

Deutsche Akkreditierungsstelle GmbH

Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV

Signatory to the Multilateral Agreements of EA, ILAC and IAF for Mutual Recognition

Accreditation



The Deutsche Akkreditierungsstelle GmbH attests that the calibration laboratory

Merck KGaA

Kalibrierlaboratorium für chemische Messgrößen

Frankfurter Straße 250, 64293 Darmstadt

is competent under the terms of DIN EN ISO/IEC 17025:2018 to carry out calibrations in the following fields:

Chemical and medical quantities

Chemical analysis and reference materials

- pH value
- Electrolytic conductivity
- Mass fraction of elements in standard solutions
- Amount of substance concentration of elements in standard solutions
- Mass fraction of titrimetric standards
- Mass fraction in water and titrimetric standards
- Amount-of-substance concentration in volumetric solutions

The accreditation certificate shall only apply in connection with the notice of accreditation of 18.11.2019 with the accreditation number D-K-15185-01. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 3 pages.

Registration number of the certificate: **D-K-15185-01-00**

Braunschweig,
18.11.2019

Dr. Heike Manke
Head of Division

Translation issued:
18.11.2019


Head of Division

The certificate together with its annex reflects the status at the time of the date of issue. The current status of the scope of accreditation can be found in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH.

<https://www.dakks.de/en/content/accredited-bodies-dakks>

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

See notes overleaf.

Permanent Laboratory

Calibration and Measurement Capabilities (CMC)

Measured quantity / Calibration item	Range	Measurement conditions / procedure	Expanded uncertainty of measurement ¹⁾	Remarks
Amount-of-substance concentration in volumetric solutions	0.003 mol/L to 10 mol/L	Titrimetric Inhouse procedure according SOP 20404235, Version 1/2019 Measurement method via metrological traceability to primary standards Measurement method via metrological traceability to primary solutions Measurement method via metrological traceability to volumetric solutions	0.1 % to 0.3 %	Specified are the relative measurement uncertainties. These depend on the deployed primary reference material.
Mass fraction of water in water standards and titrimetric standards	15 mg/kg to < 0.1 g/kg	KF coulometry direct measurement KF oven technology Inhouse procedure according SOP 20404233, Version 1/2019	0.95 mg/kg to 3.2 mg/kg	Specified are the absolute measurement uncertainties.
	0.1 g/kg to < 1.0 g/kg		3.2 mg/kg to 6.3 mg/kg	
	1.0 g/kg to < 10 g/kg		6.3 mg/kg to 33 mg/kg	
	10 g/kg to 52 g/kg		33 mg/kg to 0.25 g/kg	
	1.0 g/kg to 160 g/kg	KF volumetry Inhouse procedure according SOP 20404233, Version 1/2019	12 mg/kg to 2.0 g/kg	
	5 % to 16 %	Loss on drying (temperature: 150°C)	0.01 % to 0.05 %	
Mass fraction of elements in standard solutions	9 mg/kg to 10500 mg/kg	inductively coupled plasma optical emission spectrometry ICP-OES Inhouse procedure according SOP 20120939, Version 2/2018	0.3 % to 0.8 %	Specified are the relative measurement uncertainties These depend on the deployed primary reference material.
Amount of substance concentration of elements in standard solutions	9 mg/L to 10500 mg/L		0.3 % to 0.8 %	

Abbreviations used:

CMC Calibration and measurement capabilities (Kalibrier- und Messmöglichkeiten)
SOP Standard Operating Procedure

¹⁾ The expanded uncertainties according to EA-4/02 M:2013 are part of CMC and are the best measurement uncertainties within accreditation. They have a coverage probability of approximately 95 % and have a coverage factor of $k = 2$ unless stated otherwise. Uncertainties without unit are relative uncertainties referring to the measurement value unless stated otherwise.