

Laboratory for testing of solid biofuels and compost



4000 Plovdiv, 140 Ruski Blvd, fl. 4, phone:+359 893 558 649, fax: +359 32/625 754
e-mail: biofuels-lab@eap-save.eu, http://www.eap-save.eu

Certificate of Accreditation, Reg. No. 192 LI / 17.02.2022 valid until 07.01.2024, issued by EA BAS, in accordance with the requirements of standard BDS EN ISO/IEC 17025:2018

TEST REPORT

№ 32-L-PI-1478 / 29.07.2022

CUSTOMER /customer's name and information/

ENAMA SERVIZI SRL
00159 Roma - Italia, Via Venafro 5
Stefano D'Andrea

Dank S.A.

/name of the certified company / ENplus® ID number /

SOLID BIOFUELS - WOOD PELLETS

/sample name - type /

32-07-1478 / 21.07.2022

/number of the request/

21.07.2022

/sample receiving day in the laboratory/

1478, wood pellets, 1 pcs., plastic bag, 10 kg, PU097RY-A1, 0012882

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

SAMPLING CERTIFICATE for ENplus® certification, from 11.07.2022

/number and date of sampling report and sampling plan/

TEST METHODS

ISO 17829:2015
ISO 18134-2:2015
ISO 18122:2015
ISO 17831-1:2015
ISO 18846:2016
ISO 18125:2017

ISO 17828:2015
ISO 16948:2015
ISO 16994:2016
EN ISO 21404:2020
ISO 16968:2015

21.07 - 29.07.2022

/sample test performing period/

Laboratory for testing of solid biofuels and compost

/location of the test/

HEAD OF LABORATORY:

N. Markova

Laboratory for testing of solid biofuels and compost

4000 Plovdiv, 140 Ruski Blvd, fl. 4, phone:+359 893 558 649, fax: +359 32/625 754

e-mail: biofuels-lab@eap-save.eu, http://www.eap-save.eu



Certificate of Accreditation, Reg. No. 192 LI / 17.02.2022 valid until 07.01.2024, issued by EA BAS, in accordance with the requirements of standard BDS EN ISO/IEC 17025:2018

TEST RESULTS

Sample number, type, identification: 1478, wood pellets, PU097RY-A1, 0012882

№	PARAMETER	UNIT	TEST STANDARD	TEST RESULTS	LIMITS ¹⁾			TEST CONDITION
					ENplus® A1	ENplus® A2	ENplus® B	
1	2	3	4	5	6			7
1	Diameter	mm	ISO 17829:2015	6	6 ± 1 or 8 ± 1			T 23,5 °C RH 45 % ²⁾
2	Length	mm	ISO 17829:2015	6,54 < L ≤ 25,99	3,15 < L ≤ 40 ⁷⁾			
3	Moisture	w-% ⁵⁾	ISO 18134-2:2015	6	≤ 10			T 105 °C ³⁾
4	Ash content	w-% ⁶⁾	ISO 18122:2015	0,5	≤ 0,7	≤ 1,2	≤ 2	T 550 °C ³⁾
5	Mechanical durability	w-% ⁵⁾	ISO 17831-1:2015	98,4	≥ 98,0 ⁸⁾	≥ 97,5 ⁸⁾		T 23,6 °C
6	Fines (<3,15 mm)	w-% ⁵⁾	ISO 18846:2016	0,2	≤ 1,0 ⁹⁾ (≤ 0,5 ¹⁰⁾)			RH 41 % ²⁾
7	Net calorific value	kWh/kg ⁵⁾	ISO 18125:2017	4,6	≥ 4,6 ¹¹⁾			T 23,5 °C
8	Gross calorific value	kWh/kg	ISO 18125:2017	5,0				RH 45 % ²⁾
9	Bulk density	kg/m ³ ^{6,5)}	ISO 17828:2015	681	600 ≤ BD ≤ 750			T 23,6 °C
10	Aditives	%		0	≤ 2 ¹²⁾			RH 41 % ²⁾
11	Nitrogen	w-% ⁶⁾	ISO 16948:2015	0,2	≤ 0,3	≤ 0,5	≤ 1,0	T 1100 °C ³⁾
12	Sulfur	w-% ⁶⁾	ISO 16994:2016	0,009	≤ 0,04	≤ 0,05		T 23,5 °C
13	Chlorine	w-% ⁶⁾	ISO 16994:2016	0,005	≤ 0,02		≤ 0,03	RH 45 % ²⁾
14	Ash deformation Temperature ⁴⁾	°C	EN ISO 21404:2020	1320	≥ 1200	≥ 1100		
15	Arsenic	mg/kg ⁶⁾	ISO 16968:2015	< 0,5 ¹³⁾	≤ 1			T 23,5 °C RH 45 % ²⁾
16	Cadmium	mg/kg ⁶⁾	ISO 16968:2015	< 0,1 ¹³⁾	≤ 0,5			
17	Chromium	mg/kg ⁶⁾	ISO 16968:2015	< 0,2 ¹³⁾	≤ 10			
18	Copper	mg/kg ⁶⁾	ISO 16968:2015	0,40	≤ 10			
19	Lead	mg/kg ⁶⁾	ISO 16968:2015	< 1,0 ¹³⁾	≤ 10			
20	Mercury	mg/kg ⁶⁾	ISO 16968:2015	< 0,05 ¹³⁾	≤ 0,1			
21	Nikel	mg/kg ⁶⁾	ISO 16968:2015	< 0,4 ¹³⁾	≤ 10			
22	Zinc	mg/kg ⁶⁾	ISO 16968:2015	6,3	≤ 100			

Notes:

The test report or extracts from the test report may not be reproduced without written consent of the testing laboratory.

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.

1) The information in column 6 correspond to the requirements of ENplus® Handbook, Part 3 - Pellet Quality Requirements (Version 3.0, August 2015)

2) Test conditions (temperature and relative humidity) in the laboratory

3) Test conditions according to the requirements of the used standards

4) ash is produced at 815 °C

5) as received

6) dry basis

7) a maximum of 1% of the pellets may be longer than 40mm, no pellets longer than 45mm are allowed.

8) at the loading point of the transport unit (truck, vessel) at the production site

9) at factory gate when loading truck for deliveries to end-users (Part Load Delivery and Full Load Delivery)


10) at factory gate, when filling pellet bags or sealed Big Bags.

11) equal ≥ 16,5 MJ/kg as received

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

13) The limit is determined by the scope of the method. The limit of quantification method LOQ is determined experimentally by repeated analysis of the blank and calculation the standard deviation SD_{blank}. LOQ = 10 * SD_{blank} * dilution factor

RESPONSIBLE FOR THE TESTS:


.....
/A. Ivancheva/


.....
/R. Argirova/

HEAD OF LABORATORY:



.....
/V. Markova/

CERTIFICATO ENplus® ENplus® CERTIFICATE

Si certifica che il pellet di legno per riscaldamento domestico prodotto da:
It is hereby certified that the wood pellets for heating purposes produced by:

*nel sito di:
at the plant of:*

risulta conforme ai requisiti del Manuale ENplus®
"Schema di certificazione della qualità del pellet di legno" rev.3.0, Agosto 2015 e alla classe di qualità:
*meets the requirements of the ENplus® Handbook
"Quality Certification Scheme for Wood Pellets" rev.3.0, August 2015 and at the quality class:*

ENplus A1®

a seguito di ispezione iniziale e di continua sorveglianza
based on an initial inspection and continuous surveillance/monitoring

La validità di questo certificato può essere verificata su www.enama.it
Validity of this certificate can be checked at www.enama.it

ENAMA Servizi S.r.l.

La validità del presente certificato è subordinata alla sorveglianza periodica e al riesame secondo le modalità contenute nel contratto ENAMA Servizi S.r.l. Il certificato può essere sospeso o revocato in caso di inadempienza accertata da ENAMA Servizi.

In adempimento ai requisiti indicati nel Manuale per la certificazione della qualità del pellet di legno ad uso energetico redatto da EPC (European Pellet Council), versione 3.0 (agosto 2015), il presente certificato viene rilasciato:

- in Italia: in ottemperanza al contratto di convenzione tra ENAMA Servizi S.r.l. come Organismo di Certificazione e AIEL (Associazione Italiana Energie Agroforestali), come Gestore e Concessionario italiano della licenza ENplus®;
- fuori dall'Italia: (per i paesi senza organismo di certificazione) in ottemperanza al contratto di convenzione tra ENAMA Servizi S.r.l. ed EPC come Gestore e Concessionario internazionale della licenza ENplus®.

This certificate validity is subjected to periodical surveillance and review by ENAMA Servizi, according to the arrangements contained in the contract ENAMA Servizi S.r.l. This certificate can be suspended or withdrawn at any time in the event of not fulfilment of the due requirements, ascertained by ENAMA Servizi S.r.l.

In order to fulfil the requirements of the Handbook for the certification of wood pellet quality drafted by EPC (European Pellet Council), version 3.0 (August 2015), this certificate is issued:

- in Italy in compliance with the cooperation Agreement between ENAMA Servizi S.r.l. as Certification Body and AIEL (Agroforestry Energy Italian Association - Italian Management and Licensor of the ENplus® license);
- outside Italy (for countries without a national certification body) in compliance with the cooperation Agreement between ENAMA Servizi S.r.l. and EPC (International Licensor and Management of the ENplus® license).