The Appendix is an integral part of
Certificate of Accreditation No. 487/2023 of 15/09/2023

Accredited entity according to ČSN EN ISO/IEC 17025:2018:

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CAB number 1139.2, Testing Laboratory 1139.2
Tolstého 186, Řetenice, 415 03 Teplice

The laboratory applies a flexible approach to the scope of accreditation.

The current list of activities carried out within the flexible scope is publicly available on the laboratory's website http://www.ikates.cz/al_cz.html in the form „List of activities within the flexible scope of accreditation"

Detailed information on activities within the scope of accreditation (determined analytes/ subject of testing) is given in the section „Specification of the scope of accreditation".

Tests:

Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
1	Determination of SiO_2 by combined gravimetric and photometric method	SOP 5.1 (ČSN 70 0621-1)	Glass	-
2	Determination of B_2O_3 by titration method (after separation on katex)	SOP 5.3 (ČSN 70 0623-2)	Glass	-
3	Determination of Fe_2O_3 by photometric method with 2,2´-dipyridyl	SOP 5.6 (ČSN 70 0626-1)	Glass	-
4	Determination of Al_2O_3 by titration method with chelaton 3	SOP 5.9. (ČSN 70 0628-1)	Glass	-
5	Determination of TiO_2 by photometric method with tiron	SOP 5.11 (ČSN 70 0629-1)	Glass	-
6	Determination of ZnO by flame atomization AAS method	SOP 5.12 (ČSN 70 0631-3)	Glass	-
7	Determination of PbO by flame atomization AAS method	SOP 5.14 (ČSN 70 0632-3)	Glass	-
8	Determination of BaO by gravimetric method	SOP 5.16 (ČSN 70 0637-1)	Glass	-
9	Determination of CaO by titration method with chelaton 3	SOP 5.17 (ČSN 70 0638-1)	Glass	-
10	Determination of CaO by flame atomization AAS method	SOP 5.18 (ČSN 70 0638-2)	Glass	-
11	Determination of MgO by titration method with chelaton 3	SOP5.19 (ČSN 70 0639-1)	Glass	-
12	Determination of MgO by flame atomization AAS method	SOP 5.20 (ČSN 70 0639-2)	Glass	-

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Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
13	Determination of Na_2O and K_2O by flame atomization AAS method	SOP 5.22 (ČSN 70 0641-3)	Glass	-
14	Determination of SO_3 by gravimetric method	SOP 5.24 (ČSN 70 0648-1)	Glass	-
15	Determination of moisture content by gravimetric method	SOP 6.1 (ČSN 72 0102)	Silicates	-
16	Determination of loss on ignition by gravimetric method	SOP 6.2 (ČSN 72 0103)	Silicates	-
17	Determination of SiO_2 by gravimetric method	SOP 6.3 (ČSN 72 0105-1)	Silicates	-
18	Determination of SiO_2 by gravimetric method after defumigation with hydrofluoric acid	SOP 6.4 (ČSN 72 0105-2)	Silicates	-
19	Determination of R_2O_3 by gravimetric method	SOP 6.6 (ČSN 72 0108:1974)	Silicates	-
20	Determination of Al_2O_3 by titration method with chelaton 3	SOP 6.7 (ČSN 72 0109-1)	Silicates	-
21	Determination of Al_2O_3 by titration method with chelaton 4	SOP 6.8 (ČSN EN 955-2:1997)	Glass sand	-
22	Determination of Fe_2O_3 by photometric method with 2,2´-dipyridyl	SOP 6.9 (ČSN 72 0110-2)	Silicates	-
23	Determination of TiO_2 by photometric method with tiron	SOP 6.11 (ČSN 72 0112-2)	Silicates	-
24	Determination of CaO by titration method with chelaton 3	SOP 6.12 (ČSN 72 0113-1)	Silicates	-
25	Determination of CaO by titration method with chelaton 3	SOP 6.14 (ČSN 72 0113-3)	Silicates	-
26	Determination of CaO by flame atomization AAS method	SOP 6.15 (ČSN 72 0113-4:1986)	Silicates	-

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27	Determination of MgO by flame atomization AAS method	SOP 6.16 (ČSN 72 0113-4:1986)	Silicates	-
28	Determination of MgO by titration method with chelaton 3	SOP 6.17 (ČSN 72 0114-1)	Silicates	-
29	Determination of SO_3 by gravimetric method	SOP 6.23 (ČSN 72 0117)	Silicates	-
30	Determination of Na_2O and K_2O by flame atomization AAS method	SOP 6.26 (ČSN 72 0119-2:1974)	Silicates	-
31	Determination of loss on ignition by gravimetric method	SOP 7.1 (ČSN 72 1216, p. 7)	Limestone, dolomite	-
32	Determination of SiO_2 by gravimetric method	SOP 7.2 (ČSN 72 1216, p. 8)	Limestone, dolomite	-
33	Determination of Fe_2O_3 by photometric method with 2,2´-dipyridyl	SOP 7.3 (ČSN 72 1216, p. 14)	Limestone, dolomite	-
34	Determination of Al_2O_3 by gravimetric method	SOP 7.4 (ČSN 72 1216, p.15,16,17)	Limestone, dolomite	-
35	Determination of TiO_2 by photometric method with tiron	SOP 7.5 (ČSN 72 1216, p. 19)	Limestone, dolomite	-
36	Determination of CaO by titration method with chelaton 3	SOP 7.6 (ČSN 72 1216, p.20)	Limestone, dolomite	-
37	Determination of MgO by titration method with chelaton 3	SOP 7.7 (ČSN 72 1216, p.22)	Dolomite	-
38	Determination of SO_3 by gravimetric method	SOP 7.8 (ČSN 72 1216, p.25)	Limestone, dolomite	-
39	Determination of SiO_2 by gravimetric method	SOP 8.1 (ČSN 72 2030-2:1992)	Blast-furnace slag	-
40	Determination of P_2O_5 by gravimetric method	SOP 9.2 (PN02-00-02 BAS, OssaBase-HA; PN03-00-03 Poresorb TCP)	Bioceramics	-

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Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
41	Determination of CaO by titration method with chelaton 3	SOP 9.4 (PN02-00-02 BAS, OssaBase-HA; PN03-00-03 Poresorb TCP)	Bioceramics	-
42	Determination of sodium carbonate content by titration method	SOP 10.1 (ČSN 65 2080:1986)	Sodium carbonate	-
43	Determination of chlorides by titration method	SOP 10.2 (ČSN 65 2081:1986)	Sodium carbonate	-
44	Determination of Fe_2O_3 by photometric method with 2,2´-dipyridyl	SOP 10.3 (ČSN 65 2082:1986)	Sodium carbonate	-
45	Determination of insoluble substances by gravimetric method	SOP 10.4 (ČSN 65 2083:1986)	Sodium carbonate	-
46	Determination of loss on ignition by gravimetric method	SOP 10.5 (ČSN 65 2084:1986)	Sodium carbonate	-
47	Determination of SO_3 by gravimetric method	SOP 10.6 (ČSN 65 2085:1986)	Sodium carbonate	-
48	Determination of the content of Na_2SO_4 by calculation from annealing residue and impurities content	SOP 11.1 (ČSN 653126:1970)	Sulphate	-
49	Determination of chlorides by titration method	SOP 11.2 (ČSN 653126:1970)	Sulphate	-
50	Determination of Fe_2O_3 by photometric method with 2,2´-dipyridyl	SOP 11.3 (ČSN 653126:1970)	Sulphate	-
51	Determination of ZnO by flame atomization AAS method	SOP 11.4 (ČSN ISO 8288)	Sulphate	-
52	Determination of insoluble substances by gravimetric method	SOP 11.5 (ČSN 653126:1970)	Sulphate	-
53	Determination of iron by titration method	SOP 13.1 (ČSN ISO 2597:1993)	Iron ores	-
54	Determination of lead and cadmium in 4% acetic acid extract of a product by flame atomization AAS method	SOP 16.1 (ČSN EN 1388-1; (ČSN EN 1388-2;	Glass and ceramic ware	-

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Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
		ISO 7086-1; (ISO 6486-1; (BS 6748:1986 Appendix A; ASTM C738; GOST R ISO 6486-1-2007; Regulation No. 38/2001, Annex 9)		
55	Resistance of glass cullet to water at 98 °C by titration method	SOP 16.2 (ČSN ISO 719)	Glass	-
56	Determination of temperature	SOP 17.44 (ČSN 75 7342)	Surface and waste water	-
57	Determination of hexavalent chromium by spectrophotometric method with diphenylcarbazide	SOP 5.23 (Handbook of recommended analytical methods by ICG/TC 2, method 2)	Glass	-
58	Determination of mercury by AAS method (cold vapour method)	SOP 5.25 (Handbook of recommended analytical methods by ICG/TC 2, method 5)	Glass	-
59	Determination of trace concentrations of lead and cadmium by flame atomization AAS method	SOP 5.28 (Handbook of recommended analytical methods by ICG/TC 2, method 4)	Glass	-
60	Determination of elements by XRF spectrometry method	SOP 27 (ČSN EN ISO 12677)	Glass, ceramics and raw materials for their production	A, B
61	Determination of elements by ICP-OES spectrometry method	SOP 5.29 (ČSN EN ISO 11885)	Glass, ceramics, sand	A, B
62	Gravimetric method for the determination of density	SOP 5.30 (ČSN 70 0513:1977, method B)	Glass	-
63-69	Reserved			
70	Determination of fluoride by photometric method after separation by distillation	SOP 15.3 (ČSN 83 4752-4)	Surface and waste water	-
71	Determination of conductivity	SOP 17.1 (ČSN EN 27888)	Surface and waste water	-

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Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
72	Determination of dried dissolved solids (DS) and dissolved inorganic salts (DIS) by gravimetric method	SOP 17.2 (ČSN 75 7346; ČSN 75 7347)	Surface and waste water	-
73	Determination of suspended solids by gravimetric method	SOP 17.3 (ČSN EN 872)	Surface and waste water	-
74	Determination of pH	SOP 17.4 (ČSN ISO 10523)	Surface and waste water	-
75	Determination of acid neutralizing capacity (ANC) by titration method	SOP 17.5 (ČSN EN ISO 9963-1)	Surface and waste water	-
76-77	Reserved			
78	Determination of the sum of calcium and magnesium by titration, determination of magnesium by calculation from measured values	SOP 17.8 ČSN ISO 6058; ČSN ISO 6059)	Surface and waste water	-
79	Determination of silver by flame atomization AAS method	SOP 17.9 (ČSN 75 7400)	Surface and waste water, extracts	-
80	Determination of borate by spectrophotometric method with azomethine H	SOP 17.10 (ČSN ISO 9390)	Surface and waste water, extracts	-
81	Determination of calcium by titration method with chelaton 3	SOP 17.14 (ČSN ISO 6058)	Surface and waste water	-
82	Determination of biochemical oxygen demand (BOD_5) by electrochemical method with a membrane probe	SOP 17.35b (ČSN EN 1899-1; ČSN EN ISO 5814)	Surface and waste water	-
83	Determination of chloride by argentometric titration method with chromate indicator	SOP 17.16 (ČSN ISO 9297)	Surface and waste water	-
84	Reserved			
85	Determination of $C_{10} – C_{40}$ by gas chromatography method with FID detector	SOP 17.43 (ČSN EN ISO 9377-2)	Surface and waste water	-

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Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
86	Determination of ammonia nitrogen ($N\text{-}NH^{4+}$) by photometric method and calculation of inorganic nitrogen from measured values	SOP 17.22 (ČSN ISO 7150-1)	Surface and waste water	-
87	Determination of nitrite nitrogen ($N\text{-}NO_2^-$) by photometric method	SOP 17.23 (ČSN EN 26777)	Surface and waste water	-
88	Determination of nitrate nitrogen ($N\text{-}NO_3^-$) by photometric method with sulphosalicylic acid	SOP 17.24 (ČSN ISO 7890-3)	Surface and waste water	-
89	Determination of total phosphorus by photometric method with ammonium molybdate	SOP 17.26 (ČSN EN ISO 6878, p.7; TNV 75 7466)	Surface and waste water	-
90	Reserved			
91	Determination of sulphate (SO_4^{2-}) by gravimetric method	SOP 17.28 (TNV 75 7476)	Surface and waste water	-
92	Determination of nonpolar extractives by FTIR method	SOP 17.30 (ČSN 75 7505:1998)	Surface and waste water	-
93	Determination of elements by ICP-OES spectrometry	SOP 17.45 (ČSN EN ISO 11 885; ČSN EN 71-3)	Surface and waste water, extracts	A, B
94	Determination of chemical oxygen demand (COD_{Cr}) by photometric method	SOP 17.31 (ČSN ISO 15705)	Surface and waste water	-
95	Determination of phenols by spectrophotometric method	SOP 17.32 (ČSN ISO 6439)	Surface and waste water	-
96	Determination of base neutralizing capacity (BNC)	SOP 17.34 (ČSN 757372)	Surface and waste water	-
97	Determination of biochemical oxygen demand (BOD_5) iodometric method	SOP 17.35a (ČSN EN 1899-1, ČSN EN 25813)	Surface and waste water	-
98	Reserved			
99	Reserved			

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Ordinal number[1]	Test procedure / method name	Test procedure / method identification[2]	Subject of the test	Degrees of freedom[3]
100	Chemical oxygen demand with permanganate (COD_{Mn}) by titration method	SOP 17.39 (ČSN EN ISO 8467)	Surface and waste water	-
101-103	Reserved			
104	Determination of lithium by flame atomization AAS method	SOP 17.42 (ČSN ISO 8288)	Surface and waste water, extracts	A

[1] asterisk at the ordinal number identifies the tests, which the laboratory is qualified to carry out outside the permanent laboratory premises

[2] if the document identifying the test procedure is dated, only these specific procedures are used. If the document identifying the test procedure is not dated, the latest edition of the specified procedure is used (including any changes)

[3] degrees of freedom: A – Flexibility concerning materials/products (subject of the test), B – Flexibility concerning components/parameters/characteristics, C – Flexibility concerning the performance of the method, D – Flexibility concerning the method

The laboratory can modify the test procedures with the specified degree(s) of freedom in the scope of accreditation while maintaining the principle of measurement. If no degree of freedom is specified, the laboratory cannot apply a flexible approach to the scope of accreditation for the test.

Specification of the scope of accreditation:

Ordinal test number	Detailed information on activities within the scope of accreditation (determined analytes)
60	Al, Ba, Ca, Cr, Er, Fe, K, Mg, Mn, Na, Pb, S, Sb, Si, Sr, Ti, Zn, Zr
61	Al, As, Ba, Ca, Cd, Co, Cr, Cu, Er, Fe, K, Li, Mg, Mn, Na, Ni, Pb, Sb, S, Sr, Se, Sn, Ti, Zn, Zr
93	Ag, Al, As, Ba, Ca, Cd, Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Pb, Sb, Sn, Zn

Specification of the scope of accreditation:

Ordinal test number	Detailed information on activities within the scope of accreditation (tested object)
60	Glass, limestone, dolomite, blast furnace slag, feldspar, clinkstone, kaolin, clay, talc, $CaSiO_3$
79, 80, 93, 104	Extracts of ceramics, glass and porcelain in demineralized water, aqueous solutions or solutions of simulants according to GN 2.3.3.972-00
93	Extracts of ceramics, glass and porcelain in demineralized water, aqueous solutions or solutions of simulants according to SOP 16.1

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Sampling:

Ordinal number	Sampling procedure name	Sampling procedure identification[1]	Subject of sampling
1	Waste water sampling (manual sampling)	SOP 55.1 (ČSN EN ISO 5667-1; ČSN EN ISO 5667-3; ČSN ISO 5667-10; ČSN EN ISO 5667-14; ČSN 75 7315)	Waste water

[1] if the document identifying the sampling procedure is dated, only these specific procedures are used. If the document identifying the sampling procedure is not dated, the latest edition of the specified procedure is used (including any changes)

BS	British Standard
ASTM	US technical standard
GOST	Russian technical standard
AAS	Atomic Absorption Spectrometry
FTIR	Fourier Transformation Infrared Spectroscopy
PN	Company Standard
GN	Russian Hygienic Standard
XRF	X-ray fluorescence spectrometry
ICP-OES	Inductively Coupled Plasma Optical Emission Spectrometry