

Inspection Report:
BEA2019096

Date: 2019-04-26

Inspection according ENplus®

Client: RST-Pellet d.o.o.
Attn.: Mr. Dr. Michael Toplitsch
Lučićka cesta 3
51 300 Delnice
CROATIA

Subject: Wood pellets production **RST-Pellet d.o.o.;**
plant in Croatia, address: Lučićka cesta 3, 51 300 Delnice

Content: Site Audit 2019 including pellet testing according to ENplus®
Initial Inspection

Order: According to the order from 2019-04-08

**Date of audit
and sampling:** 2019-04-17 by DI Philipp Koskarti

Receipt of samples: 2019-04-17

Ref: Kos



EUROPEAN PELLET
COUNCIL
AN AEBIOM NETWORK



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Accredited inspection body

VAT-No.: ATU 65124117
EORI: ATEOS1000004531
Comm. reg. No.: FN 331066m
Jurisdiction: Vienna

1 SCOPE OF WORK

Inspection of the wood pellet production plant especially of quality measures, evaluation of quality related documents and internal testing of product quality of wood pellets production according ENplus® requirements. A sample of the production is to be taken and tested according EN ISO 17225-2 for verification of pellet quality.

2 SCOPE OF APPLICATION

The test results given in this report have been obtained under the specific conditions of the individual tests. They shall serve as proof for the conformity of the sample(s) tested. The client is responsible for the conformity of products with ENplus® regulations which will be assured when quality assurance measures according ENplus® regulations are continuously applied.

3 INSPECTION AUDIT

The inspection audit was carried out according ENplus® Handbook (in the currently version) on 2019-04-17 by DI Philipp Koskarti attended by Mr. Dr. Michael Toplitsch and Mr. Mario Zrilić (duration of audit approximately 3 hours).

Responsibilities in the factory are assigned clearly, a company organogram exists.

The responsibility in the company is divided as follows:

Contact / Manager: Dr. Michael Toplitsch (michael.toplitsch@rst-pellet.com)
Quality manager: Mr. Mario Zrilić (mario.zrilic@rst-pellet.com)

3.1 Products

Certified products	wood pellets EN ISO 17225-2, class A1 and A2
Dimensions	6mm
ENplus® ID	Not yet certified
Certification body	HFA
Subcontracted service providers	None
Affiliated Companies	None

Products and dispatch*	Production	yes
	Full load deliveries of bulk pellets to end-users	no
	Part load deliveries of bulk pellets to end-users	no
	Bagging of pellets	Yes, ~ 90%
	Sourcing pellets from another certified company	no
Brand names*	RST Premium Platin (spruce) A1 and RST Premium Gold (beech) A2 (bag designs under approval)	
Production amount*	Estimation 2019: 35.000t in total	
Storage capacity	~ 3.000t in flat store	
Relevant storage sites	None	

* according statement of client

3.2 Raw material

Origin of wood	100 % external purchase
Source raw material	~30% chemically untreated wood residues (1.2.1 acc. EN ISO 17225-1) ~70% stemwood (1.1.3 acc. EN ISO 17225-1)
Raw material species	100% spruce for A1 and 100% beech for A2
Form of raw material	Roundwood, sawdust and chips
Raw material storage	The wet raw material is outside on paved ground.
Control and documentation of raw material	All incoming raw material is weighed and moisture controlled and a visual inspection is performed. Raw material declaration is available.
Suppliers	There is a list of suppliers including specific contracts concerning the quality.
Sustainability of raw material	no certification for pellets
Other raw materials used (e.g. pressing aids)	A pressing aid (starch) is used. The amount is below 1%. The amount is calculated per mass balance.

3.3 Production process

Changes in production process	None, new production
Raw material preparation	Debarker, Chipper and Hammer mills (wet and dry)
Drying	Raw material is dried by 1 belt drier using biomass fuel for the heat.
Separation of contaminants and impurities	Oversized particles and impurities are removed by sieves, stone traps and metal separators are used.
Pellet production	The dried raw material is pelletized by 2 ring die presses and cooled by a counter current cooler.
Removal of fines	Fines are removed by vibrating sieves with suitable size and sieve aperture, dust is removed by air separators.
Non-complying pellets	A possibility for separation of low quality batches exists.
Documentation of failures, breakdowns and maintenance	A shift book exists containing all relevant information.
Storage of pellets	Pellets are stored in a flat store. Pellets are protected against moisture and contamination. Storage capacity: ~3.000t
Bagging station	Weighing system is calibrated.
Carbon footprint of production	As the production just started, there are up to now no figures available for calculating the CO ₂ emissions. This will be checked in 2020.

3.4 Quality control measures

The factory production control is carried out in accordance with the requirements of the regulations. Tests are done regular and are documented properly.

Parameter	Test frequency	Test equipment
Moisture	At once a shift	IR-dryer, drying oven and Humimeter
Bulk density	At once a shift	BEA 5l stainless steel container
Mechanical durability	At once a shift	BEA Tumbler 1000+
Length	At once a shift	Caliper ruler
Fines	At once a shift	BEA 3,15mm sieve, 400mm Ø

Instruments are maintained properly, calibration and/or performance tests are done.

3.5 Quality assurance

Quality management system	<p>There is a quality management system implemented; SOP's are available covering:</p> <ul style="list-style-type: none"> • Receipt of raw materials • Requirements for measuring and test equipment • Instruction of self-inspection • Responsibilities • Customer complaint management • Training of staff
Documentation raw material	<p>All incoming raw materials are documented, data are collected including date, amount, quality and name of supplier.</p> <p>The documentation of the additive is documented accordingly.</p>
Customer complaints	<p>Customer complaint management is implemented. Documentation contains date, reason and action to achieve customer satisfaction: 0 complaints (new production)</p>
Documentation of outgoing goods	<p>Documentation of outgoing goods is done according to the requirements (except labelling).</p>
Measuring pellets temperature at loading station	<p>Temperature of stored and loaded pellets is checked regularly (IR-gun). Temperature is always ≤ 40 °C.</p>
Training of staff	<p>External ENplus® training will be attended in 2019. Internal trainings done according requirements.</p>

3.6 Retain samples

Retain samples pellets	<p>Sampling frequency: each delivery Sample amount: ~ 1kg Retention period: 12 months</p>
Retain sample labelling	<p>Retain samples are labelled accordingly.</p>
Storage for retain samples	<p>The storage of retain samples corresponds with the requirements.</p>

3.7 Labelling

The labelling corresponds with the requirements (except ID-number, bag designs under approval).

4 SAMPLING

Samples were taken following the principles of ISO 18135.

Two 15kg bags (spruce) were taken from the bagging line. Two 15kg bags (beech) were taken from the storage. The bags were signed by the auditor and were taken by the auditor to the auditor's lab.

5 TESTS

Laboratory testing took place in April 2019 according EN ISO 17225-2.

6 PELLET LAB ANALYSIS RESULTS

Samples 2019096	Standard	unit	Pellets spruce A1	Pellets beech A2	Limit values according ENplus®	
					Class A1	Class A2
mechanical durability	ISO 17831-1	[%]	98,3	98,9	≥ 98,0	≥ 97,5
bulk density (ar)	ISO 17828	[kg/m³]	650	660	750≥BD≥600	750≥BD≥600
moisture content	ISO 18134-2	[%]	6,0	6,2	≤ 10	≤ 10
ash content 550°C(db)	ISO 18122	[%]	0,5	0,9	≤ 0,7	≤ 1,2
net calorific value (ar)	ISO 18125	[MJ/kg]	17,4	16,8	≥ 16,5	≥ 16,5
net calorific value (ar)	ISO 18125	[kWh/kg]	4,8	4,7	≥ 4,6	≥ 4,6
net calorific value (db)	ISO 18125	[MJ/kg]	18,7	18,1	-	-
net calorific value (db)	ISO 18125	[kWh/kg]	5,2	5,0	-	-
gross calorific value (ar)	ISO 18125	[MJ/kg]	19,0	18,3	-	-
gross calorific value (ar)	ISO 18125	[kWh/kg]	5,3	5,1	-	-
Sulphur content (db)	ISO 16994	[%]	0,01	0,012	≤ 0,04	≤ 0,05
Chlorine content (db)	ISO 16994	[%]	< 0,005	< 0005	≤ 0,02	≤ 0,02
Nitrogen content (db)	ISO 16948	[%]	0,10	0,14	≤ 0,30	≤ 0,50
pressing aid / additives	-	[%]	< 1	0	≤ 1,8	≤ 1,8
dimensions						
finer (< 3,15 mm)	ISO 18846	[%]	0,3	0,2	≤ 0,5* / ≤ 1	≤ 0,5* / ≤ 1
length (3,15 ≤ L ≤ 40 mm)	ISO 17829	[%]	99,7	99,8	> 98,5* / >98	> 98,5* / >98
length (40 ≤ L ≤ 45 mm)	ISO 17829	[%]	0	0	≤ 1	≤ 1
length (> 45 mm)	ISO 17829	[amount]	0	0	0	0
diameter	ISO 17829	[mm]	6	6	6 or 8 ± 1	6 or 8 ± 1
heavy metals**						
Chromium (db)	ISO 16968	[mg/kg]	< 1	< 1	≤ 10	≤ 10
Copper (db)	ISO 16968	[mg/kg]	1,0	1,8	≤ 10	≤ 10
Zinc (db)	ISO 16968	[mg/kg]	11	7,0	≤ 100	≤ 100
Lead (db)	ISO 16968	[mg/kg]	< 0,5	< 0,5	≤ 10	≤ 10
Mercury (db)	ISO 16968	[mg/kg]	< 0,075	< 0,075	≤ 0,1	≤ 0,1
Cadmium (db)	ISO 16968	[mg/kg]	< 0,1	< 0,1	≤ 0,5	≤ 0,5
Arsenic (db)	ISO 16968	[mg/kg]	< 0,5	< 0,5	≤ 1	≤ 1
Nickel (db)	ISO 16968	[mg/kg]	< 1	< 1	≤ 10	≤ 10
ash melting behaviour (ash preparation at 815°C)						
shrinking temperature SST	CEN/TS 15370-1	[°C]	1150	1110	-	-
deformation temperature DT	CEN/TS 15370-1	[°C]	1420	1390	≥ 1200	≥ 1100
hemisphere temperature HT	CEN/TS 15370-1	[°C]	> 1550	> 1550	-	-
flow temperature FT	CEN/TS 15370-1	[°C]	> 1550	> 1550	-	-

* for bags or sealed big bags

** not yet accredited method but applied for accreditation
ar...as received, db...dry basis

7 SUMMARY

The pellet production of **RST-Pellet d.o.o.** in Delnice (Croatia) is complying with all requirements of

ENplus[®], quality A1 and A2.



Deviations from 2018:

- ◆ None, new production.

Type A and B non-conformities:

- ◆ None.

Type C non-conformities:

- ◆ The requirements concerning the labelling (especially the ID-number) will be met as soon as the certification process is finished. Bag label design is under approval.
- ◆ The CO₂ emissions will be calculated as soon as relevant figures are available for serious calculation. Check will be done in 2020.

Recommendations for improvements till next audit 2020:

- ◆ None, the production is working on a high level.

This inspection report no. **BEA2019096** comprises 7 pages and 0 appendix(es).

EPC-listed Auditor in Charge

