HOLZ FORSCHUNG AUSTRIA

REPORT

Contract no:	1608/2018 - HB	09.07.2018 STM/KAA
Customer:	Lucchese SRL Viale Del Commercio IT-37046 Minerbe VR	
Subject:	Analysis of wood pellets according to OENORM EN ISO 17225-2	
Date of contract:	08.06.2018	
Date of sample delivery:	19.06.2018	
Date of service:	June – July 2018	
Period of validity:	--	
Pages:	4	
Enclosures:	--	

HOLZFORSCHUNG AUSTRIA - ÖSTERREICHISCHE GESELLSCHAFT FÜR HOLZFORSCHUNG ZVR 850936522
A-1030 Wien, Franz Grill-Straße 7 Tel +43-1/798 26 23-0 Fax +43-1/798 26 23-50
hfa@holzforschung.at www.holzforschung.at

1. Contract

On the basis of the email dated 08.06.2018 Lucchese SRL, IT-37046 Minerbe VR ordered Holzforschung Austria to test wood pellets according to OENORM EN ISO 17225-2.

2. Material for laboratory tests

The sample provided by Lucchese SRL (approx. 15 kg of wood pellets, packed in a plastic bag) was sent to Holzforschung Austria at 19.06.2018 by mail.

3. Laboratory tests

The tests were carried out in the laboratories of Holzforschung Austria (1), AT-1030 Vienna, at BEA Institut für Bioenergie GmbH (2), AT-1150 Vienna and at ESW Consulting Wruss ZT GmbH (3), 1120 Vienna.

ÖNORM EN ISO 16948 (C/H/N)[2]
ÖNORM EN ISO 16968 (minor elements)[3]
ÖNORM EN ISO 16994 (Cl/S)[2]
ÖNORM EN ISO 17828 (bulk density)[1]
ÖNORM EN ISO 17829 (dimensions)[1]
ÖNORM EN ISO 17831-1 (mechanical durability)[1]
ÖNORM EN ISO 18122 (ash)[1]
ÖNORM EN ISO 18125 (net calorific value)[1]
ÖNORM EN ISO 18134-2 (moisture)[1]
ÖNORM EN ISO 18846 (fines)[1]
CEN/TS 15370-1 (ash melting behaviour)[2]

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

3.1. Test results

Parameter	Unit	Reference state	Result	Requirements according to OENORM EN ISO 17225-2	
				A1	A2
Diameter, D	mm	ar	**6,0**	6 ± 1 (8 ± 1)	6 ± 1 (8 ± 1)
Length, L	mm	ar	**15,1 (8 - 24)**	3,15 < L ≤ 40	3,15 < L ≤ 40
Moisture, M	%	ar	**4,7**	≤ 10	≤ 10
Ash, A	%	d	**0,4**	≤ 0,7	≤ 1,2
Ash melting behaviour *:					
Shrinking temperature, SST	°C	d	**1040**	--	--
Deformation temperature, DT	°C	d	**1420**	–	--
Hemisphere temperature, HT	°C	d	**> 1550**	--	--
Flow temperature, FT	°C	d	**> 1550**	--	--
Mechanical durability, DU	%	ar	**97,4**	≥ 97,5	≥ 97,5
Fines F (< 3,15 mm)	%	ar	**0,55**	≤ 1,0	≤ 1,0
Net calorific value, Q	MJ/kg	ar	**17,58**	≥ 16,5	≥ 16,5
Net calorific value, Q	kWh/kg	ar	**4,88**	≥ 4,6	≥ 4,6
Gross calorific value, $q_{v,gr}$	MJ/kg	ar	**18,94**	--	--
Gross calorific value, $q_{v,gr}$	kWh/kg	ar	**5,26**	--	--
Bulk density, BD	kg/m³	ar	**730**	600 ≤ BD ≤ 750	600 ≤ BD ≤ 750
Nitrogen, N	%	d	**0,081**	≤ 0,3	≤ 0,5
Sulfur, S	%	d	**0,009**	≤ 0,04	≤ 0,05
Chlorine, Cl	%	d	**< 0,005**	≤ 0,02	≤ 0,02
Arsenic, As	mg/kg	d	**< 0,50**	≤ 1	≤ 1
Cadmium, Cd	mg/kg	d	**< 0,10**	≤ 0,5	≤ 0,5
Chromium, Cr	mg/kg	d	**< 1,0**	≤ 10	≤ 10
Copper, Cu	mg/kg	d	**0,59**	≤ 10	≤ 10
Lead, Pb	mg/kg	d	**< 0,50**	≤ 10	≤ 10
Mercury, Hg	mg/kg	d	**< 0,05**	≤ 0,1	≤ 0,1
Nickel, Ni	mg/kg	d	**< 1,0**	≤ 10	≤ 10
Zinc, Zn	mg/kg	d	**< 5,0**	≤ 100	≤ 100

ar … *as received*
d … *dry basis*
* … *ash preparation at 815 °C*

Type and amount of additives have to be stated by the pellet producer according to OENORM EN ISO 17225-2.

Laboratory tests at Holzforschung Austria were carried out between June and July 2018.

HOLZFORSCHUNG AUSTRIA

DI Andreas Haider
Authorised signatory

DI Monika Steiner
Technical consultant

Accreditation is given for the following procedures.
It is not allowed to use included accreditation marks for own purposes.

accreditation mark	type of accreditation	procedure/s
Akkreditierung Austria 0055 ISO/IEC 17025 T	testing	• ÖNORM EN ISO 17828 • ÖNORM EN ISO 17829 • ÖNORM EN ISO 17831-1 • ÖNORM EN ISO 18122 • ÖNORM EN ISO 18125 • ÖNORM EN ISO 18134-2 • ÖNORM EN ISO 18846