

# **Analytical Report**

**Control Union Certifications Germany GmbH** 

Dorotheastrasse 30 D-10318 Berlin Germany

Reportnr. : 1129636 version 1

Sample Arrival Date 08-Nov-2020 12:12 ReportDate Version : 17-Nov-2020 11:35 Packing

: Plastic, ambient

Sample information \*

Disponent Number : PRJ 843034 Sealed / Seal Code

Disp. Remark : Control Union / Pellet Energy Ukraine; 2, Lenin str. 11201 Emilchino zhytomir region UKRAINE

: No /

Product specification : 6 mm wood pellets Reference : Pellet Energy Ukraine - A2

\* Information supplied by customer (TLR takes no responsibility for this information).

\*: 26-Oct-2020

:15,072

Sampling Date

Samplesize (kg)

Composition Determination	3.3	The same of the sa		201			
Parameter	Result (as received)	Result (on dry)	Result (as det)	Result (dry ash free	) (4)	X	
Total Moisture	5,47				%	TXIV	7 0
Moisture Airdry			6,89		%	Q	R
Ash	0,41	0,43	0,40		%	Q	R
Volatile matter incl. moisture.			85,73		%	Q	R
Volatile matter Fixed Carbon	80,04 14,08	84,67 14,90	78,84	85,04	% %		
Gross Calorific Value	4650,0	4919,1	4580,0	4940,3	kcal/kg	Q	R
Nett Calorific Value (cV)	19,47 8370,1 4335,4 18,15 7803,7 5,0	20,60 8854,4	19,18 8244,0	20,68 8892,6	GJ/mt B.T.U.'s/Lb kcal/kg GJ/mt B.T.U.'s/Lb kWh/kg	Q	
Nett Calorific Value (cP) Emissionfactor CO2 (cV) Emissionfactor CO2 (cP)	18,08 97,59 98,00				GJ/mt t CO2/TJ t CO2/TJ	Q	
Hydrogen	5,78	6,11	6,46	6,14	%	Q	R
Carbon	48,31	51,10	47,58	51,32	%	Q	R
Nitrogen.	< 0,05	< 0,05	< 0,05	< 0,05	%	Q	R
S. (Sulfer)	< 0,010	< 0,010	< 0,010	< 0,010	%	Q	R
Oxygen (by difference)	. 1/2			42,480	%		

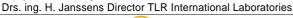
Preparation Common

> **Parameter** Result Result Result (as received) (on dry) (as det)

B-wood preparation according NEN EN 14780 and NEN EN Preparation sample 15443

**Composition Determination** 

Demanded 08-Nov-2020 by Control Union Germany GmbH Analyses according to annex





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Common						
Parameter	Result	Result	Result			
The Market	(as received)	(on dry)	(as det)			
AFT. (oxid) DT			1520	gr. C		R
Diameter pellets (n=25)	N. I.	>	6,1	mm	Q	R
Length of pellets			12,8	mm	Q	R
Sieve < 3,15 mm.			0,2	%		R
Metal and other elements			200	· // \)	KIN.	
Parameter	Result (as received)	Result (on dry)	Result (as det)	(XX)	XX	<u>}</u> :
Cd (Cadmium)	0,101	0,106	0,099	mg/kg	Q	R
Pb (Lead)	0,12	0,13	0,12	mg/kg	Q	R
As (Arsenic)	< 0,040	< 0,040	< 0,040	mg/kg	Q	R
Hg (Mercury)	< 0,020	< 0,020	< 0,020	mg/kg	Q	R
Ni (Nickel)	< 3,0	< 3,0	< 3,0	mg/kg	Q	R
CI (Chlorine)	< 0,005	< 0,005	< 0,005	%	Q	R
Cr.(Chromium)	< 5,0	< 5,0	< 5,0	mg/kg		R
Cu.(Copper)	< 5,0	< 5,0	< 5,0	mg/kg		R
Zn. (Zinc)	5,9	6,2	5,8	mg/kg	11/4	R
Other Analysis	\\ • \/.					
Common		: //>/.	750	1 / 19/		
Parameter	Result (as received)	Result (on dry)	Result (as det)			
Mechanical Durability	* /19	W /	98,8	%	Q	R
Bulk density			669	kg/m3	Q	R
Parameter	Result	Result	Result			
1	(as received)	(on dry)	(as det)			
Samplestorage.	Storage for 6 months			STATE OF THE PARTY		R

Q - Analyses ISO 17025 accredited by RvA (ILAC)

R - Carried out by TLR International Laboratories, location Rotterdam O - Outsourced

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Drs. ing. H. Janssens Director TLR International Laboratories



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: 26-Oct-2020 :15,072

#### **ANNEX**

#### **Method Descriptions**

## **Composition Determination**

#### Common

#### **Method Description**

Determination of ash; gravimetric method

Coal: NEN-ISO 1171 Biomass: NEN-EN15403; Secondary bio fuels: NEN-EN- ISO 18122

Determination of carbon (C), nitrogen (N), hydrogen (H) with the element analyser Coal: NEN-ISO29541, Biomass: NEN-EN-ISO 16948: Secondary bio fuels NEN-EN

Determination of fusibility of ash; acc EN-plus, ash formed (815°C), cube form

Determination of gross caloric value by bombcaloric method and calculation of net caloric value

Coal: NEN-ISO 1928, Solid Biofuels NEN-EN-ISO18125; secundairy biofuels NEN-EN15400

Determination of moisture in the analyse sample; gravimetric method Coal: NEN-ISO 11722; Biomass: NEN-EN-ISO 18134-3; Secondary bio fuels: NEN-EN15414-3

Determination of Sulphur (S); NEN-EN-ISO 16994

Determination of the amount of material passing through a sieve with 3,15 mm diameter round hole ISO 18846:2016

Determination of the length and diameter of the woodpellets; Own method

Determination of total moisture in the sample; gravimetric method

Coal:NEN-ISO-589 MB biomasss: NEN-EN-ISO 18134-1; Secondary bio fuels: NPR-

Determination of volatile matter content; gravimetric method

Coal: NEN-ISO 562; Biomass: NEN-EN-ISO 18123; secundairy biofuels: NEN-EN 15402

#### Metal and other elements

#### **Method Description**

Determination of chloride (CI); Ion chromatography

Biomass: according NEN-EN-ISO 16994 Coal: Own method

Determination of mercury (Hg); CV-AAS

Determination of minor elements. As, Cd, Co, Cr, Cu, Hg, Mn, Mo, Ni, Pb, Sb, V and Zn

## Other Analysis

#### Common

**Method Description** 

### **Method Code**

Own method

Acc. NEN-EN-ISO17829

**Method Code** 

Acc. NEN-EN-ISO16968 eq.nen-en-iso16968

**Method Code** 

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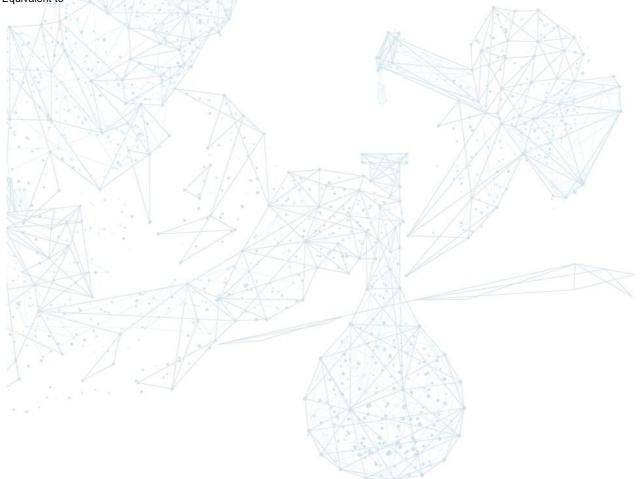
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Determination of bulk density (poured) bulk density Determination of mechanical durability of pellets

Acc.NEN-EN-ISO 17828 NEN-EN-ISO 17831-1

Abbreviations:

acc: in accordance with eq: Equivalent to



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