

Accreditation scope

Name of the accredited subject: **WERT s.r.o.**

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Laboratory for Activity Measurements

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Laboratory with a fixed accreditation scope.

Item	Object of testing		Used method		Other specifications (Area, uncertainty, purpose, modification/validation, opinions/interpretations, etc.)
	Subject / Matrix / Environment	Property / Parameter / Indicator / Analyte	Principle / Sort / Type	Identification	
1.	Aerosol filters, liquid and solid samples	Aktivita ²³³ U, ²³⁴ U, ²³⁵ U, ²³⁶ U, ²³⁸ U, ²³⁸ Pu, ^{239,240} Pu, ²²⁹ Th, ²³⁰ Th, ²⁴¹ Am, ²⁴² Cm, ^{243,244} Cm	PIPS ¹	PP-01-A Z ⁷	U ⁶
2.		Gross Alpha Activity, ²⁴¹ Pu	LSC ³	PP-02-B1 Z ⁸	
3.		Activity of ⁹⁰ Sr	LSC ³	PP-03-B2 Z ⁹	
4.		Gross Beta Activity	PIPS ²	PP-04-B3 Z ¹⁰	
5.		Activity of ³ H	LSC ³	PP-05-B4 Z ¹¹	
6.		Activity of ¹⁴ C		PP-06-B5 Z ¹²	
7.		Activity of ⁶³ Ni		PP-08-B6 Z ¹⁴	
8.		Beta activity of ³⁶ Cl, ⁴¹ Ca, ⁷⁹ Se, ⁹³ Zr, ¹⁰⁷ Pd, ¹⁴⁷ Pm, ¹⁵¹ Sm, ²⁰⁴ Tl	HPGE ⁵	PP-07-G Z ¹³	
	Gamma Activity of Radionuclides	LEGE ⁴			
	Low energy gamma activity of radionuclides ⁵⁵ Fe, ⁵⁹ Ni, ⁹³ Mo, ^{93m} Nb, ¹²⁹ I				

PIPS¹ – measurement using alpha spectrometry (Passivated Implanted Planar Silicon detector)PIPS² – measurement of gross alpha/beta count rate (Passivated Implanted Planar Silicon detector)LSC³ – measurement using LSC system (Liquid Scintillation Counting)LEGE⁴ – measurement using detection system with semiconductor detector (Low Energy Germanium detector)HPGE⁵ – measurement using detection system with semiconductor detector (High-Purity Germanium detector)U⁶ – Test results are introduced with expanded standard uncertainties with coverage factor k=2Z⁷ – EPA methods EPA 402-R-12-009, EPA 402-R-18-002, EPA 3550B, EPA 3551A, EPA 3552
Eichrom Methods ACW03, ACW04, ACW11, ACW16Z⁸ – EPA methods EPA 402-R-12-009, EPA 402-R-18-002, EPA 3550B, EPA 3551A, EPA 3552
Eichrom Methods SRW01, DOE Methods RP 500, RP 501, RP 520, STN 75 7612Z⁹ – Eichrom Methods H3W02, DOE Methods RP 580Z¹⁰ – Atomic Energy of Canada MethodsZ¹¹ – EPA methods EPA 402-R-12-009, EPA 402-R-18-002, EPA 3550B, EPA 3551A, EPA 3552
Eichrom Methods NIW01, DOE Methods RP300Z¹² – EPA methods EPA 402-R-12-009, EPA 402-R-18-002, EPA 3550B, EPA 3551A, EPA 3552
Eichrom Methods TCS01, TCW01, HASL-300 TC-02-RCZ¹³ – EPA methods EPA 402-R-12-009, EPA 402-R-18-002, EPA 3550B, EPA 3551A, EPA 3552
Eichrom Methods NI W01, RI010, FEW01, DOE Methods RP230, RP330Z¹⁴ – EPA methods EPA 402-R-12-009, EPA 402-R-18-002, EPA 3550B, EPA 3551A, EPA 3552
DOE Methods RP530, ASTM D7282-14,

Triskem method TKI-CL-V1.4, L.Erdey: Gravimetric analysis, 1965

L'Annunziata, M.F.: Handbook of radioactivity analysis. 1st. edition, Academic Press, California USA, 1998



Review of used standard procedures:

- ACW03 Americium, Plutonium, and Uranium in Water, ver. 2.1, 2005
ACW04 Americium in Water, ver. 0.2, 2003
ACW11 Gross alpha radioactivity May 2014
ACW16 Americium, Neptunium, Plutonium, Thorium, Curium and Uranium in water, January 2019
SRW01 Strontium-89,90 in Water, ver. 1.4, 2003
RP 500 Purification of Sr in water before Sr-89, 90 measurement, revision 2, 1995
RP 501 Determination of total radioactive Sr in high level samples – ver. 1, revision 2, 1995
RP 520 Determination of Sr-90 in soil, water and filter samples, revision 2, 1995
RP 710 Method for Gross Alpha and Beta Activity Determination, 1997
H3W02 Tritium in Water, rev.1.1, 2014
RP 580 Water distillation from soil and aqueous matrices using a distillation system for H-3 determination, revision 2, 1995
- Lehto J, Hou X: Chemistry and Analysis of Radionuclides: Laboratory Techniques and Methodology, Wiley-VCH, Verlag&Co. KGaA, Weinheim, 2011
- NIW01 Nickel 63/59 in Water, rev.1.3, 2014
RP300 Ni-59/63 determination in environmental samples, rev. 2, 1995
TCS01 Tc-99 in Soil, ver. 1.8, 2002
TCW01 Tc-99 in Water, ver. 1.6, 2002
TC-02-RC Tc-99 in water - TEVA Resin, 28th edition
RI 010 Gamma ray spectrometry, rev. 2, 1995
FEW01 Iron-55 in Water, rev.1.1, 2014
RP230 Iodine-129 analysis in aqueous solutions, 1995
RP330 Niobium-93m, 94 analysis, 1994
RP530 Determination of Selenium-79 in aqueous samples, 1997
D7282-14 Standard Practice for Set-up, Calibration, and Quality Control of Instruments Used for Radioactivity Measurements, ASTM, 2014
- TKI-CL-V1.4 Determination of Cl-36 and/or I-129, 2013
- Erdey L.: Gravimetric analysis, international series of monographs in analytical chemistry, Vol. 7, Pergamon press, 1965
- MJ198 Martin, J.P. Determination of Promethium-147 and Samarium-151 Using Extraction Chromatography, 1998
- L'Annunziata, M.F.: Handbook of radioactivity analysis. 1st. edition, Academic Press, California USA, 1998
- EPA 402-R-12-009 Rapid method for acid digestion, 2012
EPA 402-R-18-002 Sodium hydroxide fusion, 2018
EPA 3550B Ultrasonic extraction, 1996
EPA 3551A Microwave assisted acid digestion of sediments, sludges, soils and oils, 2007
EPA 3552 Microwave assisted acid digestion of siliceous and organically based matrices, 1996

