

MATERIAL SAFETY DATA SHEET

MANUFACTURER'S NAME: Northern Engineered Wood Products Inc.

ADDRESS: P.O. Box 2890, Smithers, B.C. VOJ 2N0

PRODUCT NAMES: NEWPRO "Industrial Blonde, NEWPRO Mill Run

CPA MILL#: 203

DATE PREPARED/REVISED: April 14, 2016

COMPOSITE PANEL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: Unfinished Particleboard

General use: Re-manufacturing, construction and furniture processes. Product

Description: A panel product manufactured from cellulosic materials bonded together with a synthetic resin or other suitable binder, and which may contain additives.

TELEPHONE: Office (250) 847-4394 Plant (250) 847-5541 FAX:(250) 847-9687

COMPOSITION/INFORMATION ON INGREDIENTS

| | Wt% | CAS Registry # |
|----------------------------|-------|----------------|
| Ligno-cellulosic Materials | 88-94 | |

| | | |
|-------------------------------------|-------|-----------|
| Polymerized Urea Formaldehyde Resin | 6- 12 | 9011-05-6 |
|-------------------------------------|-------|-----------|

| | | |
|------------------------------------|--|--|
| Formaldehyde CAS Registry# 50-00-0 | <u>EXPOSURE LIMITS</u> OSHA PEL-TWA: 0.75 PPM OSHA PEL – STEL: 2 PPM ACGIH TLV- Ceiling: 0.30 PPM | |
|------------------------------------|--|--|

| | | |
|---|--|--|
| Wood Dust/Ligno-cellulosic fiber ^{1,2} | OSHA PEL-TWA 15.0 mg/m ³ (total dust) ³ 5.0 mg/m ³ (respirable fraction) | |
|---|--|--|

| | | |
|--|--------------------------------------|--|
| Wood Dust/Ligno-cellulosic fiber, Inhalable Fraction ³ (All Species except Western Red Cedar) | ACGIH TLV-TWA: 1.0 mg/m ³ | |
|--|--------------------------------------|--|

| | | |
|--|-------------------------------------|--|
| Wood Dust/Ligno-cellulosic fiber, Inhalable Fraction (Western red cedar) ³ | ACGIH TLV-TWA 0.5 mg/m ³ | |
|--|-------------------------------------|--|

HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

The product may release small quantities of formaldehyde in gaseous form. Emissions decrease through time as the panels' age. Manual or mechanical cutting or abrasion processes performed on the product can result in generation of wood dust

ACUTE

INHALATION:

Gaseous formaldehyde may cause temporary irritation to nose and throat. Some reports suggest that formaldehyde may cause respiratory sensitization, such as asthma, and that pre-existing respiratory disorders may be aggravated by exposure.

Wood Dust may cause nasal dryness, irritation and obstruction. Coughing, wheezing, sneezing, sinusitis and prolonged colds have also been reported.

EYE CONTACT:

Gaseous formaldehyde may cause temporary irritation or a burning sensation. Wood dust can cause mechanical irritation.

SKIN CONTACT:

Both formaldehyde solutions (liquid) and various species of wood dust may evoke allergic contact dermatitis in sensitized individuals.

INGESTION:

Not likely to occur.

CHRONIC

Some reports suggest that formaldehyde may cause respiratory sensitization, such as asthma, and that pre-existing respiratory disorders may be aggravated by exposure. Other studies show no impact on respiratory sensitization. International Agency for Research on Cancer (IARC) classifies formaldehyde as a carcinogen to humans (Group 1). This classification is based primarily on IARC's evaluation of increased risk in the occurrence of cancers in the nasopharyngeal cavity (NPC) associated with occupational exposure to formaldehyde. The National Toxicology Program (NTP) includes formaldehyde in its Annual Report on carcinogens. OSHA regulates formaldehyde as a potential cancer agent.

In studies involving rats, formaldehyde has been shown to cause nasal cancer after long-term exposure to very high concentrations (14+ PPM), far above those normally found in the workplace.

Wood dust (and/or ligno-cellulosic fibers), depending on species, may cause respiratory sensitization and/or irritation. IARC classifies wood dust as a carcinogen to humans (Group 1). This classification is based primarily on IARC's evaluation of increased risk in the occurrence of adenocarcinomas of the nasal cavities and paranasal sinuses associated with exposure to wood dust. IARC 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. The National Toxicology Program (NTP) includes wood dust in its Annual Report on carcinogens.

HMIS Ratings: Health: 1 Fire: 0 Physical Hazard: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

FIRST AID MEASURES

INHALATION:

Wood dust may cause unpleasant obstruction in the nasal passages, resulting in dryness of nose, dry cough, sneezing and headaches. Remove to fresh air. Get medical attention if irritation persists, severe coughing or breathing difficulty occurs.

EYE CONTACT:

Wood dust may cause mechanical irritation. Treat dust in eye as foreign object. Flush eyes with large amounts of water. Remove to fresh air. If irritation persists, get medical attention.

SKIN CONTACT:

Wash affected areas with soap and water. Get medical attention if rash or irritation persists or dermatitis occurs.

INGESTION:

Not Applicable.

FIRE FIGHTING MEASURES

FIRE FIGHTING HAZARD:

Wood is classified as a Class A combustible material.

FLASHPOINT AND METHOD:

Not Applicable.

FLAMMABLE LIMITS:

LFL: Wood Dust: 40 grams per cubic meter of air

AUTOIGNITION TEMPERATURE:

Ignition of wood takes place when wood is subject to sufficient heat and in atmospheres that have sufficient oxygen. Ignition can be of two types: piloted or unpiloted. Piloted ignition occurs in the presence of an ignition source (such as a spark or flame). Unpiloted ignition is ignition that occurs where no pilot source is available. The surface temperature of wood materials has been measured somewhere between 300 C and 400 C (572 F to 752 F) prior to piloted ignition. Unpiloted ignition depends on special circumstances that result in different ranges of ignition temperatures. At this time, it is not possible to give specific ignition data that apply to a broad range of cases. With convection heating of wood, unpiloted ignition has been reported as low as 270 C (518 F) and as high as 470 C (878 F). Source: Wood Handbook Wood as an Engineering Material, 1999, Forest Products Laboratory, U.S. Department of Agriculture, Madison, WI.

FIRE FIGHTING INSTRUCTIONS:

Fire Fighting procedures for extinguishing a Class A fire should be followed.

Source: Essentials of Fire Fighting 41 Fourth Editions, 1998. Edited by Richard Hall and Barbara Adams. Fire Protection Publications. Oklahoma State University, Stillwater. OK.

Water is used to quench the burning material below its ignition temperature. The addition of Class A foams (sometimes referred to as wet water) may enhance water's ability to extinguish Class A fires, particularly those that are deep seated in bulk materials (such as piles of hay bales, sawdust piles, etc.). This is because the Class A foam agent reduces the water's surface tension, allowing it to penetrate more easily into piles of material. Class A fires are difficult to extinguish using oxygen-exclusion methods like CO2 flooding or coating with foam because these methods do not provide the cooling effect needed for total extinguishment. Source: Essentials of Fire Fighting 41 Fourth Editions, 1998. Edited by Richard Hall and Barbara Adams, Fire Protection Publications Oklahoma State University, Stillwater, OK.

FIRE FIGHTING EQUIPMENT:

Use recommended Class A fire fighting equipment when fighting an incipient fire. Source: Essentials of Fire Fighting 41

Fourth Edition, Edited by Richard Hall and Barbara Adams, Fire Protection Publications, Oklahoma State University, Stillwater, OK.

UNUSUAL FIRE OR EXPLOSION HAZARDS:

Sawing, sanding or machining can produce wood dust (and/or lingo-cellulosic fibers) as a by-product that may present an explosion hazard.

NFPA Rating for Wood Dust (Scale 0-4): Health = 1 Fire= 1 Reactivity = 0

ACCIDENTAL RELEASE MEASURES**LAND SPILL:**

Generally not applicable to panel products, however if a spill occurs the applicable federal, provincial, state, and local regulations must be followed.

WATER SPILL:

Generally not applicable to panel products, however if a spill occurs the applicable federal, provincial, state and local regulations must be followed.

HANDLING AND STORAGE**STORAGE:**

This product should not be stored where exposure to water could occur or near a source of ignition. Avoid storing in areas of high relative humidity and temperature. High temperature and inadequate ventilation could allow concentrations of gaseous formaldehyde in the storage area. Adequate ventilation of the storage area will help reduce the build-up of the gaseous formaldehyde. It is recommended to store product in an area of relative humidity and temperature that approximates end use.

EXPOSURE CONTROLS/PERSONAL PROTECTION**ENGINEERING CONTROLS:**

Certain activities of the re-manufacturing process of this product could possibly produce wood dust (or ligno-cellulosic fibers) or gaseous formaldehyde. Provide adequate general and local exhaust ventilation to keep airborne contaminant concentration levels below the applicable levels.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

RESPIRATOR:

Wear NIOSH/MSHA approved respirator when the allowable exposure limits may be exceeded.

PROTECTIVE CLOTHING:

Wear side shield safety glasses during the re-manufacturing of this product. Other protective equipment such as gloves and outer garments may be needed depending on dust conditions.

GENERAL HYGIENE:

Practice proper personal hygiene.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Description: light to dark colored solid, color and odor are dependent on the wood species.

| | |
|--|--|
| Boiling Point: not applicable | pH: not applicable |
| Evaporation Rate: not applicable | Solubility in Water (% by weight): Insoluble |
| Freezing Point: not applicable | Specific Gravity: generally < 1 |
| Melting Point: not applicable | Vapor Density: not applicable |
| Molecular Formula: not applicable | Vapor Pressure: not applicable |
| Molecular Weight: not applicable | Viscosity: not applicable |
| Oil-Water Distribution Coefficient: not applicable | % Volatile by volume (70°F): not applicable |

STABILITY AND REACTIVITY

STABILITY:

Stable under normal conditions.

REACTIVITY:

Avoid product contact with open flame and any temperature sources that could induce thermal decomposition. Avoid product contact with oxidizing agents, drying oils and strong acids.

HAZARDOUS DECOMPOSITION:

Thermal and/or thermal-oxidative decomposition can produce irritating and toxic fumes and gases, including carbon monoxide, hydrogen cyanide, polynuclear aromatic hydrocarbons, aldehydes and organic acids.

HAZARDOUS POLYMERIZATION:

Will not occur.

TOXICOLOGICAL INFORMATION

Wood Dust:

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). Source: OSHA Regulated Hazardous Substances, Government Institutes, Inc., February 1990.

Wood dust (generated from sawing, sanding or machining the product) may cause nasal dryness, irritation, coughing and sinusitis. National Toxicology Program (NTP) and the International Agency for Research on Cancer (IARC) classify wood dust as a human carcinogen (IARC Group 1). 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.

Formaldehyde:

OSHA Hazard Rating = 3 for local and systemic acute and chronic exposures; highly toxic. Irritation studies: human skin, 150 ug/3 days, intermittent exposure produce mild results; human eye, 1 ppm/6 minutes produced mild results. Toxicity studies: human inhalation TCLO of 17 mg/m³ for 30 minutes produced eye and pulmonary results; human inhalation TCLO of 300 ug/m³ produced nose and central nervous system results; LC₅₀ (rat, inhalation) = 1000 mg/m³, 30 minutes; LC₅₀ (mice, inhalation) = 400 mg/m³, 120 minutes.

Exposure to gaseous formaldehyde at elevated levels may cause temporary irritation to the nose and throat as well as lead to respiratory disorders. However, in a thorough review of sensory/respiratory irritation studies of formaldehyde from

the standpoint of occupational exposure, an expert panel has observed that exposure up to concentrations of 0.3 ppm failed to produce irritation. With regard to respiratory disorders, studies have concluded the threshold for long term chronic pulmonary effects is between 0.4 and 3 ppm and for chronic obstructive pulmonary disease is 2 ppm. Pre-existing respiratory disorders may be aggravated by exposure.

Epidemiology studies of workers exposed to formaldehyde have failed to consistently identify an association between formaldehyde exposure and cancer. In animal studies, rats and mice exposed to high levels of formaldehyde developed nasal cancer while hamsters did not. These exposure levels are far above those levels normally found in the workplace.

Formaldehyde is classified by IARC as carcinogenic to humans (Group 1). 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. NTP included formaldehyde in the annual report on carcinogens. OSHA regulates formaldehyde as a potential carcinogen for exposures exceeding 0.5 ppm.

Sources: OSHA Regulated Hazardous Substances. Government Institutes, Inc., February 1990; Registry of Toxic Effects of Chemical Substances (RTECS), national Institute for Occupational Safety and Health, Canadian Centre for Occupational Health and Safety, CCINFO May 1995.

Additional Toxicity Data: See acute and chronic health effects provided in Section 3: Hazard identification.

Target Organs: See acute and chronic health effects provided in Section 3: Hazard Identification

ECOLOGICAL INFORMATION

Ecotoxicity

A. General Product Information

Not available for product in purchased form. See Component Analysis.

B. Component Analysis- Aquatic Toxicity Formaldehyde (50-00-0)

| Test & Species | Conditions |
|--|------------------------|
| 96 Hr LC ₅₀ fathead minnow | 24.1 mg/L flow through |
| 96 Hr LC ₅₀ bluegill | 0.10 mg/L flow through |
| 5 min EC ₅₀ Photobacterium phosphorium | 9.0 mg/L |
| 15 min EC ₅₀ Photobacterium phosphorium | 7.26 mg/L |
| 25 min EC ₅₀ Photobacterium phosphorium | 6.81 mg/L |
| 96 Hr EC ₅₀ water flea | 20 mg/L |

Environmental Fate

Not available for product in purchased form.

DISPOSAL CONSIDERATIONS

General Product Information

This panel product is recyclable. It is the user's responsibility to determine at the time of disposal whether your product meets any applicable criteria for hazardous waste disposal. Disposal must follow applicable federal, provincial, state and local regulations.

EPA Waste Number & Descriptions

This product in purchased form is not considered hazardous waste under federal hazardous waste regulations 40 CFR 261. If the product is altered by processing, use or contamination, waste can be tested using methods described in 40 CFR 261 to determine whether the altered product meets the criteria for hazardous waste. State, provincial and local requirements for waste disposal may be different than U.S. federal regulations.

Disposal Instructions

If disposed or discarded in its purchased form, ordinary trash collection is acceptable. It is the user's responsibility to determine at the time of disposal whether your product meets RCRA criteria for hazardous waste. Follow applicable federal, state, provincial and local regulations.

TRANSPORT INFORMATION

Department of Transportation (DOT): This product is not a DOT hazardous material.

Not listed as a hazardous material in Canadian Transportation of Dangerous Goods (TDG). It is the purchaser's responsibility to see if this product meets any regulations depending on their location.

REGULATORY INFORMATION

U.S Federal Regulations

A. General Product Information

OSHA: Wood products are not hazardous under the criteria of the Federal OSHA Hazard communication Standard 29 CFR 1910.1200. However, formaldehyde emissions and wood dust generated by sawing, sanding or machining this product may be hazardous. This product contains formaldehyde.

HUD: The Department of Housing and Urban Development (HUD) regulation 24 CFR 3280 sets emission standards and provides for 3rd party certification of particleboard and MDF formaldehyde emissions.

B. Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Formaldehyde (50-00-0)
 SARA 302: 5001b. TPQ
 CERCLA: 100lb final RQ; 45.4 kg final

RQ State Regulations

Component Analysis- State

The following components appear on one or more of the following state hazardous substances lists and may also appear on similar lists in states not on the chart:

| Component | CAS | CA | MA | MN | NJ | PA | RI |
|------------------------------------|---------|-----|-----|-----|-----|-----|-----|
| Formaldehyde | 50-00-0 | yes | yes | yes | yes | yes | Yes |
| Wood dust, all soft and hard woods | None | no | no | yes | no | yes | yes |

Additional Regulatory Information

Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

Component Analysis - Inventory

| Component | CAS# | TSCA | CAN | EEC |
|--------------|---------|------|-----|--------|
| Formaldehyde | 50-00-0 | Yes | DSL | EINECS |

OTHER INFORMATION

DEFINITIONS OF ACRONYMS:

- ACGIH: American Conference of Governmental Industrial Hygienists
- ANSI: American National Standards Institute
- C: Ceiling Limit
- CAS: Chemical Abstract Services Number
- CERCLA: Comprehensive Environmental Response Compensation & Liability Act
- CFR : Code of Federal Regulations
- CWA : Clean Water Act
- DOT: Department of Transportation
- EC50: Effective concentration that inhibits endpoints for 50% of control population
- EPA: Environmental Protection Agency
- FDA: Food And Drug Administration
- HCS: Hazard Communication Standard
- HMIS: Hazard Material Information System
- IARC: International Agency for Research on Cancer
- LCLo: Lowest lethal concentration of a substance
- LCso: Concentration of a material expected to kill 50% of an animal test group
- LDLo: Lowest lethal dose of a material
- LDso: Dose of a material expected to kill 50% of an animal test group
- LEL: Lower Explosive Limit
- LFL: Lower Flammability Limit**
- MSHA: Mining Safety and Health Administration
- NA: Not Applicable
- NFPA: National Fire Protection Association
- NIOSH: National Institute for Occupational Safety and Health, U.S. Public Health Service, U.S. Department of Health and Human Services

NPRI: Canadian National Pollution Release Inventory
NTP: national Toxicology Program
OSHA: Occupational Safety and Health Administration, U.S. Department of Labor
PEL: Permissible Exposure Limit
PPE: Personal Protective Equipment
RCRA: Resource Conservation and Recovery Act
RQ: Reportable Quantity
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
STP: Standard Temperature and Pressure
TCLO: Lowest concentration in air resulting in a toxic effect
TOG: Canadian Transportation of Dangerous Goods
TLV: Threshold Limit Value
TSCA: Toxic Substances Control Act
TWA: Time-weighted Average
UFL: Upper Flammable Limit
WHMIS: Workplace Hazardous Material Information System

REVISION SUMMARY:

(Guideline User: It is suggested when updating your MSDS that you note in this section the date and the sections revised.)

Example: Revision Summary:

May 20, 2000, this MSDS has been revised in the following sections: Manufacturer
Emergency Phone Numbers.

DISCLAIMER:

(Guideline User: It is suggested to locate your Product Disclaimer in this section. *Product disclaimers should be prepared and approved by your company's legal counsel.*)

WOOD DUST LABEL

WOOD DUST

For All Wood Dust, Wood and Wood Products Not Preservative Treated)

CAUTION

WOOD DUST CAN BE PRODUCED BY SAWING, SANDING OR MACHING WOOD AND WOOD PRODUCTS FLAMMABLE – POSSIBLE EXPLOSION

HAZARD

MAY CAUSE RESPIRATORY, EYE AND SKIN IRRITATION

SOME SPECIES MAY CAUSE DERMATITIS OR ALLERGIC RESPONSE

THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (iarc) CLASSIFIES WOOD DUST AS A NASAL CARCINOGEN IN HUMANS

THE NATIONAL TOXICOLOGY PROGRAM (ntp) CLASSIFIES WOOD DUST AS A KNOWN HUMAN CARCINOGEN