

For the production of wood pellets produced by

WARMESTON OÜ, Järvere, ESTONIA

certified according to **ENplus® A1** with the ID number: **EE007**

we confirm the following test results analysed within the inspection 2018 valid until the inspection in 2019.

Sample 2018088			Pellets	Limit values according class A1	
	Standard	unit		ENplus®	DINplus
mechanical durability	ISO 17831-1	[%]	98,6	≥ 98,0	≥ 97,5
bulk density (ar)	ISO 17828	[kg/m³]	660	750≥BD≥600	750≥BD≥600
moisture content	ISO 18134-2	[%]	5,8	≤ 10	≤ 10
ash content 550°C(db)	ISO 18122	[%]	0,3	≤ 0,7	≤ 0,7
net calorific value (ar)	ISO 18125	[MJ/kg]	17,9	≥ 16,5	≥ 16,5
net calorific value (ar)	ISO 18125	[kWh/kg]	5,0	≥ 4,6	≥ 4,6
net calorific value (db)	ISO 18125	[MJ/kg]	19,1	-	-
net calorific value (db)	ISO 18125	[kWh/kg]	5,3	-	-
gross calorific value (ar)	ISO 18125	[MJ/kg]	19,4	-	-
gross calorific value (ar)	ISO 18125	[kWh/kg]	5,4	-	-
Sulphur content (db)	ISO 16994	[%]	0,006	≤ 0,04	≤ 0,04
Chlorine content (db)	ISO 16994	[%]	0,007	≤ 0,02	≤ 0,02
Nitrogen content (db)	ISO 16948	[%]	0,06	≤ 0,30	≤ 0,30
pressing aid / additives	-	[%]	0,5	≤ 1,8	≤ 2
dimensions					
finer (< 3,15 mm)	ISO 18846	[%]	0,2	≤ 0,5* / ≤ 1	≤ 0,5* / ≤ 1
length (3,15 ≤ L ≤ 40 mm)	ISO 17829	[%]	99,8	> 98,5* / >98	> 98,5* / >98
length (40 ≤ L ≤ 45 mm)	ISO 17829	[%]	0	≤ 1	≤ 1
length (> 45 mm)	ISO 17829	[amount]	0	0	0
diameter	ISO 17829	[mm]	6	6 or 8 ± 1	6 or 8 ± 1
heavy metals**					
Chromium (db)	ISO 16968	[mg/kg]	< 1	≤ 10	≤ 10
Copper (db)	ISO 16968	[mg/kg]	< 0,5	≤ 10	≤ 10
Zinc (db)	ISO 16968	[mg/kg]	< 5	≤ 100	≤ 100
Lead (db)	ISO 16968	[mg/kg]	< 0,5	≤ 10	≤ 10
Mercury (db)	ISO 16968	[mg/kg]	< 0,05	≤ 0,1	≤ 0,1
Cadmium (db)	ISO 16968	[mg/kg]	< 0,1	≤ 0,5	≤ 0,5
Arsenic (db)	ISO 16968	[mg/kg]	< 0,5	≤ 1	≤ 1
Nickel (db)	ISO 16968	[mg/kg]	< 1	≤ 10	≤ 10
ash melting behaviour (ash preparation at 815°C)					
shrinking temperature SST	CEN/TS 15370-1	[°C]	990	-	-
deformation temperature DT	CEN/TS 15370-1	[°C]	1330	≥ 1200	≥ 1200
hemisphere temperature HT	CEN/TS 15370-1	[°C]	> 1550	-	-
flow temperature FT	CEN/TS 15370-1	[°C]	> 1550	-	-

* for bags or sealed big bags, ar...as received, db...dry basis