

Annex A. ENplus® pellet classes, properties, and values

A.1 Quality Classes

A.1.1 Table 4 includes mandatory threshold values for essential pellet parameters for specific ENplus® quality classes.

A.1.2 Pellets shall not include contamination of non-wood material or wood fibres in another form than wood pellets (e.g. wood chips or particles).

NOTE: The contamination does not refer to additives that is regulated by A.3 and fines whose content is regulated by Table 4.

● Table 4

Threshold values of essential pellet parameters

Quality class	ENplus® A1	ENplus® A2	ENplus® B	Unit	Testing standard
Diameter (as received)	6 ± 1, 8 ± 1	6 ± 1, 8 ± 1	6 ± 1, 8 ± 1	mm	ISO 17829
Length (as received)	3,15 ≤ L ≤ 40 (a)	3,15 ≤ L ≤ 40 (a)	3,15 ≤ L ≤ 40 (a)	mm	ISO 17829
Share of pellets with a length < 10 mm (as received) - Category L < 20%, 20% ≤ M ≤ 30%, S > 30%	value & category to be stated	value & category to be stated	value & category to be stated	w-%	ENplus® Guidance Document (b)
Moisture (as received)	≤ 10,0	≤ 10,0	≤ 10,0	w-%	ISO 18134
Ash (dry basis)	≤ 0,70	≤ 1,20	≤ 2,00	w-%	ISO 18122
Mechanical durability (as received) (c)	≥ 98,0	≥ 97,5	≥ 97,5	w-%	ISO 17831-1
Bulk density (as received)	600 ≤ BD ≤ 750	600 ≤ BD ≤ 750	600 ≤ BD ≤ 750	kg/m³	ISO 17828
Particle density (as received)	value to be stated	value to be stated	value to be stated	g/cm³	ISO 18847
Coarse fines (3,15 mm ≤ FP < 5,6 mm) (as received)	value to be stated	value to be stated	value to be stated	w-%	analysis based on ISO 18846 (d, e, f, g)
Fines (< 3,15 mm) (bulk) (as received)	≤ 1,0	≤ 1,0	≤ 1,0	w-%	ISO 18846 (d, f, g)
Fines (< 3,15 mm) (bags) (as received)	≤ 0,5	≤ 0,5		w-%	ISO 18846 (e, f, g)
Net calorific value (as received)	≥ 4,6 (h)	≥ 4,6 (h)	≥ 4,6 (h)	kWh/kg	ISO 18125

Additives (as received)	≤ 2,0 (i)	≤ 2,0 (i)	≤ 2,0 (i)	w-%	
Nitrogen (dry basis)	≤ 0,3	≤ 0,5	≤ 1,0	w-%	ISO 16948
Sulfur (dry basis)	≤ 0,04	≤ 0,04	≤ 0,04	w-%	ISO 16994
Chlorine (dry basis)	≤ 0,02	≤ 0,02	≤ 0,03	w-%	ISO 16994
Arsenic (dry basis)	≤ 1	≤ 1	≤ 1	mg/kg	ISO 16968
Cadmium (dry basis)	≤ 0,5	≤ 0,5	≤ 0,5	mg/kg	ISO 16968
Chromium (dry basis)	≤ 10	≤ 10	≤ 10	mg/kg	ISO 16968
Copper (dry basis)	≤ 10	≤ 10	≤ 10	mg/kg	ISO 16968
Lead (dry basis)	≤ 10	≤ 10	≤ 10	mg/kg	ISO 16968
Mercury (dry basis)	≤ 0,1	≤ 0,1	≤ 0,1	mg/kg	ISO 16968
Nickel (dry basis)	≤ 10	≤ 10	≤ 10	mg/kg	ISO 16968
Zinc (dry basis)	≤ 100	≤ 100	≤ 100	mg/kg	ISO 16968
Ash deformation temperature	≥ 1200	≥ 1100	≥ 1100	°C	ISO 21404 (j)

- (a) A maximum of 1% of the pellets may be longer than 40 mm. No pellets longer than 45 mm are allowed.
- (b) 100 pellets should be measured (after sieving with a 5,6 mm sieve) for the length distribution mass where only 50 are recommended in the ISO 17829. The results shall be both expressed by the exact value and the category (L, M, S).
- (c) At the loading point of the **transport vehicle** at the production site.
- (d) At **company** gate or when loading **big bags** or truck for deliveries to end-users.
- (e) At **company** gate, when filling bags (**bagged pellets**).
- (f) The indication "3,15 mm" respective "5,6 mm" designates particles which pass through a round hole sieve with an aperture size of 3,15 mm, respective 5,6 mm, according to ISO 3310-2.
- (g) ISO 18846 will be replaced by ISO 5370.
- (h) Equal ≥ 16,5 MJ/kg as received.
- (i) The amount of additives in production shall be limited to 1,8 w-% while the amount of post-production additives (e.g. coating oils) shall be limited to 0,2 w-% of the pellets.
- (j) Ash is produced at 815 °C. All characteristic temperatures listed in ISO 21404 shall be stated in the report.

NOTE: The results are considered conforming if the value reported by the laboratory is within the specified limit.