Institut für Umweltschutz und Qualitätssicherung
Dr. Krengel GmbH

Analysis Report - No. 24-09170/31173

Customer	:	Dansk Træemballage A/S DTE Ribe Savværk Ørstedsvej 71 DK-6760 Ribe Dänemark
Order	:	Testing of wood pellets according to ENplus as per offer 1/248/MKr/1124. Order dated 21.11.2024.
Sample name	:	Baged Pellets HD TEKNOLOGI November 2024
Sampling	:	by customer
Sampling date	:	unknown
Sample receipt	:	2024-11-26
Processing time	:	2024-11-26 - 2024-12-06
Laboratory No.	:	24-09170
Analysis method	:	see following page(s)

Grevesmühlen, Dec 6, 2024

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Analysis Report - No. 24-09170/31173

Sample name Baged Pellets HD TEKNOLOGI November 2024

Laboratory No. 24-09170

Parameter	Analysis Method	Unit	Result	Requirements according to ENplus (issue: 01/23) A1	A2	B
Diameter (D)	DIN EN ISO 17829: 2016-03	mm	6.0	6 (±1) or 8 (±1)		
Length (L)	DIN EN ISO 17829: 2016-03	mm	23.3	3,15 ≤ L ≤ 40 [1]		
Share of pellets with a length < 10 mm	DIN EN ISO 17829 / Handbuch ENplus ST1001 Leitfaden: 2016-03 / 2022	Ma-%, ar	< 0.01	informative		
Coarse fines (3.15 mm ≤ FP < 5.6 mm) category	DIN EN ISO 17829 / Handbuch ENplus ST1001 Leitfaden: 2016-03 / 2022	none	L	informative		
Total moisture (M)	DIN EN ISO 18134-2: 2017-05	Ma-%, ar	8.3	≤ 10,0		
Ash Content (A) (550 ° C)	DIN EN ISO 18122: 2016-03	Ma-% wf	0.40	≤ 0,70	≤ 1,20	≤ 2,00
Ash Content (A) (815 ° C)*	DIN EN ISO 18122: 2016-03	Ma-% wf	0.32	./.		
Mechanical Durability (DU)	DIN EN ISO 17831-1: 2016-05	Ma-%, ar	99.2	≥ 98,0 [2]	≥ 97,5 [2]	
Fines (<3.15 mm)	DIN EN ISO 18846: 2016-12	Ma-%, ar	< 0.20	≤ 1,0 [3] (≤ 0,5 [4])		
Coarse fines (3.15 mm ≤ FP < 5.6 mm)	DIN EN ISO 18846: 2016-12	Ma-%, ar	< 0.20	informative		
Net Calorific Value at constant volume (qv, net, m)	DIN EN ISO 18125: 2017-08	MJ/kg, ar	17.9	≥ 16,5		
Net Calorific Value at constant volume (qv, net, m)	DIN EN ISO 18125: 2017-08	kWh/kg, ar	4.96	≥ 4,6		
Bulk Density (BD)	DIN EN ISO 17828: 2016-05	kg/m³	710	600 ≤ bulk density ≤ 750		
Particle density	DIN EN ISO 18847: 2016-12	g/cm³	1.35	informative		
Nitrogen (N)	DIN EN ISO 16948: 2015-09	Ma% TM	0.13	≤ 0,3	≤ 0,5	≤ 1,0
Sulfur (S)	DIN EN ISO 16994: 2016-12	Ma% TM	0.014	≤ 0,04	≤ 0,05	
Chlorine (Cl)	DIN EN ISO 16994: 2016-12	Ma% TM	0.014	≤ 0,02		≤0,03
Arsenic (As)	DIN EN ISO 16968: 2015-09	mg/kg TM	< 0.50	≤ 1		
Cadmium (Cd)	DIN EN ISO 16968: 2015-09	mg/kg TM	< 0.10	≤ 0,5		
Chromium (Cr)	DIN EN ISO 16968: 2015-09	mg/kg TM	< 0.40	≤ 10		
Copper (Cu)	DIN EN ISO 16968: 2015-09	mg/kg TM	2.52	≤ 10		
Lead (Pb)	DIN EN ISO 16968: 2015-09	mg/kg TM	< 0.50	≤ 10		
Mercury (Hg)	DIN EN ISO 16968: 2015-09	mg/kg TM	< 0.05	≤ 0,1		
Nickel (Ni)	DIN EN ISO 16968: 2015-09	mg/kg TM	< 0.50	≤ 10		
Zinc (Zn)	DIN EN ISO 16968: 2015-09	mg/kg TM	8.17	≤ 100		
Ash Melting Behaviour Oxidating Athmosphere Ash 815 °C						
Starting Temperature During Shrinkage	DIN EN ISO 21404: 2020-06	°C	1090	informative		
Deformation Temperature (DT)	DIN EN ISO 21404: 2020-06	°C	> 1400	≥ 1.200	≥ 1.100	
Hemisphere Temperature (HT)*	DIN EN ISO 21404: 2020-06	°C	> 1400	informative		
Fluid Temperature (FT)*	DIN EN ISO 21404: 2020-06	°C	> 1400	informative		

1) A maximum of 1% of the pellets may be between 40 and 45 mm long. No pellet may be longer than 45 mm.
2) When loading the vehicle (vehicle, ship) at the production plant.
3) At the factory gate or when loading vehicles for delivery to end customers.
4) When filling pellet bags or sealed big bags.
* No mandatory specification according to ENplus manual

TM - dry mass ar - as recieved wf - water free state

Picture 1: examined bag