

## SAFETY DATA SHEET

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1. PRODUCT IDENTIFIER

Product name

**MITOPUR E20**



chemius.net/hLn6e

#### 1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Relevant identified uses

One-component adhesive / primer / sealant for industrial, professional and consumer end-use.

Uses advised against

No information.

#### 1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Manufacturer

MITOL, tovarna lepil, d.o.o., Sežana  
Address: Partizanska c. 78 Sežana, Slovenia  
Phone: +386 5 73 12 300  
Fax: +386 5 73 12 390  
E-mail: lilijana.kocjan@mitol.si  
Point of contact for safety info: Lilijana Kocjan Žorž

#### 1.4. EMERGENCY TELEPHONE NUMBER

112

+386 5 73 12 300 (8:00-16:00)

### SECTION 2. HAZARDS IDENTIFICATION

#### 2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

Classification according to Regulation (EC) No 1272/2008 (CLP)

Skin Irrit. 2; H315 Causes skin irritation.  
Skin Sens. 1; H317 May cause an allergic skin reaction.  
Eye Irrit. 2; H319 Causes serious eye irritation.  
Acute Tox. 4; H332 Harmful if inhaled.  
Resp. Sens. 1; H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
STOT SE 3; H335 May cause respiratory irritation.  
Carc. 2; H351 Suspected of causing cancer.  
STOT RE 2; H373 May cause damage to organs through prolonged or repeated inhalation.

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### 2.2 LABEL ELEMENTS

#### 2.2.1. Labelling according to Regulation (EC) No 1272/2008 [CLP]



Signal word: **Danger**

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.

H351 Suspected of causing cancer.

H373 May cause damage to organs through prolonged or repeated inhalation.

P102 Keep out of reach of children.

P260 Do not breathe vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P284 In case of inadequate ventilation wear respiratory protection.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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 + P311 IF exposed or concerned: Call a POISON CENTER/doctor.

P501 Dispose of contents/container in accordance with national regulation.

#### 2.2.2. Contains:

isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)) polymeric MDI

'4,4'-methylenediphenyl diisocyanate

reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate

#### 2.2.3. Special provisions

MDI notice

Persons already sensitised to diisocyanates may develop allergic reactions when using this product. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used.

As from 24 August 2023 adequate training is required before industrial or professional use.

### 2.3. OTHER HAZARDS

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Persons who have problems with sensitivity of the airways (asthma, chronic bronchitis), should avoid contact with the product.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. SUBSTANCES

For mixtures see 3.2.

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### 3.2. MIXTURES

Name	CAS EC Index	%	Classification according to Regulation (EC) No 1272/2008 (CLP)	Specific Conc. Limits	REACH Registration No.
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.- hydroxypoly(oxy(methyl-1,2-ethanediyl))	53862-89-8 - -	50-<70	Skin Irrit. 2; H315 Skin Sens. 1; H317 Eye Irrit. 2; H319 Acute Tox. 4; H332 Resp. Sens. 1; H334 STOT SE 3; H335 Carc. 2; H351 STOT RE 2; H373		-
polymeric MDI	9016-87-9 - -	30-<50	Skin Irrit. 2; H315 Skin Sens. 1; H317 Eye Irrit. 2; H319 Acute Tox. 4; H332 Resp. Sens. 1; H334 STOT SE 3; H335 Carc. 2; H351 STOT RE 2; H373		-
'4,4'-methylenediphenyl diisocyanate [C]	101-68-8 202-966-0 615-005-00-9	5-<10	Skin Irrit. 2; H315 Skin Sens. 1; H317 Eye Irrit. 2; H319 Acute Tox. 4; H332 Resp. Sens. 1; H334 STOT SE 3; H335 Carc. 2; H351 STOT RE 2; H373	Skin Irrit. 2; H315: C ≥ 5 % Eye Irrit. 2; H319: C ≥ 5 % Resp. Sens. 1; H334: C ≥ 0,1 % STOT SE 3; H335: C ≥ 5 %	01-2119457014-47
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate	- - -	1-<5	Skin Irrit. 2; H315 Skin Sens. 1; H317 Eye Irrit. 2; H319 Acute Tox. 4; H332 Resp. Sens. 1; H334 STOT SE 3; H335 Carc. 2; H351 STOT RE 2; H373		01-2119457015-45
bis(isopropyl)naphthalene	38640-62-9 254-052-6 -	<0,25	Asp. Tox. 1; H304 Aquatic Chronic 1; H410		01-2119565150-48

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## Notes for substances:

- C** Some organic substances may be marketed either in a specific isomeric form or as a mixture of several isomers.  
In this case the supplier must state on the label whether the substance is a specific isomer or a mixture of isomers.

## SECTION 4. FIRST AID MEASURES

### 4.1. DESCRIPTION OF FIRST AID MEASURES

#### General notes

Never give anything by mouth to an unconscious person. Place patient in recovery position and ensure airway patency. Symptoms of poisoning may even occur after several hours; therefore medical observation is required at least 48 hours after the event. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). 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. Person who provides first aid should wear protective gear. See section 8.

#### Following inhalation

Remove patient to fresh air - move out of dangerous area. If victim is not breathing give artificial respiration. In case of difficulty breathing, give oxygen to the victim. In case of irritation or asthma-like symptoms seek medical advice. If symptoms develop and persist, seek medical attention. The exposed person may need to be kept under medical surveillance for 48 hours.

#### Following skin contact

Immediately remove contaminated clothing. Wash affected skin areas thoroughly with plenty of water and soap. Rinse with a polyglycol-based skin cleanser or corn oil. Wash contaminated clothes and shoes before reuse. If symptoms develop and persist, seek medical attention.

#### Following eye contact

Immediately flush eyes with running water, keeping eyelids apart. After 5 minutes of rinsing, remove contact lenses, if present, and continue rinsing. Protect the undamaged eye. If irritation persists, seek professional medical attention.

#### Following ingestion

Rinse mouth thoroughly with water. Do not induce vomiting without prior consultation with a doctor. Never give anything by mouth to an unconscious person. Maintain an open airway. If the affected person is lying on his back, put him into a stable side position in the case of spontaneous vomiting. Immediately consult a doctor. Show the physician the safety data sheet or label.

### 4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

#### Inhalation

Harmful.  
Coughing, sneezing, nasal discharge, labored breathing.  
Intoxication, vertigo, headache, nausea.  
May cause allergy or asthma symptoms or breathing difficulties if inhaled  
Inhalation intoxication has a variety of allergic effects, such as allergic rhinitis, asthma-like obstructive bronchitis, pneumonitis, and, in the most severe cases, anaphylactic shock.  
The symptoms may be delayed and can subsequently occur several hours after the exposure.

#### Skin contact

Irritating to the skin.  
Itching, redness, pain.  
May cause sensitisation by skin contact (symptoms: itching, redness, rashes).

#### Eye contact

Causes severe eye irritation.  
Redness, tearing, pain.

#### Ingestion

Irritates mucous membranes in the mouth, throat, esophagus and in gastrointestinal area.  
May cause nausea/vomiting and diarrhea.  
May cause abdominal discomfort.

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### 4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Symptoms of poisoning may appear several hours later. Keep under medical supervision for at least 48 hours.

## SECTION 5. FIREFIGHTING MEASURES

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### 5.1. EXTINGUISHING MEDIA

#### Suitable extinguishing media

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

Foam.

Carbon dioxide (CO<sub>2</sub>).

Fire extinguishing powder.

#### Unsuitable extinguishing media

Full water jet. Water. The reaction between water and hot isocyanates may be dangerous.

### 5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

#### Hazardous combustion products

In case of heating harmful vapours/gases can be generated. In the event of fire the following can be generated: carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>).

Nitrogen oxides (NO<sub>x</sub>). Hydrocarbons.

Hydrogen cyanide (HCN). Under special combustion conditions (temperatures above 500 ° C), toxic gas can be produced: aniline.

### 5.3. ADVICE FOR FIREFIGHTERS

#### Protective actions

In case of fire or heating do not breathe fumes/vapours. Cool containers at risk with water spray. If possible remove containers from endangered area. The reaction with water produces CO<sub>2</sub>, which can cause a dangerous increase in pressure, if contaminated containers are closed again. Closed containers may explode if they are overheated. No action shall be taken involving any personal risk or without suitable training.

#### Special protective equipment for firefighters

Firefighters should wear appropriate protective clothing for firefighters (including helmets, protective boots and gloves) (EN 469) and self-contained breathing apparatus (SCBA) with a full face-piece (EN 137). Wear positive-pressure self-contained breathing apparatus (SCBA).

#### Additional information

Contaminated firefighting water must be disposed of in accordance with the regulations; do not allow to reach the sewage system. Contaminated firefighting water and fire residues must be disposed of in accordance with the local regulations.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

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### 6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

#### 6.1.1. For non-emergency personnel

##### **Protective equipment**

Use personal protective equipment (Section 8).

##### **Emergency procedures**

Ensure adequate ventilation. Remove all unauthorized persons upwind to a safe distance. Do not touch or walk through spilled material. Avoid contact with skin and eyes. Do not breathe vapour or mist. Prevent access to unprotected personnel. Prevent access to unauthorised personnel.

#### 6.1.2. For emergency responders

During intervention, use personal protective equipment (Section 8). No action shall be taken involving any personal risk or without suitable training.

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### 6.2. ENVIRONMENTAL PRECAUTIONS

Do not allow product to reach water/drains/sewage systems or permeable soil. If accidental large entry into water or ground occurs, inform responsible authorities.

### 6.3. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

#### 6.3.1. For containment

Stem the spill if this does not pose risks.

#### 6.3.2. For cleaning up

Cover contaminated surface with inert material (wet soil, sand), leave for about 30 minutes and collect in special containers and hand over to an authorised waste collector. After approx. one hour collect in a waste container, which should not be closed (CO<sub>2</sub> formation!). Keep wet in a safe ventilated area. Spillage area can be decontaminated with a solution for neutralization. The solution for decontamination (not flammable): 5% of sodium carbonate and 95% water. Rinse contaminated area with water! You can also use: yellow liquid soap (potassium soap with approx. 15% anionic surfactants): 20 ml + Water 700 ml + PEG 400: 350 ml.

#### 6.3.3. Other information

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### 6.4. REFERENCE TO OTHER SECTIONS

See also Sections 8 and 13.

## SECTION 7. HANDLING AND STORAGE

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### 7.1. PRECAUTIONS FOR SAFE HANDLING

#### 7.1.1. Protective measures

##### **Measures to prevent fire**

Ensure adequate ventilation. The usual measures for preventive fire protection.

##### **Measures to prevent aerosol and dust generation**

Use general or local exhaust ventilation to prevent inhaling vapours and aerosols. Avoid formation of aerosols.

##### **Measures to protect the environment**

Do not discharge into drains, surface water and soil. After use immediately close container tightly.

#### 7.1.2. Advice on general occupational hygiene

Persons with a history of skin sensitisation problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before using. Do not use until you understand all safety precautions. Use good personal hygiene practices – wash hands at breaks and when done working with material. Do not eat, drink or smoke while working. Avoid contact with skin, eyes and clothes. Product is not for eating – do not ingest! Do not breathe vapours/mist. Contaminated work clothing should not be allowed out of the workplace. Remove contaminated clothes and wash them before reuse. People with sensitive skin should not come into contact with the product. Before entering the dining room it is necessary to replace contaminated clothing. The product must be handled in accordance with good industrial hygiene practice.

### 7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

#### 7.2.1. Technical measures and storage conditions

Store in accordance with local regulations. Keep in cool and well ventilated area. Protect from open fire, heat and direct sunlight. Keep away from food, drink and animal feeding stuffs. Store in a closed and properly labeled containers away from strong oxidising agents. Keep away from moisture and water. Keep containers hermetically sealed. Electrical installations /working materials must comply with the technological safety standards. Keep away from acids and bases. Keep away from amines. Do not store together with metals.

#### 7.2.2. Packaging materials

Store only in original container.

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### 7.2.3. Requirements for storage rooms and vessels

Close opened containers after use. Put the containers upright to prevent from leaking. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10), food and drink. Keep the packaging tightly closed and sealed until use. Store locked up. Do not store in unlabelled containers. Use appropriate container to avoid environmental contamination.

### 7.2.4. Storage class

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### 7.2.5. Further information on storage conditions

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## 7.3. SPECIFIC END USE(S)

### **Recommendations**

See identified uses in Section 1.2. Follow the instructions / measures in the safety data sheet.

### **Industrial sector specific solutions**

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### 8.1. CONTROL PARAMETERS

#### 8.1.1. Occupational exposure limit values

No information.

#### 8.1.2. Information on monitoring procedures

BS EN 14042:2003 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. BS EN 482:2012+A1:2015 Workplace exposure. General requirements for the performance of procedures for the measurement of chemical agents. BS EN 689:2018 Workplace exposure. Measurement of exposure by inhalation to chemical agents. Strategy for testing compliance with occupational exposure limit values.

#### 8.1.3. DNEL/DMEL values

### **For components**

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Name	Type	Exposure route	Exposure frequency	Value	Remark
polymeric MDI (9016-87-9)	Worker	dermal	short term (systemic effects)	50 mg/kg bw/day	
polymeric MDI (9016-87-9)	Worker	inhalation	short term (systemic effects)	0,1 mg/m <sup>3</sup>	
polymeric MDI (9016-87-9)	Worker	dermal	short term (local effects)	27,8 mg/kg bw/day	
polymeric MDI (9016-87-9)	Worker	inhalation	short term (local effects)	0,1 mg/m <sup>3</sup>	
polymeric MDI (9016-87-9)	Worker	inhalation	long term (systemic effects)	0,05 mg/m <sup>3</sup>	
polymeric MDI (9016-87-9)	Worker	inhalation	long term (local effects)	0,05 mg/m <sup>3</sup>	
polymeric MDI (9016-87-9)	Consumer	dermal	short term (systemic effects)	25 mg/kg bw/day	
polymeric MDI (9016-87-9)	Consumer	inhalation	short term (systemic effects)	0,05 mg/m <sup>3</sup>	
polymeric MDI (9016-87-9)	Consumer	oral	short term (systemic effects)	20 mg/kg bw/day	
polymeric MDI (9016-87-9)	Consumer	dermal	short term (local effects)	17,2 mg/cm <sup>2</sup>	
polymeric MDI (9016-87-9)	Consumer	inhalation	short term (local effects)	0,05 mg/m <sup>3</sup>	
polymeric MDI (9016-87-9)	Consumer	inhalation	long term (systemic effects)	0,025 mg/m <sup>3</sup>	
polymeric MDI (9016-87-9)	Consumer	inhalation	long term (local effects)	0,025 mg/m <sup>3</sup>	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Worker	inhalation	short term (local effects)	0,1 mg/m <sup>3</sup>	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Worker	inhalation	long term (local effects)	0,05 mg/m <sup>3</sup>	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Consumer	inhalation	short term (local effects)	0,05 mg/m <sup>3</sup>	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Consumer	inhalation	long term (local effects)	0,025 mg/m <sup>3</sup>	

### 8.1.4. PNEC values

#### For components

Name	Exposure route	Value	Remark
polymeric MDI (9016-87-9)	fresh water	1 mg/L	
polymeric MDI (9016-87-9)	marine water	0,1 mg/L	
polymeric MDI (9016-87-9)	soil	1 mg/kg	
polymeric MDI (9016-87-9)	water treatment plant	1 mg/L	
polymeric MDI (9016-87-9)	water, intermittent release	10 mg/L	fresh water
'4,4'-methylenediphenyl diisocyanate (101-68-8)	fresh water	1 mg/L	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	marine water	0,1 mg/L	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	soil	1 mg/kg	dry weight
'4,4'-methylenediphenyl diisocyanate (101-68-8)	water treatment plant	1 mg/L	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	water, intermittent release	10 mg/L	fresh water



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### 8.2. EXPOSURE CONTROLS

#### 8.2.1. Appropriate engineering control

##### **Substance/mixture related measures to prevent exposure during identified uses**

Use good personal hygiene practices – wash hands at breaks and when done working with material. Avoid contact with skin, eyes and clothes. Do not breathe vapours/aerosols. Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke while working. Keep away from direct sun-light or other heat sources and sources of ignition.

##### **Organisational measures to prevent exposure**

Remove all contaminated clothes immediately and wash them before reuse. Keep eyewash bottles or personal eyewash units and emergency showers available.

##### **Technical measures to prevent exposure**

Provide good ventilation and local exhaust in areas with increased concentration.

#### 8.2.2. Personal protective equipment

##### **Eye and face 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. Safety glasses with side protection (EN 166). An eye wash station must be available where this product is used.

##### **Hand protection**

Protective gloves (EN 374). Observe the manufacturer's instructions regarding the use, storage, maintenance and replacement of gloves. In case of damage or at the first signs of wear and tear, change the gloves immediately. The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. The penetration time is determined by the protective glove manufacturer and must be observed.

##### **Skin protection**

Cotton protective clothing and shoes that cover the entire foot (EN ISO 20345). We recommend the use of heavy cotton clothing or disposable Tyvek. Choose body protection according to the activity and possible exposure. At high risk of skin exposure chemical suits (EN ISO 6530:2005) and boots may be required (EN ISO 20345:2012).

##### **Respiratory protection**

At elevated concentrations of vapours/aerosols in the air wear a mask (EN 140) with filter A2-P2 (EN 14387). 'High/elevated concentrations' means that the occupational exposure limit values have been exceeded. For dust/gas/ vapor concentrations above the applicable filter limit, in case of oxygen concentrations below 17% or in vague conditions, autonomous self-contained breathing apparatus should be used, according to standard EN 137, EN 138.

##### **Thermal hazards**

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#### 8.2.3. Environmental exposure controls

##### **Technical measures to prevent exposure**

Do not allow product to reach drains, sewage systems or ground water.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

-	<b>Physical state:</b>	liquid
-	<b>Colour:</b>	brown
-	<b>Odour:</b>	characteristic

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### Important health, safety and environmental information

-	<b>pH</b>	No information.
-	<b>Melting point/freezing point</b>	No information.
-	<b>Initial boiling point/boiling range</b>	No information.
-	<b>Flash point</b>	> 121 °C (Closed cup)
-	<b>Evaporation rate</b>	No information.
-	<b>Flammability (solid, gas)</b>	No information.
-	<b>Explosion limits (vol%)</b>	No information.
-	<b>Vapour pressure</b>	No information.
-	<b>Vapour density</b>	No information.
-	<b>Density</b>	<b>Density:</b> 1,13 g/cm <sup>3</sup> at 25 °C <b>Relative density:</b> 1,12
-	<b>Solubility</b>	No information.
-	<b>Partition coefficient</b>	No information.
-	<b>Auto-ignition temperature</b>	No information.
-	<b>Decomposition temperature</b>	No information.
-	<b>Viscosity</b>	<b>Dynamic:</b> 2000 – 5000 mPas at 23 °C
-	<b>Explosive properties</b>	No information.
-	<b>Oxidising properties</b>	No information.

### 9.2. OTHER INFORMATION

-	<b>Remarks:</b>	
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## SECTION 10. STABILITY AND REACTIVITY

### 10.1. REACTIVITY

Reacts with water: may cause overpressure in closed vessel (CO<sub>2</sub>).

### 10.2. CHEMICAL STABILITY

Product is stable under normal conditions of use, recommended handling and storage conditions.

### 10.3. POSSIBILITY OF HAZARDOUS REACTIONS

Product reacts slowly with water, releasing CO<sub>2</sub>, which can cause overpressure in closed containers. Danger of explosion.. MDI is not soluble in water and is heavier than water. It reacts with water, creating polyurea and CO<sub>2</sub>.

### 10.4. CONDITIONS TO AVOID

Protect from heat, direct sunlight, open fire, sparks. Protect from moisture and water - keep in dry place.

### 10.5. INCOMPATIBLE MATERIALS

Water.  
Acids.  
Amines. Bases. Metals.

### 10.6. HAZARDOUS DECOMPOSITION PRODUCTS

Under normal use conditions no hazardous decomposition products are expected. In case of fire/explosion vapours/gases that pose a health hazard are released. Carbon dioxide; Carbon monoxide.  
Nitrogen oxides.  
Hydrocarbons. HCN.

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### SECTION 11. TOXICOLOGICAL INFORMATION

#### 11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

##### (a) Acute toxicity

Name	Exposure route	Type	Species	Time	Value	Method	Remark
<b>For product</b>	inhalation (dusts/mists)	ATE		4 h	1,5 mg/l		
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)) (53862-89-8)	oral	LD <sub>50</sub>	rat (male)		> 10000 mg/kg	OECD 401	
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)) (53862-89-8)	dermal	LD <sub>50</sub>	rabbit		> 9400 mg/kg	OECD 402	
polymeric MDI (9016-87-9)	dermal	LD <sub>50</sub>	rabbit		> 9400 mg/kg	OECD 402	
polymeric MDI (9016-87-9)	oral	LD <sub>50</sub>	rat (male)		> 10000 mg/kg	OECD 401	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	oral	LD <sub>50</sub>	rat (male)		> 10000 mg/kg	OECD 401	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	dermal	LD <sub>50</sub>	rabbit		> 9400 mg/kg	OECD 402	
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	dermal	LD <sub>50</sub>	rabbit		> 9400 mg/kg	OECD 402	
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	oral	LD <sub>50</sub>	rat (male/female)		> 2000 mg/kg		
<b>Additional information:</b> Harmful if inhaled.							

##### (b) Skin corrosion/irritation

Name	Species	Time	Result	Method	Remark
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)) (53862-89-8)	rabbit		Irritating.	OECD 404	
polymeric MDI (9016-87-9)	rabbit		Irritating.	OECD 404	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	rabbit		Irritating.	OECD 404	
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	rabbit		Irritating.	OECD 404	
<b>Additional information:</b> Causes skin irritation.					

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### (c) Serious eye damage/irritation

Name	Species	Time	Result	Method	Remark
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)) (53862-89-8)	rabbit		Mild irritating.	OECD 405	
polymeric MDI (9016-87-9)	rabbit		Mild irritating.	OECD 405	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	rabbit		Mild irritating.		
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	rabbit		Mild irritating.	OECD 405	

**Additional information:** Causes serious eye irritation.

### (d) Respiratory or skin sensitisation

Name	Exposure route	Species	Time	Result	Method	Remark
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)) (53862-89-8)	dermal	guinea pig		Sensitizing.	OECD 406	
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)) (53862-89-8)	inhalation	rat		Sensitizing.		
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)) (53862-89-8)	inhalation			May cause allergy or asthma symptoms or breathing difficulties if inhaled.		
polymeric MDI (9016-87-9)	inhalation	guinea pig		Sensitizing.		
polymeric MDI (9016-87-9)	dermal	mouse		Causes sensitization.		
'4,4'-methylenediphenyl diisocyanate (101-68-8)	dermal	mouse		Sensitizing.	OECD 429	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	inhalation	guinea pig		Sensitizing.		
'4,4'-methylenediphenyl diisocyanate (101-68-8)	dermal			Sensitizing.		
'4,4'-methylenediphenyl diisocyanate (101-68-8)	inhalation			Causes sensitization.		
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	dermal	guinea pig		Sensitizing.	OECD 406	
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	inhalation	guinea pig		Sensitizing.		

**Additional information:** May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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### (e) (Germ cell) mutagenicity

Name	Type	Species	Time	Result	Method	Remark
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediy)) (53862-89-8)	Genotoxicity			Negative.	Directive 67/548/EEC, Annex V, B.12.	
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediy)) (53862-89-8)	Genotoxicity		3 weeks	Negative.	OECD 474	inhalation dose: 113 mg/m3
polymeric MDI (9016-87-9)	Genotoxicity			Negative.	Directive 67/548/EEC, Annex V, B.12.	
polymeric MDI (9016-87-9)	Genotoxicity		3 weeks	Negative.	OECD 474	inhalation dose: 118 mg/m3
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Genotoxicity			Negative.	Directive 67/548/EEC, Annex V, B.12.	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Genotoxicity		3 weeks	Negative.	OECD 474	inhalation dose: 118 mg/m3
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	Genotoxicity			Negative.	Directive 67/548/EEC, Annex V, B.12.	
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	Genotoxicity		3 weeks	Negative.	OECD 474	inhalation dose: 118 mg/m3

### (f) Carcinogenicity

Name	Exposure route	Type	Species	Time	Value	Result	Method	Remark
<b>For product</b>	inhalation		rat			Increased lung cancer incidence.		
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediy)) (53862-89-8)						Suspected of causing cancer.		
polymeric MDI (9016-87-9)						Suspected of causing cancer.		
'4,4'-methylenediphenyl diisocyanate (101-68-8)						Suspected of causing cancer.		
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)						Suspected of causing cancer.		

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### (g) Reproductive toxicity

Name	Reproductive toxicity type	Type	Species	Time	Value	Result	Method	Remark
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)) (53862-89-8)	inhalation		rat (male/female)		4 mg/m <sup>3</sup>	No effect	OECD 414	
polymeric MDI (9016-87-9)	inhalation		rat (male/female)			No effect	OECD 414	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	inhalation		rat (male/female)		4 mg/m <sup>3</sup>	No effect	OECD 414	
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	inhalation		rat (male/female)		4 mg/m <sup>3</sup>	No effect	OECD 414	

### Summary of evaluation of the CMR properties

Suspected of causing cancer. Rats were exposed to inhalation of the polymeric MDI nebula for two years, resulting in chronic pulmonary irritation at high concentrations. Only the highest level (6 mg/m<sup>3</sup>) showed the appearance of benign lung tumors (adenoma) and one malignant tumor (adenocarcinoma). There were no lung tumors at 1 mg/m<sup>3</sup> and no effects at 0.2 mg/m<sup>3</sup>. The overall incidence of tumors, benign and malignant, and the number of animals with a tumor were not different from that of the control group. The increased incidence of lung tumors is associated with prolonged respiratory irritation and the parallel accumulation of yellow matter in the lung that occurred during the study.

### (h) STOT-single exposure

Name	Exposure route	Type	Species	Time	Organ	Value	Result	Method	Remark
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)) (53862-89-8)	inhalation	-					May cause respiratory irritation.		
polymeric MDI (9016-87-9)	inhalation	-					May cause respiratory irritation.		
'4,4'-methylenediphenyl diisocyanate (101-68-8)	inhalation	-					May cause respiratory irritation.		
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	inhalation	-					May cause respiratory irritation.		

**Additional information:** STOT SE (single exposure): Not classified.

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### (i) STOT-repeated exposure

Name	Exposure route	Type	Species	Time	Organ	Value	Result	Method	Remark
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)] (53862-89-8)	-	-					May cause damage to organs through prolonged or repeated exposure.		
polymeric MDI (9016-87-9)	inhalation	-			Respiratory tract		May cause damage to organs through prolonged or repeated exposure.		
'4,4'-methylenediphenyl diisocyanate (101-68-8)	-	-					May cause damage to organs through prolonged or repeated exposure.		
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	inhalation	-			Respiratory tract		May cause damage to organs through prolonged or repeated exposure.		

**Additional information:** May cause damage to organs through prolonged or repeated exposure.

### (j) Aspiration hazard

**Additional information:** Aspiration hazard: Not classified.

## SAFETY DATA SHEET

### SECTION 12. ECOLOGICAL INFORMATION

#### 12.1. TOXICITY

##### 12.1.1. Acute (short-term) toxicity

###### For components

Substance (CAS Nr.)	Type	Value	Exposure time	Species	Organism	Method	Remark
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)) (53862-89-8)	LC <sub>50</sub>	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	
	LC0	> 1000 mg/L	96 h	fish			
	EC <sub>50</sub>	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	
	EC <sub>50</sub>	> 1640 mg/L	72 h	algae	<i>Desmodesmus subspicatus</i>	OECD 201	
	EC <sub>50</sub>	> 100 mg/L	3 h	bacteria	Activated sludge	OECD 209	
polymeric MDI (9016-87-9)	EC <sub>50</sub>	> 100 mg/kg	3 h	bacteria		OECD 209	
	EC <sub>50</sub>	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	
	LC <sub>50</sub>	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	LC <sub>50</sub>	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	
	EC <sub>50</sub>	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	EC <sub>50</sub>	> 100 mg/L	3 h	bacteria	Activated sludge	OECD 209	
	EC <sub>50</sub>	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	
	LC <sub>50</sub>	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	
	EC <sub>50</sub>	> 1640 mg/L	72 h	algae	<i>Desmodesmus subspicatus</i>	OECD 201	



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### 12.1.2. Chronic (long-term) toxicity

#### For components

Substance (CAS Nr.)	Type	Value	Exposure time	Species	Organism	Method	Remark
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediy)) (53862-89-8)	NOEC	≥ 10 mg/l	21 days	crustacea	<i>Daphnia magna</i>	OECD 211	
	EC50	> 1000 mg/kg	14 days	earthworms	<i>Eisenia fetida</i>	OECD 207	
polymeric MDI (9016-87-9)	NOEC	≥ 10 mg/l	21 days	crustacea	<i>Daphnia magna</i>	OECD 211	
	NOEC	≥ 1000 mg/kg	14 days	earthworms	<i>Eisenia fetida</i>	OECD 207	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	NOEC	≥ 10 mg/l	21 days	crustacea	<i>Daphnia magna</i>	OECD 211	
	NOEC	≥ 1000 mg/kg	14 days	earthworms	<i>Eisenia fetida</i>	OECD 207	
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	NOEC	≥ 10 mg/l	21 days	crustacea	<i>Daphnia magna</i>	OECD 211	
	EC50	> 1000 mg/kg	14 days	earthworms	<i>Eisenia fetida</i>	OECD 207	

## 12.2. PERSISTENCE AND DEGRADABILITY

### 12.2.1. Abiotic degradation, physical- and photo-chemical elimination

#### For components

Substance (CAS Nr.)	Environment	Type / Method	Half Time	Evaluation	Method	Remark
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediy)) (53862-89-8)	Fresh-water		0,8 days			half-life
polymeric MDI (9016-87-9)	Fresh-water		6 days			half-life
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Fresh-water		20 h			half-life

### 12.2.2. Biodegradation

#### For components

Substance (CAS Nr.)	Type	Rate	Time	Evaluation	Method	Remark
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediy)) (53862-89-8)	biodegradability	0 %	28 days	Non-biodegradable	OECD 302 C	30 mg/l
polymeric MDI (9016-87-9)	biodegradability	0 %	28 days	Non-biodegradable	OECD 302 C	30 mg/l
'4,4'-methylenediphenyl diisocyanate (101-68-8)	biodegradability	0 %	28 days	Non-biodegradable	OECD 302 C	30 mg/l
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	biodegradability	0 %	28 days	Non-biodegradable	OECD 302 C	30 mg/l

### Additional information

Contains non readily biodegradable component(s).

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### 12.3. BIOACCUMULATIVE POTENTIAL

#### 12.3.1. Partition coefficient

##### For components

Substance (CAS Nr.)	Media	Value	Temperature	pH	Concentration	Method
polymeric MDI (9016-87-9)	Log Pow	4,51	20 °C	7		OECD 117
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Log Pow	4,51	20 °C	7		OECD 117
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	Log Pow	4,51	22 °C	7		OECD 117

#### 12.3.2. Bioconcentration factor (BCF)

##### For components

Substance (CAS Nr.)	species	Organism	Value	Duration	Evaluation	Method	Remark
isocyanic acid, polymethylenepolyphenylene ester, polymer with .alpha.-hydro-.omega.-hydroxypoly(oxy(methyl-1,2-ethanediyl)) (53862-89-8)	BCF	<i>Cyprinus carpio</i>	200		Low bioaccumulation potential.		
polymeric MDI (9016-87-9)	BCF	<i>Cyprinus carpio</i>	200		Low bioaccumulation potential.		
'4,4'-methylenediphenyl diisocyanate (101-68-8)	BCF	<i>Cyprinus carpio</i>	200		Low bioaccumulation potential.		
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	BCF	<i>Cyprinus carpio</i>	200		Low bioaccumulation potential.		
reaction mass of 4,4'- methylenediphenyl diisocyanate and o-(pisocyanatobenzyl) phenyl isocyanate (-)	BCF		439		Low bioaccumulation potential.		

#### Additional information

No bioaccumulation expected.

### 12.4. MOBILITY IN SOIL

#### 12.4.1. Known or predicted distribution to environmental compartments

No information.

#### 12.4.2. Surface tension

No information.

#### 12.4.3. Adsorption/Desorption

No information.

### 12.5. RESULTS OF PBT AND VPVB ASSESSMENT

Does not contain component(s) that meet(s) the criteria of PBT and/or vPvB as listed in Annex XIII of Regulation (EC) No 1907/2006.

### 12.6. OTHER ADVERSE EFFECTS

No information.

### 12.7. ADDITIONAL INFORMATION

#### For product

Product is not classified as dangerous for environment.  
Isocyanates react with water to form an insoluble polyurea.  
Do not allow to reach ground water, water courses or sewage system.

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### SECTION 13. DISPOSAL CONSIDERATIONS

#### 13.1. WASTE TREATMENT METHODS

##### 13.1.1. Product / Packaging disposal

###### **Waste chemical**

Do not allow product to reach drains/sewage systems. Any disposal in the environment or discharging into water is prohibited. Disposal must be made according to official regulations: deliver it to authorised collector/remover/transformer of hazardous waste. Dispose of in accordance with applicable waste disposal regulation.

###### **Waste codes / waste designations according to LoW**

08 04 09\* - waste adhesives and sealants containing organic solvents or other dangerous substances

###### **Packaging**

Packaging must be completely emptied - scrape with a spatula or brush so that the remaining amount of goods is no longer usable and does not drip from the packaging. Packaging emptied in this way is not hazardous waste. Uncleaned / not emptied containers are classified as hazardous waste - they should be handled in the same manner as the contents. Empty container is not suitable for reuse. Deliver completely emptied containers to approved waste disposal authorities.

###### **Waste codes / waste designations according to LoW**

15 01 02 - plastic packaging

15 01 04 - metallic packaging

15 01 10\* - packaging containing residues of or contaminated by dangerous substances

##### 13.1.2. Waste treatment-relevant information

Disposal in accordance with the Rules on the management of waste.

##### 13.1.3. Sewage disposal-relevant information

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##### 13.1.4. Other disposal recommendations

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### SECTION 14. TRANSPORT INFORMATION

#### 14.1. UN NUMBER

Not applicable.

#### 14.2. UN PROPER SHIPPING NAME

ADR, RID, IMDG, ADN, IATA: Not dangerous according to transport regulations.

#### 14.3. TRANSPORT HAZARD CLASS(ES)

Not applicable.

#### 14.4. PACKING GROUP

Not applicable.

#### 14.5. ENVIRONMENTAL HAZARDS

NO.

#### 14.6. SPECIAL PRECAUTIONS FOR USER

Not applicable.

#### 14.7. TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL AND THE IBC CODE

Not applicable.

## SAFETY DATA SHEET

### SECTION 15. REGULATORY INFORMATION

#### 15.1. SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE

- Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (including last amendment Commission Regulation (EU) 2015/830)
- Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures

##### 15.1.1. Information according 2004/42/EC about limitation of emissions of volatile organic compounds (VOC-guideline)

Not applicable.

##### 15.1.2. Special instructions

Observe the regulations on employment and protection against dangerous substances for young people, pregnant women and nursing mothers.

SVHC (substance of very high concern) Candidate list: The product does not contain substances on the SVHC candidate list. Regulation (EC) No. 1907/2006 (REACH) Annex XVII - Terms of restriction: 56 Methylenediphenyl diisocyanate (MDI):

1. Shall not be placed on the market after 27 December 2010, as a constituent of mixtures in concentrations equal to or greater than 0,1 % by weight of MDI for supply to the general public, unless suppliers shall ensure before the placing on the market that the packaging:

(a) contains protective gloves which comply with the requirements of Council Directive 89/686/ EEC;

(b) is marked visibly, legibly and indelibly as follows, and without prejudice to other Community legislation concerning the classification, packaging and labelling of substances and mixtures:

„— Persons already sensitised to diisocyanates may develop allergic reactions when using this product.

— Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.

— This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used.“

2. By way of derogation, paragraph 1(a) shall not apply to hot melt adhesives.

Regulation (EC) No. 1907/2006 (REACH) Annex XVII - Terms of restriction: 74.

#### 15.2. CHEMICAL SAFETY ASSESSMENT

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

### SECTION 16. OTHER INFORMATION

#### Indication of changes

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#### Abbreviations and acronyms

ATE - Acute Toxicity Estimate

ADR - Agreement concerning the International Carriage of Dangerous Goods by Road

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

CEN - European Committee for Standardisation

C&L - Classification and Labelling

CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008

CAS# - Chemical Abstracts Service number

CMR - Carcinogen, Mutagen, or Reproductive Toxicant

CSA - Chemical Safety Assessment

CSR - Chemical Safety Report

DMEL - Derived Minimal Effect Level

DNEL - Derived No Effect Level

DPD - Dangerous Preparations Directive 1999/45/EC

DSD - Dangerous Substances Directive 67/548/EEC

DU - Downstream User

EC - European Community

ECHA - European Chemicals Agency

EC-Number - EINECS and ELINCS Number (see also EINECS and ELINCS)

EEA - European Economic Area (EU + Iceland, Liechtenstein and Norway)

## SAFETY DATA SHEET

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EEC - European Economic Community  
EINECS - European Inventory of Existing Commercial Substances  
ELINCS - European List of notified Chemical Substances  
EN - European Standard  
EQS - Environmental Quality Standard  
EU - European Union  
Euphrac - European Phrase Catalogue  
EWC - European Waste Catalogue (replaced by LoW – see below)  
GES - Generic Exposure Scenario  
GHS - Globally Harmonized System  
IATA - International Air Transport Association  
ICAO-TI - Technical Instructions for the Safe Transport of Dangerous Goods by Air  
IMDG - International Maritime Dangerous Goods  
IMSBC - International Maritime Solid Bulk Cargoes  
IT - Information Technology  
IUCLID - International Uniform Chemical Information Database  
IUPAC - International Union for Pure Applied Chemistry  
JRC - Joint Research Centre  
Kow - octanol-water partition coefficient  
LC<sub>50</sub> - Lethal Concentration to 50 % of a test population  
LD<sub>50</sub> - Lethal Dose to 50% of a test population (Median Lethal Dose)  
LE - Legal Entity  
LoW - List of Wastes (see <http://ec.europa.eu/environment/waste/framework/list.htm>)  
LR - Lead Registrant  
M/I - Manufacturer / Importer  
MS - Member States  
MSDS - Material Safety Data Sheet  
OC - Operational Conditions  
OECD - Organization for Economic Co-operation and Development  
OEL - Occupational Exposure Limit  
OJ - Official Journal  
OR - Only Representative  
OSHA - European Agency for Safety and Health at work  
PBT - Persistent, Bioaccumulative and Toxic substance  
PEC - Predicted Effect Concentration  
PNEC(s) - Predicted No Effect Concentration(s)  
PPE - Personal Protection Equipment  
(Q)SAR - Qualitative Structure Activity Relationship  
REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006  
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail  
RIP - REACH Implementation Project  
RMM - Risk Management Measure  
SCBA - Self-Contained Breathing Apparatus  
SDS - Safety data sheet  
SIEF - Substance Information Exchange Forum  
SME - Small and Medium sized Enterprises  
STOT - Specific Target Organ Toxicity  
(STOT) RE - Repeated Exposure  
(STOT) SE - Single Exposure  
SVHC - Substances of Very High Concern  
UN - United Nations  
vPvB - Very Persistent and Very Bioaccumulative

### Key literature references and sources for data

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## SAFETY DATA SHEET

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### List of relevant H phrases

- H304 May be fatal if swallowed and enters airways.
- 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.
- H351 Suspected of causing cancer .
- H373 May cause damage to organs through prolonged or repeated exposure .
- H410 Very toxic to aquatic life with long lasting effects.

The information of this SDS is based on the present state of our knowledge and meets the requirements of EU and national laws. The user's working conditions however, are beyond our knowledge and control. The product is not to be used for purposes other than those specified under Section 1 without a written permission. It remains the responsibility of the user to ensure that the necessary steps are taken to meet the laws and regulations. Handling of the product may only be done by people above 18 years of age, who are satisfactorily informed of how to do the work, the hazardous properties and necessary safety precautions. The information given in this SDS is to describe the product only in terms of health and safety requirements and should not, therefore, be construed as guaranteeing specific properties.