



Material Safety Data Sheet

DOW CHEMICAL INTERNATIONAL PVT. LTD.

Product name: SmartCare Hypertron Pure Polyurea Part A

Issue Date: 31.08.2021
Print Date: 17.02.2024

DOW CHEMICAL INTERNATIONAL PVT. LTD. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: SmartCare Hypertron Pure Polyurea Part A

Recommended use of the chemical and restrictions on use

Identified uses: For industrial use. Component(s) for the manufacture of urethane polymers. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

COMPANY IDENTIFICATION

DOW CHEMICAL INTERNATIONAL PVT. LTD.
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TTC INDUSTRIAL AREA, MIDC, AIROLI
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Customer Information Number:

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EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 91-22-6674-1800

Local Emergency Contact: 0091-22-6674-1800

2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity - Category 4 - Oral

Acute toxicity - Category 4 - Dermal

Skin corrosion/irritation - Sub-category 1B

Serious eye damage/eye irritation - Category 1

Specific target organ toxicity - repeated exposure - Category 2 - Oral

Short-term (acute) aquatic hazard - Category 1

Long-term (chronic) aquatic hazard - Category 1

GHS label elements

Hazard pictograms



Signal word: **DANGER!**

Hazard statements

Harmful if swallowed or in contact with skin.

Causes severe skin burns and eye damage.

May cause damage to organs through prolonged or repeated exposure if swallowed.

Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

Do not breathe mist or vapours.

Wash skin thoroughly after handling.

Do not eat, drink or smoke when using this product.

Avoid release to the environment.

Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response

IF SWALLOWED: Get medical help. Rinse mouth.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF ON SKIN: Wash with plenty of water. Get medical help.

IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get emergency medical help immediately.

IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical help.

Get medical help if you feel unwell.

Take off contaminated clothing and wash it before reuse.

Collect spillage.

Storage

Store locked up.

Disposal

Dispose of contents and/or container to an approved waste disposal plant.

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Concentration
Poly(oxypropylene) diamine	9046-10-0	> 55.0 - < 75.0 %
Diethyltoluenediamine (DETD)	68479-98-1	25.0 - 30.0 %
Polyoxypropylene triamine	64852-22-8	5.0 - 15.0 %

4. FIRST AID MEASURES

Description of first aid measures

General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air and keep comfortable for breathing; consult a physician.

Skin contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing. Seek medical attention if symptoms occur or irritation persists. Wash clothing before reuse. Suitable emergency safety shower facility should be immediately available.

Eye contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth unless the person is fully conscious.

Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. Due to irritant properties, swallowing may result in burns and/or ulceration of mouth, stomach and lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal or esophageal control if lavage is done. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Water fog or fine spray.. Dry chemical fire extinguishers.. Carbon dioxide fire extinguishers.. Foam.. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective..

Unsuitable extinguishing media: Do not use direct water stream.. May spread fire..

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.. Combustion products may include and are not limited to:. Nitrogen oxides.. Carbon monoxide.. Carbon dioxide..

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation.. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids..

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry.. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles.. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container.. Do not use direct water stream. May spread fire.. Move container from fire area if this is possible without hazard.. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage.. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS..

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).. Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location.. For protective equipment in post-fire or non-fire clean-up situations, see Section 8 of the safety data sheet..

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Refer to section 7, Handling, for additional precautionary measures. Keep unnecessary and unprotected personnel from entering the area. Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Spilled material may cause a slipping hazard. Keep upwind of spill. Ventilate area of leak or spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Absorb with materials such as: Dirt. Sand. Sawdust. Collect in suitable and properly labeled containers. Wash the spill site with water. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Avoid breathing vapor. Use with adequate ventilation. Keep container closed. This material is hygroscopic in nature. Do not get in eyes. Do not get on skin or clothing. Do not swallow. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Protect from atmospheric moisture. Store in a dry place. Avoid prolonged exposure to heat and air. Store in the following material(s): Carbon steel. Stainless steel. Polypropylene. Polyethylene-lined container. Teflon. Glass-lined container. Aluminum. Plasite 3066 lined container. Plasite 3070 lined container. 316 stainless steel. See Section 10 for more specific information.

Storage stability

Storage temperature:

15 - 25 °C

Storage Period:

12 Month

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
Diethyltoluenediamine (DETDA)	Dow IHG	TWA	0.02 ppm
Further information: SKIN: Absorbed via skin			

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber.

Avoid gloves made of: Chlorinated polyethylene. Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions, no respiratory protection should be needed; however, if material is heated or sprayed, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid.
Color	Yellow to brown
Odor	Characteristic
Odor Threshold	No test data available
pH	Not applicable, substance/mixture is non-polar/aprotic
Melting point/range	No test data available
Freezing point	No test data available
Boiling point (760 mmHg)	> 200 °C <i>Estimated</i> .
Flash point	closed cup >100 °C <i>Estimated</i> .
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not Applicable
Flammability (liquids)	Not expected to be a static-accumulating flammable liquid.
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	very low
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	1.01 - 1.05 at 25 °C / 25 °C <i>ASTM D891</i>
Water solubility	partly soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available

Dynamic Viscosity	No test data available
Kinematic Viscosity	30 - 100 mm ² /s at 25 °C ASTM D 445
Explosive properties	Not explosive
Oxidizing properties	No
Molecular weight	No test data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Will not occur by itself.

Conditions to avoid: Product can oxidize at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible materials: Avoid contact with oxidizing materials. Avoid contact with: Strong acids. Strong bases. Avoid contact with metals such as: Brass. Zinc. Copper. Avoid unintended contact with isocyanates. The reaction of polyols and isocyanates generates heat.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials.. Decomposition products can include and are not limited to:.. Carbon dioxide.. Alcohols.. Ethers.. Hydrocarbons.. Ketones.. Polymer fragments..

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Information on likely routes of exposure

Ingestion, Inhalation, Skin contact, Eye contact.

Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

Acute oral toxicity

Low toxicity if swallowed. Swallowing may result in burns of the mouth and throat. Swallowing may result in gastrointestinal irritation or ulceration.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):
LD50, 500 mg/kg Estimated.

Information for components:

Poly(oxypropylene) diamine

LD50, Rat, 480 mg/kg

Diethyltoluenediamine (DETDA)

LD50, Rat, 500 - 1,000 mg/kg

Polyoxypropylene triamine

LD50, Rat, 2,690 mg/kg

Acute dermal toxicity

Prolonged or widespread skin contact may result in absorption of potentially harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):

LD50, 1,100 mg/kg Estimated.

Information for components:

Poly(oxypropylene) diamine

LD50, Rabbit, 2,090 mg/kg

Diethyltoluenediamine (DETDA)

LD50, Rabbit, > 1,000 mg/kg

Polyoxypropylene triamine

LD50, Rabbit, > 12,500 mg/kg

Acute inhalation toxicity

At room temperature, vapors are minimal due to low volatility. Certain operations may generate vapor or mist concentrations sufficient to cause respiratory irritation. Such operations include those in which the material is heated or sprayed as an aerosol (venting of vessels/lines).

As product: The LC50 has not been determined.

Information for components:

Poly(oxypropylene) diamine

The LC50 has not been determined.

Diethyltoluenediamine (DETDA)

The LC50 value is greater than the Maximum Attainable Concentration.

Polyoxypropylene triamine

The LC50 has not been determined.

Skin corrosion/irritation

Based on information for component(s):

Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

Prolonged contact may cause severe skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

Mist may cause skin irritation.

Information for components:**Poly(oxypropylene) diamine**

Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage.

Classified as corrosive to the skin according to DOT guidelines.

Diethyltoluenediamine (DETDA)

Prolonged contact may cause slight skin irritation with local redness.

Polyoxypropylene triamine

Prolonged contact may cause skin irritation with local redness.

Repeated contact may cause skin irritation with local redness.

Serious eye damage/eye irritation

Based on information for component(s):

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Elevated temperatures may generate vapor levels sufficient to cause eye irritation. Effects may include discomfort and redness.

Mist may cause eye irritation.

Information for components:**Poly(oxypropylene) diamine**

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Vapor may cause eye irritation experienced as mild discomfort and redness.

Diethyltoluenediamine (DETDA)

May cause moderate eye irritation.

May cause moderate corneal injury.

Polyoxypropylene triamine

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Elevated temperatures may generate vapor levels sufficient to cause eye irritation. Effects may include discomfort and redness.

Sensitization

For skin sensitization:

No specific, relevant data available for assessment.

For respiratory sensitization:

No relevant data found.

Information for components:**Poly(oxypropylene) diamine**

For similar material(s):

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Diethyltoluenediamine (DETD)

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Polyoxypropylene triamine

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Material is corrosive. Material is not classified as a respiratory irritant; however, upper respiratory tract irritation or corrosivity may be expected.

Information for components:**Poly(oxypropylene) diamine**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Diethyltoluenediamine (DETD)

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Polyoxypropylene triamine

Available data are inadequate to determine single exposure specific target organ toxicity.

Aspiration Hazard

Aspiration into the respiratory system may occur during ingestion or vomiting. Due to corrosivity, tissue damage or lung injury may occur.

Information for components:**Poly(oxypropylene) diamine**

Aspiration into the respiratory system may occur during ingestion or vomiting. Due to corrosivity, tissue damage or lung injury may occur.

Diethyltoluenediamine (DETD)

Based on physical properties, not likely to be an aspiration hazard.

Polyoxypropylene triamine

Based on physical properties, not likely to be an aspiration hazard.

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

Excessive exposure may cause lung injury.

Contains component(s) which have been reported to cause effects on the following organs in animals:

Eye.

Liver.

Pancreas.

Thyroid.

Information for components:

Poly(oxypropylene) diamine

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Diethyltoluenediamine (DETDA)

In rats, repeated dietary ingestion of diethyltoluenediamine (DETDA) has caused pancreatic, eye, liver and thyroid effects.

Polyoxypropylene triamine

No relevant data found.

Carcinogenicity

Diethyltoluenediamine (DETDA) has caused cancer in long-term animal studies. Increased numbers of tumors in the liver, thyroid and possibly the mammary glands were observed in rats given DETDA in their diet at exaggerated doses for 2 years.

Information for components:

Poly(oxypropylene) diamine

No relevant data found.

Diethyltoluenediamine (DETDA)

Diethyltoluenediamine (DETDA) has caused cancer in long-term animal studies. Increased numbers of tumors in the liver, thyroid and possibly the mammary glands were observed in rats given DETDA in their diet at exaggerated doses for 2 years.

Polyoxypropylene triamine

No relevant data found.

Teratogenicity

No relevant data found.

Information for components:

Poly(oxypropylene) diamine

No relevant data found.

Diethyltoluenediamine (DETDA)

No relevant data found.

Polyoxypropylene triamine

No relevant data found.

Reproductive toxicity

No relevant data found.

Information for components:

Poly(oxypropylene) diamine

No relevant data found.

Diethyltoluenediamine (DETDA)

No relevant data found.

Polyoxypropylene triamine

No relevant data found.

Mutagenicity

Contains component(s) which were negative in some in vitro genetic toxicity studies and positive in others. Genetic toxicity studies in animals were negative for component(s) tested.

Information for components:**Poly(oxypropylene) diamine**

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Diethyltoluenediamine (DETDA)

In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

Polyoxypropylene triamine

In vitro genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Ecotoxicity**Poly(oxypropylene) diamine****Acute toxicity to fish**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

LC50, Fish, 96 Hour, > 1,000 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 15 mg/l

Acute toxicity to algae/aquatic plants

EC50, Algae, 72 Hour, Growth rate inhibition, 135 mg/l

Diethyltoluenediamine (DETDA)**Acute toxicity to fish**

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

LC50, Leuciscus idus (Golden orfe), static test, 48 Hour, 194 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, 0.5 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate, 100 mg/l, OECD Test Guideline 201

Polyoxypropylene triamine**Acute toxicity to fish**

Material is slightly toxic to fish on an acute basis (LC50 between 10 and 100 mg/L).
LC50, Fish, 96 Hour, 68 mg/l, Method Not Specified.

Persistence and degradability**Poly(oxypropylene) diamine**

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.

Diethyltoluenediamine (DETDA)

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.
10-day Window: Fail

Biodegradation: < 1 %

Exposure time: 28 d

Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 3.23 mg/mg

Polyoxypropylene triamine

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.

Bioaccumulative potential**Poly(oxypropylene) diamine**

Bioaccumulation: No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

Diethyltoluenediamine (DETDA)

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 1.17 Measured

Bioconcentration factor (BCF): 3 Estimated.

Polyoxypropylene triamine

Bioaccumulation: No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

Mobility in Soil**Poly(oxypropylene) diamine**

No relevant data found.

Diethyltoluenediamine (DETDA)

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient (Koc): 551.2 Estimated.

Polyoxypropylene triamine

No relevant data found.

Results of PBT and vPvB assessment

Poly(oxypropylene) diamine

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Diethyltoluenediamine (DETDA)

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Polyoxypropylene triamine

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Other adverse effects**Poly(oxypropylene) diamine**

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Diethyltoluenediamine (DETDA)

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Polyoxypropylene triamine

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section 10 Regulatory Information, MSDS Section 15

14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport:

Proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S.(Polyoxypropylenediamine)
UN number	UN 2735
Class	8
Packing group	II
Environmental hazards	Diethylmethylbenzenediamine

Classification for SEA transport (IMO-IMDG):

Proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S.(Polyoxypropylenediamine)
UN number	UN 2735
Class	8
Packing group	II
Marine pollutant	Diethylmethylbenzenediamine
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Amines, liquid, corrosive, n.o.s.(Polyoxypropylenediamine)
UN number	UN 2735
Class	8
Packing group	II

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

This product has been classified in accordance with the criteria of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), rev. 8.

16. OTHER INFORMATION

Revision

Identification Number: 254371 / A146 / Issue Date: 31.08.2021 / Version: 6.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

Dow IHG	Dow Industrial Hygiene Guideline
TWA	Time Weighted Average (TWA):

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen,

Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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 - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

DOW CHEMICAL INTERNATIONAL PVT. LTD. urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

IN



Material Safety Data Sheet

DOW CHEMICAL INTERNATIONAL PVT. LTD.

Product name: SmartCare Hypertron Pure Polyurea Part B

Issue Date: 18.08.2021 **Print Date:** 17.02.2024

DOW CHEMICAL INTERNATIONAL PVT. LTD. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: SmartCare Hypertron Pure Polyurea Part B

Recommended use of the chemical and restrictions on use

Identified uses: For industrial use. Component(s) for the manufacture of urethane polymers. We recommend that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact your sales or technical service representative.

COMPANY IDENTIFICATION

DOW CHEMICAL INTERNATIONAL PVT. LTD.
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Customer Information Number:

(91) 22-6674-1500
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 91-22-6674-1800

Local Emergency Contact: 0091-22-6674-1800

2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity - Category 4 - Inhalation

Skin corrosion/irritation - Category 2

Serious eye damage/eye irritation - Category 2B

Respiratory sensitisation - Category 1

Skin sensitisation - Category 1

Specific target organ toxicity - single exposure - Category 3

Specific target organ toxicity - repeated exposure - Category 2 - Inhalation

GHS label elements

Hazard pictograms



Signal word: **DANGER!**

Hazard statements

Causes skin and eye irritation.

May cause an allergic skin reaction.

Harmful if inhaled.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause respiratory irritation.

May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Precautionary statements**Prevention**

Do not breathe mist or vapours.

Wash skin thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing should not be allowed out of the workplace.

Wear protective gloves.

In case of inadequate ventilation wear respiratory protection.

Response

IF ON SKIN: Wash with plenty of water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical help.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If skin irritation or rash occurs: Get medical help.

If eye irritation persists: Get medical help.

If experiencing respiratory symptoms: Get emergency medical help immediately.

Storage

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

Store locked up.

Disposal

Dispose of contents and/or container to an approved waste disposal plant.

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a substance.

Component	CASRN	Concentration
Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer	96328-90-4	>= 40.0 - <= 70.0 %
Methylenediphenyl diisocyanate	26447-40-5	>= 30.0 - <= 60.0 %
4,4'-Methylenediphenyl diisocyanate	101-68-8	>= 10.0 - <= 30.0 %
Tris(nonylphenyl) phosphite	26523-78-4	>= 0.1 - < 1.0 %

Note

Note: CAS 101-68-8 is an MDI isomer that is part of CAS 26447-40-5.

4. FIRST AID MEASURES

Description of first aid measures**General advice:**

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation or rash occurs. Wash clothing before reuse. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be available in work area.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants and antitussives may be of help. Treat bronchospasm with inhaled beta2 agonist and oral or parenteral corticosteroids. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. If you are sensitized to diisocyanates, consult your physician regarding working with other respiratory irritants or sensitizers. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Water fog or fine spray.. Dry chemical fire extinguishers.. Carbon dioxide fire extinguishers.. Foam.. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective..

Unsuitable extinguishing media: Do not use direct water stream.. May spread fire..

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.. Combustion products may include and are not limited to:.. Nitrogen oxides.. Isocyanates.. Hydrogen cyanide.. Carbon monoxide.. Carbon dioxide..

Unusual Fire and Explosion Hazards: Material reacts slowly with water, releasing carbon dioxide which can cause pressure buildup and rupture of closed containers. Elevated temperatures accelerate this reaction.. Container may rupture from gas generation in a fire situation.. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.. Dense smoke is produced when product burns.. Electrically ground and bond all equipment..

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry.. Stay upwind. Keep out of low areas where gases (fumes) can accumulate.. Water is not recommended, but may be applied in large quantities as a fine spray when other extinguishing agents are not available.. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles.. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container.. Do not use direct water stream. May spread fire.. Move container from fire area if this is possible without hazard.. Use water spray to cool fire-exposed containers and fire-affected zone until fire is out.. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage.. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS..

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).. Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location.. For protective equipment in post-fire or non-fire clean-up situations, see Section 8 of the safety data sheet..

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Keep personnel out of low areas. Keep upwind of spill. Spilled material may cause a slipping hazard. Ventilate area of leak or spill. If available, use foam to smother or suppress. See Section 10 for more specific information. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Absorb with materials such as: Dirt. Vermiculite. Sand. Clay. Sawdust. Do NOT use absorbent materials such as: Cement powder (Note: may generate heat). Collect in suitable and properly labeled open containers. Do not place in sealed containers. Suitable containers include: Metal drums. Plastic drums. Polylined fiber pacs. Wash the spill site with large quantities of water. Attempt to neutralize by adding suitable decontaminant solution: Formulation 1: sodium carbonate 5 - 10%; liquid detergent 0.2 - 2%; water to make up to 100%, OR Formulation 2: concentrated ammonia solution 3 - 8%; liquid detergent 0.2 - 2%; water to make up to 100%. If ammonia is used, use good ventilation to prevent vapor exposure. Contact your supplier for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Use with adequate ventilation. Wash thoroughly after handling. This material is hygroscopic in nature. Keep container tightly closed. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion.

Conditions for safe storage: Store in a dry place. Protect from atmospheric moisture. Do not store product contaminated with water to prevent potential hazardous reaction. See Section 10 for more specific information.

Storage stability

Storage temperature:

15 - 25 °C

Storage Period:

12 Month

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
Methylenediphenyl diisocyanate	Dow IHG	TWA	0.005 ppm
	Dow IHG	STEL	0.02 ppm
4,4'-Methylenediphenyl diisocyanate	ACGIH	TWA	0.005 ppm
	Dow IHG	TWA	0.005 ppm
	Dow IHG	STEL	0.02 ppm

Exposure controls

Engineering controls: Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. The odor and irritancy of this material are inadequate to warn of excessive exposure.

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Avoid gloves made of: Neoprene. Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Atmospheric levels should be maintained below the exposure guideline. When atmospheric levels may exceed the exposure guideline, use an approved air-purifying respirator equipped with an organic vapor sorbent and a particle filter. For situations where the atmospheric levels may exceed the level for which an air-purifying respirator is effective, use a positive-pressure air-supplying respirator (air line or self-contained breathing apparatus). For emergency response or for situations where the atmospheric level is unknown, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	Liquid. Yellow
Color	Characteristic
Odor	0.4 ppm <i>Based on Literature for MDI.</i> Odor is inadequate warning of excessive exposure.
Odor Threshold	<i>Not applicable</i> substance/mixture reacts with water
pH	No test data available
Melting point/range	No test data available
Freezing point	No test data available
Boiling point (760 mmHg)	closed cup >100 °C <i>Estimated.</i>
Flash point	No test data available
Evaporation Rate (Butyl Acetate = 1)	Not Applicable
Flammability (solid, gas)	Not expected to be a static-accumulating flammable liquid.
Flammability (liquids)	No test data available
Lower explosion limit	No test data available
Upper explosion limit	< 0.00001 mmHg at 25 °C <i>Estimated.</i>
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	1.10 - 1.14 at 20 °C / 20 °C <i>ASTM D891</i>
Relative Density (water = 1)	insoluble
Water solubility	No data available
Partition coefficient: n-octanol/water	No test data available
Auto-ignition temperature	No test data available
Decomposition temperature	850 - 1600 mm ² /s at 20 °C <i>ASTM D 445</i>
Kinematic Viscosity	Not explosive
Explosive properties	No
Oxidizing properties	No test data available
Molecular weight	

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Products based on diisocyanates like TDI and MDI react with many materials to release heat. The reaction rate increases with temperature as well as with increased contact; these reactions can become violent. Contact is increased by stirring or if the other material acts as a solvent. Products based on diisocyanates such as TDI and MDI are not soluble in water and will sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea.

Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions: Can occur. Exposure to elevated temperatures can cause product to decompose and generate gas. This can cause pressure build-up and/or rupturing of closed containers. Polymerization can be catalyzed by: Strong bases. Water.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Avoid moisture. Material reacts slowly with water, releasing carbon dioxide which can cause pressure buildup and rupture of closed containers. Elevated temperatures accelerate this reaction.

Incompatible materials: Avoid contact with: Acids. Alcohols. Amines. Water. Ammonia. Bases. Metal compounds. Moist air. Strong oxidizers. Products based on diisocyanates like TDI and MDI react with many materials to release heat. The reaction rate increases with temperature as well as with increased contact; these reactions can become violent. Contact is increased by stirring or if the other material acts as a solvent. Products based on diisocyanates such as TDI and MDI are not soluble in water and will sink to the bottom, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea. Avoid contact with metals such as: Aluminum. Zinc. Brass. Tin. Copper. Galvanized metals. Avoid contact with absorbent materials such as: Moist organic absorbents. Avoid unintended contact with polyols. The reaction of polyols and isocyanates generate heat.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials.. Gases are released during decomposition..

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Information on likely routes of exposure

Ingestion, Inhalation, Skin contact, Eye contact.

Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Observations in animals include: Gastrointestinal irritation.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):
LD50, > 2,000 mg/kg Estimated.

Information for components:

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

Typical for this family of materials. LD50, Rat, > 2,000 mg/kg Estimated. No deaths occurred at this concentration.

Methylenediphenyl diisocyanate

LD50, Rat, > 2,000 mg/kg No deaths occurred at this concentration.

4,4'-Methylenediphenyl diisocyanate

LD50, Rat, > 2,000 mg/kg No deaths occurred at this concentration.

Tris(nonylphenyl) phosphite

LD50, Rat, male and female, > 10,000 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):

LD50, Rabbit, > 2,000 mg/kg Estimated. No deaths occurred at this concentration.

Information for components:

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

Typical for this family of materials. LD50, Rabbit, > 9,400 mg/kg

Methylenediphenyl diisocyanate

LD50, Rabbit, > 9,400 mg/kg

4,4'-Methylenediphenyl diisocyanate

LD50, Rabbit, > 9,400 mg/kg

Tris(nonylphenyl) phosphite

LD50, Rabbit, male and female, > 2,000 mg/kg OECD 402 or equivalent No deaths occurred at this concentration.

Acute inhalation toxicity

At room temperature, vapors are minimal due to low volatility. However, certain operations may generate vapor or mist concentrations sufficient to cause respiratory irritation and other adverse effects. Such operations include those in which the material is heated, sprayed or otherwise mechanically dispersed such as drumming, venting or pumping. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause pulmonary edema (fluid in the lungs.) Effects may be delayed. Decreased lung function has been associated with overexposure to isocyanates.

As product: The LC50 has not been determined.

Information for components:

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

At room temperature, vapors are minimal due to low volatility. However, certain operations may generate vapor or mist concentrations sufficient to cause respiratory irritation and other adverse effects. Such operations include those in which the material is heated, sprayed or otherwise mechanically dispersed such as drumming, venting or pumping. Excessive exposure may cause irritation to upper respiratory

tract (nose and throat) and lungs. May cause pulmonary edema (fluid in the lungs.)
Effects may be delayed. Decreased lung function has been associated with overexposure to isocyanates.

The LC50 has not been determined.

Methylenediphenyl diisocyanate

LC50, Rat, 1 Hour, dust/mist, 2.24 mg/l

4,4'-Methylenediphenyl diisocyanate

LC50, Rat, 1 Hour, dust/mist, 2.24 mg/l

Tris(nonylphenyl) phosphite

The LC50 has not been determined.

Skin corrosion/irritation

Based on information for component(s):

Prolonged contact may cause skin irritation with local redness.

Material may stick to skin causing irritation upon removal.

May stain skin.

Information for components:

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

Prolonged contact may cause skin irritation with local redness.

Material may stick to skin causing irritation upon removal.

May stain skin.

Methylenediphenyl diisocyanate

Prolonged contact may cause moderate skin irritation with local redness.

Repeated contact may cause moderate skin irritation with local redness.

May stain skin.

4,4'-Methylenediphenyl diisocyanate

Prolonged contact may cause moderate skin irritation with local redness.

Repeated contact may cause moderate skin irritation with local redness.

May stain skin.

Tris(nonylphenyl) phosphite

Brief contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation

Based on information for component(s):

May cause eye irritation.

May cause slight temporary corneal injury.

Information for components:

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

May cause eye irritation.

May cause slight temporary corneal injury.

Methylenediphenyl diisocyanate

May cause moderate eye irritation.

May cause slight temporary corneal injury.

4,4'-Methylenediphenyl diisocyanate

May cause moderate eye irritation.

May cause slight temporary corneal injury.

Tris(nonylphenyl) phosphite

May cause slight temporary eye irritation.

Corneal injury is unlikely.

Sensitization

Based on information for component(s):

Skin contact may cause an allergic skin reaction.

Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

Based on information for component(s):

May cause allergic respiratory reaction.

MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized.

Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

Information for components:

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

Skin contact may cause an allergic skin reaction.

Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

May cause allergic respiratory reaction.

MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized.

Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

Methylenediphenyl diisocyanate

For skin sensitization:

Skin contact may cause an allergic skin reaction.

Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

For respiratory sensitization:

May cause allergic respiratory reaction.

MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized.

Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

4,4'-Methylenediphenyl diisocyanate

For skin sensitization:

Skin contact may cause an allergic skin reaction.

Animal studies have shown that skin contact with isocyanates may play a role in respiratory sensitization.

For respiratory sensitization:
May cause allergic respiratory reaction.
MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized.
Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening.

Tris(nonylphenyl) phosphite

For skin sensitization:
Did not demonstrate the potential for contact allergy in mice.
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.

Information for components:

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

Available data are inadequate to determine single exposure specific target organ toxicity.

Methylenediphenyl diisocyanate

May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory Tract

4,4'-Methylenediphenyl diisocyanate

May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory Tract

Tris(nonylphenyl) phosphite

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard. No aspiration toxicity classification

Information for components:

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

Based on physical properties, not likely to be an aspiration hazard.

Methylenediphenyl diisocyanate

Based on physical properties, not likely to be an aspiration hazard.

4,4'-Methylenediphenyl diisocyanate

Based on physical properties, not likely to be an aspiration hazard.

Tris(nonylphenyl) phosphite

Based on physical properties, not likely to be an aspiration hazard.

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Based on information for component(s):

Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

Information for components:

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

Methylenediphenyl diisocyanate

Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

4,4'-Methylenediphenyl diisocyanate

Tissue injury in the upper respiratory tract and lungs has been observed in laboratory animals after repeated excessive exposures to MDI/polymeric MDI aerosols.

Tris(nonylphenyl) phosphite

In animals, effects have been reported on the following organs:
Kidney.

Carcinogenicity

Based on information for component(s): Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m³) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

Information for components:

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m³) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

Methylenediphenyl diisocyanate

Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m³) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

4,4'-Methylenediphenyl diisocyanate

Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/Polymeric MDI (6 mg/m³) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.

Tris(nonylphenyl) phosphite

Did not cause cancer in laboratory animals.

Teratogenicity

Based on information for component(s): In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother.

Information for components:**Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer**

In laboratory animals, MDI/polymeric MDI did not cause birth defects; other fetal effects occurred only at high doses which were toxic to the mother.

Methylenediphenyl diisocyanate

Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

4,4'-Methylenediphenyl diisocyanate

Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Tris(nonylphenyl) phosphite

Did not cause birth defects in laboratory animals.

Reproductive toxicity

No specific, relevant data available for assessment.

Information for components:**Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer**

No specific, relevant data available for assessment.

Methylenediphenyl diisocyanate

No relevant data found.

4,4'-Methylenediphenyl diisocyanate

No relevant data found.

Tris(nonylphenyl) phosphite

In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Mutagenicity

Based on information for component(s): Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

Information for components:**Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer**

Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

Methylenediphenyl diisocyanate

Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

4,4'-Methylenediphenyl diisocyanate

Genetic toxicity data on MDI are inconclusive. MDI was weakly positive in some in vitro studies; other in vitro studies were negative. Animal mutagenicity studies were predominantly negative.

Tris(nonylphenyl) phosphite

In vitro genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Ecotoxicity

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

Acute toxicity to fish

Not expected to be acutely toxic to aquatic organisms.

Methylenediphenyl diisocyanate

Acute toxicity to fish

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species.

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Based on information for a similar material:

LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

Based on information for a similar material:

EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

Based on information for a similar material:

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

Based on information for a similar material:

EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l

Toxicity to soil-dwelling organisms

EC50, Eisenia fetida (earthworms), Based on information for a similar material:, 14 d, > 1,000 mg/kg

Toxicity to terrestrial plants

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l

EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

4,4'-Methylenediphenyl diisocyanate

Acute toxicity to fish

The measured ecotoxicity is that of the hydrolyzed product, generally under conditions maximizing production of soluble species.

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Based on information for a similar material:

LC50, Danio rerio (zebra fish), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

Based on information for a similar material:

EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

Based on information for a similar material:

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1,640 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

Based on information for a similar material:

EC50, activated sludge, static test, 3 Hour, Respiration rates., > 100 mg/l

Toxicity to soil-dwelling organisms

EC50, Eisenia fetida (earthworms), Based on information for a similar material:, 14 d, > 1,000 mg/kg

Toxicity to terrestrial plants

EC50, Avena sativa (oats), Growth inhibition, 1,000 mg/l

EC50, Lactuca sativa (lettuce), Growth inhibition, 1,000 mg/l

Tris(nonylphenyl) phosphite

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Rainbow trout (Oncorhynchus mykiss), static test, 96 Hour, > 100 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

No toxicity at the limit of solubility

Daphnia magna (Water flea), static test, 48 Hour, > 0.3 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, alga Scenedesmus sp., Static, 72 Hour, Growth rate inhibition, > 100 mg/l, OECD Test Guideline 201 or Equivalent

NOEC, alga Scenedesmus sp., Static, 72 Hour, Growth rate inhibition, 100 mg/l, OECD Test Guideline 201 or Equivalent

Chronic toxicity to aquatic invertebrates

No toxicity at the limit of solubility

NOEC, Daphnia magna (Water flea), static test, 21 d, number of offspring, > 0.1 mg/l

Persistence and degradability

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

Biodegradability: Expected to degrade slowly in the environment.

Methylenediphenyl diisocyanate

Biodegradability: In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

10-day Window: Not applicable

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 302C or Equivalent

4,4'-Methylenediphenyl diisocyanate

Biodegradability: In the aquatic and terrestrial environment, material reacts with water forming predominantly insoluble polyureas which appear to be stable. In the atmospheric environment, material is expected to have a short tropospheric half-life, based on calculations and by analogy with related diisocyanates.

10-day Window: Not applicable

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 302C or Equivalent

Tris(nonylphenyl) phosphite

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

Biodegradation: < 4 %

Exposure time: 28 d

Method: OECD Test Guideline 301D or Equivalent

Bioaccumulative potential

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

Bioaccumulation: In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Methylenediphenyl diisocyanate

Bioaccumulation: Bioconcentration potential is low ($BCF < 100$ or $\log P_{ow} < 3$). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Bioconcentration factor (BCF): 92 Cyprinus carpio (Carp) 28 d

4,4'-Methylenediphenyl diisocyanate

Bioaccumulation: Bioconcentration potential is low ($BCF < 100$ or $\log P_{ow} < 3$). Reacts with water. In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Bioconcentration factor (BCF): 92 Cyprinus carpio (Carp) 28 d

Tris(nonylphenyl) phosphite

Bioaccumulation: Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7).

Partition coefficient: n-octanol/water(log Pow): 14 OECD Test Guideline 117 or Equivalent

Mobility in Soil

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Methylenediphenyl diisocyanate

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

4,4'-Methylenediphenyl diisocyanate

In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

Tris(nonylphenyl) phosphite

Partition coefficient (Koc): > 5000 Estimated.

Results of PBT and vPvB assessment

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Methylenediphenyl diisocyanate

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

4,4'-Methylenediphenyl diisocyanate

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

Tris(nonylphenyl) phosphite

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Other adverse effects

Methylenediphenyl diisocyanate, polypropyleneglycol, copolymer

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Methylenediphenyl diisocyanate

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

4,4'-Methylenediphenyl diisocyanate

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Tris(nonylphenyl) phosphite

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section 10 Regulatory Information, MSDS Section 15

14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport:

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

**Transport in bulk
according to Annex I or II
of MARPOL 73/78 and the
IBC or IGC Code**

Not regulated for transport

Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

This product has been classified in accordance with the criteria of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), rev. 8.

16. OTHER INFORMATION

Revision

Identification Number: 195889 / A146 / Issue Date: 18.08.2021 / Version: 8.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
Dow IHG	Dow Industrial Hygiene Guideline
STEL	Short term exposure limit
TWA	Time weighted average

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; 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; 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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 - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

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his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

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