



Ion Chromatography

Standards and Reagents

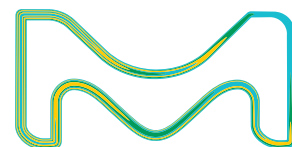
We offer a comprehensive range of reagents, eluents and standards for separation and low level quantification of cations and anions via ion chromatography (IC) analysis. Please access our products online at SigmaAldrich.com/ic

If you just purchased a new Metrohm IC instrument, please contact your local Metrohm subsidiary to find out about potential discounts that apply to our portfolio of IC standards and reagents.

Certified Standard Solutions (*TraceCERT®*)

The selection of appropriate standards for the calibration and quality control of an IC system is of high importance. We provide a wide range of certified reference materials for IC from single-ion standards of inorganic and organic anions, cations and sugars to multi-ion standards.

- *TraceCERT®* certified reference materials are produced under **ISO/IEC 17025** (General Requirements for the Competence of Testing and Calibration Laboratories) and **ISO 17034** (General Requirements for the Competence of Reference Material Producers).
- The certified value of the reference material is directly traceable to the SI unit (kg) and is also measured against an internationally recognized reference material (from NIST, BAM or others).
- Information about traceability and uncertainty are included in the certificate according to ISO Guide 31, and the expiry date is also given. In most cases, relevant impurities are stated for the inorganic single-ion standards.
- Certificates can be accessed on the web by using product and lot numbers.



Cat. No.	Product Name	Composition
Multi-ion Standards		
89316	Multielement Ion Chromatography Cation Standard Solution	10.0 mg/kg \pm 0.2% Li ⁺ , Na ⁺ , K ⁺ , Mg ²⁺ , Ca ²⁺ each cation
89886	Multielement Ion Chromatography Anion Standard Solution	10.0 mg/kg \pm 0.2% F ⁻ , Cl ⁻ , Br ⁻ , NO ₃ ⁻ , PO ₄ ³⁻ , SO ₄ ²⁻ each anion
69734	Multi Anion Standard 1 for IC	Bromide, 20 mg/L Chloride, 10 mg/L Fluoride, 3 mg/L Nitrate, 20 mg/L Phosphate, 30 mg/L Sulfur, 20 mg/L
53798	Multi Anion Standard 2 for IC	Bromide, 1 g/L Chloride, 1 g/L Fluoride, 1 g/L
55698	Multi Anion Standard 3 for IC	Nitrate, 1 g/L Phosphate, 1 g/L Sulfate, 1 g/L
91286	Multi Cation Standard 1 for IC	Calcium, 1000 mg/L Potassium, 200 mg/L Lithium, 50 mg/L Magnesium, 200 mg/L Sodium, 200 mg/L Ammonium, 400 mg/L
93159	Multi Cation Standard 2 for IC	Barium, 100 mg/L Calcium, 100 mg/L Potassium, 100 mg/L Lithium, 100 mg/L Magnesium, 100 mg/L Manganese, 100 mg/L Sodium, 100 mg/L Ammonium, 100 mg/L Strontium, 100 mg/L

Cat. No.	Product Name
Inorganic Anion Standards	
1000 mg/L if not otherwise stated	
78476	Bromate Standard for IC
43147	Bromide Standard for IC
73166	Chlorate Standard for IC
39883	Chloride Standard for IC
06740	Chloride Standard for IC (10'000 mg/L)
40121	Chromate Standard for IC
90157	Cyanide Standard for IC
77365	Fluoride Standard for IC
41271	Iodide Standard for IC
53638	Nitrate Nitrogen Standard for IC
74246	Nitrate Standard for IC
36427	Nitrite Nitrogen Standard for IC
67276	Nitrite Standard for IC
76462	Perchlorate Standard for IC
95924	Phosphate Phosphorous Standard for IC
38364	Phosphate Standard for IC
18895	Silicate Standard for IC
90071	Sulfate Standard for IC
79735	Sulfate Standard for IC (10'000 mg/L)

Cat. No.	Product Name
Inorganic Cation Standards	
1000 mg/L, 100 mL	
89503	Ammonium Nitrogen Standard for IC
59755	Ammonium Standard for IC
39865	Calcium Standard for IC
40786	Copper Standard for IC
51777	Lead Standard for IC
59878	Lithium Standard for IC
89441	Magnesium Standard for IC
42637	Nickel Standard for IC
53337	Potassium Standard for IC
43492	Sodium Standard for IC
67902	Zinc Standard for IC
Organic Anion Standards	
1000 mg/L, 100 mL	
51791	Acetate Standard for IC
40968	Adipate Standard for IC
08089	Butyrate Standard for IC
96068	Citrate Standard for IC
44293	Formate Standard for IC
07391	Glycolate Standard for IC
07096	Lactate Standard for IC
06994	Malate Standard for IC
73139	Oxalate Standard for IC
90677	Phthalate Standard for IC
51716	Propionate Standard for IC
43057	Succinate Standard for IC
Carbohydrate and Sugar Alcohol Standards	
1000 mg/L, 50 mL	
72669	Fructose Standard for IC
72637	Galactose Standard for IC
95055	Glucosamine Standard for IC
69222	Glucose Standard for IC
72622	Lactose Standard for IC
01448	Lactulose Standard for IC
69631	Sucrose Standard for IC

Qualification Kit

The kit is intended for testing detection linearity, injector precision and injector carry-over. The 50 mg/kg standard is used for repeatability tests (injector precision) and the maximum carry-over during injection is verified with the 1000 mg/kg standard. The standards 5 to 100 mg/kg are used to prove the detector linearity. **Find a detailed description of the instrument qualification process in Analytix Reporter magazine issue 16 (sigmaaldrich.com/analytix).** It is a special advantage that the certified bromide standards (produced in a double accredited laboratory fulfilling ISO/IEC 17025 and ISO 17034) can be used for conductivity, UV/Vis and electrochemical detectors.

Cat. No.	Product Name	Composition
12674	IQ/OQ/PQ Kit for Ion Chromatography	Six bromide standards with nominal concentrations of 5, 10, 20, 50, 100 and 1000 mg/kg, produced from high-purity NaBr and water

Certified Eluent Concentrates

Typically, IC eluents (mobile phases) are diluted solutions of acids, bases or salts. The certified eluent concentrates for ion chromatography are traceable by potentiometric titration to NIST Standard Reference Materials and certified in accordance with ISO Guide 31. All details about exact content, uncertainty, traceability and expiry date are described in the certificate.

Single Concentrates

Cat. No.	Product Name	Concentration, Pack Size	Composition / Column
50972	2,6-Pyridinedicarboxylic acid concentrate	20 mm, 1 L	C ₇ H ₅ NO ₄ in water
55517	Methanesulfonic acid concentrate	100 mm, 1 L	CH ₃ SO ₃ H (99%) in water
16355	Nitric acid concentrate	100 mm, 1 L	HNO ₃ in water
68487	Oxalic acid concentrate	100 mm, 1 L	HOOC-COOH in water
50439	Perchloric acid concentrate	10 mm, 1 L	HClO ₄ in water
61699	Potassium hydroxide concentrate	100 mm, 1 L	KOH in water
36486	Sodium bicarbonate concentrate	100 mm, 1 L	NaHCO ₃ in water
67109	Potassium hydroxide solution	4M, 1L	KOH in water
72784	Sodium carbonate concentrate	72 mm, 1 L, 2.5 L	Na ₂ CO ₃ in water, A Supp 7
56169	Sodium carbonate concentrate	100 mm, 1 L	Na ₂ CO ₃ in water
43617	Sodium hydroxide concentrate	100 mm, 1 L	NaOH in water
72064	Sodium hydroxide solution	50-52%, 500 mL	NaOH in water

Cat. No.	Product Name	Concentration, Pack Size	Composition / Column
68279	Sulfuric acid concentrate	100 mm, 1 L	H ₂ SO ₄ in water
86854	Tetrabutylammonium hydroxide solution	~40%, 100 mL, 500 mL, 2.5 L	(CH ₃ CH ₂ CH ₂ CH ₂) ₄ N(OH) in water
78737	Nitric acid/Rubidium nitrate concentrate		HNO ₃ 100 mm and RbNO ₃ 1000 mg/L in water for Metrosep C Supp 1

¹ 20-fold concentration for Metrohm's Metrosep A Supp 7 column

² Standard CoA available

Binary Concentrates

In an effort to expand the selection of well-characterized eluent concentrates, a novel group of binary concentrates (20-fold concentration) was introduced.

The key features are:

- Application tested using Metrohm's Metrosep columns
- Certificate according to ISO Guide 31
- High-purity starting materials
- All details about the exact content, specifications, and expiry date are described in the certificate

Packaging: 1 L and 2.5 L HDPE bottles with 45 mm screw thread

Cat. No.	Product Name	Concentration	Column
61905	Nitric acid/Dipicolinic acid concentrate	14 mm C ₇ H ₅ NO ₄ and 34 mm HNO ₃	Metrosep C 4
62414	Sodium bicarbonate/Sodium carbonate concentrate	64 mm Na ₂ CO ₃ and 20 mm NaHCO ₃	Metrosep A Supp 5
75335	Sodium bicarbonate/Sodium carbonate concentrate	100 mm Na ₂ CO ₃ and 100 mm NaHCO ₃	Metrosep A Supp 10
38302	Sodium carbonate/Sodium hydroxide concentrate	150 mm Na ₂ CO ₃ and 15 mm NaOH	Metrosep A Supp 16
19399*	Nitric acid/Dipicolinic acid concentrate	17 mm HNO ₃ and 17 mm C ₇ H ₅ NO ₄	Metrosep C 6
66949	Sodium bicarbonate/Sodium carbonate concentrate	100 mm Na ₂ CO ₃ and 4 mm NaHCO ₃	Metrosep A Supp 17
68302	Sodium bicarbonate/Sodium carbonate concentrate	160 mm Na ₂ CO ₃ and 5 mm NaHCO ₃	Metrosep A Supp 19
69523	Sodium bicarbonate/Sodium carbonate concentrate	36 mm Na ₂ CO ₃ and 34 mm NaHCO ₃	Metrosep A Supp 4

* 10-fold concentration

Reagents

Cat. No.	Product Name
02321	2,6-Pyridinedicarboxylic acid
52411	Heptafluorobutyric acid
80833	18-Crown-6

Water

We developed a water quality especially for the needs of ion chromatography. This water is also suitable for trace analysis of anions, cations and also some organics which are usually analyzed by IC. The product is delivered in HDPE bottles with 45 mm thread.

Cat. No.	Product Name	Pack Size
00612	Water for Ion Chromatography	2.5 L, 5 L



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MK_FL9268EN Ver. 2.0 61085 06/2025

