

Material Safety Data Sheet (MSDS)

1. Product Name and Supplier

Product Name: Bulk or Bagged Wood Pellets for Cooking

Product Supplier: Pure Biofuel Ltd.
Office 7, 35-37 Ludgate Hill,
London EC4M 7JN
Tel: 0800 4337 037

2. Composition/Information on Ingredients

Ingredients Raw Material: 100% virgin hard wood.

Additives of Binders: No additives or binders are used in the production.

Composition: Wood Pellets are manufactured from lingo-cellulosic saw dust and wood chips by means of one or a combination of the following operations; drying, size reduction, densification, cooling and dust removal. The chemical composition of Wood Pellets varies between species of raw material, components of the wood, soil conditions and the age of the tree. Wood Pellets are typically manufactured from a single of feedstock with the following compositions;

	Oak
Cellulose	42.2
Hemi-cellulose	33.1
Lignin	20.2
Extractives (terpene, fatty acids, phenols)	4.4

Indicative composition in % of weight

3. Hazardous Identification

Various species of wood produce a dust that can elicit allergic contact dermatitis in sensitised individuals. In non-sensitised individuals the dust may cause irritation in the eyes and respiratory organs.

If the pellets become wet or moist, a biological process is started in the material that causes the temperature to rise; this may result in self combustion.

Wood is a strong to severe explosion hazard if a dust “cloud” contacts an ignition source.

Wood heated with limited oxygen will produce carbon monoxide, carbon dioxide, and hydrocarbons which can explode if oxygen is introduced.

When storing/transporting in closed spaces with insufficient ventilation, e.g. silos or cargo holds on ships, carbon monoxide can be formed.

4. First Aid Measures

Ingestion: Rinse mouth thoroughly with water, do not ingest water or induce vomiting. Wood pellets will expand about 3 or 4 times in volume when wet. No harmful effects, if there is a discomfort seek medical advice.

Inhalation: Remove to fresh air or a ventilated area. If persistent irritation, severe coughing or breathing difficulties occur, seek medical advice.

Skin Contact: Wash with soap and water and remove contaminated clothing. If a rash or persistent irritation or dermatitis occurs, seek medical advice.

Eye Contact: Flush with copious amounts of water for at least 10 minutes or use an eyewash solution. If irritation persists seek medical advice.

5. Fire Fighting Measures

Extinguishing Media:	Foam, Water, Sand, Carbon Dioxide and Nitrogen. Use inert gases to smother fires in enclosed spaces.
Unusual Fire Hazards:	None.
Special:	Use water to wet down dust to reduce the likelihood of ignition on dispersion of dust into the air.
Protection of Fire Fighters:	Wear self-contained breathing apparatus and full clothing, such as turn-out gear.

6. Accidental Release Measures

Sweep or vacuum spills for recovery or disposal; avoiding creating dust conditions. Provide good ventilation where dusts conditions may occur. Place recovered dust in a container for disposal.

Wood pellets and wood dust on the floor present a slip and fall hazard.

7. Handling and Storage

Handing: Wash hands immediately after handling and before eating.

Storage: Store in cold, dry areas shielded from the weather. We recommend that storage spaces, where possible are well ventilated.

Avoid contact with Oxidizing Agents and Drying Oils.

Do not allow the product to become wet, water will expand and breakdown the pellets into wood particles.

8. Exposure Control and Personal Protection

Ventilation:	Provide local exhaust ventilation, other engineering controls or adequate general ventilation to keep the airborne concentrations below the respective occupational exposure limit.
Maximum Exposure Limit:	TWA 3 mg/m ³ Sen 8 hour(s) EH40/2005 WEL (Hardwood)
Personal Protective Equipment:	Goggles and approved dust respirators may be required depending upon dust conditions.

9. Physical and Chemical Properties

Appearance:	Light to dark coloured cylinders 6mm in diameter. Approximately 3.15mm to 50mm long with some wood dust.
Odour:	Slight wood odour.
Minimum Ignition Temperature (MIT)	Pellets; Non Applicable Dust Cloud 480°C Dust Layer 260°C
Auto Ignition Temperature:	+260°C in the presence of oxygen.
Energy Content:	Min 4.8 – 4.9 MWh/tonne, effective heat content.
Ash Content:	≤ 0.7%
Bulk Density:	≥ 600 kg/m ³
Moisture:	≤ 10%
Solubility:	Insoluble. Water will expand and breakdown the pellets into wood particles.

10. Stability and Reactivity

Stability:	Stable under normal conditions.
Incompatibility:	Avoid contact with oxidizing agents and drying oils. Avoid open flame; product may ignite at temperatures in excess of 260°C. Avoid contact with water; decomposition will occur.
Hazardous Decomposition Products:	Thermal-oxidative degradation of wood produces irritating and toxic fumes and gases, including carbon monoxide, terpenes and polycyclic aromatic hydrocarbons.

11. Toxicological Information

Inhalation:	Constant exposure can result in work related asthma. Inhalation of dust in high concentrations may cause irritation of the respiratory system.
Contact:	Various species of wood produce a dust that can elicit allergic contact dermatitis in sensitised individuals.
Ingestion:	Harmful if swallowed, may cause some discomfort as Wood pellets will expand about 3 or 4 times in volume when wet.
Eye Contact:	Exposure to dust may cause an irritation.
Other:	Studies have shown no evidence of hardwood dust being carcinogenic.

12. Ecological Information

Ecotoxicity:	The product is not expected to be hazardous to the environment.
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13. Disposal Considerations

Normal Waste: Normal waste from wood pellets is not environmentally hazardous, dispose of in accordance with local regulations.

Contaminated Waste: Contaminated products should be disposed of as hazardous waste, by a registered Waste Disposal Contractor.

14. Transport Information

This product is not classified as Dangerous Goods.

15. Regulations

This product is not covered by the Chemical (Hazards Information and Packaging for Supply) Regulations 2009 (CHIP)

Risk Phrase: R10. Flammable
R22. Harmful if swallowed
R37. Irritating to respiratory system
R43. May cause sensitisation by skin contact

Safety Phrase: S22. Do not breathe dust S38. In case of insufficient ventilation, wear suitable respiratory equipment

16. Other Information

Wood pellets for boilers are normally stored in large sealed hoppers/tanks or storage rooms. Due to the enclosed nature of these storage facilities, the atmosphere inside can become oxygen depleted and a toxic atmosphere containing carbon monoxide can accumulate.

Carbon Monoxide, What is it?

Carbon monoxide (CO) is a colourless, odourless, tasteless, poisonous gas produced by an auto-oxidation process, especially oxidation of the fatty acids contained in the wood.

The depletion ratio is a function of temperature, pressure, bulk density and void in wood pellets, relative humidity in air (if ventilated) as well as the age and composition of the raw material.

The figures below are from measurements of gas generated within the space of wood pellets at approximately constant pressure.

Temperature °C	(±10 %) Depletion of oxygen in %/24h
+20	0.7 – 1.2
+40	1.5 – 2.5

Carbon Monoxide Poisoning, the Symptoms

When CO enters the body, it prevents the blood from bringing oxygen to cells, tissues, and organs.

Early symptoms of carbon monoxide (CO) poisoning can mimic many common ailments and may easily be confused with food poisoning, viral infections, flu or simple tiredness. Symptoms to look out for include:

- Headaches or dizziness
- Breathlessness
- Nausea
- Loss of consciousness
- Tiredness
- Pains in the chest or stomach
- Erratic behaviour
- Visual problems

Further Information:

<http://www.hse.gov.uk/safetybulletins/co-wood-pellets.htm>

<http://www.hse.gov.uk/gas/domestic/co.htm>

Legal Disclaimer:

The purpose of the above information is to describe the product only in terms of Health and Safety requirements. The information given should not, therefore, be construed as guaranteeing specific properties or as specification. Customers should satisfy themselves as to the suitability and completeness of such information for their own particular use.