

Revision Date 07/06/2023 Version 2.5 Print Date 07/06/2023

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Trade name JM CORBOND® (A) ISO

Manufacturer or supplier's details

Johns Manville Company Address P.O. Box 5108

Denver, CO USA 80217-5108

Telephone +1-303-978-2000

Emergency telephone 24-Hour Number: +1-800-424-9300 (CHEMTREC)

number

Johns Manville Canada Inc. Company

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

Recommended use thermal and/or acoustic insulation 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 and the Hazardous Products Regulations

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

- repeated exposure

(Inhalation)

Specific target organ toxicity : Category 1 (Respiratory system)

GHS label elements

US/EN 1/14



Version 2.5 Revision Date 07/06/2023 Print Date 07/06/2023

Hazard pictograms





Signal word : Danger

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 mist or vapours.

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.



Version 2.5 Revision Date 07/06/2023 Print Date 07/06/2023

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
isocyanic acid, polymethylenepolyphenylene	9016-87-9	>= 30 - < 60
ester		
4,4'-methylenediphenyl diisocyanate	101-68-8	>= 30 - < 60

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 : In case of eye contact, remove contact lens and rinse

immediately with plenty of water, also under the eyelids, for at

least 15 minutes.

If easy to do, remove contact lens, if worn.

Keep eye wide open while rinsing.

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 swallowed, call a poison control centre or doctor

immediately.

Most important symptoms and effects, both acute and

delayed

Causes skin irritation.

May cause an allergic skin reaction.

Causes serious eye irritation.

Harmful if inhaled.

May cause allergy or asthma symptoms or breathing

difficulties if inhaled.

May cause respiratory irritation.

Causes damage to organs through prolonged or repeated

exposure if inhaled.

Protection of first-aiders : If potential for exposure exists refer to Section 8 for specific

personal protective equipment.



Revision Date 07/06/2023 Version 2.5 Print Date 07/06/2023

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

Further information

Special protective equipment

for firefighters

Standard procedure for chemical fires. Wear self-contained breathing apparatus for firefighting if

necessary.

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.

Prevent product from entering drains. **Environmental precautions**

Prevent further leakage or spillage if safe to do so.

If the product contaminates rivers and lakes or drains inform

respective authorities.

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.

Large spills should be collected mechanically (remove by

pumping) for disposal.

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

US/EN 4/14



Version 2.5 Revision Date 07/06/2023 Print Date 07/06/2023

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 container tightly closed in a dry and well-ventilated

place.

Observe label precautions.

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

Further information on

storage stability

50 - 75 °F / 10 - 24 °C

Stable at normal ambient temperature and pressure.
 Keep containers dry and tightly closed to avoid moisture

absorption and contamination.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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/m3	NIOSH REL
		С	0.02 ppm 0.2 mg/m3	NIOSH REL
		С	0.02 ppm 0.2 mg/m3	OSHA

Johns Manville is a member of the Center for the Polyurethanes Industry (CPI) of the American Chemistry Council. For more information about safe work practices, see CPI's *Health and Safety Product Stewardship Workbook for High-Pressure Application of Spray Polyurethane Foam (SPF)* and other resources (some available in Spanish and French) at the following website hyperlinks: https://www.spraypolyurethane.org/resources/ and https://www.spraypolyurethane.org/additional-resources/.

Engineering measures : Use a local and/or general ventilation system.

Personal protective equipment

Respiratory protection : 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



Version 2.5 Revision Date 07/06/2023 Print Date 07/06/2023

> 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 Nitrile rubber

Material Neoprene

Material butyl rubber

PVC Material

Remarks Please observe the instructions regarding permeability and

> breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the

danger of cuts, abrasion, and the contact time.

Eye protection Tightly fitting safety goggles

Wear face-shield and protective suit for abnormal processing

problems.

Wear protective clothing, such as long-sleeved shirts and Skin and body protection

pants.

Remove and wash contaminated clothing before re-use. Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.

Use appropriate degowning techniques to remove potentially

contaminated clothing.

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Remove respiratory and skin/eye protection only after Protective measures

vapours have been cleared from the area.

Ensure that eye flushing systems and safety showers are

located close to the working place.

Choose body protection in relation to its type, to the

concentration and amount of dangerous substances, and to

the specific work-place.

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance

at the specific workplace.

Ensure adequate ventilation, especially in confined areas. Hygiene measures

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

Remove contaminated clothing and protective equipment

before entering eating areas.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

6/14 US/EN



Revision Date 07/06/2023 Version 2.5 Print Date 07/06/2023

Appearance viscous liquid Colour dark brown Odour : musty

Odour Threshold No data available : No data available Melting point/freezing point : No data available

Initial boiling point and boiling $: > 204 \, ^{\circ}\text{C}$

range Decomposition Flash point : > 230 °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 : 13.9 hPa (40 °C)

Relative vapour density : Vapors are heavier than air and may travel along the floor and

in the bottom of containers.

Relative density : ca. 1.235 (25 °C)

(Water = 1.0)

: No data available

Solubility(ies)

: insoluble Water solubility

Solubility in other solvents

Partition coefficient: n-

octanol/water

: No data available

Auto-ignition temperature : No data available

Thermal decomposition : > 300 °C

Viscosity

: 250 mPa.s (24 °C) Viscosity, dynamic

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

> US/EN 7/14



Version 2.5 Revision Date 07/06/2023 Print Date 07/06/2023

Incompatible materials : Amines

aldehydes Alcohols Alkali metals Ketones mercaptans

Strong oxidizing agents

hydrides phenols peroxides

Strong acids and strong bases

Water

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 : > 2,000 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



Version 2.5 Revision Date 07/06/2023 Print Date 07/06/2023

Skin corrosion/irritation

Components:

isocyanic acid, polymethylenepolyphenylene ester:

Species: Rabbit Result: Skin irritation

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.



Version 2.5 Revision Date 07/06/2023 Print Date 07/06/2023

Method: OECD Test Guideline 429

Result: positive

Exposure routes: Inhalation Species: Guinea pig

Assessment: May cause sensitisation by inhalation.

Result: positive

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.



Version 2.5 Revision Date 07/06/2023 Print Date 07/06/2023

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

Components:

4,4'-methylenediphenyl diisocyanate:

Partition coefficient: n- : log Pow: 4.51 (68 °F / 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.

Do not dispose of waste into sewer.

Do not contaminate ponds, waterways or ditches with

chemical or used container.

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



Version 2.5 Revision Date 07/06/2023 Print Date 07/06/2023

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

Chemicals Significant New Use Rule.

U.S. Toxic Substances Control Act (TSCA) Section : No substances are subject to TSCA

12(b) Export Notification (40 CFR 707, Subpart D) 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

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)

Respiratory or skin sensitisation

Specific target organ toxicity (single or repeated exposure)

Skin corrosion or irritation

Serious eye damage or eye irritation

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:

isocyanic acid, 9016-87-9 30 - 60 %

polymethylenepolyphenyle

ne ester

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

4,4'-methylenediphenyl 101-68-8 30 - 60 %

diisocyanate

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 SOCMI Intermediate or Final VOC's (40 CFR 60.489):



Version 2.5 Revision Date 07/06/2023 Print Date 07/06/2023

4,4'-methylenediphenyl 101-68-8 30 - 60 %

diisocyanate

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:

TSCA : All chemical substances in this product are either listed on the

TSCA Inventory or are in compliance with a TSCA Inventory

exemption.

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

SECTION 16. OTHER INFORMATION

Further information

Revision Date : 07/06/2023

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL : USA. NIOSH Recommended Exposure Limits

OSHA : USA. Occupational Exposure Limits (OSHA) - Table Z-1

Limits for Air Contaminants

ACGIH / TWA : 8-hour, time-weighted average

NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour

workday during a 40-hour workweek

NIOSH REL / C : Ceiling value not be exceeded at any time.

OSHA / C : Ceiling

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN -Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL -Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS -Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS -Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx -Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA -International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO -International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO -International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 -Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA -National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD -Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS -



Version 2.5 Revision Date 07/06/2023 Print Date 07/06/2023

Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Disclaimer

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.