



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. 604/2018

Výzkumný ústav stavebních hmot, a.s.  
with registered office Hněvkovského 30/65, Komárov, 617 00 Brno, Company Registration  
No. 26232511

to the Testing Laboratory No. 1130.2  
ATElab

### Scope of accreditation:

Testing of chemical, ecological, microbiological and radiological properties of raw materials, building materials and products made of them, silicate materials and waste materials 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.: 575/2017 of 29. 9. 2017, or any administrative acts building upon it.

The Certificate of Accreditation is valid until: 16. 11. 2023

Prague: 16. 11. 2018



*J. Růžička*  
Jiří Růžička  
Director  
Czech Accreditation Institute  
Public Service Company

**The Appendix is an integral part of  
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*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.*

*Updated list of activities provided within the required flexible scope of accreditation is available at the Laboratory from the Laboratory Manager and on the company web site [www.vustah.cz](http://www.vustah.cz).*

*The Laboratory provides expert opinions and interprets test results.*

**Tests:**

Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
1	Determination of the loss by drying by gravimetry	SOP CH01 (ČSN 72 0102, ČSN 72 1206, p. 28, ČSN ISO 11 465)	Building materials, raw materials for their production and waste <sup>5</sup>
2	Determination of the loss on ignition by gravimetry	SOP CH02 (ČSN 72 0103, ČSN 72 1206, p. 30)	Building materials, raw materials for their production
3	Determination of the loss by ignition in cement by gravimetry	SOP CH03 (ČSN EN 196-2, p. 4.4.1)	Building materials, raw materials for their production
4	Determination of silicon dioxide by gravimetry	SOP CH04 (ČSN 72 0105-1)	Building materials, raw materials for their production
5	Determination of silicon dioxide by double evaporation by gravimetric method	SOP CH05 (ČSN EN 196-2, p. 4.5.2, 4.5.3, 4.5.6, 4.5.7, 4.5.8, 4.5.9)	Building materials, raw materials for their production
6	Determination of silicon dioxide by decomposition with ammonium chloride by gravimetric method	SOP CH06 (ČSN EN 196-2, p. 4.5.5, 4.5.6, 4.5.7, 4.5.8, 4.5.9)	Building materials, raw materials for their production
7	Determination of silicon dioxide by defumigation with hydrofluoric acid by gravimetric method	SOP CH07 (ČSN 72 0105-2)	Building materials, raw materials for their production
8	Determination of silicon dioxide and acid-indecomposable share by gravimetric method	SOP CH08 (ČSN 72 0106)	Building materials, raw materials for their production
9	Determination of acid-indecomposable share by gravimetric method	SOP CH09 (ČSN 72 0107)	Building materials, raw materials for their production
10	Determination of the residue insoluble in hydrochloric acid and sodium carbonate by gravimetric method	SOP CH10 (ČSN EN 196-2, p. 4.4.3)	Building materials, raw materials for their production and waste <sup>3</sup>

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Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
11	Determination of the residue insoluble in hydrochloric acid and potassium hydroxide by gravimetric method	SOP CH11 (ČSN EN 196-2, p. 4.4.4)	Building materials, raw materials for their production
12	Determination of oxides of ammoniacal group- $R_2O_3$ by gravimetric <sup>3</sup> method	SOP CH12 (ČSN 72 0108: 1974)	Building materials, raw materials for their production
13	Determination of total sulphur expressed as sulphur dioxide by gravimetric method	SOP CH13 (ČSN 72 0118)	Building materials, raw materials for their production
14	Determination of sulphate sulphur expressed as sulphur trioxide by gravimetric method	SOP CH14 (ČSN 72 0117)	Building materials, raw materials for their production
15	Determination of sulphate expressed as sulphur trioxide by gravimetric method	SOP CH15 (ČSN EN 196-2, p. 4.4.2)	Building materials, raw materials for their production
16	Complexometric determination of the content of aluminium oxide	SOP CH16 (ČSN EN 196-2, p. 4. 5. 11)	Building materials, raw materials for their production
17	Complexometric determination of calcium monoxide after removal of disturbing elements	SOP CH17 (ČSN 72 0113-2)	Building materials, raw materials for their production
18	Complexometric determination of calcium monoxide	SOP CH18 (ČSN EN 196-2, p. 4. 5. 12)	Building materials, raw materials for their production
19	Complexometric determination of magnesium oxide after removal of disturbing elements	SOP CH19 (ČSN 72 0114-2)	Building materials, raw materials for their production
20	Complexometric determination of the content of magnesium oxide	SOP CH20 (ČSN EN 196-2, p. 4. 5. 13)	Building materials, raw materials for their production
21	Complexometric determination of the content of iron oxide	SOP CH21 (ČSN EN 196-2, p. 4. 5. 10)	Building materials, raw materials for their production
22	Determination of iron oxide by photometry with sulphosalicylic acid	SOP CH22 (ČSN 72 0110-1)	Building materials, raw materials for their production
23	Determination of titanium dioxide by photometry with hydrogen peroxide	SOP CH23 (ČSN 72 0112-1)	Building materials, raw materials for their production
24	Determination of phosphorus pentoxide by photometry as phosphomolybdenum vanadium complex	SOP CH24 (ČSN 72 0116-1)	Building materials, raw materials for their production





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Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
25	Determination of oxides Na <sub>2</sub> O, K <sub>2</sub> O, MgO, Fe <sub>2</sub> O <sub>3</sub> , MnO, Al <sub>2</sub> O <sub>3</sub> by F-AAS and Na <sub>2</sub> O equivalent by calculation from measured values	SOP CH25 (ČSN 72 0119-2:1974, ČSN 72 0114-3: 1974, ČSN EN 196-2, p. 4.5.19)	Building materials, raw materials for their production
26	Determination of alkali content – Na <sub>2</sub> O and K <sub>2</sub> O by F- AAS method and Na <sub>2</sub> O equivalent by calculation from measured values	SOP CH26 (ČSN EN 480-12)	Admixtures for concrete, mortar and injection mortar
27	Reserved		
28	Determination of the content of chlorides by mercury metric method	SOP CH28 (ČSN 72 2111:1988)	Building materials, raw materials for their production
29	Determination of chlorides by titration	SOP CH29 (ČSN EN 196-2, p. 4. 5. 16)	Building materials, raw materials for their production
30	Determination of iron monoxide by titrimetric method with potassium dichromate	SOP CH30 (ČSN 72 0111)	Building materials, raw materials for their production
31	Determination of free calcium monoxide by saccharate method	SOP CH31 (ČSN 72 2080, p. 9.18)	Building materials, raw materials for their production
32	Determination of sulphide sulphur by iodometry	SOP CH32 (ČSN EN 196-2, p. 4.4.5)	Building materials, raw materials for their production
33	Reserved		
34	Determination of free calcium monoxide by acidimetry	SOP CH34 (ČSN EN 451-1)	Building materials, raw materials for their production
35	Determination of carbon dioxide by gravimetry	SOP CH35 (ČSN EN 196-2, p. 4. 5. 17)	Building materials, raw materials for their production
36	Determination of sulphur dioxide by gravimetry	SOP CH36 (ČSN 72 2080, p. 9.20)	Building materials, raw materials for their production
37	Determination of elements <sup>4</sup> by ICP-OES in solid matrices	SOP CH37 (ČSN EN ISO 11885)	Building materials, raw materials for their production and waste <sup>5</sup>
38	Determination of elements <sup>8</sup> by ICP-OES in liquid matrices	SOP CH38 (ČSN EN ISO 11885)	Extracts <sup>6</sup> , water <sup>6</sup>
39	Reserved		



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Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
40	Determination of mercury by single purpose analyzer AMA 254	SOP CH40 (ČSN 75 7440, ČSN EN 12 457- 4)	Building materials, raw materials for their production and waste <sup>5</sup> , extracts <sup>6</sup> , water <sup>6</sup>
41	Reserved		
42	Determination of water-soluble salts and pH of extract. Determination of pH of extract by electrochemical method	SOP CH27a (ČSN 72 2080, p. 9.22)	Building materials, raw materials for their production
43	Determination of water-soluble salts and pH of extract. Determination of sulphate expressed as sulphur trioxide by gravimetric method	SOP CH27b (ČSN 72 2080, p. 9.22)	Building materials, raw materials for their production
44	Determination of water-soluble salts and pH of extract. Determination of Na <sub>2</sub> O, K <sub>2</sub> O, CaO by F-AAS method	SOP CH27c (ČSN 72 2080, p. 9.22)	Building materials, raw materials for their production
45-50	Reserved		
51	Determination of the acute lethal toxicity of substances to a freshwater fish <i>Poecilia reticulata</i>	SOP E51 (ČSN EN ISO 7346-2)	Building materials, raw materials for their production and waste <sup>5</sup> , aqueous extract, chemicals
52	Determination of the inhibition of the mobility of <i>Daphnia magna</i> Straus - Acute toxicity test	SOP E52 (ČSN EN ISO 6341)	Building materials, raw materials for their production and waste <sup>5</sup> , aqueous extract, chemicals
53	Freshwater algal growth inhibition test <i>Desmodesmus subspicatus</i>	SOP E53 (ČSN EN ISO 8692)	Building materials, raw materials for their production and waste <sup>5</sup> , aqueous extract, chemicals
54	White mustard <i>Sinapis alba</i> root growth inhibition test	SOP E54 (Waste Department Guideline for the determination of waste ecotoxicity MoE Bulletin No. 4/2007)	Building materials, raw materials for their production and waste <sup>5</sup> , aqueous extract, chemicals
55	Test for inhibition of reproduction of <i>Collembola Folsomia candida</i>	SOP E56 (ČSN EN ISO 11267)	Building materials, raw materials for their production and waste <sup>5</sup> , aqueous extract, chemicals



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Ordinal number <sup>1</sup>	Test procedure/method name	Test procedure/method identification <sup>2</sup>	Tested object
56	Plant root growth inhibition test – terrestrial test	SOP E55 (ČSN EN ISO 11269 -1, Reg. No. 94/2016 Coll.)	Building materials, raw materials for their production and waste <sup>5</sup> , aqueous extract, chemicals
57-60	Reserved		
61	Determination of the resistance of materials to algae by organoleptic method	SOP M61 (ČSN EN 15458)	Building materials, raw materials for their production, chemical substances and preparations
62	Determination of total concentration of mixed population of moulds by culture method	SOP M62 (Regulation No. 6/2003 Coll., AHEM No. 1/2002)	Indoor and outdoor air, indoor
63	Determination of biological factors <sup>7</sup> – quantitatively, by culture	SOP M63 (ČSN ISO 18593, ČSN EN ISO 16212, ČSN 560100)	Building surfaces and mass
64-79	Reserved		
80	Measurement and evaluation of the content of natural radionuclides by gamma-ray spectrometry method	SOP RNL80 (SÚJB Recommendation for the measurement and evaluation of the content of natural radionuclides in building materials)	Building materials, raw materials for their production and waste <sup>5</sup>
81*	Determination of radon index of a building site by direct radon measurement using an ion chamber	SOP RNL81 (SÚJB Recommendation for the determination of radon index by direct measurement)	Soil air

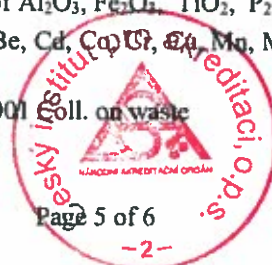
<sup>1</sup> Asterisk at the ordinal number identifies the tests, which the Laboratory is qualified to carry out outside the permanent laboratory premises.

<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> Oxides of ammoniacal group R<sub>2</sub>O<sub>3</sub> consist of Al<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, P<sub>2</sub>O<sub>5</sub>

<sup>4</sup> List of determined parameters: As, B, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Sn, Tl, V, Zn and Si (expressed also as SiO<sub>2</sub>)

<sup>5</sup> Solid waste according to the Act No. 185/2001 Coll. on waste



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- <sup>6</sup> Extracts – Aqueous extracts of solid samples according to MoE Regulation No. 294/2005 Coll. and ČSN EN 12457, water – all types
- <sup>7</sup> List of determined biological factors: moulds, algae
- <sup>8</sup> List of determined parameters: As, B, Ba, Be, Cd, Cr, Cu, Mo, Ni, Pb, Sb, Se, Zn

Annex:

Flexible scope of accreditation

Ordinal numbers of tests
51 to 56

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.

#### Explanations:

MoE – Ministry of Environment

SOP – Standard Operating Procedure - internal procedure based on a standard or technical literature

F-AAS – Flame Atomic Absorption Spectrophotometry

ICP/OES – Inductively Coupled Plasma Optical Emission Spectrometry

AHEM – Acta hygienica, epidemiologica et microbiologica

SÚJB – State Office for Nuclear Safety

