

SUPRASEC® 3812

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			Date of first issue: 2017/02/23

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : SUPRASEC® 3812

Recommended use of the chemical and restrictions on use

Recommended use : Component of a Polyurethane System.

Manufacturer or supplier's details

Company : Huntsman Holland BV
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3197
Netherlands

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2. HAZARDS IDENTIFICATION**GHS Classification**

Acute toxicity (Inhalation) : Category 4

Skin corrosion/irritation : Category 2

Serious eye damage/eye irritation : Category 2

Respiratory sensitisation : Category 1

Skin sensitisation : Category 1

Specific target organ toxicity - : Category 3 (Respiratory system)

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single exposure

Specific target organ toxicity - repeated exposure : Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements : **Prevention:**
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash the contact area thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/ eye protection/ face protection.
P284 Wear respiratory protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and 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.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P362 + P364 Take off contaminated clothing and wash it before reuse.
Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
Disposal:
P501 Dispose of contents and container according to wastes control act.

Other hazards which do not result in classification

None known.

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3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
4,4'-methylenediphenyl diisocyanate	101-68-8	>= 60 - < 70
Diphenylmethanediisocyanate	9016-87-9	>= 10 - < 20
Homopolymer of methylenediphenyl diisocyanate	25686-28-6	>= 10 - < 20
1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol	123714-19-2	>= 5 - < 10
Diphenylmethane-2,4'- diisocyanate	5873-54-1	>= 1 - < 5

4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Do not leave the victim unattended.
Get medical attention immediately if symptoms occur.
Show this safety data sheet to the doctor in attendance.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- 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-Tam™, PEG-400) or corn oil may be more effective than soap and water.
- 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

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	diisocyanates may develop in sensitised persons. The exposed person may need to be kept under medical surveillance for 48 hours. LC50 (rat) : ca. 490 mg/m³ (4 hours) : using experimentally produced respirable aerosol having aerodynamic diameter <5microns.
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. Keep respiratory tract clear. Keep at rest. 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	: Severe allergic skin reactions, bronchospasm and anaphylactic shock This product is a respiratory irritant and potential respiratory sensitizer: repeated inhalation of vapour or aerosol at levels above the occupational exposure limit could cause respiratory sensitisation. Symptoms may include irritation to the eyes, nose, throat and lungs, possibly combined with dryness of the throat, tightness of chest and difficulty in breathing. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitised persons.
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.

5. FIREFIGHTING MEASURES**Suitable and unsuitable extinguishing media**

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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	Foam Carbon dioxide (CO ₂) Dry powder
Unsuitable extinguishing media	: Water may be used if no other available and then in copious quantities. Reaction between water and hot isocyanate may be vigorous.
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 methods	: Cool containers/tanks with water spray. Standard procedure for chemical fires. Due to reaction with water producing CO ₂ -gas, a hazardous build-up of pressure could result if contaminated containers are re-sealed. 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.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Immediately evacuate personnel to safe areas. Use personal protective equipment. If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Only qualified personnel equipped with suitable protective equipment may intervene. For additional precautions and advice on safe handling, see section 7. Never return spills in original containers for re-use. 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. Treat recovered material as described in the section "Disposal considerations".
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For disposal considerations see section 13.

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
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.
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.

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 or spray mist.
Do not breathe vapours/dust.
Do not swallow.
Do not get in eyes or mouth or on skin.
Do not get on skin or clothing.

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Avoid exposure - obtain special instructions before use.
Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms.
Keep container closed when not in use.
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.

Conditions for safe storage : Keep containers tightly closed in a dry, cool and well-ventilated place.
Keep in properly labelled containers.
Observe label precautions.
Protect from moisture.
Electrical installations / working materials must comply with the technological safety standards.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Materials to avoid : Acids
Amines
Bases
Metals
water

Recommended storage temperature : 20 - 30 °C

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

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
4,4'-methylenediphenyl diisocyanate	101-68-8	TWA	0.005 ppm	ACGIH

Other ingredients, which are listed in section 3 but not listed in this section, do not have established occupational exposure limit values.

Engineering measures : Maintain air concentrations below occupational exposure standards.

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.

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- 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.
- Hand protection : The suitability for a specific workplace should be discussed with the producers of the 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.
- Remarks : 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 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.
- Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Recommended:
Overall (preferably heavy cotton) or Tyvek-Pro Tech 'C' , Tyvek Pro 'F' disposable coverall.

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| 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. |
| 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, drink or smoke.
Contaminated work clothing should not be allowed out of the workplace.
Wash hands before breaks and immediately after handling the product.
Wash hands before breaks and at the end of workday. |

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. |
| Boiling point | No data is available on the product itself. |
| Flash point | : 210 °C
Method: Cleveland open cup, open cup |
| Evaporation rate | : No data is available on the product itself. |
| Flammability (solid, gas) | : No data is available on the product itself. |
| Flammability (liquids) | : No data is available on the product itself. |
| Upper/Lower explosion limit | |
| 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. |

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Solubility(ies)	
Water solubility	: No data is available on the product itself.
Solubility in other solvents	: No data is available on the product itself.
Relative vapour density	: No data is available on the product itself.
Relative density	: No data is available on the product itself.
Density	: 1.18 g/cm ³ (25 °C)
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	: 100 - 200 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.

10. STABILITY AND REACTIVITY

Chemical stability and possibility of hazardous reactions	: No dangerous reaction known under conditions of normal use. Stable under normal conditions. Reaction with water (moisture) produces CO ₂ -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.
Conditions to avoid	: Extremes of temperature and direct sunlight. Exposure to air or moisture over prolonged periods.
Incompatible materials	: Acids Amines Bases Metals

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water

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.

11. TOXICOLOGICAL INFORMATION

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

Acute toxicity**Components:**

4,4'-methylenediphenyl diisocyanate:

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

Diphenylmethanediisocyanate:

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

Homopolymer of methylenediphenyl diisocyanate:

Acute oral : LD50 (Rat, female): > 5,000 mg/kg
toxicityComponents Method: OECD Test Guideline 425

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

Acute oral : LD50 (Rat, female): > 5,000 mg/kg
toxicityComponents Method: OECD Test Guideline 425

Acute inhalation toxicity - Product : Acute toxicity estimate: 1.39 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:

4,4'-methylenediphenyl diisocyanate:

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

Diphenylmethanediisocyanate:

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

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1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

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

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:**

4,4'-methylenediphenyl diisocyanate:

Species: Rabbit

Method: OECD Test Guideline 404

Result: Irritating to skin.

Diphenylmethanediisocyanate:

Species: Rabbit

Assessment: Irritating to skin.

Method: OECD Test Guideline 404

Result: Skin irritation

Homopolymer of methylenediphenyl diisocyanate:

Species: Rabbit

Method: OECD Test Guideline 404

Result: Irritating to skin.

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

Species: Rabbit

Method: OECD Test Guideline 404

Result: Skin irritation

Diphenylmethane-2,4'- diisocyanate:

Species: Rabbit

Assessment: Irritant

Method: OECD Test Guideline 404

Result: Irritating to skin.

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

4,4'-methylenediphenyl diisocyanate:

Species: Rabbit

Result: Mild eye irritation

Diphenylmethanediisocyanate:

Species: Rabbit

Result: Irritation to eyes, reversing within 7 days

Assessment: Mild eye irritant

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Method: OECD Test Guideline 405

Homopolymer of methylenediphenyl diisocyanate:

Species: Rabbit

Result: Mild eye irritation

Method: OECD Test Guideline 405

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

Species: Rabbit

Result: Mild eye irritation

Method: OECD Test Guideline 405

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

Respiratory or skin sensitisation**Components:**

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.

Diphenylmethanediisocyanate:

Exposure routes: Skin

Species: Guinea pig

Method: OECD Test Guideline 406

Result: May cause sensitisation by skin contact.

Exposure routes: Respiratory Tract

Species: Rat

Result: May cause sensitisation by inhalation.

Homopolymer of methylenediphenyl diisocyanate:

Exposure routes: Skin

Species: Guinea pig

Method: OECD Test Guideline 406

Result: May cause sensitisation by skin contact.

Exposure routes: Respiratory Tract

Species: Guinea pig

Result: May cause sensitisation by inhalation.

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

Exposure routes: Respiratory Tract

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Species: Guinea pig
Result: May cause sensitisation by inhalation.

Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: May cause sensitisation by skin contact.

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:

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

Diphenylmethanediisocyanate:
Assessment: May cause an allergic skin reaction., May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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

Germ cell mutagenicity**Components:**

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

Diphenylmethanediisocyanate:
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

Homopolymer of methylenediphenyl diisocyanate:
Genotoxicity in vitro : Concentration: ca 50 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:
Genotoxicity in vitro : Concentration: ca 5000 ug/plate
Metabolic activation: with and without metabolic activation

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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

Components:

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

Diphenylmethanediisocyanate:

Genotoxicity in vivo : Application Route: Inhalation

Result: Not classified due to inconclusive data.

Application Route: Inhalation

Exposure time: 3 Weeks

Dose: 113 mg/m3

Method: OECD Test Guideline 474

Result: negative

Homopolymer of methylenediphenyl diisocyanate:

Genotoxicity in vivo : Application Route: Inhalation

Exposure time: 3 Weeks

Dose: 118 mg/m3

Method: OECD Test Guideline 474

Result: negative

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

Genotoxicity in vivo : Application Route: Inhalation

Exposure time: 3 Weeks

Dose: 118 mg/m3

Method: OECD Test Guideline 474

Result: negative

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

Components:

Diphenylmethanediisocyanate:

Germ cell mutagenicity- : Tests on bacterial or mammalian cell cultures did not show
Assessment mutagenic effects.

Germ cell mutagenicity- : No data available

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Assessment

Carcinogenicity**Components:**

4,4'-methylenediphenyl 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

Diphenylmethanediisocyanate:

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

Homopolymer of methylenediphenyl 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: negative

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

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: negative

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 - : No data available
Assessment

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Reproductive toxicity**Components:**

Diphenylmethanediisocyanate:

Effects on fertility

: Species: Rat, male and female
Application Route: Inhalation
Method: OECD Test Guideline 414
Remarks: No significant adverse effects were reported

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:

4,4'-methylenediphenyl diisocyanate:

Effects on foetal
development

: 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

Diphenylmethanediisocyanate:

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

Homopolymer of methylenediphenyl diisocyanate:

Species: Rat, male and female
Application Route: Inhalation
Method: OECD Test Guideline 414
Result: No teratogenic effects

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

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

Diphenylmethane-2,4'- diisocyanate:

Species: Rat, male and female
Application Route: Inhalation
General Toxicity Maternal: No observed adverse effect level: 4 mg/m³

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Method: OECD Test Guideline 414

Result: No teratogenic effects

Components:

Diphenylmethanediisocyanate:

Reproductive toxicity -

Assessment

: No toxicity to reproduction

No evidence of adverse effects on sexual function and fertility,
or on development, based on animal experiments.**STOT - single exposure****Components:**

4,4'-methylenediphenyl diisocyanate:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

Diphenylmethanediisocyanate:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

Homopolymer of methylenediphenyl diisocyanate:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

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

4,4'-methylenediphenyl diisocyanate:

Species: Rat, male and female

: 0.2 mg/m3

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Exposure time: 2 yr
Number of exposures: 5 d
Method: OECD Test Guideline 453

Diphenylmethanediisocyanate:
Species: Rat, male and female
: 0.2 mg/m³
Test atmosphere: dust/mist
Exposure time: 2 yr
Number of exposures: 5 d
Method: OECD Test Guideline 453

Homopolymer of methylenediphenyl diisocyanate:
Species: Rat, male and female
: 0.2 mg/m³
Test atmosphere: dust/mist
Exposure time: 2 yr
Number of exposures: 5 d
Method: OECD Test Guideline 453

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:
Species: Rat, male and female
: 0.2 mg/m³
Test atmosphere: dust/mist
Exposure time: 2 yr
Number of exposures: 5 d
Method: OECD Test Guideline 453

Species: Rat, male and female
: 1 mg/m³
Test atmosphere: dust/mist
Exposure time: 2,160 h
Number of exposures: 5 d
Method: OECD Test Guideline 413

Diphenylmethane-2,4'- diisocyanate:
Species: Rat, male and female
: 0.2 mg/m³
Exposure time: 2 yr
Number of exposures: 5 d
Method: OECD Test Guideline 453

Components:

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

Aspiration toxicity

No data available

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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

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

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

Diphenylmethanediisocyanate:

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

LC0: > 1,000 mg/l
Exposure time: 96 h

Homopolymer of methylenediphenyl diisocyanate:

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

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Method: OECD Test Guideline 203

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

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

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

Components:

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

Diphenylmethanediisocyanate:

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

Homopolymer of 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

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

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

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

Components:

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Diphenylmethanediisocyanate:

Toxicity to algae : EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 1,640 mg/l
 Exposure time: 72 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 201

Homopolymer of methylenediphenyl diisocyanate:

Toxicity to algae : EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 1,640 mg/l
 Exposure time: 72 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 201

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

Toxicity to algae : EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 1,640 mg/l
 Exposure time: 72 h
 Test Type: static test
 Test substance: Fresh water
 Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : No data available

Toxicity to fish (Chronic toxicity) : No data available

Components:**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

Diphenylmethanediisocyanate:

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

Homopolymer of methylenediphenyl diisocyanate:

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

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

Toxicity to daphnia and other : NOEC (Brachydanio rerio (zebrafish)): >= 10 mg/l

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aquatic invertebrates
(Chronic toxicity)

Exposure time: 21 d
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 211

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

M-Factor (Chronic aquatic toxicity) : No data available

Components:**Diphenylmethanediisocyanate:**

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

Homopolymer of methylenediphenyl diisocyanate:

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

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

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
Test substance: Fresh water
Method: OECD Test Guideline 209

Components:**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

Diphenylmethanediisocyanate:

Toxicity to soil dwelling organisms : EC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg

Exposure time: 336 h
Method: OECD Test Guideline 207

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Homopolymer of methylenediphenyl diisocyanate:

Toxicity to soil dwelling organisms : EC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg
Exposure time: 336 h
Method: OECD Test Guideline 207

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

Toxicity to soil dwelling organisms : EC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg
Exposure time: 336 h
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

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment

Acute aquatic toxicity : No data available

Chronic aquatic toxicity : No data available

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Persistence and degradability**Components:**

4,4'-methylenediphenyl 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)

Diphenylmethanediisocyanate:

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

Homopolymer of methylenediphenyl diisocyanate:

Biodegradability : Inoculum: Domestic sewage

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

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

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

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:

4,4'-methylenediphenyl diisocyanate:

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

Diphenylmethanediisocyanate:

Stability in water : Degradation half life(DT50): 0.8 d (25 °C)
 Method: No information available.
 Remarks: Fresh water

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Homopolymer of methylenediphenyl diisocyanate:

Stability in water : Method: No information available.

Photodegradation : No data available

Impact on Sewage Treatment : No data available

Bioaccumulative potential**Components:**

4,4'-methylenediphenyl diisocyanate:

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

Diphenylmethanediisocyanate:

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

Homopolymer of methylenediphenyl diisocyanate:

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

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

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

Diphenylmethane-2,4'- diisocyanate:

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

Components:

4,4'-methylenediphenyl diisocyanate:

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

Homopolymer of methylenediphenyl diisocyanate:

Partition coefficient: n-octanol/water : log Pow: 8.56 (20 °C)

1,3-Butanediol, polymer with 1,1'-methylenebis[isocyanatobenzene], [(1-methyl-1,2-ethanediyl)bis(oxy)]bis[propanol] and 1,2-propanediol:

Partition coefficient: n-octanol/water : log Pow: 15.98 (20 °C)
GLP: no

Diphenylmethane-2,4'- diisocyanate:

Partition coefficient: n-octanol/water : log Pow: 4.51 (20 °C)
pH: 7

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Method: OECD Test Guideline 117

Mobility in soil

Mobility : No data available

Distribution among
environmental compartments : No data available

Stability in soil : No data available

Other adverse effectsEnvironmental fate and
pathways : No data availableResults of PBT and vPvB
assessment : No data availableEndocrine disrupting
potential : No data availableAdsorbed organic bound
halogens (AOX) : No data available**Hazardous to the ozone layer**

Ozone-Depletion Potential Not applicable

Additional ecological
information : No data availableGlobal warming potential
(GWP) : No data available**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.
Dispose of as unused product.
Do not re-use empty containers.**Disposal precautions**

Dispose of contents and container according to wastes control act.

14. TRANSPORT INFORMATION

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International Regulations**IATA**

Not regulated as dangerous goods

IMDG

Not regulated as dangerous goods

UN number	: Not applicable
Proper shipping name	: Not applicable
Class	: Not applicable
Subsidiary risk	: Not applicable
Packing group	: Not applicable
Labels	: Not applicable
EmS Code	: Not applicable
Marine pollutant	: Not applicable

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

Not applicable for product as supplied.

National Regulations

Refer to section 15 for specific national regulation.

Special precautions for user

Not applicable

15. REGULATORY INFORMATION**National regulatory information****Regulation under the Occupational Safety and Health Act****Harmful Substances Prohibited from Manufacturing**

Not applicable

Harmful Materials Requiring Permission

Not applicable

Harmful Agents Required to be kept below Permission Levels

Not applicable

Hazardous substances requiring management

Chemical name	CAS-No.	Threshold limits (%)
4,4'-Methylenediphenyl diisocyanate	101-68-8	>= 1 Vol-%
4,4'-Methylenediphenyl diisocyanate	9016-87-9	>= 1 Vol-%
4,4'-Methylenediphenyl diisocyanate	5873-54-1	>= 1 Vol-%

Controlled Substances Subject to Environment Monitoring

Chemical name	CAS-No.	Threshold limits (%)
Methylenediphenyl diisocyanate	101-68-8	>= 1 %

Controlled Substances Subject to Health Examination

Chemical name	CAS-No.	Threshold limits (%)
Methylene bisphenyl isocyanate	101-68-8	>= 1 %

Regulation under the Chemical Control Act**Toxic substance**

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Chemical name	CAS-No.	NIER No.	Threshold limits (%)
Diphenylmethane 4,4'-diisocyanate	101-68-8	97-1-423	>= 25 %

Restricted Substance

Not applicable

Prohibited Substance

Not applicable

Chemicals Subject to Investigation of Volume of Discharges

Chemical name	CAS-No.	Group	Threshold limits (%)
Diphenylmethane 4,4'-diisocyanate	101-68-8	Group II	>= 1 %

Substance requiring preparation for accidents

Not applicable

Regulation under the Safety Control of Dangerous Substance Act

Classification : Group 4, Flammable liquids, Type 4 petroleum

Hazard rank : Hazardous rank III

Designated Quantity : 6000 litre

Safety Warning : Keep away from fire

Regulation under the Wastes Control Act

Industrial waste

Follow article 13 of the act to dispose the product waste

Other requirements in domestic and other countries**The components of this product are reported in the following inventories:**

CH INV	: The formulation contains substances listed on the Swiss 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	: On the inventory, or 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
TSCA	: 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)

16. OTHER INFORMATION**Further information**

Sources of key data used to compile the Safety Data Sheet : Information taken from reference works and the literature., PU 193-1 : 'MDI-Based Compositions : Hazards and Safe Handling Procedures.'

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PU 181-15 : Recommended melting procedures for MDI-based isocyanates.
ISOPA Guidelines for safe Loading/Unloading, Transportation, Storage of TDI and MDI , Ref.03-96 PSC-0005-GUIDL.
SPI PMDI User Guidelines for the Chemical Protective Clothing Selection.

Issuing date : 2017/02/23

Revision number and date

Number of Revision : 2.0
Revision Date : 2017/03/09
Other information : 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.)

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

Date format : yyyy/mm/dd

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