

REPORT

Contract no.	9425/2023/2 – HB	19.09.2023 RES/BAK
Customer:	Verba-VV LLC Vokzalna street 9 UA-45061 Liubytiv, Volyn region	
Subject:	Testing of wood pellets according to <ul style="list-style-type: none">• ENplus® – Quality Certification Scheme For Wood Pellets for the site UA-45061 Liubytiv, Volyn region, Vokzalna street 9	
Date of contract:	09.04.2019	
Date of sample delivery:	01.09.2023	
Date of service:	September 2023	
Period of validity:	--	
Pages:	4	
Enclosures:	--	

1. Contract

On the basis of the contract with the company Verba-VV LLC dated 09.04.2019 the pellet quality of the provided sample(s) was tested according to:

- ENplus® – Quality Certification Scheme For Wood Pellets (August 2015)
(ENplus® ID: UA 011; Certification body: Holzforschung Austria)

2. Test material

The following sample(s) taken in the course of the inspection (9425/2023) was/were submitted to the laboratory of Holzforschung Austria.

sample number	product	sampling point	size of sample; packaging	sample delivery (date, transport)
9425/2023	pellets, 6 mm, A1, bagged	bagging station	15 kg / plastic bag	01.09.2023 (via postal service)

3. Laboratory test

3.1. Test methods

The laboratory tests for the 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 18846 (fines) ¹
EN ISO 17829 (dimensions) ¹	ISO 21404 (ash melting behaviour) ²
EN ISO 17831-1 (mech. durability) ¹	

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

3.2. Test results

3.2.1. Sample 9425/2023

Parameter	Unit	Reference state	Result	Requirements according to		
				DINplus	ENplus® A1	ENplus® A2
Diameter, D	mm	ar	6,2	6 ± 1 (8 ± 1)	6 ± 1 (8 ± 1)	6 ± 1 (8 ± 1)
Length, L	mm	ar	13,2 (4 - 28)	3,15 < L ≤ 40	3,15 < L ≤ 40	3,15 < L ≤ 40
Moisture, M	%	ar	5,6	≤ 10	≤ 10	≤ 10
Ash, A	%	d	0,4	≤ 0,6	≤ 0,7	≤ 1,2
Ash deformation temperature, DT	°C	d	1490	≥ 1200	≥ 1200	≥ 1100
Mechanical durability, DU	%	ar	99,0	≥ 98,0	≥ 98,0	≥ 97,5
Fines, F (< 3,15 mm) bagged pellets	%	ar	0,26	≤ 0,5	≤ 0,5	≤ 0,5
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	19,6	--	--	--
Gross calorific value, q _{v,gr}	kWh/kg	ar	5,4	--	--	--
Bulk density, BD	kg/m ³	ar	670	600 ≤ BD ≤ 750	600 ≤ BD ≤ 750	600 ≤ BD ≤ 750
Nitrogen, N	%	d	0,137	≤ 0,3	≤ 0,3	≤ 0,5
Sulfur, S	%	d	<0,005	≤ 0,04	≤ 0,04	≤ 0,05
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	0,7	≤ 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	7,2	≤ 100	≤ 100	≤ 100

ar ... as received

d ... dry basis

The test results of the sample(s) taken in the course of the audit (9425/2023) meet the requirements of ENplus® – Quality Certification Scheme For Wood Pellets (August 2015), quality class A1.


HOLZFORSCHUNG AUSTRIA

Dipl.-Ing. Andreas Haider
Authorisation to sign

Stephanie Reitbauer, 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	<ul style="list-style-type: none"> • 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 18846

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.

Copy is sent to:

European Pellet Council, c/o Bioenergy Europe, BE-1050 Brussels (via Radix Tree)