

Analytical Report

Control Union Certifications Germany GmbH

Attn: . .
Dorotheastrasse 30
D-10318 Berlin
Germany

Reportnr. : **1761430 version 1**
Sample Arrival Date : 27-Jul-2023 10:34
ReportDate Version : **03-Aug-2023 16:06**
Packing : Plastic, ambient

Sampling Date * : 06-Jul-2023
Samplesize (kg) : 15
Seal / Seal Code : No /

Sample information *

Disponent Number : 843034

Product specification : WOODPELLETS/A1-
Reference : PELLETA1/0607
UA004_2023_07_06

* 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	4,06			%	Q	R
Moisture Airdry			9,52	%	Q	R
Ash	0,30	0,31	0,28	%	Q	R
Volatile matter incl. moisture.			86,78	%	Q	R
Volatile matter	81,92	85,39	77,26	85,66 %		
Fixed Carbon	13,72	14,30		%		
Gross Calorific Value	4669,5	4867,1	4404,0	4882,2 kcal/kg	Q	R
	19,55	20,38	18,44	20,44 GJ/mt		
	8405,2	8760,8	7927,1	8788,0 B.T.U.'s/Lb		
Nett Calorific Value (cV)	4360,1			kcal/kg	Q	
	18,25			GJ/mt		
	7848,2			B.T.U.'s/Lb		
	5,1			kWh/kg		
Nett Calorific Value (cP)	18,18			GJ/mt	Q	
Emissionfactor CO2 (cV)	97,76			t CO2/TJ		
Emissionfactor CO2 (cP)	98,16			t CO2/TJ		
Hydrogen	5,83	6,07	6,56	6,09 %	Q	R
Carbon	48,67	50,73	45,90	50,88 %	Q	R
Nitrogen.	0,10	0,10	0,09	0,10 %	Q	R
S. (Sulfer)	< 0,010	< 0,010	< 0,010	< 0,010 %	Q	R
Oxygen (by difference)				42,910 %		

Preparation

Common Parameter	Result (as received)	Result (on dry)	Result (as det)		
Preparation sample	Biomass preparation in accordance with NEN EN 14780 and NEN EN 15443			Q	R

Composition Determination

Common Parameter	Result (as received)	Result (on dry)	Result (as det)
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Analyses according to annex
P.W. Platteschor, Managing Director TLR International Laboratories

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AFT. (oxid) DT		1440	gr. C		R
Diameter pellets (n=25)	6,2		mm	Q	R
Length of pellets	14,1		mm	Q	R
Sieve < 3,15 mm.	0,17		%		R

Metal and other elements

Parameter	Result (as received)	Result (on dry)	Result (as det)			
Cd (Cadmium)	0,097	0,101	0,092	mg/kg	Q	R
Pb (Lead)	0,07	0,08	0,07	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)	7,1	7,4	6,7	mg/kg		R

Other Analysis

Common

Parameter	Result (as received)	Result (on dry)	Result (as det)			
Mechanical Durability	99,0			%	Q	R
Bulk density-	662			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; 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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NEN-EN-ISO 21404

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Acc. NEN-EN-ISO17829

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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-iso16968

Other Analysis

Common

Method Description

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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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