CertiPUR®

A class of its own.

Merck's ICP Laboratory –
now with ISO 17025 accreditation

MERCK

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We are setting new standards – What are your benefits of ISO 17025 accreditation?

An interview with Dr. Dietmar Oeter, Senior Manager Quality Control Life Science & Analytics at Merck Darmstadt

Dr. Oeter, which laboratory and which analytical method was accredited?

Accreditation as a calibration laboratory covers the quality control of single element standards using the precision analysis method ICP-OES within our reference material laboratory.

Why did Merck strive for accreditation of these reference materials?

Reference materials for calibrating analytical instruments in elemental analysis are the fundamental basis in all trace analysis laboratories worldwide. The accreditation attests the technical correctness and validity of our quality control procedures for these reference materials.

The accreditation also further corroborates the confidence in Merck as a manufacturer of reference materials. Moreover, the accreditation enables us to take on external orders as a calibration laboratory.

Dr. Dietmar Oeter, Senior Manager Quality Control Life Science & Analytics at Merck Darmstadt, on the occasion of CertiPUR® ISO 17025 accreditation.

The accreditation as a calibration laboratory conforms to DIN EN ISO 17025. What does this mean?

The main element of DIN EN ISO 17025 is the required analysis of the uncertainty of the measurement carried out. In order to fully determine the uncertainty, an uncertainty budget is set up, which considers all potential influencing variables and their effects on the uncertainty of the measurement. The resulting uncertainty must then be stated on the certificate of analysis with the valid measuring result.

Does this satisfy your customers' demands?

DIN EN ISO 17025 accreditation covers requirements in Europe and Asia. In practice, we also gear our procedures to the requirements of ISO Guide 34, approving not only the quality control system, but in addition the stability and the homogeneity of the materials produced. ISO Guide 34 meets with a high level of acceptance among users in the United States and the Asia-Pacific region.

Which member of the German Accreditation Council (DAR) carried out the inspection?

Merck applied to the German Calibration Service (DKD) for accreditation as a calibration laboratory. Accreditation from the DKD gives the laboratory international recognition by the Multilateral Agreement of the EA (European Cooperation for Accreditation). The results of the relevant laboratories are thus mutually recognized on an international level by the Mutual Recognition Arrangement of the ILAC (International Laboratory Accreditation Cooperation). Furthermore, Merck already has a DKD-accredited laboratory for pH and conductivity measurement. We are thus able to meet the requirements specified for the quality management system in the second laboratory based on this experience.

Merck is a pioneer in elemental analysis. Can you give us an example of your current activities?

Merck is a partner in a joint project with German metrological institutions to provide traceability of standards for elemental analysis to the SI unit (kg). As an industrial company we make a significant contribution to the development of a “German traceability” as a basic parameter for our range of secondary reference materials.

Benefits for you:

- Traceable certified reference materials
- DIN EN ISO 17025 compliant element standard solutions
- Valid measuring results generated by an accredited calibration laboratory
- Measuring uncertainty included on the certificate of analysis as a GUM uncertainty budget

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Not all reference materials are the same.

CertiPUR® ICP Single element standards

ICP Standards are directly traceable to standard reference material from NIST. A certificate of analysis is enclosed in each package. It includes information of the calibration lab, exact data on content and uncertainty, trace element impurities, composition, traceability, date of release and minimum shelf life.

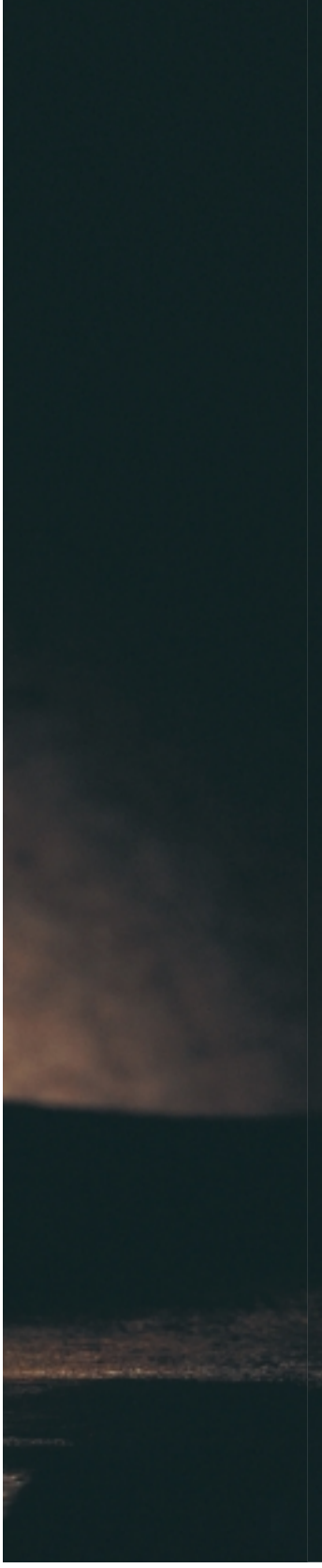
	Designation	Element	Composition	ICP 1,000 mg/l Order No. [100 ml]	ICP 10,000 mg/l Order No. [100 ml]
A	Aluminium	Al	$Al(NO_3)_3$ in HNO_3 2–3%	1.70301.0100	1.70371.0100
	Antimony	Sb	Sb_2O_3 in HCl 7%	1.70302.0100	
	Arsen	As	H_3AsO_4 in HNO_3 2–3%	1.70303.0100	
B	Barium	Ba	$Ba(NO_3)_2$ in HNO_3 2–3%	1.70304.0100	
	Beryllium	Be	$Be_4O(C_2H_3O_2)_6$ in HNO_3 2–3%	1.70305.0100	
	Bismuth	Bi	$Bi(NO_3)_3$ in HNO_3 2–3%	1.70306.0100	
	Boron	B	H_3BO_3 in water	1.70307.0100	
C	Cadmium	Cd	$Cd(NO_3)_2$ in HNO_3 2–3%	1.70309.0100	
	Calcium	Ca	$Ca(NO_3)_2$ in HNO_3 2–3%	1.70308.0100	1.70373.0100
	Cerium	Ce	$Ce(NO_3)_3$ in HNO_3 2–3%	1.70311.0100	
	Cesium	Cs	$CsNO_3$ in HNO_3 2–3%	1.70310.0100	
	Chromium	Cr	$Cr(NO_3)_3$ in HNO_3 2–3%	1.70312.0100	1.70374.0100
	Cobalt	Co	$Co(NO_3)_2$ in HNO_3 2–3%	1.70313.0100	1.70375.0100
	Copper	Cu	$Cu(NO_3)_2$ in HNO_3 2–3%	1.70314.0100	1.70378.0100
D	Dysprosium	Dy	Dy_2O_3 in HNO_3 2–3%	1.70315.0100	
E	Erbium	Er	Er_2O_3 in HNO_3 2–3%	1.70316.0100	
	Europium	Eu	Eu_2O_3 in HNO_3 2–3%	1.70317.0100	
G	Gadolinium	Gd	Gd_2O_3 in HNO_3 2–3%	1.70318.0100	
	Gallium	Ga	$Ga(NO_3)_3$ in HNO_3 2–3%	1.70319.0100	
	Germanium	Ge	$(NH4)_2GeF_6$ in water	1.70320.0100	
	Gold	Au	$H(AuCl_4)$ in HCl 7%	1.70321.0100	
H	Hafnium	Hf	$HfOCl_2$ in HCl 7%	1.70322.0100	
	Holmium	Ho	Ho_2O_3 in HNO_3 2–3%	1.70323.0100	
I	Indium	In	$In(NO_3)_3$ in HNO_3 2–3%	1.70324.0100	
	Iridium	Ir	$IrCl_3$ in HCl 7%	1.70325.0100	
	Iron	Fe	$Fe(NO_3)_3$ in HNO_3	1.70326.0100	1.70376.0100
L	Lanthanum	La	$La(NO_3)_3$ in HNO_3 2–3%	1.70327.0100	
	Lead	Pb	$Pb(NO_3)_2$ in HNO_3 2–3%	1.70328.0100	1.70372.0100
	Lithium	Li	$LiNO_3$ in HNO_3 2–3%	1.70329.0100	
	Luthetium	Lu	Lu_2O_3 in HNO_3 2–3%	1.70330.0100	
M	Magnesium	Mg	$Mg(NO_3)_2$ in HNO_3 2–3%	1.70331.0100	1.70379.0100
	Manganese	Mn	$Mn(NO_3)_2$ in HNO_3 2–3%	1.70332.0100	1.70380.0100
	Mercury	Hg	$Hg(NO_3)_2$ in HNO_3 10%	1.70333.0100	1.70384.0100
	Molybdenum	Mo	$(NH_4)_6Mo_7O_{24}$ in water	1.70334.0100	
N	Neodymium	Nd	Nd_2O_3 in HNO_3 2–3%	1.70335.0100	
	Nickel	Ni	$Ni(NO_3)_2$ in HNO_3 2–3%	1.70336.0100	1.70382.0100
	Niobium	Nb	NH_4NbF_6 in water	1.70337.0100	
O	Osmium	Os	$(NH_4)_2OsCl_6$ in HCl 7%	1.70338.0100	

CertiPUR® ICP Single element standards

	Designation	Element	Composition	ICP 1,000 mg/l Order No. [100 ml]	ICP 10,000 mg/l Order No. [100 ml]
P	Palladium	Pd	$Pd(NO_3)_2$ in HNO_3 2–3%	1.70339.0100	
	Phosphorous	P	H_3PO_4 in water	1.70340.0100	1.70383.0100
	Platinum	Pt	H_2PtCl_6 in HCl 7%	1.70341.0100	
	Potassium	K	KNO_3 in HNO_3 2–3%	1.70342.0100	1.70377.0100
	Praseodymium	Pr	Pr_2O_3 in HNO_3 2–3%	1.70343.0100	
R	Rhenium	Re	NH_4ReO_4 in water	1.70344.0100	
	Rhodium	Rh	$Rh(NO_3)_3$ in HNO_3 2–3%	1.70345.0100	
	Rubidium	Rb	$RbNO_3$ in HNO_3 2–3%	1.70346.0100	
	Ruthenium	Ru	$RuCl_3$ in HCl 7%	1.70347.0100	
S	Samarium	Sm	Sm_2O_3 in HNO_3 2–3%	1.70348.0100	
	Scandium	Sc	Sc_2O_3 in HNO_3 7%	1.70349.0100	
	Selenium	Se	SeO_2 in HNO_3 2–3%	1.70350.0100	
	Silicon	Si	SiO_2 in NaOH	1.70365.0100	1.70386.0100
	Silver	Ag	$AgNO_3$ in HNO_3 2–3%	1.70352.0100	
	Sodium	Na	$NaNO_3$ in HNO_3 2–3%	1.70353.0100	1.70381.0100
	Strontium	Sr	$Sr(NO_3)_2$ in HNO_3 2–3%	1.70354.0100	
	Sulfur	S	H_2SO_4 in water	1.70355.0100	1.70385.0100
T	Tantalum	Ta	$(NH_4)_2TaF_7$ in water	1.70356.0100	
	Tellurium	Te	H_6TeO_6 in HNO_3 2–3%	1.70357.0100	
	Terbium	Tb	$Tb(NO_3)_3$ in HNO_3 2–3%	1.70358.0100	
	Thallium	Tl	$TlNO_3$ in HNO_3 2–3%	1.70359.0100	
	Thulium	Tm	$Tm(NO_3)_3$ in HNO_3 2–3%	1.70361.0100	
	Tin	Sn	$SnCl_4$ in HCl 7%	1.70362.0100	
	Titanium	Ti	$(NH_4)_2TiF_6$ in water (trace HF)	1.70363.0100	1.70387.0100
	Tungsten	W	$(NH_4)_2WO_4$ in water	1.70364.0100	
V	Vanadium	V	NH_4VO_3 in HNO_3	1.70366.0100	1.70388.0100
Y	Ytterbium	Yb	Yb_2O_3 in HNO_3 2–3%	1.70367.0100	
	Yttrium	Y	$Y(NO_3)_3$ in HNO_3 2–3%	1.70368.0100	
Z	Zinc	Zn	$Zn(NO_3)_2$ in HNO_3 2–3%	1.70369.0100	1.70389.0100
	Zirconium	Zr	$ZrOCl_2$ in HCl	1.70370.0100	1.70390.0100

Designation	Element	Composition	ICP 10 mg/l Order No. [100 ml]
Rhodium (internal standard for ICP)	Rh	10 mg/l $Rh(NO_3)_3$ in HNO_3 2–3%	1.08525.0100
Mercury	Hg	10 mg/l $Hg(NO_3)_2$ in HNO_3 2–3%	1.08623.0100

CertiPUR® by Merck – now with ISO 17025 accreditation to give you reliable measuring results.



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