

Laboratory for testing of solid biofuels and compost



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Certificate of Accreditation, Reg. No. 192 LI / 06.03.2025 valid until 08.01.2028, issued by EA BAS, in accordance with the requirements of standard BDS EN ISO/IEC 17025:2018

TEST REPORT

№ 2877 / 07.05.2025

CUSTOMER /customer's name and information/

ENAMA SERVIZI SRL
00159 Roma - Italia, Via Venafro 5
Alessandra Truffini

SOLID BIOFUELS - WOOD PELLETS

/sample name - type/

2877 / 23.04.2025

/number of the request/

23.4.2025

/sample receiving day in the laboratory/

2877, wood pellets, 1 pcs., plastic bag, 10 kg, PT111R-A1 from 3 ERRE B snc di Buia Manlio e C.
SAMPLING CERTIFICATE from ENAMA SERVIZI SRL for ENplus® certification, from 17.04.2025

/sample number, type, identification, pcs, quantity, other information about sample/

The sample is provided by the customer

/number and date of sampling report and sampling plan/

TEST METHODS

БДС EN ISO 17829:2015
БДС EN ISO 18134-2:2024
БДС EN ISO 18122:2023
БДС EN ISO 17831-1:2016
БДС EN ISO 17828:2016
БДС EN ISO 18847:2024

БДС EN ISO 5370:2023
БДС EN ISO 18125:2017
БДС EN ISO 16948:2015
БДС EN ISO 16994:2016
БДС EN ISO 16968:2015
БДС EN ISO 21404:2020

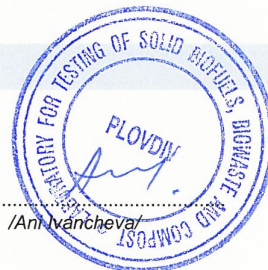
23.04 - 07.05.2025

/sample test performing period/

Laboratory for testing of solid biofuels and compost

/location of the test/

HEAD OF LABORATORY:



/Ani Ivancheva/

Laboratory for testing of solid biofuels and compost



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TEST RESULTS

Sample number, type, identification: 2877, PT111R-A1

№2	PARAMETER	UNIT	TEST STANDARD	TEST RESULTS	LIMITS 3)			TEST CONDITION
					ENplus® A1	ENplus® A2	ENplus® B	
1	2	3	4	5	6			7
1	Diameter of pellets	mm	БДС EN ISO 17829:2015	6,11 ± 0,03	6 ± 1, 8 ± 1			T 22,4 °C RH 42 %
2	Length of pellets	mm	БДС EN ISO 17829:2015	6,70 < L ≤ 31,68	3,15 ≤ L ≤ 40 4)			
	Length 40 mm > X < 45 mm	w-%	БДС EN ISO 17829:2015	0	≤ 1 4)			
	Length > 45 mm	amount	БДС EN ISO 17829:2015	0	no pellets longer than 45 mm 4)			
3	Share of pellets with a length < 10 mm	w-%	БДС EN ISO 17829:2015	7,75 ± 0,11	value & category to be stated			T 105 °C
4	Total moisture	w-%	БДС EN ISO 18134-2:2024	7,25 ± 0,04	≤ 10,0			
5	Ash content 1)	w-%	БДС EN ISO 18122:2023	0,68 ± 0,02	≤ 0,70	≤ 1,20	≤ 2,00	T 550 °C
6	Mechanical durability 5)	w-%	БДС EN ISO 17831-1:2016	99,0 ± 0,2	≥ 98,0	≥ 97,5		T 22,4 °C RH 42 %
7	Bulk density	kg/m³	БДС EN ISO 17828:2016	696 ± 1	600 ≤ BD ≤ 750			
8	Particle density	g/cm³	БДС EN ISO 18847:2024	1,27 ± 0,03	value to be stated			T 21,9 °C RH 41 %
9	Coarse fines (3,15 mm ≤ FP < 5,6 mm)	w-%	БДС EN ISO 5370:2023	0,089 ± 0,001	value to be stated			
10	Fines (< 3,15 mm)	w-%	БДС EN ISO 5370:2023	0,139 ± 0,001	≤ 1,0 6) (≤ 0,5 7))			
11	Net calorific value	kWh/kg	БДС EN ISO 18125:2017	4,856 ± 0,005	≥ 4,6 8)			
12	Nitrogen	w-%	БДС EN ISO 16948:2015	0,2488 ± 0,0005	≤ 0,3	≤ 0,5	≤ 1,0	T 960 °C
13	Sulphur 1)	w-%	БДС EN ISO 16994:2016	0,00107 ± 0,00002	≤ 0,04			T 23,1 °C RH 41 %
14	Chlorine 1)	w-%	БДС EN ISO 16994:2016	0,00365 ± 0,00001	≤ 0,02		≤ 0,03	
15	Arsenic 1)	mg/kg	БДС EN ISO 16968:2015	< 0,5 2)	≤ 1			T 22,8 °C RH 42 %
16	Cadmium 1)	mg/kg	БДС EN ISO 16968:2015	< 0,1 2)	≤ 0,5			
17	Chromium 1)	mg/kg	БДС EN ISO 16968:2015	1,04 ± 0,03	≤ 10			
18	Copper 1)	mg/kg	БДС EN ISO 16968:2015	< 0,4 2)	≤ 10			
19	Lead 1)	mg/kg	БДС EN ISO 16968:2015	< 1,8 2)	≤ 10			
20	Mercury 1)	mg/kg	БДС EN ISO 16968:2015	< 0,05 2)	≤ 0,1			
21	Nickel 1)	mg/kg	БДС EN ISO 16968:2015	0,54 ± 0,05	≤ 10			
22	Zinc 1)	mg/kg	БДС EN ISO 16968:2015	6,10 ± 0,12	≤ 100			
23	Ash melting behaviour/temperature 10)	°C	БДС EN ISO 21404:2020					
	Shrinkage starting temperature	°C	БДС EN ISO 21404:2020	1205 ± 10	-			
	Deformation temperature	°C	БДС EN ISO 21404:2020	1255 ± 10	≥ 1200	≥ 1100		
	Hemisphere temperature	°C	БДС EN ISO 21404:2020	1275 ± 10	-			
	Flow temperature	°C	БДС EN ISO 21404:2020	1315 ± 10	-			

1) The results based on dry matter

2) The limit is determined by the scope of the method.

3) The information in column 6 corresponds to the requirements of ENplus® ST 1001 - ENplus® wood pellets – Requirements for companies, Version 3.0, 2023, table 4

4) A maximum of 1% of the pellets may be longer than 40mm. No pellets longer than 45 mm are allowed.

5) At the loading point of the transport vehicle at the production site.

6) At company gate or when loading big bags or truck for deliveries to end-users.

7) At company gate, when filling bags (bagged pellets).

8) Equal ≥ 16,5 MJ/kg as received.

9) The amount of additives in production shall be limited to 1,8 w-% while the amount of post-production additives (e.g. coating oils) shall be limited to 0,2 w-% of the pellets.

Additives data provided by the customer in the sampling certificate for ENplus® certification is 1%.

10) Ash is produced at 815 °C

Notes:

The results are related only to the samples tested

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The reported extended uncertainty of the measurement result is at a coverage factor of k = 2 and a confidence probability of P = 95%

The laboratory is not responsible for the data and information provided by the customer, which may affect the validity of the results.

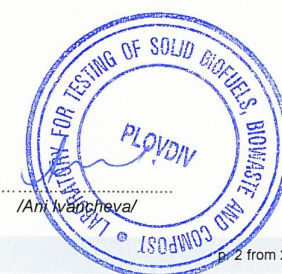
The sample is supplied by the customer and the Laboratory is not responsible for the activities performed by the customer.

The laboratory does not report opinions and interpretations under item 7.8.7 BDS EN ISO/IEC 17025:2018.

RESPONSIBLE FOR THE TESTS:

[Signature]
/D. Nachev/
[Signature]
/N. Banyalieva/

HEAD OF LABORATORY:



TEST REPORT

№ 2877 / 07.05.2025

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