

RUBINATE® 9040

Version 1.0 Revision Date: 01/06/2017 SDS Number: 400001001012 Date of last issue: -
Date of first issue: 01/06/2017

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : RUBINATE® 9040

Manufacturer or supplier's details

Company name of supplier : Huntsman Polyurethanes
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)
Telephone : Tech Info:(800) 257-5547
E-mail address of person responsible for the SDS : MSDS@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Component of a Polyurethane System.
Manufacture of wood and wood products

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Acute toxicity (Inhalation) : Category 4
Skin irritation : Category 2
Eye irritation : Category 2B
Respiratory sensitisation : Category 1
Skin sensitisation : Category 1
Effects on or via lactation
Specific target organ toxicity - single exposure : Category 3 (Respiratory system)
Acute aquatic toxicity : Category 1
Chronic aquatic toxicity : Category 1

GHS label elements

Hazard pictograms : 

Signal word : Danger

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Hazard statements : H315 + H320 Causes skin and eye irritation.
H317 May cause an allergic skin reaction.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H362 May cause harm to breast-fed children.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P263 Avoid contact during pregnancy and while nursing.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves.
P284 Wear respiratory protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.
Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
Disposal:
P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

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Chemical name	CAS-No.	Concentration (% w/w)
Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]	39420-98-9	60 - 100
4,4'-methylenediphenyl diisocyanate	101-68-8	13 - 30
alkanes, C14-17, chloro	85535-85-9	13 - 30
Diphenylmethane-2,4'- diisocyanate	5873-54-1	3 - 7
Paraffin waxes and Hydrocarbon waxes, chloro	63449-39-8	0.1 - 1

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Do not leave the victim unattended.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
- If inhaled : If breathed in, move person into fresh air.
Call a physician or poison control centre immediately.
Keep patient warm and at rest.
Keep respiratory tract clear.
If breathing is difficult, give oxygen.
If breathing is irregular or stopped, administer artificial respiration.
If unconscious, place in recovery position and seek medical advice.
Consult a physician immediately if symptoms such as shortness of breath or asthma are observed.
A hyper-reactive response to even minimal concentrations of diisocyanates may develop in sensitised persons.
LC50 (rat) : ca. 490 mg/m³ (4 hours) : using experimentally produced respirable aerosol having aerodynamic diameter <5microns.
- In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.
Take off contaminated clothing and shoes immediately.
Wash contaminated clothing before reuse.
Thoroughly clean shoes before reuse.
Call a physician if irritation develops or persists.
An MDI study has demonstrated that a polyglycol-based skin cleanser (such as D-TamTM, PEG-400) or corn oil may be more effective than soap and water.
- In case of eye contact : In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Gently wipe or rinse the inside of the mouth with water.
DO NOT induce vomiting unless directed to do so by a physician or poison control center.

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Keep respiratory tract clear.
 Keep at rest.
 Do not give milk or alcoholic beverages.
 If a person vomits when lying on his back, place him in the recovery position.
 Never give anything by mouth to an unconscious person.
 If symptoms persist, call a physician.
 Take victim immediately to hospital.

- Most important symptoms and effects, both acute and delayed : None known.
- Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.
 It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
 If potential for exposure exists refer to Section 8 for specific personal protective equipment.
 First Aid responders should pay attention to self-protection and use the recommended protective clothing
- Notes to physician : Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours.
- The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
 Foam
 Carbon dioxide (CO₂)
 Dry powder
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
 The pressure in sealed containers can increase under the influence of heat.
 Exposure to decomposition products may be a hazard to health.
- Hazardous combustion products : Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
 Nitrogen oxides (NO_x)
 Hydrogen cyanide (hydrocyanic acid)
- Specific extinguishing : Cool containers/tanks with water spray.

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methods

Standard procedure for chemical fires.
 Due to reaction with water producing CO₂-gas, a hazardous build-up of pressure could result if contaminated containers are re-sealed.
 Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
 Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
 Prevent fire extinguishing water from contaminating surface water or the ground water system.
 Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Special protective equipment for firefighters : Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
 Immediately evacuate personnel to safe areas.
 Ensure adequate ventilation.
 Keep people away from and upwind of spill/leak.
 Only qualified personnel equipped with suitable protective equipment may intervene.
 Never return spills in original containers for re-use.
 Treat recovered material as described in the section "Disposal considerations".
 For disposal considerations see section 13.
 Make sure that there is a sufficient amount of neutralizing/absorbent material near the storage area.
 The danger areas must be delimited and identified using relevant warning and safety signs.

Environmental precautions : Do not allow uncontrolled discharge of product into the environment.
 Do not allow material to contaminate ground water system.
 Prevent product from entering drains.
 Prevent further leakage or spillage if safe to do so.
 Local authorities should be advised if significant spillages cannot be contained.
 If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Clean-up methods - small spillage
 Dilute with plenty of water.
 Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).
 Clean contaminated surface thoroughly.
 Sweep up or vacuum up spillage and collect in suitable container for disposal.
 Neutralize small spillages with decontaminant.
 The compositions of liquid decontaminants are given in Section 16.

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Remove and dispose of residues.
 Clean-up methods - large spillage
 If the product is in its solid form:
 Spilled MDI flakes should be picked up carefully.
 The area should be vacuum cleaned to remove remaining dust particles completely.
 If the product is in its liquid form:
 Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
 Leave to react for at least 30 minutes.
 Shovel into open-top drums for further decontamination.
 Wash the spillage area with water.
 Test atmosphere for MDI vapour.
 Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

- Technical measures : Ensure that eyewash stations and safety showers are close to the workstation location.
- Local/Total ventilation : Use only with adequate ventilation.
- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Advice on safe handling : For personal protection see section 8.
 Avoid formation of aerosol.
 Do not breathe vapours/dust.
 Avoid exposure - obtain special instructions before use.
 Avoid contact with skin and eyes.
 Smoking, eating and drinking should be prohibited in the application area.
 Provide sufficient air exchange and/or exhaust in work rooms.
 Open drum carefully as content may be under pressure.
 Dispose of rinse water in accordance with local and national regulations.
 Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
 Wash face, hands and any exposed skin thoroughly after handling.
 Remove contaminated clothing and protective equipment before entering eating areas.
 When using do not eat or drink.
 When using do not smoke.
 Contaminated work clothing should not be allowed out of the workplace.
 Wash hands and face before breaks and immediately after handling the product.
 Wash hands before breaks and at the end of workday.

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Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
4,4'-methylenediphenyl diisocyanate	101-68-8	LMPE-PPT	0.005 ppm 0.051 mg/m ³	MX OEL
		VLE-PPT	0.005 ppm	NOM-010-STPS-2014
		TWA	0.005 ppm	ACGIH

Personal protective equipment

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hand protection
Remarks

: For prolonged or repeated contact use protective gloves. Protective gloves should be worn when handling freshly made polyurethane products to avoid contact with trace residual materials which may be hazardous in contact with skin.

Use chemical resistant gloves classified under Standard EN374: protective gloves against chemicals and microorganisms. Examples of glove materials that might provide suitable protection include: Butyl rubber, Chlorinated polyethylene, Polyethylene, Ethyl vinyl alcohol copolymers laminated ("EVAL"), Polychloroprene (Neoprene*), Nitrile/butadiene rubber ("nitrile" or "NBR"), Polyvinyl chloride ("PVC" or "vinyl"), Fluoroelastomer (Viton*).

When prolonged or frequently repeated contact may occur, a glove with protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN374) is recommended.

When only brief contact is expected, a glove with protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN374) is recommended. Contaminated gloves should be decontaminated and disposed of.

Notice: The selection of a specific glove for a particular

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application and duration of use in a workplace should also take into account all requisite workplace factors such as, but not limited to : other chemicals that may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), as well as instructions/specifications provided by the glove supplier.

- Eye protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Chemical splash goggles. Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded. Please follow all applicable local/national requirements when selecting protective measures for a specific workplace. Ensure that eyewash stations and safety showers are close to the workstation location.
- Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Protective measures : Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing
The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Ensure that eye flushing systems and safety showers are located close to the working place.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : liquid
- Colour : brown
- Odour : No data is available on the product itself.
- Odour Threshold : No data is available on the product itself.
- pH : No data is available on the product itself.
- Freezing point : No data is available on the product itself.
- Melting point : No data is available on the product itself.
: No information available.
- Flash point : 230 °C
Method: closed cup
- Evaporation rate : No data is available on the product itself.
- Flammability (solid, gas) : No data is available on the product itself.

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Flammability (liquids) : No data is available on the product itself.

Upper explosion limit : No data is available on the product itself.

Lower explosion limit : No data is available on the product itself.

Vapour pressure : No data is available on the product itself.

Relative vapour density : No data is available on the product itself.

Relative density : 1.23 (25 °C)

Density : 1.23 g/cm³ (25 °C)

Solubility(ies)

Water solubility : No data is available on the product itself.

Solubility in other solvents : No data is available on the product itself.

Partition coefficient: n-octanol/water : No data is available on the product itself.

Auto-ignition temperature : No data is available on the product itself.

Thermal decomposition : No data is available on the product itself.

Self-Accelerating decomposition temperature (SADT) : No data is available on the product itself.

Viscosity

Viscosity, dynamic : 220 mPa.s (25 °C)

Explosive properties : No data is available on the product itself.

Oxidizing properties : No data is available on the product itself.

Particle size : No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : No dangerous reaction known under conditions of normal use.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Reaction with water (moisture) produces CO₂-gas. Exothermic reaction with materials containing active hydrogen groups. The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of the reaction partners is good or is supported by stirring or by the presence of solvents. MDI is insoluble with, and heavier than water and sinks to the bottom but reacts slowly at the interface. A solid water-insoluble layer of polyurea is formed at the interface by liberating carbon dioxide gas.

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Conditions to avoid : Extremes of temperature and direct sunlight.
Exposure to air or moisture over prolonged periods.

Incompatible materials : Acids
Bases
Amines
Steam

Hazardous decomposition products : Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke.
Hydrocarbons
Hydrogen cyanide (hydrocyanic acid)
Burning produces noxious and toxic fumes.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : No data is available on the product itself.

Acute toxicity**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Acute oral toxicityComponents : LD50 (Rat, male): > 10,000 mg/kg
Method: OECD Test Guideline 401

4,4'-methylenediphenyl diisocyanate:

Acute oral toxicityComponents : LD50 (Rat, male): > 10,000 mg/kg
Method: OECD Test Guideline 401

alkanes, C14-17, chloro:

Acute oral toxicityComponents : LD50 (Rat): > 4,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Paraffin waxes and Hydrocarbon waxes, chloro:

Acute oral toxicityComponents : LD50 (Rat): > 11,700 mg/kg
LD50 (Mouse): 5,000 mg/kg

Acute inhalation toxicity - Product : Acute toxicity estimate: 1.73 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:

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Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

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

4,4'-methylenediphenyl diisocyanate:

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

alkanes, C14-17, chloro:

Acute dermal toxicity : LD50 (Rabbit): > 13.5 g/kg
GLP: no

LD50 (Rat): > 2.5 ml/kg

Diphenylmethane-2,4'- diisocyanate:

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

Acute toxicity (other routes of administration) : No data available

Skin corrosion/irritation**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Species: Rabbit

Assessment: Irritant

Method: OECD Test Guideline 404

Result: Irritating to skin.

4,4'-methylenediphenyl diisocyanate:

Species: Rabbit

Method: OECD Test Guideline 404

Result: Irritating to skin.

alkanes, C14-17, chloro:

Species: Rabbit

Assessment: Mild skin irritant

Method: OECD Test Guideline 404

Result: slight irritation

Diphenylmethane-2,4'- diisocyanate:

Species: Rabbit

Assessment: Irritant

Method: OECD Test Guideline 404

Result: Irritating to skin.

Paraffin waxes and Hydrocarbon waxes, chloro:

Result: Mild skin irritation

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Serious eye damage/eye irritation**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Species: Rabbit

Result: Mild eye irritation

Assessment: Irritant

Method: No information available.

Remarks: Mild eye irritation

largely based on human evidence

4,4'-methylenediphenyl diisocyanate:

Species: Rabbit

Result: Mild eye irritation

alkanes, C14-17, chloro:

Species: Rabbit

Result: slight irritation

Assessment: Mild eye irritant

GLP: no

Diphenylmethane-2,4'- diisocyanate:

Species: Humans

Result: Irritation to eyes, reversing within 7 days

Assessment: Mild eye irritant

Method: OECD Test Guideline 405

Remarks: Mild eye irritation

Paraffin waxes and Hydrocarbon waxes, chloro:

Result: Irritation to eyes, reversing within 7 days

Respiratory or skin sensitisation**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Exposure routes: Skin

Species: Mouse

Assessment: May cause sensitisation by skin contact.

Result: Causes sensitisation.

Exposure routes: Respiratory Tract

Species: Guinea pig

Assessment: May cause sensitisation by inhalation.

Result: Causes sensitisation.

4,4'-methylenediphenyl diisocyanate:

Exposure routes: Skin

Species: Mouse

Method: OECD Test Guideline 429

Result: May cause sensitisation by skin contact.

Exposure routes: Respiratory Tract

Species: Guinea pig

Result: May cause sensitisation by inhalation.

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alkanes, C14-17, chloro:
Exposure routes: Skin
Species: Guinea pig
Result: Does not cause skin sensitisation.

Diphenylmethane-2,4'- diisocyanate:
Exposure routes: Skin
Species: Mouse
Assessment: May cause sensitisation by skin contact.
Result: Causes sensitisation.

Exposure routes: Respiratory Tract
Species: Guinea pig
Assessment: May cause sensitisation by inhalation.
Result: Causes sensitisation.

Components:

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:
Assessment: Mild eye irritation

4,4'-methylenediphenyl diisocyanate:
Assessment: May cause sensitisation by inhalation and skin contact.

Diphenylmethane-2,4'- diisocyanate:
Assessment: Mild eye irritation

Germ cell mutagenicity**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:
Genotoxicity in vitro : Concentration: 200 ug/plate
Metabolic activation: with and without metabolic activation
Method: Directive 67/548/EEC, Annex, B.13/14
Result: negative

4,4'-methylenediphenyl diisocyanate:
Genotoxicity in vitro : Concentration: 200 ug/plate
Metabolic activation: with and without metabolic activation
Method: Directive 67/548/EEC, Annex, B.13/14
Result: negative

alkanes, C14-17, chloro:
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Diphenylmethane-2,4'- diisocyanate:
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

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Components:

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Genotoxicity in vivo : Application Route: Inhalation
Exposure time: 3 Weeks
Dose: 118 mg/m³
Method: OECD Test Guideline 474
Result: negative

4,4'-methylenediphenyl diisocyanate:

Genotoxicity in vivo : Application Route: Inhalation
Exposure time: 3 Weeks
Dose: 118 mg/m³
Method: OECD Test Guideline 474
Result: negative

alkanes, C14-17, chloro:

Genotoxicity in vivo : Application Route: Oral
Dose: 5000 mg/kg
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Application Route: Oral
Exposure time: 5 d
Dose: 500 - 5000 mg/kg
Method: OECD Test Guideline 475
Result: negative
GLP: yes

Diphenylmethane-2,4'- diisocyanate:

Genotoxicity in vivo : Application Route: Inhalation
Exposure time: 3 Weeks
Dose: 118 mg/m³
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Species: Rat, (male and female)
Application Route: Inhalation
Exposure time: 24 month(s)
Dose: 1 mg/m³
Frequency of Treatment: 5 daily
Method: OECD Test Guideline 453
Result: positive
Target Organs: Lungs

4,4'-methylenediphenyl diisocyanate:

Species: Rat, (male and female)
Application Route: Inhalation
Exposure time: 24 month(s)
Dose: 1 mg/m³

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Frequency of Treatment: 5 daily
 Method: OECD Test Guideline 453
 Result: positive
 Target Organs: Lungs

Diphenylmethane-2,4'- diisocyanate:
 Species: Rat, (male and female)
 Application Route: Inhalation
 Exposure time: 24 month(s)
 Dose: 1 mg/m³
 Frequency of Treatment: 5 daily
 Method: OECD Test Guideline 453
 Result: positive
 Target Organs: Lungs

Carcinogenicity - Assessment : No data available

Reproductive toxicity**Components:**

alkanes, C14-17, chloro:
 Effects on fertility

: Species: Rat, male and female
 Application Route: Oral
 Fertility: negative: ca. 100 mg/kg body weight
 Method: OECD Test Guideline 421
 GLP: yes

Species: Rat, male and female
 Application Route: Oral
 Fertility: negative: ca. 8 mg/kg body weight
 Method: OECD Test Guideline 421
 GLP: yes

Species: Rat, male and female
 Application Route: Oral
 Fertility: 3,125 mg/kg body weight
 GLP: yes

Diphenylmethane-2,4'- diisocyanate:

Species: Rat, female
 Application Route: Inhalation
 Method: OECD Test Guideline 414
 Result: Animal testing did not show any effects on fertility.

Species: Rat, male and female
 Application Route: Inhalation
 Method: OECD Test Guideline 414
 Result: Animal testing did not show any effects on fertility.

Components:

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Effects on foetal development : Species: Rat, male and female
 Application Route: Inhalation

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Method: OECD Test Guideline 414
Result: No teratogenic effects

4,4'-methylenediphenyl diisocyanate:

Species: Rat, female
Application Route: Inhalation
General Toxicity Maternal: No observed adverse effect level: 4 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects

alkanes, C14-17, chloro:

Species: Rabbit
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 100 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects
GLP: yes

Species: Rat
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 500 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects
GLP: yes

Diphenylmethane-2,4'- diisocyanate:

Species: Rat, male and female
Application Route: Inhalation
General Toxicity Maternal: No observed adverse effect level: 4 mg/m³
Method: OECD Test Guideline 414
Result: No teratogenic effects

Components:

alkanes, C14-17, chloro:

Reproductive toxicity - Assessment : Effects on or via lactation

Paraffin waxes and Hydrocarbon waxes, chloro:

Reproductive toxicity - Assessment : Effects on or via lactation

STOT - single exposure**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Exposure routes: inhalation (dust/mist/fume)

Target Organs: Respiratory Tract

Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

4,4'-methylenediphenyl diisocyanate:

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Exposure routes: Inhalation
Target Organs: Respiratory Tract
Assessment: May cause respiratory irritation.

Diphenylmethane-2,4'- diisocyanate:
Exposure routes: Inhalation
Target Organs: Respiratory system
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

STOT - repeated exposure

No data available

Repeated dose toxicity**Components:**

Poly[oxy(methyl-1,2-ethanediy)], .alpha.-hydro-.omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Species: Rat, male and female

: 0.2 mg/m³

Exposure time: 2 yr

Number of exposures: 5 d

Method: OECD Test Guideline 453

4,4'-methylenediphenyl diisocyanate:

Species: Rat, male and female

: 0.2 mg/m³

Exposure time: 2 yr

Number of exposures: 5 d

Method: OECD Test Guideline 453

alkanes, C14-17, chloro:

Species: Rat, male and female

NOAEL: 23 - 24.6 mg/kg/d

Application Route: Ingestion

Exposure time: 13 Weeks

Number of exposures: 7 d

Method: Subchronic toxicity

Species: Rat, male and female

NOAEL: 100 mg/kg/d

Application Route: Ingestion

Exposure time: 13 Weeks

Number of exposures: 7 d

Method: Subchronic toxicity

Diphenylmethane-2,4'- diisocyanate:

Species: Rat, male and female

: 0.2 mg/m³

Exposure time: 2 yr

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Number of exposures: 5 d
Method: OECD Test Guideline 453

Components:

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Repeated dose toxicity - Assessment : Mild eye irritation

Diphenylmethane-2,4'- diisocyanate:

Repeated dose toxicity - Assessment : Mild eye irritation

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion: No data available

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203

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4,4'-methylenediphenyl diisocyanate:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203

alkanes, C14-17, chloro:

Toxicity to fish : LC50 (Fish): > 5,000 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: brackish water
Method: OECD Test Guideline 203

Diphenylmethane-2,4'- diisocyanate:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 1,000 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Paraffin waxes and Hydrocarbon waxes, chloro:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 300 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

Components:

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

4,4'-methylenediphenyl diisocyanate:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

alkanes, C14-17, chloro:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.0059 - 0.0077 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

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Diphenylmethane-2,4'- diisocyanate:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Paraffin waxes and Hydrocarbon waxes, chloro:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.01 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water

Components:**alkanes, C14-17, chloro:**

Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): > 3.2 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Components:**alkanes, C14-17, chloro:**

M-Factor (Acute aquatic toxicity) : 100

Paraffin waxes and Hydrocarbon waxes, chloro:

M-Factor (Acute aquatic toxicity) : 100

Components:**alkanes, C14-17, chloro:**

Toxicity to fish (Chronic toxicity) : NOEC (Fish): > 125 ug/l
Exposure time: 14 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 204

NOEC (Oryzias latipes (Orange-red killifish)): 3400 ug/l
Exposure time: 20 d
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 212

NOEC (Oncorhynchus mykiss (rainbow trout)): 4.5 mg/l
Exposure time: 60 d
Test Type: flow-through test
Test substance: Fresh water
Method: OECD Test Guideline 204

Paraffin waxes and Hydrocarbon waxes, chloro:

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): > 4 mg/l
Exposure time: 60 d

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Components:

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): >= 10 mg/l
 Exposure time: 21 d
 Test Type: semi-static test
 Test substance: Fresh water
 Method: OECD Test Guideline 211

4,4'-methylenediphenyl diisocyanate:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): >= 10 mg/l
 Exposure time: 21 d
 Test Type: semi-static test
 Test substance: Fresh water
 Method: OECD Test Guideline 211

alkanes, C14-17, chloro:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.01 mg/l
 Exposure time: 21 d
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 202

Diphenylmethane-2,4'- diisocyanate:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): >= 10 mg/l
 Exposure time: 21 d
 Test Type: semi-static test
 Test substance: Fresh water
 Method: OECD Test Guideline 211

Paraffin waxes and Hydrocarbon waxes, chloro:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 4.2 mg/l
 Exposure time: 21 d
 Test Type: semi-static test
 Test substance: Fresh water

Components:

alkanes, C14-17, chloro:

M-Factor (Chronic aquatic toxicity) : 10

Components:

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l
 Exposure time: 3 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 209

Diphenylmethane-2,4'- diisocyanate:

Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l
 Exposure time: 3 h
 Test Type: static test

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Test substance: Fresh water
Method: OECD Test Guideline 209

Components:

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Toxicity to soil dwelling organisms : NOEC (Eisenia fetida (earthworms)): >= 1,000 mg/kg
Exposure time: 336 h
Method: OECD Test Guideline 207

4,4'-methylenediphenyl diisocyanate:

Toxicity to soil dwelling organisms : NOEC (Eisenia fetida (earthworms)): >= 1,000 mg/kg
Exposure time: 336 h
Method: OECD Test Guideline 207

alkanes, C14-17, chloro:

Toxicity to soil dwelling organisms : NOEC (Eisenia fetida (earthworms)): 900 mg/kg
Exposure time: 672 h
Test substance: Synthetic
Method: OECD Test Guideline 207

Diphenylmethane-2,4'- diisocyanate:

Toxicity to soil dwelling organisms : NOEC (Eisenia fetida (earthworms)): >= 1,000 mg/kg
Exposure time: 336 h
Method: OECD Test Guideline 207

Components:

alkanes, C14-17, chloro:

Plant toxicity : NOEC: 5,000 mg/l
Exposure time: 672 h
Test substance: Synthetic
Method: Terrestrial Plants Test: Seedling Emergence and Seedling Growth Test

Components:

alkanes, C14-17, chloro:

Sediment toxicity : (Chironomus riparius (Midge larvae)): 3800 mg/kg sediment dw
Study: Chronic
Test Type: static test
Water: Fresh water
Sediment: Synthetic
Exposure duration: 28 d
Test substance: Synthetic
Method: Sediment-Water Chironomid Toxicity Test Using Spiked Sediment

(Gammarus pulex (Amphipod)): 270 mg/kg sediment dw
Study: Chronic
Test Type: static test
Water: Fresh water
Sediment: Synthetic
Exposure duration: 28 d
Test substance: Synthetic

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Method: Sediment-Water Chironomid Toxicity Test Using Spiked Sediment

(Eisenia fetida (earthworms)): 130 mg/kg sediment dw
Study: Chronic
Test Type: static test
Water: Fresh water
Sediment: Synthetic
Exposure duration: 28 d
Test substance: Synthetic
Method: Sediment-Water Chironomid Toxicity Test Using Spiked Sediment

Components:

alkanes, C14-17, chloro:
Toxicity to terrestrial organisms : NOEC: 400 mg/kg
Exposure time: 672 h
Method: Soil Microorganisms: Nitrogen Transformation Test

Ecotoxicology Assessment

Components:

Paraffin waxes and Hydrocarbon waxes, chloro:
Acute aquatic toxicity : Very toxic to aquatic life.

Components:

Paraffin waxes and Hydrocarbon waxes, chloro:
Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Further information:
No data available

Persistence and degradability**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:
Biodegradability : Inoculum: Domestic sewage
Concentration: 30 mg/l
Result: Not biodegradable
Biodegradation: 0 %
Exposure time: 28 d
Method: Inherent Biodegradability: Modified MITI Test (II)

4,4'-methylenediphenyl diisocyanate:
Biodegradability : Inoculum: Domestic sewage
Concentration: 30 mg/l
Result: Not biodegradable

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Biodegradation: 0 %
 Exposure time: 28 d
 Method: Inherent Biodegradability: Modified MITI Test (II)

alkanes, C14-17, chloro:
 Biodegradability

: Inoculum: Domestic sewage
 Concentration: 2 mg/l
 Result: Not readily biodegradable.
 Biodegradation: 5 %
 Exposure time: 28 d
 Method: OECD Test Guideline 301D

Diphenylmethane-2,4'- diisocyanate:

Biodegradability : Inoculum: Domestic sewage
 Concentration: 30 mg/l
 Result: Not biodegradable
 Biodegradation: 0 %
 Exposure time: 28 d
 Method: Inherent Biodegradability: Modified MITI Test (II)

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

Physico-chemical removability : No data available

Components:

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Stability in water : Method: No information available.
 GLP: No information available.
 Remarks: see user defined free text

4,4'-methylenediphenyl diisocyanate:

Stability in water : Degradation half life(DT50): 20 hrs (25 °C)
 Method: No information available.
 Remarks: Fresh water

Photodegradation : No data available

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Impact on Sewage Treatment : No data available

Bioaccumulative potential**Components:**

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 200
Remarks: Bioaccumulation is unlikely.

4,4'-methylenediphenyl diisocyanate:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 200
Remarks: Bioaccumulation is unlikely.

alkanes, C14-17, chloro:

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
Bioconcentration factor (BCF): 3,230 - 4,440
Exposure time: 32 d
Test substance: Fresh water
Method: flow-through test

Species: Oncorhynchus mykiss (rainbow trout)
Bioconcentration factor (BCF): 265 - 1,087
Exposure time: 35 d
Test substance: Fresh water
Method: flow-through test

Exposure time: 21 d
Test substance: Fresh water
Method: flow-through test

Diphenylmethane-2,4'- diisocyanate:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 200
Remarks: Bioaccumulation is unlikely.

Components:

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-hydroxy-, polymer with 1,1'-methylenebis[isocyanatobenzene]:

Partition coefficient: n-octanol/water : log Pow: 4.51 (20 °C)
pH: 7
Method: OECD Test Guideline 117
GLP: no

4,4'-methylenediphenyl diisocyanate:

Partition coefficient: n-octanol/water : log Pow: 4.51 (20 °C)
pH: 7
Method: OECD Test Guideline 117

alkanes, C14-17, chloro:

Partition coefficient: n-octanol/water : log Pow: 5.52 - 8.21

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log Pow: 7.2 - 7.4

log Pow: 5.47 - 8.01

Diphenylmethane-2,4'- diisocyanate:

Partition coefficient: n-octanol/water : log Pow: 4.51 (20 °C)
 pH: 7
 Method: OECD Test Guideline 117

Mobility in soil

Mobility : No data available

Components:

alkanes, C14-17, chloro:
 Distribution among environmental compartments : Koc: ca. 588844 Method: QSAR
 Stability in soil : No data available

Other adverse effects

Environmental fate and pathways : No data available

Results of PBT and vPvB assessment : No data available

Endocrine disrupting potential : No data available

Adsorbed organic bound halogens (AOX) : No data available

Hazardous to the ozone layer

Ozone-Depletion Potential : Not applicable

Additional ecological information : No data available

Global warming potential (GWP) : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Do not dispose of waste into sewer.
 Do not contaminate ponds, waterways or ditches with chemical or used container.
 Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.

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Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA**

UN/ID No.	: UN 3082
Proper shipping name	: Environmentally hazardous substance, liquid, n.o.s. (CHLORINATED PARAFFINS (C14-17))
Class	: 9
Packing group	: III
Labels	: Miscellaneous
Packing instruction (cargo aircraft)	: 964
Packing instruction (passenger aircraft)	: 964

IMDG

UN number	: UN 3082
Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CHLORINATED PARAFFINS (C14-17))
Class	: 9
Packing group	: III
Labels	: 9
EmS Code	: F-A, S-F
Marine pollutant	: yes

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

Not applicable for product as supplied.

National Regulations**NOM-002-SCT**

UN number	: UN 3082
Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CHLORINATED PARAFFINS (C14-17))
Class	: 9
Packing group	: III
Labels	: 9

Special precautions for user

Not applicable

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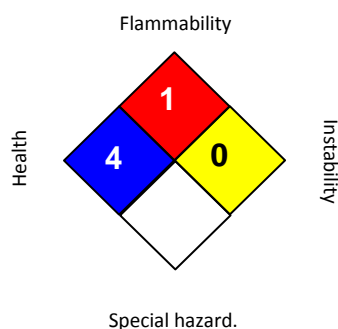
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SECTION 15. REGULATORY INFORMATION**The components of this product are reported in the following inventories:**

CH INV	:	The formulation contains substances listed on the Swiss Inventory, On the inventory, or in compliance with the inventory
TSCA	:	On the inventory, or in compliance with the inventory
DSL	:	All components of this product are on the Canadian DSL
AICS	:	On the inventory, or in compliance with the inventory
NZIoC	:	Not in compliance with the inventory
ENCS	:	Not in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	Not in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

SECTION 16. OTHER INFORMATION**Further information****NFPA:****HMIS® IV:**

HEALTH	*	4
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks.

Liquid decontaminants (percentages by weight or volume) :

Decontaminant 1 : *- sodium carbonate : 5 - 10 % *- liquid detergent : 0.2 - 2 % *- water : to make up to 100 %

Decontaminant 2 : *- concentrated ammonia solution : 3 - 8 % *- liquid detergent : 0.2 - 2 % *- water : to make up to 100 %

Decontaminant 1 reacts slower with diisocyanates but is more environmentally friendly than decontaminant 2.

Decontaminant 2 contains ammonia. Ammonia presents health hazards. (See supplier safety information.)

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THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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