DAkkS
Deutsche
Akkreditierungsstelle

Accreditation

The Deutsche Akkreditierungsstelle attests with this **Partial Accreditation Certificate** that the testing laboratory

VKTA – Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.
Bautzner Landstr. 400, 01328 Dresden

meets the requirements according to DIN EN ISO/IEC 17025:2018 for the conformity assessment activities listed in the annex to this certificate. This includes additional existing legal and normative requirements for the testing laboratory, including those in relevant sectoral schemes, provided they are explicitly confirmed in the annex to this certificate.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories and they conform to the principles of DIN EN ISO 9001.

This accreditation was issued in accordance with Art. 5 Para. 1 Sentence 2 of Regulation (EC) 765/2008, after an accreditation procedure was carried out in compliance with the minimum requirements of DIN EN ISO/IEC 17011 and on the basis of a review and decision of the appointed accreditation committees.

This partial accreditation certificate only applies in connection with the notice of 16.04.2025 with accreditation number D-PL-14498-01.
It consists of this cover sheet, the reverse side of the cover sheet and the following annex with a total of 2 pages.

Registration number of the partial accreditation certificate: **D-PL-14498-01-01**
It is a part of the accreditation certificate: D-PL-14498-01-00.

Berlin, 16.04.2025 Dr. Olga Lettau
Head of Technical Unit

Translation issued:
23.07.2025 Dr. Olga Lettau
Head of Technical Unit

The certificate together with the annex 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 (www.dakks.de).

See notes overleaf

Deutsche Akkreditierungsstelle GmbH

Office Berlin
Spittelmarkt 10
10117 Berlin

Office Frankfurt am Main
Europa-Allee 52
60327 Frankfurt am Main

Office Braunschweig
Bundesallee 100
38116 Braunschweig

The Deutsche Akkreditierungsstelle GmbH (DAkkS) is the entrusted national accreditation body of the Federal Republic of Germany according to § 8 section 1 AkkStelleG in conjunction with § 1 section 1 AkkStelleGBV. DAkkS is designated as the national accreditation authority by Germany according to Art. 4 Para. 4 of Regulation (EC) 765/2008 and clause 4.7 of DIN EN ISO/IEC 17000.

Pursuant to Art. 11 section 2 of Regulation (EC) 765/2008, the accreditation certificate shall be recognised as equivalent by the national authorities within the scope of this Regulation as well as by the WTO member states that have committed themselves in bilateral or multilateral mutual agreements to recognise the certificates of accreditation bodies that are members of ILAC or IAF as equivalent.

DAkkS is a signatory to the multilateral agreements for mutual recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Co-operation (ILAC).

The up-to-date state of membership can be retrieved from the following websites:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

DAkkS
Deutsche
Akkreditierungsstelle

Deutsche Akkreditierungsstelle

Annex to the Partial Accreditation Certificate D-PL-14498-01-01 according to DIN EN ISO/IEC 17025:2018

Valid from: **16.04.2025**

Date of issue: 16.042025

This annex is a part of the accreditation certificate D-PL-14498-01-00.

Holder of partial accreditation certificate:

VKTA - Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.
Bautzner Landstr. 400, 01328 Dresden

with the location

VKTA -Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.
Labor für Umwelt- und Radionuklidanalytik
Bautzner Landstr. 400, 01328 Dresden

The testing laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 to carry out the conformity assessment activities listed in this annex. The testing laboratory 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/IEC 17025 are written in the language relevant to the operations of testing laboratories and they conform to the principles of DIN EN ISO 9001.

Tests in the fields:

selected investigations of chemical raw, intermediate and end products, ceramics, metals as well as metal alloys

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

DAkkS Deutsche Akkreditierungsstelle

Investigation of chemical raw, intermediate and end products, ceramics, metals as well as metal alloys

MB – 314 2024-03	Determination of boron isotope composition by ICP mass spectrometry in aqueous solutions and in solids after digestion

Abbreviations used:

MB Method description of the Labors für Umwelt- und Radionuklidanalytik des VKTA - Strahlenschutz, Analytik & Entsorgung Rossendorf e. V. - Hausvorschriften

DAkkS
Deutsche
Akkreditierungsstelle

Accreditation

The Deutsche Akkreditierungsstelle attests with this **Partial Accreditation Certificate** that the testing laboratory

VKTA – Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.
Bautzner Landstr. 400, 01328 Dresden

meets the requirements according to DIN EN ISO/IEC 17025:2018 for the conformity assessment activities listed in the annex to this certificate. This includes additional existing legal and normative requirements for the testing laboratory, including those in relevant sectoral schemes, provided they are explicitly confirmed in the annex to this certificate.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories and they conform to the principles of DIN EN ISO 9001.

This accreditation was issued in accordance with Art. 5 Para. 1 Sentence 2 of Regulation (EC) 765/2008, after an accreditation procedure was carried out in compliance with the minimum requirements of DIN EN ISO/IEC 17011 and on the basis of a review and decision of the appointed accreditation committees.

This partial accreditation certificate only applies in connection with the notice of 16.04.2025 with accreditation number D-PL-14498-01.
It consists of this cover sheet, the reverse side of the cover sheet and the following annex with a total of 9 pages.

Registration number of the partial accreditation certificate: **D-PL-14498-01-02**
It is a part of the accreditation certificate: D-PL-14498-01-00.

Berlin, 16.04.2025 Dr. Joachim Kintrup
Head of Technical Unit

29.07.2025 Dr. Joachim Kintrup
Head of Technical Unit

The certificate together with the annex 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 (www.dakks.de).

See notes overleaf

Deutsche Akkreditierungsstelle GmbH

Office Berlin
Spittelmarkt 10
10117 Berlin

Office Frankfurt am Main
Europa-Allee 52
60327 Frankfurt am Main

Office Braunschweig
Bundesallee 100
38116 Braunschweig

The Deutsche Akkreditierungsstelle GmbH (DAkkS) is the entrusted national accreditation body of the Federal Republic of Germany according to § 8 section 1 AkkStelleG in conjunction with § 1 section 1 AkkStelleGBV. DAkkS is designated as the national accreditation authority by Germany according to Art. 4 Para. 4 of Regulation (EC) 765/2008 and clause 4.7 of DIN EN ISO/IEC 17000.

Pursuant to Art. 11 section 2 of Regulation (EC) 765/2008, the accreditation certificate shall be recognised as equivalent by the national authorities within the scope of this Regulation as well as by the WTO member states that have committed themselves in bilateral or multilateral mutual agreements to recognise the certificates of accreditation bodies that are members of ILAC or IAF as equivalent.

DAkkS is a signatory to the multilateral agreements for mutual recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Co-operation (ILAC).

The up-to-date state of membership can be retrieved from the following websites:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

DAkkS
Deutsche
Akkreditierungsstelle

Deutsche Akkreditierungsstelle

Annex to the Partial Accreditation Certificate D-PL-14498-01-02 according to DIN EN ISO/IEC 17025:2018

Valid from: **16.04.2025**

Date of issue: 16.04.2025

This annex is a part of the accreditation certificate D-PL-14498-01-00.

Holder of partial accreditation certificate:

VKTA – Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.
Bautzner Landstr. 400, 01328 Dresden

with the locations

VKTA – Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.
Labor für Umwelt- und Radionuklidanalytik
Bautzner Landstr. 400, 01328 Dresden

VKTA – Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.
Labor für Umwelt- und Radionuklidanalytik
Am Eiswurmlager 10, 01189 Dresden

The testing laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 to carry out the conformity assessment activities listed in this annex. The testing laboratory 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/IEC 17025 are written in the language relevant to the operations of testing laboratories and they conform to the principles of DIN EN ISO 9001.

Abbreviations used: see last page

Tests in the fields:

physical, physico-chemical and chemical analysis of water (groundwater, raw water, surface water, process water, waste water);
investigations of radioactive substances and selected chemical analysis in accordance with the German Drinking Water Ordinance,
sampling of raw and drinking water;
sampling of water from barrages and lakes, aquifers as well as rivers and streams

Flexible scope of accreditation:

The testing laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use standards or equivalent testing methods listed here with different issue dates (flexibilization category A).
The testing laboratory maintains a current list of all testing methods within the flexible scope of accreditation. The list is publicly available on the website of the testing laboratory.

The marking R (Bautzner Landstr. 400, 01328 Dresden) and FK (Am Eiswurmlager 10, 01189 Dresden) behind the testing and sampling procedures indicates the location for which the competence is confirmed.

1 Investigation of water (groundwater, raw water, surface water, process water, waste water)

1.1 Sampling and sample pre-treatment

DIN 38402-A 12 1985-06	Sampling from barrages and lakes	R
DIN 38402-A 13 1985-12	Design and performance of the sampling of groundwater	R
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	R
DIN EN ISO 5667-6/A11 2022-04	Water quality - Sampling - Part 6: Guidance on sampling of rivers and streams	R
DIN 38402-A 30 1998-07	Pretreatment, homogenization and aliquotation of non-homogeneous water samples	R

1.2 Physical and physico-chemical parameters

DIN 38404-C 4 1976-12	Determination of Temperature	R
DIN EN ISO 10523 (C 5) 2012-04	Water quality - Determination of pH	R
DIN 38404-C 6 1984-05	Determination of the oxidation reduction (redox) potential	R
DIN EN 27888 (C 8) 1993-11	Water quality - determination of electrical conductivity	R

1.3 Anions

DIN 38405-D 4 1985-07	Determination of fluoride	R
DIN EN 26777 (D 10) 1993-04	Water quality - determination of nitrite; molecular absorption spectrometric method	R
DIN EN ISO 6878 (D 11) 2004-09	Water quality - Determination of phosphorus - Ammonium molybdate spectrometric method	R
DIN 38405-D 13 2011-04	Determination of cyanides	R
DIN EN ISO 10304-1 (D 20) 2009-07	Water quality - Determination of dissolved anions by liquid chromatography of ions - Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate	R
DIN EN ISO 10304-3 (D 22) 1997-11	Water quality - Determination of dissolved anions by liquid chromatography of ions - Part 3: Determination of chromate, iodide, sulfite, thiocyanate and thiosulfate (Restriction: applies only to iodide)	R
DIN 38405-D 52 2020-11	Photometric determination of dissolved chromium(VI) in water	R
Metrohm 110/2d 2010-02	Determination of free cyanide by polarography	R
Metrohm 199/3d 2010-02	Determination of sulfide and sulfite by polarography	R

1.4 Cations

DIN 38406-E 1 1983-05	Determination of iron	R
DIN 38406-E 5 1983-10	Determination of ammonia-nitrogen	R
DIN 38406-E 16 1990-03	Determination of zinc, cadmium, lead, copper, thallium, nickel, cobalt by voltammetry (Restriction: only determination of Zn, Cd, Pb and Cu)	R
DIN EN ISO 17294-2 (E 29) 2024-12	Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS) - Part 2: Determination of selected elements including uranium isotopes (Modification: extended by the elements Si, S, Nb, Tc, Ta, and Ra)	R

1.5 Jointly determinable substances

DIN EN ISO 6468 (F 1) 1997-02	Water quality - Determination of certain organochlorine insecticides, polychlorinated biphenyls and chlorobenzenes - Gas-chromatographic method after liquid-liquid extraction (Restriction: *only determination of PCBs and chlorobenzenes*)	R
DIN 38407-F 3 1998-07	Determination of polychlorinated biphenyls	R
DIN EN ISO 10301 (F 4) 1997-08	Water quality - Determination of highly volatile halogenated hydrocarbons - Gas-chromatographic methods	R
DIN 38407-F 37 2013-11	Determination of organochlorine pesticides, polychlorinated biphenyls and chlorobenzene in water - Method using gas chromatography and mass spectrometric detection (GC-MS) after liquid-liquid extraction (Restriction: only determination of PCBs and chlorobenzenes)	R
DIN 38407-F 39 2011-09	Determination of selected polycyclic aromatic hydrocarbons (PAH) - Method using gas chromatography with mass spectrometric detection (GC-MS)	R
DIN ISO 28540 (F 40) 2014-05	Water quality - Determination of 16 polycyclic aromatic hydrocarbons (PAH) in water - Method using gas chromatography with mass spectrometric detection (GC-MS)	R

DIN EN ISO 20595 (F 43) 2023-08	Water quality - Determination of selected highly volatile organic compounds in water - Method using gas chromatography and mass spectrometry by static headspace technique (HS-GC-MS)	R

1.6 Gaseous components

DIN ISO 17289 (G 25) 2014-12	Water quality - Determination of dissolved oxygen - Optical sensor method	R

1.7 Summary indices of actions and substances

DIN 38409-H 1 1987-01	Determination of total dry residue, filtrate dry residue and residue on ignition	R
DIN 38409-H 2 1987-03	Determination of filterable matter and the residue on ignition	R
DIN EN 1484 (H 3) 2019-04	Water analysis - Guidelines for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC)	R
DIN EN ISO 14402 (H 37) 1999-12	Water quality - Determination of phenol index by flow analysis (FIA and CFA)	R
DIN 38409-H 41 1980-12	Determination of the Chemical Oxygen Demand (COD) in the Range over 15 mg/l	R
DIN EN ISO 9377-2 (H 53) 2001-07	Water quality - Determination of hydrocarbon oil index - Part 2: Method using solvent extraction and gas chromatography	R
DIN ISO 11349 (H 56) 2015-12	Water quality - Determination of low-volatility lipophilic substances - Gravimetric method	R
DIN EN ISO 20236 (H 62) 2023-04	Water quality - Determination of total organic carbon (TOC), dissolved organic carbon (DOC), total bound nitrogen (TNb) and dissolved bound nitrogen (DNb) after high temperature catalytic oxidative combustion	R
MB - 549 2006-06	Determination of anionic surfactants by measurement of the methylene blue index MBAS using flow analysis (FIA) and spectrometric detection in water	R
DIN ISO 15705 2003-01	Water quality - Determination of the chemical oxygen demand index (ST-COD) - Small-scale sealed tube method	R

1.8 Individual components

DIN 38413-P 1 1982-03	Determination of hydrazine	R

1.9 Isotope composition

MB – 314 2024-03	Determination of boron isotope composition by ICP mass spectrometry in aqueous solutions and in solids after digestion	R

2 Tests in accordance with the German Drinking Water Ordinance – TrinkwV Drinking Water Ordinance (TrinkwV) of June 20, 2023 (BGBl. 2023 I No. 159, p.2)

SAMPLING

Method	Title	Location
DIN ISO 5667-5 2011-02	Water quality - Sampling - Part 5: Guidance on sampling of drinking water from treatment works and piped distribution systems	R

ANNEX 1: MICROBIOLOGICAL PARAMETERS

not used

ANNEX 2: CHEMICAL PARAMETERS

Part I Chemical parameters whose concentration does not usually increase in the distribution network, including the drinking water installation

Parameter	Method	Location
Acrylamide	not used	
Benzene	not used	
Boron	not used	
Bromate	not used	
Chromium	not used	
Cyanide	not used	
1,2-dichloroethane	not used	
Fluoride	not used	
Microcystin-LR	not used	
Nitrate	not used	
Pesticide	not used	
Pesticide total	not used	

Parameter	Method	Location
Total PFAS-20	not used	
Total PFAS-4	not used	
Mercury	not used	
Selenium	not used	
Tetrachloroethene and trichloroethylene	not used	
Uranium	DIN EN ISO 17294-2 (E29):2024-12	R

Part II Chemical parameters whose concentration may increase in the distribution network, including the drinking water installation

not used

ANNEX 3: INDICATOR PARAMETERS

Part I: General indicator parameters

Parameter	Method	Location
Aluminum	not used	
Ammonia	not used	
Calcite dissolving capacity	not used	
Chloride	not used	
Clostridium perfringens (including spores)	not used	
Coliform bacteria	not used	
Iron	not used	
Electrical conductivity	DIN EN 27888 1993-11	R
Coloring	not used	
Odor	DIN EN 1622 2006-10 (annex C)	R
Taste	not used	
Colony count at 22 °C	not used	
Colony count at 36 °C	not used	
Manganese	not used	
Sodium	not used	
Total organic carbon (TOC)	not used	
Oxidizability	not used	
Sulphate	not used	
Turbidity	not used	

Parameter	Method	Location
Hydrogen ion concentration	DIN EN ISO 10523 2012-04	R

Part II: Specific indicator parameter for systems in the drinking water installation
not used

Part III:Specific indicator parameter for the occurrence of certain microbial hazards
not used

ANNEX 4: REQUIREMENTS FOR DRINKING WATER WITH REGARD TO RADIOACTIVE SUBSTANCES

Parameter	Verfahren	Standort
Radon-222	BMU-Messanleitung H-Rn-222-TWASS-01 1994-12	R
Tritium	DIN EN ISO 9698 2015-12	R, FK
Indicative dose		
1. Screening procedure test value $C_{alpha\text{-}ges} \leq 0{,}1$ Becquerel per liter	MB-415 2019-11 MB 403 2024-04 MB 404 2018-06	R R, FK R
2. Screening procedure test value $C_{alpha\text{-}ges} \leq 0{,}05$ Becquerel per liter	MB-415 2019-11	R
Total alpha activity concentration	MB-415 2019-11	R
Total alpha and total beta activity concentration	MB-415 2019-11	R
3. Single nuclide determination		
Radionuclides of natural origin		
Lead-210	MB 403 2024-04 MB 404 2018-06	R
Polonium-210	MB-404 2018-06	R
Radium-226	MB 403 2024-04	R, FK
Radium-228	MB 403 2024-04	R, FK
Uranium-234	DIN EN ISO 17294-2 (E29) 2024-12 MB-427 2022-11	R
Uranium-238	DIN EN ISO 17294-2 (E29) 2024-12	R
Radionuclides of artificial origin		
Americium-241	MB-427 2022-11	R
Cesium-134	MB-402 2019-11	R, FK
Cesium-137	MB-402 2019-11	R, FK
Cobalt-60	MB-402 2019-11	R, FK
Iodine-131	MB-402 2019-11	R, FK
Carbon-14	MB-411 2018-06	R

Parameter	Verfahren	Standort
Plutonium-239/Plutonium-240	MB-427 2022-11	R
Strontium-90	MB-416 2024-04	R

PARAMETERS NOT INCLUDED IN ANNEX 1 TO 4 OF THE GERMAN DRINKING WATER ORDINANCE

Additional periodic testing
not used

The accreditation does not replace the recognition or approval procedure of the competent authority pursuant to Section 40 (2) German Drinking Water Ordinance (TrinkwV).

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 Standardization
MB	Method Description - Labor für Umwelt- und Radionuklidanalytik, VKTA - Strahlenschutz, Analytik & Entsorgung Rossendorf e. V. – In-house specification
BMU-Messanleitung	Procedures manual for monitoring of radioactive substances in the environment and of externa radiation Publisher: Federal Ministry of the Environment, Nature Conservation and Nuclear Safety, 1995

DAkkS
Deutsche
Akkreditierungsstelle

Accreditation

The Deutsche Akkreditierungsstelle attests with this **Partial Accreditation Certificate** that the testing laboratory

VKTA -Strahlenschutz, Analytik & Entsorgung Rossendorf e.V.
Bautzner Landstr. 400, 01328 Dresden

meets the requirements according to DIN EN ISO/IEC 17025:2018 for the conformity assessment activities listed in the annex to this certificate. This includes additional existing legal and normative requirements for the testing laboratory, including those in relevant sectoral schemes, provided they are explicitly confirmed in the annex to this certificate.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories and they conform to the principles of DIN EN ISO 9001.

This accreditation was issued in accordance with Art. 5 Para. 1 Sentence 2 of Regulation (EC) 765/2008, after an accreditation procedure was carried out in compliance with the minimum requirements of DIN EN ISO/IEC 17011 and on the basis of a review and decision of the appointed accreditation committees.

This partial accreditation certificate only applies in connection with the notice of 16.04.2025 with accreditation number D-PL-14498-01.
It consists of this cover sheet, the reverse side of the cover sheet and the following annex with a total of 14 pages.

Registration number of the partial accreditation certificate: **D-PL-14498-01-03**
It is a part of the accreditation certificate: D-PL-14498-01-00.

Berlin, 16.04.2025
Dr. Sebastian Kitzig
Head of Technical Unit

Translation issued:
04.11.2025
by proxy:
Dr. Sebastian Kitzig
Head of Technical Unit
Inga Müller

The certificate together with the annex 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 (www.dakks.de).

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

See notes overleaf

Deutsche Akkreditierungsstelle GmbH

Office Berlin
Spittelmarkt 10
10117 Berlin

Office Frankfurt am Main
Europa-Allee 52
60327 Frankfurt am Main

Office Braunschweig
Bundesallee 100
38116 Braunschweig

The Deutsche Akkreditierungsstelle GmbH (DAkkS) is the entrusted national accreditation body of the Federal Republic of Germany according to § 8 section 1 AkkStelleG in conjunction with § 1 section 1 AkkStelleGBV. DAkkS is designated as the national accreditation authority by Germany according to Art. 4 Para. 4 of Regulation (EC) 765/2008 and clause 4.7 of DIN EN ISO/IEC 17000.

Pursuant to Art. 11 section 2 of Regulation (EC) 765/2008, the accreditation certificate shall be recognised as equivalent by the national authorities within the scope of this Regulation as well as by the WTO member states that have committed themselves in bilateral or multilateral mutual agreements to recognise the certificates of accreditation bodies that are members of ILAC or IAF as equivalent.

DAkkS is a signatory to the multilateral agreements for mutual recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Co-operation (ILAC).

The up-to-date state of membership can be retrieved from the following websites:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

DAkkS
Deutsche
Akkreditierungsstelle

Deutsche Akkreditierungsstelle

Annex to the Partial Accreditation Certificate D-PL-14498-01-03 according to DIN EN ISO/IEC 17025:2018

Valid from: **16.04.2025**

Date of issue: 26.05.2025

This annex is a part of the accreditation certificate D-PL-14498-01-00.

Holder of partial accreditation certificate:

VKTA -Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.
Bautzner Landstr. 400, 01328 Dresden

with the location

VKTA -Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.
Labor für Umwelt- und Radionuklidanalytik
Bautzner Landstr. 400, 01328 Dresden

The testing laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 to carry out the conformity assessment activities listed in this annex. The testing laboratory 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/IEC 17025 are written in the language relevant to the operations of testing laboratories and they conform to the principles of DIN EN ISO 9001.

Tests in the fields of:

physical, physico-chemical and chemical analysis of waste, soil, sludge and sediment;
sampling of waste, soil, sludge and sediment;
analysis of waste for disposition according to Landfill Ordinance Annex 4 (July 2020)

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.

Flexible Scope of Accreditation:

Within the indicated test areas marked with [Flex A] the testing laboratory is permitted to use standardised or equivalent test methods listed here with different issue dates without being required to prior inform and obtain approval from DAkkS.

The testing laboratory has an up-to-date list of all test methods within the flexible scope of accreditation. The list is publicly available on the website of the testing laboratory.

Table of contents

1 Investigations of waste [Flex A]

1.1 Sampling

MB-110 2019-11	Sampling of building and construction materials

1.2 Sample pre-treatment

DIN EN ISO 54321 2021-04	Soil, treated biowaste, sludge and waste - Digestion of aqua regia soluble fractions of elements
DIN EN 1744-3 2002-11	Tests for chemical properties of aggregates - Part 3: Preparation of eluates by leaching of aggregates
DIN EN 12457-4 2003-01	Characterization of waste - Leaching - Compliance test 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 size reduction)
DIN EN 13656 2021-07	Soil, treated biowaste, sludge and waste - Digestion with a hydrochloric (HCl), nitric (HNO_3) and tetrafluoroboric (HBF_4) or hydrofluoric (HF) acid mixture for subsequent determination of elements
DIN EN 13657 2003-01	Characterization of waste - Digestion for subsequent determination of aqua regia soluble portion of elements in waste
DIN 19747 2009-07	Investigation of solids - Pre-treatment, preparation and processing of samples for chemical, biological and physical Analysis

1.3 Anions

DIN EN ISO 10304-1 2009-07	Water quality - Determination of dissolved anions by liquid chromatography of ions - Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate (Modification: *determination of bromide, chloride, fluoride and sulfate after oxidative pressure digestion of waste*)

DIN EN ISO 10304-3 1997-11	Water quality - Determination of dissolved anions by liquid chromatography of ions - Part 3: Determination of chromate, iodide, sulfite, thiocyanate and thiosulfate (Modification: *determination of iodide after oxidative pressure digestion of waste*)

1.4 Elements

DIN EN 14582 2016-12	Characterization of waste - Halogen and sulfur content - Oxygen combustion in closed systems and determination methods
DIN EN 16171 2017-01	Sludge, treated biowaste and soil - Determination of elements using inductively coupled plasma mass spectrometry (ICP-MS); (Modification: *extended by the elements Nb, Tc, Ta und Ra*)

1.5 Organic substances

DIN ISO 18287 2006-05	Soil quality - Determination of polycyclic aromatic hydrocarbons (PAH) - Gas chromatographic method with mass spectrometric detection (GC-MS) (Modification: *application in waste; ultrasonic extraction of the sample with cyclohexane*)
DIN EN ISO 22155 2016-07	Soil quality - Gas chromatographic determination of volatile aromatic and halogenated hydrocarbons and selected ethers - Static headspace method (Modification: *application in waste*)
DIN EN 14039 2005-01	Characterization of waste - Determination of hydrocarbon content in the range of C_{10} to C_{40} by gas chromatography
DIN EN 17322 2021-03	Environmental Solid Matrices - Determination of polychlorinated biphenyls (PCB) by gas chromatography - mass selective detection (GC-MS) or electron-capture detection (GC-ECD)
DIN EN 17503 2022-08	Soil, sludge, treated biowaste and waste - Determination of polycyclic aromatic hydrocarbons (PAH) by gas chromatography (GC) and high performance liquid chromatography (HPLC) (Limitation: *only determination by GC-MS*)

LAGA KW/04 2019-09	Determination of the hydrocarbon content in waste

2 Investigations of soil [Flex A]

2.1 Sampling

DIN EN ISO 18589-2 2017-12	Measurement of radioactivity in the environment - Soil - Part 2: Guidance for the selection of the sampling strategy, sampling and pre-treatment of samples
MB-109 2015-06	Sampling of soil for the determination of radionuclides

2.2 Sample pre-treatment

DIN EN ISO 18589-2 2017-12	Measurement of radioactivity in the environment - Soil - Part 2: Guidance for the selection of the sampling strategy, sampling and pre-treatment of samples
DIN EN ISO 54321 2021-04	Soil, treated biowaste, sludge and waste - Digestion of aqua regia soluble fractions of elements
DIN EN 13656 2021-07	Soil, treated biowaste, sludge and waste - Digestion with a hydrochloric (HCl), nitric (HNO_3) and tetrafluoroboric (HBF_4) or hydrofluoric (HF) acid mixture for subsequent determination of elements
DIN EN 13657 2003-01	Characterization of waste - Digestion for subsequent determination of aqua regia soluble portion of elements in waste (Modification: *application in soil*)
DIN EN 16179 2012-11	Sludge, treated biowaste and soil - Guidance for sample pretreatment
DIN 19747 2009-07	Investigation of solids - Pre-treatment, preparation and processing of samples for chemical, biological and physical Analysis

2.3 Simple descriptive procedures

DIN EN ISO 17892-4 2017-04	Geotechnical investigation and testing - Laboratory testing of soil - Part 4: Determination of particle size distribution (Restriction: *only sieving*)

2.4 Physico-chemical parameters

DIN EN ISO 10390 2022-08	Soil, treated biowaste and sludge - Determination of pH

2.5 Anions

DIN 38405-4 1985-07	Determination of fluoride (Modification: *after alkaline digestion of soil*)

2.6 Elements

DIN EN 16171 2017-01	Sludge, treated biowaste and soil - Determination of elements using inductively coupled plasma mass spectrometry (ICP-MS) (Modification: *extended by the elements Nb, Tc, Ta and Ra*)

2.7 Organic substances

DIN EN ISO 16703 2011-09	Soil quality - Determination of content of hydrocarbon in the range C_{10} to C_{40} by gas chromatography
DIN EN ISO 22155 2016-07	Soil quality - Gas chromatographic determination of volatile aromatic and halogenated hydrocarbons and selected ethers - Static headspace method
DIN ISO 11349 2015-12	Water quality - Determination of low-volatility lipophilic substances - Gravimetric method (Modification: *application in soil; extraction of the air-dried sample*)

DIN ISO 18287 2006-05	Soil quality - Determination of polycyclic aromatic hydrocarbons (PAH) - Gas chromatographic method with mass spectrometric detection (GC-MS) (Modification: *extraction of the sample using ultrasound with cyclohexane*)
DIN EN 15936 2022-09	Sludge, treated biowaste, soil and waste - Determination of total organic carbon (TOC) by dry combustion
DIN EN 17503 2022-08	Soil, sludge, treated biowaste and waste - Determination of polycyclic aromatic hydrocarbons (PAH) by gas chromatography (GC) and high performance liquid chromatography (HPLC) (Restriction: *only determination by GC-MS*)
DIN EN 17322 2021-03	Environmental Solid Matrices - Determination of polychlorinated biphenyls (PCB) by gas chromatography - mass selective detection (GC-MS) or electron-capture detection (GC-ECD) (Restriction: *only determination by GC-MS*)
LAGA KW/04 2019-09	Determination of the hydrocarbon content in waste (Modification: *application in soil*)

2.8 Summarized materials parameters

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 2021-10	Sludge, treated biowaste, soil and waste - Determination of loss on ignition

3 Investigations of sludge and sediment [Flex A]

3.1 Sampling

DIN 38414-11 1987-08	Sampling of sediments

3.2 Sample pre-treatment

DIN EN ISO 54321 2021-04	Soil, treated biowaste, sludge and waste - Digestion of aqua regia soluble fractions of elements
DIN EN 12457-4 2003-01	Characterization of waste - Leaching; Compliance test 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 limited size reduction) (Modification: *application in sludge and sediment*)
DIN EN 13346 2001-04	Characterization of sludges - Determination of trace elements and phosphorus - Aqua regia extraction methods
DIN EN 13656 2021-07	Soil, treated biowaste, sludge and waste - Digestion with a hydrochloric (HCl), nitric (HNO_3) and tetrafluoroboric (HBF_4) or hydrofluoric (HF) acid mixture for subsequent determination of elements
DIN EN 13657 2003-01	Characterization of waste - Digestion for subsequent determination of aqua regia soluble portion of elements in waste (Modification: *application in sludge and sediment*)
DIN EN 16179 2012-11	Sludge, treated biowaste and soil - Guidance for sample pre-treatment
DIN 4030-2 2008-06	Assessment of water, soil and gases for their aggressiveness to concrete - Part 2: Sampling and analysis of water and soil samples (Restriction: *only sample preparation for the investigation of chloride in sludge according to 6.3.5*)

3.3 Selected physical and physico-chemical parameters

DIN EN ISO 10390 2022-08	Soil, treated biowaste and sludge - Determination of pH

3.4 Anions

DIN EN ISO 10304-1 2009-07	Water quality - Determination of dissolved anions by liquid chromatography of ions - Part 1: Determination of bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate (Modification: *application in sludge and sediment*) (Restriction: *determination of chloride after high temperature elution*)
DIN 38405-4 1985-07	Determination of fluoride (Modification*: application in sludge and sediment; after alkaline digestion*)

3.5 Elements

DIN EN ISO 17294-2 2024-03	Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS) - Part 2: Determination of selected elements including uranium isotopes (Modification: *application in sludge and sediment; extended by the elements Si, S, Nb, Tc, Ta and Ra*)
DIN EN 16171 2017-01	Sludge, treated biowaste and soil - Determination of elements using inductively coupled plasma mass spectrometry (ICP-MS) (Modification: *extended by the elements Nb, Tc, Ta and Ra*)

3.6 Organic substances

DIN ISO 18287 2006-05	Soil quality - Determination of polycyclic aromatic hydrocarbons (PAH) - Gas chromatographic method with mass spectrometric detection (GC-MS) (Modification: *application in sludge and sediment; ultrasonic extraction of the sample with cyclohexane*)
DIN EN ISO 16703 2011-09	Soil quality - Determination of content of hydrocarbon in the range C_{10} to C_{40} by gas chromatography (Modification: *application in sludge and sediment)*
DIN EN 14039 2005-01	Characterization of waste - Determination of hydrocarbon content in the range of C_{10} to C_{40} by gas chromatography (Modification: *application in sludge and sediment*)

DIN EN 17503 2022-08	Soil, sludge, treated biowaste and waste - Determination of polycyclic aromatic hydrocarbons (PAH) by gas chromatography (GC) and high performance liquid chromatography (HPLC) (Restriction: *determination by GC-MS only*)
DIN EN 17322 2021-03	Environmental Solid Matrices - Determination of polychlorinated biphenyls (PCB) by gas chromatography - mass selective detection (GC-MS) or electron-capture detection (GC-ECD) (Restriction: *determination by GC-MS only*)

3.7 Summarized materials parameters

DIN EN 12880 2001-02	Characterization of sludges - Determination of dry residue and water content
DIN EN 15169 2007-05	Characterization of waste - Determination of loss on ignition in waste, sludge and sediments
DIN EN 15216 2021-12	Characterization of waste - Determination of total dissolved solids (TDS) in water and eluates
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 2021-10	Sludge, treated biowaste, soil and waste - Determination of loss on ignition
DIN EN 15936 2022-09	Sludge, treated biowaste, soil and waste - Determination of total organic carbon (TOC) by dry combustion

4 Sample preparation and analysis of waste in accordance with the German Landfill Ordinance (DepV: Deponieverordnung) Annex 4 (July 2020)

Determination of the total solids content and the elutable fraction

Determination of the total content in solid

DepV, Annex 4	Parameter	Section 8 (1), (3) and (5) DepV	
3.1.1	Sample preparation	DIN 19747 (July 2009)	☒
3.1.2	Digestion method (aqua regia)	DIN EN 13657 (January 2003)	☒

DepV, Annex 4	Parameter	Section 8 (1), (3) and (5) DepV	
3.1.3.1	Loss on ignition	DIN EN 15169 (May 2007)	☒
3.1.3.2	TOC	DIN EN 15936 (November 2012)	☒
3.1.4	BTEX	DIN EN ISO 22155 (July 2016)	☒
3.1.5	PCB	DIN EN 15308 (December 2016)	☒
3.1.6	Petroleum hydrocarbons	DIN EN 14039 (January 2005) in conjunction with LAGA KW/04 (September 2019)	☒
3.1.7	PAH	DIN ISO 18287 (May 2006)	☒
3.1.8	Density	DIN 18125-2 (March 2011)	☐
3.1.9	Gross calorific value	DIN EN 15170 (May 2009)	☐
3.1.10	Cadmium, chromium, copper, nickel, lead, zinc	DIN EN ISO 17294-2 (January 2017)	☒
		DIN ISO 22036 (June 2009)	☐
		DIN EN ISO 11885 (September 2009)	☐
3.1.11	Mercury	DIN EN ISO 12846 (August 2012)	☐
		DIN EN ISO 17852 (April 2008)	☐
3.1.12	Extractable lipophilic substances	LAGA KW/04 (September 2019)	☒

Determination of the contents in eluate

DepV, Annex 4	Parameter	Section 8 (1), (3) and (5) DepV	
3.2.1.1	Eluate preparation with a liquid to solid ratio of 10/1	DIN EN 12457-4 (January 2003)	☒
3.2.1.2	Eluate preparation each with constant pH 4 and 11 / acid neutralization capacity	LAGA- Guideline EW 98 (September 2017)	☒
3.2.2	Up-flow percolation test	DIN 19528 (January 2009)	☐
		DIN EN 14405 (May 2017)	☐
3.2.3	pH of the eluate	DIN EN ISO 10523 (April 2012)	☒

DepV, Annes 4	Parameter	Section 8 (1), (3) and (5) DepV	
3.2.4.1	DOC	DIN EN 1484 (April 2019)	☒
3.2.4.2	DOC at a pH between 7.5 and 8	LAGA Guideline EW 98 (September 2017)	☐
3.2.5	Phenols	DIN 38409-16 (June 1984)	☐
		DIN EN ISO 14402 (December 1999)	☐
3.2.6	Arsenic	DIN EN ISO 17294-2 (January 2017)	☒
		DIN EN ISO 11885 (September 2009)	☐
		DIN ISO 22036 (June 2009)	☐
3.2.7	Lead	DIN EN ISO 17294-2 (January 2017)	☒
		DIN ISO 22036 (June 2009)	☐
		DIN EN ISO 11885 (September 2009)	☐
3.2.8	Cadmium	DIN EN ISO 17294-2, (January 2017)	☒
		DIN ISO 22036 (June 2009)	☐
		DIN EN ISO 11885 (September 2009)	☐
3.2.9	Copper	DIN EN ISO 17294-2 (January 2017)	☒
		DIN ISO 22036 (June 2009)	☐
		DIN EN ISO 11885 (September 2009)	☐

DepV, Annes 4	Parameter	Section 8 (1), (3) and (5) DepV	
3.2.10	Nickel	DIN EN ISO 17294-2 (January 2017)	☒
		DIN ISO 22036 (June 2009)	☐
		DIN EN ISO 11885 (September 2009)	☐
3.2.11	Mercury	DIN EN ISO 12846 (August 2012)	☐
		DIN EN ISO 17852 (April 2008)	☐
3.2.12	Zinc	DIN EN ISO 17294-2 (January 2017)	☒
		DIN ISO 22036 (June 2009)	☐
		DIN EN ISO 11885 (September 2009)	☐
3.2.13	Chloride	DIN EN ISO 10304-1 (July 2009)	☒
		DIN EN ISO 15682 (January 2002)	☐
3.2.14	Sulphate	DIN EN ISO 10304-1 (July 2009)	☒
3.2.15	Cyanide, readily liberated	DIN 38405-13 (April 2011)	☒
		In waste containing sulphide: DIN ISO 17380 (May 2006)	☐
		DIN EN ISO 14403-1 (October 2012)	☐
		DIN EN ISO 14403-2 (October 2012)	☐
3.2.16	Fluoride	DIN 38405-4 (July 1985)	☒
		DIN EN ISO 10304-1 (July 2009)	☒
3.2.17	Barium	DIN ISO 22036 (June 2009)	☐
		DIN EN ISO 11885 (September 2009)	☐
		DIN EN ISO 17294-2 (January 2017)	☒
3.2.18	Chromium, total	DIN ISO 22036 (June 2009)	☐
		DIN EN ISO 11885 (September 2009)	☐
		DIN EN ISO 17294-2 (January 2017)	☒
3.2.19	Molybdenum	DIN ISO 22036 (June 2009)	☐
		DIN EN ISO 11885 (September 2009)	☐
		DIN EN ISO 17294-2 (January 2017)	☒

DepV, Annes 4	Parameter	Section 8 (1), (3) and (5) DepV	
3.2.20	Antimony	DIN ISO 22036 (June 2009)	☐
		DIN EN ISO 11885 (September 2009)	☐
		DIN 38405-32 (May 2000)	☐
		DIN EN ISO 17294-2 (January 2017)	☒
3.2.21	Selenium	DIN ISO 22036 (June 2009)	☐
		DIN EN ISO 11885 (September 2009)	☐
		DIN EN ISO 17294-2 (January 2017)	☒
3.2.22	Total dissolved solids	DIN EN 15216 (January 2008)	☒
		DIN 38409-1 (January 1987)	☐
		DIN 38409-2 (March 1987)	☐
3.2.23	Conductivity of eluate	DIN EN 27888 (November 1993)	☒
3.2.24	Determination of dry residue	DIN EN 14346 (March 2007)	☒

Biodegradability of the dry residue of the original substance
not used

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 Standardization
LAGA	Bund/Länder-Arbeitsgemeinschaft Abfall (Working Group of the Federation and Federal States on Waste)
MB	Inhouse Method Description of Labor für Umwelt- und Radionuklidanalytik des VKTA - Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.

DAkkS
Deutsche
Akkreditierungsstelle

Accreditation

The Deutsche Akkreditierungsstelle attests with this **Partial Accreditation Certificate** that the testing laboratory

VKTA -Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.
Bautzner Landstr. 400, 01328 Dresden

meets the requirements according to DIN EN ISO/IEC 17025:2018 for the conformity assessment activities listed in the annex to this certificate. This includes additional existing legal and normative requirements for the testing laboratory, including those in relevant sectoral schemes, provided they are explicitly confirmed in the annex to this certificate.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories and they conform to the principles of DIN EN ISO 9001.

This accreditation was issued in accordance with Art. 5 Para. 1 Sentence 2 of Regulation (EC) 765/2008, after an accreditation procedure was carried out in compliance with the minimum requirements of DIN EN ISO/IEC 17011 and on the basis of a review and decision of the appointed accreditation committees.

This partial accreditation certificate only applies in connection with the notice of 16.04.2025 with accreditation number D-PL-14498-01.
It consists of this cover sheet, the reverse side of the cover sheet and the following annex with a total of 12 pages.

Registration number of the partial accreditation certificate: **D-PL-14498-01-04**
It is a part of the accreditation certificate: D-PL-14498-01-04.

Berlin, 16.04.2025 Dr. Haiko Blumenthal
Head of Technical Unit

Translation issued:
02.09.2025 Dr. Haiko Blumenthal
Head of Technical Unit

The certificate together with the annex 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 (www.dakks.de).

See notes overleaf

Deutsche Akkreditierungsstelle GmbH

Office Berlin
Spittelmarkt 10
10117 Berlin

Office Frankfurt am Main
Europa-Allee 52
60327 Frankfurt am Main

Office Braunschweig
Bundesallee 100
38116 Braunschweig

The Deutsche Akkreditierungsstelle GmbH (DAkkS) is the entrusted national accreditation body of the Federal Republic of Germany according to § 8 section 1 AkkStelleG in conjunction with § 1 section 1 AkkStelleGBV. DAkkS is designated as the national accreditation authority by Germany according to Art. 4 Para. 4 of Regulation (EC) 765/2008 and clause 4.7 of DIN EN ISO/IEC 17000.

Pursuant to Art. 11 section 2 of Regulation (EC) 765/2008, the accreditation certificate shall be recognised as equivalent by the national authorities within the scope of this Regulation as well as by the WTO member states that have committed themselves in bilateral or multilateral mutual agreements to recognise the certificates of accreditation bodies that are members of ILAC or IAF as equivalent.

DAkkS is a signatory to the multilateral agreements for mutual recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Co-operation (ILAC).

The up-to-date state of membership can be retrieved from the following websites:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

DAkkS
Deutsche
Akkreditierungsstelle

Deutsche Akkreditierungsstelle

Annex to the Partial Accreditation Certificate D-PL-14498-01-04 according to DIN EN ISO/IEC 17025:2018

Valid from: **16.04.2025**

Date of issue: 16.04.2025

This annex is a part of the accreditation certificate D-PL-14498-01-00.

Holder of partial accreditation certificate:

VKTA – Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.
Bautzner Landstr. 400, 01328 Dresden

with the locations

VKTA -Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.
Labor für Umwelt- und Radionuklidanalytik
Bautzner Landstr. 400, 01328 Dresden

VKTA -Strahlenschutz, Analytik & Entsorgung Rossendorf e. V.
Labor für Umwelt- und Radionuklidanalytik
Am Eiswurmlager 10, 01189 Dresden

The testing laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 to carry out the conformity assessment activities listed in this annex. The testing laboratory 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/IEC 17025 are written in the language relevant to the operations of testing laboratories and they conform to the principles of DIN EN ISO 9001.

Tests in the fields:

selected analysis of filter dusts;
local dose rate measurement of gamma radiation; determination of surface contamination;
In- situ gamma spectrometry;
element and radionuclide determination in solids, liquids, foodstuffs, human excretions, other biological samples and in the context of emission and imission monitoring and the analysis of operational and waste samples

Flexible scope of accreditation:

The testing laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use standards or equivalent testing methods listed here with different issue dates (flexibilization category A).

Within the given testing field [Flex C] the testing laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to modify, develop or refine testing methods.

The listed testing methods are exemplary. The testing laboratory maintains a current list of all testing methods within the flexible scope of accreditation. The list is publicly available on the website of the testing laboratory.

The marking R (Bautzner Landstr. 400, 01328 Dresden) and FK (Am Eiswurmlager 10, 01189 Dresden) behind the testing and sampling procedures indicates the location for which the competence is confirmed.

1 Selected analysis of filter dusts

IFA-AM 6015 2018-02	Processing procedure for analysis of metal-containing dusts	R
DIN EN 16171 2017-01	Sludge, treated biowaste and soil - Determination of elements using inductively coupled plasma mass spectrometry (ICP-MS) (Modification: extended by matrix filter dusts)	R

2 Radioactivity measurement and radionuclide determination

2.1 On-site radioactivity measurement on radioactive residues, nuclear facility components and in the environment

2.1.1 Measurement of the gamma local dose rate

FS-78-15-AKU Blatt 3.1.1.2 2017-08	Monitoring of the γ- local dose rate in the vicinity of nuclear facilities	R

2.1.2 Measurement of surface contamination

DIN 25457-1 2014-12	Activity measurement methods for the clearance of radioactive substances and nuclear facility components - Part 1: Fundamentals (Restriction: applies only to direct and indirect surface total activity measurement, in- situ gamma spectrometry, gamma spectrometry and alpha spectrometry	R
DIN 25457-4 2013-04	Activity measurement methods in the clearance of radioactive substances and components of nuclear facilities - Part 4: Contaminated and activated metal scrap (Restriction: applies only to surface activity measurement, in- situ gamma spectrometry, gamma spectrometry and alpha spectrometry)	R
DIN 25457-6 2018-07	Activity measurement methods for the clearance of radioactive substances and nuclear facility components - Part 6: Rubble and buildings (Restriction: applies only to direct surface activity measurement, in- situ gamma spectrometry, sampling, gamma spectrometry, liquid scintillation measurement and alpha spectrometry)	R
DIN 25457-7 2017-08	Activity measurement methods for the clearance of radioactive substances and nuclear facility components - Part 7: Ground surfaces and excavated soil (Restriction: applies only to direct surface activity measurement, in- situ gamma spectrometry, sampling, gamma spectrometry, liquid scintillation measurement and alpha spectrometry)	R
VKTA FA 02 2009-05	Determination of surface contamination	R
MB-437 2024-04	Analysis of H-3 and C-14 on mole sieve from the exhaust air monitoring of nuclear facilities	R

2.1.3 In- situ gamma spectrometry

DIN EN ISO 18589-7 2016-05	Measurement of radioactivity in the environment - Soil - Part 7: In situ measurement of gamma-emitting radionuclides	R
DIN 25457-1 2014-12	Activity measurement methods for the clearance of radioactive substances and nuclear facility components - Part 1: Fundamentals (Restriction: applies only to direct and indirect surface total activity measurement, in- situ gamma spectrometry, gamma spectrometry and alpha spectrometry)	R
DIN 25457-4 2013-04	Activity measurement methods in the clearance of radioactive substances and components of nuclear facilities - Part 4: Contaminated and activated metal scrap (Restriction: applies only to surface activity measurement, in- situ gamma spectrometry, gamma spectrometry and alpha spectrometry)	R
DIN 25457-6 2018-07	Activity measurement methods for the clearance of radioactive substances and nuclear facility components - Part 6: Rubble and buildings (Restriction: applies only to direct surface activity measurement, in- situ gamma spectrometry, sampling, gamma spectrometry, liquid scintillation measurement and alpha spectrometry	R
DIN 25457-7 2017-08	Activity measurement methods for the clearance of radioactive substances and nuclear facility components - Part 7: Ground surfaces and excavated soil (Restriction: applies only to direct surface activity measurement, in- situ gamma spectrometry, sampling, gamma spectrometry, liquid scintillation measurement and alpha spectrometry)	R

2.2 Determination of uranium

DIN EN ISO 17294-2 (E 29) 2024-03	Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS) - Part 2: Determination of selected elements including uranium isotopes (Modification: extended by aqueous digestion solutions of solids)	R
DIN EN 16171 2017-01	Sludge, treated biowaste and soil - Determination of elements using inductively coupled plasma mass spectrometry (ICP-MS) (Modification: *extended by building and construction materials*)	R
DIN 25492 1991-02	Determination of the uranium content of nuclear fuels; potentiometric method based on the modified Davies and Gray method	R
MB-315 2024-03	Determination of uranium isotope composition and activity concentrations of uranium isotopes by ICP-MS in aqueous solutions and in solids after digestion	R

2.3 Determination of radionuclides in solids, liquids and foodstuffs

2.3.1 Determination of radionuclides in solids, liquids and foodstuffs by alpha spectrometry after radiochemical separation [Flex C]

Parameter	Matrix	Methode
$^{233/234}U$, ^{235}U, ^{236}U, ^{238}U	Solids, liquids, foodstuffs	MB-427 (2022-11) MB-701 (2019-11)
	Urine	MB-422 (2018-08)
	Feces	MB-418 (2019-11)
^{238}Pu, $^{239/240}Pu$	Feststoffe, Flüssigkeiten, Lebensmittel	MB-427 (2022-11) MB-701 (2019-11)
	Urin	MB-423 (2018-06)
	Stuhl	MB-419 (2019-11)
^{241}Am, ^{242}Cm, $^{243/244}Cm$	Solids, liquids, foodstuffs	MB-427 (2022-11) MB-701 (2019-11)
	Urine	MB-424 (2020-07)
	Feces	MB-420 (2022-11)
^{227}Th, ^{228}Th, ^{230}Th, ^{232}Th	Solids, liquids, foodstuffs	MB-406 (2019-11) MB-701 (2019-11)
	Urine	MB-421 (2018-06)
	Feces	MB-417 (2019-11)
^{227}Ac	Solids, liquids, foodstuffs	MB-406 (2019-11) MB-701 (2019-11)
^{210}Po	Solids, liquids, foodstuffs, Urine	MB-404 (2018-06) MB-701 (2019-11)

2.3.2 Determination of radionuclides in solids, liquids and foodstuffs by liquid scintillation measurement (LSC) [Flex C]

Parameter	Matrix	Probenvorbehandlung	Methode
^{3}H	Water	Destillation	DIN EN ISO 9698 (2015-12)
	Water	Electrolytic enrichment	MB-408 (2018-06)
	Boden, Sedimente, mineralische Baustoffe	Aufschlämmung	MB-426 (2024-04)
	Solids (except metals), foodstuffs	Combustion or bake-out	MB-410 (2018-06)
	Urin	Destillation	DIN EN ISO 9698 (2015-12)
	Non-aqueous liquids	Directly	DIN EN ISO 9698 (2015-12) (Modification: *without Destillation*)
^{14}C	Solids (except metals), foodstuffs	Combustion and decomposition	MB-410 (2018-06)
	Liquids	Wet chemical oxidation	MB-411 (2018-06)
	Urine	Directly	MB-701 (2019-11)
^{36}Cl	Solids, liquids, foodstuffs	Radiochemical separation	MB-429 (2018-06) MB-701 (2019-11)
^{41}Ca	Solids, liquids, foodstuffs	Radiochemical separation	MB-433 (2018-10)
^{55}Fe	Solids, liquids, foodstuffs	Radiochemical separation	MB-412 (2019-11) MB-701 (2019-11)
^{63}Ni	Solids, liquids, foodstuffs	Radiochemical separation	MB-412 (2019-11) MB-701 (2019-11)
^{90}Sr	Solids, liquids, foodstuffs, Urine	Radiochemical separation	MB-416 (2024-04) MB-701 (2019-11)
^{99}Tc	Solids, liquids, foodstuffs	Radiochemical separation	MB-701 (2019-11)
^{222}Rn	Water	Directly or after enrichment	H-Rn-222-TWASS-01 (1994-12)
^{241}Pu	Solids, liquids, foodstuffs	Radiochemical separation	MB-428 (2015-05) MB-701 (2019-11)

2.3.3 Radionuclide determination in solids, liquids and food using alpha-beta measurement with gas flow proportional counter [Flex C]

Parameter	Matrix	Samle pre-treatment	Method
Total alpha	Solids, liquids, foodstuffs	Preparation	MB-701 (2019-11)
	Water	Evaporation	MB-415 (2019-11) MB-701 (2019-11)
	Filter	Directly	MB-701 (2019-11)
Total beta	Solids, liquids, foodstuffs	Preparation	MB-701 (2019-11)
	Water	Evaporation	MB-415 (2019-11) MB-701 (2019-11)
	Filter	Directly	MB-701 (2019-11)
^{210}Pb	Solids, liquids, foodstuffs, urine	Radiochemical separation	MB-404 (2018-06)

2.3.4 Determination of radionuclides in solids, liquids and foodstuffs by gamma spectrometry [Flex C]

Parameter	Matrix	Samle pre-treatment	Method
γ- emitter	Solids, liquids, foodstuffs	Directly	MB-402 (2019-11)
^{226}Ra, ^{228}Ra, ^{224}Ra, ^{223}Ra, ^{210}Pb	Flüssigkeiten	Barium sulphate precipitation	MB-403 (2024-04)
γ-emitter	Waters	Directly, evaporation, preparation	DIN EN ISO 10703 (2022-11)
γ- emitter	Solids, liquids, foodstuffs	Directly, dried milled	DIN EN ISO 20042 (2022-06)

2.3.5 Radionuclide determination in solids, liquids and food using inductively coupled plasma mass spectrometry (ICP-MS) [Flex C]

Parameter	Matrix	Samle pre-treatment	Method
^{99}Tc	Solids, liquids, foodstuffs	Radiochemical separation	DIN EN 16171 (2017-01) DIN EN ISO 17294-2 (2024-03) (Modifikation: *Erweiterung um Tc*)
U	Solids, liquids, foodstuffs	Digestion	DIN EN 16171 (2017-01) DIN EN ISO 17294-2 (2024-03) MB-701 (2019-11)
	Urine	Directly	DIN EN ISO 17294-2 (2017-01) MB-701 (2019-11)
^{234}U, ^{235}U, ^{236}U, ^{238}U	Solids, liquids, foodstuffs	Radiochemical separation	MB-315 (2024-03) MB-701 (2019-11) DIN EN 16171 (2017-01) DIN EN ISO 17294-2 (2024-03)
^{232}Th	Solids, liquids, foodstuffs	Digestion	DIN EN 16171 (2017-01) DIN EN ISO 17294-2 (2017-01)
	Urine	Directly	DIN EN ISO 17294-2 (2024-03)

DAkkS Deutsche Akkreditierungsstelle

List of methods for 2.3.1 to 2.3.5

DIN EN ISO 17294-2 (E 29) 2024-03	Water quality – Application of inductively coupled plasma mass spectrometry (ICP-MS) – Part 2: Determination of selected elements including uranium isotopes (Modification: extended by the elements Tc and Ra; for Annex A: Extended by aqueous digestion solutions of solids)	R
DIN EN ISO 9698 (C 13) 2015-12	Water quality – Determination of tritium activity concentration – Liquid scintillation counting method (Modification: used also for non-aqueous liquids without distillation)	R FK
DIN EN ISO 10703 2022-11	Water quality - Gamma-ray emitting radionuclides - Test method using high resolution gamma-ray spectrometry	R FK
DIN EN ISO 20042 2022-06	Measurement of radioactivity - Gamma-ray emitting radionuclides - Generic test method using gamma-ray spectrometry	R FK
DIN EN 13656 2021-07	Soil, treated biowaste, sludge and waste -Digestion with a hydrochloric (HCl), nitric (HNO_3) and tetrafluoroboric (HBF_4) or hydrofluoric (HF) acid mixture for subsequent determination of elements (Modification: *also used for determination of radionuclides*)	R
DIN EN 16171 2017-01	Sludge, treated biowaste and soil – Determination of trace elements using inductively coupled plasma mass spectrometry (ICP-MS) (Modification: *extended by the elements Tc and Ra; extended by the building and construction materials matrices*)	R
MB-315 2024-03	Determination of the uranium isotope composition and the activity concentrations of uranium isotopes using ICP-MS in aqueous solutions and in solids after digestion	R
MB - 402 2019-11	Determination of radionuclides in solids and liquids by gamma spectrometry	R FK
MB - 403 2024-04	Determination of Pb-210 and radium isotopes (Ra-223, Ra-224, Ra-226 and Ra-228) in aqueous solutions by gamma spectrometry after radiochemical separation	R FK
MB - 404 2018-06	Determination of Pb-210 and Po-210 in solids and liquids by beta measurements or alpha-spectrometry	R
MB - 406 2019-11	Determination of Th-228, Th-230, Th-232, Th-227 and Ac-227 in liquids and solids by alpha spectrometry after radiochemical separation	R

MB - 408 2018-06	Electrolytic enrichment of tritium	FK
MB - 410 2018-06	Determination of H-3 and C-14 in solids (except metals) by liquid scintillation counting (LSC) after oxidative digestion	R
MB - 411 2018-06	Determination of C-14 in water by liquid scintillation counting (LSC) after oxidative digestion	R
MB - 412 2019-11	Determination of Fe-55 and Ni-63 by liquid scintillation counting (LSC) after radiochemical separation	R
MB - 415 2019-11	Determination of total alpha and beta in drinking water	R
MB - 416 2024-04	Determination of Sr-90 in solids and liquids by liquid scintillation counting (LSC) after radiochemical separation	R
MB - 417 2019-11	Determination of Th-228, Th-230 and Th-232 in feces by alpha spectrometry after radiochemical separation	R
MB - 418 2019-11	Determination of U-234, U-235 and U-238 in feces by alpha spectrometry after radiochemical separation	R
MB - 419 2019-11	Determination of Pu-238 and Pu-239/240 in feces by alpha spectrometry after radiochemical separation	R
MB - 420 2022-11	Determination of Am-241, Am-243 and Cm-242, Cm-244, Cm-246 and Cm-248 in feces by alpha spectrometry after radiochemical separation	R
MB - 421 2018-06	Determination of Th-228, Th-230 and Th-232 in urine by alpha spectrometry after radiochemical separation	R
MB - 422 2018-06	Determination of U-234, U-235 and U-238 in urine by alpha spectrometry after radiochemical separation	R
MB - 423 2018-06	Determination of Pu-238 and Pu-239/240 in urine by alpha spectrometry after radiochemical separation	R
MB - 424 2020-07	Determination of Am-241, Am-243 and Cm-242, Cm-244, Cm-246 and Cm-248 in urine by alpha spectrometry after radiochemical separation	R
MB - 426 2024-04	Determination of exchangeable tritium in solids by liquid scintillation counting (LSC) after suspension	R

MB - 427 2022-11	Determination of Pu-238, Pu-239/240, Am-241, Cm-242, Cm-243/244, U-233/234, U-235 and U-238 in liquids and solids by alpha spectrometry after radiochemical separation	R
MB - 428 2015-05	Determination of Pu-241 in liquids and solids by liquid scintillation counting (LSC) after radiochemical separation	R
MB - 429 2018-06	Determination of Cl-36 in liquids and solids by liquid scintillation counting (LSC) after radiochemical separation	R
MB - 433 2018-10	Determination of Ca-41 in solids and liquids by liquid scintillation counting (LSC) after radiochemical separation	R
MB - 701 2019-11	Determination of radionuclides in solids and liquids using alpha spectrometry, gamma spectrometry, liquid scintillation counting (LSC) or mass spectrometry with inductively coupled plasma (ICP-MS) after radiochemical separation (Modular method description for determination of H-3, C-14, Ca-41, Fe-55, Co-60, Ni-63, Sr-90, Tc-99, Cs-137, U-232, U-234, U-235, U-236, U-238, Np-237, Pu-236, Pu-238, Pu-239/240, Pu-241, Pu-242, Am-241, Am-243, Cm-242 und Cm-243/244)	R FK
BMU-Messanleitung H-Rn-222-TWASS-01 1994-12	Rapid procedure for determining radon-222 in drinking water	R

Abbreviations used:

DIN	Deutsches Institut für Normung e. V. (German Institute for Standardization)
EN	Europäische Norm (European standard)
IEC	International Electrotechnical Commission
IFA-AM	Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung – Arbeitsmappe (Institutions of the German accident insurance system – workbook)
ISO	International Organization for Standardization
FS-78-15-AKU	„Recommendations for monitoring environmental radioactivity" Publisher: Fachverband für Strahlenschutz e.V. (professional association radiation protection)
MB	Method Description - Labor für Umwelt- und Radionuklidanalytik des VKTA -Strahlenschutz, Analytik & Entsorgung Rossendorf e. V. - In-house specification
BMU-Messanleitung	Procedures manual for monitoring of radioactive substances in the environment and of external radiation Publisher: Federal Ministry of the Environment, Nature Conservation and Nuclear Safety, 1995
VKTA FA	Technical Instruction of VKTA – Radiation Protection, Analytics & Disposal Rossendorf Inc. (VKTA)