

Wood Pellets General Info

Wood is a very attractive fuel for several reasons. It is renewable, burns clean, has low ash, and cheaper than fossil fuels. Specifically, wood in pellet form is superior compared to raw wood and wood chips, which may have several problems. They can be wet, prone to unexpected heating during storage, difficult to handle, can breed fungal spores, and may contain extraneous material. Moving raw wood or wood chips can be expensive too, and we all know that half their weight is water, and most of their volume is air.

Pellets on the other hand are wood that were cleaned and dried before grinding it to a fine powder and compressing it to make a small cylindrical shaped wood. It has twice the energy per ton, and eight times more energy per cubic meter compared to raw wood or wood chips. Definitely, you will agree that it is the cheapest form of wood as a fuel source to transport or store. The most common of these residential pellets are produced from sawdust and ground wood chips. These are waste materials from the trees that are used to make lumber, furniture and other wood products. All wood pellets come from plants and trees that are harvested when mature. They are called biomass materials. Lignin (resins and binders) that occur naturally in sawdust hold the wood pellets together, so they contain no additives. Your choice of fuel and its price really depends on the biomass waste that is most available to the pellet mills or pellet manufacturers in your region. Similarly, your choice of pellet wood burner appliance design will depend on the fuel that is available. Nut hulls are also palletized in some places, unprocessed shell corn, and fruit pits can also be burned in other pellet stove designs.

A Variety of Sources A pellet mill typically sorts, grinds, dries, compresses, and bags wood as well as the other biomass wastes into fuel. Today, there are more than 60 pellet mills across North America and they produce in excess of 610,000 fuel tons per year. This figure has already doubled within the last few years. You can purchase these pellets from stove dealers, building supply stores, and some feed and garden supply stores. You can choose to buy them in bags (usually contains 40lbs each) or in tons (contains 50 bags per ton). Some of the mills offer bags containing 20lbs for easier handling. Something in Common Although the moisture content and the chemical constituents of the different biomass materials differ, the Pellet Fuel Institute (PFI) has identified a few characteristics that they have in common. They have also developed industry standards to assure uniformity in the product. This is because it is possible for some naturally grown materials to be processed, but will not pass as a refined fuel that you can use. PFI fuel must meet the test for:

- o Chlorides – there has to be limited salt content (not more than 300 parts for each million) to avoid vent rusting
- o Ash content – this is an important factor for maintenance frequency
- o Density – there has to be consistency in hardness and energy content (minimum of 40lbs/cubic foot)
- o Dimensions – the length has to be 1 1/2" as maximum, and the diameter has to be 1/4" to avoid fuel jamming and to ensure predictable fuel amounts
- o Fines – there has to be limited quantity of sawdust from the breakdown of the pellet to avoid too much dust while loading and pellet flow problems during operation

Premium and Standard Grade Fuel All of the standard characteristics described by PFI above are the same for these two fuel grades except for the ash content. Standard grade has up to 3% of ash content while premium grade has less than 1% only. The lower the percentage, the less frequent you need to take out the ash drawer and the lesser the maintenance of your pellet stove. You should know these characteristics well and take it into consideration when choosing the type of wood pellet to purchase.