CERTIFICATE OF ANALYSIS

Work Order	: **PR2556615**	Issue Date	: 26-May-2025
Customer	: **ALS Laboratory Services doo**	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Milica Bozovic	Contact	: Client Service
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Project	: Dioxin emission analyses	Page	: 1 of 3
Order number	: ----	Date Samples Received	: 07-May-2025
		Quote number	: PR2023ALSLA-RS0001 (CZ-251-23-0421)
Site	: Serbia	Date of test	: 13-May-2025 - 26-May-2025
Sampled by	: customer	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory. The laboratory is not responsible for the sample data supplied by the customer and their impact on the validity of the result.
The laboratory declares that the test results relate only to the listed samples. If "ALS" is not included in the test report in the "Sampled by" section, then the results refer to the sample as received.
samples PR2556615/001-002 - A-DFHMS02, A-PCBHMS03 - the results are reaculculated and expressed in ng/Nm3 based on data provided by the client

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories	*Position*
Lubomír Pokorný	Country Manager

L 1163

The company is certified according to ČSN EN ISO 14001 (Environmental management systems) and ČSN ISO 45001 (Occupational health and safety management systems)

Analytical Results

Sub-Matrix: **EMISSIONS**				Client sample ID	13 (18.12.24 - 15.01.25)		14 (27.01.25 - 28.02.25)		----	
				Laboratory sample ID	PR2556615001		PR2556615002		----	
				Client sampling date / time	[07-May-2025]		[07-May-2025]		----	
Parameter	*Method*	*LOR*	*Unit*	**Result**	**MU**	**Result**	**MU**	**Result**	**MU**
PCDDs and PCDFs (Dioxins and Furans)									
2378-TCDD	A-DFHMS02	-	ng/m³	<0.000011	----	**0.00017**	----	**----**	----
12378-PeCDD	A-DFHMS02	-	ng/m³	<0.000012	----	**0.0014**	----	**----**	----
123478-HxCDD	A-DFHMS02	-	ng/m³	**0.00027**	----	**0.00061**	----	**----**	----
123678-HxCDD	A-DFHMS02	-	ng/m³	**0.00049**	----	**0.0016**	----	**----**	----
123789-HxCDD	A-DFHMS02	-	ng/m³	**0.00029**	----	**0.00097**	----	**----**	----
1234678-HpCDD	A-DFHMS02	-	ng/m³	**0.0033**	----	**0.0095**	----	**----**	----
OCDD	A-DFHMS02	-	ng/m³	**0.0032**	----	**0.008**	----	**----**	----
2378-TCDF	A-DFHMS02	-	ng/m³	**0.00017**	----	**0.0012**	----	**----**	----
12378-PeCDF	A-DFHMS02	-	ng/m³	**0.0002**	----	**0.001**	----	**----**	----
23478-PeCDF	A-DFHMS02	-	ng/m³	**0.00029**	----	**0.0019**	----	**----**	----
123478-HxCDF	A-DFHMS02	-	ng/m³	**0.00029**	----	**0.0013**	----	**----**	----
123678-HxCDF	A-DFHMS02	-	ng/m³	**0.00029**	----	**0.0013**	----	**----**	----
123789-HxCDF	A-DFHMS02	-	ng/m³	<0.000047	----	**0.00027**	----	**----**	----
234678-HxCDF	A-DFHMS02	-	ng/m³	**0.00034**	----	**0.0013**	----	**----**	----
1234678-HpCDF	A-DFHMS02	-	ng/m³	**0.00057**	----	**0.0044**	----	**----**	----
1234789-HpCDF	A-DFHMS02	-	ng/m³	**0.0001**	----	**0.00034**	----	**----**	----
OCDF	A-DFHMS02	-	ng/m³	**0.00013**	----	**0.0014**	----	**----**	----
TEQ-Lowerbound	A-DFHMS02	-	ng/m³	**0.00035**	----	**0.0031**	----	**----**	----
TEQ-Upperbound	A-DFHMS02	-	ng/m³	**0.00037**	----	**0.0031**	----	**----**	----
PCB dioxin-like HRMS									
PCB 77	A-PCBHMS03	-	ng/m³	**0.00180**	± 30.0%	**0.00410**	± 30.0%	**----**	----
PCB 81	A-PCBHMS03	-	ng/m³	**0.00076**	± 30.0%	**0.00140**	± 30.0%	**----**	----
PCB 105	A-PCBHMS03	-	ng/m³	<0.0023	----	**0.00450**	± 30.0%	**----**	----
PCB 114	A-PCBHMS03	-	ng/m³	**0.00030**	± 30.0%	**0.00058**	± 30.0%	**----**	----
PCB 118	A-PCBHMS03	-	ng/m³	<0.0031	----	**0.00630**	± 30.0%	**----**	----
PCB 123	A-PCBHMS03	-	ng/m³	**0.00026**	± 30.0%	**0.00043**	± 30.0%	**----**	----
PCB 126	A-PCBHMS03	-	ng/m³	**0.00091**	± 30.0%	**0.00220**	± 30.0%	**----**	----
PCB 156	A-PCBHMS03	-	ng/m³	<0.00095	----	**0.00140**	± 30.0%	**----**	----
PCB 157	A-PCBHMS03	-	ng/m³	**0.00057**	± 30.0%	**0.00085**	± 30.0%	**----**	----
PCB 167	A-PCBHMS03	-	ng/m³	<0.00044	----	**0.00083**	± 30.0%	**----**	----
PCB 169	A-PCBHMS03	-	ng/m³	**0.00061**	± 30.0%	**0.00077**	± 30.0%	**----**	----
PCB 170	A-PCBHMS03	-	ng/m³	<0.0019	----	<0.0023	----	**----**	----
PCB 180	A-PCBHMS03	-	ng/m³	<0.0034	----	<0.004	----	**----**	----
PCB 189	A-PCBHMS03	-	ng/m³	**0.00050**	± 30.0%	**0.00064**	± 30.0%	**----**	----
TEQ (dl-PCB) - lower	A-PCBHMS03	-	ng/m³	**0.00011**	----	**0.00025**	----	**----**	----
TEQ (dl-PCB) - upper	A-PCBHMS03	-	ng/m³	**0.00011**	----	**0.00025**	----	**----**	----

When sampling date is not provided by the client, the laboratory determines it for procedural reasons, then it is equal to the date of receipt of the sample to the laboratory and is displayed in brackets. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.
Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

Brief Method Summaries

Analytical Methods	*Method Descriptions*
Location of test performance: V Raji 906 Pardubice - Zelene Predmesti Czech Republic 530 02	
A-DFHMS02	CZ_SOP_D06_06_174 (CSN EN 1948-2, CSN EN 1948-3): Determination of polychlorinated dibenzo-p-dioxins and dibenzofuranes in emission samples by isotope dilution method using HRGC-HRMS and calculation of TEQ parameters from measured values. The samples were stored in laboratory in the darkness and under temperature <4°C. Actual LOQ are noticed in the attachment.

Analytical Methods	*Method Descriptions*
A-PCBHMS03	CZ_SOP_D06_06_179 (ČSN EN 1948-4, US EPA Method TO-4A) Determination of PCB by isotope dilution method using HRGC-HRMS and calculation of PCB sums from measured values. The samples were stored in laboratory in the darkness and under temperature <4°C. Actual LOQ are noticed in the annex.

Preparation Methods	*Method Descriptions*
Location of test performance: V Raji 906 Pardubice - Zelene Predmesti Czech Republic 530 02	
* A-PP-XAD	Preparation of cleaned XAD-2 sorbent dose for emission sampling

The symbol "*" for the method indicates a test outside the scope of accreditation of the laboratory or subcontractor. If the UNICO-SUB code is stated in the method table, this only informs that the tests have been performed by a subcontractor and the results are given in an annex to the test report, including information on test accreditation. If the lab used for matrix outside the scope of accreditation or non-standard sample matrix procedure specified in the accredited method and issues non-accredited results, this fact is stated on the title page of this protocol in the section "Notes". If the test report shows the results of subcontracting, the place of performance of the test is outside the laboratories of ALS Czech Republic, s.r.o.
The method for calculating of the summation parameters is available on request in the customer service.

The end of the certificate of analysis

Attachment no. 1 to the Certificate of Analysis for work order PR2556615

Sample: 13 (18.12.24 - 15.01.25)

Measurement results PCDD/Fs:

Sample:	13 (18.12.24 - 15.01.25)	Final extract [µl]:	60
		Injection volume [µl]:	4
Sampled volume [m³]:	378.63	Acquisition date [d.m.y h:m]:	22.5.25 15:14

2,3,7,8-PCDD/F	Result [ng/m³]	Limit of Detection [ng/m³]	Limit of Quantification [ng/m³]	[1]WHO-TEFs	WHO-TEQ Upperbound [ng/m³]
2,3,7,8-TCDD	< 0.000011	0.000011	0.000023	1	0.000011
1,2,3,7,8-PeCDD	< 0.000012	0.000012	0.000024	1	0.000012
1,2,3,4,7,8-HxCDD	0.00027	0.000024	0.000048	0.1	0.000027
1,2,3,6,7,8-HxCDD	0.00049	0.000024	0.000048	0.1	0.000049
1,2,3,7,8,9-HxCDD	0.00029	0.000024	0.000048	0.1	0.000029
1,2,3,4,6,7,8-HpCDD	0.0033	0.000058	0.00012	0.01	0.000033
OCDD	0.0032	0.000065	0.00013	0.0003	0.00000097
2,3,7,8-TCDF	0.00017	0.000012	0.000024	0.1	0.000017
1,2,3,7,8-PeCDF	0.0002	0.000013	0.000026	0.03	0.000006
2,3,4,7,8-PeCDF	0.00029	0.000013	0.000026	0.3	0.000086
1,2,3,4,7,8-HxCDF	0.00029	0.000023	0.000047	0.1	0.000029
1,2,3,6,7,8-HxCDF	0.00029	0.000023	0.000047	0.1	0.000029
1,2,3,7,8,9-HxCDF	< 0.000047	0.000023	0.000047	0.1	0.0000047
2,3,4,6,7,8-HxCDF	0.00034	0.000023	0.000047	0.1	0.000034
1,2,3,4,6,7,8-HpCDF	0.00057	0.000036	0.000071	0.01	0.0000057
1,2,3,4,7,8,9-HpCDF	0.0001	0.000036	0.000071	0.01	0.000001
OCDF	0.00013	0.000044	0.000089	0.0003	0.000000039
WHO-TEQ from quantified 2,3,7,8-PCDD/Fs -"Lowerbound"					**0.00035**
WHO-TEQ from 2,3,7,8-PCDD/Fs -„Mediumbound"					0.00036
Maximum possible WHO-TEQ -"Upperbound"					**0.00037**

PCDD	Result [ng/m³]	**PCDF**	Result [ng/m³]
Tetra-CDD	0.017	Tetra-CDF	0.014
Penta-CDD	0.018	Penta-CDF	0.0061
Hexa-CDD	0.015	Hexa-CDF	0.0039
Hepta-CDD	0.0094	Hepta-CDF	0.0011
OCDD	0.0032	OCDF	0.00013

[1]WHO 2005 TEF according to Van den Berg et al: Toxicological Sciences Advance Acces, 7 July 2006)

Limits of quantification are defined as double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% confidence interval.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total WHO-TEQ is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility.

Results marked with "<" are bellow limit of detection or quantification.

"Lowerbound" and "Upperbound" are levels defined in Regulation 2017/644 and EN 1948-4.

"Mediumbound" is levels defined in Regulation 2017/644.

Attachment no. 1 to the Certificate of Analysis for work order PR2556615

Sample: 13 (18.12.24 - 15.01.25)

Standards recovery:

Sample: 13 (18.12.24 - 15.01.25)

Final extract [µl]:	60
Injection volume [µl]:	4
Acquisition date [d.m.y h:m]:	22.5.25 15:14

Extraction standard	Recovery	Acceptable range [%]		Accept. rec. with respect to	
PCDDs	[%]	Basic	Extended	basic range	extended range
13C12 - 2,3,7,8-TCDD	78	50 - 130	30 - 150	YES	-
13C12 - 1,2,3,7,8-PeCDD	56	50 - 130	30 - 150	YES	-
13C12 - 1,2,3,4,7,8-HxCDD	79	50 - 130	30 - 150	YES	-
13C12 - 1,2,3,6,7,8-HxCDD	90	50 - 130	30 - 150	YES	-
13C12 - 1,2,3,4,6,7,8-HpCDD	42	40 - 130	20 - 150	YES	-
13C12 - OCDD	51	40 - 130	20 - 150	YES	-
PCDFs					
13C12 - 2,3,7,8-TCDF	72	50 - 130	30 - 150	YES	-
13C12 - 2,3,4,7,8-PeCDF	66	50 - 130	30 - 150	YES	-
13C12 -1,2,3,4,7,8-HxCDF	73	50 - 130	30 - 150	YES	-
13C12 -1,2,3,6,7,8-HxCDF	84	50 - 130	30 - 150	YES	-
13C12 -2,3,4,6,7,8-HxCDF	86	50 - 130	30 - 150	YES	-
13C12 -1,2,3,4,6,7,8-HpCDF	80	40 - 130	20 - 150	YES	-
13C12 - OCDF	75	40 - 130	20 - 150	YES	-

Sampling standard	Recovery	Acceptable range	Rec. in range?
	[%]	[%]	
13C12-1,2,3,7,8-PeCDF	98	> 50	YES
13C12-1,2,3,7,8,9-HxCDF	82	> 50	YES
13C12-1,2,3,4,7,8,9-HpCDF	87	> 50	YES

Attachment no. 2 to the Certificate of Analysis for work order PR2556615

Sample: 14 (27.01.25 - 28.02.25)

Measurement results PCDD/Fs:

Sample:	14 (27.01.25 - 28.02.25)	Final extract [µl]:	60
		Injection volume [µl]:	4
Sampled volume [m³]:	460.6	Acquisition date [d.m.y h:m]:	22.5.25 16:05

2,3,7,8-PCDD/F	Result [ng/m³]	Limit of Detection [ng/m³]	Limit of Quantification [ng/m³]	[1]WHO-TEFs	WHO-TEQ Upperbound [ng/m³]
2,3,7,8-TCDD	0.00017	0.00001	0.00002	1	0.00017
1,2,3,7,8-PeCDD	0.0014	0.000011	0.000021	1	0.0014
1,2,3,4,7,8-HxCDD	0.00061	0.000017	0.000034	0.1	0.000061
1,2,3,6,7,8-HxCDD	0.0016	0.000017	0.000034	0.1	0.00016
1,2,3,7,8,9-HxCDD	0.00097	0.000017	0.000034	0.1	0.000097
1,2,3,4,6,7,8-HpCDD	0.0095	0.000052	0.0001	0.01	0.000095
OCDD	0.008	0.000071	0.00014	0.0003	0.0000024
2,3,7,8-TCDF	0.0012	0.0000087	0.000017	0.1	0.00012
1,2,3,7,8-PeCDF	0.001	0.00001	0.000021	0.03	0.000031
2,3,4,7,8-PeCDF	0.0019	0.00001	0.000021	0.3	0.00056
1,2,3,4,7,8-HxCDF	0.0013	0.00002	0.00004	0.1	0.00013
1,2,3,6,7,8-HxCDF	0.0013	0.00002	0.00004	0.1	0.00013
1,2,3,7,8,9-HxCDF	0.00027	0.00002	0.00004	0.1	0.000027
2,3,4,6,7,8-HxCDF	0.0013	0.00002	0.00004	0.1	0.00013
1,2,3,4,6,7,8-HpCDF	0.0044	0.000029	0.000058	0.01	0.000044
1,2,3,4,7,8,9-HpCDF	0.00034	0.000029	0.000058	0.01	0.0000034
OCDF	0.0014	0.000048	0.000096	0.0003	0.00000042
WHO-TEQ from quantified 2,3,7,8-PCDD/Fs -"Lowerbound"					**0.0031**
WHO-TEQ from 2,3,7,8-PCDD/Fs -„Mediumbound"					0.0031
Maximum possible WHO-TEQ -"Upperbound"					**0.0031**

PCDD	Result [ng/m³]	**PCDF**	Result [ng/m³]
Tetra-CDD	0.049	Tetra-CDF	0.049
Penta-CDD	0.051	Penta-CDF	0.028
Hexa-CDD	0.038	Hexa-CDF	0.016
Hepta-CDD	0.033	Hepta-CDF	0.0063
OCDD	0.008	OCDF	0.0014

[1]WHO 2005 TEF according to Van den Berg et al: Toxicological Sciences Advance Acces, 7 July 2006)

Limits of quantification are defined as double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% confidence interval.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total WHO-TEQ is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility.

Results marked with "<" are bellow limit of detection or quantification.

"Lowerbound" and "Upperbound" are levels defined in Regulation 2017/644 and EN 1948-4.

"Mediumbound" is levels defined in Regulation 2017/644.

Attachment no. 2 to the Certificate of Analysis for work order PR2556615

Sample: 14 (27.01.25 - 28.02.25)

Standards recovery:

Sample: 14 (27.01.25 - 28.02.25)

Final extract [µl]:	60
Injection volume [µl]:	4
Acquisition date [d.m.y h:m]:	22.5.25 16:05

Extraction standard	Recovery	Acceptable range [%]		Accept. rec. with respect to	
PCDDs	[%]	Basic	Extended	basic range	extended range
13C12 - 2,3,7,8-TCDD	93	50 - 130	30 - 150	YES	-
13C12 - 1,2,3,7,8-PeCDD	71	50 - 130	30 - 150	YES	-
13C12 - 1,2,3,4,7,8-HxCDD	96	50 - 130	30 - 150	YES	-
13C12 - 1,2,3,6,7,8-HxCDD	99	50 - 130	30 - 150	YES	-
13C12 - 1,2,3,4,6,7,8-HpCDD	41	40 - 130	20 - 150	YES	-
13C12 - OCDD	51	40 - 130	20 - 150	YES	-
PCDFs					
13C12 - 2,3,7,8-TCDF	82	50 - 130	30 - 150	YES	-
13C12 - 2,3,4,7,8-PeCDF	86	50 - 130	30 - 150	YES	-
13C12 -1,2,3,4,7,8-HxCDF	79	50 - 130	30 - 150	YES	-
13C12 -1,2,3,6,7,8-HxCDF	73	50 - 130	30 - 150	YES	-
13C12 -2,3,4,6,7,8-HxCDF	69	50 - 130	30 - 150	YES	-
13C12 -1,2,3,4,6,7,8-HpCDF	91	40 - 130	20 - 150	YES	-
13C12 - OCDF	74	40 - 130	20 - 150	YES	-

Sampling standard	Recovery	Acceptable range	Rec. in range?
	[%]	[%]	
13C12-1,2,3,7,8-PeCDF	92	> 50	YES
13C12-1,2,3,7,8,9-HxCDF	97	> 50	YES
13C12-1,2,3,4,7,8,9-HpCDF	51	> 50	YES

Attachment no. 3 to the Certificate of Analysis for work order PR2556615

Sample: 13 (18.12.24 - 15.01.25)

ALS SAMPLE ID: PR2556615/ 001

Measurement results PCBs:

Sample:			13 (18.12.24 - 15.01.25)		
			Final extract [µl]:		250
Sampled volume [Nm3] 378.63			Injection volume [µl]:		4
			Acquisition date [d.m.y]:		23.05.2025
PCBs	Result [ng/m³]	Limit of Detection [ng/m³]	Limit of Quantification [ng/m³]	[1]WHO-TEFs	WHO-TEQ Upperbound [ng/m³]
PCB #77	0.0018	0.000036	0.0012	0.0001	0.00000018
PCB #81	0.00076	0.000032	0.00011	0.0003	0.00000023
PCB #126	0.00091	0.000038	0.00013	0.1	0.000091
PCB #169	0.00061	0.0001	0.00034	0.03	0.000018
PCB #105	< 0.0023	0.000037	0.0023	0.00003	0.00000007
PCB #114	0.0003	0.000032	0.00026	0.00003	9.1E-09
PCB #118	< 0.0031	0.000032	0.0031	0.00003	0.000000094
PCB #123	0.00026	0.00004	0.00013	0.00003	7.7E-09
PCB #156	< 0.00095	0.000079	0.00095	0.00003	0.000000029
PCB #157	0.00057	0.000079	0.00026	0.00003	0.000000017
PCB #167	< 0.00044	0.000036	0.00044	0.00003	0.000000013
PCB #170	< 0.0019	0.000079	0.0019	-	0
PCB #180	< 0.0034	0.000079	0.0034	-	0
PCB #189	0.0005	0.00011	0.00037	0.00003	0.000000015
WHO-TEQ from quantified PCBs -"Lowerbound"					0.00011
WHO-TEQ from PCBs -„Mediumbound"					0.00011
Maximum possible WHO-TEQ -"Upperbound"					**0.00011**

[1]WHO 2005 TEF according to Van den Berg et al: Toxicological Sciences Advance Acces, 7 July 2006

Limits of quantification are defined on the base of blank level.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% confidence interval.

Estimation of uncertainty of each PCB congener is 30% , total WHO-TEQ and PCB6/PCB7 is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility.

Results marked "<" are lower than the limit of detection or quantification.

"Lowerbound" and "Upperbound" are levels defined in Regulation 2017/644 and EN 1948-4.

"Mediumbound" is level defined in Regulation 2017/644.

Sample: 13 (18.12.24 - 15.01.25)		Final extract [µl]:	250
		Injection volume [µl]:	4
		Acquisition date [d.m.y h:m]:	22.5.25 16:48
Sampling standard	Recovery [%]	Acceptable range [%]	Rec. in range?
13C12-2,3,4,4´-tetraCB (60)	94	> 50	YES
13C12-2,3,3´,4,5,5´-hexaCB (159)	98	> 50	YES

Attachment no. 4 to the Certificate of Analysis for work order PR2556615

Sample: 14 (27.01.25 - 28.02.25)

ALS SAMPLE ID: PR2556615/ 002

Measurement results PCBs:

Sample:			14 (27.01.25 - 28.02.25)		
			Final extract [µl]:		250
Sampled volume [Nm3]	460.6		Injection volume [µl]:		4
			Acquisition date [d.m.y]:		24.05.2025
PCBs	Result [ng/m³]	Limit of Detection [ng/m³]	Limit of Quantification [ng/m³]	[1]WHO-TEFs	WHO-TEQ Upperbound [ng/m³]
PCB #77	0.0041	0.000067	0.00095	0.0001	0.00000041
PCB #81	0.0014	0.000062	0.00021	0.0003	0.00000042
PCB #126	0.0022	0.000052	0.00017	0.1	0.00022
PCB #169	0.00077	0.00007	0.00023	0.03	0.000023
PCB #105	0.0045	0.000063	0.0025	0.00003	0.00000013
PCB #114	0.00058	0.000051	0.00021	0.00003	0.000000018
PCB #118	0.0063	0.000053	0.0052	0.00003	0.00000019
PCB #123	0.00043	0.000054	0.00018	0.00003	0.000000013
PCB #156	0.0014	0.000099	0.00078	0.00003	0.000000041
PCB #157	0.00085	0.000095	0.00032	0.00003	0.000000026
PCB #167	0.00083	0.000036	0.00036	0.00003	0.000000025
PCB #170	< 0.0023	0.00007	0.0023	-	0
PCB #180	< 0.004	0.00007	0.004	-	0
PCB #189	0.00064	0.00006	0.0002	0.00003	0.000000019
WHO-TEQ from quantified PCBs -"Lowerbound"					0.00025
WHO-TEQ from PCBs -„Mediumbound"					0.00025
Maximum possible WHO-TEQ -"Upperbound"					**0.00025**

[1]WHO 2005 TEF according to Van den Berg et al: Toxicological Sciences Advance Acces, 7 July 2006

Limits of quantification are defined on the base of blank level.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% confidence interval.

Estimation of uncertainty of each PCB congener is 30% , total WHO-TEQ and PCB6/PCB7 is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility.

Results marked "<" are lower than the limit of detection or quantification.

"Lowerbound" and "Upperbound" are levels defined in Regulation 2017/644 and EN 1948-4.

"Mediumbound" is level defined in Regulation 2017/644.

Sample:	14 (27.01.25 - 28.02.25)	Final extract [µl]:	250
		Injection volume [µl]:	4
		Acquisition date [d.m.y h:m]:	23.5.25 13:41
Sampling standard	Recovery [%]	Acceptable range [%]	Rec. in range?
13C12-2,3,4,4´-tetraCB (60)	96	> 50	YES
13C12-2,3,3´,4,5,5´-hexaCB (159)	96	> 50	YES

Attachment no. 5 to the Certificate of Analysis for work order PR2556615

Sample: 13 (18.12.24 - 15.01.25)

Measurement results PCDD/Fs:

Sample:	13 (18.12.24 - 15.01.25)	Final extract [µl]:	60
		Injection volume [µl]:	4
Sampled volume [m³]:	378.63	Acquisition date [d.m.y h:m]:	22.5.25 15:14

2,3,7,8-PCDD/F	Result [ng/m³]	Limit of Detection [ng/m³]	Limit of Quantification [ng/m³]	[1]I-TEFs	I-TEQ Upperbound [ng/m³]
2,3,7,8-TCDD	< 0.000011	0.000011	0.000023	1	0.000011
1,2,3,7,8-PeCDD	< 0.000012	0.000012	0.000024	0.5	0.0000061
1,2,3,4,7,8-HxCDD	0.00027	0.000024	0.000048	0.1	0.000027
1,2,3,6,7,8-HxCDD	0.00049	0.000024	0.000048	0.1	0.000049
1,2,3,7,8,9-HxCDD	0.00029	0.000024	0.000048	0.1	0.000029
1,2,3,4,6,7,8-HpCDD	0.0033	0.000058	0.00012	0.01	0.000033
OCDD	0.0032	0.000065	0.00013	0.001	0.0000032
2,3,7,8-TCDF	0.00017	0.000012	0.000024	0.1	0.000017
1,2,3,7,8-PeCDF	0.0002	0.000013	0.000026	0.05	0.00001
2,3,4,7,8-PeCDF	0.00029	0.000013	0.000026	0.5	0.00014
1,2,3,4,7,8-HxCDF	0.00029	0.000023	0.000047	0.1	0.000029
1,2,3,6,7,8-HxCDF	0.00029	0.000023	0.000047	0.1	0.000029
1,2,3,7,8,9-HxCDF	< 0.000047	0.000023	0.000047	0.1	0.0000047
2,3,4,6,7,8-HxCDF	0.00034	0.000023	0.000047	0.1	0.000034
1,2,3,4,6,7,8-HpCDF	0.00057	0.000036	0.000071	0.01	0.0000057
1,2,3,4,7,8,9-HpCDF	0.0001	0.000036	0.000071	0.01	0.000001
OCDF	0.00013	0.000044	0.000089	0.001	0.00000013
I-TEQ from quantified 2,3,7,8-PCDD/Fs -"Lowerbound"					**0.00041**
I-TEQ from 2,3,7,8-PCDD/Fs -„Mediumbound"					0.00042
Maximum possible I-TEQ -"Upperbound"					**0.00043**

PCDD	Result [ng/m³]	**PCDF**	Result [ng/m³]
Tetra-CDD	0.017	Tetra-CDF	0.014
Penta-CDD	0.018	Penta-CDF	0.0061
Hexa-CDD	0.015	Hexa-CDF	0.0039
Hepta-CDD	0.0094	Hepta-CDF	0.0011
OCDD	0.0032	OCDF	0.00013

[1]I-TEF according to NATO.

Limits of quantification are defined as double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% confidence interval.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total I-TEQ is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility.

Results marked with "<" are bellow limit of detection or quantification.

"Lowerbound" and "Upperbound" are levels defined in Regulation 2017/644 and EN 1948-4.

"Mediumbound" is levels defined in Regulation 2017/644.

Attachment no. 6 to the Certificate of Analysis for work order PR2556615

Sample: 14 (27.01.25 - 28.02.25)

Measurement results PCDD/Fs:

Sample:	14 (27.01.25 - 28.02.25)	Final extract [µl]:	60
		Injection volume [µl]:	4
Sampled volume [m³]:	460.6	Acquisition date [d.m.y h:m]:	22.5.25 16:05

2,3,7,8-PCDD/F	Result [ng/m³]	Limit of Detection [ng/m³]	Limit of Quantification [ng/m³]	[1]I-TEFs	I-TEQ Upperbound [ng/m³]
2,3,7,8-TCDD	0.00017	0.00001	0.00002	1	0.00017
1,2,3,7,8-PeCDD	0.0014	0.000011	0.000021	0.5	0.00068
1,2,3,4,7,8-HxCDD	0.00061	0.000017	0.000034	0.1	0.000061
1,2,3,6,7,8-HxCDD	0.0016	0.000017	0.000034	0.1	0.00016
1,2,3,7,8,9-HxCDD	0.00097	0.000017	0.000034	0.1	0.000097
1,2,3,4,6,7,8-HpCDD	0.0095	0.000052	0.0001	0.01	0.000095
OCDD	0.008	0.000071	0.00014	0.001	0.000008
2,3,7,8-TCDF	0.0012	0.0000087	0.000017	0.1	0.00012
1,2,3,7,8-PeCDF	0.001	0.00001	0.000021	0.05	0.000051
2,3,4,7,8-PeCDF	0.0019	0.00001	0.000021	0.5	0.00094
1,2,3,4,7,8-HxCDF	0.0013	0.00002	0.00004	0.1	0.00013
1,2,3,6,7,8-HxCDF	0.0013	0.00002	0.00004	0.1	0.00013
1,2,3,7,8,9-HxCDF	0.00027	0.00002	0.00004	0.1	0.000027
2,3,4,6,7,8-HxCDF	0.0013	0.00002	0.00004	0.1	0.00013
1,2,3,4,6,7,8-HpCDF	0.0044	0.000029	0.000058	0.01	0.000044
1,2,3,4,7,8,9-HpCDF	0.00034	0.000029	0.000058	0.01	0.0000034
OCDF	0.0014	0.000048	0.000096	0.001	0.0000014
I-TEQ from quantified 2,3,7,8-PCDD/Fs -"Lowerbound"					**0.0028**
I-TEQ from 2,3,7,8-PCDD/Fs -„Mediumbound"					0.0028
Maximum possible I-TEQ -"Upperbound"					**0.0028**

PCDD	Result [ng/m³]	**PCDF**	Result [ng/m³]
Tetra-CDD	0.049	Tetra-CDF	0.049
Penta-CDD	0.051	Penta-CDF	0.028
Hexa-CDD	0.038	Hexa-CDF	0.016
Hepta-CDD	0.033	Hepta-CDF	0.0063
OCDD	0.008	OCDF	0.0014

[1]I-TEF according to NATO.

Limits of quantification are defined as double of the detection limits.

The limit of detection is defined as the amount of analyte producing a signal with S/N≥3.

The value of the detection limit is mentioned as the actual value at the acquisition date.

Measurement uncertainty is expressed as a double (k=2) relative standard deviation (RSD%), and corresponds to 95% confidence interval.

Estimation of uncertainty of each 2,3,7,8-PCDD/F congener is 30% and total I-TEQ is 20%.

These values were ensured by analyses of certified reference material under conditions of internal reproducibility.

Results marked with "<" are bellow limit of detection or quantification.

"Lowerbound" and "Upperbound" are levels defined in Regulation 2017/644 and EN 1948-4.

"Mediumbound" is levels defined in Regulation 2017/644.