



forbo 660

The following Forbo Flooring product:

Forbo 660 2-Part Urethane Adhesive

is a kit comprised of the following two components:

Forbo 660 Part A (Resin)

Forbo 660 Part B (Hardener)

The Safety Data Sheets for the two components are attached after this cover sheet.

Forbo Flooring Systems
3983 Nashua Dr., Unit 1
Mississauga, ON L4V 1P3 Canada

Phone: USA +1 (800) 842-7839
Canada +1 (800) 268-8108

SAFETY DATA SHEET

In accordance with Hazardous Products Regulations (HPR) (SOR/2015-17)

Forbo 660 2-Part Urethane Part A Resin
Revision Number 1

Revision Date: 16-Mar-2021
Supersedes Date: Not applicable

1. Identification of the Substance/Preparation and of the Company/Undertaking

Product identifier

Product Name Forbo 660 2-Part Urethane Part A Resin

Other means of identification

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended use No information available

Uses advised against No information available

Details of the supplier of the safety data sheet Responsible

Party

Forbo Flooring Systems
3983 Nashua Dr., Unit 1
Mississauga, ON L4V 1P3
Canada
Phone: +1 (800) 268-8108

Emergency telephone number

Chemtrec (Transport/Environmental): 1-800-424-9300
1-703-527-3887 (Outside U.S.)
Rocky Mountain Poison Center: 1-866-767-5089

2. Hazards Identification

Classification

Not a dangerous substance or mixture according to Hazardous Products Regulations (HPR) (SOR/2015-17)

Label elements

Hazard statements

Not a dangerous substance or mixture according to Hazardous Products Regulations (HPR) (SOR/2015-17)

Precautionary Statements - Prevention

Not applicable

Precautionary Statements - Response

Not applicable

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Precautionary Statements - Storage

Not applicable

Precautionary Statements - Disposal

Not applicable

Other information

Small amounts of methanol (CAS 67-56-1) are formed by hydrolysis and released upon curing.

3. Composition/information on Ingredients

Substance

Not applicable.

Mixture

Chemical name	CAS No	Weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Limestone	1317-65-3	30 - 60	-	-
Carbonic acid, calcium salt (1:1)	471-34-1	1 - 5	-	-
Quartz	14808-60-7	0.1 - 1	-	-

4. First Aid Measures

Description of first aid measures

Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists: Get medical advice/attention.
Skin contact	Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.
Ingestion	Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed

Symptoms	No information available.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	Small amounts of methanol (CAS 67-56-1) are formed by hydrolysis and released, when the product is exposed to moisture or water. Treat symptomatically.
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5. Fire-Fighting Measures

Suitable extinguishing media	Carbon dioxide (CO2). Water spray or fog. Alcohol resistant foam.
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Unsuitable extinguishing media	Full water jet.
Specific hazards arising from the chemical	No information available.
Hazardous combustion products	Carbon dioxide (CO ₂).
Explosion data	
Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Personal precautions Use personal protective equipment as required. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling.

Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas. Do not allow to enter into soil/subsoil. See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so. Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13).

Methods for cleaning up Use personal protective equipment as required. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. Handling and Storage

Precautions for safe handling

Advice on safe handling Use personal protective equipment as required. Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep in properly labeled containers. Keep away from food, drink and animal feeding stuffs. Keep containers tightly closed in a cool, well-ventilated place. Keep from freezing. Keep at temperatures between 50 and 95 °F / 10 and 35 °C.

Reference to other sections Section 10: STABILITY AND REACTIVITY

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General hygiene considerations Wear suitable gloves and eye/face protection. Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing. Wash hands before breaks and after work. Regular cleaning of equipment, work area and clothing is recommended.

8. Exposure Controls/Personal Protection

Control parameters

Exposure Limits . This product contains substances which in their raw state are powder form, however in this product they are in a non-respirable form. Inhalation of powder/dust particles is unlikely to occur from exposure to this product. Small amounts of methanol (CAS 67-56-1) are formed by hydrolysis and released upon curing.

Chemical name	Alberta	British Columbia	Ontario TWA	Quebec
Limestone 1317-65-3	TWA: 10 mg/m ³	TWA: 10 mg/m ³ TWA: 3 mg/m ³ STEL: 20 mg/m ³		TWA: 10 mg/m ³
Carbonic acid, calcium salt (1:1) 471-34-1	TWA: 10 mg/m ³			TWA: 10 mg/m ³
Quartz 14808-60-7	TWA: 0.025 mg/m ³	TWA: 0.025 mg/m ³	TWA: 0.10 mg/m ³	TWA: 0.1 mg/m ³

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Hand protection Wear suitable chemical resistant gloves. The selection of suitable gloves does not only depend on the material, but also on further marks of quality and various manufacturers.

Skin and body protection No special protective equipment required.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Wear suitable gloves and eye/face protection. Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing. Wash hands before breaks and after work. Regular cleaning of equipment, work area and clothing is recommended.

9. Physical and Chemical Properties

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Supersedes Date: Not applicable

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Paste
Color	No information available
Odor	No information available
Odor threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	
Melting point / freezing point	No data available	
Initial boiling point and boiling range	No data available	
Flash point	= 260 °C / 500 °F	
Evaporation rate	No data available	
Flammability	Not applicable for liquids .	
Flammability Limit in Air		
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	
Relative vapor density	No data available	
Relative density	No data available	
Water solubility	No data available	
Solubility in Other Solvents	No data available	
Partition coefficient	No data available	
Autoignition temperature	No data available	
Decomposition temperature		
Kinematic viscosity	No data available	
Dynamic viscosity	450-650 Pa.s	
Explosive properties	No information available.	
Oxidizing properties	No information available.	
<u>Other information</u>		
Softening Point	No information available	
Molecular weight	No information available	
Density		1.65 g/cm ³
Bulk density	No information available	
Solid content (%)	No information available	
VOC Content (%)	0 g/L / 0 %	

10. Stability and Reactivity

Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	Exposure to air or moisture over prolonged periods. Protect from moisture.
Incompatible materials	None known based on information supplied.
Hazardous decomposition products	None under normal use conditions.

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11. Toxicological Information

Information on likely routes of exposure

Inhalation	Based on available data, the classification criteria are not met.
Eye contact	Based on available data, the classification criteria are not met.
Skin contact	Based on available data, the classification criteria are not met.
Ingestion	Based on available data, the classification criteria are not met.

Symptoms related to the physical, chemical and toxicological characteristics

Numerical measures of toxicity

Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (dermal) 45,950.40 mg/kg

Unknown acute toxicity

No information available

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Limestone 1317-65-3	>5000 mg/kg (Rattus)	-	-
Carbonic acid, calcium salt (1:1) 471-34-1	LD50 > 2000 mg/kg (Rattus) OECD 420	LD50 >2000 mg/kg (Rattus) OECD 402	LC50 (4h) >3mg/ml (Rattus)
Quartz 14808-60-7	>2000 mg/kg (Rattus)	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Based on available data, the classification criteria are not met

Serious eye damage/eye irritation Based on available data, the classification criteria are not met

Respiratory or skin sensitization Based on available data, the classification criteria are not met

Carcinogenicity Based on available data, the classification criteria are not met As Quartz (14808-60-7) is inextricably bound in the polymer matrix, it is not expected to be available as an airborne hazard (dust, mist, or spray) under normal condition of uses

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Quartz 14808-60-7	A2	Group 1	Known	X

ACGIH (American Conference of Governmental Industrial Hygienists)

A2 - Suspected Human Carcinogen

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IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

NTP (National Toxicology Program)

Known - Known Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Reproductive toxicity	Based on available data, the classification criteria are not met
Developmental toxicity	Based on available data, the classification criteria are not met.
STOT - single exposure	Based on available data, the classification criteria are not met
STOT - repeated exposure	Based on available data, the classification criteria are not met
Target organ effects	No information available.
Subchronic toxicity	No information available.
Neurological effects	No information available.
Other adverse effects	No information available.
Aspiration hazard	Not applicable

12. Ecological Information

Ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Limestone 1317-65-3	CE50 (72h) >200mg/L Algae (Desmodesmus subspicatus)	CL50 (96h)>10000mg/L (Oncorhynchus mykiss)	-	CE50 (48h) >1000 mg/L Daphnia Magna
Carbonic acid, calcium salt (1:1) 471-34-1	IC50 72H Algae >1000 mg/l	CL50 96H >1000 mg/l	-	EC50 48H Daphnia >1000 mg/l

Persistence and degradability No information available.

Bioaccumulation No information available.

Chemical name	Partition coefficient
Limestone 1317-65-3	0.9

Mobility in soil No information available

Other adverse effects No information available.

13. Disposal Considerations

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Waste treatment methods

Waste from residues/unused products

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Contaminated packaging

Dispose of in accordance with federal, state and local regulations.

14. Transport Information

TDG Not regulated

IATA Not regulated

IMDG Not regulated

15. Regulatory Information

NPRI - National Pollutant Release Inventory

No component is listed on the NPRI above the threshold

European Union

Restrictions of Use of Hazardous Substances (RoHS) Directive 2011/65/EU

This product does not contain Lead, Cadmium, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-Ethylhexyl) phthalate (DEHP), Benzyl butyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP) above the regulated limit mentioned in this regulation

SVHC: Substances of Very High Concern for Authorization:

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59)

International Inventories

TSCA	Listed
DSL	Listed

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL - Canadian Domestic Substances List

Listed - The components of this product are either listed or exempt from listing on inventory.

Not Listed - One or more components of this product are not listed on inventory.

16. Other information, including date of preparation of the last revision

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA TWA (time-weighted average)

Ceiling Maximum limit value

STEL

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STEL (Short Term Exposure Limit)

Skin designation

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Revision Date: 16-Mar-2021
Supersedes Date: Not applicable

Revision date 16-Mar-2021
Revision note No information available.

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.

End of Safety Data Sheet

SAFETY DATA SHEET

In accordance with Hazardous Products Regulations (HPR) (SOR/2015-17)

Forbo 660 Part B Hardener
Revision Number 1

Revision Date: 16-Mar-2021
Supersedes Date: Not applicable

1. Identification of the Substance/Preparation and of the Company/Undertaking

Product identifier

Product Name Forbo 660 Part B Hardener

Other means of identification

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended use Hardener

Uses advised against No information available

Details of the supplier of the safety data sheet

Responsible Party

Forbo Flooring Systems
3983 Nashua Dr., Unit 1
Mississauga, ON L4V 1P3
Canada
Phone: +1 (800) 268-8108

Emergency telephone number

Chemtrec (Transport/Environmental): 1-800-424-9300
1-703-527-3887 (Outside U.S.)
Rocky Mountain Poison Center: 1-866-767-5089

2. Hazards Identification

Classification

Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 2

Label elements

Danger

Hazard statements

Harmful if inhaled
Causes skin irritation
Causes serious eye irritation
May cause allergy or asthma symptoms or breathing difficulties if inhaled

SAFETY DATA SHEET

Forbo 660 Part B Hardener
Revision Number 1

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Supersedes Date: Not applicable

May cause an allergic skin reaction
May cause respiratory irritation
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements - Prevention

Use only outdoors or in a well-ventilated area
Wash face, hands and any exposed skin thoroughly after handling
In case of inadequate ventilation wear respiratory protection
Contaminated work clothing should not be allowed out of the workplace
Do not breathe dust, fume, gas, mist, vapors and spray
Wear protective gloves, protective clothing, eye protection and face protection

Precautionary Statements - Response

Get medical advice/attention if you feel unwell

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice and attention

Skin

IF ON SKIN: Wash with plenty of water and soap
Take off contaminated clothing and wash it before reuse
If skin irritation or rash occurs: Get medical advice and attention

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing
Call a POISON CENTER or doctor if you feel unwell
If experiencing respiratory symptoms: Call a POISON CENTER or doctor

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Precautionary Statements - Disposal

Dispose of contents and container to an approved waste disposal plant

Other information

Contact with water (moisture) liberates carbon dioxide, which causes pressure increase in closed containers.

3. Composition/information on Ingredients

Substance

Not applicable.

Mixture

SAFETY DATA SHEET

Forbo 660 Part B Hardener
Revision Number 1

Revision Date: 16-Mar-2021
Supersedes Date: Not applicable

Chemical name	CAS No	Weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9	30 - 60	-	-
4,4'-Methylenediphenyl diisocyanate	101-68-8	15 - 40	-	-
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]-	5873-54-1	1 - 5	-	-
Benzene, 1,1'-methylenebis[2-isocyanato-	2536-05-2	0.1 - 1	-	-

4. First Aid Measures

Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. May cause allergic respiratory reaction. If breathing has stopped, give artificial respiration. Get medical attention immediately. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. May cause an allergic skin reaction. Wash contaminated clothing before reuse. In the case of skin irritation or allergic reactions see a physician.
Ingestion	May produce an allergic reaction. Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.
Self-protection of the first aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment as required. See section 8 for more information. Avoid breathing vapors or mists. Avoid contact with skin, eyes or clothing.

Most important symptoms and effects, both acute and delayed

Symptoms	May cause allergy or asthma symptoms or breathing difficulties if inhaled. Coughing and/or wheezing. Itching. Rashes. Hives. May cause redness and tearing of the eyes. Burning sensation. Difficulty in breathing.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	May cause sensitization in susceptible persons. May cause sensitization by inhalation and skin contact. Effects of contact or inhalation may be delayed. Treat symptomatically.
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5. Fire-Fighting Measures

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Forbo 660 Part B Hardener
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Supersedes Date: Not applicable

Suitable extinguishing media	Dry chemical or CO2. Foam.
Large fire	Water spray or fog.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.
Specific hazards arising from the chemical	Product is or contains a sensitizer. May cause sensitization by inhalation and skin contact. Thermal decomposition can lead to release of irritating and toxic gases and vapors.
Hazardous combustion products	Carbon monoxide. Carbon dioxide (CO2). Nitrogen oxides (NOx). Hydrogen cyanide. Isocyanates.
Explosion data	
Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Do not touch or walk through spilled material. Ensure adequate ventilation. Avoid breathing vapors or mists. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling.
Other information	Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so. See Section 12 for additional Ecological Information.
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Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Do NOT close container (evolution of carbon dioxide - CO2). Keep wet and put outdoors in a secured place for a few days. Then dispose to of according to local / national regulations (see Section 13).
Methods for cleaning up	Use personal protective equipment as required. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. 2%, Liquid dishwashing soap, a mixture of 90% water and 8-10% sodium carbonate. Decontaminate floor with decontamination solution letting stand for at least 15 minutes. Clean contaminated surface thoroughly.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

7. Handling and Storage

SAFETY DATA SHEET

Forbo 660 Part B Hardener
Revision Number 1

Revision Date: 16-Mar-2021
Supersedes Date: Not applicable

Precautions for safe handling

Advice on safe handling

Use personal protective equipment as required. Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Avoid breathing vapors or mists. Ensure adequate ventilation. Provide extract ventilation to points where emissions occur. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid contact with skin, eyes or clothing. Take off contaminated clothing and wash before reuse. Please refer also to Safety Data Sheet of Part A.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep in properly labeled containers. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from food, drink and animal feeding stuffs. Keep at temperatures between 50 and 95 °F / 10 and 35 °C.

Reference to other sections

General hygiene considerations

Section 10: STABILITY AND REACTIVITY

Wear suitable gloves and eye/face protection. Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Avoid breathing vapors or mists. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Regular cleaning of equipment, work area and clothing is recommended.

8. Exposure Controls/Personal Protection

Control parameters

Exposure Limits

Chemical name	Alberta	British Columbia	Ontario TWA	Quebec
Isocyanic acid, polymethylenepolyphenyl ene ester 9016-87-9	TWA: 0.005 ppm TWA: 0.07 mg/m ³			
4,4'-Methylenediphenyl diisocyanate 101-68-8	TWA: 0.005 ppm TWA: 0.05 mg/m ³	TWA: 0.005 ppm Ceiling: 0.01 ppm Respiratory Sensitizer	TWA: 0.005 ppm CEV: 0.02 ppm	TWA: 0.005 ppm TWA: 0.051 mg/m ³
Benzene, 1-isocyanato-2-[(4-isocya natophenyl)methyl]- 5873-54-1		TWA: 0.005 ppm Ceiling: 0.01 ppm		
Benzene, 1,1'-methylenebis[2-isocy anato- 2536-05-2		TWA: 0.005 ppm Ceiling: 0.01 ppm		

Appropriate engineering controls

Engineering controls

Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection

Tight sealing safety goggles. If splashes are likely to occur: Face protection shield.

Canada - EN

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Hand protection	Wear suitable gloves. Impervious gloves. The selection of suitable gloves does not only depend on the material, but also on further marks of quality and various manufacturers.
Skin and body protection	Wear suitable protective clothing. Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Respiratory protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
General hygiene considerations	Wear suitable gloves and eye/face protection. Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Avoid breathing vapors or mists. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Regular cleaning of equipment, work area and clothing is recommended.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Paste
Color	Brown
Odor	Musty
Odor threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	
Melting point / freezing point	No data available	
Initial boiling point and boiling range	208 °C / 406.4 °F	
Flash point	198 °C / 388.4 °F	
Evaporation rate	No data available	
Flammability	Not applicable for liquids .	
Flammability Limit in Air		
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	<0.0001	mmHg @ 25 °C
Relative vapor density	No data available	
Relative density	No data available	
Water solubility	Insoluble	
Solubility in Other Solvents	No data available	
Partition coefficient	No data available	
Autoignition temperature	No data available	
Decomposition temperature		
Kinematic viscosity	No data available	
Dynamic viscosity	150-250 mPa s	@ 25 °C

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Supersedes Date: Not applicable

Explosive properties No information available.
Oxidizing properties No information available.

Other information

Softening Point No information available
Molecular weight No information available
Density 1.234 g/cm³
Bulk density No information available
Solid content (%) No information available
VOC Content (%) No information available

10. Stability and Reactivity

Reactivity No information available.
Chemical stability Stable under normal conditions.
Possibility of hazardous reactions Exothermic reaction with. Amines. Alcohols. Contact with water (moisture) liberates carbon dioxide, which causes pressure increase in closed containers.
Hazardous polymerization Hazardous polymerization may take place during a fire due to heat. Closed containers could violently rupture.
Conditions to avoid Excessive heat. Protect from moisture.
Incompatible materials Water. Amines. Strong acids. Strong bases. Strong oxidizing agents. Alcohols. Copper.
Hazardous decomposition products Carbon oxides. Nitrogen oxides (NOx). Isocyanates.

11. Toxicological Information

Information on likely routes of exposure

Product Information

Inhalation Harmful by inhalation. May cause sensitization in susceptible persons. May cause irritation of respiratory tract.
Eye contact Causes serious eye irritation. May cause redness, itching, and pain.
Skin contact Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. May cause sensitization by skin contact. Causes skin irritation.
Ingestion May cause additional affects as listed under "Inhalation". Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing Coughing and/ or wheezing Itching Rashes Hives Redness May cause redness and tearing of the eyes

Numerical measures of toxicity

Acute toxicity

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The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (inhalation-dust/mist) 1.50 mg/l
ATEmix (inhalation-vapor) 19.00 mg/l

Unknown acute toxicity
No information available

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Isocyanic acid, polymethylenepolyphenylene ester 9016-87-9	LD50 > 10000 mg/kg (Rattus)	LD 50 > 9400 mg/kg (Oryctolagus cuniculus)	=1.5 mg/L (Rattus) 4 h
4,4'-Methylenediphenyl diisocyanate 101-68-8	=31600 mg/kg (Rattus) = 9200 mg/kg (Rattus)	LD 50 > 9400 mg/kg (Oryctolagus cuniculus) OECD 402	=1.5 mg/L (Rattus) 4 h
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]- 5873-54-1	LD50 > 2000 mg/Kg (Rattus)	LD 50 > 9400 mg/kg (Oryctolagus cuniculus) OECD 402	=1.5 mg/L (4h) Rat
Benzene, 1,1'-methylenebis[2-isocyanato- 2536-05-2	LD50 > 2000 mg/kg (Rattus)	LD 50 > 9400 mg/kg (Oryctolagus cuniculus) OECD 402	=1.5 mg/L (4h) Rat

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classification based on data available for ingredients Causes skin irritation

Serious eye damage/eye irritation Classification based on data available for ingredients Causes serious eye irritation

Respiratory or skin sensitization May cause sensitization by inhalation May cause sensitization by skin contact

Carcinogenicity Based on available data, the classification criteria are not met

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Isocyanic acid, polymethylenepolyphenyl ene ester 9016-87-9	-	Group 3	-	-
4,4'-Methylenediphenyl diisocyanate 101-68-8	-	Group 3	-	-

IARC (International Agency for Research on Cancer)
Group 3 - Not Classifiable as to Carcinogenicity in Humans

STOT - single exposure May cause respiratory irritation

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure

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Target organ effects Eyes, Skin, Lungs, Respiratory system.

Subchronic toxicity No information available.

Neurological effects No information available.

Other adverse effects No information available.

12. Ecological Information

Ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Isocyanic acid, polymethylenepolyphenylene ester 9016-87-9	ErC50 (72h) >1640 mg/L Algae (scenedesmus subspicatus) (OECD 201)	CL50 (96h) >1000 mg/L (Danio rerio)	-	EC50 (24H) >1000 mg/L Daphnia magna
4,4'-Methylenediphenyl diisocyanate 101-68-8	ErC50 (72h) >1640 mg/L Algae (scenedesmus subspicatus) (OECD 201)	>1000 mg/l (Danio rerio)	-	EC50 (24H) >1000 mg/L Daphnia magna
Benzene, 1-isocyanato-2-[(4-isocyanatophenyl)methyl]- 5873-54-1	ErC50 (72h) >1640 mg/L Algae (scenedesmus subspicatus) (OECD 201)	LC50 (96 h) > 1000 mg/l (Danio rerio) OECD 203	-	EC50 (24H) >1000 mg/L Daphnia magna
Benzene, 1,1'-methylenebis[2-isocyanato- 2536-05-2	-	LC50 (96 h) > 1000 mg/l (Danio rerio) OECD 203	-	-

Persistence and degradability No information available.

Component Information			
Isocyanic acid, polymethylenepolyphenylene ester (9016-87-9)			
Method	Exposure time	Value	Results
OECD Test No. 302C: Inherent Biodegradability: Modified MITI Test (II)	28 days	0% biodegradation	Not readily biodegradable

4,4'-Methylenediphenyl diisocyanate (101-68-8)			
Method	Exposure time	Value	Results
OECD Test No. 302C: Inherent Biodegradability: Modified MITI Test (II)	28 days	0% biodegradation	Not readily biodegradable

Bioaccumulation There is no data for this product.

Component Information

Chemical name	Partition coefficient
4,4'-Methylenediphenyl diisocyanate 101-68-8	4.51

Mobility in soil No information available

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Other adverse effects No information available.

13. Disposal Considerations

Waste treatment methods

Waste from residues/unused products It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Contaminated packaging Dispose of in accordance with federal, state and local regulations. Do not reuse empty containers.

14. Transport Information

TDG Not regulated

IATA Not regulated

IMDG Not regulated

15. Regulatory Information

NPRI - National Pollutant Release Inventory
No component is listed on the NPRI above the threshold

European Union

Restrictions of Use of Hazardous Substances (RoHS) Directive 2011/65/EU

This product does not contain Lead, Cadmium, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-Ethylhexyl) phthalate (DEHP), Benzyl butyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP) above the regulated limit mentioned in this regulation

SVHC: Substances of Very High Concern for Authorization:

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59)

International Inventories

TSCA	Listed
DSL	Listed

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL - Canadian Domestic Substances List

Listed - The components of this product are either listed or exempt from listing on inventory.

Not Listed - One or more components of this product are not listed on inventory.

16. Other information, including date of preparation of the last revision

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Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Revision date 16-Mar-2021

Revision note No information available.

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.

End of Safety Data Sheet