



Properly maintained dryers are safe dryers

Solid biofuel (Wood fuel) is produced from a wide range of sources of biomass. Biomass as sourced will usually require some treatment before it is a fuel suitable for combustion in specific heat plant. Once treated it is often referred to as wood fuel as wood is the most common source of biomass for producing solid biofuels.

Biomass can be sourced from wood harvest or process residues, agricultural herbaceous crop residues, or solid waste.

Wood fuel is defined by specific characteristics such as length and moisture content. The characteristics of the full range of solid biofuels is set out in www.usewoodfuel.org.nz/resource/tg01-solid-biofuel-classification-guidelines

Treatment of the source biomass to meet the fuel specification characteristics may include, chipping or hogging, drying, sieving for size, removing fine material, removing contaminants.

Matching fuel to the boiler

All combustion equipment will have been designed for a specific fuel. Similar to a car being designed for petrol or diesel. A boiler or a car doesn't work properly if the wrong fuel is put into it. The same can happen with a boiler. The specification defining the biofuel to be purchased should be based on the boiler designer's recommendations and specified in a contract setting out specific characteristics.

It is always recommended that investigations on the type and quantities of biomass that could be available as fuel is established before any choice of boiler type or design is made. Over the 20-30 expected economic life of a boiler it is certain that the sources of biomass will change. The type and quality of fuel may change and so a boiler should be chosen or designed to be able to handle variations in fuel type and quality.

Scenarios of biomass availability should be established first and then look at boilers. A boiler can always be found to use any fuel but the reverse does not occur – many boilers are specific as to the fuel that can be used.

Some heat plant is suitable for taking a wide range of fuel quality, while other plant is very specific as to the fuel type and quality. Cheap equipment is often very specific as to fuel type and quality. More expensive equipment often has more flexibility as to fuel type and quality.

Purchase of biomass fuel

Wood Fuel is often available to the market through a variety of outlets as follows:

- Dedicated wood fuel producers and/or suppliers,
- Wood fuelled heat plant equipment suppliers/installers who also supply wood fuel,
- Wood processors - residue from wood processing,
- Forestry contractors,
- DIY chain stores and petrol stations for residential heating fuels.

Purchase of wood fuel will depend on a number of things including:

- **Type** (what type of fuel does your heating equipment take). Wood pellet fuel is very different from other solid firewood, wood chip or briquettes.
- **Quality** (what kind of fuel is needed for the installed equipment to operate at maximum efficiency?) All solid biofuels are not the same. Does your plant require high quality fuel or can it use lower and thus cheaper quality fuel? What is the fuel specification for the particular boiler in which it is to be used?
Some fuel types have wide variations in consistency of characteristics whereas wood pellets are manufactured to very precise specifications.
- **Cost** (relative to the alternatives, what is affordable?) Is there a supplier near-by?
- **Quantity** (what volumes of fuel are needed and when, who can supply it?)

Bioenergy Association has a [Wood Fuel Supplier Accreditation Scheme](#) which has an independent third party to ensure that fuel being sold and delivered meets specification every time. The Bioenergy Association recommends that you should only buy wood fuel from an Accredited Wood Fuel Supplier or their agents. A list of Accredited Wood Fuel Suppliers is available [here](#).

Bioenergy Association best practice Technical Guide 6 [Contracting to deliver quality wood fuel to customers](#) sets out what is expected of an Accredited Wood Fuel Supplier. The Guide includes a model *Wood Fuel Sale and Purchase Agreement*.

How to verify the quality of the fuel delivered is set out in best practice Technical Guide 5 [Standard methods for verifying the quality of solid biofuels](#).

References

Residual biomass fuel projections in NZ - www.usewoodfuel.org.nz/resource/residual-biomass-fuel-projections-for-nz

IEA Report, *Biomass pre-treatment for bioenergy* - www.usewoodfuel.org.nz/documents/resource/IEA-Bioenergy/Pretreatment-PolicyReport.pdf