



### 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. 564/2021

MORAVSKÁ VODÁRENSKÁ, a.s. with registered office Tovární 1059/41, Hodolany, 779 00 Olomouc, Company Registration No. 61859575

to the Testing Laboratory No. **1446** Water Quality Control Department

Scope of accreditation:

Sampling of water, sludge and waste, chemical and special inorganic and organic analysis of water and sludge, microbiological, biological and sensory analysis of water 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 17025:2018

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.: 428/2020 of 1. 7. 2020, or any administrative acts building upon it.

The Certificate of Accreditation is valid until: 4. 12. 2022

Prague: 2. 11. 2021





Lukáš Burda
Director of the Department
of Testing and Calibration Laboratories
Czech Accreditation Institute
Public Service Company

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

## MORAVSKÁ VODÁRENSKÁ, a.s.

Water Quality Control Department Dolní Novosadská, 779 00 Olomouc

### **Testing laboratory locations:**

1. Olomouc Laboratory

WWTP Olomouc, Dolní Novosadská,

779 00 Olomouc

2. Prostějov Laboratory

WWTP Prostějov – Kralický Háj,

798 12 Kralice na Hané

3. Zlín Laboratory

WTP Klečůvka 99,

763 11 Želechovice nad Dřevnicí

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

Updated list of activities provided within the flexible scope of accreditation is available in the laboratory from the Laboratory Manager.

The Laboratory is qualified to carry out independent sampling.

### Tests:

Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
11,2,3	Electrometric determination of pH	S-01A (ČSN ISO 10523)	Water, liquid sludge
$2^2$	Electrometric determination of pH	S-01B (ČSN ISO 10523, ČSN EN 15933)	Dewatered sludge
33	Determination of iron by spectrophotometry	S-03 (ČSN ISO 6332)	Drinking, hot, ground, surface, bottled, bathing water
43	Determination of nitrate nitrogen by spectrophotometry and nitrate by calculation	S-04 (ČSN ISO 7890-3)	Water
53	Determination of chlorides by titration	S-05 (ČSN ISO 9297)	Drinking, hot, ground, surface, bottled, bathing water
61,3	Determination of ANC 4,5 by titration	S-06 (ČSN EN ISO 9963-1)	Drinking, hot, ground, surface, bottled, bathing water
73	Determination of BNC 8,3 by titration and free CO <sub>2</sub> by calculation	S-07 (ČSN 75 7372)	Drinking, hot, ground, surface, bottled, bathing water



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Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
83	Determination of nitrite by spectrophotometry and nitrite nitrogen by calculation	S-08 (ČSN EN 26777)	Water
91,2,3	Determination of ammonium by spectrophotometry and ammonia nitrogen by calculation	S-09 (ČSN ISO 7150-1)	Water
10	Reserved		
111,2	Electrometric determination of conductivity	S-11 (ČSN EN 27888)	Water
12 <sup>3</sup>	Electrometric determination of conductivity	S-11 (ČSN EN 27888)	Water (excl. waste water)
131,3	Determination of hardness by titration and magnesium by calculation	S-12A (ČSN ISO 6059)	Drinking, hot, ground, surface, bottled, bathing water
14 <sup>1,3</sup>	Determination of calcium by titration	S-12B (ČSN ISO 6058)	Drinking, hot, ground, surface, bottled, bathing water
15 <sup>1,3</sup>	Determination of COD using permangate	S-15 (ČSN EN ISO 8467)	Drinking, hot, ground, surface, bottled, bathing water
16 <sup>1,3</sup>	Determination of absorbance by spectrophotometry	S-17 (ČSN 75 7360)	Drinking, hot, ground, surface, bottled, bathing water
17 <sup>2,3</sup>	Determination of dissolved solids, dissolved inorganic salts by gravimetry and loss on ignition of dissolved solids by calculation	S-19 (ČSN 75 7346, ČSN 75 7347)	Water, liquid sludge
18 <sup>1,3</sup>	Determination of turbidity by nephelometry	S-20 (HACH manual, ČSN EN ISO 7027-1)	Drinking, hot, ground, surface, bottled, bathing water
19 <sup>3</sup>	Determination of manganese by spectrophotometry	S-26 (ČSN ISO 6333)	Drinking, hot, ground, surface, bottled, bathing water
201,3	Determination of aluminium by spectrophotometry	S-27 (ČSN ISO 10566)	Drinking, hot, ground, surface, bottled, bathing water

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Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
21*1,2	Determination of free and total chlorine by spectrophotometry using Hach set and bound chlorine by calculation	S-28A (HACH manual, ČSN EN ISO 7393-2)	Drinking, hot, bathing water
22*3	Determination of chlorine dioxide, free and total chlorine by spectrophotometry using Hach set and bound chlorine	S-28B (HACH manual, ČSN EN ISO 7393-2)	Drinking, hot, bathing water
23	Reserved		
24*1,2,3	Determination of temperature	S-34 (ČSN 75 7342)	Water, liquid sludge
25*1,2,3	Determination of dissolved oxygen by electrochemical probe method	S-36A (ČSN EN ISO 5814)	Water, liquid sludge
26*1,2,3	Determination of dissolved oxygen by optical probe method	S-36B (ČSN ISO 17289)	Water
27 <sup>1,3</sup>	Determination of odour and flavour by sensory analysis	S-37 (ČSN 75 7340, ČSN EN 1622)	Drinking, hot, ground, surface, bottled, bathing water
28 <sup>2,3</sup>	Determination of ammonia nitrogen by titration after distillation, ammonium and inorganic nitrogen by calculation	S-43 (ČSN ISO 5664)	Drinking, hot, ground, surface and waste water, liquid sludge
29 <sup>2</sup>	Determination of total nitrogen by spectrophotometry and organic nitrogen by calculation	S-45 (MERCK manual, ČSN 75 7455)	Drinking, hot, ground, surface and waste water, liquid sludge
30 <sup>2</sup>	Determination of phosphate by spectrophotometry and phosphate phosphorus by calculation MERCK set	S-46A (MERCK manual, ČSN EN ISO 6878)	Water, liquid sludge

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Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
31 <sup>3</sup>	Determination of phosphate by spectrophotometry and phosphate phosphorus by calculation	S-46B (ČSN EN ISO 6878)	Drinking, hot, ground, surface, bottled, bathing water
32 <sup>2</sup>	Determination of total phosphorus by spectrophotometry MERCK set	S-47A (MERCK manual, ČSN EN ISO 6878)	Water, liquid sludge
33 <sup>3</sup>	Determination of total phosphorus by spectrophotometry and MERCK set	S-47B (ČSN EN ISO 6878, MERCK manual)	Water, liquid sludge
34 <sup>2,3</sup>	Determination of anionic surfactants by spectrophotometry using HACH set	S-48 (HACH manual, ČSN EN 903)	Water
35 <sup>2,3</sup>	Determination of biochemical oxygen demand after n days (BODn) by electrochemical probe method	S-50A (ČSN EN ISO 5815-1, ČSN EN 1899-2, ČSN EN ISO 5814)	Water, liquid sludge
36 <sup>3</sup>	Determination of biochemical oxygen demand after n days (BODn) by optical probe method	S-50B (ČSN EN ISO 5815-1, ČSN EN 1899-2, ČSN ISO 17289)	Water
37 <sup>2</sup>	Determination of suspended solids and loss on ignition of suspended solids by gravimetry	S-52A (ČSN EN 872, ČSN 75 7350)	Water, liquid sludge
38 <sup>3</sup>	Determination of suspended solids by gravimetry	S-52B (ČSN EN 872)	Water, liquid sludge
39 <sup>2,3</sup>	Determination of total solids and loss on ignition of total solids by gravimetry	S-53A (ČSN EN 12880)	Water, liquid sludge
40 <sup>2,3</sup>	Determination of total solids and loss on ignition of total solids by gravimetry	S-53B (ČSN EN 12880)	Dewatered sludge

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Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
41 <sup>2,3</sup>	Determination of fats and oils by gravimetry	S-54 (ČSN 75 7509)	Waste water
42 <sup>1,3</sup>	Determination of colour by spectrophotometry	S-64 (ČSN EN ISO 7887)	Drinking, hot, ground, surface, bottled, bathing water
431	Determination of metals by flame AAS (Ag, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Zn)	S-65 except chap. 10.1.4. (GBC manual, ČSN ISO 8288, ČSN EN ISO 5961, ČSN EN 1233, ČSN 75 7400, ČSN 75 7385, ČSN EN ISO 15587-1, ČSN EN ISO 15587-2)	Water, liquid sludge
441	Determination of metals by flame AAS (Ag, Cd, Co, Cr, Cu, Ni, Pb, Zn)	S-65 except chap. 10.1.2., 10.1.3. (GBC manual, ČSN ISO 8288, ČSN EN ISO 5961, ČSN EN 1233, ČSN 75 7400, ČSN 46 5735, ČSN EN ISO 15587-1, ČSN EN ISO 15587-2)	Dewatered sludge
451	Determination of metals by flameless AAS (As, Ba, Be, Cd, Co, Cr, Ni, Pb, Sb, Se, V)	S-66 except chap. 10.1.4. (GBC manual, ČSN EN ISO 15586, ČSN EN ISO 5961, ČSN EN 1233, TNV 75 7408, ČSN EN ISO 15587-1, ČSN EN ISO 15587-2)	Water, liquid sludge
46 <sup>1</sup>	Determination of metals by flameless AAS (As, Ba, Be, Cd, Cr, Ni, Pb, Sb, Se, V)	S-66 except chap. 10.1.2., 10.1.3. (GBC manual, ČSN EN ISO 15586, ČSN EN ISO 3961, ČSN EN 1233,	Dewatered sludge

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Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
		TNV 75 7408, ČSN 46 5735, ČSN EN ISO 15587-1, ČSN EN ISO 15587-2)	
47 <sup>1</sup>	Determination of mercury by single purpose AAS AMA 254	S-67 (ČSN 75 7440, ČSN 46 5735, ČSN EN ISO 15587-2)	Water, liquid and dewatered sludge
481	Determination of sodium and potassium by flame AES	S-75 (GBC manual, ČSN ISO 9964-3)	Water
49 <sup>1</sup>	Determination of adsorbable organically bound halogens (AOX) by coulometry	S-76A (ČSN EN ISO 9562)	Water, liquid sludge
50 <sup>1</sup>	Determination of adsorbable organically bound halogens (AOX) by coulometry	S-76B (ČSN EN ISO 9562, ČSN EN 16166)	Dewatered sludge
51 <sup>1</sup>	Determination of boron by spectrophotometry	S-77 (ČSN ISO 9390)	Drinking, hot, ground, surface, bottled, bathing water
52 <sup>1,3</sup>	Determination of humic substances by spectrophotometry	S-79 (ČSN 75 7536)	Drinking, hot, ground, surface, bottled, bathing water
533	Determination of nitrate by spectrophotometry	S-83 (Standard Methods for the Examination of Water and Wastewater, 14th Issue American Public Health Association, Washington 1975)	Drinking, hot, ground, surface, bottled, bathing water



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Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
543	Determination of sulphate by spectrophotometry	S-86 (Standard Methods for the Examination of Water and Wastewater, 14th Issue American Public Health Association, Washington 1975)	Drinking, hot, ground, surface, bottled, bathing water
55 <sup>1</sup>	Determination of total cyanide by spectrophotometry	S-87 (ČSN 75 7415, MERCK manual)	Water
56 <sup>3</sup>	Determination of total cyanide by spectrophotometry	S-87 (ČSN 75 7415, MERCK manual)	Water (excl. waste water)
57	Reserved		
58 <sup>3</sup>	Determination of redox potential by electrometric method	S-89 (ČSN 75 7367)	Drinking, hot, ground, surface, bottled, bathing water
59 <sup>3</sup>	Determination of chlorite by spectrophotometry by Macherey - Nagel set	S-90 (Macherey - Nagel manual)	Drinking, hot, bathing water
60 <sup>3</sup>	Determination of total organic carbon (TOC) by infrared spectrometry method	S-111 (ČSN EN 1484)	Water
61 <sup>1</sup>	Determination of hydrocarbons C <sub>10</sub> - C <sub>40</sub> by gas chromatography (FID)	S-112 (ČSN EN ISO 9377-2)	Water
62	Reserved		
631	Determination of anions <sup>3)</sup> by ion chromatography (conductivity detection)	S-115 (ČSN EN ISO 10304-1, ČSN EN ISO 10304-4, ČSN EN ISO 15061)	Water
64 <sup>2,3</sup>	Determination of COD with dichromate by spectrophotometry using HACH set	S-117 (HACH manual, ČSN ISO 15705)	Water, liquid sludge

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Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
65 <sup>3</sup>	Determination of total nitrogen by spectrophotometry using HACH set and organic nitrogen by calculation	S-118 (HACH manual)	Drinking, hot, ground, surface and waste water, liquid sludge
66-100	Reserved		
101 <sup>1,3</sup>	Detection and enumeration of thermotolerant coliform bacteria and <i>Escherichia coli</i> by membrane filtration method	S-24 (ČSN 75 7835)	Drinking, hot, ground, surface, bottled, bathing water
102 <sup>1,3</sup>	Detection and enumeration of intestinal enterococci by membrane filtration method	S-25 (ČSN EN ISO 7899-2)	Drinking, hot, ground, surface, bottled, bathing water
1031,3	Enumeration of culturable microorganisms at 22 °C and 36 °C by direct inoculation method	S-39 (ČSN EN ISO 6222)	Drinking, hot, ground, surface, bottled, bathing water
104 <sup>3</sup>	Determination of abioseston by microscopic method	S-91 (ČSN 75 7713)	Drinking, hot, ground, surface, bottled, bathing water
105 <sup>3</sup>	Determination of microscopic image - number of organisms, live and dead organisms - microscopic method	S-92 (ČSN 75 7712)	Drinking, hot, ground, surface, bottled, bathing water
106 <sup>3</sup>	Detection and enumeration of <i>Pseudomonas aeruginosa</i> by membrane filtration method	S-93 (ČSN EN ISO 16266)	Drinking, hot, ground, surface, bottled, bathing water
107³	Detection and enumeration of <i>Clostridium perfringens</i> , including spores, by membrane filtration method	S-94 (Regulation No. 252/2004 Coll., as amended, Annex No. 6, ČSN EN ISO 14189)	Drinking, hot, ground, surface, bottled, bathing water
108 <sup>3</sup>	Enumeration of coagulase- positive staphylococci and Staphylococcus aureus by membrane filtration method	S-95 (ČSN EN ISO 6888-1)	Drinking, hot, ground, surface, bottled, bathing water

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Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
109 <sup>3</sup>	Enumeration of coliform bacteria in non-disinfected water by membrane filtration method	S-96 (ČSN 75 7837)	Drinking, hot, ground, surface, bottled, bathing water
1103	Detection and enumeration of <i>Legionella</i> by membrane filtration method	S-97 (ČSN EN ISO 11731)	Drinking, hot, ground, surface, bottled, bathing water
111 <sup>1,3</sup>	Detection and enumeration of coliform bacteria and <i>Escherichia coli</i> by membrane filtration method	S-116 (ČSN EN ISO 9308-1)	Drinking, hot, ground, surface, bottled, bathing water

- asterisk at the ordinal number identifies the tests, which the Laboratory is qualified to carry out outside the permanent laboratory premises
- <sup>2</sup> 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)
- <sup>3</sup> anions: bromates, nitrates, nitrites, fluorides, phosphates, chlorates, chlorides, chlorites, sulphates and nitrate nitrogen, nitrite nitrogen, phosphate phosphorus, sum of chlorates and chlorites by calculation

The tests carried out by specific workplaces are identified by a superscript in the "Ordinal number" column indicating the workplace number.

### Annex:

Flexible scope of accreditation

	Ordinal numbers of tests	
43-46, 48, 63		

The Laboratory is allowed to modify the test methods 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 tests not included in the Annex.

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# MORAVSKÁ VODÁRENSKÁ, a.s. Water Quality Control Department

Dolní Novosadská, 779 00 Olomouc

## Sampling:

Ordinal number	Sampling procedure name	Sampling procedure identification <sup>1</sup>	Sampled object
1 1,2,3	Drinking water sampling	S-301	Drinking, raw, process,
		(ČSN EN ISO 5667-1,	hot water
		ČSN EN ISO 5667-3,	
		ČSN ISO 5667-5,	
		ČSN EN ISO 5667-14,	
		ČSN ISO 5667-21,	
		ČSN EN ISO 19458)	5
21,2,3	Sampling	S-302	Ground water
	of ground water	(ČSN EN ISO 5667-1,	
	(static, dynamic)	ČSN EN ISO 5667-3,	
		ČSN ISO 5667-11,	*
		ČSN EN ISO 5667-14,	
		ČSN EN ISO 19458)	
31,2,3	Sampling	S-303	Surface water
	of surface water	(ČSN EN ISO 5667-1,	
		ČSN EN ISO 5667-3,	
		ČSN ISO 5667-4,	
		ČSN EN ISO 5667-6,	
		ČSN EN ISO 5667-14,	
		ČSN EN ISO 19458)	
41,2,3	Sampling	S-304	Waste water
	of waste water	(ČSN EN ISO 5667-1,	
	(manual sampling and	ČSN EN ISO 5667-3,	
	sampling using an	ČSN ISO 5667-10,	
	automatic sampler)	ČSN EN ISO 5667-14,	
		ČSN EN ISO 19458)	
51,2,3	Sampling of sludge and	S-305	Liquid and dewatered
	waste	(ČSN EN 14899,	sludge, liquid and solid
		ČSN EN ISO 5667-1,	waste, biowaste
		ČSN EN ISO 5667-3,	
		ČSN EN ISO 5667-13,	
		ČSN EN ISO 5667-14,	
	2	ČSN EN ISO 5667-15,	
		ČSNENUSO 19458)	

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Ordinal number	Sampling procedure name	Sampling procedure identification <sup>1</sup>	Sampled object
63	Sampling	S-306	Bathing water
	of bathing water	(Regulation No. 238/2011	
	~~	Coll. as amended,	
		ČSN EN ISO 5667-1,	
		ČSN EN ISO 5667-3,	
		ČSN ISO 5667-4,	
		ČSN EN ISO 5667-6,	
		ČSN EN ISO 5667-14,	
		ČSN EN ISO 19458)	

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)

### **Explanations:**

Water – drinking (including raw, process water from WTP), hot, ground, surface, bottled, waste, bathing water Liquid sludge – liquid sample of sludge containing usually less than 50 g of dry matter per kilogram of sludge

S — standard operating procedure prepared on the basis of valid standards, technical literature and firm manuals

AAS - Atomic Absorption Spectrometry, Atomic Absorption Spectrometer

AES - Atomic Emission Spectrometry

FID - Flame Ionization Detector

TNV - Branch Technical Standard of Water Management

WTP - Water Treatment Plant

