

Analytical Report

Control Union Certifications Germany GmbH

Dorotheastrasse 30 D-10318 Berlin

Germany

: 1761430 version 1 Reportnr. 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

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

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

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 Fixed Carbon	81,92 13,72	85,39 14,30	77,26	85,66	%		
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	7 11./2			GJ/mt		¥
	7848,2	1			B.T.U.'s/Lb		
	5,1	. ' /	A COLV		kWh/kg		
Nett Calorific Value (cP)	18,18			100	GJ/mt	Q	
Emissionfactor CO2 (cV)	97,76				t CO2/TJ		
Emissionfactor CO2 (cP)	98,16	11.	To All V		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	1 %	Q	R
Oxygen (by difference)	7 1 1	y	1	42,910) %		
eparation	. 1/1/		/ X×				

Common

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

Biomass preparation in accordance with NEN EN 14780

and NEN EN 15443

Composition Determination

Preparation sample

Common Parameter

Result Result Result (as received) (on dry) (as det)

Demanded 27-Jul-2023 by Control Union Certifications Germany GmbH Analyses according to annex

P.W. Platteschor, Managing Director TLR International Laboratories



Page 1 of 4

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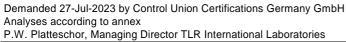
Findings are based on the sample as submitted. TLR does not assume responsibility for sampling, selection, representativity and identifications such as codes, markings or product names. Details regarding methodology and measuring uncertainty will be provided upon request. Contact info@tfr.nl. Handelsweg 70 2988 DB Ridderkerk The Netherlands T. +31 (0)10-28 23 292 e-mail: info@tlr.nl



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Reportnr. : 1761430 version Sample Arrival Date ReportDate Version Packing : 03-Aug-2023 16:0 Plastic, ambient		D:34 Sampling D Samplesize		Sampling Date Samplesize (kg) Seal / Seal Code	*: 06-Jul-2023 : 15 : No /		
AFT. (oxid) DT				1440	gr. C		R
Diameter pellets (n=	=25)	6,2			mm	Q	R
Length of pellets	A. X	14,1			mm	Q	R
Sieve < 3,15 mm.		0,17			%		R
Metal and other eler	ments		5				
Parameter		Result as received)	Result (on dry)	Result (as det)	No.	1	
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)	11/11/2	< 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)		7,1	7,4	6,7	mg/kg	A CONTRACT	R
Other Analysis	13.70	29	A	15/24		16.00	
Common		14.10			17:11/1		X/
Parameter	\ (Result (as received)	Result (on dry)	Result (as det)		100	
Mechanical Durabili	ty	99,0	: 1/3/2		%	Q	R
Bulk density-		662	10/10/10		kg/m3	Q	R

R - Carried out by TLR International Laboratories, location Ridderkerk





Page 2 of 4

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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 moisture in the analyse sample; gravimetric method

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-

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 Chlorine (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

Acc. NEN-EN-ISO17829

Method Code

NEN-EN-ISO 21404

Method Code

NEN-EN-ISO 16994

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

Method Code

Demanded 27-Jul-2023 by Control Union Certifications Germany GmbH Analyses according to annex

P.W. Platteschor, Managing Director TLR International Laboratories



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Page 3 of 4

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Determination of bulk density (poured) bulk density

Determination of mechanical durability of pellets

Sampling Date Samplesize (kg) *: 06-Jul-2023

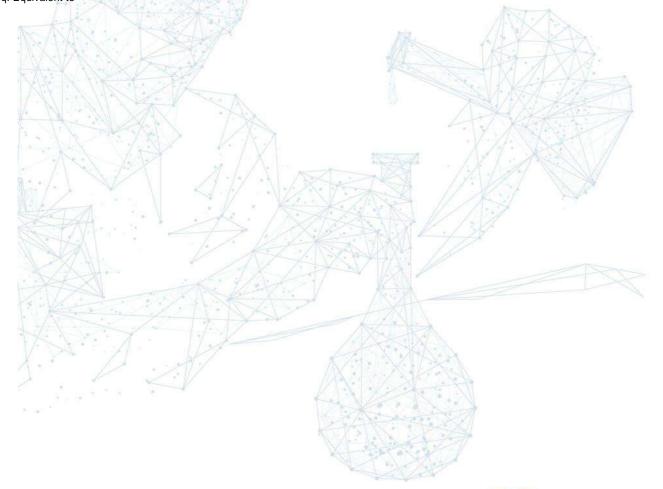
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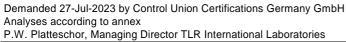
> Acc.NEN-EN-ISO 17828 NEN-EN-ISO 17831-1

Abbreviations:

acc: in accordance with











Page 4 of 4