

Analytical Report

Control Union Certifications Ukraine LLC

Attn: Ms. Karina Kaftanova
Sholudenka St. 3, Business Center "Cubic", off.308
04116 Kyiv
Ukraine

Reportnr.	: 1688546 version 1	Sampling Date	*: 29-Nov-2022
Sample Arrival Date	: 15-Dec-2022 16:37	Samplesize (kg)	: 15
ReportDate Version	: 23-Dec-2022 15:44	Seal / Seal Code	: No
Packing	: Plastic, ambient		

Sample information *

Disponent Number	: UA 022-1_2022_11_29	Product specification	: Wood pellets
		Reference	: 29.11.22/A1/22
		AWB / BarCode	: 13269110015232

Disp. Remark : Brenvel LLC

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

Composition Determination

Parameter	Result (as received)	Result (on dry)	Result (as det)	Result (dry ash free)		
Total Moisture	6,72			%	Q	R
Moisture Airdry			6,53	%	Q	R
Ash	0,34	0,36	0,34	%	Q	R
Volatile matter incl. moisture.			86,56	%	Q	R
Volatile matter	79,86	85,62	80,03	85,93	%	
Fixed Carbon	13,08	14,02		%		
Gross Calorific Value	4629,4	4962,9	4638,9	4980,9	kcal/kg	Q R
	19,38	20,78	19,42	20,85	GJ/mt	
Nett Calorific Value (cV)	8332,9	8933,2	8350,0	8965,6	B.T.U.'s/Lb	
	4309,2				kcal/kg	Q
	18,04				GJ/mt	
	7756,6				B.T.U.'s/Lb	
	5,0				kWh/kg	
Nett Calorific Value (cP)	17,96				GJ/mt	Q
Emissionfactor CO2 (cV)	91,52				t CO2/TJ	
Emissionfactor CO2 (cP)	91,92				t CO2/TJ	
Hydrogen	5,75	6,16	6,49	6,19	%	Q R
Carbon	45,03	48,27	45,12	48,45	%	Q R
Nitrogen.	0,07	0,08	0,07	0,08	%	Q R
S. (Sulfer)	< 0,010	< 0,010	< 0,010	< 0,010	%	Q R
Oxygen (by difference)				45,280	%	

Preparation

Common

Parameter	Result (as received)	Result (on dry)	Result (as det)		
Preparation sample	B-wood preparation according NEN EN 14780 and NEN EN 15443				Q R

Composition Determination

Demanded 15-Dec-2022 by Control Union Certifications Ukraine LLC
Analyses according to annex
Drs. ing. H. Janssens Director TLR International Laboratories



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Common

Parameter	Result (as received)	Result (on dry)	Result (as det)			
AFT. (oxid) DT			1450	gr. C		R
Diameter pellets (n=25)	6,3			mm	Q	R
Length of pellets	9,9			mm	Q	R
Sieve < 3,15 mm.	0,2			%		R

Metal and other elements

Parameter	Result (as received)	Result (on dry)	Result (as det)			
Cd (Cadmium)	0,160	0,171	0,160	mg/kg	Q	R
Pb (Lead)	0,11	0,12	0,11	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
Cl (Chloride)	< 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)	14,6	15,6	14,6	mg/kg		R

Other Analysis

Common

Parameter	Result (as received)	Result (on dry)	Result (as det)			
Mechanical Durability	99,1			%	Q	R
Bulk density-	649			kg/m3	Q	R

Q - Analyses ISO 17025 accredited by RvA (ILAC)
 R - Carried out by TLR International Laboratories, location Ridderkerk



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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 15407

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

Determination of gross calorific value by bombcaloric method and calculation of net calorific value
Coal: NEN-ISO 1928, Solid Biofuels NEN-EN-ISO18125; secondary 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-CEN/TS 15414-1

Determination of volatile matter content; gravimetric method
Coal: NEN-ISO 562; Biomass: NEN-EN-ISO 18123; secondary biofuels: NEN-EN 15402

Method Code

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Own method

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Acc. NEN-EN-ISO17829

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Metal and other elements

Method Description

Determination of chloride (Cl); 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

Method Code

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Acc. NEN-EN-ISO16968

eq.nen-en-iso16968

Other Analysis

Common

Method Description

Method Code

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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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