

**Test report no.:** BEA2018370

**Date:** 2018-12-13

## Wood pellet analysis according ISO 17225-2 and ENplus<sup>®</sup>

**Client:** ENAMA Ente Nazionale per la Meccanizzazione Agricola  
Att. Mr. Giuseppe Maroso  
Via Venafro 5  
00159 Rome  
ITALY

**Subject:** wood pellets sample "PB36A from company Woodland D.o.o."

**Content:** Determination of fuel parameter according to ISO17225-2 and  
ENplus<sup>®</sup>

**Order:** from Mr. Alessio Sanzio

**Receipt of samples:** 2018-11-30

**Ref:** woj

## **1 SCOPE OF WORK**

According to the order, fuel parameters of wood pellets samples had to be determined according to ISO 17225-2 and ENplus®.

## **2 SCOPE OF APPLICATION**

The test results given in this report have been obtained under the specific conditions of the individual tests. As a rule they are not the only criteria for assessing the raw material or product in question and its suitability for a specific purpose of application.

## **3 SAMPLE MATERIAL**

A sample wood pellets was delivered by post on the 30.11.2018.

- 15 kg bag of 6mm wood pellets "PB36A from company Woodland D.o.o." internal sample no: BEA2018370

## **4 SAMPLE PREPARATION**

Part of the sample was grinded to <1mm using a cross hammer mill.

## **5 TESTS**

Testing took place in December 2018.

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## 6 TEST RESULTS

Table1: Results of wood pellets analysis

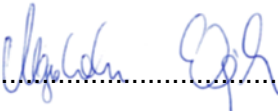
Sample 2018370	Standard	unit	Pellets PB36A	Limit values according ENplus®	
				Class A1	Class A2
mechanical durability	ISO 17831-1	[%]	97,5	≥ 98,0	≥ 97,5
bulk density (ar)	ISO 17828	[kg/m <sup>3</sup> ]	680	750≥BD≥600	750≥BD≥600
moisture content	ISO 18134-1	[%]	6,6	≤ 10	≤ 10
ash content 550°C (db)	ISO 18122	[%]	0,8	≤ 0,7	≤ 1,2
net calorific value (ar)	ISO 18125	[MJ/kg]	17,4	≥ 16,5	≥ 16,5
net calorific value (ar)	ISO 18125	[kWh/kg]	4,8	≥ 4,6	≥ 4,6
Sulphur content (db)	ISO 16994	[%]	0,009	≤ 0,04	≤ 0,05
Chlorine content (db)	ISO 16994	[%]	<0,005	≤ 0,02	≤ 0,02
Nitrogen content (db)	ISO 16948	[%]	0,13	≤ 0,30	≤ 0,50
<b>dimensions</b>					
finer (< 3,15 mm)	ISO 18846	[%]	0,42	≤ 0,5* / ≤ 1	≤ 0,5* / ≤ 1
length (3,15 ≤ L ≤ 40 mm)	ISO 17829	[%]	99,6	> 98,5* / >98	> 98,5* / >98
length (40 ≤ L ≤ 45 mm)	ISO 17829	[%]	0	≤ 1	≤ 1
length (> 45 mm)	ISO 17829	[amount]	0	0	0
diameter	ISO 17829	[mm]	6	6 or 8 ± 1	6 or 8 ± 1
<b>heavy metals</b>					
Chromium (db)	ISO 16968	[mg/kg]	<1,0	≤ 10	≤ 10
Copper (db)	ISO 16968	[mg/kg]	4,0	≤ 10	≤ 10
Zinc (db)	ISO 16968	[mg/kg]	9,9	≤ 100	≤ 100
Lead (db)	ISO 16968	[mg/kg]	<0,5	≤ 10	≤ 10
Mercury (db)	ISO 16968	[mg/kg]	<0,075	≤ 0,1	≤ 0,1
Cadmium (db)	ISO 16968	[mg/kg]	<0,10	≤ 0,5	≤ 0,5
Arsenic (db)	ISO 16968	[mg/kg]	<0,50	≤ 1	≤ 1
Nickel (db)	ISO 16968	[mg/kg]	<1,0	≤ 10	≤ 10
<b>Ash melting behaviour (ash preparation at 815°C)</b>					
shrinking temperature SST	CEN/TS 15370-1	[°C]	1100	-	-
deformation temperature DT	CEN/TS 15370-1	[°C]	1310	≥ 1200	≥ 1100
hemisphere temperature HT	CEN/TS 15370-1	[°C]	>1550	-	-
flow temperature FT	CEN/TS 15370-1	[°C]	>1550	-	-

\*1% at factory gate or when loading truck for deliveries to end users, 0,5% when filling pellets bags or sealed big bags  
ar... as received; db... dry basis

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comprises 4 pages, including 1 table(s), 0 figure(s), 0 appendix(es).

Director in charge

  
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DI (FH) Magdalena Wojcik

