Achieve calibration excellence

Aquastar® and Certipur® High-Quality Certified Reference Materials (CRMs)

The Life Science business of Merck operates as MilliporeSigma in the U.S. and Canada.

Supelco®
Analytical Products

introduction

Our unwavering commitment to quality is a top priority as a leading provider of high-quality Certified Reference material (CRM) grade standards. We have established a comprehensive Quality Assurance System that adheres to ISO 9001 standards, ensuring the highest level of quality across all our products. With a strong focus on precision, every product we offer is manufactured to exact specifications with guaranteed consistency in quality and reliability.

Our Aquastar® and Certipur® line of CRMs including Karl Fischer (KF) standards, pH buffer calibration standards, Volumetric, Conductivity, AAS single element, IC single element, ICP single & multi-element standards are produced in accordance with ISO 17034 and characterized in accordance with ISO/IEC 17025 in Darmstadt (Germany).

Laboratories that either work in regulated environments, or are ISO/IEC 17025 accredited, are better prepared for audits. ISO/IEC 17025 is a recognized international accreditation for laboratories and is accepted worldwide through the International Laboratory Accreditation Organization (ILAC), and every country has its own accreditation bodies that are members of the ILAC. Our Aquastar® and Certipur® line of certified reference material standard solutions are produced from the highest purity starting material, fulfilling ISO 17034 international standards.

Discover a wide array of high-quality CRMs for the precise calibration of your instruments for buffers, volumetric solutions, and several other determinations. Our standards guarantee full confidence in your calibration measurements.

Please visit
ISO certificates and Site Quality Self-Assessments to access the current certificates of accreditation.

In our effort to be more sustainable, we're going digital with Certificate of Analysis (COA)-download them directly from our website. Batch specific comprehensive COA can be downloaded from our **website**.

INTRODUCING Unmatched portfolio of high-quality CRM grade Aquastar® & Certipur® line of CRMs

No doubts. No delays. Just accuracy

Darmstadt, Germany

Aquastar® Karl Fischer Standards & Reagents
Certipur® inorganic and elemental CRMs

- Contract labs and Accredited Labs
- Pharmaceutical Industry BioTechnology
- Chemical/ Petrochemical Industry
- Food & Beverage Manufacturers
- Cosmetic Industry
- Environmental Testing
- Agriculture Industry
- Academia
- Battery Producer/ Automobile Producer
- Mining Industry

Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-RM-15185-01-00 according to DIN EN ISO 17034:2017

Valid from: **21.03.2024**
Date of issue: 21.03.2024

Holder of accreditation certificate:

MERCK Kommanditgesellschaft auf Aktien
Frankfurter Straße 250, 64293 Darmstadt

with the location

MERCK Kommanditgesellschaft auf Aktien
Life Science Operations Darmstadt LS-SC-PCD
Frankfurter Straße 250, 64293 Darmstadt

The reference material producer meets the requirements of DIN EN ISO 17034:2017 to carry out the conformity assessment activities listed in this annex. The reference material producer meets additional legal and normative requirements, if applicable, including those in relevant sectoral schemes, provided that these are explicitly confirmed below.

The management system requirements of DIN EN ISO 17034 are written in the language relevant to the operations of reference material producers and they conform to the principles of DIN EN ISO 9001.

Reference material production in the fields:

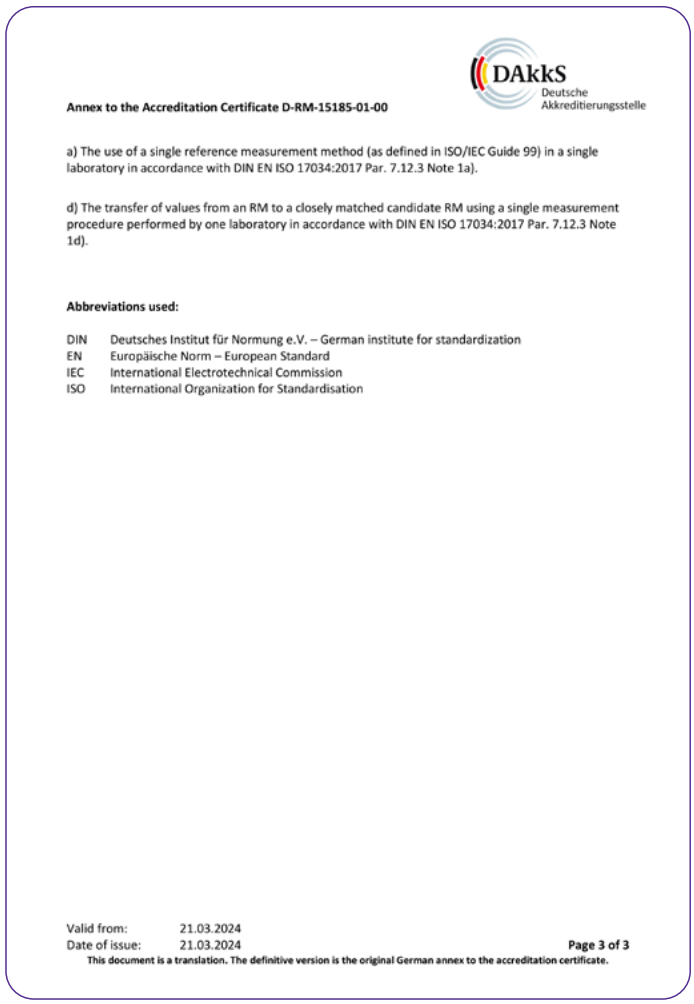
production of certified reference materials in the fields conductivity standard solutions, single element standard solutions, multi element standard solutions, pH-reference solids and pH-reference solutions, water standards, standard solutions for ion chromtography and titrimetric standards

The reference material producer maintains an up-to-date list of certified reference materials in the accredited area

This certificate annex is only valid together with the written accreditation certificate and reflects the status as indicated by the date of issue. The current status of any given scope of accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH at https://www.dakks.de.

Abbreviations used: see last page **Page 1 of 3**

This document is a translation. The definitive version is the original German annex to the accreditation certificate.



Annex to the Accreditation Certificate D-RM-15185-01-00

a) The use of a single reference measurement method (as defined in ISO/IEC Guide 99) in a single laboratory in accordance with DIN EN ISO 17034:2017 Par. 7.12.3 Note 1a).

d) The transfer of values from an RM to a closely matched candidate RM using a single measurement procedure performed by one laboratory in accordance with DIN EN ISO 17034:2017 Par. 7.12.3 Note 1d).

Abbreviations used:

DIN	Deutsches Institut für Normung e.V. – German institute for standardization
EN	Europäische Norm – European Standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardisation

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Table of Contents

1. Karl Fischer (KF) Standards

Karl Fischer (KF) titration is one of the most rapid and accurate methods to determine water content in various samples. For accurate KF titration, high quality Certified Reference Materials (CRMs) are essential. Aquastar® KF standards are available as CRMs according to ISO 17034 for a precise titer determination, instrument check, and the verification of titration results.

Features & Benefits

- Batch-specific Certificate of Analysis for QM documentation
- Reliable and correct results
- Manufactured and analyzed by an ISO/IEC 17025 accredited calibration lab
- Quality Grade: CRM according to ISO 17034
- Comprehensive datasheets available now on PDP's: Explaining Karl Fischer titration parameters and procedure under handling recommendations

Important Links:

- **Aquastar® Karl Fischer Standards**
- **Supelco® SmartChemicals for Titration**
- **Karl Fischer Titration Video**
- **Titration 4.0**
- Brochure for KF Standards: **Unleashing Accuracy in Water Determination High Quality CRM Grade Karl Fischer Standards**

Table 1 Aquastar® line of CRM grade Karl Fischer Standards*

Cat. No.	Product Name
112939	Lactose Standard 5%, Certified Reference Material for Karl Fischer Titration Aquastar®
106664	Sodium tartrate dihydrate, Certified Reference Material for Karl Fischer Titration 15.66% Aquastar®
188051	Water standard 0.1%, Certified Reference Material for coulometric Karl Fischer Titration 1 g ≙ 1 mg H_2O Aquastar®
188052	Water standard 1%, Certified Reference Material for volumetric Karl Fischer Titration 1 g ≙ 10 mg H_2O Aquastar®
188054	Water Standard Oven 1%, Certified Reference Material for KF oven method Aquastar®
188055	Water Standard Oil, Certified Reference Material for Karl Fischer Titration (oil matrix 15-30 ppm H_2O) Aquastar®

**Product list effective March 2026*

2. pH Buffer Calibration Standards

Buffer solutions are essential for maintaining proper calibration of pH instruments. The accuracy of pH measurements is directly affected by the buffer reference materials used during calibration.

Features & Benefits

- Secure: Certified under ISO 17034 and ISO/IEC 17025 accreditations to ensure consistently reliable results
- Trusted: Traceable to SI units via NIST (National Institute of Standards and Technology, USA) and PTB (Physical Technical Institute, National Metrological Institute of Germany)
- Ready for Audits: Detailed CoA for every product
- Always Fresh: Available as ready-to-use, single-use sachets
- Offered with certified pH values at both 20 °C and 25 °C
- Available in innovative & eco-friendly packaging Titripac® format with ensured stability

Certipur® buffer solutions in small & handy single-use sachets: Preparation effort reduced to a minimum - Just open the sachet and start calibrating.

Innovative Titripac® Format- Reducing environmental impact through sustainable design

Table 2 Certipur® line of CRM grade pH buffer Calibration Standards*

Cat. No.	Product Name
101960	Potassium dihydrogen phosphate/ di-sodium hydrogen phosphate certified secondary standard reference material for pH measurement; directly traceable to primary SRM from NIST/PTB pH(S)=6.86$_5$ /pH(S)=7.41$_3$ (25 °C) Certipur®
101961	Potassium tetraoxalate dihydrate certified secondary standard reference material for pH measurement; directly traceable to primary reference material from NIST/PTB pH (S) = 1.67$_9$ (25 °C) Certipur®
101962	Sodium hydrogen carbonate/sodium carbonate certified secondary standard reference material for pH measurement; directly traceable to primary SRM from NIST/PTB pH(S) = 10.01$_2$ (25 °C) Certipur®
101963	Potassium hydrogen tartrate certified secondary standard reference material for pH measurement; directly traceable to primary SRM from NIST/PTB pH(S) = 3.63$_9$ / pH(S) = 3.55$_7$ (25 °C) Certipur®
101964	di-Sodium tetraborate decahydrate certified secondary standard reference material for pH measurement; directly traceable to primary SRM from NIST/PTB pH(S)=9.18$_0$ (25 °C) Certipur®
101965	Potassium hydrogen phthalate certified secondary standard reference material for pH measurement; directly traceable to primary SRM from NIST/PTB pH(S) = 4.00$_5$ (25 °C) Certipur®
107200	Certified sec. standard reference buffer solution potassium hydrogen phthalate directly traceable to primary SRM from NIST/PTB pH (S) = 4.00$_5$ (25 °C) Certipur®
107202	Certified sec. standard reference buffer solution potassium dihydrogen phosphate/di-sodium hydrogen phosphate, directly traceable to primary SRM from NIST/PTB pH(S) = 6.86$_5$ (25 °C) Certipur®
107203	Certified sec. standard reference buffer solution di-sodium tetraborate decahydrate, directly traceable to primary SRM from NIST/ PTB pH(S) = 9.18$_0$ (25 °C) Certipur®
107204	Certified sec. standard reference buffer solution potassium tetraoxalate dihydrate, directly traceable to primary SRM from NIST/PTB pH(S) = 1.67$_9$ (25 °C) Certipur®
107205	Certified sec. standard reference buffer solution potassium dihydrogen phosphate/di-sodium hydrogen phosphate, directly traceable to primary SRM from NIST/PTB pH(S) = 7.41$_3$ (25 °C) Certipur®
101645	Buffer solution (di-sodium tetraborate), traceable to SRM from NIST and PTB pH 9.22 (20 °C) Certipur®
107294	Buffer solution (di-sodium hydrogen phosphate/potassium dihydrogen phosphate) traceable to SRM from NIST and PTB pH 6.88 (20 °C) Certipur®
107827	Buffer solution (acetic acid/sodium acetate) traceable to SRM from NIST and PTB pH 4.66 (20 °C) Certipur®
109400	Buffer Solution (boric acid/potassium chloride/sodium hydroxide) colour coded: yellow, traceable to NIST and PTB pH 10.00 (20 °C) Certipur®
109406	Buffer solution (potassium hydrogen phthalate), traceable to SRM from NIST and PTB pH 4.01 (25 °C) Certipur®
109407	Buffer solution (potassium dihydrogen phosphate/disodium hydrogen phosphate) traceable to SRM from NIST and PTB pH 7.00 (25 °C) Certipur®
109408	Buffer solution (boric acid/potassium chloride/sodium hydroxide) traceable to SRM from NIST and PTB pH 9.00 (25 °C) Certipur®
109409	Buffer solution (boric acid/potassium chloride/sodium hydroxide) traceable to SRM from NIST and PTB pH 10.00 (25 °C) Certipur®
109432	Buffer solution (glycine/sodium chloride/|hydrogen chloride), traceable to SRM from NIST and PTB pH 1.00 (20 °C) Certipur®
109433	Buffer solution (citric acid/sodium hydroxide/|hydrogen chloride), traceable to SRM from NIST and PTB pH 2.00 (20 °C) Certipur®
109434	Buffer solution (citric acid/sodium hydroxide/|hydrogen chloride), traceable to SRM from NIST and PTB pH 3.00 (20 °C) Certipur®
109435	Buffer solution (citric acid/|sodium hydroxide/|hydrogen chloride), traceable to SRM from NIST and PTB pH 4.00 (20 °C) Certipur®
109436	Buffer solution (citric acid/sodium hydroxide) traceable to SRM from NIST and PTB pH 5.00 (20 °C) Certipur®
109437	Buffer solution (citric acid/sodium hydroxide), traceable to SRM from NIST and PTB pH 6.00 (20 °C) Certipur®
109438	Buffer solution (boric acid/potassium chloride/sodium hydroxide), traceable to SRM from NIST and PTB pH 10.00 (20 °C) Certipur®
109439	Buffer solution (di-sodium hydrogen phosphate/|potassium dihydrogen phosphate), traceable to SRM from NIST and PTB pH 7.00 (20 °C) Certipur®
109441	Buffer solution (glycine/sodium chloride/|hydrogen chloride), traceable to SRM from NIST and PTB pH 1.00 (25 °C) Certipur®
109442	Buffer solution (citric acid/sodium hydroxide/ hydrogen chloride), traceable to SRM from NIST and PTB pH 2.00 (25 °C) Certipur®
109444	Buffer solution (citric acid/sodium hydroxide/|hydrogen chloride), traceable to SRM from NIST and PTB pH 3.00 (25 °C) Certipur®
109445	Buffer solution (citric acid/|sodium hydroxide/|hydrogen chloride) traceable to SRM from NIST and PTB pH 4.00 (25 °C) Certipur®
109446	Buffer solution (citric acid/sodium hydroxide) traceable to SRM from NIST and PTB pH 5.00 (25 °C) Certipur®
109460	Buffer solution (boric acid/sodium hydroxide/hydrogen chloride), traceable to SRM from NIST and PTB pH 8.00 (20 °C) Certipur®
109461	Buffer solution (boric acid/potassium chloride/sodium hydroxide), traceable to SRM from NIST and PTB pH 9.00 (20 °C) Certipur®
109462	Buffer solution (boric acid/potassium chloride/sodium hydroxide), traceable to SRM from NIST and PTB pH 11.00 (20 °C) Certipur®
109475	Buffer solution (citric acid/|sodium hydroxide/|hydrogen chloride) colour: red traceable to SRM from NIST and PTB pH 4.00 (20 °C) Certipur®
109476	Buffer solution (boric acid/potassium chloride/sodium hydroxide), coloured: blue traceable to SRM from NIST and PTB pH 9.00 (20 °C) Certipur®
109477	Buffer solution (di-sodium hydrogen phosphate/|potassium dihydrogen phosphate), colour: green traceable to SRM from NIST and PTB pH 7.00 (20 °C) Certipur®

Cat. No.	Product Name
199001	Buffer solution (potassium hydrogen phthalate), traceable to SRM from NIST and PTB pH 4.01 (25 °C) Certipur®
199002	Buffer solution (potassium dihydrogen phosphate/|di-sodium hydrogen phosphate), traceable to SRM from NIST and PTB pH 7.00 (25 °C) Certipur®
199003	Buffer solution (boric acid/potassium chloride/sodium hydroxide solution), traceable to SRM from NIST and PTB pH 9.00 (25 °C) Certipur®
199004	Buffer solution (boric acid/potassium chloride/sodium hydroxide), traceable to SRM from NIST and PTB pH 10.00 (25 °C) Certipur®
199005	Buffer solutions traceable to SRM from NIST and PTB 10 x pH 4.01 (phthalate) 10 x pH 7.00 (phosphate) 10 x pH 9.00 (borate) pH 4.01/pH 7.00/pH 9.00 (25 °C) Certipur®
199006	Buffer solutions traceable to SRM from NIST and PTB 10 x pH 4.01 (phthalate) 10 x pH 7.00 (phosphate) 10 x pH 10.00 (borate) pH 4.01/pH 7.00/pH 10.00(25 °C) Certipur®
199011	Buffer solution (Potassium tetraoxalate) traceable to SRM from NIST and PTB pH 1.68 (25 °C) Certipur®
199012	Buffer Solution (citric acid, sodium hydroxide, hydrogen chloride) traceable to SRM from NIST and PTB pH 2.00 (25 °C) Certipur®
199015	Buffer solution (Potassium tetraoxalate) traceable to SRM from NIST and PTB pH 1.68 (25 °C) Certipur®
199016	Buffer Solution (citric acid/sodium hydroxide), traceable to SRM from NIST and PTB pH 6.00 (25 °C) Certipur®
199017	Buffer solution (Potassium dihydrogen phosphate, di-sodium hydrogen phophate) traceable to SRM from NIST and PTB pH 6.86 (25 °C) Certipur®
199019	Buffer solution (di-sodium tetraborate) traceable to SRM from NIST and PTB pH 9.18 (25 °C) Certipur®
199021	Buffer Solution (boric acid, sodium hydroxide, potassium chloride) traceable to SRM from NIST and PTB pH 11.00 (25 °C) Certipur®
199022	Buffer Solution (di-sodium hydrogen phosphate/|sodium hydroxide) traceable to SRM from NIST und PTB pH 12.00 (25 °C) Certipur®
199036	Buffer solution (citric acid/sodium hydroxide), traceable to SRM from NIST and PTB pH 6.00 (25 °C) Certipur®
199038	Buffer solution (boric acid/|sodium hydroxide/|hydrogen chloride), traceable to SRM from NIST and PTB pH 8.00 (25 °C) Certipur®
199041	Buffer solutions (boric acid/potassium chloride/sodium hydroxide), traceable to SRM from NIST and PTB pH 11.00 (25 °C) Certipur®
199050	Buffer solution (boric acid/potassium chloride/sodium hydroxide) colour coded: blue, traceable to NIST and PTB pH 10.00 (25 °C) Certipur®
199054	Buffer solution (citric acid/|sodium hydroxide/|hydrogen chloride) colour: red, traceable to SRM from NIST and PTB pH 4.00 (25 °C) Certipur®
199057	Buffer solution (di-sodium hydrogen phosphate/ potassium dihydrogen phosphate), colour:yellow traceable to SRM from NIST and PTB pH 7.00 (25 °C) Certipur®
199064	Buffer solution (citric acid/sodium hydroxide/hydrogen chloride) traceable to SRM from NIST and PTB pH 4.00 (25 °C) Certipur®
199068	Buffer solution (Potassium dihydrogen phosphate, di-sodium hydrogen phophate) traceable to SRM from NIST and PTB pH 6.86(25 °C) Certipur®
199091	Buffer solution (di-sodium tetraborate) traceable to SRM from NIST and PTB pH 9.18 (25 °C) Certipur®

**Product list effective March 2026*

Important Links:

- Explore our extensive list of CRM grade buffer standards: **Buffer Standards**
- Explore **technical datasheet** for stability data of Titripac® packaging (also available on respective Product Description Pages)
- Find more information about these products in our newly launched brochure: **Buffer Calibration standards for pH Measurements**
- **Find detailed information about sustainable packaging solution "Titripac®: Analytix Reporter Journal Issue 13/2022**

3. Volumetric Standards

Merck KGaA, Darmstadt, Germany operates a laboratory accredited under DIN EN ISO/IEC 17025 for mass fraction analysis. All Certipur® volumetric standards are tested in this accredited facility. These volumetric standards are CRMs in accordance with ISO 17034 and are traceable to standard reference materials from NIST (National Institute of Standards and Technology, Gaithersburg, Maryland, United States).

Accurate titer determination is essential for reliable titration results, as factors like temperature and weighing errors can influence outcomes. Certipur® materials are pure, high-grade, and stable, produced under stringent controls to ensure quality and precision.

Table 3. Certipur® line of CRM grade Volumetric Standards*

Cat. No.	Product Name
102400	Potassium hydrogen phthalate Volumetric standard, secondary reference material for alkalimetry, traceable to NIST Standard Reference Material (SRM) Certipur® Reag. Ph Eur
102401	Benzoic acid volumetric standard, secondary reference material for alkalimetry, traceable to NIST Standard Reference Material (SRM) Certipur® Reag. Ph Eur,Reag. USP
102402	Iron(II) ethylenediammonium sulfate Volumetric standard, secondary reference material for redox titration, traceable to NIST Standard Reference Material (SRM) Certipur® Reag. Ph Eur
102403	Potassium dichromate volumetric standard, secondary reference material for redox titration, traceable to NIST SRM Certipur® Reag. USP
102404	Potassium iodate volumetric standard, secondary reference material for iodometry, traceable to NIST SRM Certipur®
102405	Sodium carbonate volumetric standard, secondary reference material for acidimetry, traceable to NIST SRM Certipur®
102406	Sodium chloride volumetric standard, secondary reference material for argentometry, traceable to NIST SRM Certipur® Reag. Ph Eur,Reag. USP
102407	di-Sodium oxalate volumetric standard, secondary reference material for redox titration, traceable to NIST Standard Reference Material (SRM) Certipur® Reag. USP
102408	Tris(hydroxymethyl)aminomethane volumetric standard, secondary reference material for acidimetry, traceable to NIST Standard Reference Material (SRM) Certipur® Reag. Ph Eur,Reag. USP
102409	Zinc volumetric standard, secondary reference material for complexometry, traceable to NIST SRM Certipur® Reag. Ph Eur
102410	Calcium carbonate volumetric standard, secondary reference material for complexometry, traceable to NIST Standard Reference Material (SRM) Certipur®

**Product list effective March 2026*

Important Links:

- **Volumetric Standards**
- Brochure: **Volumetric Solutions and Standards for Titration**

4. Conductivity Standards

Our Certipur® line of CRM's for conductivity measurement are tested and certified by our accredited calibration laboratory, which complies with ISO/IEC 17025. We also hold ISO 17034 accreditation as a reference material producer for conductivity standards. These standards are directly traceable to the relevant primary reference material from the Physikalisch Technische Bundesanstalt (PTB) in Germany.

Table 4 Certipur® line of CRM grade Conductivity Standards*

Cat. No.	Product Name
101203	Potassium chloride solution (nominal 1.41 mS/cm) certified reference material for the measurement of electrolytic conductivity (c=0.01 mol/L) Certipur®
101254	Potassium chloride solution (nominal 12.8 mS/cm) certified reference material for the measurement of electrolytic conductivity (c=0.1 mol/L) Certipur®
101255	Potassium chloride solution (nominal 111 mS/cm) certified reference material for the measurement of electrolytic conductivity (c=1.0 mol/L) Certipur®
101553	Potassium chloride solution (nominal 1.41 mS/cm) Certified Reference Material for the measurement of electrolytic conductivity, traceable to PTB (c=0.01 mol/L) Certipur®
101554	Potassium chloride solution (nominal 12.8 mS/cm) Certified Reference Material for the measurement of electrolytic conductivity, traceable to PTB (c=0.1 mol/L) Certipur®
101557	Potassium chloride solution (nominal 0.147 mS/cm) certified reference material for the measurement of electrolytic conductivity (c=0.001 mol/L) Certipur®
101811	Potassium chloride solution (nominal 0.015 mS/cm) Certified Reference Material for the measurement of electrolytic conductivity, traceable to PTB (c=0.0001 mol/L) Certipur®
104604	Conductivity water (nominal 0 mS/cm) certified reference material, Test solution for measurement of electrolytic conductivity, traceable to PTB Certipur®
101586	Potassium chloride solution (nominal 0.147 mS/cm) Certified reference material for the measurement of electrolytic conductivity,ss traceable to PTB (c = 0.001 mol/l) Certipur

**Product list effective March 2026*

Important Links:

Conductivity Standards

5. AAS & ICP single element Standards

We offer a large range of single element certified reference standard solutions in various concentrations (1 mg/L, 10 mg/L, 1’000 mg/L, 10’000 mg/L) suitable for AAS, ICP-OES or ICP-MS applications. To guarantee top reliability of the values, all certified reference solutions for AAS are traceable to specified NIST SRMs.

Table 5a Certipur® line of CRM grade AAS Single Element Standards*

Cat. No.	Product Name
114282	Palladium standard solution traceable to SRM from NIST $Pd(NO_3)_2$ in HNO_3 0.5 mol/L 1000 mg/L Pd Certipur®
119500	Boron standard solution traceable to SRM from NIST H_3BO_3 in H_2O 1000 mg/L B Certipur®
119504	Indium standard solution traceable to SRM from NIST In $(NO_3)_3$ in HNO_3 0.5 mol/L 1000 mg/L In Certipur®
119513	Scandium standard solution traceable to SRM from NIST Sc_2O_3 in HNO_3 1 mol/L 1000 mg/L Sc Certipur®
119514	Tellurium standard solution traceable to SRM from NIST H_6TeO_6 in HNO_3 0.5 mol/L 1000 mg/L Te Certipur®
119770	Aluminium standard solution traceable to SRM from NIST $Al(NO_3)_3$ in HNO_3 0.5 mol/L 1000 mg/L Al Certipur®
119773	Arsenic standard solution traceable to SRM from NIST H_3AsO_4 in HNO_3 0.5 mol/L 1000 mg/L As Certipur®
119774	Barium standard solution traceable to SRM from NIST $Ba(NO_3)_2$ in HNO_3 0.5 mol/L 1000 mg/L Ba Certipur®
119776	Lead standard solution traceable to SRM from NIST $Pb(NO_3)_2$ in HNO_3 0.5 mol/L 1000 mg/L Pb Certipur®
119777	Cadmium standard solution traceable to SRM from NIST $Cd(NO_3)_2$ in HNO_3 0.5 mol/L 1000 mg/L Cd Certipur®
119778	Calcium standard solution traceable to SRM from NIST $Ca(NO_3)_2$ in HNO_3 0.5 mol/L 1000 mg/L Ca Certipur®
119779	Chromium standard solution traceable to SRM from NIST $Cr(NO_3)_3$ in HNO_3 0.5 mol/L 1000 mg/L Cr Certipur®
119781	Iron standard solution traceable to SRM from NIST $Fe(NO_3)_3$ in HNO_3 0.5 mol/L 1000 mg/L Fe Certipur®
119785	Cobalt standard solution traceable to SRM from NIST $Co(NO_3)_2$ in HNO_3 0.5 mol/L 1000 mg/L Co Certipur®
119786	Copper standard solution traceable to SRM from NIST $Cu(NO_3)_2$ in HNO_3 0.5 mol/L 1000 mg/L Cu Certipur®
119788	Magnesium standard solution traceable to SRM from NIST $Mg(NO_3)_2$ in HNO_3 0.5 mol/L 1000 mg/L Mg Certipur®
119789	Manganese standard solution traceable to SRM from NIST $Mn(NO_3)_2$ in HNO_3 0.5 mol/L 1000 mg/L Mn Certipur®
119792	Nickel standard solution traceable to SRM from NIST $Ni(NO_3)_2$ in HNO_3 0.5 mol/L 1000 mg/L Ni Certipur®
119796	Selenium standard solution traceable to SRM from NIST SeO_2 in HNO_3 0.5 mol/L 1000 mg/L Se Certipur®
119797	Silver standard solution traceable to SRM from NIST $AgNO_3$ in HNO_3 0.5 mol/L 1000 mg/L Ag Certipur®
119799	Strontium standard solution traceable to SRM from NIST $Sr(NO_3)_2$ in HNO_3 0.5 mol/L 1000 mg/L Sr Certipur®
119801	Thallium standard solution traceable to SRM from NIST $TlNO_3$ in HNO_3 0.5 mol/L 1000 mg/L Tl Certipur®
119804	Bismuth standard solution traceable to SRM from NIST $Bi(NO_3)_3$ in HNO_3 0.5 mol/L 1000 mg/L Bi Certipur®
119806	Zinc standard solution traceable to SRM from NIST $Zn(NO_3)_2$ in HNO_3 0.5 mol/L 1000 mg/L Zn Certipur®
119809	Yttrium standard solution traceable to SRM from NIST $Y(NO_3)_3$ in HNO_3 0.5 mol/L 1000 mg/L Y Certipur®
170204	Antimony standard solution traceable to SRM from NIST Sb_2O_3 in HCl 2 mol/L 1000 mg/L Sb Certipur®
170207	Beryllium standard solution $Be_4O(C_2H_3O_2)_6$ in HNO_3 0.5 mol/L 1000 mg/L Be Certipur®
170212	Cesium standard solution traceable to SRM from NIST $CsNO_3$ in HNO_3 0.5 mol/L 1000 mg/L Cs Certipur®
170216	Gold standard solution traceable to SRM from NIST $H(AuCl_4)$ in HCl 2 mol/L 1000 mg/L Au Certipur®
170219	Platinum standard solution traceable to SRM from NIST H_2PtCl_6 in HCl 2 mol/L 1000mg/L Pt Certipur®
170223	Lithium standard solution traceable to SRM from NIST $LiNO_3$ in HNO_3 0.5 mol/L 1000 mg/L Li Certipur®
170226	Mercury standard solution traceable to SRM from NIST $Hg(NO_3)_2$ in HNO_3 2 mol/L 1000 mg/L Hg Certipur®
170227	Molybdenum standard solution traceable to SRM from NIST $(NH_4)_6Mo_7O_{24}$ in H_2O 1000 mg/L Mo Certipur®
170230	Potassium standard solution traceable to SRM from NIST KNO_3 in HNO_3 0.5 mol/L 1000 mg/L K Certipur®
170234	Zirconium standard solution traceable to SRM from NIST $ZrCl_4$ in HCl 2 mol/L 1000 mg/L Zr Certipur®
170236	Silicon standard solution traceable to SRM from NIST SiO_2 in NaOH 0.5 mol/L 1000 mg/L Si Certipur®
170238	Sodium standard solution traceable to SRM from NIST $NaNO_3$ in HNO_3 0.5 mol/L 1000 mg/L Na Certipur®
170242	Tin standard solution traceable to SRM from NIST $SnCl_4$ in HCl 2 mol/L 1000 mg/L Sn Certipur®
170243	Titanium standard solution traceable to SRM from NIST $(NH_4)_2TiF_6$ in H_2O 1000 mg/L Ti Certipur®
170244	Tungsten standard solution traceable to SRM from NIST $(NH_4)_2WO_4$ in H_2O 1000 mg/L W Certipur®
170245	Vanadium standard solution traceable to SRM from NIST NH_4VO_3 in HNO_3 0.5 mol/L 1000 mg/L V Certipur®

**Product list effective March 2026*

Table 5b Certipur® line of CRM grade ICP Single Element Standards*

Cat. No.	Product Name
108525	Rhodium standard 10 mg/L (Rhodium(III) nitrate in nitric acid 0.5 mol/L) internal standard for ICP-MS Certipur®
170301	Aluminium ICP standard traceable to SRM from NIST $Al(NO_3)_3$ in HNO_3 2-3% 1000 mg/L Al Certipur®
170302	Antimony ICP standard traceable to SRM from NIST Sb_2O_3 in HCl 7% 1000 mg/L Sb Certipur®
170303	Arsenic ICP standard traceable to SRM from NIST H_3AsO_4 in HNO_3 2-3% 1000 mg/L As Certipur®
170304	Barium ICP standard traceable to SRM from NIST $Ba(NO_3)_2$ in HNO_3 2-3% 1000 mg/L Ba Certipur®
170305	Beryllium ICP standard traceable to SRM from NIST $Be_4O(C_2H_3O_2)_6$ in HNO_3 2-3% 1000 mg/L Be Certipur®
170306	Bismuth ICP standard traceable to SRM from NIST $Bi(NO_3)_3$ in HNO_3 2-3% 1000 mg/L Bi Certipur®
170307	Boron ICP standard traceable to SRM from NIST, H_3BO_3 in H_2O 1000 mg/L B Certipur®
170308	Calcium ICP Standard traceable to SRM from NIST $Ca(NO_3)_2$ in HNO_3 2-3% 1000 mg/L Ca Certipur®
170309	Cadmium ICP standard traceable to SRM from NIST $Cd(NO_3)_2$ in HNO_3 2-3% 1000 mg/L Cd Certipur®
170310	Cesium ICP Standard traceable to SRM from NIST $CsNO_3$ in HNO_3 2-3% 1000 mg/L Cs Certipur®
170311	Cerium ICP standard traceable to SRM from NIST $Ce(NO_3)_3$ in HNO_3 2-3% 1000 mg/L Ce Certipur®
170312	Chromium ICP standard traceable to SRM from NIST $Cr(NO_3)_3$ in HNO_3 2-3% 1000 mg/L Cr Certipur®
170313	Cobalt ICP standard traceable to SRM from NIST $Co(NO_3)_2$ in HNO_3 2-3% 1000 mg/L Co Certipur®
170314	Copper ICP standard traceable to SRM from NIST $Cu(NO_3)_2$ in HNO_3 2-3% 1000 mg/L Cu Certipur®
170315	Dysprosium ICP standard traceable to SRM from NIST Dy_2O_3 in HNO_3 2-3% 1000 mg/L Dy Certipur®
170316	Erbium ICP standard traceable to SRM from NIST Er_2O_3 in HNO_3 2-3% 1000 mg/L Er Certipur®
170317	Europium ICP standard traceable to SRM from NIST Eu_2O_3 in HNO_3 2-3% 1000 mg/L Eu Certipur®
170318	Gadolinium ICP standard traceable to SRM from NIST Gd_2O_3 in HNO_3 2-3% 1000 mg/L Gd Certipur®
170319	Gallium ICP standard traceable to SRM from NIST $Ga(NO_3)_3$ in HNO_3 2-3% 1000 mg/L Ga Certipur®
170320	Germanium ICP standard traceable to SRM from NIST $(NH_4)_2GeF_6$ in H_2O 1000 mg/L Ge Certipur®
170321	Gold ICP standard traceable to SRM from NIST $H(AuCl_4)$ in HCl 7% 1000 mg/L Au Certipur®
170322	Hafnium ICP standard traceable to SRM from NIST $HfCl_4$ in HCl 7% 1000 mg/L Hf Certipur®
170323	Holmium ICP standard traceable to SRM from NIST Ho_2O_3 in HNO_3 2-3% 1000 mg/L Ho Certipur®
170324	Indium ICP standard traceable to SRM from NIST $In(NO_3)_3$ in HNO_3 2-3% 1000 mg/L In Certipur®
170326	Iron ICP standard traceable to SRM from NIST $Fe(NO_3)_3$ in HNO_3 2-3% 1000 mg/L Fe Certipur®
170327	Lanthanum ICP standard traceable to SRM from NIST $La(NO_3)_3$ in HNO_3 2-3% 1000 mg/L La Certipur®
170328	Lead ICP standard traceable to SRM from NIST $Pb(NO_3)_2$ in HNO_3 2-3% 1000 mg/L Pb Certipur®
170329	Lithium ICP Standard traceable to SRM from NIST $LiNO_3$ in HNO_3 2-3% 1000 mg/L Li Certipur®
170330	Lutetium ICP standard traceable to SRM from NIST Lu_2O_3 in HNO_3 2-3% 1000 mg/L Lu Certipur®
170331	Magnesium ICP standard traceable to SRM from NIST $Mg(NO_3)_2$ in HNO_3 2-3% 1000 mg/L Mg Certipur®
170332	Manganese ICP standard traceable to SRM from NIST $Mn(NO_3)_2$ in HNO_3 2-3% 1000 mg/L Mn Certipur®
170333	Mercury ICP standard traceable to SRM from NIST $Hg(NO_3)_2$ in HNO_3 10% 1000 mg/L Hg Certipur®
170334	Molybdenum ICP standard traceable to SRM from NIST $(NH_4)_6Mo_7O_{24}$ in H_2O 1000 mg/L Mo Certipur®
170335	Neodymium ICP standard traceable to SRM from NIST Nd_2O_3 in HNO_3 2-3% 1000 mg/L Nd Certipur®
170336	Nickel ICP standard traceable to SRM from NIST $Ni(NO_3)_2$ in HNO_3 2-3% 1000 mg/L Ni Certipur®
170337	Niobium ICP standard traceable to SRM from NIST NH_4NbF_6 in H_2O 1000 mg/L Nb Certipur®
170339	Palladium ICP standard traceable to SRM from NIST $Pd(NO_3)_2$ in HNO_3 2-3% 1000 mg/L Pd Certipur®
170340	Phosphorus ICP standard traceable to SRM from NIST H_3PO_4 in H_2O 1000 mg/L P Certipur®
170341	Platinum ICP standard traceable to SRM from NIST H_2PtCl_6 in HCl 7% 1000 mg/L Pt Certipur®
170342	Potassium ICP standard traceable to SRM from NIST KNO_3 in HNO_3 2-3% 1000 mg/L K Certipur®
170343	Praseodymium ICP standard traceable to SRM from NIST $Pr(NO_3)_3$ in HNO_3 2-3% 1000 mg/L Pr Certipur®
170344	Rhenium ICP standard traceable to SRM from NIST NH_4ReO_4 in H_2O 1000 mg/L Re Certipur®
170345	Rhodium ICP standard traceable to SRM from NIST $Rh(NO_3)_3$ in HNO_3 2-3% 1000 mg/L Rh Certipur®
170346	Rubidium ICP standard traceable to SRM from NIST $RbNO_3$ in HNO_3 2-3% 1000 mg/L Rb Certipur®
170348	Samarium ICP standard traceable to SRM from NIST Sm_2O_3 in HNO_3 2-3% 1000 mg/L Sm Certipur®
170349	Scandium ICP standard traceable to SRM from NIST Sc_2O_3 in HNO_3 7% 1000 mg/L Sc Certipur®
170350	Selenium ICP standard traceable to SRM from NIST SeO_2 in HNO_3 2-3% 1000 mg/L Se Certipur®
170352	Silver ICP standard traceable to SRM from NIST $AgNO_3$ in HNO_3 2-3% 1000 mg/L Ag Certipur®

Cat. No.	Product Name
170353	Sodium ICP standard traceable to SRM from NIST $NaNO_3$ in HNO_3 2-3% 1000 mg/L Na Certipur®
170354	Strontium ICP standard traceable to SRM from NIST $Sr(NO_3)_2$ in HNO_3 2-3% 1000 mg/L Sr Certipur®
170355	Sulfur ICP standard traceable to SRM from NIST H_2SO_4 in H_2O 1000 mg/L S Certipur®
170356	Tantalum ICP standard traceable to SRM from NIST $(NH_4)_2TaF_7$ in H_2O 1000 mg/L Ta Certipur®
170357	Tellurium ICP standard traceable to SRM from NIST H_6TeO_6 in HNO_3 2-3% 1000 mg/L Te Certipur®
170358	Terbium ICP standard traceable to SRM from NIST $Tb(NO_3)_3$ in HNO_3 2-3% 1000 mg/L Tb Certipur®
170359	Thallium ICP standard traceable to SRM from NIST $TlNO_3$ in HNO_3 2-3% 1000 mg/L Tl Certipur®
170360	Uranium ICP standard traceable to SRM from NIST $UO_2(NO_3)_2$ in HNO_3 2-3% 10 mg/L U Certipur®
170361	Thulium ICP standard traceable to SRM from NIST $Tm(NO_3)_3$ in HNO_3 2-3% 1000 mg/L Tm Certipur®
170362	Tin ICP standard traceable to SRM from NIST $SnCl_4$ in HCl 7% 1000 mg/L Sn Certipur®
170363	Titanium ICP standard traceable to SRM from NIST $(NH_4)_2TiF_6$ in H_2O 1000 mg/L Ti Certipur®
170364	Tungsten ICP standard traceable to SRM from NIST $(NH_4)_2WO_4$ in H_2O 1000 mg/L W Certipur®
170365	Silicon ICP standard traceable to SRM from NIST SiO_2 in NaOH 2 % 1000 mg/L Si Certipur®
170366	Vanadium ICP standard traceable to SRM from NIST NH_4VO_3 in HNO_3 2-3% 1000 mg/L V Certipur®
170367	Ytterbium ICP standard traceable to SRM from NIST Yb_2O_3 in HNO_3 2-3% 1000 mg/L Yb Certipur®
170368	Yttrium ICP standard traceable to SRM from NIST $Y(NO_3)_3$ in HNO_3 2-3% 1000 mg/L Y Certipur®
170369	Zinc ICP standard traceable to SRM from NIST $Zn(NO_3)_2$ in HNO_3 2-3% 1000 mg/L Zn Certipur®
170370	Zirconium ICP standard traceable to SRM from NIST $ZrCl_4$ in HCl 7% 1000 mg/L Zr Certipur®
170371	Aluminium ICP standard traceable to SRM from NIST $Al(NO_3)_3$ in HNO_3 2-3% 10000 mg/L Al Certipur®
170372	Lead ICP standard traceable to SRM from NIST $Pb(NO_3)_2$ in HNO_3 2-3% 10000 mg/L Pb Certipur®
170373	Calcium ICP Standard traceable to SRM from NIST $Ca(NO_3)_2$ in HNO_3 2-3% 10000 mg/L Ca Certipur®
170374	Chromium ICP standard traceable to SRM from NIST $Cr(NO_3)_3$ in HNO_3 2-3% 10000 mg/L Cr Certipur®
170375	Cobalt ICP standard traceable to SRM from NIST $Co(NO_3)_2$ in HNO_3 2-3% 10000 mg/L Co Certipur®
170376	Iron ICP standard traceable to SRM from NIST $Fe(NO_3)_3$ in HNO_3 10% 10000 mg/L Fe Certipur®
170377	Potassium ICP standard traceable to SRM from NIST KNO_3 in HNO_3 2-3% 10000 mg/L K Certipur®
170378	Copper ICP standard traceable to SRM from NIST $Cu(NO_3)_2$ in HNO_3 2-3% 10000 mg/L Cu Certipur®
170379	Magnesium ICP standard traceable to SRM from NIST $Mg(NO_3)_2$ in HNO_3 2-3% 10000 mg/L Mg Certipur®
170380	Manganese ICP standard traceable to SRM from NIST $Mn(NO_3)_2$ in HNO_3 2-3% 10000 mg/L Mn Certipur®
170381	Sodium ICP standard traceable to SRM from NIST $NaNO_3$ in HNO_3 2-3% 10000 mg/L Na Certipur®
170382	Nickel ICP standard traceable to SRM from NIST $Ni(NO_3)_2$ in HNO_3 2-3% 10000 mg/L Ni Certipur®
170383	Phosphorus ICP standard traceable to SRM from NIST H_3PO_4 in H_2O 10000 mg/L P Certipur®
170384	Mercury ICP standard traceable to SRM from NIST $Hg(NO_3)_2$ in HNO_3 10% 10000 mg/L Hg Certipur®
170385	Sulfur ICP standard traceable to SRM from NIST H_2SO_4 in H_2O 10000 mg/L S Certipur®
170386	Silicon ICP standard traceable to SRM from NIST (SiO_2 in NaOH 4 %) 10000 mg/L Si Certipur®
170388	Vanadium ICP standard traceable to SRM from NIST NH_4VO_3 in HNO_3 15% 10000 mg/L V Certipur®
170389	Zinc ICP standard traceable to SRM from NIST $Zn(NO_3)_2$ in HNO_3 2-3% 10000 mg/L Zn Certipur®
170390	Zirconium ICP standard traceable to SRM from NIST $ZrCl_4$ in HCl 7% 10000 mg/L Zr Certipur®
170391	Thorium ICP standard traceable to SRM from NIST $Th(NO_3)_4$ in HNO_3 2-3% 10 mg/L Th Certipur®

**Product list effective March 2026*

Important Links:

- **AAS single Element Standards**
- **ICP single Element Standards**
- Brochure: **High-Purity Chemicals for Inorganic Trace Analysis**

For detailed information for our newly launched ICP-Multi element Standards check the below flyers

a. **Commitment to Quality: Elevating Certipur® Standards to Certified Reference Material**

b. **Elevating Certipur® Standards to Certified Reference Material**

6. ICP multi-element Standards

We have recently elevated our Certipur® ICP multi-element standard solutions to a higher quality grade, now designated as “Certified Reference Material (CRM).” These solutions are traceable to standard reference materials from NIST. Our comprehensive Certificate of Analysis (COA) will include detailed information on content, composition, traceability, and both release and expiry dates.

Table 6. Certipur® line of CRM grade ICP multi-element Standards*

Cat. No.	Product Name
104447	ICP Multi element standard solution XXIV certified reference material (15 elements in diluted nitric acid) tuning solution 700 ES Certipur®
104451	ICP Multi element standard solution XIII certified reference material (15 elements in diluted nitric acid) Certipur®
104452	ICP Multi element standard solution XIV certified reference material (11 elements in 2% hydrochloric acid) Certipur®
104453	ICP Multi element standard solution XVI certified reference material (21 elements in diluted nitric acid) Certipur®
104464	ICP Multi element standard solution XI certified reference material (7 elements in diluted nitric acid) for sludge testing Certipur®
104479	ICP Multi element standard solution VIII certified reference material (24 elements in diluted nitric acid) Certipur®
104482	ICP Multi element standard solution X certified reference material (23 elements in diluted nitric acid) for surface water testing Certipur®
104483	ICP Multi element standard solution IX certified reference material (9 elements in diluted nitric acid) Certipur®
104486	ICP Multi element standard solution XVII certified reference material (7 elements in 15% hydrochloric acid) Certipur®
104487	GF AAS Multi element standard solution XVIII certified reference material (16 elements in diluted nitric acid) Certipur®
104488	ICP Multi element standard solution VI certified reference material (30 elements in diluted nitric acid) for ICP-MS Certipur®
104492	ICP Multi element standard solution V certified reference material (26 elements in 5% hydrochloric acid) for wavelength calibration Certipur®
104498	ICP Multi element standard solution IV certified reference material (23 elements in diluted nitric acid) Certipur®
104499	ICP Multi element standard solution I certified reference material (19 elements in diluted nitric acid) Certipur®
117283	ICP Multi element standard solution XXV certified reference material (29 elements in diluted nitric acid) for MS, Certipur®

**Product list effective March 2026*

Important Links:

- Flyer for newly launched CRM grade ICP-multi element standards (with discontinued products with their direct new upgraded replacement product information) : **Commitment to Quality: Elevating Certipur® Standards to Certified Reference Material**
- Flyer for newly launched CRM grade ICP-multi element standards: **Elevating Certipur® Standards to Certified Reference Material**

7. Ion Chromatography (IC) Standards

Ion chromatography (IC) separates charged molecules using cation and anion exchange methods, detecting ions in aqueous solutions down to parts per trillion (ppt). It provides reliable quantitative analysis. We offer a variety of CRM grade IC standards from Certipur® product line and they are traceable to NIST standards.

Table 7. Certipur® line of CRM grade IC Standards*

Cat. No.	Product Name
104613	Nitrate standard solution certified reference material traceable to SRM from NIST $NaNO_3$ in H_2O 1000 mg/L NO_3 Certipur®
104618	Chloride standard solution certified reference material traceable to SRM from NIST NaCl in H_2O 1000 mg/L Cl Certipur®
104622	Ammonium standard solution certified reference material traceable to SRM from NIST NH_4Cl in H_2O 1000 mg/L NH_4 Certipur®
104659	Nitrite standard solution certified reference material traceable to SRM from NIST $NaNO_2$ in H_2O 1000 mg/L NO_2 Certipur®
104688	Fluoride standard solution certified reference material traceable to SRM from NIST NaF in H_2O 1000 mg/L F Certipur®
104690	Phosphate standard solution certified reference material traceable to SRM from NIST KH_2PO_4 in H_2O 1000 mg/L PO_4 Certipur®
104694	Sulfate standard solution certified reference material traceable to SRM from NIST Na_2SO_4 in H_2O 1000 mg/L SO_4 Certipur®
104695	Cyanide standard solution certified reference material traceable to SRM from NIST $K_2[Zn(CN)_4]$ in H_2O 1000 mg/L CN Certipur®
104702	Bromide standard solution certified reference material traceable to SRM from NIST NaBr in H_2O 1000 mg/L Br Certipur®
104703	Chromate standard solution certified reference material traceable to SRM from NIST K_2CrO_4 in H_2O 1000 mg/L CrO_4 Certipur®
104711	Sodium standard solution certified reference material traceable to SRM from NIST $NaNO_3$ in H_2O 1000 mg/L Na Certipur®

**Product list effective March 2026*

Important Links:

Ion Chromatography (IC) Standards

Supelco®

Analytical Products

Merck KGaA
Frankfurter Strasse 250
64293 Darmstadt, Germany

SigmaAldrich.com

We have built a unique collection of life science brands with unrivalled experience in supporting your scientific advancements.

Millipore® Sigma-Aldrich® Supelco® Milli-Q® SAFC® BioReliance®

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