

CERTIFICATE OF ACCREDITATION

No. K-071

dated 22.08.2023

The Slovak National Accreditation Service issues a Certificate of Accreditation to an accredited body pursuant to Section 26 par.6 of Act No. 53/2023 Coll. on Accreditation of Conformity Assessment Bodies (hereinafter referred to as the "Accreditation Act").

EKO-TERM SERVIS s.r.o.

Napájadlá 11/2743, 040 12 Košice

IČO: 31 695 671

Organizational unit performing the activity of the Accredited Body:

Calibration laboratory

Workplace of the Accredited Body:

Napájadlá 11/2743, 040 12 Košice

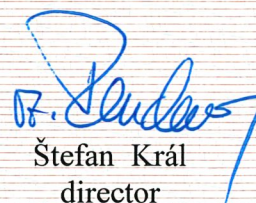
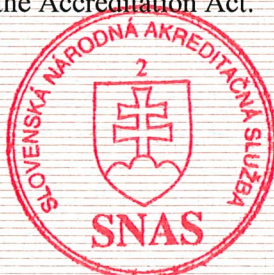
Identification number of the Accredited Body: 226/K-071**Area of accreditation:** Calibration laboratory

The calibration laboratory demonstrated its competence to perform the accredited activity fulfilling the accreditation requirements of **ISO/IEC 17025: 2017** when performing calibration of thermometers and humidity meters, calibration of stationary and mobile automatic emission monitoring systems and to express opinions and interpretation of results of calibrations; to perform the calibration of measurement of the analysers are eligible, which are part of the automated measuring systems for emissions of pollutants from stationary sources of pollution in ambient air and waste gas gauges related reference variables within the accreditation scope delineated in the Annex of this Certificate of Accreditation. The Annex shall form an integral part of the Certificate of Accreditation.

Number and date of issue of the accreditation decision: No. 226/10805/2023/1 dated 01.08.2023.**Validity of the accreditation decision:**

The accreditation decision No. 226/10805/2023/1 dated 01.08.2023 is valid from 12.10.2023 to 12.10.2028.

The validity of this Accreditation Certificate expires upon the expiry of the accreditation decision, the decision on withdrawal of the accreditation pursuant to Section 31 or the expiry of the accreditation pursuant to Section 32 of the Accreditation Act.


Štefan Král
director

Scope of Accreditation

Accredited body: EKO-TERM SERVIS s.r.o.
Napájadlá 11, 040 12 Košice

Organizational unit performing the activity of the accredited body:
Calibration laboratory

Place of performance of the accredited body:
Napájadlá 11, 040 12 Košice

Identification number of the accredited body: 226/K-071

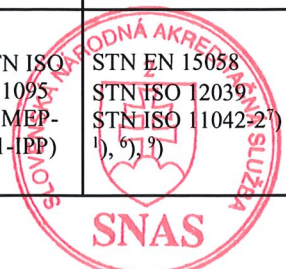
Laboratory with fixed scope

Item	Type of gauge, measuring instrument	calibrated/ measuring value	Measuring range	Expanded uncertainty $U^{(1)}$ ($k=2$)	Implemented methods		Other specifications	
					Type/Principle	Marking		
1	AMS-E analyser							
1.1	of carbon monoxide (CO)	mass concentration	(2,5 až 125 000) mg/m ³	2,5 %	direct comparison with certified calibration gas/ calibration gas divider ⁴⁾	STN ISO 11095 (SMEP- 21-IPP)	STN EN 15058 STN ISO 12039 STN ISO 11042-2 ⁷⁾ 1), 2), 6), 8)	
1.2	of oxygen (O ₂)	volume concentration	(0,01 až 25) % ⁵⁾	2,5 %			STN EN 14789 STN ISO 12039 STN ISO 11042-2 ⁷⁾ 1), 2), 6), 8)	
1.3	of sulphur dioxide (SO ₂)	mass concentration	(6 až 15 000) mg/m ³	2,5 %			STN ISO 7935 STN ISO 11042-2 ⁷⁾ 1), 2), 6), 8)	
1.4	of nitric oxide (NO) expressed as NO ₂	mass concentration	(1,5 až 7 000) mg/m ³	2,5 %			STN EN 14792 STN ISO 10849 STN ISO 11042-2 ⁷⁾ 1), 2), 6), 8)	
	of nitrogen dioxide (NO ₂)		(2 až 1100) mg/m ³	3 %				
1.5	of organic substances in the form of gases and vapours, expressed as total organic carbon (TOC)	mass concentration	(1,5 až 500 000) mg/m ³	2,5 %				STN EN 12619 1), 2), 6), 8)
1.6	of fluorine and its gaseous compounds (HF)	mass concentration	(1 až 500) mg/m ³	5 %				1), 2), 3), 6), 8)
1.7	of gaseous inorganic chlorine compounds (HCl)	mass concentration	(1 až 500) mg/m ³	5 %				1), 2), 3), 6), 8)
1.8	of organic substances containing reduced sulfur (TRS), expressed as hydrogen sulphide (H ₂ S)	mass concentration	(1 až 1 000) mg/m ³	3 %				1), 2), 3), 6), 8)
1.9	ammonia and its gaseous compounds (NH ₃)	mass concentration	(1 až 1 000) mg/m ³	3 %	1), 2), 3), 6), 8)			

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Item	Type of gauge, measuring instrument	calibrated/ measuring value	Measuring range	Expanded uncertainty $U^{(1)}$ ($k=2$)	Implemented methods		Other specifications
					Type/Principle	Marking	
2.1	Measuring instruments for measuring particulate matter (PM) installed in AMS-E	mass concentration	(0,5 až 6,4) mg/m ³ (6,5 až 19,9) mg/m ³ (20 až 1 000) mg/m ³	0,6· c_{TZL} + 0,2 mg/m ³ 0,13· c_{TZL} + 3,2 mg/m ³ 29 %	direct comparison with standard reference manual gravimetric method	STN EN 13284-1 (SMEP-08-IPP) (SMEP-21-IPP)	STN EN 13284-2 STN ISO 10155 STN EN ISO 16911-2 STN ISO 11042-2 ⁷⁾ 1), 2), 6), 8)
		mass concentration	(20 až 1 000) mg/m ³	29 %			STN ISO 9096 1), 6), 8)
2.2	Measuring instruments for measuring Hg installed in AMS-E	mass concentration	(0,00003 až 1,000) mg/m ³	36 %	direct comparison with standard reference manual method	STN EN 13211 (SMEP-07-IPP) (SMEP-08-IPP) (SMEP-21-IPP)	1), 2), 3), 6), 8)
3.1	Gauges measuring velocity of exhaust gas flow/volumetric flow of waste gas installed in the AMS-E	gas flow rate	(3 až 5) m/s (5,1 až 10) m/s (10,1 až 50) m/s	9 % 7 % 5 %	direct comparison with standard reference manual method of measuring differential pressure with a velocity probe	STN ISO 10780 ¹⁰⁾ (SMEP-04-IPP) (SMEP-21-IPP)	STN ISO 14164 STN ISO 11042-2 ⁷⁾ 1), 2), 6), 8)
3.2		wolume gas flow	(0,3 až 10) m ³ /s (11 až 60) m ³ /s (61 až 400) m ³ /s	9,1 % 7,1 % 5 %	direct comparison with the result of the measurement of pipe cross-section and exhaust gas flow rate		
3.3		gas flow rate	(3 až 5) m/s (5,1 až 10) m/s (10,1 až 50) m/s	9 % 7 % 5 %	direct comparison with standard reference manual method of measuring differential pressure with a velocity probe		
3.4		wolume gas flow	(0,3 až 10) m ³ /s (11 až 60) m ³ /s (61 až 400) m ³ /s	9,1 % 7,1 % 5 %	direct comparison with the result of the measurement of pipe cross-section and exhaust gas flow rate		
3.5	Moisture gauges of exhaust gases installed in the AMS-E	volume concentration	(0,5 až 10) % ⁵⁾ (10,1 až 25) % ⁵⁾ (25,1 až 50) % ⁵⁾	9 % 7 % 5 %	direct comparison with the measurement result by condensation – adsorption or adsorption method	STN EN 14790 (SMEP-04-IPP) (SMEP-21-IPP)	STN EN 15267-3 RdSchr d. BMU IG 1 2-45053/5 1), 2), 3), 6), 8)
4	AMS/EMS analyzátor						
4.1	of carbon monoxide (CO)	mass concentration	(2,5 až 125 000) mg/m ³	2,5 %	direct comparison with certified calibration gas/ calibration gas divider ⁴⁾	STN ISO 11095 (SMEP-21-IPP)	STN EN 15058 STN ISO 12039 STN ISO 11042-2 ⁷⁾ 1), 6), 9)



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					Type/Principle	Marking	
4.2	of carbon dioxide (CO ₂)	volume concentration	(0,1 až 30) % ⁵⁾	2,5 %	direct comparison with certified calibration gas/ calibration gas divider ⁴⁾	STN ISO 11095 (SMEP-21-IPP)	STN ISO 12039 STN ISO 14385-1,2 1), 6), 9), 13)
4.3	of oxygen (O ₂)	volume concentration	(0,01 až 25) % ⁵⁾	2,5 %			STN EN 14789 STN ISO 12039 EPA CTM 030 STN ISO 11042-27) 1), 6), 9)
4.4	of sulphur dioxide (SO ₂)	mass concentration	(6 až 15 000) mg/m ³	2,5 %			STN ISO 7935 STN ISO 11042-27) 1), 6), 9)
4.5	of nitric oxide (NO) expressed as NO ₂	mass concentration	(1,5 až 7 000) mg/m ³	2,5 %			STN EN 14792 STN ISO 10849 EPA CTM 030 STN ISO 11042-27) 1), 6), 9)
4.6	of nitrogen dioxide (NO ₂)	mass concentration	(2 až 1100) mg/m ³	3 %			STN EN ISO 21258 STN ISO 14385-1,2 1), 6), 9), 13)
4.7	of nitrogen dioxide (N ₂ O)	mass concentration	(4 až 10 000) mg/m ³	3 %			STN EN 12619 1), 6), 9), 12)
4.8	of organic substances in the form of gases and vapours, expressed as total organic carbon (TOC)	mass concentration	(1,5 až 500 000) mg/m ³	2,5 %			1), 6), 9)
4.9	of fluorine and its gaseous compounds (HF)	mass concentration	(1 až 500) mg/m ³	5 %			1), 6), 9)
4.10	of gaseous inorganic chlorine compounds (HCl)	mass concentration	(1 až 500) mg/m ³	5 %			1), 6), 9)
4.11	of organic substances containing reduced sulfur (TRS), expressed as hydrogen sulphide (H ₂ S)	mass concentration	(1 až 1 000) mg/m ³	3 %			1), 6), 9)
4.12	ammonia and its gaseous compounds (NH ₃)	mass concentration	(1 až 1 000) mg/m ³	3 %			1), 6), 9)
4.13	of hydrogen cyanide (HCN)	mass concentration	(1 až 1 000) mg/m ³	3 %			1), 6), 9)
4.14	methane (CH ₄)	mass concentration	(1,5 až 85 000) mg/m ³	2,5 %			STN P CEN TS 17337 1), 6), 9), 13)
4.15	propane (C ₃ H ₈)	mass concentration	(1,5 až 150 000) mg/m ³	2,5 %			STN P CEN TS 17337 1), 6), 9)
4.16	formaldehyde	mass concentration	(1 až 100) mg/m ³	3 %			STN P CEN TS 17337 1), 6), 9)



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					Type/Principle	Marking	
4.17	acetaldehyde	mass concentration	(1 až 100) mg/m ³	3 %	direct comparison with calibration gas ¹⁵⁾ / calibration gas divider ⁴⁾	STN ISO 11095 (SMEP-21-IPP)	STN P CEN TS 17337 ^{1), 6), 9)}
5	Gauges measuring humidity						
5.1	Electronic gauges measuring humidity and humidity	humidity	(30 až 90) % relativ humidity	2 % r. v.	direct comparison with standard PRT	KP 7.2.1/02/08/N *1) (SMEP-22-IPP)	Execution of the activity at the laboratory ⁶⁾
5.2	Humidity sensor	humidity	(30 až 90) % relativ humidity	2 % r. v.	direct comparison with standard PRT	KP 7.2.1/03/09/N*2) (SMEP-22-IPP)	Execution of the activity at the laboratory ⁶⁾
6	Gauges measuring temperature						
6.1	glass thermometers	temperature	(-40 až -20) °C (-20 až 35) °C (35 až 250) °C ¹⁴⁾	0,8 °C 0,6 °C 0,5 °C	direct comparison with standard PRT	STN 99 3141 (SMEP-23-IPP)	Execution of the activity at the laboratory ⁶⁾
6.2	Direct pointing thermometers with external temperature sensor	temperature	(-40 až -20) °C (-20 až 35) °C (35 až 250) °C (250 až 400) °C (400 až 650) °C	0,8 °C 0,6 °C 0,5 °C 0,5 °C 0,62 °C	direct comparison with standard PRT	STN 60 751 (SMEP-23-IPP)	Execution of the activity at the laboratory ⁶⁾
6.3	Thermometers with internal temperature sensor and data loggers	temperature	(-40 až -20) °C (-20 až 120) °C (120 až 150) °C (150 až 180) °C	0,8 °C 0,7 °C 1,0 °C 1,5 °C	direct comparison with standard PRT	STN 60 751 (SMEP-23-IPP)	Execution of the activity at the laboratory ⁶⁾
6.4	Infrared thermometers	temperature	(35 až 260) °C (260 až 390) °C (390 až 485) °C (485 až 500) °C	1,4 °C 1,5 °C 1,6 °C 1,7 °C	direct comparison with standard calibration equipment	KP 3.2.3/01.14 *3) (SMEP-24-IPP)	Execution of the activity at the laboratory ⁶⁾
6.5	Thermovision cameras	temperature	(35 až 260) °C (260 až 390) °C (390 až 485) °C (485 až 500) °C	1,4 °C 1,5 °C 1,6 °C 1,7 °C	direct comparison with standard calibration equipment	KP 3.2.3/02/13*4) (SMEP-24-IPP)	Execution of the activity at the laboratory ⁶⁾

NOTES:

- 1) Opinions and interpretations.
- 2) Sphere of applications – environmental protection, subject area of authorized calibration of measuring analyser, which are part of the automated measurement systems (AMS-E) of pollutant emissions from stationary sources of pollution in ambient air and related instruments and reference quantities of waste gases under Section 20 (1a1) of the Act. No. 137/2010 Coll. On air, as amended later
- 3) Specific calibration requirements are applied according to approval to install the AMS-E, approved documentation or an approved alternative methodology of the relevant continuous measurement
- 4) External calibration of the gas separation station .
- 5) Volumetric fraction in percent.
- 6) The value of the measuring ranges listed above are fixed.
- 7) STN ISO 11042-2 applies for gas turbines.
- 8) Execution of the activity at the customer's. (AMS-E)
- 9) Execution of the activity at the laboratory or at the customer's (EMS/AMS).

record number: 10805/280574



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- 10) For gases with approximately the same density as air.
- 11) Expanded measurement uncertainty – uncertainty characteristic of the given measurement range, which is achievable under standard conditions prescribed in the relevant methodology, expressed as expanded uncertainty with a coverage factor $k=2$ at 95 % probability, expressed in % of the value, unless otherwise specified.
- 12) Possibility to express calibration result as C_3H_8 , CH_4 based on customers request
- 13) Valid also for AMS-G
- 14) Valid to temperature $180^\circ - 250^\circ C$ with partial immersion
- 15) The suitability of the reference material demonstrated in accordance with PL 13.

cTZL The result of measuring mass concentration of particulate matter.

People capable of expressing opinions and interpretations

Name and surname ,degree	Capacity to express opinions and interpretations - -accreditation scope item number
Juraj Běl, Ing.	1 to 4
Martin Chovanec, Ing.	1 to 4
Ignác Kožej, Ing.	1 to 4
Tomáš Kuskulič, Ing., PhD.	1 to 4
Jaroslav Smolej, Ing.	1 to 4
Miloš Varga, Ing.	1 to 4

