

## Material Safety Data Sheet (MSDS)<sup>1</sup> – Plywood

### Product Identification

**Product:** Plywood bonded with phenol-formaldehyde adhesive

### Hazardous Ingredients

Ingredient	CAS#	Percent	Agency	Exposure Limits	Comments
Wood	None	84-99	OSHA	PEL-TWA 15mg/m3	Total dust
			OSHA	PEL-TWA 5mg/m3	Respirable dust fraction
			ACGIH	TLV-TWA 5mg/m3	Softwood total dust
			ACGIH	TLV-STEL 10mg/m3	Softwood total dust
			ACGIH	TLV-TWA 1mg/m3	Selected hardwood total dust
			<sup>2</sup> OSHA	PEL-TWA 5mg/m3	Softwood or hardwood total dust
			<sup>2</sup> OSHA	PEL-STEL 10mg/m3	Softwood or hardwood total dust
<sup>3</sup> Phenol formaldehyde resin solids	None	1-15	OSHA	PEL-TWA 0.75 ppm	Free gaseous formaldehyde
			OSHA	PEL-STEL 2 ppm	Free gaseous formaldehyde
			ACGIH	TLV-Ceiling 0.3 ppm	Free gaseous formaldehyde

### Hazard Identification

**Appearance and Odor:** Plywood is a 3-9 ply-veneer product with a slightly aromatic resinous odor and natural wood color. The wood component of these products may consist of alder, amescla, aspen, beech, birch, cottonwood, fir, gum, hemlock, hickory, maple, oak, pecan, pine, poplar, spruce, walnut and/or Western red cedar.

**Primary Health Hazards:** The primary health hazard posed by this product is thought to be due to exposure to wood dust.

**Primary Route(s) of Exposure:**

- ( ) Ingestion: N/A
- (X) Skin: Dust
- (X) Inhalation: Dust

**Medical Conditions Generally Aggravated by Exposure:** Wood dust may irritate eyes and aggravate preexisting respiratory conditions or allergies.

**Chronic Health Hazards:** Dust of some species may cause allergic contact dermatitis and respiratory sensitization with prolonged, repetitive contact or exposure to elevated dust levels. Prolonged exposure to wood dust has been reported by some to be associated with nasal cancer.

**Carcinogenicity Listing:**

- ( ) NTP: Not listed
- (X) IARC Monographs: Wood dust, Group 1
- (X) OSHA Regulated: Formaldehyde Gas

<sup>1</sup> This MSDS is intended to be used solely for safety education and not for use as specification or warranties. The information in this MSDS comes from sources<sup>1</sup> believed to be accurate or otherwise technically correct but is provided without any representations or warranties regarding the accuracy or correctness. It is the user's responsibility to determine if this information is suitable for their applications and to follow safety precautions as deemed necessary.

<sup>2</sup> Exposure Limits based on 1989 OSHA PELs. A number of states have incorporated the OSHA PELs from the 1989 standard. Accordingly, OSHA has announced that it may cite companies under the OSH Act general duty clause under appropriate circumstances for non-compliance with the 1989 PELs.

<sup>3</sup> These products contain less than 0.05 ppm free formaldehyde.

<sup>4</sup> Weyerhaeuser MSDS WC 301-06 and Arauco MSDS

**IARC – Group 1:** Carcinogenic to humans; sufficient evidence of carcinogenicity. Classification is based on studies showing an association between occupational exposure to wood dust and adenocarcinoma of the nasal cavities and paranasal sinuses. There is insufficient evidence of an association between occupational exposure to wood dust and cancers of the oropharynx, hypopharynx, lung, lymphatic and hematopoietic systems, stomach, colon or rectum.

## **Emergency and First-Aid Procedures**

**Ingestion:** N/A under normal use.

**Eye Contact:** Wood dust may cause mechanical irritation. Flush with water to remove dust particles. Seek medical help if irritation persists.

**Skin Contact:** Dust of certain species can elicit allergic contact dermatitis in sensitized individuals, as well as mechanical irritation resulting in erythema and hives. Seek medical help if rash, irritation or dermatitis persists.

**Skin Absorption:** Not known to occur under normal use.

**Inhalation:** Dust may cause obstruction in the nasal passages, resulting in dryness of nose, dry cough, sneezing and headaches. Clear passages and remove to fresh air. Seek medical help if persistent irritation, severe coughing or breathing difficulty occurs.

## **Fire and Explosion Data**

**Flash Point:** N/A

**Flammable Limits:**

LEL: See (1) below

UEL: N/A

**Extinguishing Media:** Water, carbon dioxide, sand.

**Autoignition Temperature:** Variable [typically 400-500°F (204-260°C)]

**Special Firefighting Procedures:** None

**(1) Unusual Fire and Explosion Hazards:** Depending on moisture content and particle diameter, wood dust may explode in the presence of an ignition source. An airborne concentration of 40 grams (40,000 mg) of dust per cubic meter of air is often used as the LEL for wood dusts.

## **Accidental Release Measures**

**Steps to be Taken in Case of Release or Spills:** N/A for product in purchased form. Wood dust generated from machining of this product may be vacuumed or shoveled for recovery or disposal. Avoid dusty conditions and provide good ventilation. Use NIOSH/MSHA-approved dust respirator and goggles where ventilation is not possible and the allowable exposure limits may be exceeded.

## **Handling and Storage**

**Precautions:** No special handling precautions required for product in purchase form. Avoid repeated or prolonged breathing of wood dust. These products may release very small quantities of formaldehyde in gaseous form. Under foreseeable conditions of use, these products release less than 0.050 ppm in standard large chamber test conditions. Store in a well-ventilated, cool, dry place away from open flame.

## Exposure Control Measures

### **Personal Protective Equipment:**

**RESPIRATORY PROTECTION** - N/A for product in purchase form. A NIOSH/MSHA-approved dust respirator is recommended when allowable exposure limits may be exceeded.

**PROTECTIVE GLOVES** – Not required. Cloth, canvas, or leather gloves are recommended to minimize potential mechanical irritation from handling product.

**EYE PROTECTION** – N/A for product in purchased form. Goggles or safety glasses are recommended when machining this product.

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT** – N/A for product in purchased form.

**WORK/HYGIENE PRACTICES** – Clean up areas where wood dust settles to avoid excessive accumulation. Minimize practices that generate high airborne-dust concentrations.

### **Ventilation:**

**LOCAL EXHAUST** – Provide local exhaust as needed so that exposure limits are met.

**MECHANICAL (GENERAL)** – Provide general ventilation in processing and storage areas so that exposure limits are met.

**SPECIAL** – N/A

**OTHER** – N/A

## Physical/Chemical Properties

Boiling Point (@ 760 mm Hg):	N/A
Vapor Pressure (mm Hg):	N/A
Vapor Density (air = 1; 1 atm):	N/A
Specific Gravity (H <sub>2</sub> O) = 1):	Variable; depends on wood species and moisture
Melting Point:	N/A
Evaporation Rate (Butyl acetate = 1):	N/A
Solubility in Water (% by weight):	<0.1%
% Volatile by Volume [@ 70°F (21°C):	0
pH:	N/A
Oil-water distribution coefficient:	N/A
Odor threshold:	Not Determined

## Stability and Reactivity

**Stability:** ( ) Unstable (X) Stable

**Conditions to Avoid:** Avoid open flame. Product may ignite at temperatures in excess of 400°F (204°C).

**Incompatibility (Materials to Avoid):** Avoid contact with oxidizing agents.

**Hazardous Decomposition or By-Products:** By-products of thermal decomposition include carbon monoxide, carbon dioxide, aliphatic aldehydes, rosin acids, terpenes and polycyclic aromatic hydrocarbons.

**Hazardous Polymerization:** ( ) May occur (X) Will not occur

## Toxicological Information

None available for product in purchased form.

Wood dust (softwood or hardwood) OSHA Hazard Rating = 3.3; moderately toxic with probable oral lethal dose to humans being 0.5-5 g/kg (about 1 pound for a 70 kg or 150 pound person).

## Disposal Considerations

**Waste Disposal Method:** Incinerator is preferred if disposed or discarded in its purchased form. Dry land disposal is acceptable in most states. Follow applicable federal, state, and local regulations.

## Transport Information

Not regulated as a hazardous material by the U.S. Department of Transportation. Not listed as a hazardous material in Canadian Transportation of Dangerous Goods (TDG) regulation.

## Additional Information

### Definition of Terms:

ACGIH	= American Conference of Governmental Industrial Hygienists
CAS#	= Chemical Abstracts System Number
IARC	= International Agency for Research on Cancer
MSHA	= Mining Safety and Health Administration
N/A	= Not Applicable
NIOSH	= National Institute for Occupational Safety and Health
OSHA	= Occupational Safety and Health Administration
PEL	= Permissible Exposure Limit
STEL	= Short-Term Exposure Limit (15 minutes)
TLV	= Threshold Limit Value
TWA	= Time-Weighted Average (8 hours)