Safety Data Sheet (SDS)

Laminated Veneer Lumber (LVL)

1. Identification

TRADE NAME (AS LABELED):	Laminated Veneer Lumber (LVL)
SYNONYMS:	Header, Phenol Formaldehyde/Resorcinol Formaldehyde Bonded Product
PRODUCT USES:	Building Materials
CHEMICAL NAME/CLASS:	Wood Products

MANUFACTURER'S NAME:	Pacific Woodtech Corporation
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EMERGENCY PHONE:	(800) 424-9300 (CHEMTREC)
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REVISED DATE:	March 3 2015

2. Hazard(s) Identification

Signal Word: DANGER

Product Classification (GHS)	Hazard Statement(s)	Pictogram(s)
HEALTH Carcinogenicity- Category 1A	Dusts may cause nasopharyngeal cancer and/or cancer of the nasal cavities and paranasal sinuses	

HMIS Rating (Scale 0-4):	**Health =** 2*	**Fire =** 1	**Physical Hazard =** 0		
NFPA Rating (Scale 0-4):	**Health =** 1	**Fire =** 1	**Reactivity =** 0		

Hazards Not Otherwise Classified (HNOC): **Warning!** Laminated Veneer Lumber (LVL) may form Combustible dust concentrations in air during processing. Specifically, in instances where product dust is suspended in air in sufficient concentrations in proximity to an ignition source. Users of this product should examine the potential to generate wood and organic resin dust during handling and processing and related combustibility hazards and controls. See additional comments in SDS.

2. Hazard(s) Identification (cont'd.)

Precautionary Statement(s):

Prevention Statements - Do not handle until all safety precautions have been read and understood. Wear eye and respiratory protection for excessive wood dust exposures. Do not breathe dust. In case of inadequate ventilation wear respiratory protection. Avoid creating dusty conditions whenever feasible.

Response Statements – If exposed or concerned get medical advice/attention. Remove contact lenses if present and rinse eyes thoroughly if particles are in the eye. If eye irritation persists, get medical advice/attention.

Ingredients of Unknown Acute Toxicity (>1%): NAP

3. Composition/Information on Ingredients

Ingredients	CAS#	Wt %
Wood (wood dust, softwood or hardwood)	None	90-99
Resin Solids: Polymeric Phenol-Formaldehyde [1] ($C_7H_6O_2$)	9003-35-4	1-9
Paraffin Wax[3]	8002-74-2	0-2

Common names: [1] Phenol-formaldehyde resin; [2] Hydrocarbon waxes, synthetic wax.

4. First Aid Measures

Ingestion: Not applicable under normal use.

Eye Contact: Wood and resin dust may cause mechanical irritation. Treat dust in eye as foreign object. Flush with water to remove dust particles. Seek medical help if irritation persists.

Skin Contact: Wood 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. Resin dust may also cause skin reactions in susceptible individuals.

Skin Absorption: Not known to be absorbed through the skin.

Inhalation: Wood and resin dust may cause unpleasant obstruction in the nasal passages, resulting in dryness of nose, dry cough, sneezing and headaches. Remove to fresh air. Seek medical help if persistent irritation, severe coughing or breathing difficulty occurs.

Symptoms or Effects:

Acute Symptoms - Wood dust can cause eye irritation. Certain species of wood dust can elicit allergic contact dermatitis in sensitized individuals. Wood dust may cause respiratory irritation, nasal dryness, coughing, sneezing and wheezing as a result of inhalation. Formaldehyde may cause temporary irritation of skin, eyes, or respiratory system.

Chronic Symptoms - Wood dust, depending on the species, may cause allergic contact dermatitis and respiratory sensitization with prolonged, repetitive contact or exposure to elevated dust levels. Formaldehyde may cause sensitization in susceptible individuals.

Note to Physician/Special Treatment: None

5. Fire-fighting Measures

Extinguishing Media and Restrictions: Water, carbon dioxide, sand.

Specific Hazards, Anticipated Combustion Products: Thermal decomposition (i.e. smoldering, burning) can release carbon monoxide, oxides of nitrogen, carbon dioxide, aliphatic aldehydes including formaldehyde, resin acids, terpenes and polycyclic aromatic hydrocarbons. Natural decomposition of organic materials such as wood may produce toxic gases and an oxygen deficient atmosphere in enclosed or poorly ventilated areas. Spontaneous and rapid hazardous decomposition will not occur.

Auto ignition Temperature: Variable [typically 400°- 500°F (204°-260°C)].

Special Firefighting Equipment/Procedures: None

5. Fire Fighting Measures (cont'd.)

Unusual Fire and Explosion Hazards: Depending on moisture content and more importantly, particle diameter and airborne concentration, wood and resin dust may explode in the presence of an ignition source. Wood dust may similarly deflagrate (combustion without detonation like an explosion) if ignited in an open or loosely contained area. 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. Reference NFPA Standards 654 and 664 for guidance. Ventilation systems should be kept clean and precautions should be taken to prevent sparks or other ignition sources.

6. Accidental Release Measures

Steps to be Taken In Case Material Is Released or Spilled: Sweep or vacuum up for recovery and disposal. Avoid creating dusty conditions whenever feasible. Maintain good housekeeping to avoid accumulation of dried wood and resin dust on exposed surfaces. Use approved filtering facepiece respirator ("dust mask") and goggles where ventilation is not possible and exposure limits may be exceeded or for additional worker comfort. Place recovered wood dust in a container for proper disposal.

7. Handling and Storage

Precautions to be Taken In Handling and Storage: Dried wood and resin dust may pose a combustible dust hazard. Keep away from ignition sources. Avoid eye contact. Avoid prolonged or repeated contact with skin. Avoid prolonged or repeated breathing of dusts. These products may release some formaldehyde in gaseous form. Specific handling and storage conditions should be assessed to determine potential formaldehyde concentrations. Store in well-ventilated, cool, dry place away from open flame.

8. Exposure Control Measures/Personal Protection

Exposure Limits/Guidelines:

Ingredient(s)	Agency	Exposure Limit(s)	Comments
Wood (wood dust, softwood and hardwood)	OSHA	PEL-TWA 15 mg/m^3 (see footnote [A] below)	Total dust (PNOR)
	OSHA	PEL-TWA 5 mg/m^3 (see footnote [A] below)	Respirable dust fraction (PNOR)
	ACGIH	TLV-TWA 1 mg/m^3	Inhalable fraction
Resin Solids: Polymeric phenol-formaldehyde [B]	OSHA OSHA	PEL-TWA 0.75 ppm PEL-STEL 2 ppm	Free gaseous formaldehyde
	ACGIH	TLV- (C) 0.3 ppm	Ceiling limit
Paraffin wax	OSHA ACGIH	PEL-TWA 2 mg/m^3 TLV-TWA 2 mg/m^3	Paraffin wax fume Paraffin wax fume

[A] In AFL-CIO v OSHA, 965 F. 2d 962 (11th Cir. 1992), the Court overturned OSHA's 1989 Air Contaminants Rule, including the specific PEL's for wood dust that OSHA had established at that time. The 1989 vacated PEL's were: 5 mg/m^3 PEL-TWA and 10 mg/m^3 STEL (15 min), all softwood and hardwood except Western Red Cedar. Wood dust is now regulated by OSHA as "Particulates Not Otherwise Regulated" (PNOR), which is also referred to as "nuisance dust". However, some states have incorporated the 1989 OSHA PEL's in their state plans. Additionally, OSHA indicated that it may cite employers under the OSH Act general duty clause in appropriate circumstances for noncompliance with the 1989 PEL's.

8. Exposure Control Measures/Personal Protection (cont'd.)

[B] These products may contain free formaldehyde (<0.1%, wt %), which may be released depending on concentration and environmental conditions. These products contain no added urea-formaldehyde resins. Large scale chamber studies conducted by the APA Engineered Wood Association on panel materials using similar manufacturing processes and adhesives Laminated Veneer Lumber (LVL) have shown that the finished products should off-gas levels below 0.1 ppm as well.

Ventilation:

LOCAL EXHAUST – Provide local exhaust as needed so that exposure limits are met. Ventilation to control dust should be considered where potential explosive concentrations and ignition sources are present. The design and operation of any exhaust system should consider the possibility of explosive concentrations of wood dust within the system. See "SPECIAL" section below. Use of tool mounted exhaust systems should also be considered, especially when working in enclosed areas.

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

SPECIAL – Ensure that exhaust ventilation and material transport systems involved in handling this product contain explosion relief vents or suppression systems designed and operated in accordance with applicable standards if the operating conditions justify their use.

OTHER ENGINEERING CONTROLS – Cutting & Machining of product should preferably be done outdoors or with adequate ventilation & containment.

Personal Protective Equipment:

RESPIRATORY PROTECTION – Use NIOSH approved filtering face piece respirator ("dust mask") or higher levels of respiratory protection as indicated if there is a potential to exceed the exposure limits or for symptom relief or worker comfort. Use respiratory protection in accordance with regulatory requirements such as the OSHA respiratory protection standard 29 CFR 1910.134 following a determination of risk from potential exposures.

EYE PROTECTION – Approved goggles or tight fitting safety glasses are recommended when excessive exposures to dust may occur (e.g. during clean up) and when eye irritation may occur.

PROTECTIVE GLOVES – Cloth, canvas, or leather gloves are recommended to minimize potential slivers or mechanical irritation from handling product.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT – Outer garments which cover the arms may be desirable in extremely dusty areas.

WORK/HYGIENE PRACTICES – Follow good hygienic and housekeeping practices. Clean up areas where wood and resin dust settles to avoid excessive accumulation of this combustible material. Minimize compressed air blowdown or other practices that generate high airborne-dust concentrations.

9. Physical/Chemical Properties

Appearance: Laminated product with a slightly aromatic resinous odor and natural wood color. The wood component of these products may consist of aspen, Douglas fir, western hemlock, southern yellow pine or yellow poplar.

Odor/ Odor Threshold(s):	NAV
pH:	NAP
Melting/Freezing Point:	NAP
Boiling Point (@ 760 mm Hg) and Range:	NAP
Flash Point:	NAV
Evaporation Rate:	0
Flammability:	NAP
Lower / Upper Explosive Limits:	40,000 mg of dust per cubic meter of air is often used as the LEL for wood dusts.
Vapor Pressure (mm Hg):	NAP

9. Physical/Chemical Properties (cont'd.)

Vapor Density (air = 1; 1 atm):	NAP
Relative Density:	NAP
Solubility:	<0.1
Partition Coefficient (n-octonal/water):	NAP
Autoignition Temperature:	Variable [typically 400°-500°F (204°-260°C)]
Decomposition Temperature:	NAV
Viscosity:	NAP
Other Properties:	NAP

10. Stability and Reactivity

Reactivity: NAP
Hazardous Polymerization: ☐ May occur ☒ Will not occur
Stability: ☐ Unstable ☒ 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: Thermal decomposition (i.e. smoldering, burning) can release carbon monoxide, oxides of nitrogen, carbon dioxide, aliphatic aldehydes including formaldehyde, resin acids, terpenes and polycyclic aromatic hydrocarbons. Natural decomposition of organic materials such as wood may produce toxic gases and an oxygen deficient atmosphere in enclosed or poorly ventilated areas. Spontaneous and rapid hazardous decomposition will not occur.
Sensitivity to Static Discharge: NAP

11. Toxicological Information

Likely Route(s) of Exposure:
- ☐ Ingestion:
- ☒ Skin: Dust
- ☒ Inhalation: Dust
- ☒ Eye: Dust

Signs and Symptoms of Exposure:
Wood Dust - NTP: According to its Report on Carcinogens, Twelfth Edition, NTP states, "Wood dust is known to be a human carcinogen based on sufficient evidence of carcinogenicity from studies in humans". An association between wood dust exposure and cancer of the nasal cavity has been observed in many case reports, cohort studies, and case-control studies that specifically addressed nasal cancer. Strong and consistent associations with cancer of the nasal cavities and paranasal sinuses were observed both in studies of people whose occupations are associated with wood dust exposure and in studies that directly estimated wood dust exposure. This classification is based primarily on increased risk in the occurrence of adenocarcinomas of the nasal cavities and paranasal sinuses associated with exposure to wood dust. The evaluation did not find sufficient evidence to associate cancers of the oropharynx, hypopharynx, lung, lymphatic and hematopoietic systems, stomach, colon or rectum with exposure to wood dust. There is inadequate evidence for the carcinogenicity of wood dust from studies in experimental animals according to NTP.

11. Toxicological Information (cont'd.)

Wood Dust: IARC – Group 1: Carcinogenic to humans; sufficient evidence of carcinogenicity. This classification is primarily based on studies showing an association between occupational exposure to wood dust and adenocarcinoma to the nasal cavities and paranasal sinuses. IARC did not find sufficient 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.

Formaldehyde - NTP: According to its Report on Carcinogens, Twelfth Edition, NTP states, Formaldehyde (gas) is known to be a human carcinogen based on sufficient evidence of carcinogenicity from studies in humans and supporting data on mechanisms of carcinogenesis.

Formaldehyde: IARC - Group 1: Carcinogenic to humans, sufficient evidence of carcinogenicity. A working group of IARC has determined that there is sufficient evidence that formaldehyde causes nasopharyngeal cancer in humans, a rare cancer in developed countries and "strong but not sufficient evidence" for leukemia. However, numerous epidemiological studies have failed to demonstrate a relationship between formaldehyde exposure and nasal cancer or pulmonary diseases such as emphysema or lung cancer.

Carcinogenicity Listing:

☒	NTP:	Wood dust, Known Human Carcinogen. Formaldehyde, Known to be a Human Carcinogen.
☒	IARC Monographs:	Wood dust, Group 1 - Carcinogenic to Humans. Formaldehyde, Group 1- Carcinogenic to Humans.
☒	OSHA Regulated:	Formaldehyde Gas

Toxicity Data: No specific information available for product in purchased form. Individual component information is listed below.

Components:

Wood dust (softwood or hardwood)

Dusts generated from sawing, sanding or machining the product may cause nasal dryness, irritation, coughing and sinusitis. NTP and IARC classify wood dust as a human carcinogen (IARC Group 1). See Section 2 above.

Formaldehyde

Human inhalation TC_{Lo} of 17 mg/m ^{3}for 30 minutes produced eye and pulmonary results; human inhalation TC_{Lo} of 300 ug/m ^{3}produced nose and central nervous system results; LC_{50} (rat, inhalation) = 1,000 mg/m^3, 30 minutes; LC_{50} (mice, inhalation) = 400 mg/m^3, 2 hours. IARC and NTP classify formaldehyde as a human carcinogen (IARC Group 1). See Section 2 above.

Target Organs: Eyes, skin, respiratory system.

12. Ecological Information

Ecotoxicity: NAV for finished product.

Formaldehyde component:

96 hr LC50 Fathead Minnow	24 mg/L
96 hr LC50 Bluegill	0.10 mg/L
5 min EC50 Photobacterium phosphoreum	9 mg/L
96 hr EC50 Water flea	20 mg/L

Biopersistance and Degradability:

Formaldehyde: Trace amounts of free formaldehyde may be released to the atmosphere and would be expected to be removed in the atmosphere by direct photolysis and oxidation by photochemically produced hydroxyl radicals (half-life of a few hours). In the aqueous phase formaldehyde biodegradation is expected to take place in a few days.

The wood and resin portions of this product would be expected to be biodegradable.

Bioaccumulation: NAV

Soil Mobility: NAV

Other adverse effects: NAP

13. Disposal Considerations

Waste Disposal Method: If disposed of or discarded in its purchased form, incineration is preferable, if allowed. Dry land disposal is acceptable in most states. It is, however, the user's responsibility to determine at the time of disposal whether your product meets RCRA criteria for hazardous waste. Follow applicable federal, state, and local regulations.

14. Transport Information

Mode: (Air, Land, water) 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).

UN Proper Shipping Name:	NAP
UN/NA ID Number:	NAP
Hazard Class:	NAP
Packing Group:	NAP
Environmental Hazards (Marine Pollutant):	NAP
Special Precautions:	NAP

15. Regulatory Information

TSCA: Phenol-formaldehyde resin and paraffin wax are on the TSCA inventory.
CERCLA: Formaldehyde (100 lbs RQ) is on the CERCLA chemical substance inventory.
DSL: Formaldehyde and paraffin wax are on the DSL.
OSHA: Wood products are not hazardous under the criteria of the federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, wood dust generated by sawing, sanding or machining this product may be hazardous. Workplace exposure to formaldehyde is specifically regulated under 29 CFR 1910.1048.
STATE RIGHT-TO-KNOW:
California Prop 65 – This product contains formaldehyde, which depending on temperature and humidity, may be emitted from the product. Pacific Woodtech has evaluated formaldehyde emission rates from its products and have found these rates to be below the significant risk level. The user should determine whether formaldehyde emissions resulting from its site specific use, handling, ventilation design, capacity and final construction design for this product could exceed the safe harbor level.
Warning: Drilling, sawing, sanding or machining wood products generates wood dust, a substance known to the State of California to cause cancer.
Pennsylvania – This product contains formaldehyde which, depending on temperature and humidity, may be emitted from the product. When cut or otherwise machined, the product may emit wood dust. Formaldehyde, paraffin wax and wood dust appear on Pennsylvania's Appendix A, Hazardous Substance List.
New Jersey – This product contains formaldehyde which, depending on temperature and humidity, may be emitted from the product. When cut or otherwise machined, the product may emit wood dust. Formaldehyde and wood dust appear on New Jersey's Environmental Hazardous Substance List.
Minnesota – Minnesota Statutes, 1984, Sections 144.495 and 325F.181 do not apply to this product; these statues apply to plywood, particleboard and MDF and other products manufactured with urea-formaldehyde resins.
SARA 313 Information: To the best of our knowledge, this product contains formaldehyde at de minimis concentrations (<0.1%) and is not subjected to the SARA Title III Section 313 supplier notification requirements.

15. Regulatory Information (cont'd.)

SARA 311/312 Hazard Category: This product has been reviewed according the EPA "Hazard Categories: promulgated under SARA Title III, Sections 311 and 312 and is considered, under applicable definitions, to meet the following categories:

An immediate (acute) health hazard	Yes
A delayed (chronic) health hazard A	Yes
corrosive hazard	No
A fire hazard	No
A reactivity hazard	No
A sudden release hazard	No

FDA: Not intended for use as a food additive or indirect food contact item.
WHMIS Classification: Controlled Product: D2A - wood dust and formaldehyde: IARC Group 1.

16. Other Information

Date Prepared: 12/14/2010
Date Revised: 03/03/2015
Prepared By: Pacific Woodtech Corporation
Pacific Woodtech SDS available on:
http://www.pacificwoodtech.com/EvaluationReports.html

User's Responsibility:

The information contained in this Safety Data Sheet is based on the experience of occupational health and safety professionals and comes from sources believed to be accurate or otherwise technically correct. It is the user's responsibility to determine if the product is suitable for its proposed application(s) and to follow necessary safety precautions. The user has the responsibility to make sure that this SDS is the most up-to-date issue.

ACGIH	=	American Conference of Governmental Industrial Hygienists
C	=	Ceiling Limit
CAS#	=	Chemical Abstracts System Number
DOT	=	U. S. Department of Transportation
DSL	=	Domestic Substance List
EC#	=	Identifying Number Assigned to Chemicals Contained in the European Inventory of Existing Chemical Substances (EINECS)
EC50	=	Effective Concentration That Inhibits the Endpoint to 50% of Control Population
EPA	=	U.S. Environmental Protection Agency
HMIS	=	Canada-Hazardous Materials Identification System
HNOC	=	Hazards Not Otherwise Classified
IARC	=	International Agency for Research on Cancer
IATA	=	International Air Transport Association
IMDG	=	International Maritime Dangerous Goods
LC50	=	Concentration in Air Resulting in Death To 50% of Experimental Animals
LCLo	=	Lowest Concentration in Air Resulting in Death
LD50	=	Administered Dose Resulting in Death to 50% of Experimental Animals
LDLo	=	Lowest Dose Resulting in Death
LEL	=	Lower Explosive Limit
LFL	=	Lower Flammable Limit
MSHA	=	Mine Safety and Health Administration
NAP	=	Not Applicable
NAV	=	Not Available
NIOSH	=	National Institute for Occupational Safety and Health
NFPA	=	National Fire Protection Association
NPRI	=	Canada-National Pollution Release Inventory
NTP	=	National Toxicology Program
OSHA	=	Occupational Safety and Health Administration

16. Other Information (cont'd.)

PEL	=	Permissible Exposure Limit
PNOR	=	Particulate Not Otherwise Regulated
PNOS	=	Particulate Not Otherwise Specified
RCRA	=	Resource Conservation and Recovery Act
STEL	=	Short-Term Exposure Limit (15 minutes)
STP	=	Standard Temperature and Pressure
TCLo	=	Lowest Concentration in Air Resulting in a Toxic Effect
TDG	=	Canada-Transportation of Dangerous Goods
TDLo	=	Lowest Dose Resulting In a Toxic Effect
TLV	=	Threshold Limit Value
TSCA	=	Toxic Substance Control Act
TWA	=	Time-Weighted Average (8 hours)
UFL	=	Upper Flammable Limit
WHMIS	=	Canada-Workplace Hazardous Materials Information System