Certificate N°: 20081302DF

* LATAK -I- 406

Accredited by Latvian National Accreditation Bureau

CERTIFICATE OF SAMPLING AND ANALYSIS

Vessel	:	M/V “KERSTI”
Loading Port	:	Ventspils, Latvia
Cargo (as declared)	:	WOOD PELLETS IN BULK
Quantity (as per SGS D/S)	:	4,500.000 Metric Tonnes
Commenced Loading	:	6 August 2020/ 16:45 LT
Completed Loading	:	7 August 2020/ 15:00 LT
Our Principal	:	KURZEMES GRANULAS SIA
SGS Reference No.	:	LV.20.20.0238

THIS IS TO REPORT that in accordance with instructions received from our Principal, to perform sampling and analysis of the above-mentioned shipment, we hereby report the following:

SAMPLING: MANUAL SAMPLING - SGS, performed as per EN ISO 18135*. Sampling occurred from freshly exposed surface while the material was in motion, on a systematic known-mass intervals basis, with fixed-increment mass. Manual Sampling method was agreed to with the SGS Principal, as sampling by more reliable methods that provide probability samples was not possible or was not selected by the SGS Principal. The suitability of this sampling method is defined by the sampling standard.

TEMPERATURE MEASUREMENTS: The actual temperature of the Material checking was performed on the Stockpile in the warehouse and on the surface of the cargo in the vessel’s hold throughout the loading. The temperature of the Cargo was found to be from +21.0°C up to +37.6°C.

ANALYSIS: Reported results are based on a calculated weighted average of 2 Sub-lot(s) analysis results using weights and qualities on the same moisture basis, and composite analysis results where applicable. Analysis performed in accordance with EN Standards, except as noted.

We report the following weighted average:

Parameters	Methods	Units	As-Received basis	Dry basis
Nitrogen	LVS EN ISO 16948	% mass	0.11	0.12
Oxygen (excludes O in moisture)	LVS EN ISO 16993	% mass	40.00	42.82
Hydrogen (excludes H in moisture)	LVS EN ISO 16948	% mass	5.87	6.28
Total Carbon	LVS EN ISO 16948	% mass	46.86	50.16

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Parameters	Methods	Units	As-Received basis	Dry basis
Total Moisture	LVS EN ISO 18134-2	% mass	6.58	-
Ash	LVS EN ISO 18122	% mass	0.57	0.61
Volatile Matter	LVS EN ISO 18123	% mass	79.24	84.82
Total Sulphur	LVS EN ISO 16994	% mass	0.01	0.01
Gross CV	LVS EN ISO 18125	kcal/kg	4,534	4,853
Gross CV	LVS EN ISO 18125	kJ/kg	18,982	20,319
Gross CV	LVS EN ISO 18125	MWh/ton	5.27	5.64
Net CV (constant volume)	LVS EN ISO 18125	kcal/kg	4,209	4,544
Net CV (constant volume)	LVS EN ISO 18125	kJ/kg	17,621	19,024
Net CV (constant volume)	LVS EN ISO 18125	MWh/ton	4.89	5.28
Net CV (constant pressure)	LVS EN ISO 18125	kcal/kg	4,190	4,526
Net CV (constant pressure)	LVS EN ISO 18125	kJ/kg	17,543	18,951
Net CV (constant pressure)	LVS EN ISO 18125	MWh/ton	4.87	5.26

We report the following on the Composite sample:

Parameters	Methods	Units	Results
Bulk Density	LVS EN ISO 17828	kg/m^3	690
Mechanical Durability	LVS EN ISO 17831-1	%	98.9

Particle Size Distribution (Pellets Component Size):

Sieves	Units	Results	Method
Over than 4.0[1] mm	% mass	0.11	
Between 3.15[1]- 4.0[1] mm	% mass	0.55	
Between 2.8 - 3.15[1] mm	% mass	0.18	
Between 2.0 - 2.8 mm	% mass	0.96	MDCLAB-1.1.11 based on EN ISO 17830
Between 1.4 - 2.0 mm	% mass	7.19	
Between 1.0 - 1.4 mm	% mass	15.42	
Between 0.5 - 1.0 mm	% mass	33.11	
Between 0.25 - 0.5 mm	% mass	22.33	
Less than 0.25 mm	% mass	20.15	

[1]Round holes

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Particle Size Distribution (Dust Content)

Sieves	Units	Results	Method
Over than 3.15[1] mm	% mass	98.73	
Between 2.8 - 3.15[1] mm	% mass	0.01	
Between 2.0 - 2.8 mm	% mass	0.10	
Between 1.4 - 2.0 mm	% mass	0.22	LVS EN ISO 17827-2
Between 1.0 - 1.4 mm	% mass	0.27	
Between 0.5 - 1.0 mm	% mass	0.34	
Between 0.25 - 0.5 mm	% mass	0.18	
Less than 0.25 mm	% mass	0.15	

[1]Round holes

Ash Melting Behaviour

Parameters	Units	Oxidizing Atmosphere	Method
Shrinkage starting temperature (SST)	°C	1,100	
Deformation Temperature (DT)	°C	1,480	
Hemisphere Temperature (HT)	°C	1,490	LVS CEN/TS 15370-1
Flow Temperature (FT)	°C	1,500	

This certificate reflects our findings at time and place of our intervention only and does not relieve the parties from their contractual responsibilities.

Signed and dated in Riga
13 August 2020

For and on behalf of
SGS Latvija Ltd
Andris Turnins

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