

4. Laboratory test

4.1. Test methods

The laboratory tests for the proof of conformity of the pellet quality with the requirements of OENORM EN ISO 17225-2 were carried out at Holzforschung Austria (1), AT-1030 Vienna and at BEA Institut für Bioenergie GmbH (2), AT-1150 Vienna.

EN ISO 16948 (C/H/N) ²	EN ISO 18122 (ash) ¹
EN ISO 16968 (minor elements) ²	EN ISO 18125 (net calorific value) ¹
EN ISO 16994 (chlorine, sulfur) ¹	EN ISO 18134-2 (moisture) ¹
EN ISO 17828 (bulk density) ¹	EN ISO 18846 (fines) ¹
EN ISO 17829 (dimensions) ¹	CEN/TS 15370-1 (ash melting behaviour) ²
EN ISO 17831-1 (mech. durability) ¹	

All the above-mentioned standards are applied in the current version.

4.2. Test results

Parameter	Unit	Reference state	Results			Requirements according to
			8 mm (oak)	6 mm (oak)	6 mm (oak/spruce)	ENplus® A1
Diameter, D	mm	ar	8,3	6,0 **	6,0 **	6 ± 1 (8 ± 1)
Length, L	mm	ar	17,5 (6 - 27)	15,9 (5 - 28) **	15,9 (5 - 28) **	3,15 < L ≤ 40
Moisture, M	%	ar	7,3	5,4	5,3	≤ 10
Ash, A	%	d	0,4	--	0,4 *	≤ 0,7
Ash deformation temperature, DT	°C	d	1450	--	1420	≥ 1200
Mechanical durability, DU	%	ar	98,5	98,6	98,6	≥ 98,0
Fines F (< 3,15 mm) bagged pellets	%	ar	0,29	0,36	0,38	≤ 0,5
Net calorific value, Q	MJ/kg	ar	16,93	17,28	17,57	≥ 16,5
Net calorific value, Q	kWh/kg	ar	4,70	4,80	4,88	≥ 4,6
Gross calorific value, q _{v,gr}	MJ/kg	ar	18,28	18,61	18,94	--
Gross calorific value, q _{v,gr}	kWh/kg	ar	5,08	5,17	5,26	--
Bulk density, BD	kg/m ³	ar	650	700	670	600 ≤ BD ≤ 750
Additives	%	d	--	--	--	≤ 2
Nitrogen, N	%	d	0,111	--	0,135	≤ 0,3
Sulfur, S	%	d	0,010	--	0,011	≤ 0,04
Chlorine, Cl	%	d	<0,005	--	<0,005	≤ 0,02
Arsenic, As	mg/kg	d	<0,50	--	<0,50	≤ 1
Cadmium, Cd	mg/kg	d	<0,10	--	<0,10	≤ 0,5
Chromium, Cr	mg/kg	d	<1,0	--	<1,0	≤ 10
Copper, Cu	mg/kg	d	1,8	--	1,5	≤ 10
Lead, Pb	mg/kg	d	<0,50	--	<0,50	≤ 10
Mercury, Hg	mg/kg	d	< 0,075	--	<0,075	≤ 0,1
Nickel, Ni	mg/kg	d	<1,0	--	<1,0	≤ 10
Zinc, Zn	mg/kg	d	<5,0	--	<5,0	≤ 100

ar ... as received

d ... dry basis

* ... results from additionally required sample (submitted on 07.06.2021)

** ... results from additionally required sample from production line with 6 mm (submitted on 10.09.2021)