

Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-PL-19281-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 19.10.2023

Date of issue: 19.10.2023

Holder of accreditation certificate:

**European Commission, Directorate-General Joint Research Centre,
Directorate G Nuclear Safety and Security, Unit G.II.8 Nuclear Safeguards and
Security, Analytical Service
Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen**

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 confirm generally with the principles of DIN EN ISO 9001.

Tests in the fields:

physical, physico-chemical and chemical analysis in radioactive and not radioactive matrices in solid or liquid states and in swipe samples

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 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>.

Physical, physico-chemical and chemical analysis in radioactive and not radioactive matrices in solid or liquid states and in swipe samples

1 Preparation of samples and reference solutions for physico-chemical analysis of elements and compounds by dissolution, dilution, separation using ion exchange, vacuum deposition, and spiking*

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| IMS-JRC.G-C1.1-WIN-0007 v7.1 2023-01 | Dissolution and dilution of uranium oxides and fluorides prior to analysis |
| IMS-JRC.G-C1.1-WIN-0018 v5.0 2022-08 | Separation of U and Pu from fission products prior to MS measurement |
| IMS-JRC.G-C1.1-WIN-0030 v6.0 2022-01 | Preparation of SIMS samples using vacuum deposition for Analysis of Environmental U Particles by SIMS |
| IMS-JRC.G-C1.1-WIN-0022 v6.1 2022-12 | Dissolution and dilution of plutonium oxides prior to Analysis |
| IMS-JRC.G-C1.1-WIN-0017 v.4.0 2022-01 | Preparation of standards and spikes – Ampoules sealing by laser |
| IMS-JRC.G-C1.1-WIN-0050 v.2.0 2022-01 | Spiking procedure for Isotope Dilution Mass Spectrometry measurement |
| IMS-JRC.G-C1.1-WIN-0051 v.2.1 2022-05 | REE separation from U solutions for ICP MS analysis |

2 Determinations of indices using mass spectrometry *

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| IMS-JRC.G-C1.1-WIN-0011 v2.1 2022-01 | Determination of Uranium Isotopic Content by Thermal Ionisation Mass Spectrometry using the Modified Total Evaporation Technique (MTE) |
| IMS-JRC.G-C1.1-WIN-0023 v4.0 2022-01 | Uranium particle analysis by LG-SIMS |

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| IMS-JRC.G-C1.1-WIN-0021 v6.1 2022-01 | Determination of Uranium and Plutonium Isotopic Content and Concentration in Nitric Acid Solutions by Thermal Ionization Mass Spectrometry using the Total Evaporation Technique |
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3 Determinations of indices using ICP-mass spectrometry *

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| IMS-JRC.G-C1.1-WIN-0088 v.2.0 2023-01 | Single element analysis at high precision by ICP -MS |
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| WI0411/S5/R1 2013-11 | Isotopic composition of single elements by ICP-MS |
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| IMS-JRC.G-C1.1-WIN-0028 v2.0 2023-01 | Determination of impurities in uranium bearing materials by ICP-MS |
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2 Density measurement on liquid samples using oscillation-type density meters

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| IMS-JRC.G-C1.1-WIN-0045 v.7.1 2023-01 | Density Measurements of Solutions |
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3 Radiometric analyses of indices *

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| IMS-JRC.G-C1.1-WIN-0010 v3.1 2021-11 | Measurement of U isotope abundance by High Resolution Gamma Spectroscopy |
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| IMS-JRC.G-C1.1-WIN-0012 v2.0 2023-01 | Measuring Pu Concentration in MOX pellets by the combined neutron-gamma counter |
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| IMS-JRC.G-C1.1-WIN-0015 v2.1 2022-11 | Calorimetric measurements for plutonium and/or americium mass content determination |
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| IMS-JRC.G-C1.1-WIN-0016 v3.0 2020-05 | Preparation of AGS waste water sample for HRGS & ICPMS, and measurement of pH, solid matter and $^{238}\text{Pu}/(^{239}+^{240})\text{Pu}$ by alpha spectrometry |
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| IMS-JRC.G-C1.1-WIN-0019 v4.0 2022-07 | Measurement of $^{238}\text{Pu}/(^{239}+^{240})\text{Pu}$ ratio using Alpha Spectrometry |
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| IMS-JRC.G-C1.1-WIN-0029 v4.0 2021-06 | Identification of radionuclides and activities in waste water samples by HRGS |
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| IMS-JRC.G-C1.1-WIN-0044 v5.1 2023-01 | Determination of Uranium concentration and ^{235}U Enrichment using COMPUCEA |
| IMS-JRC.G-C1.1-WIN-0054 v4.0 2020-06 | Measurement of U and Pu Concentrations in Solution by Hybrid K-Edge/XRF Densitometry |
| IMS-JRC.G-C1.1-WIN-0052 v4.1 2021-11 | Measurement of Pu Element Isotope Abundances and Am-241 to Pu weight ratio by High Resolution Gamma Spectroscopy |

Abbreviations used:

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| DIN | Deutsches Institut für Normung e.V. – German institute for standardization |
| EN | Europäische Norm – European Standard |
| IEC | International Electrotechnical Commission |
| ISO | International Organization for Standardisation |
| IMS-JRC.G-C1.1-WIN-XXXX | Work instruction of European Commission, , Unit G.II.8 Nuclear Safeguards and Security, Analytical Service |
| WI | Work instruction of European Commission, Unit G.II.8 Nuclear Safeguards and Security, Analytical Service |