



COSHH Risk Assessment



Substance/material: MR MDF BOARD

Trade name: NORBOARD MDF.

What is the substance used for? (E.g. cleaning floors, protective coating, etc.) LINING UP WALLS TO PROVIDE WATERPROOF FINISH

What are the hazardous ingredients/chemicals in the substance? (List below)

UREA FORMALDEHYDE.
MELAMINE UREA FORMALDEHYDE RESIN.

Do any of the chemicals have a:

Maximum Exposure Limit? (State opposite) 5mg/m³ (8hr TWA) - without controls.
Occupational Exposure Standard? (State opposite)

Is the substance: (Check for an orange 'CHIP' square on the product data sheet or packaging.)

- Extremely flammable? Oxidising? Very toxic? Sensitising?
- Highly flammable? Harmful? Corrosive? Other? (Specify below.)
- Flammable? Toxic? Irritant?

Is the substance hazardous to health when:

- In contact with skin? Breathed in? Other (Specify below)
- In contact with eyes? Swallowed?

USE OF SUBSTANCE

How should the substance be used? (E.g. diluted in water, applied with a brush, sprayed, etc.) Cut with a hand saw / table saw.

How much is used every week? (State quantity in litres or kilos as appropriate.) N/A

Who is exposed to the substance? (E.g. those using it, pupils, service users, etc.) fitters / other operatives in area.





Does the substance present additional risks to certain groups or individuals? (E.g. young people, expectant mothers.) No.

CONTROL MEASURES

Can a less hazardous substance be used to do the same job? Yes No
(If you don't know, please contact your supplier for further information.)

What controls are required for this substance, other than Personal Protective Equipment (PPE)? (E.g. well ventilated areas, not in spray/mist form, mechanical ventilation, authorised persons only.) Well ventilated area and dust extraction equipment recommended.

Is any Personal Protective Equipment (PPE) required when using the substance?

-  Eye protection? (State type required) SEE METHOD STATEMENT.
-  Gloves? (State type required) SEE METHOD STATEMENT.
-  Overalls/clothing? (State type required)
-  Mask/respirator? (State type required) TO AT LEAST EN149 type FFP2
-  Other? (State type required)

How should the substance be stored? (E.g. locked cupboard, away from other substances, etc.)

Safely and neatly, preferably dry and flat.
Keep away from heat and sources of ignition.

Have persons using this substance been provided with information or training on its use? Yes No
(As a minimum ensure a copy of this assessment is in a known and readily accessible location.)

OTHER PRECAUTIONS AND EMERGENCY PROCEDURES

Spillages: How should an accidental release/spillage of this substance be dealt with?

N/A.

First aid: What actions should be taken if the substance is:

- | | |
|---|---|
| a) Swallowed?
N/A. | b) In contact with eyes?
Immediately flush with plenty of water. |
| c) In contact with skin?
In case of irritation - wash. | d) Inhaled?
Remove subject to fresh air. |
| e) Other? (Please specify.) | |

Fire precautions: What actions should be taken in the event of fires involving this substance?

Soak with water. Large fire - fire fighters only should attempt to fight the fire with BA gear.

Chemical reactions: Is there any other substance that this substance must not come into contact with?

Nil.

Disposal: How should the substance be disposed of (or not disposed of)?

Disposed of as a controlled waste.

Health surveillance: Do staff using the substance require any health surveillance?

Not Required

ASSESSMENT OF RISK

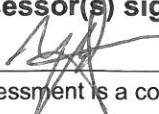
Are all the controls detailed above currently in place? Yes No

If these controls are not in place, or additional controls are required, state action to be taken.

Please note - COSHH substances must NOT be used if adequate control measures are not in place.

Remedial actions required	Date for completion
Ensure dust mask and vent extraction is used at all times. (EN149 TYPE FFP2)	19.11.09.

Are hazards to health adequately controlled with all control measures in place? Yes No

Assessor(s) name: MARCOUS LYNES	Assessor(s) signature: 	Date: 19-11-09
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The Line Manager should sign below to show that the assessment is a correct and reasonable reflection of the hazards and of the control measures and actions required.

A copy of the product safety data sheet must be attached to this assessment.

Caberwood MDF Material Safety Data Sheet

Norbord Ltd
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Fax: +44 (0) 1786 817143



www.norbord.com

1. Identification of the substance/ preparation and Company

Product name: Caberwood MDF Light, Standard, Moisture Resistant and Deep Route Grades

Product type: Medium Density Fibreboard (MDF)

Product description:

Dry processed fibreboard having moisture content of less than 20% at the forming stage, and having a density $\geq 450 \text{ kg/m}^3$. These boards are essentially produced under heat and pressure with the addition of a synthetic adhesive.

Application:

Building, furniture components, decorative fixtures and fittings, for dry internal and moisture resistant applications. See product literature.

2. Identification/ information on ingredients

No materials identified for this purpose as specified in section 5(3) of 'The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002.

3. Hazards identification

Physical hazard: Non-classifiable

Health hazard: Non-classifiable

No risk phrases required

4. First aid

Inhalation: Inhalation of MDF dust can only occur during processing. If inhalation of dust causes adverse effects, remove to fresh air. If discomfort persists, seek medical advice.

Skin: In case of irritation from dust generated from processing of MDF, wash with water.

Eyes: If particles enter the eyes during processing, immediately flush eyes with plenty of water. Seek medical attention if irritation persists.

5. Fire Fighting

Non-flammable at room temperature, but will burn. In case of fire, soak (flood) with water. For large fires, fire fighters should wear full emergency protective equipment including self-contained breathing apparatus. Wood waste, or dust may present a fire or explosion hazard- good house keeping practises must be followed.

6. Accidental Release Measures

MDF does not represent a hazard in sheet form. However dust generated from processing MDF should be contained, carefully collected and removed.

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AREAS OF EXPERTISE

- Safety
- Cost management
- Capability assurance
- Supply chain management
- Managing beyond customer expectations

7. Handling and Storage

a) Manual Handling:

In sheet form, MDF can present a manual handling risk due to its physical dimensions and weight. Good lifting practice should be followed.

Note: A 2440 mm by 1220 mm (8' x 4') sheet of 18 mm (3/4") standard MDF weighs approximately 40 kg (88 lbs).

b) Storage:

Keep away from heat, sparks, flame and other ignition sources. Store at room temperature. Keep away from moisture. Take care during removing packaging, especially steel banding.

c) Stacking:

- The ground should be flat and even with a minimum of sloping, maximum 2°.
- Ground should be strong enough to withstand the weight of the packs and the machinery. It should be well consolidated and not affected by adverse weather conditions such as rain.
- Clear any obstacles such as waste timber or unused bearers from the stacking area as they make stacks unstable.
- Stacks outside may be affected by wind make sure the stack is secure; if possible construct the stack so that a small cross section is facing the prevailing wind. Securely attach any protective sheeting. Bearers need to be straight and identical in length.
- Vertically stacked packs should be of the same size or reduce in size up the stack, avoid overhangs. Further information is available on HSE information sheet 'Safe stacking of sawn material and board materials'

8. Exposure Controls/ Personal Protection

Health:

The following health problems are among the effects that have been associated with exposure to wood dust.

- Skin disorders
- Obstruction in the nose and rhinitis;
- Asthma
- a rare type of nasal cancer

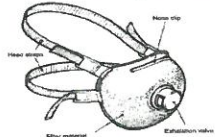
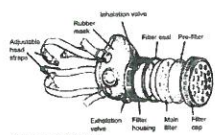
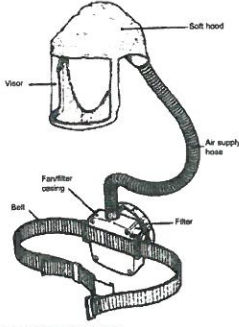
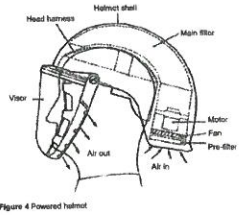
a) Exposure Controls:

During processing, adequate ventilation and/ or extraction should be provided to minimise airborne dust. Whenever possible, fit dust extraction equipment even when using hand-held machines.

b) Personal Protection:

Dust will be created during processing; use appropriate (Dust masks to at least EN 149 type FFP2) respiratory protection equipment. Wear gloves and overalls as required to prevent skin contact. Wear eye protection to prevent dust particles from entering eyes.

Wear the correct clothing and use other safety equipment as necessary.

<p>Respirator type</p>	<p>Machining (e.g. routing, planing, lathe work and saws). Hand sanding (e.g. disc, bobbin, pad and portable machines). Assembly and handling of dusty materials. Work involving the use of MDF.</p>	<p>Changing dust collection bags on simple recirculating dust collectors in the workplace.</p>	<p>Entry into dust collection rooms/ vaults. Entry into very dusty filter galleries for bag changing. Work outside heavily contaminated ducts.</p>
<p>Disposable respirator</p>  <p>Figure 1 Disposable filtering facepiece respirator</p>	<p>EN 149 type FFP2</p>	<p>EN 149 type FFP3</p>	<p>Not suitable</p>
<p>Half mask respirator</p>  <p>Figure 2 Half-mask respirator</p>	<p>Filter to EN 143 - P2 Half mask to EN 140 or full face mask to EN136</p>	<p>Filter to EN 143 - P3 Mask to EN 140 or full face mask to EN136</p>	<p>Filter to EN 143 - P3 Mask to EN 140 or full face mask to EN136</p>
<p>Lightweight powered visor or powered hood</p>  <p>Figure 3 Lightweight powered visor</p>  <p>Figure 4 Powered helmet</p>	<p>EN 12941-TH1</p>	<p>EN 12941 – TH2</p>	<p>EN 12941 – TH2</p>

Addition information is available from the Health and Safety Executive, 'The selection use and maintenance of respiratory protective equipment; a practical guide' HSG53 HSE books 1998, and 'Selection of respiratory protective equipment suitable for use with wood dust' WIS14 HSE books 1991.



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9. Physical and Chemical Properties

Appearance: Wood sheets in various dimensions
Odour: None under ambient conditions

10. Stability and Reactivity - Considered stable and inert in sheet form

a) Materials to avoid:

Reducing and oxidising agents.

b) Conditions to avoid:

Heating and ignition sources and damp atmospheres.

Thermal decomposition products may include:

CO, CO₂, aldehydes (including formaldehyde, HCHO) particulate matter and other organic compounds.

c) Other Hazards:

Processing of MDF will generate wood dust. Appropriate protection from inhalation of the dust is recommended. See section 8; also refer to 'Safe collection of wood waste: Prevention of fire and explosion.' *WIS32 HSE Books 1997* and 'Safe handling of combustible dusts' *HSG103 HSE books 1994*.

11. Toxicological Information

In bulk wood is unlikely to give rise to toxicological effects; the hazardous forms that may give rise to health risks are dust and sap, latex or lichens associated with the wood.

a) Immediate Hazards:

Inhalation: Dust generated during processing may cause irritation of the nose and throat.

Skin: Dust generated during processing may cause irritation.

Eyes: Dust generated during processing may cause irritation.

MDF is largely composed of softwood bound together usually with a urea formaldehyde or melamine urea formaldehyde resin. When it is machined, very fine dust is produced. Just like "natural" wood dust this is a potentially hazardous substance and it must be controlled. For example wood dust can cause skin disorders and asthma. Hardwood dust in particular can, very rarely, cause nasal cancer - and as such is classified as a carcinogen in Control Of Substances Hazardous to Health (COSHH) Regulations. The evidence that softwood dust can cause cancer is less conclusive. It is not classified as a carcinogen in the UK. However, all wood can cause irritation and we draw your attention to the guidance given in HSE woodworking sheet no 30 Toxic woods.

Under COSHH Regulations, softwood dust has a maximum exposure limit (MEL) of 5 mg/m³ (8 hr TWA)- this is the relevant limit for controlling exposure to MDF dust. Exposure must be reduced as far as is reasonably practicable below this limit - usually with properly designed and maintained dust extraction equipment fitted to woodworking machines. When using portable or hand-held tools, extraction equipment often is not practicable or available, in which case a suitable dust mask should be worn. If possible MDF should be machined in a well-ventilated workplace, for example outside.

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Formaldehyde also has a MEL of 2 parts per million (PPM). Formaldehyde vapour can irritate the eyes, and nasal linings. It can be quite irritating to unaccustomed or susceptible persons. Studies to date indicate that persons machining MDF are not exposed to formaldehyde vapour at levels that adversely effect health. Exposure levels measured by HSE and other investigators have always been well below the MEL. Free formaldehyde levels from particleboards are closely monitored and controlled. The current levels are E1 less than or equal to 9 mg/100g (0,009 %) of board and E2 greater than 9 mg/100g but les than or equal to 25 mg/100g of board (>0.009% □ 0.025%, this is tested using EN 120 as the test standard.

b) Delayed Hazards:

Skin eczema can take up to 15 weeks to develop for persons susceptible to dust irritation.

12. Ecological Information

Mobility	The dust from processing is highly mobile especially when airborne.
Degradability	Biodegradable as for wood.
Bio accumulative potential	Not determined.
Aquatic toxicity	Toxicity to bacteria, algae and higher marine organisms not tested.

13. Disposal Considerations

Manufacturing waste must be disposed of as a controlled waste. Special consideration should be given to containing dust to prevent spillage during transit.

14. Transport Information

UK Supply Classification	Non-classifiable
UK Carriage Classification	Non-classifiable
UK Conveyance Classification	Non-classifiable
UN Number	None

15. Regulatory Information

a) Label Information:

UK Supply Classification	Non-classifiable
UN Number	None

b) Other Regulations:

This Material Safety Data has been compiled in accordance with 'The Chemicals (Hazard Information and Packaging for Supply) Regulations 2002.

Transport, storage, use and disposal of the material should be in accordance with the following additional legislation/publications, where applicable: COSHH Regulations 1994 SI 3246 and Amendments Environmental Protection Act 1990 Environmental Protection (Duty of Care) Regulations 1992 SI 2839 EH40 Occupational Exposure Limits. Note: This list may not be exhaustive and users should satisfy themselves that they comply with all the relevant and latest issue national legislation.

Other Information

- Clean up every day
- Clean up frequently using vacuum cleaning equipment with high-efficiency filters. Don't use compressed airlines for cleaning down machines, work pieces or clothing and don't use brushes to sweep up - they create dust clouds.
- Dispose of waste carefully.



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Technical Data Sheet

Norbord Medium Density Fiberboard

Moisture Resistant Grade

July, 2009

MR Board

Norbord MR Board is a moisture resistant MDF manufactured using European technology developed at Norbord's UK operation and produced at Deposit, N.Y. In addition to all the properties of Premium Grade MDF, it has special properties which make it suitable for interior applications where there is the risk of occasional wetting or prolonged exposure to high levels of humidity. Norbord MR is not warranted for exterior applications.

MR Board is a solution to the concerns of designers and fabricators in many applications such as bathroom and kitchen cabinetry, institutional hospital and school casework and counters, residential kitchen counter tops, display fixtures, store fixtures, door cores, marine furniture and various other applications for high humidity conditions. Its low thickness swell properties and smooth surface make it an ideal substrate for thin paper and foil, specially when used with water based adhesives.

MR Board can be machined or fabricated using standard tools and techniques. It meets or exceeds all the requirements of ANSI.A208.2-2002.

MR Board is available from our distributor network. For the location nearest to you please check our website or call 1-800-367-6338.



Deposit, NY 1-800-367-6338
www.norbord.com

Property	Units	Avg. Typical Values (3/4")
Density	lbs/ft ³	48
Internal Bond	lbs	150
Screw Holding Face	lbs	375
Edge	lbs	325
Modulus of Elasticity	psi	450,000
Modulus of Rupture	psi	5,000
Thickness swell (24 hrs)	%	8
IB after cyclic testing	lbs	30
Thickness swell after cyclic testing	%	8
Moisture Content	%	5-7
Formaldehyde Emission	ppm	0.21
Linear Expansion (35 - 85% R.H.)	%	0.30
Thickness	inches	± 0.005

Availability: Stocking Thickness: 1/2", 5/8", 3/4"
Sizes: 5' x 16' & 5' x 18'

Other thickness & sizes available, certain minimum quantities apply. Check mill for details.

Important Notice

Norbord's Moisture Resistant (MR) has been designed specifically for use in interior applications. Its performance characteristics make it very suitable for use in areas subject to periods of high humidity or occasional wetting. The user should understand that MR's tendency is to, initially, swell like any other wood-based product. However, unlike other wood-based products, the swelling will subside and the board will shrink back very near to its original dimensions. For this to occur, the board must have the opportunity to dry out after exposure in order to perform properly and to allow any swelling to subside. A reasonable performance expectation is that MR board will last significantly longer than other wood-based products when exposed to repeated wettings. However, like all wood products, it will eventually degrade if the proper finishes are not applied to protect the wood fibers.

Each fabricator must decide for themselves the suitability of Norbord's MR product for their end use. Factors to consider include the severity of the end use and the degree of expertise they possess for applying the protective coating.

Norbord does not condone the use of MR board in exterior applications, or in areas of consistent and prolonged direct moisture exposure. If the product is used in this way, the fabricator assumes all risk for the product's performance.

LEED: This product can be used to earn up to four LEED credits (4.1, 4.2, 5.1, 5.2). View our website for further information – www.norbord.com

CARB I Certified

Conditions of Use

Definitions: For our purpose, the following definitions will apply.

	Moisture Content of MDF	Relative Humidity of Surrounding "air"
"Dry" conditions	corresponding to a temperature of 68°F	exceeding 65% only for a few weeks per year
"Humid" conditions	corresponding to a temperature of 68°F	exceeding 85% only for a few weeks per year
General Purpose Application	general including furniture and fittings	
Load Bearing Application	instantaneous, short term or all load duration categories	

Norbord Moisture Resistant MDF is classified as a general purpose grade for use in humid conditions.

The cyclic testing (EN321:2001) as performed is a three cycle accelerated aging procedure¹ followed by testing of thickness swell and strength retention. Its purpose is to assess the likely performance of MDF when subject to long-term exposure to extreme damp conditions. The values below, after cyclic test, are minimum standards set to co-relate to the results of field trials.

Thickness		3/8" – 1/2"	9/16" - 3/4"	13/16" - 1"
Swelling in thickness after cyclic test	%	10	8	7
Internal bond after cyclic test	psi	45	30	25

(Extracted from EN321:2001)

Norbord Moisture Resistant MDF has superior resistance to moisture for interior applications involving exposure to relative humidity up to 80% and short term exposure to higher relative humidities. This enhanced performance is achieved by upgrading process procedures and the resin binder. All the desired properties of MDF are retained with the additional feature of strength retention and lower thickness swell when used in extreme, interior conditions.

As a precaution, especially where intermittent contact with water is likely, special care should be taken with sealing/finishing treatments particularly at cut edges or ends. A seal is a protective coating which prevents the ingress of moisture. The performance of Norbord Moisture Resistant MDF is positively effected by the correct treatment with a suitable protection system. High solids sealers maybe used with appropriate topcoats.

Suppliers of suitable systems are: P.P.G. Industries (412) 434-3131, www.ppg.com
The Sherwin-Williams Co., 1-800-474-3794, www.sherwin-williams.com

The surface of Norbord MDF is sufficiently smooth for painting/sealing without much preparation. However, all cut edges and machined areas should be sanded smooth. Sharp edges or profiles should be gently rounded to allow for a satisfactory, uniform build up of coating material. Fastening devices should always be predrilled. Nail or screw holes should be filled with a shrink resistant filler and then sanded before sealing.

MR Board should be properly sealed on all four sides especially when used in contact with the floor or in any location that allows moisture to collect and remain in contact. Certain alkaline based commercial detergents or cleaning fluids are detrimental to all types of wood or wood fiber based materials including MDF and comprehensive sealing can help protect against long-term damage.

¹ a. Immersion in water at 68 °F for three days
b. Freezing in air at 10 °F for one day
c. Exposure to air at 158 °F for three days