

Bowland Bioenergy - Technical Information

Pdf 5. ENERGY CONTENT OF WOOD

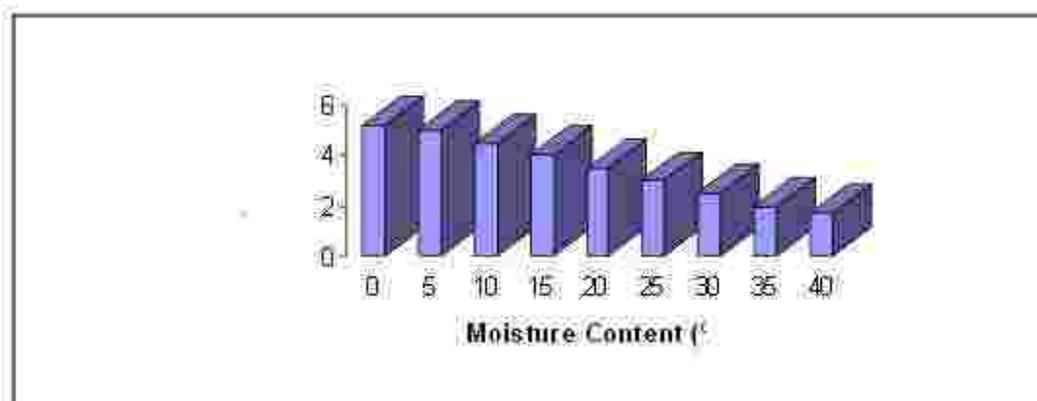
Wood Fuel and Moisture

Wood contains moisture. Freshly felled conifer can contain 55% or more of its total weight in moisture. Before the wood can be burned efficiently the moisture content must be reduced as much as possible. If there is time available it is more usual to air dry the wood before it is burned, but it is possible to burn wet fuel in some specialised boilers. In this process the chips dried earlier are burned to provide the energy to remove moisture from subsequent fuel as it feeds along the grate to the point of ignition. This process reduces the amount of usable heat energy available from the boiler. This system is used on larger boilers and when there is an advantage to be gained by utilising freshly felled wood.

Wood can be air dried to 35% moisture content or less depending upon its geographical location if it is stored in a suitable site and covered against re-wetting. The drier the fuel the more available energy it contains.

In the case of wood pellets the sawdust feedstock must be dried to less than 15% moisture content if good quality pellets are to be produced. This is usually by means of an artificial heat source. The pellets will have a moisture content of 8-10% after processing.

If pellets are allowed into contact with moisture they will absorb it and disintegrate. This will cause problems with the boiler fuel delivery system and it will not burn effectively or in the worst case the fire will be extinguished until the wet fuel is replaced with dry.



Energy Value of Wood as a Function of Moisture

Ash

The weight of ash produced from wood is between 0.5% and 1.0% of the weight of the original fuel burned. One tonne of wood fuel will produce between 5-10kg of ash. For example, a house will produce between 40 and 90kg of ash per year. It contains short term fertiliser, primarily potash, and can therefore be incorporated into the land.

Bowland Bioenergy, based in Lancashire, produces dried wood chips – and supplies wood pellets – for wood burning boilers. The company was founded in 2005 and has grown to be one of the North's leading biomass companies. Wood fuel of the highest quality (BS EN 14961) is produced year-round and the company was the first biomass supplier to achieve the prestigious HETAS Accreditation for wood chip.

Bowland Bioenergy Ltd, Smithfield Farm, Twiston Lane, Downham, Clitheroe, BB7 4DF.

Telephone: 01200 440437

Email: info@bowlandbioenergy.co.uk

Please visit our website www.bowlandbioenergy.co.uk

