



CENTRAL LABORATORY FOR CHEMICAL ANALYSIS
Zagorska ulica 1, ZAGREB, CROATIA
Tel/fax + 385 1 3093-939
cktl@hep.hr



LABORATORY REPORT no. CKTL 165/23

Date: 28th April 2023

CUSTOMER SAMPLE CODE:	A2_ 60123004
SAMPLE TYPE:	Wood pellets
CUSTOMER NAME AND ADDRESS:	TÜV NORD Adriatic d.o.o., Bani 110 • 10010 Zagreb
CLIENT NAME:	Lukić wood d.o.o.
SAMPLE QUANTITY:	15 kg
SAMPLING DATE AND TIME:	14 th April 2023
SAMPLE DELIVERED BY:	TÜV NORD Adriatic d.o.o.
DELIVERY DATE:	24 th April 2023
TESTING PERIOD:	24 th -28 th April 2023

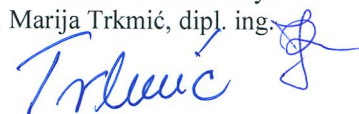
TEST RESULTS:

No	Property	Units	Test methods	Results		Relative UM (%)	ENplus® quality class	The standard limits for the ENplus® parameters		
				Dry	As received			ENplus® A1	ENplus® A2	ENplus® B
1.	Dimension *FC (D&L)	mm	HRN EN ISO 17829:2015	Diameter:	6,1	0,8	A2	6 ± 1, 8 ± 1		
				Length:	16,1	2,6	A2	3,15 ≤ L ≤ 40		
2.	Moisture *FC (M)	w-%	HRN EN ISO 18134-1:2022	-	7,2	8,3	A2	≤ 10,0		
3.	Ash *FC (A)	w-%	HRN EN ISO 18122:2015	0,92	0,85	2,2	A2	≤ 0,70 (d)	≤ 1,20 (d)	≤ 2,0 (d)
4.	Mechanical durability *FC (DU)	w-%	HRN EN ISO 17831-1:2016	-	98,2	2,4	A2	≥ 98,0	≥ 97,5	
5.	Fines *FC (F)	w-%	HRN EN ISO 18846:2016	-	0,05	3,3	A2	≤ 1,0 ¹⁾ ≤ 0,5 ²⁾		
6.	Net calorific value *FC	kWh/kg	HRN EN ISO 18125:2017	5,10	4,68	0,2	A2	≥ 4,6 (ar)		
7.	Bulk density *FC (BD)	kg/m ³	HRN EN ISO 17828:2016	-	640	2,2	A2	600 ≤ BD ≤ 750		
8.	Particle density *FC (DE)	g/cm ³	HRN EN ISO 18847:2016	-	1,30	0,75	-	-		
9.	Coarse fines (3,15 mm ≤ FP ≤ 5,6 mm)	w-%	HRN EN ISO 18846:2016	-	0,1	3,3	-	-		
10.	Nitrogen content *FC (N)	w-%	HRN EN ISO 16948:2015	0,18	0,17	4,52	A2	≤ 0,3 (d)	≤ 0,5 (d)	≤ 1,0 (d)
11.	Sulphur content *FC (S)	w-%	HRN EN ISO 16994:2016	0,016	0,015	6,407	A2	≤ 0,04 (d)		
12.	Chlorine content *FC (Cl)	w-%	HRN EN ISO 16994:2016	0,004	0,004	7,355	A2	≤ 0,02 (d)		≤ 0,03(d)

13.	Arsenic content ^{*F□} (As)	mg/kg	HRN EN ISO 16968:2015	0,069	0,064	2,57	A2	≤ 1 (d)		
14.	Cadmium content ^{*F□} Cd)	mg/kg	HRN EN ISO 16968:2015	0,106	0,099	7,25	A2	≤ 0,5 (d)		
15.	Chromium content ^{*F□} (Cr)	mg/kg	HRN EN ISO 16968:2015	0,724	0,671	2,63	A2	≤ 10 (d)		
16.	Copper content ^{*F□} (Cu)	mg/kg	HRN EN ISO 16968:2015	2,02	1,87	0,34	A2	≤ 10 (d)		
17.	Lead content ^{*F□} (Pb)	mg/kg	HRN EN ISO 16968:2015	0,260	0,241	0,64	A2	≤ 10 (d)		
18.	Mercury content ^{*F□} (Hg)	mg/kg	HRN EN ISO 16968:2015	<0,005	<0,005	6,67	A2	≤ 0,1 (d)		
19.	Nickel content ^{*F□} (Ni)	mg/kg	HRN EN ISO 16968:2015	0,764	0,709	2,15	A2	≤ 10 (d)		
20.	Zinc content ^{*F□} (Zn)	mg/kg	HRN EN ISO 16968:2015	<3,42	<3,42	1,70	A2	≤ 100 (d)		
Ash melting behaviour ^{*F□} -Characteristic temperatures (oxidation atmosphere)							ENplus® quality class			
		<i>Units</i>	<i>Test methods</i>	Results	<i>Relative UM (%)</i>	<i>ENplus® quality class</i>	ENplus A1	ENplus A2	ENplus B	
21.	SST – Shrinkage starting temperature ^{*F□}	°C	HRN EN ISO 21404: 2020	1140	0,1	-				
22.	DT – Deformation temperature ^{*F□}			1340	0,1	A2	≥ 1200	≥ 1100		
23.	HT – Hemisphere temperature ^{*F□}			>1490	0,1	-				
24.	FT – Flow temperature ^{*F□}			>1490	0,1	-				

NOTE: ¹⁾ at factory gate or when loading truck for deliveries to end-users (Part Load Delivery and Full Load Delivery)²⁾ at factory gate, when filling pellet bags or sealed Big Bags.^{*F□} accredited methods within flexible scope according HRN EN ISO/IEC 17025:2017 standard

- Measurement uncertainties are calculated, but not taken into account for determination of ENplus® quality class.
- Statements of conformity with ENplus® quality classes are reported according to Binary Statement for Simple Acceptance Rule (ILAC-G8:09/2019).
- The test results refer only to the tested samples.
- The test report or its parts cannot be reproduced, except in whole, with the approval of the Head of laboratory.

STATEMENT OF CONFORMITY:All tested parameters **meet ENplus®** requirements for the A2 class.Test report approved by:
Head of laboratory:
dr. sc. Marija Trkmić, dipl. ing.


THE END OF THE REPORT