NÁRODNÍ AKREDITAČNÍ ORGÁN

EA MLA Signatory
Český institut pro akreditaci, o.p.s.
Olšanská 54/3, 130 00 Praha 3

issues

according to section 16 of Act No. 22/1997 Coll., on technical requirements for products, as amended

# CERTIFICATE OF ACCREDITATION

No. **100/2017**

**DEKONTA, a.s.**
**with registered office Dřetovice 109, 273 42 Stehelčeves, Company Registration No. 25006096**

to the Testing Laboratory No. **1240**
Dekonta, a.s. - Laboratory Ústí nad Labem

Scope of accreditation:

Sampling of water, waste, soil, sludge, sediments, materials, soil air, emission, outdoor and indoor air, emission measurement, soil air, outdoor and indoor air, physico-chemical analyses of water, leaches, waste, soils, sludge, sediments, oils, materials, gases and fuels to the extent as specified in the appendix to this Certificate.

This Certificate of Accreditation is a proof of Accreditation issued on the basis of assessment of fulfillment of the accreditation criteria in accordance with

ČSN EN ISO/IEC 17025:2005

In its activities performed within the scope and for the period of validity of this Certificate, the Body is entitled to refer to this Certificate, provided that the accreditation is not suspended and the Body meets the specified accreditation requirements in accordance with the relevant regulations applicable to the activity of an accredited Conformity Assessment Body.

This Certificate of Accreditation replaces, to the full extent, Certificate No.: 127/2016 of 26 February 2016, or any administrative acts building upon it.

The Certificate of Accreditation is valid until: **7. 2. 2018**

Prague: 21. 2. 2017

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Jiří Růžička
Director
Czech Accreditation Institute
Public Service Company

**Accredited entity according to ČSN EN ISO/IEC 17025:2005:**

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*Letter E at ordinal numbers identifies the tests and sampling performed by Laboratory in accordance with the requirements for periodical measurement of emissions according to ČSN P CEN/TS 15675:2009.*

*The laboratory is qualified to update standards identifying the test procedures.*

*The laboratory has a flexible scope of accreditation permitted as detailed in the Annex.*

*The up-to-date list of activities carried out within the flexible scope of accreditation is available in the laboratory from the Laboratory Manager.*

*The Laboratory is qualified to provide expert opinions and interpret test results.*

**Tests:**

| Ordinal number[1)] | Test procedure/method name | Test procedure/method identification | Test object |
|---|---|---|---|
| E1.* | Determination of weight concentration of gaseous pollutants ($SO_2$, $NO_x$, CO, ) by automated analyzers (non dispersed infrared spectroscopy) | SOP no. E1 (ČSN ISO 7935, ČSN ISO 10849, ČSN EN 15058) | Emissions |
| E2.* | Determination of the flow velocity and volume flowrate | SOP no. E2 (ČSN ISO 10780, ČSN EN ISO 16911-1) | Emissions |
| E3.* | Determination of the oxygen concentration ($O_2$) by automated analyzer (paramagnetic method) | SOP no. E3 (ČSN EN 14789) | Emissions |
| E4.* | Determination of aggregate weight concentration of organic substances expressed as total organic carbon (TOC) by automated analyzers (FID) | SOP no. E4 (ČSN EN 12619) | Emissions, outdoor air and soil air |
| E5. | Determination of weight concentration of solid pollutants and their mass fraction PM10 and PM2.5 (gravimetry) | SOP no. E5 (ČSN EN 13284-1, ČSN EN ISO 23210) | Emissions – filtration medium |
| E6. | Determination of weight concentration of volatile organic substances (VOC) by calculation from measured values | SOP no. E6 (ČSN ISO 13649:2002 ČSN EN ISO 16017-1) | Emissions, outdoor air, indoor air and soil air |
| E7. | Determination of weight concentration of persistent organic substances (PCDD/PCDF, PCB and PAH) by calculation from measured values | SOP no. E7 (ČSN EN 1948-1, ČSN EN 1948-4+A1, ČSN P CEN/TS 16645, ČSN EN 15549, ČSN EN 15980) | Emissions and outdoor air |

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| Ordinal number[1)] | Test procedure/method name | Test procedure/method identification | Test object |
|---|---|---|---|
| E8. | Determination of weight concentration of metals by calculation from measured values (As, Cd, Be, Cr, Co, Ni, Tl, Se, Te, Sb, Sn, Mn, Cu, Pb, V, Zn, Al, Hg) | SOP no. E8<br>ČSN EN 14385,<br>ČSN EN 13211<br>EPA method 29 | Emissions |
| E9.* | Determination of humidity of gas (adsorption method, psychrometrically) | SOP no. E9<br>(ČSN EN 14790) | Emissions |
| E10. | Determination of suspended particulate matter in the air and its mass fraction PM10 and PM2.5 (gravimetry) | SOP no. E10<br>(ČSN EN 12341) | Outdoor air |
| E11. | Determination of numerical concentration of asbestos fibbers through calculation from the measured values | SOP no. E11<br>(ČSN EN ISO 16000-7) | Outdoor air and indoor air |
| E12. | Determination of weight concentration of vapours and gases by absorption to liquid (gas inorganic compounds chlorine and fluorine, ammonia, sulfane, chromium (VI+), mineral acids and bases, oxides of sulphur and sulphuric acid, hydrogen cyanide and cyanides, phenol and phenol compounds, oxides of nitrogen, phosphorus and its compounds) | SOP č.E12<br>(ČSN ISO 11083,<br>ČSN 83 4728-1, ČSN 83 4728-2,<br>ČSN 83 4728-3, ČSN 83 4728-4,<br>ČSN 83 4728-5, ČSN 83 4712-1,<br>ČSN 83 4712-2, ČSN 83 4712-3,<br>ČSN 83 4712-4,<br>Merck manual,<br>ČSN 83 4752-1, ČSN 83 4752-2,<br>ČSN 83 4752-3, ČSN 83 4752-4,<br>ČSN 83 4752-5, ČSN 83 4751-3,<br>ČSN 83 4751-4, ČSN 83 4751-6,<br>ČSN EN 1911, ČSN ISO 6439,<br>ČSN P CEN/TS 16429,<br>ČSN 83 4711-1, ČSN 83 4711-2,<br>ČSN 83 4711-3, ČSN 83 4711-4,<br>ČSN 83 4711-5, ČSN 83 4711-6,<br>ČSN 83 4711-7, ČSN 83 4713-1,<br>ČSN 83 4713-2, ČSN 83 4713-3,<br>ČSN 83 4713-4,<br>ČSN IS0-7150-1,<br>ČSN EN ISO 6878,<br>ČSN 83 4721-1, ČSN 83 4721-2,<br>ČSN 83 4721-3, ČSN 83 4721-4,<br>ČSN 75 7415, ČSN ISO 8756,<br>ČSN 83 5711, ČSN ISO 4221<br>ČSN ISO 10359-1,<br>ČSN ISO 10359-2) | Emissions |

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| Ordinal number[1)] | Test procedure/method name | Test procedure/method identification | Test object |
|---|---|---|---|
| E16.* | Determination of methane and carbon dioxide ($CH_4$, $CO_2$ $C_xH_y$, and VOC) by use of IR analyzers and PID detectors | SOP no.E16 (Geotech comp. manual, RS Dynamics comp. manual) | Soil air, gaseous mixtures and air |
| E17* | Determination of methane ($CH_4$), carbon dioxide ($CO_2$), carbon monoxide (CO), hydrogen ($H_2$) and sum of hydrocarbons as $C_xH_y$ by use of NDIR analyzer | SOP no.E17 (ČSN EN 15058, ČSN EN ISO 13199, GEIT manual) | Synthesis gases, gases from gasification and gases from thermal process |
| E18* | Determination of methane ($CH_4$), carbon dioxide ($CO_2$), sulfane ($H_2S$), ammonia ($NH_3$) by use of IR analyzer and galvanic cells | SOP no.E18 (Geotech manual) | Soil air, gaseous mixtures, dump gases, gases from composting process and gasses from pressure tanks |
| E19* | Quality assurance of automated measuring system | SOP no. E19 (ČSN EN 14181 article 6 (QAL 2) article. 8 (AST)) | Emissions- automated measuring system |
| E20* | Determination of Total Reduced Sulphur (TRS) | SOP no. E20 (EPA method 16A) | Emissions |
| 1.* | Determination of pH by electrochemical method | SOP no. 01 (ČSN ISO 10523, ČSN EN 12176, ČSN ISO 10390, ČSN EN 15933) | Waters, aqueous leaches of sludges, soils and wastes |
| 2.* | Determination of electrical conductivity by electrochemical method | SOP no. 02 (ČSN EN 27888, ČSN P CEN/TS 15937) | Waters, aqueous leaches of sludges, soils and wastes |
| 3.* | Determination of oxidation-reduction potential (ORP) by electrochemical method | SOP no. 66 (ČSN 757367) | Drinking, surface and ground waters |
| 4.* | Determination of dissolved oxygen by electrochemical probe method | SOP no. 51 (ČSN EN ISO 5814) | Drinking, surface and groundwaters |
| 5.* | Determination of turbidity by nephelometric method | SOP no. 63 (ČSN EN ISO 7027) | Drinking, surface and groundwaters |
| 6.* | Determination of temperature | SOP no. 65 (ČSN 75 7342) | Drinking, surface, groundwaters waste water |
| 7 | Determination of dry matter and water content by the gravimetric method | SOP no. 28 (ČSN 720102, ČSN ISO 11465, ČSN CEN ISO/TS 17892-1, ČSN EN 14346, ČSN 465735, ČSN EN 15934) | Wastes, soils, grounds, sediments and sludges |

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| Ordinal number[1)] | Test procedure/method name | Test procedure/method identification | Test object |
|---|---|---|---|
| 8. | Determination of ash and loss on ignition of dry mass | SOP no. 48 (ČSN EN 12879, ČSN EN 15169, ČSN EN 15935, CSN EN ISO 18122) | Wastes, soils, grounds, sediments, sludges and biofuels |
| 9. | Determination of orthophosphates ($PO_4^{3-}$) and total phosphorus ($P_{tot}$) by the spectrometric method and determination of $P_2O_5$ by calculation from the measured values | SOP no. 16 (ČSN EN ISO 6878) | Waters and aqueous leaches |
| 10.A[3)] | Determination of selected volatile organic compound (VOC)[3)] by the method of gas chromatography with the FID and MS detector and sum of VOC by calculation from the measured values | SOP no. 34, procedure A (ČSN EN ISO 10301, ČSN ISO 11423-1, ČSN EN ISO 17943) | Waters |
| 10.B[3)] | Determination of selected volatile organic compound (VOC)[3)] by the method of gas chromatography with the FID and MS detector and sum of VOC by calculation from the measured values | SOP no. 34, procedure B (ČSN EN ISO 15009, ČSN EN ISO 22155) | Wastes, sediments, sludges, soils, grounds, sorbents from sampling and construction materials |
| 11.A[4)] | Determination of selected chlorinated pesticides (OCP)[4)] by the method of gas chromatography with the MS detection | SOP no. 33, procedure A (ČSN EN ISO 6468, ČSN P ISO/TS 28581, CSN EN 16693) | Waters |
| 11.B[4)] | Determination of selected chlorinated pesticides (OCP)[4)] by the method of gas chromatography with the MS detection | SOP no. 33, procedure B (DIN ISO 10382 ČSN EN ISO 14181) | Wastes, sediments, sludges, soils, grounds, sorbents from sampling and construction materials |
| 12.A[5)] | Determination of selected congeners of PCB[5)] by the method of gas chromatography with the MS detection and sum of PCB by calculation from the measured values | SOP no. 21, procedure A (ČSN EN ISO 6468, ČSN P ISO/TS 28581) | Waters |

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| Ordinal number[1)] | Test procedure/method name | Test procedure/method identification | Test object |
|---|---|---|---|
| 12.B[5)] | Determination of selected congeners of PCB[5)] by the method of gas chromatography with the MS detection and sum of PCB by calculation from the measured values | SOP no. 21, procedure B (ČSN EN 15308, DIN ISO 10382, ČSN EN 16167) | Wastes, sediments, sludges, soils, grounds, sorbents from sampling and construction materials |
| 13.A | Determination of hydrocarbons content in the range $C_{10}$ to $C_{40}$ by the method of gas chromatography with the FID detector | SOP no. 19, procedure A (ČSN EN ISO 9377-2) | Waters |
| 13.B | Determination of hydrocarbons content in the range $C_{10}$ to $C_{40}$ by the method of gas chromatography with the FID detector | SOP no. 19, procedure B (ČSN EN 14039, ČSN EN ISO 16703) | Wastes, sediments, sludges, soils, grounds, sorbents from sampling and construction materials |
| 14.A[2)] | Determination of PAH[2)] by the method of gas chromatography with the MS detection and sum of PAH by calculation from the measured values | SOP no. 20, procedure A (ČSN 757554, ČSN ISO 28540, ČSN P ISO/TS 28581, CSN EN 16691) | Waters |
| 14.B[2)] | Determination of PAH[2)] by the method of gas chromatography with the MS detection and sum of PAH by calculation from the measured values | SOP no. 20, procedure B (ČSN EN 15527, ISO 18287, ČSN P CEN/TS 16181, ČSN P CEN/TS 16645) | Wastes, sediments, sludges, soils, grounds, sorbents from sampling and construction materials |

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| Ordinal number[1)] | Test procedure/method name | Test procedure/method identification | Test object |
|---|---|---|---|
| 15.A | Determination of elements [6)]by ICP-MS method and stoichiometric calculation from the measured values | SOP no. 26, procedure A (ČSN EN ISO 15587-1, ČSN EN ISO 15587-2, ČSN EN ISO 17294-1, ČSN EN ISO 17294-2, the manual and application sheets of the VG Instruments comp.) | Waters, aqueous leaches, absorption solutions from sampling |
| 15.B | Determination of elements [6)] by ICP-MS method and stoichiometric calculation from the measured values | SOP no. 26, procedure B ČSN EN 13656 ČSN EN 13657, ČSN EN ISO 17294-1, ČSN EN 13346, ČSN EN ISO 17294-2, ČSN EN 14385, ČSN EN 16173, ČSN EN 16174, ČSN P CEN/TS 16171 US EPA method 29, ČSN EN 14902 the manual and application sheets of the VG Instruments comp.) | Wastes, sediments, sludges, soils, grounds, sorbents from sampling, construction materials and biological materials |
| 16. | Determination of content the mercury (Hg) by use of the TMA-254 instrument, the spectrometric method | SOP no. 25 (ČSN 757440, ČSN EN 13211) | Wastes, sediments, sludges, grounds, soils, waters, solutions from absorption, aqueous leaches and sorbents |
| 17.A | Determination of Non-Polar Extractable Substances (NEL) and Extractable matters (EL) by the spectrometric method | SOP no. 18, procedure A (ČSN 757505:1998, ČSN 757506:2002) | Waters |
| 17.B | Determination of Non-Polar Extractable Substances (NEL) and Extractable matters (EL) by the spectrometric method | SOP no. 18, procedure B (ČSN 757505:1998, ČSN 757506:2002) | Wastes, sludges, grounds, soils, waters, aqueous leaches and sorbents from sampling |
| 18.A | Determination of total organic carbon (TOC), dissolved organic carbon(DOC) and total inorganic carbon (TIC) by the combustion spectrometric method | SOP no. 30, procedure A (ČSN EN 1484, the manual ELEMENTAR comp.) | Waters and aqueous leaches |

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| Ordinal number[1)] | Test procedure/method name | Test procedure/method identification | Test object |
|---|---|---|---|
| 18.B | Determination of total carbon (TC) and total organic carbon (TOC), the combustion spectrometric method and determination inorganic carbon and carbonates by calculation from the measured values | SOP no. 30, procedure B (ČSN EN 13137, ČSN EN 15936 ELEMENTAR comp. manual) | Wastes, sediments, sludges, soils, grounds and construction materials |
| 19. | Determination of the total bound nitrogen (TNb), by the combustion method with the chemiluminescence detector | SOP no. 14 (ČSN EN 12260, the ELEMENTAR comp. manual) | Waste waters, surface waters, ground waters and aqueous leaches |
| 20. | Determination of dissolved substances dried at 105°C (TDS-dry) and annealed at 550°C (TDS-annealed) by the gravimetric method | SOP no. 06, procedure A (ČSN 757346) | Waters and aqueous leaches |
| 21. | Determination of dissolved inorganic salts (DIS) by the gravimetric method | SOP no. 06, procedure B (ČSN 757347) | Waste waters |
| 22. | Determination of suspended solids (TSS) by the gravimetric method | SOP no. 05 (ČSN EN 872) | Waters |
| 23. | Determination of ammonium ions ($NH_4^+$) the spectrometric method and ammonia nitrogen ($N\text{-}NH_4^+$) and inorganic nitrogen ($N_{inorg}$) by calculation from the measured values | SOP no. 11 (ČSN ISO 7150-1) | Waters, aqueous leaches and absorption solutions from sampling |
| 24. | Determination of hexavalent chromium ($Cr^{VI}$), photometric method with the use of Merck commercial analytic set | SOP no. 37 (Merck comp. manual) | Waters, aqueous leaches and absorption solutions from sampling |
| 25.A | Determination of phenol index by the spectrophotometric method with 4-aminoantipyrine after distillation | SOP no. 24, procedure A (ČSN ISO 6439) | Waters, aqueous leaches and absorption solutions from sampling |
| 25.B | Determination of phenol index by the spectrophotometric method with 4-aminoantipyrine after distillation | SOP no. 24, procedure B (ČSN ISO 6439) | Wastes, sediments, sludges, soils, grounds, sorbents from sampling and construction materials |

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| Ordinal number[1)] | Test procedure/method name | Test procedure/method identification | Test object |
|---|---|---|---|
| 26. | Determination of anionic surfactants, spectrophotometrically by the methylene blue | SOP no. 23 (ČSN EN 903) | Waters and aqueous leaches |
| 27. | Determination of chemical oxygen demand by dichromate by the titration method, ($COD_{Cr}$) | SOP no. 03 (ČSN ISO 6060) | Waste waters and surface waters |
| 28. | Determination of nitrates ($NO_3^-$) and nitrate nitrogen ($N\text{-}NO_3^-$) by calculation from the measured values, spectrophotometric method | SOP no. 09 (ČSN ISO 7890-3) | Waters and aqueous leaches |
| 29. | Determination of nitrites ($NO_2^-$) and nitrite nitrogen $N\text{-}(NO_2^-)$ by calculation from the measured values, manual spectrophotometric method | SOP no. 10 ČSN EN 26777 | Waters and aqueous leaches |
| 30. | Determination of chlorides ($Cl^-$) by the silver nitrate titration with the chromate indicator, Mohr's method | SOP no. 07 (ČSN ISO 9297) | Waters, aqueous leaches and absorption solutions from sampling |
| 31. | Determination of sulphates ($SO_4^{2-}$) by the gravimetric method | SOP no. 08 (ČSN ISO 9280:1995) | Waters, aqueous leaches and absorption solutions from sampling |
| 32. | Determination of fluorides ($F^-$) electrochemically (ISE) | SOP no. 17 (ČSN ISO10359-1, ČSN ISO10359-2) | Waters, aqueous leaches and absorption solutions from sampling |
| 33. | Determination of biochemical oxygen demand after n days ($BOD_n$) | SOP no. 04 (ČSN EN 1899- 1, ČSN EN 1899- 2) | Waste waters, surface waters and groundwaters |
| 34. | Determination of base neutralizing capacity (BNC) – acidity by titration | SOP no. 88 (ČSN 757372) | Waters and aqueous leaches |
| 35. | Determination of acidic neutralizing capacity (ANC) - alkalinity by titration and determination hydrocarbonates, carbonates and carbon dioxide forms by calculation from the measured values | SOP no. 36 (ČSN EN ISO 9963-1 ČSN EN ISO 9963-2, ČSN 757373) | Waters and aqueous leaches |
| 36 | Determination of colour | SOP no. 67 (ČSN EN ISO 7887) | Waters |

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| Ordinal number[1)] | Test procedure/method name | Test procedure/method identification | Test object |
|---|---|---|---|
| 37. | Determination of total and easily liberatable cyanides ($CN^-$) by the photometric method with use of the Merck commercial analytical set | SOP no. 15 (the Merck comp. manual) | Waters, aqueous leaches and absorption solutions from sampling |
| 38.* | Field determination of free and total chorine, the spectrophotometric method (DPD) in waters | SOP no. 68 (ČSN ISO 7393-2) | Drinking waters and raw waters |
| 39.* | Sensorial analyse of water | SOP no. 12 (TNV 757340) | Drinking waters and raw waters |
| 40. | Determination of aggressive carbon dioxide ($CO_2$) content in water | SOP no. 22 (ČSN EN 13577) | Groundwaters |
| 41. | Determination of Biomarkers index | SOP no. 57 (patent of Dekonta, a.s. 302 508) | Wastes, sediments, sludges, soils, grounds and construction materials |
| 42 | Determination of chemical oxygen demand by permanganate by the titration method, ($COD_{Mn}$) | SOP no. 69 (ČSN EN ISO 8467+Z1) | Drinking waters, raw waters and groundwaters |
| 43A | Determination of elements [6)] by ICP-OES method and a stoichiometric calculation content of substances from the measured values, including calculation total inorganic dissolved solid and calculation of sum of Ca and Mg | SOP no. 71, procedure A (ČSN EN ISO 15587-1, ČSN EN ISO 15587-2, ČSN EN ISO 11885, EPA method 200.7, ČSN 757358, the manual and application sheets of the Spectro comp.) | Waters, aqueous leaches and absorption solutions from sampling |
| 43B | Determination of elements [6)] by ICP-OES method and a stoichiometric calculation content of substances from the measured values and determination of Cr(III+) by calculation from the measured values | SOP no. 71, procedure B (ČSN EN 13656 ČSN EN 13657, ČSN EN ISO 11885, ČSN EN 13346, EPA method 200.7, ČSN EN 14385, ČSN EN 16173, ČSN EN 16174, US EPA method 29, ČSN EN 15410, ČSN EN 14902 ČSN EN ISO 16967, ČSN EN ISO 16968 ČSN EN ISO 16994 the manual and application sheets of the Spectro comp.) | Wastes, sediments, sludges, soils, grounds, sorbents from sampling, fuels, construction materials and biological materials |

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| Ordinal number[1)] | Test procedure/method name | Test procedure/method identification | Test object |
|---|---|---|---|
| 44 | Identification of organic compounds by gas chromatography and mass spectrometry | SOP no. 53 (ČSN EN ISO 22892) | Wastes, sediments, sludges, soils, grounds, sorbents from sampling, gasses, liquid samples and waters |
| 45 | Determination of dry residues by gravimetric method and water content by calculation from the measured values | SOP no. 73 (ČSN EN 12880) | Sludges and waters |
| 46A | Determination of chloride ($Cl^-$) by potentiometric titration | SOP no.74, procedure A (ČSN 830530-20, ČSN EN 1911) | Waters, aqueous leaches and absorption solutions from sampling |
| 46B | Determination of chloride ($Cl^-$) by potentiometric titration | SOP no.74, procedure B (ČSN EN 480-10) | Wastes, sediments, sludges, soils, grounds and construction materials |
| 47 | Determination of absorbance at 254 nm wavelength by spectrophotometry | SOP no.75 (ČSN 757360) | Waters and aqueous leaches |
| 48* | Identification by mobile Raman spectrometer | SOP no.81 (Ahura comp manual) | Solid, liquid and gels |
| 49* | Screening analysis of elements by mobile XRF spectrometer | SOP no.76 (ČSN EN 16424, ČSN EN ISO 13196) | Wastes, sediments, sludges, soils, grounds, construction materials, native materials and liquid samples |
| 50 | Determination of humic substances | SOP no.77 (ČSN 757536) | Waters |
| 51 | Determination of extractive substances, fats and oils by gravimetric method | SOP no.78A (ČSN 757509) | Waste and surface waters |
| 52 | Determination of water by the method according to Karl Fischer | SOP no. 72 (CSN ISO 760, CSN EN ISO 8534) | Petroleum products, oils and organic solvents |
| 53* | Determination of dissolved oxygen by optical sensors | SOP no.79 (ČSN ISO 17289) | Drinking, surface a ground waters |
| 54 | Determination of impurities and stones | SOP no.80 (ČSN P CEN/TS 16202 ČSN 465735, MoE Regulation No. 341/2008 Coll.) | Sludges, composts, treated biowastes, oils and soils |
| 55. | Determination of mechanical impurities by gravimetry after filtration | SOP no. 82 (CSN 656080) | Petroleum products, oils and organic solvents |
| 56. | Determination of chlorides ($Cl^-$) by discrete spectrophotometry | SOP no. 83 (US EPA 325.1) | Waters, aqueous leaches and absorption solutions from sampling |
| 57. | Determination of sulphates ($SO_4^{2-}$) tubidimetric by discrete spectrophotometry and determination of sulphates sulphur by calculation from the measured values | SOP no. 84 (US EPA 375.4) | Waters, aqueous leaches and absorption solutions from sampling |

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| Ordinal number[1)] | Test procedure/method name | Test procedure/method identification | Test object |
|---|---|---|---|
| 58. | Determination of bivalent iron ($Fe^{2+}$) by discrete spectrophotometry | SOP no. 49 (CSN ISO 6332) | Waters, aqueous leaches and absorption solutions from sampling |
| 59. | Determination of ammonic ions ($NH_4^+$), nitrites nitrogen ($N\text{-}NO^{2+}$) and sum of nitrite and nitrate nitrogen by discrete spectrophotometry and ammonium, inorganic, organic, total nitrogen and free ammonium by calculation from the measured values | SOP no 86 (ČSN ISO 7150-1, ČSN EN ISO 13395, Standard method 4500-NO3H, Standard method 4500-NO2B) | Waters, aqueous leaches and absorption solutions from sampling |
| 60. | Determination of hexavalent chromium ($Cr^{6+}$)by discrete spectrophotometry | SOP no. 86 (CSN ISO 11083, US EPA 7196A) | Waters, aqueous leaches and absorption solutions from sampling |
| 61. | Determination of orthophosphates ($PO_4^{3-}$) and total phosphates phosphorus ($P\text{-}PO_4^{3-}$) by discrete spectrophotometry and by calculation from the measured values | SOP no. 87, procedure A CSN EN ISO 6878, Standard methods 4500-PE) | Waters, aqueous leaches and absorption solutions from sampling |
| 62. | Determination of total phosphorus ($P_{TOT.}$) by discrete spectrophotometry and determination of phosphorus as $P_2O_5$ an $PO_4^{3-}$by calculation from the measured values | SOP no. 87, procedure B CSN EN ISO 6878, Standard methods 4500-PE) | Waters, aqueous leaches and absorption solutions from sampling |

1 Asterisk at the ordinal numbers identifies the tests carried out outside/also outside the permanent laboratory premises.

Annex:

Flexible scope of accreditation

| Ordinal numbers of tests |
|---|
| *E7, E8, E12, E16 - E18, 10A, 10B, 11A, 11B, 12A, 12B, 13A, 13B, 14A, 14B, 15A, 15B, 18A, 18B, 19, 24, 37, 41, 43A, 43B, 52* |

The Laboratory is allowed to modify the examination procedures listed in the Annex within the specified scope of accreditation provided the measuring principle is observed.

The flexible approach to the scope of accreditation cannot be applied to the examinations not included in the Annex.

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## Sampling:

| Ordinal number | Sampling procedure name | Sampling procedure identification | Sampled object |
|---|---|---|---|
| V1. | Sampling of groundwater by static and dynamic ways | SOP no. 40 (ČSN EN ISO 5667-1, ČSN EN ISO 5667-3, ČSN ISO 5667-11, ČSN ISO 5667-14, ČSN ISO 5667-16, ČSN ISO 5667-18, ČSN EN ISO 19458, ČSN P CEN ISO/TS 22475-2) | Groundwater |
| V2. | Sampling of waste | SOP no. 41 (TNI CEN/TR 15310-1, TNI CEN/TR 15310-2, TNI CEN/TR 15310-3, TNI CEN/TR 15310-4, TNI CEN/TR 15310-5, ČSN 015112, ČSN 015111, ČSN EN 14899, ČSN EN 15442, ČSN EN 16457, ČSN EN ISO 5667-14, ČSN EN 60475, ČSN 015112, ČSN EN 12579) | Wastes, biowastes, composts and fugates |
| V3. | Sampling of drinking and raw waters intended for production of drinking water | SOP no. 42 (ČSN EN ISO 5667-1, ČSN EN ISO 5667-3, ČSN ISO 5667-5, ČSN EN ISO 5667-16, ČSN EN ISO 19458) | Drinking and raw water |
| V4. | Sampling of surface waters and waters intended for bathing | SOP no. 43 (ČSN EN ISO 5667-1, ČSN EN ISO 5667-3, ČSN ISO 5667-4, ČSN ISO 5667-6, ČSN ISO 5667-7, ČSN ISO 5667-8, ČSN ISO 5667-14, ČSN EN ISO 5667-16, ČSN EN ISO 19458 Decree 238/2011 Coll.) | Surface waters and waters for bathing (surface streams and ponds in free nature) |
| V5. | Sampling of waste water by manual way and by automatic samplers | SOP no. 46 (ČSN EN ISO 5667-1, ČSN EN ISO 5667-3, ČSN ISO 5667-10, ČSN ISO 5667-14) | Waste waters |

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| Ordinal number | Sampling procedure name | Sampling procedure identification | Sampled object |
|---|---|---|---|
| V6. | Sampling of grounds and soils | SOP no. 44 (TNI CEN/TR 15310-1, TNI CEN/TR 15310-2, TNI CEN/TR 15310-3, TNI CEN/TR 15310-4, TNI CEN/TR 15310-5, ČSN 015111, ČSN 015110, ČSN EN 14899, ČSN ISO 10381-6) | Grounds and soils |
| V7. | Sampling of sediments, sludges and suspended sediments | SOP no. 47 (ČSN EN ISO 5667-1, ČSN EN ISO 5667-3, ČSN ISO 5667-12, ČSN EN ISO 5667-13, ČSN ISO 5667-14, ČSN EN ISO 5667-15, ČSN EN ISO 5667-16, ČSN ISO 5667-17, ČSN EN ISO 5667-19, ČSN 015110, ČSN 015111, ČSN EN 14899, ČSN ISO 10381-6) | Sediments, sludges and suspended sediments |
| V8. | Sampling of gases and vapours by absorption to liquid | SOP no. VE2 B (ČSN 835711, ČSN ISO 4221) | Outdoor air, indoor air and soil air |
| V9. | Sampling of gases and vapours into sampling bags | SOP no. VE3 B (ČSN EN ISO 16017-1, ČSN EN 14662-1) | Outdoor air, indoor air and soil air |
| V10. | Sampling of pollutants by catchment onto a solid sorbent | SOP no. VE4 B (ČSN EN 13649, ČSN EN ISO 16017-1, ČSN EN 14662-1) | Outdoor air, indoor air and soil air |
| V11. | Sampling for the determination of Hg | SOP no. VE6 B (ČSN EN 15852, ČSN EN 15853, ČSN EN 13211, ČSN EN 13890) | Outdoor air, indoor air and soil air |
| VE1. | Sampling for determination of persistent organic substances (PCCD/PCDF, PCB and PAH) – isokinetic sampling with automatic control, filtration and condensation method | SOP no. VE1A (ČSN EN 1948-1) | Emissions |

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| Ordinal number | Sampling procedure name | Sampling procedure identification | Sampled object |
|---|---|---|---|
| VE2. | Sampling of gases and vapours by absorption to liquid (gas inorganic compounds chlorine and fluorine, ammonia, sulfane, chromium (VI+), mineral acids and bases, oxides of sulphur and sulphuric acid, hydrogen cyanide and cyanides, phenol and phenol compounds, oxides of nitrogen, phosphorus and its compounds) | SOP no. VE2 (ČSN 834728-1, ČSN 834728-2, ČSN 834712-1, ČSN 834712-2, ČSN 834752-1, ČSN 834752-1, ČSN 834711-1, ČSN 834711-2, ČSN EN 1911, ČSN 834721-1, ČSN 834721-2, EPA method 16A. EPA method 0061 F.Skácel a V.Teskáč, Měření emisí, V.Križan a kol., Analýza ovzduší ,1981) | Emissions |
| VE3. | Sampling of gases and vapours into sampling bags | SOP no. VE3 A (ČSN EN 13649) | Emissions |
| VE4. | Sampling of volatile organic substances (VOC) by catchment onto a solid sorbent | SOP no. VE4 A ČSN EN 13649) | Emissions |
| VE5. | Sampling of solid pollutants and their mass fractions PM10 and PM2.5 (isokinetic sampling with automatic control and isokinetic sampling with manual control) | SOP no. VE5 (ČSN EN 13248-1, ČSN EN ISO 23210) | Emissions |
| VE6. | Sampling for determination of metals (As, Cd, Be, Cr, Co, Ni, Tl, Se, Te, Sb, Sn, Mn, Cu, Pb, V, Zn, Al, Hg), isokinetically by absorption to liquid (isokinetic sampling with automatic control and isokinetic sampling with manual control) | SOP no. VE6 A (ČSN EN 14385, ČSN EN 14902, ČSN EN 15841, ČSN EN 13211, US EPA method 29) | Emissions |
| VE7. | Sampling for gravimetric determination of suspended particle matters in air and its mass fractions PM10 and PM2.5 | SOP no. VE7 (ČSN EN 12341) | Outdoor air |
| VE8. | Sampling for determination of numerical concentration of asbestos fibers | SOP no. VE8 (ČSN EN ISO 16000-7) | Outdoor air and indoor air |

Explanatory notes on used abbreviations and terms:

- SOP – standard operating procedure
- ISE – ion selective electrode
- DPD – N,N-Diethyl-p-phenylenediamine sulphate
- TOC – total organic carbon
- DOC – total dissolved organic carbon
- $TN_b$ – total bound nitrogen

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- VOC – volatile organic compounds
- PCDD – polychlorinated dibenzodioxens
- PCDF – polychlorinated dibenzofurans
- Waters – drinking, raw, surface, ground and waste water
- Wastes – liquid and solid wastes
- Gas mixtures – gases flowing in the pipeline, or stored in reservoirs
- Outdoor air – air outside buildings, to which humans, plants, animals, or materials are exposed
- Indoor air – air within an enclosed space, for example in public building or residential houses
  - PM10 – particles out of which the measuring device extracts particles with an aerodynamic diameter of 10 μm with the probability of 50%
- PM2,5 – particles out of which the measuring device extracts particles with an aerodynamic diameter of 2.5 μm with the probability of 50%
- ICP-MS – Inductively coupled plasma with mass spectrometry detector
- MS – mass spectrometer or mass detector
- FID – flame ionization detector
- NEL – extractable non polar matters
- EL – extractable matters
- ICP-OES – Inductively coupled plasma with optical emission spectrometry detector
- ED-XRF Energy dispersive X-Ray florescence spectrometer
- Biological materials – all materials of biological origin, except human tissue samples
- [2)] PAH – polycyclic aromatic hydrocarbons, naphthalene, fluorine, phenathrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene, chrysene, indeno(1,2,3- c,d)pyrene, acenaphthene, acenaphtylene
- [3)] VOC – volatile organic compounds 1,1-dichloroethane, 1,2-dichloroethane, vinylchloride, 1,1-dichloroethene, c-1,2- dichloroethene, t-1,2-dichloroethene, trichloroethene, tetrachloroethane, benzene, toluene, ethylbenzene, o-,m-,p-xylene, styrene, chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene; methyltercbutylether (MTBE)
- [4)] OCP – chlorinated pesticides, hexachlorobenzene, alpha, beta, gamma, delta, epsilon isomers, hexachlorocyclohexane, 1,2,3-trichlorobenzene, 1,2,3-trichlorobenzene, 1,3,5-trichlorobenzene, 1,2,3,4-tetrachlorobenzene, 1,2,3,5-tetrachlorobenzene, 1,2,4,5-tetrachlorobenzene, pentachlorobenzene. aldrin, dieldrin, isodrin, cis-heptachloroepoxide, trans-heptachloroepoxide, alpha-endosulfan, beta-endosulfan, endosulfan sulphate, o,p′-DDE , p,p′-DDE , o,p′-DDD , p,p′-DDD , o,p′-DDT , p,p′-DDT, methoxychlor, cis-chlordane, trans-chlordane, mirex, endrin, heptachlor;
- [5)] PCB – polychlorinated biphenyls, congeners no 28, 52, 101, 118, 138, 153, 180;.
- [6)] elements Ag, Al, As, Au, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cu, Dy, Er, Eu, Fe, Gd, Hg, Ho, Ir, K, La, Li, Lu, Mg, Mn, Mo, Na, Nd, Ni, Os, P, Pb, Pd, Pr, Pt, Rh, Ru, S, Sb, Sc, Se, Si, Sm, Sn, Sr, Tb, Ti, Tl, Tm, U, V, Y, Yb, Zn

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