

REPORT

Contract no.	12607/2024/2 – KW	05.03.2025 HOS/KRA
Customer:	DPP Resource LLC Zaliznychna 1F UKRAINE, 45005 Volyn, Bachiv village	
Subject:	Testing of wood pellets according to • ENplus® – ST 1001, ST 1002 & ST 1003 for the site UKRAINE, 45005 Volyn, Bachiv village, Zaliznychna 1F	
Date of contract:	19.10.2020	
Date of sample delivery:	20.01.2025	
Date of service:	January - March 2025	
Period of validity:	--	
Pages:	4	
Enclosures:	--	

1. Contract

According to the assignment of the contract with the company DPP Resource LLC dated 19.10.2020 the pellet quality of the provided sample(s) was tested according to:

- ENplus® – ST 1001, ST 1002 & ST 1003
(ENplus® ID: UA 030; Certification body: Holzforschung Austria)

2. Test material

The following sample(s) taken in the course of order (12607/2024) was/were submitted to the laboratory of Holzforschung Austria.

sample number	product	size of sample; packaging	sample delivery (date, transport)
12607/2024_Line_2_NEW	pellets, 6 mm, A1, bagged	15 kg / plastic bag	20.01.2025 (via postal service)
12607/2024_Line_3_NEW	pellets, 6 mm, A1, bagged	15 kg / plastic bag	20.01.2025 (via postal service)

3. Laboratory test

3.1. Test methods

The laboratory tests for proof of conformity of the pellet quality with the requirements of EN ISO 17225-2 were carried out at Holzforschung Austria (1), AT-1030 Vienna and at BEA Institut für Bioenergie GmbH (2), AT-1150 Vienna.

ISO 16948 (C/H/N) ²	EN ISO 18122 (ash) ¹
EN ISO 16968 (minor elements) ¹	EN ISO 18125 (net calorific value) ¹
EN ISO 16994 (chlorine, sulfur) ¹	EN ISO 18134-2 (moisture) ¹
EN ISO 17828 (bulk density) ¹	EN ISO 5370 (fines) ¹
EN ISO 17829 (dimensions) ¹	EN ISO 18847 (particle density) ¹
EN ISO 17831-1 (mech. durability) ¹	ISO 21404 (ash melting behaviour) ²

All the above-mentioned standards were applied in the current version.

3.2. Test results

3.2.1. Sample 12607/2024_Line_2_NEW

Parameter	Unit	Reference state	Result	Requirements according to		
				DINplus	ENplus® A1	ENplus® A2
Diameter, D	mm	ar	6,1	6 ± 1 (8 ± 1)	6 ± 1 (8 ± 1)	6 ± 1 (8 ± 1)
Length, L	mm	ar	11,4 (5 - 26)	3,15 ≤ L ≤ 40	3,15 ≤ L ≤ 40	3,15 ≤ L ≤ 40
Moisture, M	%	ar	5,8	≤ 10	≤ 10,0	≤ 10,0
Ash, A	%	d	0,38*	≤ 0,6	≤ 0,70	≤ 1,20
Ash deformation temperature, DT	°C	d	1350	≥ 1200	≥ 1200	≥ 1100
Mechanical durability, DU	%	ar	99,1	≥ 98,0	≥ 98,0	≥ 97,5
Fines, F (< 3,15 mm) bagged pellets	%	ar	0,36	≤ 0,5	≤ 0,5	≤ 0,5
Coarse fines, FP (3,15 mm ≤ FP < 5,6 mm) bagged pellets	%	ar	0,29	--	to be stated	to be stated
Net calorific value, Q (q _{p,net,ar})	MJ/kg	ar	18,1	≥ 16,5	≥ 16,5	≥ 16,5
Net calorific value, Q (q _{p,net,ar})	kWh/kg	ar	5,0	≥ 4,6	≥ 4,6	≥ 4,6
Gross calorific value, q _{v,gr}	MJ/kg	ar	19,5	--	--	--
Gross calorific value, q _{v,gr}	kWh/kg	ar	5,4	--	--	--
Bulk density, BD	kg/m³	ar	670	600 ≤ BD ≤ 750	600 ≤ BD ≤ 750	600 ≤ BD ≤ 750
Particle density	g/cm³	ar	1,29	--	to be stated	to be stated
Nitrogen, N	%	d	0,08	≤ 0,3	≤ 0,3	≤ 0,5
Sulfur, S	%	d	<0,005	≤ 0,04	≤ 0,04	≤ 0,04
Chlorine, Cl	%	d	<0,005	≤ 0,02	≤ 0,02	≤ 0,02
Arsenic, As	mg/kg	d	<0,4	≤ 1	≤ 1	≤ 1
Cadmium, Cd	mg/kg	d	0,1	≤ 0,5	≤ 0,5	≤ 0,5
Chromium, Cr	mg/kg	d	0,3	≤ 10	≤ 10	≤ 10
Copper, Cu	mg/kg	d	0,8	≤ 10	≤ 10	≤ 10
Lead, Pb	mg/kg	d	<0,3	≤ 10	≤ 10	≤ 10
Mercury, Hg	mg/kg	d	<0,02	≤ 0,1	≤ 0,1	≤ 0,1
Nickel, Ni	mg/kg	d	0,2	≤ 10	≤ 10	≤ 10
Zinc, Zn	mg/kg	d	7,1	≤ 100	≤ 100	≤ 100

ar ... as received

d ... dry basis

* ... the second decimal place is not verified by the test method but is stated due to formal reasons to meet the requirements of ENplus®

3.2.2. Sample 12607/2024_Line_3_NEW

Parameter	Unit	Reference state	Result	Requirements according to		
				DINplus	ENplus® A1	ENplus® A2
Diameter, D	mm	ar	6,1	6 ± 1 (8 ± 1)	6 ± 1 (8 ± 1)	6 ± 1 (8 ± 1)
Length, L	mm	ar	13,5 (7 - 27)	3,15 ≤ L ≤ 40	3,15 ≤ L ≤ 40	3,15 ≤ L ≤ 40
Moisture, M	%	ar	5,7	≤ 10	≤ 10,0	≤ 10,0
Mechanical durability, DU	%	ar	99,0	≥ 98,0	≥ 98,0	≥ 97,5
Fines, F (< 3,15 mm) bagged pellets	%	ar	0,32	≤ 0,5	≤ 0,5	≤ 0,5
Bulk density, BD	kg/m³	ar	670	600 ≤ BD ≤ 750	600 ≤ BD ≤ 750	600 ≤ BD ≤ 750

ar ... as received

The test results of the sample(s) taken in the course of the order (12607/2024) meet the requirements of ENplus® ST 1001 quality class ENplus® A1, 6 mm.

HOLZFORSCHUNG AUSTRIA

Ing. Irene Spitaler
Authorisation to sign

Stephanie Hofmann, BSc
Technical execution

This report was approved electronically in accordance with an internal HFA process by the designated authorised signatory, traceable and documented.

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
	Testing	• EN ISO 5370 • EN ISO 16968 • EN ISO 16994 • EN ISO 17828 • EN ISO 17829 • EN ISO 17831-1 • EN ISO 18122 • EN ISO 18125 • EN ISO 18134-2 • EN ISO 18847

The results and statements given in this document relate only to the tested materials as received, the present information and the state of the art at the time of investigation.

The conformity assessment of the results is subject to the shared-risk approach.

Publication in excerpts is only permitted with the written approval of Holzforschung Austria.