

UREA-FORMALDEHYDE BONDED WOOD PRODUCTS MSDS

| <u>Manufacturer Name and Address</u> | <u>Effective Date</u> | <u>Supersedes Date</u> | <u>Prepared By</u> |
|-----------------------------------------------------------------------------------------|-----------------------|------------------------|--------------------|
| The Penrod Company 2809 South Lynnhaven Road - Suite 350 Virginia Beach, VA 23452 | 6/1/2009 | 12/11/2007 | M. Clausen |

PRODUCT IDENTIFICATION:

Hardwood Plywood, Veneer Core Platforms, Uniply, Lumber Core Platforms, Particleboard, Medium Density Fiberboard (Urea-Formaldehyde Bonded), Medium Density Overlay*

SYNONYMS:

VCPF, Blanks, LCPF, 2-Ply, Plywood, PB, MDF, MDO

TRADE NAME:

None

DESCRIPTION

This panel products contains a hardwood veneer face (occasionally a decorative softwood face) bonded to wood components such as other wood veneer, particleboard, or medium density fiberboard (MDF) using urea-formaldehyde resin.

POTENTIAL AIRBORNE RELEASES

The product may release small quantities of formaldehyde (CAS No.50-00-0) 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.

PHYSICAL DATA

| | |
|-------------------------------------------|----------------------------------------------------------------------|
| Boiling Point..... | Not applicable |
| Specific Gravity (H20 = 1)..... | < 1 |
| Vapor Density..... | Not applicable |
| % Volatiles By Vol..... | 0 |
| Melting Point..... | Not applicable |
| Vapor Pressure..... | Not applicable |
| Solubility in H20 (% by wt.)..... | < 0.1% |
| Evaporation Rate (Butyl Acetate = 1)..... | Not applicable |
| pH..... | Not applicable |
| Appearance and Odor..... | Light to dark color. Color and odor are dependent upon wood species. |

* This fact sheet is for products that have not been finished (coated, laminated, or overlaid) or treated (for example, with preservative or fire retardant).

FIRE AND EXPLOSION DATA

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|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flash point..... | Not applicable |
| Autoignition Temperature..... | Not available (will depend upon duration of exposure to heat source and other variables) |
| Explosive Limits in Air..... | See below under "Unusual Fire and Explosion Hazards" |
| Extinguishing Media..... | Water, Carbon Dioxide, Sand |
| Special Fire Fighting Procedures..... | None |
| Unusual Fire and Explosion Hazards..... | Sawing, sanding or machining can produce wood dust as a by-product which may present an explosion hazard if a dust cloud contacts an ignition source. An airborne concentration of 40 grams of dust per cubic meter of air is often used as the LEL for wood dust. |

REACTIVITY DATA

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|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conditions Contributing to Instability..... | Stable under normal conditions. |
| Incompatibility..... | Avoid contact with oxidizing agents. Avoid open flame. Product may ignite in excess of 400 degrees F. |
| Hazardous Decomposition Products..... | Thermal and/or thermal oxidative decomposition can produce irritating and toxic fumes and gases, including carbon monoxide, hydrogen cyanide, aldehydes, organic acids and polynuclear aromatic compounds. |
| Hazardous Polymerization..... | Not applicable |

HEALTH EFFECTS INFORMATION

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|---------------------------------------|------------------------------------------------------------------------------|
| Exposure Limits: Formaldehyde..... | OSHA PEL-TWA: 0.75 ppm OSHA PEL-STEL: 2 ppm ACGIH TLV-CEILING: 0.3 ppm |
|---------------------------------------|------------------------------------------------------------------------------|

Exposure Limits (cont'd.):

| | |
|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wood Dust..... | OSHA PEL-TWA: 15.0 mg/m ³ (total dust); 5.0 mg/m ³ (respirable fraction) |
| ¹ See important footnote below concerning OSHA PELs for wood dust | |
| Wood Dust (Softwood)..... | ACGIH TLV-TWA: 5.0 mg/m ³ ACGIH TLV - STEL (15 min.): 10.0 mg/m ³ |
| Wood Dust (Certain hardwoods such as beech and oak)..... | ACGIH TLV-TWA: 1.0 mg/m ³ |
| Eye Contact..... | Gaseous formaldehyde may cause temporary irritation or a burning sensation. Wood dust can cause mechanical irritation. |
| Skin Contact..... | Both formaldehyde and various species of wood dust may evoke allergic contact dermatitis in sensitized individuals. |
| Ingestion..... | Not likely to occur. |
| Gaseous formaldehyde..... | May cause temporary irritation to eyes, 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. Formaldehyde is listed by the International Agency for Research on Cancer (IARC) as a probable human carcinogen. The National Toxicology Program (NTP) includes formaldehyde in the Annual Report on Carcinogens. Formaldehyde is regulated by OSHA as a potential cancer agent. |

¹ In AFL-CIO v. OSHA 965 F. 2d 962 (11th Cir. 1992), the court overturned OSHA's 1989 Air Contaminants Rule, including the specific PELs for wood dust that OSHA had established at that time. The 1989 PELs were: TWA - 5.0 mg/m³; STEL (15 min.) - 10.0 mg/m³ (all soft and hard woods, except Western red cedar); Western red cedar: TWA - 2.5 mg/m³.

Wood dust is now officially regulated as an organic dust under the Particulate Not Otherwise Regulated (PNOR) or Inert or Nuisance Dust categories at PELs noted under the Health Effects Information section of this MSDS. However, a number of states have incorporated provisions of the 1989 standard in their state plans. Additionally, 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.

Gaseous formaldehyde (cont'd.)..... In studies involving rats, formaldehyde has been shown to cause nasal cancer from long-term exposure to very high concentrations (14+ ppm), far above those normally found in the workplace using this product. The National Cancer Institute (NCI) conducted an epidemiological study of industrial workers exposed to formaldehyde (published June 1986). The NCI concluded that the data provides little evidence that mortality from cancer is associated with formaldehyde exposure at the levels experienced by workers in the study.

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

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 cancer of the oropharynx, lung, hypopharynx, lymphatic, stomach and hematopoietic systems, colon or rectum with exposure to wood dust. The NTP includes wood dust in The Annual Report on Carcinogens.

PRECAUTIONS, SAFE HANDLING

Formaldehyde: Provide adequate ventilation to reduce the possible buildup of formaldehyde gas, particularly when high temperatures occur.

Wood Dust: Avoid dusty conditions and provide good ventilation.

GENERALLY APPLICABLE CONTROL MEASURES

Ventilation: Provide adequate general and local exhaust ventilation to keep airborne contaminant concentration levels below the OSHA PELs.

Personal Protective Equipment: Wear goggles or safety glasses when manufacturing or machining the product. Wear NIOSH/MSHA approved respirator when the allowable exposure limits may be exceeded. Other protective equipment such as gloves and outer garments may be needed depending on dust conditions.

EMERGENCY AND FIRST AID PROCEDURES

Eyes.....

Flush eyes with large amounts of water. Remove to fresh air. If irritation persists, get medical attention.

Skin.....

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

Inhalation.....

Remove to fresh air. Get medical advice if persistent irritation, severe coughing or breathing difficulty occurs.

Ingestion.....

Not applicable