

**CERTIFICATE
OF ACCREDITATION****No. K-071**

**The Slovak National Accreditation Service based on the decision
No. 226/5446/2015/1 dated 02.02.2015 certifies that**

EKO-TERM SERVIS s.r.o.**Calibration laboratory**

Napájadlá 11/2743, 040 12 Košice

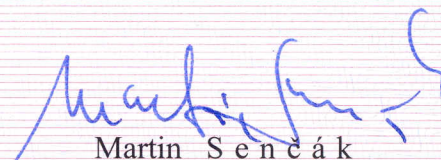
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is competent to carry out the calibration of stationary and mobile automatic emission monitoring systems and to express opinions and interpretation of the results of calibrations; to perform the calibration of measurement of the analyzers are eligible, 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 to this certificate. The Annex is an integral part of Certificate of Accreditation.

*The laboratory gives evidence of competence to perform the accredited activity impartially and trustworthily by meeting the requirements of the **ISO/IEC 17025:2005** Standard and **CEN/TS 15675:2007** Standard.*

Accreditation granted on 02.02.2015 is valid until 10.10.2018.

Bratislava 02.02.2015


Martin Senčák
Director

Accreditation scope

Name of the accredited subject: **EKO-TERM SERVIS s r.o.**
Calibration laboratory
Napájadlá 11/2743, 040 12 Košice

Laboratory with fixed scope of accreditation

Item	Type of gauge, measuring instrument	Measuring range	Expanded uncertainty $U^{(1)}$	Implemented methods		Other specifications
				Type/Principle	Marking	
1	AMS-E analyser			direct comparison with certified calibration gas/ divider ⁴⁾	STN ISO 11095 (SMEP-15-IPP)	
1.1	of carbon monoxide (CO)	(2,5 to 125 000) mg/m ³	2.5 %			STN EN 15058 STN ISO 12039 STN ISO 11042-2 ⁷⁾ 1), 2), 3), 6), 8)
1.2	of oxygen (O ₂)	(0,01 to 25) % ⁵⁾	2.5 %			STN EN 14789 STN ISO 12039 STN ISO 11042-2 ⁷⁾ 1), 2), 3), 6), 8)
1.3	of sulphur dioxide (SO ₂)	(6 to 15 000) mg/m ³	2.5 %			STN ISO 7935 STN ISO 11042-2 ⁷⁾ 1), 2), 3), 6), 8)
1.4	of nitric oxide (NO) expressed as NO ₂	(1,5 to 7 000) mg/ m ³	2.5 %			STN EN 14792 STN ISO 10849 STN ISO 11042-2 ⁷⁾ 1), 2), 3), 6), 8)
	of nitrogen dioxide (NO ₂)	(2 to 1100) mg/ m ³	3 %			
1.5	of organic substances in the form of gases and vapours, expressed as total organic carbon (TOC)	(1,5 to 500 000) mg/m ³	2.5 %			STN EN 12619 1), 2), 3), 6), 8)
1.6	of fluorine and its gaseous compounds (HF)	(1 to 500) mg/m ³	5%			1), 2), 3), 6), 8)
1.7	of gaseous inorganic chlorine compounds (HCl)	(1 to 500) mg/m ³	5 %			1), 2), 3), 6), 8)
1.8	of hydrogen sulphide (H ₂ S)	(1 to 1 000) mg/m ³	3 %			1), 2), 3), 6), 8)
1.9	ammonia and its gaseous compounds (NH ₃)	(1 to 1 000) mg/m ³	3%			1), 2), 3), 6), 8)
2	Measuring instruments for measuring particulate matter (PM) installed in AMS-E	(0,5 to 6,4) mg/m ³ (6,5 to 19,9) mg/m ³ (20 to 1 000) mg/m ³ (20 to 1 000) mg/m ³	0.6 $C_{ul} + 0,2$ mg/m ³ 0.13 $C_{ul} + 3,2$ mg/m ³ 29%	direct comparison with standard reference manual gravimetric method	STN EN 13284-1 (SMEP-08-IPP) (SMEP-15-IPP)	STN EN 13284-2 STN ISO 10155 STN EN 16911-2 STN ISO 11042-2 ⁷⁾ 1), 2), 3), 6), 8) STN ISO 9096 1), 2), 3), 6), 8)



Item	Type of gauge, measuring instrument	Measuring range	Expanded uncertainty $U^{(1)}$	Implemented methods		Other specifications
				Type/Principle	Marking	
3.1	Gauges measuring velocity of exhaust gas flow/volumetric flow of waste gas installed in the AMS-E	(3 to 5) m/s (5.1 to 10) m/s (10.1 to 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-15-IPP)	STN ISO 14164 STN ISO 11042-2 ⁽⁷⁾ 1), 2), 3), 6), 8)
3.2		(0.3 to 10) m ³ /s (11 to 60) m ³ /s (61 to 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		(3 to 5) m/s (5.1 to 10) m/s (10,1 to 50) m/s	9% 7% 5%	direct comparison with standard reference manual method of measuring differential pressure with a velocity probe	STN EN ISO 16911-1 (SMEP-04-IPP) (SMEP-15-IPP)	STN ISO 14164 STN ISO 11042-2 ⁽⁷⁾ STN EN ISO 16911- 2 1), 2), 3), 6), 8)
3.4		(0,3 to 10) m ³ /s (11 to 60) m ³ /s (61 to 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	(0,5 to 10)% ⁽⁵⁾ (10.1 to 25) % ⁽⁵⁾ (25.1 to 50) % ⁽⁵⁾	9% 7% 5%	direct comparison with the measurement result by condensation – adsorption or adsorption method	STN EN 14790 (SMEP-04-IPP) (SMEP-15-IPP)	STN EN 15267-3 RdSchr d. BMU IG I 2-45053/5 1), 2), 3), 6), 8)
4	AMS/EMS analyser			direct comparison with certified calibration gas/ calibrated divider ⁽⁴⁾	STN ISO 11095 (SMEP-15-IPP)	
4.1	of carbon monoxide (CO)	(2,5 to 125 000) mg/m ³	2.5%			STN EN 15058 STN ISO 12039 STN ISO 11042-2 ⁽⁷⁾ 1), 6), 9)
4.2	of carbon dioxide (CO ₂)	(0,1 to 30) % ⁽⁵⁾	2.5%			STN ISO 12039 1), 6), 9)
4.3	of oxygen (O ₂)	(0,01 to 25) % ⁽⁵⁾	2.5%			STN EN 14789 STN ISO 12039 EPA CTM 030 STN ISO 11042-2 ⁽⁷⁾ 1), 6), 9)
4.4	of sulphur dioxide (SO ₂)	(6 to 15 000) mg/m ³	2.5%			STN ISO 7935 STN ISO 11042-2 ⁽⁷⁾ 1), 6), 9)
4.5	of nitric oxide (NO) expressed as NO ₂	(1,5 to 7 000) mg/m ³	2.5%			STN EN 14792 STN ISO 10849 EPA CTM 030
4.6	of nitrogen dioxide (NO ₂)	(2 to 1 100) mg/m ³	3%			STN ISO 11042-2 ⁽⁷⁾ 1), 6), 9)
4.7	of nitrous oxide (N ₂ O)	(4 to 10 000) mg/m ³	3%			STN EN ISO 21258 1), 6), 9)



Item	Type of gauge, measuring instrument	Measuring range	Expanded uncertainty $U^{(1)}$ ($k=2$)	Implemented methods		Other specifications
				Type/Principle	Marking	
4.8	organic substances in the form of gases and vapours, expressed as total organic carbon (TOC)	(1,5 to 500 000) mg/m ³	2.5%	direct comparison with certified calibration gas/ calibrated divider ⁴⁾	STN ISO 11095 (SMEP-15-IPP)	STN EN 12619 1), 6), 9)
4.9	fluorine and its gaseous compounds (HF)	(1 to 500) mg/m ³	5%			1), 6), 9)
4.10	of gaseous inorganic chlorine compounds (HCl)	(1 to 500) mg/m ³	5%			1), 6), 9)
4.11	hydrogen sulphide (H ₂ S)	(1 to 1 000) mg/m ³	3%			1), 6), 9)
4.12	ammonia and its gaseous compounds (NH ₃)	(1 to 1 000) mg/m ³	3%			1), 6), 9)
4.13	of hydrogen cyanide HCN	(1 to 1 000) mg/m ³	3%			1), 6), 9)

Notes – Explanations of the table:

- ¹⁾ Opinions and interpretations.
- ²⁾ Sphere of application – environmental protection, subject area of authorized calibration of measuring analysers, 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 by Act no. 318/2012 Coll.
- 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⁾ Internal calibration of separating gas station linked to certified calibration gas and calibrated analyser.
- ⁵⁾ Volumetric fraction in per cents.
- ⁶⁾ The values of the measuring ranges listed above are fixed.
- ⁷⁾ STN ISO 11042-2 applies to 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).
- 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.

c_{TZL} 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

