

Analytical Report

Control Union Certifications Germany GmbH

Attn: . .  
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Germany

Reportnr.	: 1907387 version 1	Sampling Date	*: 09-Oct-2024
Sample Arrival Date	: 17-Oct-2024 16:11	Samplesize (kg)	: 15
ReportDate Version	: 25-Oct-2024 13:45	Seal / Seal Code	: No /
Packing	: Plastic, ambient		

Sample information \*

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

\* 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	7,1			%	Q	R
Moisture Airdry			8,9	%	Q	R
Ash	0,26	0,28	0,25	%	Q	R
Volatile matter incl. moisture.			87,27	%	Q	R
Volatile matter	79,95	86,03	78,40	86,27	%	
Fixed Carbon	12,72	13,69		%		
Gross Calorific Value	4559,8	4906,7	4471,3	4920,5	kcal/kg	Q R
	19,09	20,54	18,72	20,60	GJ/mt	
Nett Calorific Value (cV)	8207,7	8832,1	8048,4	8856,8	B.T.U.'s/Lb	Q
	4235,2			kcal/kg		
	17,73			GJ/mt		
	7623,4			B.T.U.'s/Lb		
	4,9			kWh/kg		
Nett Calorific Value (cP)	17,65			GJ/mt	Q	
Emissionfactor CO2 (cV)	98,21			† CO2/TJ		
Emissionfactor CO2 (cP)	98,64			† CO2/TJ		
Hydrogen	5,80	6,24	6,68	6,26	%	Q R
Carbon	47,49	51,10	46,57	51,24	%	Q R
Nitrogen.	0,10	0,11	0,10	0,11	%	Q R
S. (Sulfer)	< 0,010	< 0,010	< 0,010	< 0,010	%	Q R
Oxygen (by difference)				42,380	%	

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			1370	gr. C	R



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Diameter pellets (n=25)	6,0	mm	Q	R
Length of pellets	10,8	mm	Q	R
Sieve < 3,15 mm.	0,26	%	Q	R
3,15 mm = < FP < 5,6 mm		0,26	%	R

Parameter	Result (as received)	Result (on dry)	Result (as det)			
Cd (Cadmium)	0,145	0,156	0,142	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
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)	6,7	7,2	6,6	mg/kg		R

Parameter	Result (as received)	Result (on dry)	Result (as det)			
Mechanical Durability	99,1			%	Q	R
Bulk density-	641			kg/m3	Q	R
Particle density			1,25	g/cm3		R
Share of pellets< 10mm			34,3	w %		R
Category	Category S					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-EN-ISO 21656; 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 21663 : Secondary bio fuels NEN-EN 15407

Determination of fusibility of ash; 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-EN-ISO 21654

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

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

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

Acc.

Acc.

Acc.NEN-EN-ISO 21404

Acc.

Acc.

Acc.

Acc.

Acc. NEN-EN-ISO17829

Acc.

Acc.

Metal and other elements

Method Description

Determination of Chlorine (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

NEN-EN-ISO 16994

Acc. NEN-EN-ISO16968

Eq.NEN-EN-ISO 16968

Other Analysis

Common

Method Description

Method Code





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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

