

Wood Pellet Fuel

Quality pellets are essential to ensure clean combustion and trouble-free operation of your appliance. When buying pellets, consumers should consider those that are supplied with a quality mark and with a complete fuel analysis. Often this information will be printed somewhere on the packaging.

There are various European pellet quality standards currently in operation. These will be quoted somewhere on the packaging. Some of the more common standards are:

Austria: **ÖNORM M1735**
 Sweden: **SS 187120** and **SS 187121**
 Germany: **DIN 51731**

In Canada and the US the equivalent standard is Premium grade.

In the future there will be a European CEN standard that will determine how wood pellets are classified. The table below gives a summary of the parameters and the associated limits for a quality pellet. It gives an indication of how the data on a typical quality label would appear in addition to the CEN classification. The highlighted rows are the ones to pay special attention to.

Wood Pellet Information Table

Key Parameter	Limits	Category as per prCEN/TS 14961:2004
Diameter	As Recommended by Appliance Manufacturer. Usual sizes 6mm, 8mm	D06, D08
Average. Length	$L \leq 5 \times \text{diameter}$	
Moisture Content	$\leq 10.0\%$	M 10
Ash	$<0.5\%$	A 0.5
Sulphur	$<0.05\%$	S 0.05
Mechanical durability	$\geq 97.5\%$	DU 97.5
Amount of fines	$<1.0\%$	F 1.0
Additives	None	
Nitrogen	$\leq 0.3\%$	N 0.3
Net Calorific value	ca. 5,0 KWh/kg	
Bulk density	ca. 650 kg/m ³	
Chlorine	$\leq 0.03\%$	CL 0.03

Glossary	
Additives	Additives are used to improve the stability of the pellets. If manufactured correctly, and of a sufficiently low moisture content, quality pellets will require no additives.
Ash	Ash represents the non-combustible content of the pellet. Higher ash content reduces the calorific value of the pellet and requires the appliance to be cleaned more frequently.
Average Length	To provide a predictable flow of fuel into the burner, the recommended length of a pellet is deemed to be greater than 5mm and less than 5 times the diameter.
Bulk density	Bulk density is the ratio between the weight of the pellets and the amount of space they take up. A good quality pellet will have a density of 650kg per m ³ . For example, the volume required to store 4 tons would be (4 x (1 / 0.65)) or 6.15m ³ .
Chlorine	Chlorine occurs naturally only in very small quantities in wood. Low chlorine content indicates that the pellets were made from pure sawdust. High levels of Chlorine in the flue gas emissions can give rise to corrosion.
Diameter	The majority of pellet boilers on the market are designed to take one size diameter pellets only. This will be specified in the literature that comes with the boiler. The most common diameters are 6mm and 8mm.
Fines	Pellets are made from compressed sawdust. As pellets rub together they can break down slightly; producing dust or fines. Too many fines indicate a poor quality pellet and can impede pellet flow in addition to causing dust problems when delivering and storing the pellets.
Mechanical Durability	This is a measure of how stable the pellet is and how likely it is to produce fines from normal handling. A high durability percentage is an indicator of a good quality pellet.
Moisture Content	Moisture affects the calorific value of the pellet. Low moisture content guarantees a constant and predictable combustion efficiency. Higher moisture contents can result in pellet breakdown.
Net Calorific Value	This is the useful energy contained in a kilogramme of fuel. This value is affected by the amount of non-combustible material (ash) and the moisture content of the pellet. Typical vales range between 4.8kWh/kg to 5.2kWh/kg
Nitrogen	Nitrogen occurs naturally only in very small quantities in wood. Low nitrogen content indicates that the pellets were made from pure sawdust. High levels of Nitrogen in the flue gas emissions can give rise to corrosion.
Sulphur	Sulphur occurs naturally only in very small quantities in wood. Low sulphur content indicates that the pellets were made from pure sawdust. High levels of Sulphur in the flue gas emissions can give rise to corrosion.