

**Section 1. Chemical Product and Company Identification**

<b>Common Name</b>	<b>NORBORD MDF (Standard, Moisture resistant, High density, Low density)</b>	<b>Chemical name</b>	Not applicable
<b>Supplier/ Manufacturer</b>	Norbord Inc. 1 Toronto Street, Suite 500 Toronto, Ontario M5C 2W4	<b>Chemical formula</b>	Not applicable
<b>Synonym</b>	Not available	<b>CAS #</b>	Mixture
<b>Trade name</b>	Norbord MDF	<b>Validation Date</b>	2004-11-01
<b>Product description</b>	An engineered wood panel product manufactured from refined wood fibers bonded together with synthetic resins under heat and pressure.	<b>Print Date</b>	2004-11-01
<b>Material Uses</b>	For construction, industrial and commercial use.	<b>Responsible Name</b>	Norbord Inc.
		<b>In Case of Emergency</b>	<b>(514) 346-6839</b>

**Section 2. Composition and Information on Ingredients**

Name	CAS #	% by Weight	LD50	LC50	Exposure Limits
Wood dusts (All soft and hard woods except western red cedar)					
Hardwood dust	Not available	90			<b>ACGIH (2004)</b> 1 mg/m <sup>3</sup> TWA A1 <b>OSHA PEL</b> 15 mg/m <sup>3</sup> TWA Total 5 mg/m <sup>3</sup> Respirable <b>Ontario</b> <b>OEL-reg 833 (2000)</b> <b>Proposed</b> 3 mg/m <sup>3</sup> TWAEV Total dust <b>BC reg 296-97 (1997)</b> Non-allergenic 1 mg/m <sup>3</sup> K1, A <b>RQMT (Quebec) (2001)</b> 5 mg/m <sup>3</sup> TWA Total
Softwood dust	Not available	90			<b>ACGIH (2004)</b> 5 mg/m <sup>3</sup> TWA 10 mg/m <sup>3</sup> STEL/C <b>OSHA PEL</b> 15 mg/m <sup>3</sup> TWA Total 5 mg/m <sup>3</sup> Respirable <b>Ontario</b> <b>OEL-reg 833 (2000)</b> <b>Proposed</b> 3 mg/m <sup>3</sup> TWAEV Total dust <b>BC reg 296-97 (1997)</b> Non-allergenic 2.5 mg/m <sup>3</sup> K1

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**(Standard, Moisture resistant, High density, Low density)**

<p>Melamine Urea Formaldehyde Resin (HCOH) (free formaldehyde gas is less than 0.01% of resin mixture) <b>(For Moisture Resistant panel)</b></p> <p>or</p>	<p>50-00-0</p>	<p>7-10</p>			<p><b>RQMT (Quebec) (2001)</b> 5 mg/m<sup>3</sup> TWA Total</p> <p><b>ACGIH (2004)</b> 0.3 ppm C SEN, A2 <b>OSHA PEL</b> 0.75 ppm TWA <b>Ontario</b> <b>OEL reg 833 (2000)</b> <b>Proposed</b> 0.3 ppm CEV <b>BC reg 296-97 (1997)</b> 0.3 ppm TWA 1.0 ppm C K2, Z, A <b>RQMT (Quebec) (2001)</b> 2.0 ppm ceiling C2</p>
<p>Urea Formaldehyde Liquid Resin (HCOH) (free formaldehyde gas is less than 0.01% of resin mixture) <b>(For Standard, High Density and Low Density panel)</b></p>	<p>50-00-0</p>	<p>0.1 - 5.0</p>			
<p>Paraffin Wax Emulsion (fume) (C<sub>n</sub>H<sub>2n+2</sub>)</p>	<p>8002-74-2</p>	<p>0.1 - 1.0</p>			<p><b>ACGIH (2004)</b> 2 mg/m<sup>3</sup> TWA <b>OSHA PEL</b> Not available <b>Ontario</b> <b>OEL reg 833 (2000)</b> 2 mg/m<sup>3</sup> TWA EV <b>BC reg 296-97 (1997)</b> 2 mg/m<sup>3</sup> 8 hour EL 6 mg/m<sup>3</sup> 15 minutes EL <b>RQMT (Quebec) (2001)</b> 2 mg/m<sup>3</sup> TWA</p>

**Section 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 may result in generation of wood dust.

**Routes of Entry** Inhalation and contact with skin and eyes.

**Potential Acute Health Effects**  
No test data available on actual mixture. Listed below is the data available on the identified ingredients.  
May cause irritation to upper respiratory system, eyes and skin.

**Potential Chronic Health Effects**  
No test data exists on actual mixture. Listed below is the data available on the identified ingredients.

**Formaldehyde**  
Carcinogenicity  
IARC (Group 1A)- Carcinogenic to Human  
ACGIH (A2)- Suspected Human Carcinogen  
BC (K2)- Suspected Human Carcinogen

**Wood Dust**  
Carcinogenicity  
IARC (Group 1A)- Carcinogenic to Human  
ACGIH (A1)- Certain Hard Woods, Confirmed Human Carcinogen  
BC (K1)- Confirmed Human Carcinogen

For further information concerning toxic and hazardous information consult the MSDSs of formaldehyde and wood dust.

**Note**  
The trace amounts of formaldehyde, that may be released from the Norbord finished products, during the

days immediately following manufacture are far lower (similar to outdoor background levels in urban areas - less than 0.1 ppm) than the high dosages reviewed by IARC. These diminish to undetectable levels within a few months. Norbord products easily meet all applicable indoor quality and building code standards.

See Toxicological Information (section 11)

**Section 4. First Aid Measures**

<b>Eye Contact</b>	Gaseous formaldehyde may cause temporary irritation or a burning sensation. Wood dust may cause mechanical irritation. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes, holding lids apart to ensure flushing of each entire eye. Get medical attention immediately.
<b>Skin Contact</b>	Both Formaldehyde and various species of wood dust may cause allergic contact dermatitis in sensitized individuals. In case of contact, flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and footwear. Get medical attention if rash or persistent irritation or dermatitis occurs. Wash clothing before reuse.
<b>Inhalation</b>	Gaseous formaldehyde may cause temporary irritation to eyes, nose and throat. Depending on species, wood dust may cause respiratory sensitization and/or irritation. If inhaled, remove to fresh air. Get medical advice if persistent irritation, severe coughing or breathing difficulty occurs.
<b>Ingestion</b>	Not likely to occur.
<b>Notes to Physician</b>	Respiratory ailments or pre-existing skin conditions may be aggravated by exposure to wood dust.

**Section 5. Fire Fighting Measures**

<b>Flammability of the Product</b>	FLAMMABLE.
<b>Auto-ignition Temperature</b>	204.44 to 260 C
<b>Flash Points</b>	Not available.
<b>Flammable Limits</b>	Higher: undetermined (varies with composition particle size, moisture level, rate of heating and dust concentration). Lower: 40 grams/m <sup>3</sup> (LEL) wood dust
<b>Products of Combustion</b>	Burning of wood products produces irritating and toxic emissions, including carbon dioxide, carbon dioxide, aldehydes and organic acids.
<b>Fire Hazards in Presence of Various Substances</b>	There is risk of fire when fine dust particles come in contact with a source of ignition as heat or flame.
<b>Explosion Hazards in Presence of Various Substances</b>	Dust explosion is strongly possible if dust concentrations rise to critical values (above 40 grams/m <sup>3</sup> ) and if there is a source of ignition present (flame, heat, static discharge, etc...). May explode when in contact with strong acids and oxidants.
<b>Sensitivity/mechanical impact</b>	Not available.
<b>Sensitivity/static discharge</b>	Not available.
<b>Fire Fighting Media and Instructions</b>	Use water spray or carbon dioxide when fighting fires involving this material. Use dry sand or earth to smother fire.

**Section 6. Accidental Release Measures**

**Spill and Leak** Sweep or vacuum and avoid creating airborne dust conditions. Remove ignition source and provide good ventilation where dust conditions may occur. Place recovered wood dust in a container for proper disposal.

**Section 7. Handling and Storage**

**Precautions** Avoid any source of heat and avoid creating "clouds" of dust which can be source of fire and explosion. Wash thoroughly after handling. Wash closing before reuse.  
**AVOID BREATHING DUST.**

**Storage** Store away from incompatibles. Keep in a closed container in a cool and dry area. Keep away from any ignition source.

**Incompatibility** Avoid contact with oxidizing agents and drying oils. Avoid open flame.

**Section 8. Exposure Controls/Personal Protection**

**Engineering Controls** For reducing exposure to below recommended exposure limits, methods include mechanical ventilation using diluting or control of process, and process conditions or personal enclosure. System design should consider nature of contaminants and any explosive characteristics. Eyewash stations are recommended.

**Personal Protection**

**Eyes AVOID CONTACT WITH EYES\*.**  
 Use safety glasses with side shields or dust resistant safety goggles. Suitable eye protection should always be worn whenever cutting or shaping products with power tools.  
 \*For more details refer to CSA Standard Z94.3-M88 "Industrial Eye and Face Protection".

**Body AVOID CONTACT WITH SKIN.**  
 Wear Coverall's.  
 Remove and wash dust contaminated clothing before reuse.

**Respiratory AVOID BREATHING DUST.**  
 When engineering controls and work practices are not effective in controlling exposure to recommended exposure limits, wear suitable respiratory protection. If respirator required, use an appropriate NIOSH/MSHA approved device, and institute comprehensive program as per CSA Z94.4-M1984.

**Hands AVOID CONTACT WITH SKIN.**  
 Wear leather work gloves to protect skin from contact with wood dust, mechanical irritation and splinters.

**Feet** Not applicable  
 As determined by normal job requirements.

**Protective Clothing (Pictograms)**



Consult Section 2 for acceptable exposure limits.

**Section 9. Physical and Chemical Properties**

<b>Physical State and Appearance</b>	Solid	<b>Odor</b>	Dependent on wood species and time since dust was generated.
<b>Molecular Weight</b>	Not applicable	<b>Taste</b>	Not available
<b>Molecular Formula</b>	Not applicable	<b>Color</b>	Light to dark brown
<b>pH (1% Soln/Water)</b>	Basic		
<b>Boiling/Condensation Point</b>	Not available		

<b>Melting/Freezing Point</b>	Not applicable
<b>Critical Temperature</b>	Not available
<b>Specific Gravity</b>	Variable (dependent on wood species and moisture content)
<b>Vapor Pressure</b>	Not applicable
<b>Vapor Density</b>	Not available
<b>Volatility</b>	Not available
<b>Odor Threshold</b>	Not available
<b>Evaporation Rate</b>	Not available
<b>Water/oil dist. coeff.</b>	Not applicable
<b>Viscosity</b>	Not applicable
<b>Ionicity (in Water)</b>	Not available
<b>Dispersion Properties</b>	Not available
<b>Solubility</b>	Insoluble in cold water, hot water.

**Section 10. Stability and Reactivity**

<b>Stability and Reactivity</b>	The product is stable.
<b>Conditions of Instability</b>	Not available
<b>Incompatibility with Various Substances</b>	Wood dust can ignite if it comes in contact with strong oxidizing agents such as perchloric acid and nitric acids, and with strong acids such as sulfuric acid and if it comes in contact with drying oils such as linseed oil.
<b>Hazardous Decomposition Products</b>	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.
<b>Corrosivity</b>	Not applicable

**Section 11. Toxicological Information**

<b>Routes of Entry</b>	Inhalation and contact with skin and eyes.
<b>Chronic Effects on Humans</b>	No test data available on actual mixture. Listed below is the data available on wood dust and formaldehyde:  Exposure to wood dust may cause asthmatic symptoms and signs. Chronic exposure to some species of wood and sensitivity of some worker's may cause the outbreak of some allergies that can become a potential health hazard to these individuals. Frequent or prolonged exposure to formaldehyde can cause hypersensitivity leading to contact dermatitis, possibly of an eczematoid nature.
<b>Acute Effects on Humans</b>	No test data available on actual mixture. Listed below is the data available on wood dust and formaldehyde:
<b>Skin Contact</b>	<b>MAY CAUSE IRRITATION AND SENSITIZATION.</b> Dermatitis has been reported in humans, nature of the wood and origin of the dust has to be taken into consideration as well a exposure to formaldehyde.
<b>Skin Absorption</b>	Not Available
<b>Eye Contact</b>	<b>MAY CAUSE EYE IRRITATION.</b> Conjunctivitis has been reported in humans, nature of the wood and origin of the dust has to be taken into consideration. Exposure to formaldehyde may cause conjunctivitis and lacrymation.

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<b>Inhalation</b>	<p><b>MAY CAUSE IRRITATION AND SENSITIZATION.</b>                  No test data available on actual mixture. Data available on identified ingredients are listed below.</p> <p>Inhalation of wood dust may irritate the respiratory tract by causing: drying of the mucus, sneezing, irritating cough and expectoration. May cause some difficulty in breathing such as: bronchitis, nasal discharge, respiratory tract obstruction and more. May sensitize the respiratory system and cause asthmatic symptoms and signs. People with existing respiratory tract ailments, (e.g. bronchitis) should avoid exposures to wood dust as they may suffer severe irritation and difficulty in breathing.                  Some reports suggest that formaldehyde may cause respiratory sensitization, such as asthma, and pre-existing respiratory sensitization may be aggravated by exposure.</p>
<b>Ingestion</b>	<p>Not applicable                  Not likely to occur.</p>
<b>Irritancy of product</b>	<p>No test data available on actual mixture.</p>
<b>Sensitization</b>	<p>No test data available on actual mixture.                  Data available on identified ingredients demonstrate sensitization to upper respiratory system, eyes and skin.</p>
<b>Carcinogenic Effects</b>	<p>No test data available on actual mixture.                  Data available on:</p> <p><b>Wood Dust</b>                  IARC ( Group 1A)      Carcinogenic to Human</p> <p>Nasal carcinoma has been reported in furniture industries and an increase of Hodgkin's disease has been reported in other wood working industries especially in sawmills.</p> <p>ACGIH (A1)                      Certain hard woods-Confirmed Human Carcinogen                  BC (K1)-                      Confirmed Human Carcinogen</p> <p><b>Formaldehyde</b>                  IARC (Group 1A)      Carcinogenic to Human</p> <p>This reclassification follows upon the revision, by the IARC, of a number of new and updated studies which indicated that individuals exposed over 30 to 60 years ago to high doses of formaldehyde showed an increased risk of relatively rare nasopharyngeal cancer.</p> <p>ACGIH ( A2)-                      Suspected Human Carcinogen                  BC (K2)-                      Suspected Human Carcinogen</p>
<b>Teratogenicity</b>	<p>Not available</p>
<b>Mutagenicity</b>	<p>No test data available on actual mixture.                  Data available on:</p> <p>Wood dust                  Exposure to wood dust may cause cellular changes in the nasal epithelium.</p>
<b>Reproductive Effects</b>	<p>No test data available on actual mixture.</p>
<b>Name of toxicological synergistic products</b>	<p>Not available</p>

**Section 12. Ecological Information**

<b>Ecotoxicity</b>	<p>Not available</p>
<b>BOD5 and COD</b>	<p>Depending on the kind of wood</p>
<b>Products of Biodegradation</b>	<p>Depending of the kind of wood                  Possibly hazardous short term degradation products are unlikely.                  Long term degradation products may arise due to formaldehyde.</p>
<b>Toxicity of the Products of Biodegradation</b>	<p>Not available</p>

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**Special Remarks on the Environment** Biodegradation of the wood may lower oxygen levels in water which may be hazardous to aquatic life.

### Section 13. Disposal Considerations

**Waste Information** Waste must be disposed of in accordance with federal, state and local environmental control regulations.

### Section 14. Transport Information

**Classification** Not applicable

**PIN** Not applicable

**Special Provisions for Transport** Not available

### Section 15. Regulatory Information

**U.S. Federal Regulations** The product is not controlled under the US Hazard Communication Rule (29 CFR 1900.1200).

**Canadian Regulations** The product is not controlled under WHMIS.  
It has been classified according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**Other Regulations** Not available

### Section 16. Other Information

**Other Special Considerations** The 16 heading format MSDS complies with WHMIS criteria and follows the structure set forth by ANSI Z400.1-1998.

Validated by Norbord Inc. on 2004-11-01.

Printed 2004-11-01.

#### Notice to Reader

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