

Eurofins Umwelt Ost GmbH - Lindenstraße 11
Gewerbegebiet Freiberg Ost - D-09627 - Bobritzsch-Hilbersdorf

**DIN CERTCO Gesellschaft für
Konformitätsbewertung mbH
Alboinstraße 56
12103 Berlin**

Title : **Test report for order 12034797**

Test report number : **AR-20-FR-034451-01**

Project name : **Verfahrensnummer: 3335864 / Bestellnummer: 1401218**

Number of samples : **2**

Sample type: **wood pellets**

Sample Taker: **Client**

Sampling Area: **DOTS plus**

Sample reception date : **2020-09-30**

Sample processing time : **2020-09-30 - 2020-10-15**

The test results refer solely to the analysed test specimen. Unless the sampling was done by our laboratory or in our sub-order the responsibility for the correctness of the sampling is disclaimed. This test report is only valid with signature and may only be further published completely and unchanged. Extracts or changes require the authorisation of the EUROFINS UMWELT in each individual case.

Our General Terms & Conditions of Sale (GTCS) are applicable, as far as no specific agreements do exist. The GTCS are available on <http://www.eurofins.de/umwelt/avb.aspx>.

Accredited test laboratory according to DIN EN ISO/IEC 17025:2005 notification under the DAkkS German Accreditation System for Testing. The laboratory is according (D-PL-14081-01-00) accredited.

Dr. Ulrich Eler
Analytical Services Manager
Phone +49 37312076510

Digitally signed 10/15/2020
Annett Rietschel
Prüfleitung



Parameter	Lab	Accr.	Method	Limit values		Description		1 - 3335864		2 - 3335864	
				DIN plus ar	DIN plus db	Sample number		120131397		120131408	
				LOQ	Unit	ar	db	ar	db		
Quality characteristics											
Length	FR	JE02	DIN EN ISO 17829: 2016-03	1)				o.k.	-	-	-
Diameter	FR	JE02	DIN EN ISO 17829: 2016-03	2)			mm	6.2	-	-	-
Moisture	FR	JE02	DIN EN ISO 18134-2: 2017-05	10		0.1	% (w/w)	6.8	-	-	-
Ash content (550°C)	FR	JE02	DIN EN ISO 18122: 2016-03		0.7	0.1	% (w/w)	0.4	0.5	-	-
Durability	FR	JE02	DIN EN ISO 17831-1: 2016-05	≥ 97.5			% (w/w)	99.1	-	-	-
Bulk density	FR	JE02	DIN EN ISO 17828: 2016-05	≥ 600 ³⁾			kg/m ³	627	-	-	-
Gross calorific value (qV,gr)	FR	JE02	DIN EN ISO 18125: 2017-08			200	kJ/kg	19000	20300	-	-
Net calorific value (qp,net)	FR	JE02	berechnet nach DIN EN ISO 18125: 2017-08	> 4.6 ⁴⁾		0.06	kWh/kg	4.87	5.28	-	-
Carbon	FR	JE02	DIN EN ISO 16948: 2015-09			0.2	% (w/w)	47.3	50.7	-	-
Nitrogen	FR	JE02	DIN EN ISO 16948: 2015-09		0.3	0.05	% (w/w)	0.09	0.10	-	-
Hydrogen	FR	JE02	DIN EN ISO 16948: 2015-09			0.1	% (w/w)	5.7	6.1	-	-
Oxygen	FR	JE02	DIN EN ISO 16993: 2016-11				% (w/w)	39.7	42.6	-	-
Sulphur	FR	JE02	DIN EN ISO 16994: 2016-12		0.04	0.005	% (w/w)	0.008	0.008	-	-
Chlorine	FR	JE02	DIN EN ISO 16994: 2016-12		0.02	0.005	% (w/w)	0.010	0.010	-	-
Fine portion < 3,15 mm	FR	JE02	DIN EN ISO 18846: 2016-12	0.5 ⁶⁾		0.1	% (w/w)	-	-	< 0.1	-

Parameter	Lab	Accr.	Method	Limit values		Description		1 - 3335864		2 - 3335864	
				DIN plus ar	DIN plus db	Sample number		120131397		120131408	
				LOQ	Unit	ar	db	ar	db		

Trace elements acc. to DIN EN ISO 16968: 2015-09

Arsenic (As)	FR	JE02	DIN EN ISO 17294-2 (E29): 2017-01		1	0.8	mg/kg	-	< 0.8	-	-
Lead (Pb)	FR	JE02	DIN EN ISO 17294-2 (E29): 2017-01		10	2	mg/kg	-	< 2	-	-
Cadmium (Cd)	FR	JE02	DIN EN ISO 17294-2 (E29): 2017-01		0.5	0.2	mg/kg	-	< 0.2	-	-
Chromium (Cr)	FR	JE02	DIN EN ISO 17294-2 (E29): 2017-01		10	1	mg/kg	-	< 1	-	-
Copper (Cu)	FR	JE02	DIN EN ISO 17294-2 (E29): 2017-01		10	1	mg/kg	-	< 1	-	-
Nickel (Ni)	FR	JE02	DIN EN ISO 17294-2 (E29): 2017-01		10	1	mg/kg	-	< 1	-	-
Mercury (Hg)	FR	JE02	DIN EN ISO 12846 (E12): 2012-08		0.1	0.05	mg/kg	-	< 0.05	-	-
Zinc (Zn)	FR	JE02	DIN EN ISO 17294-2 (E29): 2017-01		100	1	mg/kg	-	10	-	-

Ash melting behaviour (ox. atmo.) 815°C

Shrinkage start temp SST	FR	JE02	CEN/TS 15370-1: 2006-12		5)		°C	-	1060	-	-
Deformation temp DT	FR	JE02	CEN/TS 15370-1: 2006-12		≥ 1200 ⁵⁾		°C	-	> 1490	-	-
Hemisphere temp HT	FR	JE02	CEN/TS 15370-1: 2006-12		5)		°C	-	> 1490	-	-
Flow temp FT	FR	JE02	CEN/TS 15370-1: 2006-12		5)		°C	-	> 1490	-	-

Other parameters

Plausibility check	FR							OK	-	-	-
--------------------	----	--	--	--	--	--	--	----	---	---	---

Explanations

LOQ - Limit of quantification

ar - as received

db - dry basis

Lab - Abbreviation of the performing laboratory

Accr. - Abbreviation of the accreditation of the performing laboratory

The parameters identified by FR have been performed by the laboratory Eurofins Umwelt Ost GmbH (Bobritzsch-Hilbersdorf). The accreditation code JE02 identifies the parameters accredited according to DIN EN ISO/IEC 17025:2005 D-PL-14081-01-00 .

Explanations regarding Limits

Analysis performed according to DIN plus (wood pellets) - edition January 2020.

- 1) 3,15 - 40 mm; up to 1 % of pellets can be longer than 40mm. Maximum length should be <45mm.
- 2) D06 or D08 pellets +/- 1mm
- 3) Maximum for bulk density is 750 kg/m³.
- 4) qp,net: net calorific value at constant pressure
- 5) should be given
- 6) small packages up to 20 kg; large packages and bulk material: ≤ 1,0

EUROFINS UMWELT assumes no responsibility for the legal liability of the cited limits.