

## Safety data sheet

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

#### 1.1 PRODUCT IDENTIFIER

Product name

PARKETOLIT PR51

UFI:

NPJ6-6A0T-WN1Y-0DDW



<https://my.chemius.net/p/Cd2q9K/en/pd/en>

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

Relevant identified uses

One-component, solvent-free coating.

Uses advised against

No information.

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

Supplier

MITOL, tovarna lepil, d.o.o., Sežana  
Partizanska c. 78  
6210 Sežana, Slovenia  
+386 5 73 12 300 (8:00-16:00)  
lilijana.kocjan@mitol.si

#### 1.4 EMERGENCY TELEPHONE NUMBER

Emergency

112

Supplier

+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 exposure.

#### 2.2 LABEL ELEMENTS

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 exposure.  
P102 Keep out of reach of children.  
P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P280 Wear protective gloves/eye protection/face 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 + P313 IF exposed or concerned: Get medical advice/attention.  
P501 Dispose of contents/container in accordance with national regulation.

Contains:

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'4,4'-methylenediphenyl diisocyanate  
Aromatic Polyisocyanate-Prepolymer  
diphenylmethane-2,4'-diisocyanate  
diphenylmethane diisocyanate, isomers and homologues  
'2,2'-methylenediphenyl diisocyanate

## Special provisions

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

### PBT/vPvB

No information.

### Endocrine disrupting properties

No information.

### Additional information

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.

### 3.2 MIXTURES

Name	CAS EC Index Reach	%	Classification according to Regulation (EC) No 1272/2008 (CLP)	Specific Conc. Limits	Notes for substances
'4,4'- methylenediphe nyl diisocyanate	101-68-8 202-966-0 615-005-00-9 01-2119457014- 47	ca.30	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%	C
Aromatic Polyisocyanate- Prepolymer	67815-87-6 - -	ca.31	Skin Irrit. 2; H315 Skin Sens. 1; H317 Eye Irrit. 2; H319 Acute Tox. 4; H332 Resp. Sens. 1; H334 STOT SE 3; H335 STOT RE 2; H373	/	/

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Name	CAS EC Index Reach	%	Classification according to Regulation (EC) No 1272/2008 (CLP)	Specific Conc. Limits	Notes for substances
<b>diphenylmethane-2,4'-diisocyanate</b>	5873-54-1 227-534-9 615-005-00-9 01-2119480143-45	ca.23	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%	C
<b>diphenylmethane diisocyanate, isomers and homologues</b>	9016-87-9 618-498-9 615-005-00-9	ca.14	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	/	/
<b>'2,2'-methylene diphenyl diisocyanate</b>	2536-05-2 219-799-4 615-005-00-9 01-2119927323-43	ca.2	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%	C

### Notes for substances

<b>C</b>	<p>Some organic substances may be marketed either in a specific isomeric form or as a mixture of several isomers.</p> <p>In this case the supplier must state on the label whether the substance is a specific isomer or a mixture of isomers.</p>
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### Product description

Polyisocyanate prepolymer based on diphenylmethane diisocyanate.

## SECTION 4: FIRST AID MEASURES

### 4.1 DESCRIPTION OF FIRST AID MEASURES

#### General notes

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Take off all contaminated clothing immediately. Never give anything by mouth to an unconscious person. Place patient in recovery position and ensure airway patency.

#### Following inhalation

Remove patient to fresh air - move out of dangerous area. If symptoms occur, seek medical advice.

#### Following skin contact

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Immediately remove contaminated clothing. Wash affected skin areas immediately with plenty of water and soap. If possible, rinse with polyethylene glycol 400 and plenty of water. If symptoms persist, seek medical attention.

## Following eye contact

Immediately flush eyes with running water, keeping eyelids apart. Seek medical help.

## Following ingestion

Do not induce vomiting! Consult a physician. Show the physician the safety data sheet or label.

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

### Following inhalation

Harmful. Can cause sensitization. May cause shortness of breath and asthmatic problems. Coughing, sneezing, nasal discharge, labored breathing.

### Following skin contact

Causes irritation of mucous membrane. Itching, redness, pain. May cause sensitisation by skin contact (symptoms: itching, redness, rashes).

### Following eye contact

Redness, tearing, pain.

### Following ingestion

Irritates mucous membranes in the mouth, throat, esophagus and in gastrointestinal area.

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

Product is irritating to the respiratory tract and may cause skin and respiratory tract sensitization. Treatment of acute irritation or narrowing of the bronchial tubes is carried out mainly symptomatic. Depending on the degree of exposure and severity of symptoms additional treatment may be required.

## **SECTION 5: FIREFIGHTING MEASURES**

### **5.1 EXTINGUISHING MEDIA**

#### Suitable extinguishing media

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

Foam.

Fire extinguishing powder. Fight larger fires with water spray.

#### Unsuitable extinguishing media

Full water jet.

### **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>). In the event of fire the following is released: nitrogen oxides (NO<sub>x</sub>).

Vapours of Isocyanates.

Hydrogen cyanide (HCN).

### **5.3 ADVICE FOR FIREFIGHTERS**

#### Protective actions

In case of fire or heating do not breathe fumes/vapours. Prolonged heating can cause an explosion. Cool containers at risk with water spray. If possible remove containers from endangered area.

#### Special protective equipment for fire-fighters

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).

#### 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**

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

#### For non-emergency personnel

#### Protective equipment

Use personal protective equipment (Section 8).

#### Precautionary measures

Ensure adequate ventilation. Keep away from sources of ignition and/or heat; No smoking!

#### Emergency procedures

Prevent access to unauthorised personnel.

#### For emergency responders

No information.

### **6.2 ENVIRONMENTAL PRECAUTIONS**

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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

#### For containment

No information.

#### For cleaning up

Remove mechanically; cover residues with wet material (eg. sawdust, chemical binder based on calcium silicate hydrate, sand). 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. You can also use: yellow liquid soap (potassium soap with approx. 15% anionic surfactants): 20 ml + Water 700 ml + PEG 400: 350 ml.

#### OTHER INFORMATION

No information.

### 6.4 REFERENCE TO OTHER SECTIONS

See also sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1 PRECAUTIONS FOR SAFE HANDLING

#### Protective measures

#### Measures to prevent fire

Ensure adequate ventilation. Keep away from sources of ignition - no smoking.

#### Measures to prevent aerosol and dust generation

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

#### Measures to protect the environment

No information.

#### Other measures

No information.

#### Advice on general occupational hygiene

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 and eyes. Do not breathe vapours/mist. Remove contaminated clothes and wash them before reuse. Keep working clothes separate from ordinary clothes. Asthmatics and people with known hypersensitivity are advised not to use the product.

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

#### Technical measures and storage conditions

Keep in tightly closed container. Keep in cool and well ventilated area. Keep in a dry place. Keep away from food, drink and animal feeding stuffs. Protect from open fire, heat and direct sunlight. Do not stored below -5 C. Do not expose to temperatures exceeding 50°C. Keep away from acids. Store away from alkaline substances.

#### Packaging materials

No information.

#### Requirements for storage rooms and vessels

No information.

#### Storage class

No information.

#### Further information on storage conditions

No information.

### 7.3 SPECIFIC END USE(S)

#### Recommendations

No information.

#### Industrial sector specific solutions

No information.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 CONTROL PARAMETERS

#### Occupational Exposure limit values

No information.

#### Information on monitoring procedures

## Safety data sheet

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 689:2018 Workplace exposure. Measurement of exposure by inhalation to chemical agents. Strategy for testing compliance with occupational exposure limit values. BS EN 482:2021 Workplace exposure. Procedures for the determination of the concentration of chemical agents. Basic performance requirements.

### DNEL/DMEL values

#### For product

No information.

#### For components

Name	Type	Exposure route	exp. frequency	Remark	value
'4,4'-methylenediphenyl diisocyanate	Worker	inhalation	short term local effects	/	0.1 mg/m <sup>3</sup>
'4,4'-methylenediphenyl diisocyanate	Worker	inhalation	short term systemic effects	/	0.05 mg/m <sup>3</sup>
'4,4'-methylenediphenyl diisocyanate	Consumer	inhalation	short term local effects	/	0.05 mg/m <sup>3</sup>
'4,4'-methylenediphenyl diisocyanate	Consumer	inhalation	long term local effects	/	0.025 mg/m <sup>3</sup>
diphenylmethane-2,4'-diisocyanate	Worker	dermal	short term local effects	/	28.7 mg/cm <sup>2</sup>
diphenylmethane-2,4'-diisocyanate	Worker	dermal	short term systemic effects	/	50 mg/kg bw/day
diphenylmethane-2,4'-diisocyanate	Worker	inhalation	long term local effects	/	0.05 mg/m <sup>3</sup>
diphenylmethane-2,4'-diisocyanate	Worker	inhalation	long term systemic effects	/	0.05 mg/m <sup>3</sup>
diphenylmethane-2,4'-diisocyanate	Worker	inhalation	short term local effects	/	0.1 mg/m <sup>3</sup>
diphenylmethane-2,4'-diisocyanate	Worker	inhalation	short term systemic effects	/	0.1 mg/m <sup>3</sup>
diphenylmethane-2,4'-diisocyanate	Consumer	dermal	short term systemic effects	/	25 mg/kg bw/day
diphenylmethane-2,4'-diisocyanate	Consumer	inhalation	short term systemic effects	/	0.05 mg/m <sup>3</sup>
diphenylmethane-2,4'-diisocyanate	Consumer	oral	short term systemic effects	/	20 mg/kg bw/day
diphenylmethane-2,4'-diisocyanate	Consumer	dermal	short term local effects	/	17.2 mg/cm <sup>2</sup>
diphenylmethane-2,4'-diisocyanate	Consumer	inhalation	short term local effects	/	0.05 mg/m <sup>3</sup>

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Name	Type	Exposure route	exp. frequency	Remark	value
diphenylmethane-2,4'-diisocyanate	Consumer	inhalation	long term systemic effects	/	0.025 mg/m <sup>3</sup>
diphenylmethane-2,4'-diisocyanate	Consumer	inhalation	long term local effects	/	0.025 mg/m <sup>3</sup>
'2,2'-methylene diphenyl diisocyanate	Worker	dermal	short term local effects	/	28.7 mg/cm <sup>2</sup>
'2,2'-methylene diphenyl diisocyanate	Worker	dermal	short term systemic effects	/	50 mg/kg bw/day
'2,2'-methylene diphenyl diisocyanate	Worker	inhalation	long term local effects	/	0.05 mg/m <sup>3</sup>
'2,2'-methylene diphenyl diisocyanate	Worker	inhalation	long term systemic effects	/	0.05 mg/m <sup>3</sup>
'2,2'-methylene diphenyl diisocyanate	Worker	inhalation	short term local effects	/	0.1 mg/m <sup>3</sup>
'2,2'-methylene diphenyl diisocyanate	Worker	inhalation	short term systemic effects	/	0.1 mg/m <sup>3</sup>
'2,2'-methylene diphenyl diisocyanate	Consumer	dermal	short term systemic effects	/	25 mg/kg bw/day
'2,2'-methylene diphenyl diisocyanate	Consumer	inhalation	short term systemic effects	/	0.05 mg/m <sup>3</sup>
'2,2'-methylene diphenyl diisocyanate	Consumer	oral	short term systemic effects	/	20 mg/kg bw/day
'2,2'-methylene diphenyl diisocyanate	Consumer	dermal	short term local effects	/	17.2 mg/cm <sup>2</sup>
'2,2'-methylene diphenyl diisocyanate	Consumer	inhalation	short term local effects	/	0.05 mg/m <sup>3</sup>
'2,2'-methylene diphenyl diisocyanate	Consumer	inhalation	long term systemic effects	/	0.025 mg/m <sup>3</sup>
'2,2'-methylene diphenyl diisocyanate	Consumer	inhalation	long term local effects	/	0.025 mg/m <sup>3</sup>

PNEC values

For product

No information.

For components

Name	Exposure route	Remark	value
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Name	Exposure route	Remark	value
'4,4'-methylenediphenyl diisocyanate	fresh water	/	1 mg/L
'4,4'-methylenediphenyl diisocyanate	marine water	/	0.1 mg/L
'4,4'-methylenediphenyl diisocyanate	soil	dry weight	1 mg/kg
'4,4'-methylenediphenyl diisocyanate	water treatment plant	/	1 mg/L
'4,4'-methylenediphenyl diisocyanate	water, intermittent release	/	10 mg/L
diphenylmethane-2,4'-diisocyanate	soil	dry weight	1 mg/kg
diphenylmethane-2,4'-diisocyanate	fresh water	/	1 mg/L
diphenylmethane-2,4'-diisocyanate	marine water	/	0.1 mg/L
diphenylmethane-2,4'-diisocyanate	water treatment plant	/	1 mg/L
'2,2'-methylenediphenyl diisocyanate	soil	dry weight	1 mg/kg
'2,2'-methylenediphenyl diisocyanate	fresh water	/	1 mg/L
'2,2'-methylenediphenyl diisocyanate	marine water	/	0.1 mg/L
'2,2'-methylenediphenyl diisocyanate	water treatment plant	/	1 mg/L

### 8.2 EXPOSURE CONTROLS

#### Appropriate engineering control

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

Handle in accordance with good industrial hygiene and safety practice. Use good personal hygiene practices – wash hands at breaks and when done working with material. Avoid contact with eyes and skin. Do not breathe vapours/aerosols. Do not eat, drink or smoke while working.

#### Structural measures to prevent exposure

No information.

#### Organisational measures to prevent exposure

No information.

#### Technical measures to prevent exposure

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

#### Personal protective equipment

##### Eye and face protection

Safety glasses with side protection (BS EN ISO 16321-1:2022).

##### Hand protection

Protective gloves (BS EN ISO 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.

#### Appropriate materials

Material	Thickness	Penetration Time	Remark
chloroprene rubber	≥ 0.5 mm	≥ 480 min	/
Nitrile	≥ 0.35 mm	≥ 480 min	/
Butyl rubber	≥ 0.5 mm	≥ 480 min	/
Viton (fluorinated rubber)	≥ 0.4 mm	≥ 480 min	/

#### Skin protection



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Cotton protective clothing and shoes that cover the entire foot (BS EN ISO 20345:2022).

### Respiratory protection

In case of insufficient ventilation wear suitable respiratory protection. Wear suitable protective breathing mask (BS EN 136) with filter A2-P2 (BS EN 14387).  
In case of intensive or longer exposure use self-contained breathing apparatus (BS EN 137).

### Thermal hazards

No information.

### Environmental exposure controls

### Substance/mixture related measures to prevent exposure

No information.

### Instruction measures to prevent exposure

No information.

### Organisational measures to prevent exposure

No information.

### Technical measures to prevent exposure

No information.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

#### Physical state

liquid

#### Colour

brown

#### Odour

mild slightly aromatic

#### Important health, safety and environmental information

<b>Odour threshold</b>	No information.
<b>Melting point/Freezing point</b>	> 0 °C
<b>Boiling point or initial boiling point and boiling range</b>	> 350 °C (1013 hPa)
<b>Flammability</b>	> 400 °C (DIN 51794)
<b>Lower and upper explosion limit</b>	No information.
<b>Flash point</b>	210 °C (DIN 22719)
<b>Auto-ignition temperature</b>	(Not applicable)
<b>Decomposition temperature</b>	No information.
<b>pH</b>	substance/mixture reacts with water
<b>Viscosity</b>	Dynamic: ca. 220 mPas at 25 °C
<b>Solubility</b>	Water: insoluble
<b>Partition coefficient</b>	No information.
<b>Vapour pressure</b>	0.00001 hPa at 20 °C (MDI)
<b>Density and/or relative density</b>	Density: ca. 1.17 g/cm <sup>3</sup> at 20 °C
<b>Relative vapour density</b>	No information.
<b>Particle characteristics</b>	No information.

### 9.2 OTHER INFORMATION

<b>Explosive properties</b>	No information.
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## SECTION 10: STABILITY AND REACTIVITY

### 10.1 REACTIVITY

No information.

### 10.2 CHEMICAL STABILITY

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

### 10.3 POSSIBILITY OF HAZARDOUS REACTIONS

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Product reacts slowly with water, releasing CO<sub>2</sub>, which can cause overpressure in closed containers. Danger of explosion.. Exothermic reaction with amines and alcohols.

### 10.4 CONDITIONS TO AVOID

No special precautions required. Consider the directions for use and storage. Do not expose to temperatures above 200°C.

### 10.5 INCOMPATIBLE MATERIALS

Amines.  
Alcohols.  
Water. Exothermic reaction with amines and alcohols.

### 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.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 INFORMATION ON HAZARD CLASSES AS DEFINED IN REGULATION (EC) NO 1272/2008

(a) Acute toxicity

For product

Exposure route	Type	Species	Time	value	Method	Remark
inhalation (dusts/mists)	-	/	/	1.5 mg/l	/	Expert judgment

For components

Name	Exposure route	Type	Species	Time	value	Method	Remark
'4,4'-methylenedi phenyl diisocyanate	oral	LD <sub>50</sub>	rat (male/female)	/	> 2000 mg/kg	84/449/EEC, B.1	/
'4,4'-methylenedi phenyl diisocyanate	dermal	LD <sub>50</sub>	rabbit (male/female)	/	> 9400 mg/kg	OECD 402	/
'4,4'-methylenedi phenyl diisocyanate	inhalation (dusts/mists)	LC <sub>50</sub>	rat (male)	4 h	0.368 mg/l	OECD 403	/
Aromatic Polyisocyanate-Prepolymer	oral	LD <sub>50</sub>	rat (male/female)	/	> 2000 mg/kg	84/449/EEC, B.1	/
Aromatic Polyisocyanate-Prepolymer	dermal	LD <sub>50</sub>	rabbit (male/female)	/	> 9400 mg/kg	OECD 402	/
Aromatic Polyisocyanate-Prepolymer	inhalation	-	/	/	/	/	Harmful if inhaled.
diphenylmethane-2,4'-diisocyanate	oral	LD <sub>50</sub>	rat (male/female)	/	> 2000 mg/kg	84/449/EEC, B.1	/

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Name	Exposure route	Type	Species	Time	value	Method	Remark
diphenylmethane-2,4'-diisocyanate	dermal	LD <sub>50</sub>	rabbit (male/female)	/	> 9400 mg/kg	OECD 402	/
diphenylmethane-2,4'-diisocyanate	inhalation (dusts/mists)	LC <sub>50</sub>	rat (male)	4 h	0.387 mg/l	/	/
diphenylmethane diisocyanate, isomers and homologues	oral	LD <sub>50</sub>	rat (male/female)	/	> 10000 mg/kg	OECD 401	/
diphenylmethane diisocyanate, isomers and homologues	dermal	LD <sub>50</sub>	rabbit (male/female)	/	> 9400 mg/kg	OECD 402	/
diphenylmethane diisocyanate, isomers and homologues	inhalation (dusts/mists)	LC <sub>50</sub>	rat (male/female)	4 h	0.31 mg/l	OECD 403	/
'2,2'-methylene diphenyl diisocyanate	oral	LD <sub>50</sub>	rat (male/female)	/	> 2000 mg/kg	84/449/EEC, B.1	/
'2,2'-methylene diphenyl diisocyanate	dermal	LD <sub>50</sub>	rabbit (male/female)	/	> 9400 mg/kg	OECD 402	/
'2,2'-methylene diphenyl diisocyanate	inhalation (dusts/mists)	LC <sub>50</sub>	rat (male)	4 h	0.527 mg/l	OECD 403	/

### Additional information

Harmful if inhaled.

### (b) Skin corrosion/irritation

### For components

Name	Species	Time	result	Method	Remark
'4,4'-methylene diphenyl diisocyanate	rabbit	/	Irritating.	OECD 404	/
Aromatic Polyisocyanate-Prepolymer	/	/	Irritating.	/	/

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Name	Species	Time	result	Method	Remark
diphenylmethane-2,4'-diisocyanate	rabbit	/	Irritating.	OECD 404	/
diphenylmethane diisocyanate, isomers and homologues	rabbit	/	Mild irritating.	OECD 404	/
'2,2'-methylenediphenyl diisocyanate	rabbit	/	Mild irritating.	OECD 404	/

### Additional information

Irritating to eyes, respiratory system and skin.

### (c) Serious eye damage/irritation

For components

Name	Exposure route	Species	Time	result	Method	Remark
'4,4'-methylenediphenyl diisocyanate	/	rabbit	/	No irritant effect.	OECD 405	/
Aromatic Polyisocyanate-Prepolymer	/	/	/	Irritating.	/	/
diphenylmethane-2,4'-diisocyanate	/	rabbit	/	No irritant effect.	OECD 405	/
diphenylmethane diisocyanate, isomers and homologues	/	rabbit	/	No irritant effect.	OECD 405	/
'2,2'-methylenediphenyl diisocyanate	/	rabbit	/	Mild irritating.	OECD 405	/

### (d) Respiratory or skin sensitisation

For components

Name	Exposure route	Species	Time	result	Method	Remark
'4,4'-methylenediphenyl diisocyanate	dermal	mouse	/	Sensitizing.	OECD 429 Skin Sensitisation: Local Lymph Node Assay	/
'4,4'-methylenediphenyl diisocyanate	dermal	guinea pig	/	Non sensitising.	OECD 406	Buehler test
'4,4'-methylenediphenyl diisocyanate	inhalation	guinea pig	/	Sensitizing.	/	/

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Name	Exposure route	Species	Time	result	Method	Remark
<b>Aromatic Polyisocyanate-Prepolymer</b>	dermal	mouse	/	Sensitizing.	OECD 429 Skin Sensitisation: Local Lymph Node Assay	/
<b>Aromatic Polyisocyanate-Prepolymer</b>	inhalation	guinea pig	/	Sensitizing.	/	/
<b>diphenylmethane-2,4'-diisocyanate</b>	dermal	guinea pig	/	Non sensitising.	OECD 406	Buehler test
<b>diphenylmethane-2,4'-diisocyanate</b>	dermal	mouse	/	Sensitizing.	OECD 429 Skin Sensitisation: Local Lymph Node Assay	/
<b>diphenylmethane-2,4'-diisocyanate</b>	inhalation	guinea pig	/	Sensitizing.	/	/
<b>diphenylmethane diisocyanate, isomers and homologues</b>	dermal	guinea pig	/	Non sensitising.	OECD 406, Magnusson & Kligman test	/
<b>diphenylmethane diisocyanate, isomers and homologues</b>	dermal	mouse	/	Sensitizing.	OECD 429 Skin Sensitisation: Local Lymph Node Assay	/
<b>diphenylmethane diisocyanate, isomers and homologues</b>	inhalation	rat	/	Sensitizing.	/	/
<b>'2,2'-methylene diphenyl diisocyanate</b>	dermal	mouse	/	Sensitizing.	OECD 429 Skin Sensitisation: Local Lymph Node Assay	/
<b>'2,2'-methylene diphenyl diisocyanate</b>	inhalation	guinea pig	/	Sensitizing.	/	/

### Additional information

May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

### (e) (Germ cell) mutagenicity

### For components

Name	Type	Species	Time	result	Method	Remark
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## Safety data sheet

Name	Type	Species	Time	result	Method	Remark
<b>'4,4'-methylenediphenyl diisocyanate</b>	in-vitro mutagenicity	Salmonella typhimurium	/	Negative with metabolic activation, negative without metabolic activation.	Ames test, OECD 471	Test conducted with a similar formulation.
<b>'4,4'-methylenediphenyl diisocyanate</b>	in-vivo mutagenicity	rat (male)	3 weeks	Negative.	OECD 474	inhalation ; 3 x 1 h per day
<b>'4,4'-methylenediphenyl diisocyanate</b>	in-vivo mutagenicity	rat (male)	/	Negative.	OECD 489	Dose: 2 - 5 - 11 mg/m <sup>3</sup>
<b>Aromatic Polyisocyanate-Prepolymer</b>	in-vitro mutagenicity	Salmonella typhimurium	/	Negative with metabolic activation, negative without metabolic activation.	Ames test, OECD 471	Test conducted with a similar formulation.
<b>Aromatic Polyisocyanate-Prepolymer</b>	in-vivo mutagenicity	rat (male)	3 weeks	Negative.	OECD 474	inhalation ; 3 x 1 h per day
<b>diphenylmethane-2,4'-diisocyanate</b>	in-vitro mutagenicity	Salmonella typhimurium	/	Negative with metabolic activation, negative without metabolic activation.	Ames test, OECD 471	Test conducted with a similar formulation.
<b>diphenylmethane-2,4'-diisocyanate</b>	in-vivo mutagenicity	rat (male)	3 weeks	Negative.	OECD 474	inhalation ; 3 x 1 h per day
<b>diphenylmethane diisocyanate, isomers and homologues</b>	in-vitro mutagenicity	Salmonella typhimurium	/	Negative with metabolic activation, negative without metabolic activation.	Ames test, OECD 471	Test conducted with a similar formulation.
<b>diphenylmethane diisocyanate, isomers and homologues</b>	in-vivo mutagenicity	rat (male)	3 weeks	Negative.	OECD 474	inhalation ; 3 x 1 h per day
<b>'2,2'-methylenediphenyl diisocyanate</b>	in-vitro mutagenicity	Salmonella typhimurium	/	Negative with metabolic activation, negative without metabolic activation.	Ames test, OECD 471	Test conducted with a similar formulation.

## Safety data sheet

Name	Type	Species	Time	result	Method	Remark
'2,2'-methylene-diphenyl-diisocyanate	in-vivo mutagenicity	rat (male)	3 weeks	Negative.	OECD 474	inhalation ; 3 x 1 h per day

(f) Carcinogenicity

For components

Name	Exposure route	Type	Species	Time	value	result	Method	Remark
'4,4'-methylene-diphenyl-diisocyanate	inhalation (aerosol)	/	rat (male/female)	2 years	6 mg/m <sup>3</sup>	Tumor formation	OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies	5 days per week, 6 h per day
diphenylmethane-2,4'-diisocyanate	inhalation (aerosol)	/	rat (male/female)	2 years	6 mg/m <sup>3</sup>	Tumor formation	OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies	5 days per week, 6 h per day
diphenylmethane-diisocyanate, isomers and homologues	inhalation (aerosol)	/	rat (male/female)	2 years	6 mg/m <sup>3</sup>	Tumor formation	OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies	5 days per week, 6 h per day
'2,2'-methylene-diphenyl-diisocyanate	inhalation (aerosol)	/	rat (male/female)	2 years	6 mg/m <sup>3</sup>	Tumor formation	OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies	5 days per week, 6 h per day

(g) Reproductive toxicity

For components

Name	Reproductive toxicity type	Type	Species	Time	value	result	Method	Remark
'4,4'-methylene-diphenyl-diisocyanate	Teratogenicity	NOAEL	rat (female)	20 days	12 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation
'4,4'-methylene-diphenyl-diisocyanate	Maternal toxicity	NOAEL	rat (female)	20 days	4 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation

## Safety data sheet

Name	Reproductive toxicity type	Type	Species	Time	value	result	Method	Remark
'4,4'-methylene diphenyl diisocyanate	Developmental toxicity	NOAEL	rat (female)	20 days	4 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation
Aromatic Polyisocyanate-Prepolymer	Teratogenicity	NOAEL	rat (female)	20 days	12 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation
Aromatic Polyisocyanate-Prepolymer	Maternal toxicity	NOAEL	rat (female)	20 days	4 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation
Aromatic Polyisocyanate-Prepolymer	Developmental toxicity	NOAEL	rat (female)	20 days	4 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation
diphenylmethane-2,4'-diisocyanate	Teratogenicity	NOAEL	rat (female)	20 days	12 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation
diphenylmethane-2,4'-diisocyanate	Maternal toxicity	NOAEL	rat (female)	20 days	4 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation
diphenylmethane-2,4'-diisocyanate	Developmental toxicity	NOAEL	rat (female)	20 days	4 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation
diphenylmethane diisocyanate, isomers and homologues	Teratogenicity	NOAEL	rat (female)	20 days	12 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation
diphenylmethane diisocyanate, isomers and homologues	Maternal toxicity	NOAEL	rat (female)	20 days	4 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation



## Safety data sheet

Name	Reproductive toxicity type	Type	Species	Time	value	result	Method	Remark
diphenylmethane diisocyanate, isomers and homologues	Developmental toxicity	NOAEL	rat (female)	20 days	4 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation
'2,2'-methylene diphenyl diisocyanate	Teratogenicity	NOAEL	rat (female)	20 days	12 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation
'2,2'-methylene diphenyl diisocyanate	Maternal toxicity	NOAEL	rat (female)	20 days	4 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation
'2,2'-methylene diphenyl diisocyanate	Developmental toxicity	NOAEL	rat (female)	20 days	4 mg/m <sup>3</sup>	not teratogenic	OECD 414	6 hours per day, Inhalation

### Summary of evaluation of the CMR properties

Suspected of causing cancer. Product is not classified as mutagenic or toxic for reproduction.

### (h) STOT-single exposure

For components

Name	Exposure route	Type	Species	Time	Exposure organ	value	result	Method	Remark
'4,4'-methylenediphenyl diisocyanate	inhalation	-	/	/	/	Respiratory tract	May cause respiratory irritation.	/	/
Aromatic Polyisocyanate-Prepolymer	inhalation	-	/	/	/	Respiratory tract	May cause respiratory irritation.	/	/
diphenylmethane-2,4'-diisocyanate	inhalation	-	/	/	/	Respiratory tract	May cause respiratory irritation.	/	/

## Safety data sheet

Name	ExposureType route	Species	Time	Exposure organ	value	result	Method	Remark
diphenyl methane diisocyanate, isomers and homologues	inhalation -	/	/	/	Respiratory tract	/	May cause respiratory irritation.	/
'2,2'-methylenediphenyl diisocyanate	inhalation -	/	/	/	Respiratory tract	/	May cause respiratory irritation.	/

(i) STOT-repeated exposure

For components

Name	Exposure route	Type	Species	Time	Exposure organ	value	result	Method	Remark	
'4,4'-methylenediphenyl diisocyanate	inhalation (aerosol)	NOAEL	rat (male/female)	2 years	/	Lungs, inner lining of the nose	0.2 mg/m³	irritation	OECD 453	6 h per day, 5 days per week
'4,4'-methylenediphenyl diisocyanate	inhalation (aerosol)	LOAEL	rat (male/female)	2 years	/	Lungs, inner lining of the nose	1 mg/m³	irritation	OECD 453	6 h per day, 5 days per week
'4,4'-methylenediphenyl diisocyanate	inhalation	-	/	/	/	Respiratory tract	/	May cause damage to organs through prolonged or repeated exposure.	/	/
Aromatic Polyisocyanate-Prepolymer	inhalation (aerosol)	NOAEL	rat (male/female)	2 years	/	Lungs, inner lining of the nose	0.2 mg/m³	irritation	OECD 453	6 h per day, 5 days per week
Aromatic Polyisocyanate-Prepolymer	inhalation (aerosol)	LOAEL	rat (male/female)	2 years	/	Lungs, inner lining of the nose	1 mg/m³	irritation	OECD 453	6 h per day, 5 days per week

## Safety data sheet

Name	Exposure route	Type	Species	Time	Exposure organ	value	result	Method	Remark	
Aromatic Polyisocyanate-Prepolymer	inhalation	-	/	/	/	Respiratory tract	/	May cause damage to organs through prolonged or repeated exposure.	/	
diphenylmethane-2,4'-diisocyanate	inhalation (aerosol)	NOAEL	rat (male/female)	2 years	/	Lungs, inner lining of the nose	0.2 mg/m³	irritation	OECD 453	6 h per day, 5 days per week
diphenylmethane-2,4'-diisocyanate	inhalation (aerosol)	LOAEL	rat (male/female)	2 years	/	Lungs, inner lining of the nose	1 mg/m³	irritation	OECD 453	6 h per day, 5 days per week
diphenylmethane-2,4'-diisocyanate	inhalation	-	/	/	/	Respiratory tract	/	May cause damage to organs through prolonged or repeated exposure.	/	
diphenylmethane diisocyanate, isomers and homologues	inhalation (aerosol)	NOAEL	rat (male/female)	2 years	/	Lungs, inner lining of the nose	0.2 mg/m³	irritation	OECD 453	6 h per day, 5 days per week
diphenylmethane diisocyanate, isomers and homologues	inhalation (aerosol)	LOAEL	rat (male/female)	2 years	/	Lungs, inner lining of the nose	1 mg/m³	irritation	OECD 453	6 h per day, 5 days per week

## Safety data sheet

Name	ExposureType route	Species	Time	Exposure organ	value	result	Method	Remark
diphenyl methane diisocyanate, isomers and homologues	inhalation -	/	/	/	Respiratory tract	May cause damage to organs through prolonged or repeated exposure.	/	/
'2,2'-methylenediphenyl diisocyanate	inhalation (aerosol)	NOAEL	rat (male/female)	2 years	/	Lungs, inner lining of the nose	0.2 mg/m <sup>3</sup>	irritation OECD 453 6 h per day, 5 days per week
'2,2'-methylenediphenyl diisocyanate	inhalation (aerosol)	LOAEL	rat (male/female)	2 years	/	Lungs, inner lining of the nose	1 mg/m <sup>3</sup>	irritation OECD 453 6 h per day, 5 days per week
'2,2'-methylenediphenyl diisocyanate	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

No information.

### Symptoms related to the physical, chemical and toxicological characteristics

No information.

### Interactive effects

No information.

## 11.2 INFORMATION ON OTHER HAZARDS

### Endocrine disrupting properties

No information.

### Other information

No information.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1 TOXICITY

#### Acute (short-term) toxicity

#### For components

## Safety data sheet

Name	Type	value	Exposure time	Species	organism	Method	Remark
'4,4'-methylenedi phenyl diisocyanate	LC <sub>50</sub>	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	/
'4,4'-methylenedi phenyl diisocyanate	EC <sub>50</sub>	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	/
'4,4'-methylenedi phenyl diisocyanate	ErC <sub>50</sub>	> 1640 mg/L	72 h	algae	<i>Scenedesmus subspicatus</i>	OECD 201	/
'4,4'-methylenedi phenyl diisocyanate	EC <sub>50</sub>	> 100 mg/L	3 h	bacteria	Activated sludge	OECD 209	/
'4,4'-methylenedi phenyl diisocyanate	NOEC	> 1000 mg/kg	14 days	Soil macroorganisms	<i>Eisenia fetida</i>	OECD TG 207	/
'4,4'-methylenedi phenyl diisocyanate	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Avena sativa</i>	OECD 208	/
'4,4'-methylenedi phenyl diisocyanate	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Lactuca sativa</i>	OECD 208	/
Aromatic Polyisocyanate-Prepolymer	LC <sub>50</sub>	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	/
Aromatic Polyisocyanate-Prepolymer	EC <sub>50</sub>	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	/
Aromatic Polyisocyanate-Prepolymer	ErC <sub>50</sub>	> 1640 mg/L	72 h	algae	<i>Scenedesmus subspicatus</i>	OECD 201	/
Aromatic Polyisocyanate-Prepolymer	EC <sub>50</sub>	> 100 mg/L	3 h	bacteria	Activated sludge	OECD 209	/

## Safety data sheet

Name	Type	value	Exposure time	Species	organism	Method	Remark
diphenylmet hane-2,4'-diisocyanate	LC <sub>50</sub>	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	/
diphenylmet hane-2,4'-diisocyanate	EC <sub>50</sub>	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	/
diphenylmet hane-2,4'-diisocyanate	ErC <sub>50</sub>	> 1640 mg/L	72 h	algae	<i>Scenedesmus subspicatus</i>	OECD 201	/
diphenylmet hane-2,4'-diisocyanate	EC <sub>50</sub>	> 100 mg/L	3 h	bacteria	Activated sludge	OECD 209	/
diphenylmet hane-2,4'-diisocyanate	NOEC	> 1000 mg/kg	14 days	Soil macroorganisms	<i>Eisenia fetida</i>	OECD TG 207	/
diphenylmet hane-2,4'-diisocyanate	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Avena sativa</i>	OECD 208	/
diphenylmet hane-2,4'-diisocyanate	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Lactuca sativa</i>	OECD 208	/
diphenylmet hane diisocyanate, isomers and homologues	LC <sub>50</sub>	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	/
diphenylmet hane diisocyanate, isomers and homologues	EC <sub>50</sub>	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	static system
diphenylmet hane diisocyanate, isomers and homologues	ErC <sub>50</sub>	> 1640 mg/L	72 h	algae	<i>Scenedesmus subspicatus</i>	OECD 201	/
diphenylmet hane diisocyanate, isomers and homologues	EC <sub>50</sub>	> 100 mg/L	3 h	bacteria	Activated sludge	OECD 209	/

## Safety data sheet

Name	Type	value	Exposure time	Species	organism	Method	Remark
diphenylmethane diisocyanate, isomers and homologues	NOEC	> 1000 mg/kg	14 days	Soil macroorganisms	<i>Eisenia fetida</i>	OECD TG 207	/
diphenylmethane diisocyanate, isomers and homologues	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Avena sativa</i>	OECD 208	/
diphenylmethane diisocyanate, isomers and homologues	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Lactuca sativa</i>	OECD 208	/
'2,2'-methylenebis(4-chlorophenyl) diisocyanate	LC <sub>50</sub>	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	/
'2,2'-methylenebis(4-chlorophenyl) diisocyanate	EC <sub>50</sub>	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	/
'2,2'-methylenebis(4-chlorophenyl) diisocyanate	EC <sub>50</sub>	> 1640 mg/L	72 h	algae	<i>Scenedesmus subspicatus</i>	OECD 201	/
'2,2'-methylenebis(4-chlorophenyl) diisocyanate	EC <sub>50</sub>	> 100 mg/L	3 h	bacteria	Activated sludge	OECD 209	/
'2,2'-methylenebis(4-chlorophenyl) diisocyanate	NOEC	> 1000 mg/kg	14 days	Soil macroorganisms	<i>Eisenia fetida</i>	OECD TG 207	/
'2,2'-methylenebis(4-chlorophenyl) diisocyanate	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Avena sativa</i>	OECD 208	/
'2,2'-methylenebis(4-chlorophenyl) diisocyanate	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Lactuca sativa</i>	OECD 208	/

Chronic (long-term) toxicity

## Safety data sheet

### For components

Name	Type	value	Exposure time	Species	organism	Method	Remark
'4,4'-methylenedi phenyl diisocyanate	NOEC	> 10 mg/l	21 days	Magna Daphnia	<i>Daphnia magna</i>	OECD 211	reproduction
Aromatic Polyisocyanate-Prepolymer	NOEC	> 10 mg/l	21 days	Magna Daphnia	<i>Daphnia magna</i>	OECD 211	reproduction
diphenylmethane-2,4'-diisocyanate	NOEC	> 10 mg/l	21 days	Magna Daphnia	<i>Daphnia magna</i>	OECD 211	reproduction
diphenylmethane diisocyanate, isomers and homologues	NOEC	> 10 mg/l	21 days	crustacea	<i>Daphnia magna</i>	OECD 211	/
'2,2'-methylenedi phenyl diisocyanate	NOEC	> 10 mg/l	21 days	Magna Daphnia	<i>Daphnia magna</i>	OECD 211	reproduction

### 12.2 PERSISTENCE AND DEGRADABILITY

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

##### For components

Name	Environment	Type / Method	Half Time	Evaluation	Method	Remark
'4,4'-methylenediphenyl diisocyanate	Air	photodegradation	0.92 days	After evaporation or in case of contact with air, moderately fast photochemical degradation.	SRC AOP	Half-life; Concentration of OH radicals: 500,000 / cm <sup>3</sup> ; 1,16E-11 cm <sup>3</sup> /s
'4,4'-methylenediphenyl diisocyanate	water	hydrolysis	20 h	Substance rapidly hydrolyzes in water.	half-life	25°C
diphenylmethane-2,4'-diisocyanate	water	hydrolysis	20 h	Substance rapidly hydrolyzes in water.	half-life	25°C
diphenylmethane-2,4'-diisocyanate	Air	photodegradation	0.92 days	After evaporation or in case of contact with air, moderately fast photochemical degradation.	SRC AOP	Half-life; Concentration of OH radicals: 500,000 / cm <sup>3</sup> ; 1,16E-11 cm <sup>3</sup> /s



## Safety data sheet

Name	Environment	Type / Method	Half Time	Evaluation	Method	Remark
diphenylmethane diisocyanate, isomers and homologues	water	hydrolysis	20 h	Substance rapidly hydrolyzes in water.	half-life	25°C
diphenylmethane diisocyanate, isomers and homologues	Air	photodegradation	0.92 days	After evaporation or in case of contact with air, moderately fast photochemical degradation.	SRC AOP	Half-life; Concentration of OH radicals: 500,000; 1,16E-11 cm <sup>3</sup> /s; 25 °C
'2,2'-methylenediphenyl diisocyanate	water	hydrolysis	20 h	Substance rapidly hydrolyzes in water.	half-life	25°C
'2,2'-methylenediphenyl diisocyanate	Air	photodegradation	0.92 days	After evaporation or in case of contact with air, moderately fast photochemical degradation.	SRC AOP	Half-life; Concentration of OH radicals: 500,000 / cm <sup>3</sup> ; 1,16E-11 cm <sup>3</sup> /s

### Biodegradation

For components

Name	Type	Rate	Time	Evaluation	Method	Remark
'4,4'-methylenediphenyl diisocyanate	aerobic	0 %	28 days	Non-biodegradable	OECD 302 C	/
Aromatic Polyisocyanate-Prepolymer	aerobic	0 %	28 days	Non-biodegradable	OECD 302 C	/
diphenylmethane-2,4'-diisocyanate	aerobic	0 %	28 days	Non-biodegradable	OECD 302 C	/
diphenylmethane diisocyanate, isomers and homologues	aerobic	0 %	28 days	Non-biodegradable	OECD 302 C	/
'2,2'-methylenediphenyl diisocyanate	aerobic	0 %	28 days	Non-biodegradable	OECD 302 C	/

### Additional information

Contains non readily biodegradable component(s).

## 12.3 BIOACCUMULATIVE POTENTIAL

### Partition coefficient

No information.

### Bioconcentration factor (BCF)

For components

## Safety data sheet

Name	Species	organism	value	Duration	Evaluation	Method	Remark
'4,4'-methylenediphenyl diisocyanate	BCF	<i>Cyprinus carpio</i>	200	28 days	/	OECD 305 E	0,00008 mg/l
diphenylmethane-2,4'-diisocyanate	BCF	<i>Cyprinus carpio</i>	200	28 days	/	OECD 305 E	0,00008 mg/l
diphenylmethane diisocyanate, isomers and homologues	BCF	<i>Cyprinus carpio</i>	< 14	42 days	/	OECD 305 C	0,2 mg/l
'2,2'-methylenediphenyl diisocyanate	BCF	<i>Cyprinus carpio</i>	200	28 days	/	OECD 305 E	0,00008 mg/l

### Additional information

No bioaccumulation expected.

### 12.4 MOBILITY IN SOIL

#### Known or predicted distribution to environmental compartments

No information.

#### Surface tension

No information.

#### Adsorption/Desorption

#### For components

Name	Type	Criterion	value	Evaluation	Method	Remark
'4,4'-methylenediphenyl diisocyanate	Water	Henry constant (H)	0.0229 Pa.m <sup>3</sup> / mol	slightly volatile in water	/	/
diphenylmethane-2,4'-diisocyanate	Water	Henry constant (H)	0.0229 Pa.m <sup>3</sup> / mol	slightly volatile in water	/	/
'2,2'-methylenediphenyl diisocyanate	Water	Henry constant (H)	0.0229 Pa.m <sup>3</sup> / mol	slightly volatile in water	/	/

### 12.5 RESULTS OF PBT AND VPVB ASSESSMENT

The components in this formulation do not meet the criteria for classification as PBT or vPvB.

### 12.6 ENDOCRINE DISRUPTING PROPERTIES

No information.

### 12.7 OTHER ADVERSE EFFECTS

No information.

### 12.8 ADDITIONAL INFORMATION

#### For product

Water hazard class 1 (self-assessment): slightly hazardous for water. Do not allow to reach ground water, water courses or sewage system. Isocyanates react with water to form an insoluble polyurea. The product reacts with water, resulting in the formation of CO<sub>2</sub> and a hard insoluble substance (polyurea).

#### For components

'4,4'-methylenediphenyl diisocyanate

# Safety data sheet

Adverse effects on sewage treatment plants are not expected. This substance is not PBT-/vPvB..

## diphenylmethane-2,4'-diisocyanate

Adverse effects on sewage treatment plants are not expected. This substance is not PBT-/vPvB..

## diphenylmethane diisocyanate, isomers and homologues

Adverse effects on sewage treatment plants are not expected. This substance is not PBT-/vPvB..

## '2,2'-methylenediphenyl diisocyanate

Adverse effects on sewage treatment plants are not expected. This substance is not PBT-/vPvB..

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1 WASTE TREATMENT METHODS

#### Product / Packaging disposal

#### Waste chemical

Disposal must be made according to official regulations: deliver it to authorised collector/remover/transformer of hazardous waste. Do not allow product to reach drains/sewage systems.

#### 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

#### Waste treatment-relevant information

No information.

#### Sewage disposal-relevant information

No information.

#### Other disposal recommendations

No information.

## SECTION 14: TRANSPORT INFORMATION

ADR/RID	IMDG	IATA	ADN
<b>14.1 UN number or ID number</b>			
Not dangerous according to transport regulations.	Not dangerous according to transport regulations.	Not dangerous according to transport regulations.	Not dangerous according to transport regulations.
<b>14.2 UN proper shipping name</b>			
Not given/not applicable	Not given/not applicable	Not given/not applicable	Not given/not applicable
<b>14.3 Transport hazard class(es)</b>			
Not given/not applicable	Not given/not applicable	Not given/not applicable	Not given/not applicable
<b>14.4 Packing group</b>			
Not given/not applicable	Not given/not applicable	Not given/not applicable	Not given/not applicable
<b>14.5 Environmental hazards</b>			
NO	NO	NO	NO
<b>14.6 Special precautions for user</b>			
Limited quantities Not given/not applicable	Limited quantities Not given/not applicable		Limited quantities Not given/not applicable

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ADR/RID	IMDG	IATA	ADN
14.7 Maritime transport in bulk according to IMO instruments			
	Not given/not applicable		

### 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) 2020/878)
- Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures

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

not applicable

Regulation EC 648/2004 on detergents

No information.

Special instructions

Always observe any existing national regulations on the handling of isocyanates. 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

2.2 Label elements 8.2 Exposure controls

Key literature references and sources for data

No information.

Abbreviations and acronyms

# Safety data sheet

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)

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

EWG - 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

LC50 - Lethal Concentration to 50 % of a test population

LD50 - 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

## List of relevant H phrases



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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.