

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-14595-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 04.07.2019

Date of issue: 04.07.2019

Holder of certificate:

**Forschungszentrum Jülich GmbH
Prüflaboratorium des Geschäftsbereiches Sicherheit und Strahlenschutz
Wilhelm-Johnen-Straße, 52428 Jülich**

Tests in the fields:

**sampling and determination of radioactive substances in water;
method for testing and evaluation of ease of decontamination;
determination of radionuclides, stable isotopes and elements in liquids and solid materials including
incorporation measurements using α - and γ -spectroscopy, α - and β -measurement, Liquid
Scintillation Counting (LSC), ICP-MS and IC;
analyses of radioactive substances according to German drinking water ordinance;
sampling of raw and drinking water for analysis of radioactive substances**

**Within the given testing field marked with **, the testing laboratory is permitted, without being
required to inform and obtain prior approval from DAkkS, the following: the modification,
development and refinement of 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.**

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

Abbreviations used: see last page

*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>*

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1 Water sampling

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 (modification: <i>only for analytics of radioactive substances</i>)
DIN EN ISO 5667-3 (A 21) 2013-03	Water quality - Sampling - Part 3: Preservation and handling of water samples (modification: <i>only for analytics of radioactive substances</i>)
Measuring instructions of the BMU H-Preliminary note-TWASS-02 Messanleitungen des BMU H-VORBEMERK-TWASS-02 2016-06	Preliminary note regarding the requirements for sampling from drinking and ground water Vorbemerkungen hinsichtlich der Anforderungen bei der Probeentnahme aus Trink- und Grundwasser

2 Methods for testing and evaluation of ease of decontamination

DIN 25415 2012-11	Radioactively contaminated surfaces – methods for testing and evaluation of ease of decontamination
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3 Determination of radionuclides, stable isotopes and elements in liquids and solid materials # including incorporation measurements using α - and γ -spectrometry, α - and β -measurement, Liquid Scintillation Counting (LSC), ICP-MS and IC **

V-AN-01-00 2012-05	Determination of radionuclides using Alpha spectrometry (e.g. Th-228, Th-230, Th-232, U-234, U-235, U-238, Pu-238, Pu239/240, Cm-242, Cm-244, Ra-223)
V-AN-01-00 2012-05	Determination of radionuclides using α - β -measurement (e.g. Sr-90, Sr-89, Y-90, total- β , total- α)
V-AN-01-00 2012-05	Determination of radionuclides using Liquid Scintillation Counting (LSC) (e.g. H-3, C-14, S-35, Cr-51, Rn-222)

Matrices: liquid e.g. urine, solid e.g. faeces, weed, soil

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V-AN-01-00 2012-05	Determination of radionuclides, stable isotopes and elements using ICP-MS (e. g. Th, U, U-234, U-235, U-238)
V-AN-01-00 2012-05	Determination of elements using IC (e.g. Na, K)
V-AN-01-00 2012-05	Determination of radionuclides using Gamma spectrometry (e.g. Co-60, Cs-137, I-125, I-131, Cr-51)
V-M-01.00 2012-05	Incorporation monitoring including determination of the body dose
V-BC-01.00 2012-05	Direct measurements of full/partial body activity using Gamma spectrometry (e.g. Co-60, Cs-137, I-125, I-131)

4 Examinations according to German drinking water ordinance - TrinkwV -

Sampling

Verfahren	Titel
DIN EN ISO 5667-01 (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 (modification: <i>only for analytics of radioactive substances</i>)
DIN EN ISO 5667-3 (A 21) 2013-03	Water quality - Sampling - Part 3: Preservation and handling of water samples (modification: <i>only for analytics of radioactive substances</i>)

Annex 1: MICROBIOLOGICAL PARAMETERS

PART I: General requirements for drinking water

not documented

PART II: General requirements for drinking water which is intended for distribution in sealed containers

not documented

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Annex 2: CHEMICAL PARAMETERS

PART I: Chemical parameters whose concentration does not increase in the distribution network including drinking water installations usually

serial no.	parameter	method is requested
1	Acrylamid	not documented
2	Benzene	not documented
3	Boron	not documented
4	Bromate	not documented
5	Chrome	not documented
6	Cyanide	not documented
7	1,2-Dichlorethane	not documented
8	Fluoride	not documented
9	Nitrate	not documented
10	Phytosanitary active substance and biocidal product active substance	not documented
11	Phytosanitary active substance and biocidal product active substance total	not documented
12	Mercury	not documented
13	Selenium	not documented
14	Tetrachlorethene and Trichlorethene	not documented
15	Uranium	A-AN-06.04 mass spectrometric determination in solid and liquid matrices 2016-07

PART II: Chemical parameters whose concentration could increase in the distribution network including drinking water installations

not documented

Annex 3: INDICATOR PARAMETER

Part I: General indicator parameter

not documented

Part II: Special requirements for drinking water in systems of drinking water installations

not documented

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Annex 3a: Requirements for drinking water in relation to radioactive materials

parameter	methods
Radon-222	A-AN-09.02 Determination of tritium, radon and total-alpha-activity 2016-07
Tritium	A-AN-09.02 Determination of tritium, radon and total-alpha-activity 2016-07
Indicative dose (screening-method)	
Total-Alpha-activity-concentration (aa*)	V-M-01.02 Determination of the total indicative dose 2016-07
Total-Alpha- and total-Beta-activity-concentration (bb*)	V-M-01.02 Determination of the total indicative dose 2016-07
Indicative dose (single-nuclid-determination, cc*)	
U-238	V-M-01.02 Determination of the total indicative dose 2016-07
U-234	V-M-01.02 Determination of the total indicative dose 2016-07
Ra-226	V-M-01.02 Determination of the total indicative dose 2016-07
Ra-228	V-M-01.02 Determination of the total indicative dose 2016-07
Pb-210	V-M-01.02 Determination of the total indicative dose 2016-07
Po-210	V-M-01.02 Determination of the total indicative dose 2016-07
C-14	V-M-01.02 Determination of the total indicative dose 2016-07
Sr-90	V-M-01.02 Determination of the total indicative dose 2016-07
Pu-239/Pu-240	V-M-01.02 Determination of the total indicative dose 2016-07
Am-241	V-M-01.02 Determination of the total indicative dose 2016-07
Co-60	V-M-01.02 Determination of the total indicative dose 2016-07
Cs-134	V-M-01.02 Determination of the total indicative dose 2016-07
Cs-137	V-M-01.02 Determination of the total indicative dose 2016-07
I-131	V-M-01.02 Determination of the total indicative dose 2016-07

(* appr. TrinkwV attachment 3a part III)

Parameters that are not included in the annexes 1 to 3 of the German drinking water ordinance

Other periodic examinations

not documented

The accreditation does not replace the endorsement or admission procedure of the appropriate authorities according to § 15 passage 4 TrinkwV.

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Abbreviations used:

A-AN	In-House method of the Forschungszentrum Jülich GmbH
V-AN	Amtl. anerkannte Inkorporationsmessstelle Jülich/
V-M	Betrieblicher Strahlenschutz
V-BC	
DIN	Deutsches Institut für Normung e. V. (German national standard)
EN	Europäische Norm (European standard)
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization (Internationale Organisation für Normung)

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