SAFETY DATA SHEET – HEATING WOOD PELLETS

LIGNETICS GROUP

Section 1: Identification

Product identifier / Names: **Lignetics Wood Pellet Fuel, Lignetics Premium Plus, Energex Hardwood Heating Pellets, Cleanfire, Green Supreme Heating Pellets, Golden Fire, New England Wood Pellets, Okanagan, Lumbe Jack, Dry Creek Premium Plus, and other Lignetics brands.**

(b) Other means of identification: none, product does not have CAS number.

(c) Recommended use of the chemical and restrictions on use: fuel using wood pellet heating appliances.

(d) Manufacturer: **Lignetics Group**
11101 W 120th Ave #200
Broomfield, CO, 800021

(e) Manufacturer phone number : 800-544-3834

For an emergency call 911.

Section 2: Hazard(s) Identification

(a) GHS Classification

H 304 Aspiration hazard – Category 1 (H304);
H 317 Skin Sensitization – Category 3 (H317);
H 334 Respiratory Sensitization – Category 1 (H334).

(b) Signal word(s), hazard statement(s); symbol(s) and precautionary statement(s)



DANGER. May generate carbon monoxide (CO) and oxygen deficiency.
WARNING: Dust from wood pellets may cause mild skin irritation; dust containing allergenic species may cause allergy or asthma symptoms if inhaled

Hazard Statements: Wood pellets are combustible if exposed to open fire or heat. Dust from wood pellets when lofted in high concentrations or in layers is explosive if exposed to ignition source (see Section 9).

Inhalation of dust from wood pellets may cause respiratory reactions (see Section 4).

Contact with skin may cause skin irritation for sensitive persons (see Section 4).

Wood pellets have propensity to self-heat when stored in bulk without bag. However, for purpose of the UN GHS hazard safety classification wood pellets are not classified as self-heating

Precautionary Statements:
All personnel working in areas with dust suspended in air may wear an optional dust mask to prevent inhalation of dust if anticipated dust level is below occupational exposure guidelines. For dusty environment, see Section 8 and ref. 13.

Before entering a storage space with wood pellets the space shall be sufficiently ventilated to make sure the conditions as specified in Section 7 are secured due to the release of carbon-monoxide (CO) and oxygen (O2) depletion by wood pellets, or possible generation of re-entrainment of settled wood dust. For confined space related entry, site-specific Confined Space Entry Work Permit procedures shall be followed.

Section 3: Composition/ Information on Ingredients

The chemical composition of wood pellets varies depending on species of trees, components of the tree, growing conditions and age of a tree. Wood pellets are often manufactured from a blend of source materials with typical composition as summarized below:

Chemical Name	Synonym	CAS#	Weight/%
Cellulose	Sawdust	9004-34-6	30-40%
Hemi-Cellulose	Polyose	8024-508	25-30%
Lignin		6549-68-4	30-45%
Other non-hazardous ingredients			Trace (<1%)

This product contains no additives or binders.

Section 4: First-Aid Measures

Off-gassing from Wood Pellets

Wood pellets release non-condensable odorless gases such as carbon-monoxide (CO), carbon-dioxide (CO2) and small amounts of methane (CH4) in combination with oxygen (O2) depletion. Whenever possible, wood pellet products should be stored in well-ventilated areas. Wood pellet storages, both enclosed or confined spaces, must be thoroughly ventilated before entry. CO and O2 monitors, shall be used when entering bulk storage areas to ensure safe conditions (see Section 7). In all cases, unprotected exposure to oxygen deficient environment below 19.5% and CO above occupational exposure limits (OELs) are prohibited.

Exposure to combined O2 deficiency and CO may exacerbate hyper-ventilation. In case of exposure it is important to quickly remove the victim from the contaminated area. Unconscious persons should immediately be given oxygen and artificial respiration. Time is of the essence. The administration of oxygen at an elevated pressure has shown to be beneficial, as has treatment in a hyperbaric chamber. Attending physician shall be informed that the patient has inhaled toxic quantities of carbon monoxide. Rescue personnel shall be equipped with self-contained breathing apparatus (SCBA) when entering enclosed spaces with gas. CO2 and methane (CH4) are simple asphyxiants and displace oxygen. In addition, wood pellets release low level condensable malodorous hydro-carbons in small amounts which may cause discomfort.

Dust from Wood Pellets

The sizes of the particulate matter range from crumbs to extremely fine airborne dust. Some species of wood may cause acute or chronic toxic symptom if inhaled, or skin irritation. Some wood dust may contain allergenic wood species and may cause allergy or asthma symptoms or breathing difficulties if inhaled. (see Section 11).

Table 2. Recommended first-aid measures

Entry	Substance	Observed Adverse Health Effects	Remedial Action
Ingest	Dust	Dry sensation.	Rinse mouth thoroughly with water. Do not induce vomiting.
Inhale	Dust	Coughing, dry throat. Wood dust containing allergenic species may cause allergy or asthamic symptoms. For toxicological data, see Section 11.	Rinse mouth thoroughly with water. Do not induce vomiting. Workers experience allergic or asthmatic symptoms should seek medical attention immediately.
	Carbon-monoxide (CO)	Headache, dissiness, convulsion at lower exposures to unconsciousness and death at higher acute exposures. For toxicological data, see Section 11.	If adverse symptom is observed, evacuate worker to a safe well-ventilated area and seek medical attention if required. Ensure CO is below occupational exposure guidelines via proper ventilation.
	Oxygen depletion (O_2)	Dizziness, mental confusion, loss of judgement, loss of coordination, weakness, nausea, fainting, loss of consciouness and death.	If oxygen level < 19.5%, evacuate and ventilate thoroughly. Seek medical attention if required.
Skin contact	Dust	Itching for some people. For toxicological data, see Section 11.	Remove contaminated clothing. Rinse skin thoroughly with water.
Eye contact	Dust	Tearing, burning. For toxicological data, see Section 11.	Flush with water and sweep out particles inward towards the nose.

Section 5: Fire-Fighting Measures

Wood pellets are a fuel and by nature are prone to catch fire when exposed to an ignition source. Wood can provide it's own oxygen and may be difficult to extinguish if stored in an enclosed vessel.

Suitable extinguishing agents include water, foam, or sand to block penetration of oxygen.

Use of water is not recommended for extinguishing fires for product stored in large rigid containers, as pellets will swell upon contact with water and may rupture storage equipment. In these circumstances, seal off openings to restrict oxygen to the fire.

For bagged wood pellets burning during transportation on trucks, dump hot material in a safe location and thoroughly douse with water. Keep all material wet until combustion is completely ceased.

Section 6: Accidental Release Measures

Avoid actions that cause dust to become airborne. Avoid inhalation of dust and contact with skin. Wear appropriate personal protective equipment as described in Section 8.

Cleanup using shovel, sweeping or vacuum. Apply water spray to prevent airborne dust. Scrape up wet material and place in an appropriate container.

Residual spilled material is not toxic to soil or water.

Section 7: Handling and Storage

Instructions in this section are generalized guidance. Bulk or large scale storage of pellets may require a review from local authorities having jurisdiction for fire safety. Consult with these authorities before storing large quantities of wood pellets in storage vessels or warehouses.

Prolonged storage is best kept near 30 degrees Celsius / 86 degrees Fahrenheit. Do not store above 60 C or 140 F, as pellets may ignite due to self-heating.

Wood pellets are hydrophobic (absorb moisture from ambient air and penetration by water) and should be kept dry at all times. Elevated moisture content promotes self-heating, off-gassing and oxygen depletion. Ventilation with ambient air should not be done if air temperature is higher then pellets temperature or if relative humidity is higher than 80%.

Airborne dust may settle on horizontal surfaces and build up to unsafe levels over time. This may pose a dust explosion hazard if exposed to heat, open flame, sparks or electrostatic discharge.



If product is stored in vessels with limited access, confined space work permit safety practices must be employed, which involves the use of air monitoring, safety attendants, and other requirements. Such spaces must be labeled with a sign at entry points.

Section 8: Exposure Controls/Personal Protection

Wood pellets are regulated as wood dust in USA and Canada. Airborne xposure limits from various agencies is summarized below.

Chemical Name	OSHA PEL	OSHA PEL (respirable size)	ACGIH /NIOSH TWA	ACGIH /NIOSH TWA (respirable size)
Wood Dust	**15 mg/m^3**	**5 mg/m^3**	**1 mg/m^3**	**1 mg/m^3**

Breathing equipment: Use a particle filtering respirator such as an N95 dust masks if levels may exceed exposure limits.

Protection of hands: Not normally required for intermittent contact (< 1hr / day). For frequent contact, any style of protective gloves.

Eye protection: Very dusty conditions can result in dust in the eye. Use safety goggles or safety glasses with foam lining.

Section 9: Physical and Chemical Properties

(a) Appearance (physical state, color, etc.) : brown to tan, firm glossy pellets
(b) Odor: woody
(c) Odor threshold: not available
(d) pH: 4.5-5.5
(e) Melting point/freezing point: N/A
(f) Initial boiling point and boiling range: N/A
(g) Flash point: N/A
(h) Evaporation rate: N/A
(i) Flammability (solid, gas) : Combustible solid
(j) Upper/lower flammability or explosive limits: not present except with fine dust, which is variable.
(k) Vapor pressure: N/A
(l) Vapor density: N/A
(m) Relative density: N/A
(n) Solubility(ies) : N/A
(o) Partition coefficient: n-octanol/water: N/A
(p) Auto-ignition temperature: as low as 140 degrees F.
(q) Decomposition temperature: not available
(r) Viscosity: N/A

Danger of flash fire or explosion is present if fine dust is suspended in air and subjected to an ignition source.

Section 10: Stability and Reactivity

Reactivity: Does not react with water, but swells 3-4x original volume after exposure to water.
Chemical stability: Stable when kept in dry condition. Degrades if humidity exceeds 80%.
Conditions to avoid: Hot surfaces, open flame, sparks, or electrostatic discharge.
Incompatible materials: Strong oxidizing agents

Hazardous decomposition products: Carbon-monoxide (CO), carbon-dioxide (CO2), small amounts of methane (CH4) in combination with oxygen depletion, oxides of nitrogen, volatile hydrocarbons including terpenes and polyaromatic hydrocarbons.

Section 11: Toxicological Information

Chronic Toxicity: Fine wood dust has the potential to pose a risk of inhalation if dust levels are not kept below exposure limits.

Dust from certain hardwoods has been identified by IARC as Group 1 carcinogenic to human substance. (IARC Monographs: Wood Dust No. 100C (2012). The American Conference of Governmental Industrial Hygienists (ACGIH) have also listed oak and beech wood dusts as A1 – Confirmed Human Carcinogen and birch, mahogany, teak, walnut as A2 – Suspected Human Carcinogen (ref. 14 Section 5.59 Table 1)

The exposure risk arising from the carcinogen hazard depends on many factors such as level of wood dust exposure, duration and frequency of exposure, and whether effective exposure mitigation measures are in place. Since the primary wood pellet products are typically large size pellet, range from 6 mm – 12 mm in diameter, they are unlikely to become airborne and directly ingested or inhaled by handlers. Therefore, the exposure risk of wood dust should remain low during normal handling of wood pellet provided an effective dust control system is in place.

Acute toxicity:
Only possible through decomposition to carbon monoxide (CO).

Target organs: Upper respiratory system.

Section 12: Ecological Information (non-mandatory)

Ecotoxicity: Not harmful to aquatic organisms, except for when in large, exposed piles subject to rain and stormwater runoff. In such conditions, tannic acid water will be produced.
Mobility: Not established
Biodegradation: Not applicable
Bioaccumulation: Not applicable.

Section 13: Disposal Considerations (non-mandatory)

Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations, those of Australia, Canada, EU Member States and Japan. Wood dust is not considered hazardous waste under Federal Hazardous Waste Regulations 40 CFR 261.

Section 14: Transport Information (non-mandatory)

Wood pellets are not regulated as dangerous by USA DOT, Canadian transport agencies, or travel by air or sea.

Section 15: Regulatory Information (non-mandatory)

US Federal Regulations
SARA Section 355 (extremely hazardous substances): Not applicable.
SARA Section 313 (specific toxic chemical listings): Not applicable.
Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs): Not applicable.
TSCA (Toxic Substances Control Act): Not applicable.

Wood burning appliances may be subject to local air pollution regulations on a permanent or seasonal basis. Consult with local rules before use.

Section 16: Other Information

SDS date of preparation/update: **November 1, 2024.**