

Príloha k rozhodnutiu č. 090/8685/2020/2 a k Osvedčeniu o akreditácii č. S-144 zo dňa 21.10.2020.

Príloha je neoddeliteľnou súčasťou
uvedeného osvedčenia

Rozsah akreditácie

Názov akreditovaného subjektu: **WERT s.r.o.**
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Laboratórium s fixným rozsahom akreditácie.

Položka	Objekt skúšky		Zavedená metóda		Ostatné špecifikácie (rozsah, neistota, účel, modifikácia/validácia, názory/interpretácie, atď.)
	Predmet / Matrica / Prostredie	Vlastnosť / Parameter / Ukazovateľ / Analyt	Princíp / Druh / Typ	Označenie	
1.	Aerosolové filtre, kvapalné a pevné vzorky	Aktivita ^{233}U , ^{234}U , ^{235}U , ^{236}U , ^{238}U , ^{238}Pu , $^{239,240}\text{Pu}$, ^{229}Th , ^{230}Th , ^{241}Am , ^{242}Cm , $^{243,244}\text{Cm}$	PIPS ¹	PP-01-A Z^7	U^6
2.		Sumárna alfa aktivita, ^{241}Pu	LSC ³		
3.		Aktivita ^{90}Sr	LSC ³	PP-02-B1 Z^8	
4.		Sumárna beta aktivita	PIPS ²	PP-03-B2 Z^9	
5.		Aktivita ^3H	LSC ³	PP-04-B3 Z^{10}	
6.		Aktivita ^{14}C		PP-05-B4 Z^{11}	
7.		Aktivita ^{63}Ni		PP-06-B5 Z^{12}	
8.		Aktivita ^{99}Tc		PP-08-B6 Z^{14}	
		Aktivita beta ^{36}Cl , ^{41}Ca , ^{79}Se , ^{93}Zr , ^{107}Pd , ^{147}Pm , ^{151}Sm , ^{204}Tl	HPGE ⁵		
		Aktivita gama rádionuklidov	LEGE ⁴	PP-07-G Z^{13}	
		Aktivita nízko energetických gama rádionuklidov ^{55}Fe , ^{59}Ni , ^{93}Mo , ^{93m}Nb , ^{129}I			

PIPS¹ – meranie pomocou alfaspektrometrie (Passivated Implanted Planar Silicon detector)

PIPS² – meranie sumárnej alfa/beta početnosti (Passivated Implanted Planar Silicon detector)

LSC³ – meranie pomocou meracieho systému LSC (liquid Scintillation Counting)

LEGE⁴ – meranie pomocou meracieho systému s polovodičovým detektorom (Low Energy Germanium detector)

HPGE⁵ – meranie pomocou meracieho systému s polovodičovým detektorom (High Purity Germanium detector)

U⁶ – Výsledky skúšok sú uvádzané s rozšírenou neistotou merania s koeficientom pokrytie k = 2.

Z⁷ – EPA methods EPA 402-R-12-009, EPA 402-R-18-002, EPA 3550B, EPA 3551A, EPA 3552 Eichrom Methods ACW03, ACW04, ACW11, ACW16

Z⁸ – 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 7612

Z⁹ – Eichrom Methods H3W02, DOE Methods RP 580

Z¹⁰ – Atomic Energy of Canada Methods

Z¹¹ – EPA methods EPA 402-R-12-009, EPA 402-R-18-002, EPA 3550B, EPA 3551A, EPA 3552 Eichrom Methods NIW01, DOE Methods RP300

Z¹² – 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-RC

Z¹³ – 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, RP330



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- Z¹⁴ – 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

Prehľad použitých normovaných postupov:

- 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
 The determination of Pm-147 and Sm-151 using extraction chromatography, 2018
 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

