

**The Appendix is an integral part of
Certificate of Accreditation No. 640/2018 of 04/12/2018**

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

TÜV NORD Czech, s.r.o.
Laboratories and Testing Laboratories Brno
Olomoucká 7/9, 656 66 Brno

The Laboratory is qualified to update standards indentifying the test procedures.

The Laboratory provides expert opinions and interprets the test results

Tests:

Ordinal number ¹⁾	Test procedure/method name	Test procedure/method identification	Tested object
1	Determination of elements by ICP – OES (Al, As, B, Bi, Cd, Ce, Co, Cr, Cu, Fe, La, Mg, Mn, Mo, Nb, Nd, Ni, P, Pb, S, Sb, Se, Si, Sn, Ta, Te, Ti, V, W, Zn, Zr)	LPP 1 (ČSN EN 10351)	Fe-Ni-Cr-Co alloys
2	Determination of elements by ICP – OES (Ag, Al, Be, Bi, Cd, Ce, Co, Cr, Cu, Fe, Ga, Hg, La, Li, Mg, Mn, Na, Ni, P, Pb, Sb, Si, Sn, Sr, Ti, V, Zn, Zr)	LPP 2 (ČSN EN 14242)	Al-Mg-Zn alloys
3	Determination of elements by ICP – OES (Ag, Al, As, Au, B, Be, Bi, Cd, Co, Cr, Cu, Fe, In, Mg, Mn, Nb, Ni, P, S, Pb, Sb, Se, Si, Sn, Ti, Te, Tl, Zn, Zr)	LPP 3 (ČSN EN 15605)	Cu alloys
4	Determination of elements by ICP – OES (Ag, Al, As, Au, Ba, Bi, Ca, Cd, Cu, Fe, Ga, Hg, In, Na, Ni, P, Pb, S, Sb, Se, Sn, Te, Tl, Zn)	LPP 4 (ENV 13800)	Pb-Sn-Sb alloys
5	Determination of elements by ICP – OES (Al, As, Ba, Ca, Cd, Cl, Cr, Cu, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Se, Si, Sn, Sr, Ti, Te, Tl, V, W, Zn, Zr)	LPP 5 (ČSN 72 0101, EN ISO 16968, ČSN EN ISO 16968, EN 15411, ČSN EN 15411, EN ISO 11885, ČSN EN ISO 11885)	Silicates, deposits, ash, soils, limestone, products and raw materials containing SiC, graphite, solid biofuels, solid recovered biofuels
6	Reserved		



**The Appendix is an integral part of
Certificate of Accreditation No. 640/2018 of 04/12/2018**

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

TÜV NORD Czech, s.r.o.
Laboratories and Testing Laboratories Brno
Olomoucká 7/9, 656 66 Brno

Ordinal number ¹⁾	Test procedure/method name	Test procedure/method identification	Tested object
7	Determination of carbon content and sulphur by IR absorption after combustion	LPP 7 (ČSN EN ISO 15350)	Fe-Ni-Cr-Co alloys Cu alloys
8	Determination of microstructure of cast iron	LPP 8 (ČSN 42 0461, ČSN EN ISO 945-1:2011, ČSN EN ISO 945-1, GOST 3443, ASTM A 247, ASTM E 562)	Cast iron
9	Metallographic structures of wrought metallurgical products	LPP 9 (ČSN 42 0469, GOST 5640, GOST 8233)	Steel
10	Determination of microstructure of Al alloys	LPP 10 (ČSN 42 0491)	Al alloys
11	Determination of grain size	LPP 11 (ČSN 42 0462, ASTM E 112, ČSN EN ISO 643, GOST 5639, GOST 8233)	Steel and non-ferrous metals
12	Determination of microcleanness	LPP 12 (ČSN ISO 4967, DIN 50 602:1985, GOST 1778)	Steel
13	Measurement of surface layers	LPP 13 (ČSN EN ISO 3887, article 5.2, 5.3, ČSN EN ISO 2064, ČSN EN ISO 1463, ČSN EN ISO 2639, ČSN 42 0448:1985)	Metallic and inorganic materials



**The Appendix is an integral part of
Certificate of Accreditation No. 640/2018 of 04/12/2018**

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

TÜV NORD Czech, s.r.o.
Laboratories and Testing Laboratories Brno
Olomoucká 7/9, 656 66 Brno

Ordinal number ¹⁾	Test procedure/method name	Test procedure/method identification	Tested object
14	Metallographic tests of welded and soldered joints	LPP 14 (ČSN EN ISO 6520-1, ČSN EN ISO 6520-2, ČSN EN ISO 15614-1, ČSN EN ISO 15614-2, ČSN EN ISO 15614-5, ČSN EN ISO 15614-6, ČSN EN ISO 15614-7, ČSN EN ISO 15614-8, ČSN EN ISO 15614-12, ČSN EN ISO 15614-14, ČSN EN ISO 5817, ČSN EN ISO 10042, ASME CODE Section IX QW 183, QW 184, QW 453, GOST 8233, ČSN EN ISO 17639, ČSN EN 12797)	Steel and non-ferrous metals
15	Corrosion resistance test	LPP 15 (ČSN 03 8137, ČSN EN ISO 3651-2, DIN 50914: 1996, ASTM G 28, ASTM G 48, ČSN EN ISO 3651-1, ASTM A 262, GOST 6032)	Steel
16	Determination of macrostructure	LPP 16 (ČSN 42 0467, ASTM E 381, GOST 10243)	Steel
17	Determination of microstructure of metals and alloys	LPP 17 (ČSN 42 0460, ČSN 42 0003, ČSN 42 0466, ASTM E 3, ASTM E 407, ASTM E 562, GOST 8233, SEP 1520, SEP 1614, SEP 1615)	Steel, non-ferrous metals



**The Appendix is an integral part of
Certificate of Accreditation No. 640/2018 of 04/12/2018**

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

TÜV NORD Czech, s.r.o.
Laboratories and Testing Laboratories Brno
Olomoucká 7/9, 656 66 Brno

Ordinal number ¹⁾	Test procedure/method name	Test procedure/method identification	Tested object
18	Tensile test	LPP 18 (ČSN EN ISO 6892-1:2010, ČSN EN ISO 6892-1, ČSN EN ISO 6892-2, ČSN EN ISO 5178, ČSN EN ISO 15614-1 article 7.4.1, ČSN EN ISO 4136, ASME CODE Section II SA-370, ASME CODE Section IX QW 150, ASTM E8/E8M, GOST 1497, GOST 10006)	Steel, cast iron, welds, alloys
19	Shear strength test	LPP 19 (ČSN 42 0342)	Steel, cast iron, alloys
20	Heading test	LPP 20 (ČSN 42 0426)	Steel, cast iron, alloys
21	Brinell hardness test	LPP 21-1 (ČSN EN ISO 6506-1, ASME CODE Section II SA-370, ASTM E 10, GOST 9012)	Steel, cast iron, welds, alloys
22	Impact bend test	LPP 22 (ČSN EN ISO 148-1, ČSN EN ISO 15614-1 article 7.4.4, ČSN EN ISO 9016, GOST 9454)	Steel, cast iron, welds, alloys



**The Appendix is an integral part of
Certificate of Accreditation No. 640/2018 of 04/12/2018**

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

TÜV NORD Czech, s.r.o.
Laboratories and Testing Laboratories Brno
Olomoucká 7/9, 656 66 Brno

Ordinal number ¹⁾	Test procedure/method name	Test procedure/method identification	Tested object
23	Bend test	LPP 23 (ČSN EN ISO 7438, ČSN EN ISO 15614-1 article 7.4.2, ČSN EN ISO 5173, ASTM E 190, ASTM E 290, ASME CODE Section II SA-370, ASME CODE Section IX QW 160, GOST 14019)	Steel, cast iron, welds, alloys
24	Technological tests of tubes	LPP 24 (ČSN EN ISO 8492, ČSN EN ISO 8493, ČSN EN ISO 8495, ČSN EN ISO 8496, ASME CODE Section II SA-450, SA-450M, SA-370)	Steel, cast iron, alloys
25	Determination of weight loss by gravimetry	LPP 25 (ČSN 72 0100, ČSN 72 0103, ČSN 72 1610)	Silicates, deposits, sediments, ashes, fly ashes, graphite
26	Determination of water content by drying method by gravimetry	LPP 26 (ČSN 44 1377, ČSN P CEN/TS 15414-1, ČSN P CEN/TS 15414-2, ČSN EN 15414-3, ČSN EN ISO 18134-1, EN ISO 18134-1, ČSN EN ISO 18134-2, EN ISO 18134-2, ČSN EN ISO 18134-3, EN ISO 18134-3, DIN 51718 method B)	Solid fuels, solid recovered biofuels, solid biofuels
27	Determination of ash content by gravimetry	LPP 27 (ČSN ISO 1171, ČSN EN 15403, ČSN EN ISO 18122, EN ISO 18122, DIN 51719)	Solid fuels, solid recovered biofuels, solid biofuels



**The Appendix is an integral part of
Certificate of Accreditation No. 640/2018 of 04/12/2018**

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

TÜV NORD Czech, s.r.o.
Laboratories and Testing Laboratories Brno
Olomoucká 7/9, 656 66 Brno

Ordinal number ¹⁾	Test procedure/method name	Test procedure/method identification	Tested object
28	Determination of volatile combustible matter by gravimetry	LPP 28 (ČSN 44 1351:1980, ČSN ISO 562, ČSN EN 15402, ČSN EN ISO 18123, EN ISO 18123)	Solid fuels, solid recovered biofuels, solid biofuels
29	Determination of gross calorific value and net calorific value by calorimetry	LPP 29 (ČSN ISO 1928, ČSN EN 15400, ČSN EN ISO 18125, EN ISO 18125, ČSN DIN 51900-1, ČSN DIN 51900-2)	Solid fuels, solid recovered biofuels, solid biofuels
30	Gravimetric determination of hydrogen and carbon by combustion in oxygen flow	LPP 30 (ČSN 44 1355)	Solid fuels, solid recovered biofuels, solid biofuels
31	Determination of Kjeldahl nitrogen	LPP 31 (ČSN 44 1356:1962)	Solid fuels, solid recovered biofuels, solid biofuels
32	Determination of total sulphur by Eschka method	LPP 32 (ČSN 44 1379)	Solid fuels, solid recovered biofuels, solid biofuels
33	Determination of grindability by Hardgrove method	LPP 33 (ČSN 44 1338:1982)	Coal
34	Determination of grindability by VTI method	LPP 34 (GOST 15489)	Coal
35	Determination of underfire by gravimetry	LPP 35 (ČSN 44 1355)	Solid fuels, ash matter
36	Granulometric analysis - gravimetric method	LPP 36 (ČSN 44 1340, ČSN ISO 1953, ČSN EN 15415-1, ČSN EN ISO 17827-2)	Solid fuels, ash matter, solid recovered biofuels, solid biofuels
37	Determination of water - distillation method	LPP 37 (ČSN EN ISO 9029)	Liquid fuels, industrial oils
38	Determination of ash content by gravimetry	LPP 38 (ČSN EN ISO 6245)	Liquid fuels, industrial oils
39	Gravimetric determination of hydrogen and carbon by combustion in oxygen flow	LPP 39 (ČSN 44 1355)	Liquid fuels



**The Appendix is an integral part of
Certificate of Accreditation No. 640/2018 of 04/12/2018**

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

TÜV NORD Czech, s.r.o.
Laboratories and Testing Laboratories Brno
Olomoucká 7/9, 656 66 Brno

Ordinal number ¹⁾	Test procedure/method name	Test procedure/method identification	Tested object
40	Determination of Kjeldahl nitrogen	LPP 40 (ČSN 44 1356)	Liquid fuels
41	Determination of sulphur by gravimetry	LPP 41 (ČSN 65 6079)	Liquid fuels
42	Determination of gross calorific value and net calorific value by calorimetry	LPP 42 (ČSN DIN 51900-1, ČSN DIN 51900-2)	Liquid fuels
43	Chemical analysis of SiC by gravimetry	LPP 43 (ČSN EN ISO 21068-1, ČSN EN ISO 21068-2)	Products and raw materials containing SiC
44-48	Reserved		
49	Determination of total carbon, hydrogen, nitrogen and sulphur content – instrumental method	LPP 49 (ČSN ISO 29541, EN 15407, ČSN EN 15407, EN ISO 16948, ČSN EN ISO 16948, EN ISO 16994, ČSN EN ISO 16994, ČSN ISO 19579, ČSN EN 15408)	Solid fuels, solid recovered biofuels, solid biofuels
50	Determination of electrical conductivity	LPP 50 (ČSN EN 27888)	Power water, surface water
51	Determination of pH by potentiometry	LPP 51 (ČSN ISO 10523)	Power water, surface water
52	Determination of acid neutralizing capacity (ANC) by titration	LPP 52 (ČSN EN ISO 9963-1)	Power water, surface water
53	Reserved		
54	Determination of bulk density by gravimetry	LPP 54 (ČSN EN ISO 17828, EN ISO 17828, ČSN P CEN/TS 15401)	Solid recovered biofuels, solid biofuels
55	Determination of density of particles of pellets and briquettes by gravimetry	LPP 55 (DIN 52182)	Solid recovered biofuels, solid biofuels



**The Appendix is an integral part of
Certificate of Accreditation No. 640/2018 of 04/12/2018**

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

TÜV NORD Czech, s.r.o.
Laboratories and Testing Laboratories Brno
Olomoucká 7/9, 656 66 Brno

Ordinal number ¹⁾	Test procedure/method name	Test procedure/method identification	Tested object
56	Determination of mechanical durability of pellets by gravimetry	LPP 56 (EN ISO 17831-1, ČSN EN ISO 17831-1, EN ISO 18846, ČSN EN ISO 18846, ČSN P CEN/TS 15639)	Solid recovered biofuels, solid biofuels
57	Dimensions of pellets and briquettes	LPP 57 (EN ISO 17829, ČSN EN ISO 17829, DIN 51731, ÖNORM M 7135)	Solid recovered biofuels, solid biofuels
58- 60	Reserved		
61	Determination of ferrite content	LPP 61 (FERITSCOPE FMP30 from FISCHER Instruction Manual)	Steel
62	Uniaxial creep testing in tension	LPP 62 (ČSN EN ISO 204)	Steel, cast iron, alloys
63	Rockwell hardness test	LPP 21-2 (ČSN EN ISO 6508-1, ASME CODE Section II SA-370, ASTM E 18, GOST 9013)	Steel, cast iron, alloys
64	Vickers hardness test	LPP 21-3 (ČSN EN ISO 6507-1, ČSN EN 23878, ČSN EN ISO 15614-1 article 7.4.6, ČSN EN ISO 9015-1, ASME CODE Section II SA-370; ASTM E 92, GOST 2999)	Steel, cast iron, welds, alloys



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

TÜV NORD Czech, s.r.o.
Laboratories and Testing Laboratories Brno
Olomoucká 7/9, 656 66 Brno

Sampling:

Ordinal number ¹⁾	Sampling procedure name	Sampling procedure identification	Sampled object
1	Solid biofuel sampling	SOP 1 (ČSN EN ISO 18135, DIN 51731:1996, ÖNORM M 7135:2009)	Solid biofuels

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

Explanations:

LPP - Laboratory Working Procedure

SOP - Standard Operating Procedure

SEP - „Stahl-Eisen Prüfblätter“ The German Metallurgical Association

GOST - Russian standard

ASTM - US standard

ASME - Technical Specification of the Association of Mechanical Engineers

ENV - European Pre-standard

ÖNORM - Austrian standard

ICP – OES - Inductively Coupled Plasma Optical Emission Spectrometer

Power plant water - supply water, boiler water, saturated steam, superheated steam, condensate

Solid fuels – black coal, brown coal, lignite, peat, charcoal, charcoal briquettes

