

CERTIFICATE OF ACCREDITATION

No. S-188

dated 27.09.2023

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:
Testing 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 testing laboratory demonstrated its competence to perform the accredited activity fulfilling the accreditation requirements of **ISO/IEC 17025: 2017** when performing discontinuous measurement of selected ingredients of exhaust gases emitted into atmosphere from stationary air emissions sources, performance characteristics, determine ratio of vapor and gasoline system of second grade of recuperation at gasoline service stations, sampling of exhaust gases, solid crisp and liquid materials and to express opinions and interpretation of the results 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. 226/10806/2023/2 dated 07.09.2023.

Validity of the accreditation decision:

The accreditation decision No. 226/10806/2023/2 dated 07.09.2023 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:

Testing laboratory

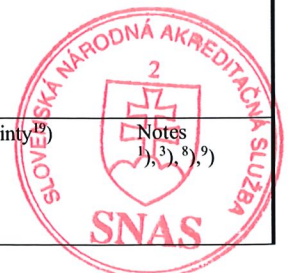
Place of performance of the accredited body:

Napájadlá 11, 040 12 Košice

Identification number of the accredited body: 226/S-188

Laboratory with fixed scope

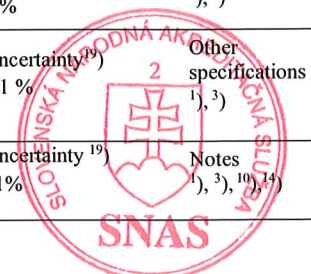
item	Test subject		Implemented method		Other specifications (range, uncertainty, notes)		
	Subject / Matrix / Environment	Property / Parameter / Variable / Analyt	Principle / Class/ Type	Marking			
1	Waste gas ²⁾	particulate matter (PM)	isokinetic gravimetric method	STN EN 13284-1 (SMEP-08-IPP)	Range (0,5 až 6,4) mg/m ³ (6,5 až 19,9) mg/m ³ (20 až 1000) mg/m ³	Uncertainty ¹⁹⁾ 0,6·c _{TZL} +0,2 mg/m ³ 0,13·c _{TZL} +3,2 mg/m ³ 29 %	Notes 1), 3), 4), 5), 11)
				STN ISO 9096	Range (20 až 1000) mg/m ³	Uncertainty ¹⁹⁾ 29 %	Notes 1)
2	Waste gas ²⁾	fraction of particulate matter PM _{2,5} and PM ₁₀	gravimetric method	STN EN ISO 23210 (SMEP-08-IPP)	Range (0,5 až 6,4) mg/m ³ (6,5 až 19,9) mg/m ³ (20 až 40) mg/m ³	Uncertainty ¹⁹⁾ 0,6·c _{PM} +0,2 mg/m ³ 0,13·c _{PM} +3,2mg/m ³ 29 %	Notes 1), 4), 16)
3	Waste gas ²⁾	darkness of smoke Bacharach degree	photometry	STN ISO 11042-1 čl. 7.8 (SMEP -16-IPP)	Range (0až 9) stupeň	Uncertainty ¹⁹⁾ 1 stupeň	Notes 1), 3), 15)
4	Waste gas ²⁾	sulphur dioxide (SO ₂)	NDIR	STN ISO 7935 STN P CEN/TS 17021 (SMEP-01-IPP)	Range (5 až 30) mg/m ³ (30,1 až 60) mg/m ³ (60,1 až 200) mg/m ³ (201 až 600) mg/m ³ (601 to 15 000) mg/m ³	Uncertainty ¹⁹⁾ 17 % 12 % 10 % 8 % 6 %	Notes 1), 3), 6), 7), 9)
5	Waste gas ²⁾	Nitrogen oxides – nitric oxide and nitrogen dioxide, expressed as nitrogen dioxide (NO _x)	chemi- luminescence	STN EN 14792 (SMEP-01-IPP)	Range (4 až 20) mg/m ³ (20,1 až 60) mg/m ³ (61 až 200)mg/m ³ (201 až 5000) mg/m ³	Uncertainty ¹⁹⁾ 16 % 10 % 8 % 6 %	Notes 1), 3), 6), 9)
			NDIR	STN ISO 10849 (SMEP-01-IPP)	Range (4 až 20) mg/m ³ (20,1 až 60) mg/m ³ (61 až 200)mg/m ³ (201 až 5 000) mg/m ³	Uncertainty ¹⁹⁾ 16 % 10 % 8 % 6 %	Notes 1), 3), 6), 7), 9),
			electro-chemically	EPA CTM 030 (SMEP-02-IPP)	Range (6 až 20) mg/m ³ (20,1 až 60) mg/m ³ (60,1 až 200) mg/m ³ (201 až 6 700) mg/m ³	Uncertainty ¹⁹⁾ 16 % 10 % 8 % 6 %	Notes 1), 3), 8), 9)
6	Waste gas ²⁾	Nitrous oxide (N ₂ O)	NDIR	STN EN ISO 21258 (SMEP-01-IPP)	Range (4 až 20) mg/m ³ (20,1 až 60) mg/m ³ (60,1 až 200) mg/m ³ (201 až 10 000) mg/m ³	Uncertainty ¹⁹⁾ 16 % 10 % 8 % 6 %	Notes 1), 9)
7	Waste gas ²⁾	Carbon monoxide (CO)	NDIR	STN EN 15058 (SMEP-01-IPP)	Range (3 až 20) mg/m ³ (20,1 až 60) mg/m ³ (61 až 200) mg/m ³ (0,201 až 25) g/m ³	Uncertainty ¹⁹⁾ 16 % 9 % 7 % 5 %	Notes 1), 3), 6), 9)
			electro-chemically	EPA CTM 030 (SMEP-02-IPP)	Range (3 až 20) mg/m ³ (20,1 až 60) mg/m ³ (61 až 200) mg/m ³ (0,201 až 25) g/m ³	Uncertainty ¹⁹⁾ 16 % 9 % 7 % 5 %	Notes 1), 3), 8), 9)



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item	Test subject		Implemented method		Other specifications (range, uncertainty, notes)		
	Subject / Matrix / Environment	Property / Parameter / Variable / Analyt	Principle / Class/ Type	Marking			
8	Waste gas ²⁾	carbon dioxide (CO ₂)	NDIR	STN ISO 12039 STN P CEN/TS 17405 (SMEP-01-IPP)	Range (0,1 až 19,9) % (20 až 40) %	Uncertainty ¹⁹⁾ 7 % 5 %	Notes 1), 9), 10)
			calculation of the volume fraction of CO ₂ from the volume fraction of O ₂ and CO	EPA CTM 030 (SMEP-02-IPP)	Range (0,5 až 13,9) % (0,5 až 15,9) %	Uncertainty ¹⁹⁾ 8 % 8 %	Notes 1), 9), 10) - gaseous fuels - liquid fuels
			volume concentration of CO ₂ based on elemental analysis of fuel burned	SMEP -10-IM	Range (0,2 až 20) %	Uncertainty ¹⁹⁾ 5 %	Notes 1), 10)
9	Waste gas ²⁾	Oxygen (O ₂)	paramagneti-cally	STN EN 14789 (SMEP-01-IPP)	Range (0,1až 6,0) % obj. (6,1až 25) % obj.	Uncertainty ¹⁹⁾ 7 % 5 %	Notes 1), 3), 6), 9), 10)
			electro-chemically	EPA CTM 030 (SMEP-02-IPP)	Range (0,1až 6,0) % obj. (6,1až 25) % obj.	Uncertainty ¹⁹⁾ 7 % 5 %	Notes 1), 3), 8), 9), 10)
10	Waste gas ²⁾	gaseous organic substances, expressed as total carbon (TOC)	FID	STN EN 12619 (SMEP-06-IPP)	Range (0,5 až 5) mg/m ³ (5,1 až 10) mg/m ³ (10,1 až 60) mg/m ³ (60,1 až 150) mg/m ³ (0,151 až 500) g/m ³	Uncertainty ¹⁹⁾ 31% 16 % 10 % 8% 6%	Notes 1), 3), 6), 9), 12)
11	Waste gas ²⁾	gas flow rate /Δp	measuring of temperature and dynamic pressure with a velocity probe/ calculation	STN ISO 10780 (SMEP-04-IPP)	Range (3 až 5) m/s (5,1 až 10) m/s (10,1 až 50) m/s (5 až 15) Pa (16 až 65) Pa (66 až 2300) Pa	Uncertainty ¹⁹⁾ 9 % 7 % 5 %	Notes 1), 3), 20)
			measuring of temperature dynamic pressure with a velocity probe/ calculation	STN EN ISO 16911-1 (SMEP-04-IPP)	Range (3 až 5) m/s (5,1 až 10) m/s (10,1 až 50) m/s (5 až 15) Pa (16 až 65) Pa (66 až 2300) Pa	Uncertainty ¹⁹⁾ 9 % 7 % 5 %	Notes 1), 3), 13)
			measuring with anemometers	STN EN ISO 16911-1 (SMEP-04-IPP-1)	Range (0,3 až 5) m/s (5,1 až 10) m/s (10,1 až 25) m/s (25,1 až 40) m/s	Uncertainty ¹⁹⁾ 9 % 8% 7% 6%	Notes 1), 3)
12	Waste gas ²⁾	volumetric flow	measuring pipe cross-section and calculation of the waste gas flow rate	STN EN ISO 16911-1 STN ISO 10780 ²⁰⁾ , (SMEP-04-IPP)	Range (0,3 až 10) m ³ /s (11 až 60) m ³ /s (61 až 400) m ³ /s	Uncertainty ¹⁹⁾ 9,1 % 7,1 % 5,2 %	Notes 1), 3)
			calculation based on the fuel composition	STN EN ISO 16911-1 (SMEP-04-IPP)	Range (0,2 až 250) m ³ /s	Uncertainty ¹⁹⁾ 7 %	Notes 1), 3)
13	Waste gas ²⁾	humidity of the gas in the pipeline	gravimetry (adsorption/ condensation/ adsorption)	STN EN 14790 (SMEP-04-IPP)	Range (3 až 250) g/m ³ (0,4 až 25) % ¹⁰⁾	Uncertainty ¹⁹⁾ 11 %	Other specifications 1), 3) 2
		relative humidity of the gas in the pipeline	by electrical capacity and calculation	SMEP-05-IM (RdSchr.d.BMU IG 1 2- 45053/5)	Range (5 až 95) %	Uncertainty ¹⁹⁾ 11%	Notes 1), 3), 10), 14)



item	Test subject		Implemented method		Other specifications (range, uncertainty, notes)		
	Subject / Matrix / Environment	Property / Parameter / Variable / Analyt	Principle / Class/ Type	Marking			
14	Waste gases – gasoline vapours	concentration of petrol vapours in waste gas from the regenerative unit in the terminal	FID	STN EN 12619 (SMEP-06-IPP)	Range (0,5 až 5)mg/m ³ (5,1 až 10)mg/m ³ (10,1 až 60) mg/m ³ (60,1 až 150)mg/m ³ (0,151 až 500)g/m ³	Uncertainty ¹⁹⁾ 31 % 16 % 10 % 8% 6%	Notes ^{1), 3), 9)}
15	Waste gases – gasoline vapours	ratio of vapours and stage II petrol vapour recovery at petrol stations	measurement with the real flow of petrol (wet method A and B)	STN EN 16321-2 (SMEP-19-IPP)	Range (0,1 až 2,5)	Uncertainty ¹⁹⁾ 3%	Notes ^{1), 9), 21)}
16	Stationary sources of pollution ²⁾	individual emission factor	Measurement of the concentration and volumetric flow of waste gas, calculation based on mass flow and the amount of the relational value	STN EN ISO 11771 (SMEP-13-IPP)	Range (0,0001 až 2000) kg/h (0,001 až 10) kg/mj	Uncertainty ¹⁹⁾ 10 % 15 %	Notes ^{1), 16)}
17	Stationary sources of pollution ²⁾	individual mass flow	calculation based on the concentration and volumetric flow	STN EN ISO 11771 (SMEP-13-IPP)	Range (0,0001 až 2000) kg/h	Uncertainty ¹⁹⁾ 10 %	Notes ^{1), 16),}
18	Selected stationary sources of air pollution ²⁾ under Annex no. 7 of the Decree of MoE SR no. 410/2012 Coll.	Limiting emission factor for PM	measurement of the concentration and volumetric flow of waste gas according to standard methodologies calculation of the emission factor based on mass flow and the amount of the relational value	SMEP-13-IM (STN EN ISO 11771)	Range (0,001 až 100) kg/t koku (0,001 až 100) g/t pellets	Uncertainty ¹⁹⁾ 15 %	Notes ^{1), 17)}
limiting emission factor for sulphur oxides: sulphur dioxide, sulphur trioxide and aerosol H ₂ SO ₄ expressed as sulphur dioxide (SO _x)		Range (0,001 až 100) kg/t of produced 100 % H ₂ SO ₄ (0,001 až 100) kg/t of produced TiO ₂			Uncertainty ¹⁹⁾ 15 %	Notes ^{1), 17)}	
limiting emission factor for nitrogen oxides: nitric oxide and nitrogen dioxide, expressed as nitrogen dioxide (NO _x)		Range (0,001 až 100) kg/t of produced HNO ₃			Uncertainty ¹⁹⁾ 15 %	Notes ^{1), 17)}	
limiting emission factor for carbon monoxide (CO)		Range (0,001 až 100) kg/t of liquid steel			Uncertainty 15 %	Notes ^{1), 17)}	
limiting emission factor for organic substances in the form of gases and vapours, expressed as total organic carbon (TOC)		Range (0,001 až 100) kg/t of water vapor			Uncertainty 15 %	Notes ^{1), 17)}	

item	Test subject		Implemented method		Other specifications (range, uncertainty, notes)		
	Subject / Matrix / Environment	Property / Parameter / Variable / Analyt	Principle / Class/ Type	Marking			
18	Selected stationary sources of air pollution ²⁾ under Annex no. 7 of the Decree of MoE SR no. 410/2012 Coll.	limiting emission factor for mercury and its compounds, expressed as Hg	measurement of the concentration and volumetric flow of waste gas according to standard methodologies calculation of the emission factor based on mass flow and the amount of the relational value	SMEP-13-IM (STN EN ISO 11771)	Range (0,001 až 100.) g/t of produced chlorine	Uncertainty 15 %	Notes ^{1), 17)}
		limiting emission factor for fluorine and its gaseous compounds expressed as HF			Range (0,001 až 100) kg/t of aluminium	Uncertainty 15 %	Notes ^{1), 17)}
		limiting emission factor for gaseous ammonia and its compounds, expressed as NH ₃			Range (0,001 až 100) kg/t of produced NH ₃	Uncertainty 15 %	Notes ^{1), 17)}
		limiting emission factor for gaseous inorganic chlorine compounds, expressed as HCl, except phosgene, cyanogen chloride and chlorine oxides			Range (0,001 až 100) kg/t of produced 36 % HCl	Uncertainty 15 %	Notes ^{1), 17)}
		limiting emission factor for the 4 th group of the 1 st subgroup of organic gaseous vapours – emissions in general			Range (0,001 až 100) kg /m ³ of produced boards	Uncertainty 15 %	Notes ^{1), 17)}
19	AMS-E	characteristics tested at installation (QAL2) and annual tests (AST): response time, detection limit, linearity, drift in the zero point, drift in the span point, interference, converter efficiency, losses and leakage along the sampling line in the sample preparation system (leak test), the effect of temperature on the drift of zero value and drift of measurement span, sensitivity to atmospheric pressure, sensitivity to sample flow or sample pressure, the sensitivity to the ambient temperature, sensitivity to voltage repeatability variability, standard deviation, systematic error, overall characteristics of the	tests with certified reference materials/gases, parallel measurements with the standard reference methodology/ reference methodology with other measuring principle than AMS-E	STN EN 14181 TNI CEN/TR 15983 STN EN 15267-4 (SMEP-09-IPP)	Other introduced specific standards under which AMS / EMS are tested: STN EN 15259, STN EN 14956, STN EN 14793, STN ISO 10396 STN EN 15267-3, STN ISO 7935, STN P CEN/TS 17021 STN EN 14792, STN ISO 10849, STN EN 15058, STN EN 12619, STN EN 14884, STN EN 1321 RdSchr. d. BMU IG 12-45053/5 STN ISO 15713, STN EN 1911, STN 83 4712, STN 83 4728 STN EN 13284-1,2, STN EN 14789 STN ISO 12039, STN EN 14790, STN EN ISO 16911-1,2, STN ISO 10155, STN EN ISO 21258, STN ISO 17179, STN ISO 14385-1,2 EPA Method 16 A EPA CTM 033 EPA Method 0040 STN EN ISO 21877 STN P CEN/ TS 17340 STN P CEN /TS 17405	Notes ^{1), 18)}	



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item	Test subject		Implemented method		Other specifications (range, uncertainty, notes)	
	Subject / Matrix / Environment	Property / Parameter / Variable / Analyt	Principle / Class/ Type	Marking		
20	AMS/EMS	characteristics tested at installation (QAL2) and annual tests (AST): response time, detection limit, linearity, drift in the zero point, drift in the span point, interference, converter efficiency, losses and leakage along the sampling line in the sample preparation system (leak test), the effect of temperature on the drift of zero value and drift of measurement span, sensitivity to atmospheric pressure, sensitivity to sample flow or sample pressure, the sensitivity to the ambient temperature, sensitivity to voltage repeatability variability, standard deviation, systematic error, overall characteristics of the	tests with certified reference materials/gases, parallel measurements with the standard reference methodology/reference methodology with other measuring principle than AMS/EMS	STN EN 14181 TNI CEN/TR 15983 STN EN 15267-4 (SMEP-09-IPP)	Other introduced specific standards under which AMS / EMS are tested: STN EN 15259, STN EN 14956, STN EN 14793, STN ISO 10396, STN EN 15267-3, STN ISO 7935, STN P CEN/TS 17021 STN EN 14792, STN ISO 10849, STN EN 15058, STN EN 12619, STN EN 14884, STN EN 1321 RdSchr. d. BMU IG 1 2-45053/5 STN ISO 15713, STN EN 1911, STN 83 4712, STN 83 4728, STN ISO 10155 STN EN 13284-1,2, STN EN 14789 STN ISO 12039, STN EN 14790, STN EN ISO 16911-1,2; STN EN ISO 21258, STN ISO 14385-1,2 STN ISO 17179, EPA Method 16 A EPA CTM 033 EPA Method 0040 STN EN ISO 21877 STN P CEN/ TS 17340 STN P CEN/TS 17405	Other specification s 1)
21	Waste gas ²⁾	sulphur dioxide (SO ₂) Nitrogen oxides (NO) nitrogen dioxide (NO ₂) gas humidity in the pipeline formaldehyde acetaldehyde fluorine and its gaseous compounds expressed as HF gaseous inorganic chlorine compounds as HCl ammonia and its gaseous compounds as NH ₃ methane (CH ₄) propane (C ₃ H ₈)	FTIR	STN P CEN/TS 17337 (SMEP-20-IPP)	Range Uncertainty (0 až 71,5) mg/m ³ 14,6 % (0 až 4685,3) mg/m ³ 1,1 % Range Uncertainty (0 až 80,3) mg/m ³ 25 % (0 až 2275,8) mg/m ³ 0,4 % Range Uncertainty (0 až 80,3) mg/m ³ 25 % (0 až 2275,8) mg/m ³ 0,4 % Range Uncertainty (0 až 46,77) % obj. 8,2 % Range Uncertainty (0 až 26,8) mg/m ³ 4,5 % Range Uncertainty (0 až 98,3) mg/m ³ 4,5 % Range Uncertainty (0 až 8,8) mg/m ³ 22,3 % (0 až 49,0) mg/m ³ 22,3 % Range Uncertainty (0 až 8,8) mg/m ³ 22,3 % (0 až 49,0) mg/m ³ 22,3 % Range Uncertainty (0 až 8,1) mg/m ³ 22,3 % (0 až 381,4) mg/m ³ 22,3 % Range Uncertainty (0 až 14,85) mg/m ³ 21,3 % Range Uncertainty (0 až 97,4) mg/m ³ 4,5 % (0 až 3962,6) mg/m ³ 4,5 %	Notes 1), 2)



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Notes and explanation of abbreviations:

- 1) Opinions and interpretations.
- 2) Discontinuous emission measurements according to STN EN 15259.
- 3) Sphere of application – environmental protection, subject area of eligible measurement under Section 20 (1a1) of the Act no.137/2010 Coll. on air, as amended by Act no. 318/2012 Coll., execution of activity at the customer's.
- 4) CTZL, CPM – the result of measuring mass concentration of particulate matter, or fractions of particulate matter.
- 5) STN EN 13284-1 is applied as a standard reference method even in cases where the consent, authorization or documentation of the object of eligible measurement present methodology according to STN ISO 9096, or for gas turbines, a methodology under STN ISO 11042-1 is presented.
- 6) The methodology is applied as a standard reference method even in cases where the consent, authorization or documentation of the object of eligible measurement present methodology according to STN ISO 11042-1 in case of gas turbines.
- 7) Requirements for field measurement and check/validity of the result are applied according to the latest edition of STN EN14792.
- 8) Combustion of natural gas, diesel, liquefied hydrocarbon fuels and liquid fuels with a sulphur content of 1 % by weight and lower in combustion plants, including gas turbines and reciprocating engines with a total nominal thermal input below 50 MW.
- 9) Sampling is an integral part of measurement process.
- 10) Volumetric fraction expressed in per cents.
- 11) Sphere of application – environmental protection, subject area of eligible measurement under Section 20 (1a5) of the Act no. 137/2010 Coll. on air, as amended by Act no. 318/2012 Coll., execution of activity at the customer's.
- 12) STN EN 12619 is applied as a standard reference method even in cases where the consent, authorization or documentation of the object of eligible measurement present methodology according to STN EN 13526.
- 13) STN EN 16911-1 is applied as a standard reference method even in cases where the consent, authorization or documentation of the object of eligible measurement present methodology according to STN ISO 9096.
- 14) Alternative custom modified non-standard methodology processed from a professional source according to Section 6(4a and 7c) of the Ministry of Environment Decree no. 60/2011 Coll.
- 15) STN ISO 11042-1 applies to gas turbines.
- 16) Sphere of application – environmental protection, subject area of eligible measurement under Section 20 (1a3) of the Act no.137/2010 Coll. on air, as amended by Act no. 318/2012 Coll., execution of activity at the customer's.
- 17) Sphere of application – environmental protection, subject area of eligible measurement under Section 20 (1a2) of the Act no.137/2010 Coll. on air, as amended by Act no. 318/2012 Coll., execution of activity at the customer's.
- 18) Sphere of application – environmental protection, subject area of eligible testing of automated measurement systems of pollutant emissions in ambient air and related reference and state values of waste gases under Section 20 (1c1) of the Act no. 137/2010 Coll. on air, as amended by Act no. 318/2012 Coll., execution of activity at the customer's.
- 19) 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.
- 20) For gases with approximately the same density as air.
- 21) Sphere of application – environmental protection, subject area of eligible measurement under Section 20 (1a5) of the Act no. 137/2010 Coll. on air, as amended by Act no. 318/2012 Coll., execution of activity at the customer's.

AMS-E – automated measuring system of pollutant emissions from stationary sources of pollution in ambient air

AMS/EMS – automated measuring system/emission measurement system

NDIR – non-dispersive infra-red spectrometry/detection

FID – flame ionization detector

IU - The unit of measure according to a type of relational variable (m3, kg, t).

QAL2 – quality assurance of installation after installing AMS

AST – annual (periodic) inspection of AMS

Persons legitimate of expressing opinions and interpretations

Name and surname, degree	capacity to express opinions and interpretations - accreditation scope item number.
Ing. Juraj Běl	1 to 21
Ing. Miroslav Boroš	1 to 18, 21
Ing. Attila Farkas	1 to 18, 21
Ing. Martin Chovanec	1 to 21
Ing. Ignác Kozej	1 to 21
Ing. Tomáš Kuskulič, PhD.	1 to 21
Ing. Gabriel Molnár	1 to 18, 21
Ing. Jaroslav Smolej	1 to 21
Ing. Miloš Varga	1 to 21



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Sampling

Item	Object			Method		Other specifications
	Subject	Property	Sampling site	Type/ Principle	Marking	
1	Waste gas ²⁾	particulate matter (PM)	Pipeline/ stationary source of pollution	gravimetric method - isokinetic sampling	STN EN 13284-1 (SMEP-08-IPP)	Other specifications : 1), 3), 4), 5)
2	Waste gas ²⁾	fraction of particulate matter PM ₂₅ and PM ₁₀	Pipeline/ stationary source of pollution	gravimetric sampling at a constant flow, impaction method	STN EN ISO 23210 (SMEP-08-IPP)	Other specifications : 1), 4)
3	Waste gas ²⁾	darkness of smoke Bacharach degree	Pipeline/ stationary source of pollution	collection onto a filter	STN ISO 11042-1 čl. 7.8 ⁷⁾ (SMEP -16-IPP)	Other specifications : 1), 3)
4	Waste gas ²⁾	humidity of the gas in the pipeline	Pipeline/ stationary source of pollution	gravimetry (adsorption / condensation- adsorption)	STN EN 14790 (SMEP-04-IPP)	Other specifications : 1), 3), 4)
5	Waste gas ²⁾	fluorides expressed as F ⁻ in solid state	Pipeline/ stationary source of pollution	collection onto a filter	Met. EPA 13A,B, STN EN 13284-1 STN P CEN/TS 17340 (SMEP-07-IPP SMEP-08-IPP)	Other specifications : 1), 3), 4), 5), 6)
6	Waste gas ²⁾	cyanides expressed as CN ⁻ in the solid state	Pipeline/ stationary source of pollution	collection onto a filter	EPA CTM 033 STN EN 13284-1 (SMEP-07-IPP SMEP-08-IPP)	Other specifications : 1), 3), 4), 5), 6)
7	Waste gas ²⁾	chlorides expressed as Cl in the solid state	Pipeline/ stationary source of pollution	collection onto a filter	STN EN 13284-1 (SMEP-07-IPP SMEP-08-IPP)	Other specifications : 1), 6)
8	Waste gas ²⁾	metals, semimetals and their compounds:	Pipeline/ stationary source of pollution	odber na filter a paralelný odber do sorpčných roztokov	EPA Met.29 EPA Method: Candidate conditional Method ZZ EPA Method X (SMEP-07-IPP)	Poznámky : 1), 3), 4), 5), 6)
		selenium and compounds expressed as Se				
		tellurium and compounds expressed as Te				
		beryllium and compounds expressed as Be				
		tin and compounds expressed as Sn				
		zinc and compounds expressed as Zn				
		cobalt and compounds expressed as Co				
		nickel and compounds expressed as Ni				
		thallium compounds expressed as Tl				
		cadmium and compounds expressed as Cd				
		arsenic and compounds expressed as As				
		antimony and compounds expressed as Sb				
		chromium and compounds expressed as Cr (except Cr ^{VI})				
		manganese and compounds expressed as Mn				
		copper and compounds expressed as Cu				
lead and compounds expressed as Pb						
vanadium and compounds expressed as V						



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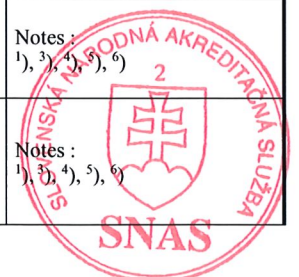
Item	Object			Method		Other specifications
	Subject	Property	Sampling site	Type/ Principle	Marking	
8	Waste gas ²⁾	ortuť a zlúčeniny vyjadrené ako Hg	Pipeline/ stationary source of pollution	sampling on the solid sorbent,	STN P CEN/TS 17286 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)
		Cr ^{VI} compounds expressed as Cr (except barium chromate and lead chromate)		sampling onto the filter and parallel sampling in the sorption solutions	STN EN 13211 EPA Met.29 EPA Method: Candidate conditional Method ZZ EPA Method X (SMEP-07-IPP)	
		other metals, semimetals and their compounds: Ag, Al, B, Bi, Ca, Fe, K, Li, Mg, Mo, Na, P, S, Si, Sr, Ti		sampling onto the filter and parallel sampling in the sorption solutions	EPA Met.0061 EPA Method: Candidate conditional Method ZZ EPA Method X (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)
				sampling onto the filter, sampling in the sorption solution	STN EN 13211 EPA Met.29 STN EN 14385 EPA Method: Candidate conditional Method ZZ EPA Method X (SMEP-07-IPP)	Notes : 1), 6)
9	Waste gas ²⁾	gaseous inorganic substances: fluorine and its gaseous compounds expressed as HF	Pipeline/ stationary source of pollution	odber do sorpčných roztokov	STN P CEN/ TS 17340 STN ISO 15713 STN 83 4752 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)
		sulphide			STN 83 4712 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)
		ammonia and its gaseous compounds as NH ₃			STN 83 4728 STN EN ISO 21877 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)
		gaseous inorganic chlorine compounds as HCl			STN EN 1911 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)
		chlorine and chlorine oxides expressed as Cl			STN 83 4751 OSHA ID 202 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)
		sulphur oxides (SO _x) - sulphur dioxide, sulphur trioxide and aerosol H ₂ SO ₄ expressed as sulphur dioxide (SO ₂)			STN 83 4711 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)
		sulphur dioxide SO ₂ including the proportion of SO ₃ expressed as sulphur dioxide (SO ₂)			STN EN 14791 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)
		hydrogen cyanide HCN			EPA CTM 033 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)
10	Waste gas ²⁾	organic gases and vapours: acetaldehyde formaldehyde furfural benzaldehyde butylaldehyde glutaraldehyde toluene ethylbenzene tetrachloroethene styrene acetone isopropylbenzene dichloromethane 1,4-dichlorobenzene benzene trichlorethylene tetrachloroethane	Pipeline/ stationary source of pollution	sampling into the sorption solutions	STN P CEN/TS 17638 EPA 0011 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6) 10) Notes : 1), 6)
		sampling on the solid sorbent, sampling bag		STN P CEN/TS 13649 EPA Met.0040 STN EN 13725 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6) 2)	



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Item	Object			Method		Other specifications	
	Subject	Property	Sampling site	Type/ Principle	Marking		
10	Waste gas ²⁾	tetrachlorethylene	Pipeline/ stationary source of pollution	sampling on the solid sorbent, sampling bag	STN P CEN/TS 13649 EPA Met.0040 STN EN 13725 (SMEP-07-IPP)	Notes : 1), 2), 3), 4), 5), 6)	
		nitrobenzene					
		trichloromethane					
		nitrotoluene					
		3-ethyltoluene					
		chloromethane					
		carbon tetrachloride					
		trimethylbenzene					
		chlorobenzene					
		xylene					
		2-butanone					
		1,2-dibromoethane					
		ethylene chlorohydrine					
		epichlorohydrin					
		ethylene oxide					
		propylene oxide					
		alkenes (olefins)					
		alkanes (paraffins) except methane					
		vinyl chloride					
		propylene chlorohydrin					
		acrylonitrile					
		1,3-butadiene					
		carbon disulphide					
		1,2 dichloroethane					
		1,1 dichloroethylene					
		chloroethane					
		1,1 dichloroethane					
		1,2-dichloroethylene					
		4-hydroxy-4-methyl-2- pentanone					
		4-methyl-2-pentanone					
		2-chloropropane					
		methyl methacrylate					
		ethyl acrylate					
		methyl acrylate					
		methyl acetate					
		vinyl acetate					
		butyl acetate					
		ethyl acetate					
		dibutyl ether					
		diethyl ether					
diphenyl ether							
diisopropyl ether							
pyridine							
cyclohexanone							
Methane (CH ₄)		sampling bag	EPA Met.0040 (SMEP-07-IPP)	Notes : 1), 2), 3)			
cresol		sampling on the solid sorbent	STN P CEN/TS 13649 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)			
phenol							
nitrocresols							
nitrophenols							
ethanolamine							
alkyl alcohols							
cyclic alcohols							
toluidine							
dimethylamine							
diethylamine							
aniline							
mercaptans, organic compounds containing reduced sulphur					sampling into the sorption solutions	EPA met.16A (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)
formic acid					sampling in the solution, sampling on the solid sorbent	VDI 2457 B1.4 STN P CEN/TS 13649 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)
acetic acid							



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Item	Object			Method		Other specifications
	Subject	Property	Sampling site	Type/ Principle	Marking	
11	Waste gas ²⁾	polyaromatic hydrocarbons (PAHs):	Pipeline/ stationary source of pollution	isokinetic sampling on the filter and sampling in the gas state on a solid sorbent	STN ISO 11338 STN EN 13284-1 (SMEP-07-IPP)	Notes : 1), 3), 4), 5), 6)
		benzo(a)pyrene				
		dibenz[a,h]anthracene				
		naphthalene				
		2-naphthylamine				
12	Waste gas ²⁾	polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs)	Pipeline/ stationary source of pollution	isokinetic sampling on the filter and sampling in the gas state on a solid sorbent	STN EN 1948-1,4 (SMEP-17-IPP)	Notes : 1), 3), 4), 5), 6)
		polychlorinated biphenyls (PCBs)				
13	Solid and bulk materials	organic substances, expressed as total carbon (TOC) - content in the residual cinders and lower ash from the incineration of waste (fuel)	The waste incineration plant	manual sampling	STN EN 13137 (SMEP-03-IPP)	Notes: 1), 8), 9)
		combustible share in the residual cinders and lower ashes expressed as loss on ignition of the combustion of waste (fuel)				
		metals in unburned particles, sieve analysis, physico-chemical properties of the fuel (unburned particles), melting temperature of ash (potassium content)	Heaps and equipment		STN 01 5111 STN 01 5110	Notes: 1), 9)
14	Solid and liquid materials from the production of polyvinyl- chloride	vinyl chloride (residual content in the product, homopolymers, copolymers, micropolymers, polymer emulsions)	Production of polyvinyl chloride	manual sampling	SMEP-03-IPP	Notes: 1), 8), 9)
15	Liquid materials	Physical and chemical characteristics	Tanks, transport pipelines	Point and decanted samples	STN 65 0512 (SMEP-03-IPP)	Notes: 1), 9)

Notes – Table explanation:

- 1) NI – opinions and interpretations.
- 2) Discontinuous emission measurements according to STN EN 15259.
- 3) Sphere of application – environmental protection, subject area of eligible measurement under Section 20 (1a1) of the Act no. 137/2010 Coll. on air, as amended by Act no. 318/2012 Coll.
- 4) Sphere of application – environmental protection, subject area of eligible measurement under Section 20 (1a3) of the Act no. 137/2010 Coll. on air, as amended by Act no. 318/2012 Coll.
- 5) Sphere of application – environmental protection, subject area of eligible measurement under Section 20 (1a5) of the Act no. 137/2010 Coll. on air, as amended by Act no. 318/2012 Coll.
- 6) Calculation of the mass concentration of the analyte in the waste gas or raw gas based on the amount of analyte in the sample determined by a testing accredited laboratory: EKOLAB s. r. o., Košice, Company ID number 31 684 165.
- 7) STN ISO 11042-1 applies to gas turbines.
- 8) Sphere of application – environmental protection, subject area of eligible measurement under Section 20 (1a5) of the Act no. 137/2010 Coll. on air, as amended by Act no. 318/2012 Coll., execution of activity at the customer's analytical determination is carried out by accredited laboratory EKOLAB, s. r. o., Košice, Company ID number 31 684 165.
- 10) The STN P CEN/TS 17638 applies only to formaldehyde sampling

