

MBR® Bonding Adhesive – Activator

Version 2.0

Revision Date 07/13/2021

Print Date 07/14/2021

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Trade name : MBR® Bonding Adhesive – Activator

Manufacturer or supplier's details

Company : Johns Manville
Address : P.O. Box 5108
Denver, CO USA 80127
Telephone : +1-303-978-2000
Emergency telephone : 24-Hour Number: +1-800-424-9300 (CHEMTREC)
number

Company : Johns Manville Canada Inc.
Address : 5301 42 Avenue
Innisfail, AB Canada T4G 1A2
Telephone : +1-303-978-2000
Emergency telephone : 24-Hour Number: +1-800-424-9300 (CHEMTREC)
number

Recommended use of the chemical and restrictions on use

Restrictions on use : For professional users only.
Prepared by : productsafety@jm.com

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with 29 CFR 1910.1200 (OSHA HCS 2012) and the Hazardous Products Regulations (WHMIS 2015)**

Acute toxicity (Inhalation) : Category 4
Skin irritation : Category 2
Eye irritation : Category 2A
Respiratory sensitisation : Category 1
Skin sensitisation : Category 1
Specific target organ toxicity : Category 3 (Respiratory system)
- single exposure
Specific target organ toxicity : Category 1 (Respiratory system)
- repeated exposure
(Inhalation)

GHS label elementsHazard pictograms : 

Signal word : Danger

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Hazard statements : H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H335 May cause respiratory irritation.
 H372 Causes damage to organs (Respiratory system) through prolonged or repeated exposure if inhaled.

Precautionary statements : **Prevention:**
 P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
 P264 Wash skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.
 P272 Contaminated work clothing must not be allowed out of the workplace.
 P280 Wear protective gloves/ eye protection/ face protection.
 P285 In case of inadequate ventilation wear respiratory protection.

Response:
 P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P337 + P313 If eye irritation persists: Get medical advice/ attention.
 P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
 P362 Take off contaminated clothing and wash before reuse.

Storage:
 P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P405 Store locked up.

Disposal:
 P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS
Hazardous components

Chemical name	CAS-No.	Concentration (%)
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isocyanic acid, polymethylenepolyphenylene ester	9016-87-9	<= 100
4,4'-methylenediphenyl diisocyanate	101-68-8	>= 55 - <= 65

Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
 Show this safety data sheet to the doctor in attendance.
 Do not leave the victim unattended.
 Symptoms of poisoning may appear several hours later.
- If inhaled : Remove to fresh air immediately. Get medical attention immediately.
 If breathing is irregular or stopped, administer artificial respiration.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
 Call a physician if irritation develops or persists.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
 If easy to do, remove contact lens, if worn.
 Protect unharmed eye.
 If eye irritation persists, consult a specialist.
- If swallowed : DO NOT induce vomiting unless directed to do so by a physician or poison control center.
 Gently wipe or rinse the inside of the mouth with water.
 Never give anything by mouth to an unconscious person.
 If symptoms persist, call a physician or Poison Control Centre immediately.
- Most important symptoms and effects, both acute and delayed : None known.
- Protection of first-aiders : If potential for exposure exists refer to Section 8 for specific personal protective equipment.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO₂)
 Dry chemical
 Foam
- Unsuitable extinguishing media : Water
- Specific hazards during firefighting : The product reacts with water and generates heat.
- Hazardous combustion products : carbon oxides
 nitrogen oxides
 isocyanates
 hydrogen cyanide
- Specific extinguishing methods : Use a water spray to cool fully closed containers.
 Remove undamaged containers from fire area if it is safe to do so.
- Further information : Standard procedure for chemical fires.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

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SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
Immediately evacuate personnel to safe areas.
- Environmental precautions : Prevent further leakage or spillage if safe to do so.
The product should not be allowed to enter drains, water courses or the soil.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Recovered material should be stored in a vented container.
The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to overpressurization of the container.

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms.
Do not breathe vapours/dust.
Avoid formation of aerosol.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
Smoking, eating and drinking should be prohibited in the application area.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
For personal protection see section 8.
- Conditions for safe storage : Keep containers tightly closed in a dry, cool and well-ventilated place.
To maintain product quality, do not store in heat or direct sunlight.
- Materials to avoid : Never allow product to get in contact with water during storage.
Keep away from oxidizing agents, strongly acid or alkaline materials, as well as of amines, alcohols and water.
Keep away from metals.
Keep away from solvents.
- Recommended storage temperature : 16 - 27 °C
- Storage period : 24 Months
- Further information on storage stability : Keep tightly closed in a dry, cool and well-ventilated place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
4,4'-methylenediphenyl diisocyanate	101-68-8	TWA	0.005 ppm	ACGIH
		TWA	0.005 ppm 0.05 mg/m ³	NIOSH REL
		C	0.02 ppm 0.2 mg/m ³	NIOSH REL
		C	0.02 ppm 0.2 mg/m ³	OSHA

Personal protective equipment

- Respiratory protection : If used and stored as directed, no special protective equipment is necessary.
 Use respiratory protective equipment when using this product at elevated temperatures (see section 8).
 General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
- Hand protection
 Material : Protective gloves
- Remarks : Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).
- Eye protection : Wear safety glasses with side shields or goggles.
 Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.
- Skin and body protection : Wear protective clothing, such as long-sleeved shirts and pants.
 Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.
 Remove and wash contaminated clothing before re-use.
- Hygiene measures : Ensure adequate ventilation, especially in confined areas.
 Handle in accordance with good industrial hygiene and safety practice.
 When using do not eat, drink or smoke.
 Wash hands before breaks and at the end of workday.
 Written instructions for handling must be available at the work place.

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Colour	: brown
Odour	: musty
Odour Threshold	: 0.4 ppm
pH	: No data available
Melting point/freezing point	: < 10 °C
Initial boiling point and boiling range	: > 300 °C
Flash point	: > 200 °C
Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapour pressure	: 0.000007 hPaestimated
Relative vapour density	: 8.5Heavier than air.
Relative density	: ca. 1.2
Density	: 1.18 - 1.24 g/cm ³
Solubility(ies)	
Water solubility	: 0.0068 g/l
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: > 600 °C
Thermal decomposition	: No data available
Viscosity	
Viscosity, dynamic	: 40 - 60 mPa.s (25 °C)
Viscosity, kinematic	: No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Container can be pressurized by carbon dioxide due to reaction with humid air and/or water.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Mixture reacts slowly with water resulting in evolution of carbon dioxide. Polymerisation is a highly exothermic reaction and may generate sufficient heat to cause thermal decomposition and/or rupture containers.
Conditions to avoid	: Do not expose to temperatures above: 177 °C Exposure to moisture If contained in exposed to high heat (> 350 °F), it can be pressurized and possibly rupture. Methylene diisocyanate

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reacts slowly with water to form carbon dioxide gas. This gas can cause sealed container to expand and possibly rupture.

Incompatible materials	:	Water Strong bases Acids Alcohols Metals Amines
Hazardous decomposition products	:	carbon oxides nitrogen oxides Isocyanates Hydrogen cyanide (hydrocyanic acid)

SECTION 11. TOXICOLOGICAL INFORMATION
Acute toxicity
Product:

Acute oral toxicity : Acute toxicity estimate : 2,500 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate : 1.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:
isocyanic acid, polymethylenepolyphenylene ester:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Acute inhalation toxicity : Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : LD50 (Rabbit, male and female): > 9,400 mg/kg
Method: OECD Test Guideline 402

4,4'-methylenediphenyl diisocyanate:

Acute oral toxicity : LD50 (Rat, male and female): > 2,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 2.24 mg/l
Exposure time: 1 h
Test atmosphere: dust/mist
Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : LD50 (Rabbit, male and female): > 9,400 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation
Components:
isocyanic acid, polymethylenepolyphenylene ester:

Species: Rabbit

Result: Skin irritation

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Skin corrosion/irritation**4,4'-methylenediphenyl diisocyanate:**

Species: Rabbit

Method: Draize Test

Result: Mild skin irritant

Species: Human

Result: irritating

Serious eye damage/eye irritation**Components:****isocyanic acid, polymethylenepolyphenylene ester:**

Species: Rabbit

Result: Eye irritation

Serious eye damage/eye irritation**4,4'-methylenediphenyl diisocyanate:**

Species: Rabbit

Result: Moderate eye irritation

Method: Draize Test

Species: Human

Result: irritating

Respiratory or skin sensitisation**Components:****isocyanic acid, polymethylenepolyphenylene ester:**

Exposure routes: Dermal

Species: Mouse

Assessment: May cause sensitisation by skin contact.

Method: OECD Test Guideline 429

Result: positive

Exposure routes: Inhalation

Species: Guinea pig

Assessment: May cause sensitisation by inhalation.

Result: positive

Respiratory or skin sensitisation**4,4'-methylenediphenyl diisocyanate:**

Exposure routes: Dermal

Species: Mouse

Assessment: May cause sensitisation by skin contact.

Method: OECD Test Guideline 429

Result: positive

Exposure routes: Inhalation

Species: Guinea pig

Assessment: May cause sensitisation by inhalation.

Result: positive

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IARC	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA (29 CFR 1910 Subpart Z, Toxic and Hazardous Substances).
NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

STOT - single exposure**Components:****isocyanic acid, polymethylenepolyphenylene ester:**

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

STOT - single exposure**4,4'-methylenediphenyl diisocyanate:**

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

STOT - repeated exposure**Components:****isocyanic acid, polymethylenepolyphenylene ester:**

Exposure routes: Inhalation

Target Organs: Respiratory system

Assessment: Causes damage to organs through prolonged or repeated exposure.

STOT - repeated exposure**4,4'-methylenediphenyl diisocyanate:**

Exposure routes: Inhalation

Target Organs: Respiratory system

Assessment: May cause damage to organs through prolonged or repeated exposure.

Further information**Product:**

Remarks: Contains isocyanates. May produce an allergic reaction.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity**

No data available

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Persistence and degradability

No data available

Bioaccumulative potential**Components:****4,4'-methylenediphenyl diisocyanate:**Partition coefficient: n- : log Pow: 4.51 (20 °C)
octanol/water pH: 7**Mobility in soil**

No data available

Other adverse effects**Product:**Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82
Protection of Stratospheric Ozone - CAA Section 602 Class I
Substances
Remarks: This product neither contains, nor was
manufactured with a Class I or Class II ODS as defined by the
U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A +
B).

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**Waste from residues : Dispose of contents/container to an approved facility in
accordance with local, regional, national and international
regulations.
Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION**International transport regulations**

Land transport

USDOT: Not classified as a dangerous good under transport regulations

TDG: Not classified as a dangerous good under transport regulations

Sea transport

IMDG: Not classified as a dangerous good under transport regulations

Air transport

IATA/ICAO: Not classified as a dangerous good under transport regulations

SECTION 15. REGULATORY INFORMATION**TSCA list**

TSCA - 5(a) Significant New Use Rule List of : No substances are subject to a

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Chemicals

Significant New Use Rule.

U.S. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpart D) : No substances are subject to TSCA 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know Act
CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
4,4'-methylenediphenyl diisocyanate	101-68-8	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Acute toxicity (any route of exposure)
 Skin corrosion or irritation
 Serious eye damage or eye irritation
 Respiratory or skin sensitisation
 Specific target organ toxicity (single or repeated exposure)

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

4,4'-methylenediphenyl diisocyanate	101-68-8	- 100 %
isocyanic acid, polymethylenepolyphenylene ester	9016-87-9	55 - 65 %

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

4,4'-methylenediphenyl diisocyanate	101-68-8	55 - 65 %
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This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489):

4,4'-methylenediphenyl diisocyanate	101-68-8	55 - 65 %
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California Prop. 65

This product does not require a warning under the California Safe Drinking Water and Toxic Enforcement Act (Proposition 65).

The components of this product are reported in the following inventories:

DSL : On the inventory, or in compliance with the inventory

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TSCA : On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION**Further information**

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.