

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-11068-03-01 according to DIN EN ISO/IEC 17025:2005

Period of validity: 13.02.2018 to 06.12.2021

Date of issue: 13.02.2018

Holder of certificate:

Karlsruher Institut für Technologie (KIT)

Körperschaft des öffentlichen Rechts

Sicherheit und Umwelt (SUM)

Radioanalytical laboratories - „Physikalisches Messlabor“ and „Chemische Analytik“

Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen

Tests in the fields:

**determination of natural and artificial radionuclides in solid and liquid samples;
analyses of radioactive parameters according to the German Drinking Water Ordinance**

Abbreviations used: see last page

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.

Within the chapter 1 the laboratory is permitted, without being required to inform and obtain prior approval from DAkkS the free choice of standard or equivalent testing methods as well as 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.

1 Determination of natural and artificial radionuclides in solid and liquid samples

parameter	matrix	characteristical testing procedure	indicators / parameter
gamma ray emitting radionuclides	solid and liquid samples	gamma ray spectrometry	activity
beta particle emitting radionuclides	liquid samples and styrofoam smear tests	liquid scintillation counting	activity
alpha particle and beta particle emitting radionuclides	solid and liquid samples	proportional counter	activity
alpha particle and beta particle emitting radionuclides	filter for suspended matter	ABPD-procedure	activity
alpha particle emitting radionuclides	solid and liquid samples	alpha particle spectrometry	activity
beta particle emitting radionuclides	solid and liquid samples	low-level-proportional counter	activity

List of methods:

Standard / in house standard date of issue	Title of the listed standard or in house standard (if necessary specify any deviations / modifications of standard procedures)	test sample / inspection item
MB SUM 001 2016-11	Determination of radionuclides by gamma ray spectrometry	radionuclide
MB SUM 002 2017-02	Determination of the activity of beta particle emitters by liquid scintillation counting	radionuclide
MB SUM 003 2013-12	Determination of alpha and beta gross activity	radionuclide
MB SUM 004 2013-12	Determination of alpha and beta gross activity of artificial radionuclides by ABPD-procedure	radionuclide
MB SUM 005 2013-12	Determination of alpha particle emitters by grid ionization chamber spectrometry	radionuclide
MB SUM 101 2013-12	Determination of americium and curium by activity measurement after chemical sample processing	radionuclide
MB SUM 108 2013-12	Determination of plutonium by activity measurement after chemical sample processing	radionuclide
MB SUM 111 2013-12	Determination of strontium by activity measurement after chemical sample processing	radionuclide
MB SUM 113 2013-12	Determination of uranium by activity measurement after chemical sample processing	radionuclide
DIN 38404-C 13 1988-05	determination of tritium (<i>withdrawn standard</i>)	radionuclide

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DIN 38404-14 1987-06	determination of total alpha activity concentration A_{α} in potable water, ground water and surface water	radionuclide
DIN 38404-C 16 1989-04	determination of radionuclides in drinking water, ground water, surface water and waste water by γ -ray spectrometry <i>(withdrawn standard)</i>	radionuclide
DIN ISO 7503-2 1990-07	Evaluation of surface contamination; tritium surface contamination <i>(withdrawn standard)</i>	radionuclide
DIN ISO 18589-3 2009-02	Measurement of radioactivity in the environment - Soil - Part 3: Measurement of gamma-emitting radionuclides <i>(withdrawn standard)</i>	radionuclide

2 Examinations according to German Drinking Water Ordinance - TrinkwV 2001 -

Sampling

not assigned

ANNEX 1: MICROBIOLOGICAL PARAMETERS

not assigned

ANNEX 2: CHEMICAL PARAMETERS

not assigned

ANNEX 3: INDICATOR PARAMETERS

not assigned

ANNEX 3a: General requirements for drinking water related to radioactive substances

Parameter	Method
Radon-222	H-Rn-222-TWASS-01,1994-12: rapid method for the determination of radon-222 in drinking water
Tritium	DIN EN ISO 9698 2015-12 - Water quality - Determination of tritium activity concentration - Liquid scintillation counting method
Indicative dose (screening methods)	
Gross alpha activity concentration	MB SUM 003, 2013-12 - Determination of alpha and beta gross activity
Gross alpha and gross beta activity concentration	MB SUM 003, 2013-12 - Determination of alpha and beta gross activity
Indicative dose (determination of single nuclide)	
U-238	MB SUM 113, 2013-12 -Determination of uranium by activity measurement after chemical sample processing
U-234	MB SUM 113, 2013-12 -Determination of uranium by activity measurement after chemical sample processing
Ra-226	MB SUM 002, 2017-02 - Determination of the activity of beta particle emitters by liquid scintillation counting
Ra-228	MB SUM 001, 2016-11 - Determination of radionuclides by gamma ray spectrometry
Pb-210	MB SUM 001, 2016-11 - Determination of radionuclides by gamma ray spectrometry
Po-210	MB SUM 116, 2017-08 - Determination of polonium by activity measurement following chemical sample preparation
C-14	MB SUM 002, 2017-02 - Determination of the activity of beta particle emitters by liquid scintillation counting
Sr-90	MB SUM 111, 2013-12 - Determination of strontium by activity measurement following chemical sample preparation

Parameter	Method
Pu-239/Pu-240	MB SUM 108, 2013-12 - Determination of plutonium by activity measurement following chemical sample preparation
Am-241	MB SUM 001, 2016-11 - Determination of radionuclides by gamma ray spectrometry
Co-60	MB SUM 001, 2016-11 - Determination of radionuclides by gamma ray spectrometry
Cs-134	MB SUM 001, 2016-11 - Determination of radionuclides by gamma ray spectrometry
Cs-137	MB SUM 001, 2016-11 - Determination of radionuclides by gamma ray spectrometry
I-131	MB SUM 001, 2016-11 - Determination of radionuclides by gamma ray spectrometry

(* according TrinkwV Annex 3a part III)

Accreditation does not replace the recognition and/or approval procedures of the competent authority according to § 15, Item 4 TrinkwV.

Abbreviations used:

DIN	Deutsches Institut für Normung e.V. (German institute for standardization e. V.)
EN	European norm
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
MB SUM	Documented method - in house standard of the SUM laboratories