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INTERNATIONAL LABORATORIES

Analytical Report

Control Union Certifications Germany GmbH
Attn: . .
Bornitzstraße 73-75
D-10365 Berlin
Germany

Reportnr.	: **1922298 version 1**		
Sample Arrival Date	: 17-Oct-2024 16:25	Sampling Date *	: 09-Oct-2024
ReportDate Version	: **06-Dec-2024 14:23**	Samplesize (kg)	: 15
Packing	: Plastic, ambient	Seal / Seal Code	: No /

Sample information *

Disponent Number	: 875336	Product specification	: Woodpellets
		Reference	: UA022_2024_10_09
Disp. Remark	: UA022/T/A1/0910		

*** 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	7,6				%	Q	R
Moisture Airdry			6,6		%	Q	R
Ash	0,29	0,32	0,30		%	Q	R
Volatile matter incl. moisture.			86,29		%	Q	R
Volatile matter	78,83	85,31	79,66	85,58	%		
Fixed Carbon	13,28	14,37			%		
Gross Calorific Value	4553,4	4927,9	4601,5	4943,6	kcal/kg	Q	R
	19,06	20,63	19,27	20,70	GJ/mt		
	8196,1	8870,3	8282,7	8898,5	B.T.U.'s/Lb		
Nett Calorific Value (cV)	4237,3				kcal/kg	Q	
	17,74				GJ/mt		
	7627,1				B.T.U.'s/Lb		
	4,9				kWh/kg		
Nett Calorific Value (cP)	17,66				GJ/mt	Q	
Emissionfactor CO2 (cV)	97,57				t CO2/TJ		
Emissionfactor CO2 (cP)	97,99				t CO2/TJ		
Hydrogen	5,57	6,03	6,37	6,05	%	Q	R
Carbon	47,20	51,08	47,70	51,25	%	Q	R
Nitrogen.	0,10	0,11	0,10	0,11	%	Q	R
S. (Sulfer)	0,013	0,014	0,013	0,014	%	Q	R
Oxygen (by difference)				42,580	%		

Preparation

Common

Parameter	Result (as received)	Result (on dry)	Result (as det)			
Preparation sample	Biomass preparation in accordance with NEN-EN-ISO21646				Q	R

Composition Determination

Common

Parameter	Result (as received)	Result (on dry)	Result (as det)			
AFT. (oxid) DT			1410	gr. C		R

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Diameter pellets (n=25)	6,2			mm	Q	R
Length of pellets	11,1			mm	Q	R
Sieve < 3,15 mm.	0,27			%	Q	R
3,15 mm = < FP < 5,6 mm			0,25	%		R

Metal and other elements

Parameter	Result (as received)	Result (on dry)	Result (as det)			
Cd (Cadmium)	0,140	0,152	0,142	mg/kg	Q	R
Pb (Lead)	0,08	0,09	0,08	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 (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)	7,5	8,2	7,6	mg/kg		R

Other Analysis

Common

Parameter	Result (as received)	Result (on dry)	Result (as det)			
Mechanical Durability	99,3			%	Q	R
Bulk density-	648			kg/m3	Q	R
Particle density			1,27	g/cm3		R
Share of pellets< 10mm			29,4	w %		R
Category	Category M					R

Sample Remarks :

Sample is a copy of SampleID: 1907392, on demand of the customer teh full ENPlus analyse package was added

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	Method Code
Determination of ash; gravimetric method Coal: NEN-ISO 1171 Biomass: NEN-EN-ISO 21656; Secondary bio fuels: NEN-EN- ISO 18122	Acc.
Determination of carbon (C), nitrogen (N), hydrogen (H) with the element analyser Coal : NEN-ISO29541, Biomass: NEN-EN-ISO 21663 : Secondary bio fuels NEN-EN 15407	Acc.
Determination of fusibility of ash; ash formed (815°C), cube form	Acc.NEN-EN-ISO 21404
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-EN-ISO 21654	Acc.
Determination of moisture in the analyse sample; gravimetric method Coal: NEN-ISO 11722;Biomass: NEN-EN-ISO 18134-3; Secondary bio fuels : NEN-EN-ISO 21660-3	Acc.
Determination of Sulphur (S); NEN-EN-ISO 16994	Acc.
Determination of the amount of material passing through a sieve with 3,15 mm diameter round hole ISO 18846:2016	Acc.
Determination of the length and diameter of the woodpellets	Acc. NEN-EN-ISO17829
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	Acc.
Determination of volatile matter content; gravimetric method Coal: NEN-ISO 562; Biomass: NEN-EN-ISO 18123; secundairy biofuels: NEN-EN 15402	Acc.

Metal and other elements

Method Description	Method Code
Determination of Chlorine (Cl); Ion chromatography Biomass: according NEN-EN-ISO 16994 Coal: Own method	NEN-EN-ISO 16994
Determination of mercury (Hg); CV-AAS	Acc. NEN-EN-ISO16968
Determination of minor elements. As, Cd, Co, Cr, Cu, Hg, Mn, Mo, Ni, Pb, Sb, V and Zn	Eq.NEN-EN-ISO 16968

Other Analysis

Common

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Determination of bulk density (poured) bulk density	Acc.NEN-EN-ISO 17828
Determination of mechanical durability of pellets; Acc.	NEN-EN-ISO 17831-1
Determination of particle density of pellets	Acc. ISO 18847

Abbreviations:

acc: in accordance with
eq: Equivalent to

Demanded 17-Oct-2024 by Control Union Certifications Germany GmbH
Analyses according to annex
P.W. Platteschor, Managing Director TLR International Laboratories