M	●	KClO ₄
IO ₃ ⁻	CRMIO3W	Iodate in H ₂ O	M	●	KIO ₃
NH ₄ ⁺	CRMNH4W	Ammonium in H ₂ O	M	●	NH ₄ Cl
CN ⁻	CRM CNW	Cyanide in H ₂ O	M	●	NaCN
CO ₃ ²⁻	CRMCO3W	Carbonate in H ₂ O	M	●	Na ₂ CO ₃
CrO ₄ ²⁻	CRMCR04W	Chromate in H ₂ O	M	●	K ₂ CrO ₄
Cr ₂ O ₇ ²⁻	CRMCR207W	Dichromate in H ₂ O	M	●	K ₂ Cr ₂ O ₇
SCN ⁻	CRMSCNW	Thiocyanate in H ₂ O	M	●	KSCN
SiO ₃ ²⁻	CRMSIO3W	Silicate in H ₂ O	M	●	Na ₂ SiO ₃
S ₂ O ₃ ²⁻	CRMS203W	Thiosulphate in H ₂ O	M	●	Na ₂ S ₂ O ₃

Single-component solutions are available in two nominal concentration (1000 and 10000 mg/L), and Mix solutions are available in multiple concentrations. They are packaged in five sizes: 25-50-125-250-500 ml. The product code is similar to that of CRMs for ICP.

Ion-Lab® CRM Mixtures for IC

The Ion-Lab® catalog includes a large number of CRM mixtures of cations and anions for Ion Chromatography analysis, which we formulate at different concentrations.

E.g.: Ion-Lab® MIXN08 (8 anions) Lgs.D. 18/2023 (ITA) (Drinking Water): BrO₃⁻ at 0.1 mg/L; NO₂⁻ at 0.5 mg/L; ClO₂⁻, ClO₃⁻ at 2.5 mg/L; F⁻ at 15 mg/L; NO₃⁻ at 500 mg/L; Cl⁻, SO₄²⁻ at 2500 mg/L in HP-Water, 125 ml in LDPE Bottle&STCBag®. Code: **CRMN08WZ-125**.

E.g.: Ion-Lab® MIXT07 (7 anions): NO₂⁻ at 50 mg/L; F⁻ at 100 mg/L; Br⁻, PO₄³⁻ at 500 mg/L; Cl⁻, NO₃⁻, SO₄²⁻ at 1000 mg/L in HP-Water, 125 ml in LDPE Bottle&STCBag®. Code: **CRMN07WZ-125**.

Ion-Lab® Mixes are designed to meet the Official Methods for anion analysis: **EPA 300.0/300.1**, **ASTM D4327**, **Legislative Decree 18/2023 (ITA)**, **ISO 17294:2024** in drinking and environmental waters; **ASTM D8234-19** in high salinity waters; **EPA 9056A** in liquid and solid wastes; **ISO 20702:2017** in fertilizers and soils; **ISO 20702:2017** in fertilizers/soils; **USP <1065>** in Pharmaceuticals, etc.

Ion-Lab® CRM Chemical-Physical Properties

The catalog provides also a large number of CRM products for the validation of chemical-physical methods such as: Conductivity, pH, Refractive Index, etc.

"Custom" Mixtures and Products

We are specialized in the design and production of CRMs that are released to the market only after at least two batches that have been studied for the entire assigned shelf-life. However, we are able to satisfy every request by creating "CUSTOM" inorganic and organic solutions for applications with techniques such as ICP-OES, ICP-MS, IC, GC-MS, LC-MS, etc. They are prepared with Production and Quality Control Procedures similar to those used for CRMs, but without LTS (Long-Term Stability) Studies. "CUSTOM" products are made with NIST-traceable CRM raw materials, but, as they lack LTS studies, they will not be accompanied by a Reference Material Certificate, but rather with a Product Data Sheet showing the certified property value of each component and the associated uncertainty (U%), lacking only the contribution of u% of LTS study. "Custom" mixtures can be created by choosing the concentration of each analyte, the packaging, and the matrix. The application form for requesting "Custom" products and mixtures is available online at the following website: www.crmlabstandard.com or, the customer can send the request by email to offerte2@labinstruments.it with the product list and CAS.

Ion-Lab® Explorer Kits



Ion-Lab® Explorer Kit 64 (64 components)
EN ISO 17294-2:2024 (Water Quality)

- Calibration Mix 1:** As and Se at 20 mg/L; Ag, Al, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cu, Fe, La, Li, Mg, Mn, Ni, Pb, Sr, Th, Tl, U, V, Zn at 10 mg/L in HP-Water + 2% HNO₃. 125 ml in LDPE Bottle&STCBag®. Code: **CRM C27NZ-125**
- Calibration Mix 2:** Ga, Ge, Hf, In, Ir, Pd, Pt, Rh, Ru, Te at 10 mg/L in HP-Water + 10% HCl. 125 ml in LDPE Bottle&STCBag®. Code: **CRM H10HX-125**
- Calibration Mix 3:** Dy, Er, Eu, Gd, Ho, Lu, Nd, Pr, Sc, Sm, Tb, Tm, Yb at 10 mg/L in HP-Water + 2% HNO₃. 125 ml in LDPE Bottle&STCBag®. Code: **CRM E13NX-125**
- Calibration Mix 4:** Hg at conc. 1 mg/L; Au, Mo, Sb, Sn, W, Zr at conc. 10 mg/L in HP-Water + 10% HCl. 125 ml in LDPE Bottle&STCBag®. Code: **CRM U07HZ-125**
- Calibration Mix 5:** Cs, K, Na, P, Rb. at 1000 mg/L in HP-Water + 2% HNO₃. 125 ml in LDPE Bottle&STCBag®. Code: **CRM M05NM-125**
- Internal Reference Standard Solution:** Re and Y at 5 mg/L in HP-Water + 2% HNO₃. 125 ml in LDPE Bottle&STCBag®. Code: **CRM G02NV-125**
- Optimization Solution:** Ba, Ce, Cu, In, La, Mg, Pb, Rh, U at 10 mg/L in HP-Water + 2% HNO₃. 125 ml in LDPE Bottle&STCBag®. Code: **CRM K09NX-125**
- Matrix Solution:** PO₄³⁻ at 25 mg/L; SO₄²⁻ at 100 mg/L; Ca at 200 mg/L; Cl⁻ at 300 mg/L in HP-Water + 1% HNO₃. 125 ml in LDPE Bottle&STCBag®. Code: **CRM K04NZ-125**

Certificates and Accreditations

- ISO 17034:2016
- ISO/IEC 17025:2017
- UNI EN ISO 14001:2015
- UNI EN ISO 9001:2015
- UNI/PdR 125:2022
- Synegy ESG 2025



Certificates downloads

- www.accredia.it
- www.pjlab.com
- www.crmlabstandard.com/it/downloads

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Our solution is your solution

Ion-Lab® Overview



The **Ion-Lab®** products offers high-quality, competitively priced **UNI CEI EN ISO 17034:2017** CRM solutions for AA, ICPOES, ICPMS, ICPMSMS, and IC analysis.

Designed and manufactured under the ISO 17034:2017 accredited procedure, Ion-Lab® CRMs are included in the accreditation scope as part of Table A1 of **UNI CEI ISO/TR10989:2019**.

They are suitable for all method validation, uncertainty determination, and declaration of metrological traceability to units of the International System of Measurement (ISM) as required by **ISO/IEC 17025:2018** (Chapters 6.4 and 6.5).

The accuracy of all Ion-Lab® CRM standards is verified against NIST Primary Standards, where available, or ISO 17034 CRM from other sources.



The production cycle is carried out in an ISO6 Clean Room and uses Type I Ultra-Pure Water at 18.2 MΩ·cm (0.055 µS/cm), Ultra Pure Acids and calibrated scales with weight sets certified by ISO/IEC 17025:2018 calibration centers. Ion-Lab® CRMs are packaged in High Quality LDPE containers of various capacities and they are characterized by an interesting technological innovation in the packaging that extends the shelf-life, which is 24/48 months when stored closed in the secondary packaging (STC Bag®) and at least 12 months after opening the primary packaging (LDPE bottle).

Ion-Lab® CRMs are accompanied by:

1. Certificate of Reference Materials compliant with ISO 33401:2024 with declared metrological traceability to the SI measurement. They state the certified property value (analytical concentration) and its uncertainty, the density of the solution, and the certified amount of High-Pure Acid in solution;
2. Safety data sheet compliant with REACH Regulation (EC) 2020/878 in English or the language of the destination country.



CRM Products Portfolio for AA, ICP-OES, ICP-MS

The Ion-Lab® CRM products for AA, ICP-OES, ICP-MS consists of Single Component solutions of over 80 different elements (including speciation elements, As, Cr, etc.), some isotopes (6Li, etc.) and many Multi-Element Mixes containing up to over 50 elements appropriately selected to meet the main standards or methodologies released by EPA, ASTM, EU, etc. (e.g. **EPA 200.7**, **EPA 200.8**, **EPA6020**, **EU 10/2011**, **Italian Legislative Decree 18/2023**, **ISO 17294:2024**, etc.).

Element	Code	Description	Conc.	Pack.	Source
Ag	CRMAGN	Silver in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	AgNO ₃
Al	CRMALN	Aluminium in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	Al(NO ₃) ₃
As	CRMASN	Arsenic in HNO ₃ 2-2-2-2 %	X-C-M-Y	●	As Semimetal
As (III)	CRMAS3H	Arsenic (III) in HCl 0.5 %	M	●	As ₂ O ₃
As (V)	CRMAS5H	Arsenic (V) in H ₂ O	M	●	As ₂ O ₅
Au	CRMAUH	Gold in HCl 2-5-7-10 %	X-C-M-Y	●	HAuCl ₄
B	CRMBW	Boron in H ₂ O	M-Y	●	H ₃ BO ₃
Ba	CRMBAN	Barium in HNO ₃ 0.5-0.5-0.5-2 %	X-C-M-Y	●	Ba(NO ₃) ₂
Be	CRMBEH	Beryllium in HNO ₃ 1-1-2-5 %	X-C-M-Y	●	Be ₂ O(C ₂ H ₃ O ₂) ₆
Bi	CRMBIN	Bismuth in HNO ₃ 5-5-5-5 %	X-C-M-Y	●	Bi(NO ₃) ₃
C	CRMCHW	Carbon in H ₂ O	M-Y	●	C ₆ H ₂ O ₇ (Citric Acid)
Ca	CRMCAH	Calcium in HNO ₃ 0.5-0.5-0.5-2 %	X-C-M-Y	●	Ca(NO ₃) ₂
Cd	CRMCDH	Cadmium in HNO ₃ 2-2-2-3 %	X-C-M-Y	●	Cd(NO ₃) ₂
Ce	CRMCEH	Cerium in HNO ₃ 5-5-5-5 %	X-C-M-Y	●	Ce(NO ₃) ₃
Co	CRMCOH	Cobalt in HNO ₃ 2-2-2-3 %	X-C-M-Y	●	Co(NO ₃) ₂
Cr	CRMCRH	Chromium in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	Cr(NO ₃) ₃
Cr (VI)	CRMCR6W	Chromium (VI) in H ₂ O	X-C-M	●	(NH ₄) ₂ Cr ₂ O ₇
Cs	CRMCSH	Caesium in HNO ₃ 0.1-0.1-0.1-0.5 %	X-C-M-Y	●	CsNO ₃
Cu	CRMCHH	Copper in HNO ₃ 2-2-2-3 %	X-C-M-Y	●	Cu(NO ₃) ₂
Dy	CRMDDH	Dysprosium in HNO ₃ 2-5 %	M-Y	●	Dy(NO ₃) ₃
Er	CRMERH	Erbium in HNO ₃ 2-5 %	M-Y	●	Er(NO ₃) ₃
Eu	CRMEUH	Europium in HNO ₃ 2-5 %	M-Y	●	Eu(NO ₃) ₃
Fe	CRMFEH	Iron in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	Fe(NO ₃) ₂
Ga	CRMGAH	Gallium in HNO ₃ 5-5-5 %	C-M-Y	●	Ga(NO ₃) ₃
Ge	CRMGEH	Germanium in H ₂ O	X-C-M-Y	●	(NH ₄) ₂ GeF ₆
Gd	CRMGDH	Gadolinium in HNO ₃ 2-5 %	M-Y	●	Gd(NO ₃) ₃
Hf	CRMHFF	Hafnium in HF tr-0.01-0.1-1 %	X-C-M-Y	●	HF ₂
Ho	CRMHOH	Holmium in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	Ho(NO ₃) ₃
Hg	CRMHGH	Mercury in HNO ₃ 5-5-5-5 %	I-X-C-M-Y	●	Hg(NO ₃) ₂
In	CRMINH	Indium in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	In(NO ₃) ₃
Ir	CRMIRH	Iridium in HCl 2-5-7-10 %	X-C-M-Y	●	H ₂ IrCl ₆
K	CRMKH	Potassium in HNO ₃ 0.5-0.5-0.5-2 %	X-C-M-Y	●	KNO ₃
La	CRMLAN	Lanthanum in HNO ₃ 2-5 %	M-Y	●	La(NO ₃) ₃
Li	CRM6LIN	δ-Lithium in HNO ₃ 2-2-2 %	X-C-M	●	⁶ LiNO ₃
Li	CRMLIN	Lithium in HNO ₃ 0.5-0.5-0.5-2 %	X-C-M-Y	●	LiNO ₃
Lu	CRMLUH	Lutetium in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	Lu(NO ₃) ₃
Mg	CRMGMH	Magnesium in HNO ₃ 0.5-0.5-0.5-2 %	X-C-M-Y	●	Mg(NO ₃) ₂
Mn	CRMMNH	Manganese in HNO ₃ 2-2-2-3 %	X-C-M-Y	●	Mn(NO ₃) ₂
Mo	CRM6MOW	Molibdenum in H ₂ O	X-C-M-Y	●	(NH ₄) ₂ MoO ₄

● Available Packaging: 25-50-125-250-500 ml

Each analyte concentration corresponds to a differently acidified aqueous matrix in order to guarantee the best stability.

E.g.: for the element "Ag" we have the possibility to choose between four different concentrations: **X-C-M-Y** expressed as **10-100-1000 and 10000 mg/l**. Next to it, in the description, we read "**Silver in HNO₃ 2-2-2-5 %**". This indicates that for each analyte concentration there is a specific matrix. In this case, for the concentrations: 10-100-1000 we have a matrix of HP-Water with HNO₃ at 2%, while for **Ag at 10000 mg/l** the matrix is HP-Water with HNO₃ at 5%.

Each Ion-Lab® ISO 17034 has its own identification code. After the suffix "CRM" there are: ● The symbol of the **Element** or the **Ion**, in capital letters, followed by the valence in cardinal number (e.g., **CR6** for **Cr (VI)**); ● **Matrix identifier** using the letters **W**, **N**, **H**, and **F** (**W** for **HP Water**, **N** for **Nitric Acid**, **H** for **Hydrochloric Acid**, and **F** for **Hydrofluoric Acid**) in a quantity predefined in the description table above; ● **Analyte concentration**: **I** = 1, **X** = 10, **C** = 100, **M** = 1000, and **Y** = 10000 mg/l; ● **Packaging type**: **(-)25-50-125-250-500 ml**.

E.g.: **CRMALNM-125** indicates an **ISO17034 CRM of Aluminium (Al)** in a **Nitric Acid (N)** solution at **1000 mg/l (M)** concentration in the **125 ml** package.

Ion-Lab®: TC - TIC - TOC

Carbon Form	Code	Description	Conc.	Pack.	Source
TC	CRMTCW	Total Carbon in H ₂ O	C-M	●	KHP [□] -NaHCO ₃ -Na ₂ CO ₃ [△]
TIC	CRMTCW	Total Inorganic Carbon in H ₂ O	C-M	●	NaHCO ₃ -Na ₂ CO ₃ 1:1
TOC	CRMTOCW	Total Organic Carbon in H ₂ O	C-M	●	KHP [□]

□ Potassium Hydrogen Phthalate (KHP).

△ KHP-NaHCO₃-Na₂CO₃ are in the ratio 1:1:1.

Element	Code	Description	Conc.	Pack.	Source
N	CRMNHWH	Nitrogen in H ₂ O	M-Y	●	NH ₄ Cl
N	CRMN3H	Nitrogen in H ₂ O	M-Y	●	NaNO ₂
N	CRMN5WH	Nitrogen in H ₂ O	M-Y	●	NaNO ₃
Na	CRMNAN	Sodium in HNO ₃ 0.5-0.5-0.5-2 %	X-C-M-Y	●	NaNO ₃
Ni	CRMNIN	Nickel in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	Ni(NO ₃) ₂
Nb	CRMNBH	Niobium in HF 0.1-2 %	M-Y	●	(NH ₄)NbF ₆
Os	CRMOSH	Osmium in HCl 7-7-7 %	X-C-M	●	(NH ₄) ₂ OscCl ₆
P	CRMPTH	Phosphorus in H ₂ O	X-C-M-Y	●	H ₃ PO ₄
Pb	CRMPPH	Lead in HNO ₃ 0.5-0.5-0.5-0.5 %	X-C-M-Y	●	Pb(NO ₃) ₂
Pd	CRMPPH	Palladium in HNO ₃ 2-10 %	M-Y	●	Pd(NO ₃) ₂
Pr	CRMPRH	Praseodymium in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	Pr(NO ₃) ₃
Pt	CRMPTH	Platinum in HCl 5-6-7-10 %	X-C-M-Y	●	H ₂ PtCl ₆
Rb	CRMRRH	Rubidium in HNO ₃ 0.5-2 %	M-Y	●	RbNO ₃
Re	CRMREN	Rhenium in HNO ₃ 0.1-3 %	M-Y	●	NH ₄ ReO ₄
Rh	CRMRRH	Rhodium in HCl 2-5-5-20 %	X-C-M-Y	●	Rh(NO ₃) ₃
Ru	CRMRRH	Ruthenium in HCl 7-20 %	M-Y	●	RuCl ₃
S	CRMSSH	Sulfur in H ₂ O	X-C-M-Y	●	H ₂ SO ₄
Sb	CRMSSH	Antimony in HNO ₃ 1-1-1-1 %	X-C-M-Y	●	Sb Metal
Sc	CRMSSH	Scandium in HNO ₃ 2-5-5-5 %	X-C-M-Y	●	Sc(NO ₃) ₃
Se	CRMSSH	Selenium in HNO ₃ 2-2-2-3 %	X-C-M-Y	●	Se Metal
Si	CRMSSH	Silicon in H ₂ O	X-C-M-Y	●	(NH ₄) ₂ SiF ₆
Sm	CRMSSH	Samarium in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	Sm(NO ₃) ₃
Sn	CRMSSH	Tin in HNO ₃ 5-5-0.1-0.1 %	X-C-M-Y	●	Sn Metal
Sr	CRMSSH	Strontium in HNO ₃ 0.5-0.5-0.5-2 %	X-C-M-Y	●	Sr(NO ₃) ₂
Ta	CRMSSH	Tantalum in HF 0.2-2 %	M-Y	●	(NH ₄) ₂ TaF ₇
Tb	CRMSSH	Terbium in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	Tb(NO ₃) ₃
Te	CRMSSH	Tellurium in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	Te Metal
Th	CRMSSH	Thorium in HNO ₃ 2-2-5-5 %	X-C-M-Y	●	Th(NO ₃) ₄
Ti	CRMSSH	Titanium in HNO ₃ 2-2-0.1-0.1 %	X-C-M-Y	●	(NH ₄) ₂ TiF ₆
Tl	CRMSSH	Thallium in HNO ₃ 1-1-1-5 %	X-C-M-Y	●	TlNO ₃
Tm	CRMSSH	Thulium in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	Tm(NO ₃) ₃
U	CRMSSH	Uranium in HNO ₃ 2-2-2-2 %	X-C-M-Y	●	UO ₂ (NO ₃) ₂
V	CRMSSH	Vanadium in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	NH ₄ VO ₃
W	CRMSSH	Wolframium in HF tr-0.01-0.1-1 %	X-C-M-Y	●	(NH ₄) ₂ H ₂ W ₁₂ O ₄₀
Y	CRMSSH	Yttrium in HNO ₃ 2-2-2-2 %	X-C-M-Y	●	Y(NO ₃) ₃
Yb	CRMSSH	Ytterbium in HNO ₃ 2-2-2-5 %	X-C-M-Y	●	Yb(NO ₃) ₃
Zn	CRMSSH	Zinc in HNO ₃ 2-2-2-2 %	X-C-M-Y	●	Zn(NO ₃) ₂
Zr	CRMSSH	Zirconium in HF tr-0.01-0.1-1 %	X-C-M-Y	●	Zr(NO ₃) ₄

*tr = trace amount

Ion-Lab® Blanks - Dilution Matrices & Eluent

The catalog also includes various matrices and eluents for both ion chromatography (IC) and ICP-OES and ICP-MS, such as:

- High Purity Water (HP-Water) for ICP-OES and ICP-MS with a conductivity ≤ 0.055 µS·cm⁻¹ (18.2 MΩ·cm) at 25°C in 500 ml packages, code CRMH2O-500;
- Nitric Acid Matrix Blank for ICP-OES and ICP-MS, in 500 ml packages, at 5% with code CRMHNO3V-500; at 2% with code CRMHNO3II-500; and finally, at 1% with code CRMHNO3I-500 in HP-Water;
- Na₂CO₃/NaHCO₃ eluent for IC at different concentrations in HP-Water (See catalog).