Deutsche Akkreditierungsstelle GmbH

Authorized Body pursuant to Section 8 paragraph 1 of the Accreditation Body Act *[AkkStelleG]* in connection with Section 1 paragraph 1 of the Ordinance on the Entrustment of the Accreditation Body with Public Tasks under the Accreditation Body Act *[AkkStelleGBV]*
Signatory of multilateral treaties of EA, ILAC and IAF for mutual recognition

Accreditation

Deutsche Akkreditierungsstelle GmbH hereby confirms that the testing laboratory

IAF – Radioökologie GmbH
Wilhelm-Rönsch-Strasse 9, 01454 Radeberg

has the competence to perform tests in compliance with DIN EN ISO/IEC 17025:2018 in the following fields:

Determination of natural and artificial radionuclides in solids liquids and gases, for instance as in environmental samples, foodstuffs, raw materials, products, waste and residues as well as in excretions (incorporation monitoring);
Radiological examinations according to the Drinking Water Ordinance, sampling of raw and drinking water;
Selected physical and physicochemical analyses of water, waste water, sludges and solid samples;
Determination of in situ parameters

The accreditation certificate is only valid in connection with the notification of 21 June 2019, bearing the accreditation number D-PL-11201-01. It consists of this cover sheet, the reverse side of the cover sheet and the following annex comprising eight (8) pages in total.

Registration number of the certificate: **D-PL-11201-01-00**

By order
>signature<
Andrea Valbuena, Graduate Engineer [Dipl.-Ing.]
Head of Department

Berlin, 21 June 2019

The certificate with the Annex to the certificate shows the status at 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 (DAkkS).
https://www.dakks.de/content/datenbank-akkreditierter-stellen

Deutsche Akkreditierungsstelle GmbH

Berlin Office
Spittelmarkt 10
10117 Berlin

Frankfurt am Main Office
Europa-Allee 52
603274 Frankfurt am Main

Braunschweig Office
Bundesallee 100
38116 Braunschweig

The accreditation complies with the Accreditation Body Act (AkkStelleG) of 31 July 2009 (Law Gazette I p. 2625) and the Regulation of the European Parliament and Council on Accreditation and Market Surveillance No. 765/2008 in connection with the marketing of products (OJ L 218 of 9 July 2008, p. 30). DAkkS is a signatory of multilateral treaties for mutual recognition of the European Co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Cooperation (ILAC). The signatories of these treaties mutually recognize the accreditations of one another.

The current status of membership can be found on the following websites:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-11201-01-00 in accordance with DIN EN ISO/IEC 17025:2018

Valid from: 21 June 2019
Date of issuance: 17 July 2019

Holder of the certificate:

IAF – Radioökologie GmbH
Wilhelm-Rönsch-Strasse 9, 01454 Radeberg

Testing in the fields of

Determination of natural and artificial radionuclides in solids liquids and gases, for instance in environmental samples, foodstuffs, raw materials, products, waste and residues as well as in excretions (incorporation monitoring);
Radiological examinations according to the Drinking Water Ordinance, sampling of raw and drinking water;
Selected physical and physicochemical analyses of water, waste water, sludges and solid samples;
Determination of in situ parameters

Within the areas of testing marked with *, the laboratory shall be entitled, without need of prior information of and approval through DAkkS, to perform the free selection of standard test methods or methods equivalent to them.
The listed test methods are exemplary.
Within the areas of testing marked with **, the laboratory shall be entitled, without need of prior information of and approval through DAkkS, to perform the modification as well as development and redevelopment of test methods.
The listed test methods are exemplary.
The testing laboratory is permitted, without prior information and approval of DAkkS being required, to use the standardized test methods listed herein or test methods equivalent to them with different release versions.

The testing laboratory has a current list of all test methods in the flexible scope of accreditation.

1 Physical and physicochemical parameters in water, wastewater, sludges, soils and solid samples

1.1 Sample preparation

DIN EN 12457-4 2003-01	Characterization of waste - Leaching; Compliance testing for leaching of granular waste materials and sludges - Part 4: One stage batch test at a liquid to solid ratio of 10 l/kg for materials with particle size below 10 mm (without or with particle size reduction)

1.2 Gravimetric analyses to determine dry residue and water content in sludges, soils and solids *

DIN EN 15934 2012-11	Sludge, treated biowaste, soil and waste - Calculation of dry matter fraction after determination of dry residue or water content
DIN EN 15935 2012-11	Sludge, treated biowaste, soil and waste - Determination of loss on ignition

1.3 Potentiometric analyses of physicochemical parameters in water, wastewater and sludges *

DIN EN 27888 (C 8) 1993-11	Water quality - Determination of electrical conductivity
DIN EN 15933 2012-11	Sludge, treated biowaste and soil - Determination of pH value

2 Alpha spectrometric determinations of natural and artificial radionuclides in solids and liquids **

SOP 3 – 12 2017-01	Preparation of water samples for the alpha spectrometric measurement of uranium
SOP 3 – 13 2017-09	Preparation of solid samples for the alpha spectrometric measurement of uranium

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SOP 3 – 14 2016-10	Preparation of water samples for the alpha spectrometric measurement of Ra-226
SOP 3 – 15 2018-09	Preparation of water samples for the alpha spectrometric measurement of polonium-210
SOP 3 – 16 2018-11	Preparation of solid samples for the alpha spectrometric measurement of polonium-210
SOP 3 – 17 2018-02	Preparation of water samples for the alpha spectrometric measurement of thorium
SOP 3 – 18 2018-02	Preparation of solid samples for the alpha spectrometric measurement of thorium
SOP 3 – 19 2018-08	Preparation of water samples for the measurement of total alpha activity concentration
SOP 3 – 20 2013-12	Alpha spectrometric measurements and their evaluation
SOP 3 – 21 2013-12	Determination of the total alpha activity concentration in filter materials
SOP 3 – 41 2018-02	Determination of plutonium in water and solid samples by alpha spectroscopy
SOP 3 – 42 2014-04	Determination of americium and curium in diverse sample matrices by alpha spectrometry
SOP 3 – 43 2016-10	Determination of Ra-226 in solid samples by alpha spectrometry
SOP 3 – 46 2018-09	Determination of neptunium in aqueous and solid samples by alpha spectrometry
SOP 3 – 55 2014-07	Determination of Pa-231 in diverse sample matrices by alpha spectrometry

3 Gamma spectrometric determinations of natural and artificial radionuclides in solids and liquids **

DIN CEN/TS 17216 2018 – 12 DIN SPEC 18208 2018-12	Construction products - Assessment of release of dangerous substances - Determination of activity concentrations of radium-226, thorium-232 and potassium-40 in construction products using semiconductor gamma-ray spectrometry
SOP 3 – 05 2018-09	Preparation of water samples for gamma spectrometric measurements
SOP 3 – 06 2018-11	Preparation of solid samples for gamma spectrometric measurements
SOP 3 – 08 2018-02	Gamma spectrometric measurements and evaluations of water samples
SOP 3 – 08 2018-02	Gamma spectrometric measurements and evaluations of solid samples
SOP 3 – 39 2010-10	Gamma spectrometric determination of I-131 in milk samples

4 Gamma spectrometric determinations of natural and artificial radionuclides in gases

SOP 3 – 65 2018-12	Gamma spectrometric measurements and evaluations of gas samples

5 Liquid scintillation measurements as well as measurement of Cerenkov radiation from natural and artificial radionuclides in solids and liquids **

SOP 3 – 27 2018-12	Determination of tritium in water samples by liquid scintillation counting (LSC)
SOP 3 – 40 2018-11	Determination of C-14 in diverse sample matrices by liquid scintillation counting (LSC)
SOP 3 – 44 2018-11	Determination of total alpha activity concentration in water by liquid scintillation counting (LSC)
SOP 3 – 45 2018-06	Determination of Tc-99 in solid and aqueous samples by liquid scintillation counting (LSC)

SOP 3 – 47 2018-07	Determination of Pu-241 in diverse sample matrices by liquid scintillation counting (LSC)
SOP 3 – 50 2015-12	Determination of Sr-89 in diverse sample matrices using Cerenkov measurement
SOP 3 – 51 2018-11	Determination of tritium in solids and liquids by liquid scintillation counting (LSC) after combustion in an oxidizer
SOP 3 – 54 2018-06	Determination of iron-55 and nickel-63 in diverse sample matrices by liquid scintillation counting (LSC)
SOP 3 – 56 2018-06	Determination of H-3 and C-14 in wipe tests by liquid scintillation counting (LSC)
SOP 3 – 58 2017-11	Determination of Rn-222 in water by liquid scintillation counting (LSC)
SOP 3 – 59 2017-10	Determination of Cl-36 in diverse sample matrices by liquid scintillation counting (LSC)

6 Proportional counter tube measurements of natural and artificial radionuclides in solids and liquids **

SOP 3 – 35 2016-06	Determination of Sr-90 in diverse sample matrices by means of low-level beta measurement
SOP 3 – 36 2015-11	Determination of Ra-228 in water samples by low-level beta measurement
SOP 3 – 37 2018-04	Determination of Pb-210 in water and solid samples by low-level beta measurement
SOP 3 – 38 2018-04	Determination of total beta activity in water samples by low-level beta measurement
SOP 3 – 57 2017-06	Determination of total alpha and beta activities in solid samples by low-level alpha and beta measurement

7 Test methods according to the Drinking Water Ordinance – TrinkwV -

Sampling

Method	Title
DIN EN ISO 5667-1 (A 4) 2007-04	Water quality – Sampling – Part 1: Guidance on the design of sampling programmes and sampling techniques
DIN ISO 5667-5 (A 14) 2011-02	Water quality – Sampling – Part 5: Guidance on sampling of drinking water from treatment works and piped distribution systems
DIN EN ISO 5667-3 (A 21) 2013-03	Water quality – Sampling – Part 3: Preservation and handling of water samples

ANNEX 1: MICROBIOLOGICAL PARAMETERS
Not documented.

ANNEX 2: CHEMICAL PARAMETERS
Not documented.

ANNEX 3: INDICATOR PARAMETERS
Part I: General Indicator Parameters
Not documented.

Part II: Special requirements for drinking water in systems of drinking water installation
Not documented.

ANNEX 3a: Requirements for drinking water with regard to radioactive substances

Parameter	Procedure
Radon-222	SOP 3 – 05 2018-09
	SOP 3 – 08 2018-11
Tritium	SOP 3 – 27 2018-12
Indicative dose (screening procedure)	
Total alpha activity concentration (aa*)	SOP 3 – 19 2018-08
	SOP 3 – 44 2018-11
Total alpha and total beta activity concentration (bb*)	SOP 3 – 19 2018-08
	SOP 3 – 44 2018-11
	SOP 3 – 38 2018-04
	SOP 3 – 53 (total indicative dose) 214-06
Indicative dose (determination of individual nuclides, cc*)	
U-238	SOP 3 – 12 2017-01
	SOP 3 – 20 2013-12
U-234	SOP 3 – 12 2017-01
	SOP 3 – 20 2013-12

Parameter	Procedure
Ra-226	SOP 3 – 05 2018-09
	SOP 3 – 08 2018-11 or SOP 3 – 14 2016-10
Ra-228	SOP 3 – 05 2018-09
	SOP 3 – 08 2018-11
Pb-210	SOP 3 – 05 2018-09
	SOP 3 – 08 2018-11
	SOP 3 – 37 2018-04
Po-210	SOP 3 – 15 2018-09
	SOP 3 – 20 2013-12
C-14	SOP 3 – 40 2018-11
Sr-90	SOP 3 – 35 2016-06
Pu-239/Pu-240	SOP 3 – 41 2018-02
Am-241	SOP 3 – 42 2014-04
Co-60	SOP 3 – 05 2018-09
	SOP 3 – 08 2018-11
Cs-134	SOP 3 – 05 2018-09
	SOP 3 – 08 2018-11
Cs-137	SOP 3 – 05 2018-09
	SOP 3 – 08 2018-11
I-131	SOP 3 – 05 2018-09
	SOP 3 – 08 2018-11

(according to TrinkwV Annex 3 a Part III)*

Parameters not contained in Annexes 1 to 3 of the Drinking Water Ordinance
Further periodic examinations
Not documented.

This accreditation is not a substitute for the validation or approval process of the competent authority in accordance with Section 15 paragraph 4 Drinking Water Ordinance (TrinkwV).

8 Determination of in-situ Parameters

SOP 4 – 01 2014-06	Measurement of the ambient dose rate
SOP 4 – 02 2018-11	Determination of Rn-222 indoors
SOP 4 – 03 2014-06	Surface contamination measurements using a scintillation monitor (screening)

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Abbreviations used herein:

DIN	Deutsches Institut für Normung e. V.
EN	European Standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
SOP	Internal procedures of IAF-Radioökologie GmbH