

SAFETY DATA SHEET

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

1.1. PRODUCT IDENTIFIER

Product name

PARKETOLIT PR51



chemius.net/MB15b

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
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 exposure.

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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 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.

2.2.2. Contains:

'4,4'-methylenediphenyl diisocyanate (CAS: 101-68-8, EC: 202-966-0, Index: 615-005-00-9)

Aromatic Polyisocyanate-Prepolymer (CAS: 67815-87-6)

diphenylmethane-2,4'-diisocyanate (CAS: 5873-54-1, EC: 227-534-9, Index: 615-005-00-9)

diphenylmethane diisocyanate, isomers and homologues (CAS: 9016-87-9, EC: 618-498-9, Index: 615-005-00-9)

'2,2'-methylenediphenyl diisocyanate (CAS: 2536-05-2, EC: 219-799-4, Index: 615-005-00-9)

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

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

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Product description

Polyisocyanate prepolymer based on diphenylmethane diisocyanate.

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.
'4,4'-methylenediphenyl diisocyanate [C]	101-68-8 202-966-0 615-005-00-9	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 %	01-2119457014-47
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		-
diphenylmethane-2,4'-diisocyanate [C]	5873-54-1 227-534-9 615-005-00-9	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 %	01-2119480143-45
diphenylmethane diisocyanate, isomers and homologues	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		-
'2,2'-methylenediphenyl diisocyanate [C]	2536-05-2 219-799-4 615-005-00-9	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 %	01-2119927323-43

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

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.

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Following inhalation

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

Following skin contact

Immediately remove contaminated clothing. Wash affected skin areas thoroughly 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

Inhalation

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

Skin contact

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

Eye contact

Redness, tearing, pain.

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 (CO₂).
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 (CO₂). In the event of fire the following is released: nitrogen oxides (NO_x).
Vapours of Isocyanates.
Hydrogen cyanide (HCN).

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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 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).

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

6.1.1. For non-emergency personnel

Protective equipment

Use personal protective equipment (Section 8).

Emergency procedures

Ensure adequate ventilation. Keep away from sources of ignition and/or heat; No smoking! Prevent access to unauthorised personnel.

6.1.2. For emergency responders

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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

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6.3.2. 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 (CO₂ 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.

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

7.1. PRECAUTIONS FOR SAFE HANDLING

7.1.1. 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.

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Measures to protect the environment

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7.1.2. 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

7.2.1. 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.

7.2.2. Packaging materials

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7.2.3. Requirements for storage rooms and vessels

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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

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Industrial sector specific solutions

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

Name	Type	Exposure route	Exposure frequency	Value	Remark
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Worker	inhalation	short term (local effects)	0,1 mg/m ³	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Worker	inhalation	short term (systemic effects)	0,05 mg/m ³	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Consumer	inhalation	short term (local effects)	0,05 mg/m ³	

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'4,4'-methylenediphenyl diisocyanate (101-68-8)	Consumer	inhalation	long term (local effects)	0,025 mg/m ³	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Worker	dermal	short term (local effects)	28,7 mg/cm ²	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Worker	dermal	short term (systemic effects)	50 mg/kg bw/day	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Worker	inhalation	long term (local effects)	0,05 mg/m ³	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Worker	inhalation	long term (systemic effects)	0,05 mg/m ³	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Worker	inhalation	short term (local effects)	0,1 mg/m ³	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Worker	inhalation	short term (systemic effects)	0,1 mg/m ³	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Consumer	dermal	short term (systemic effects)	25 mg/kg bw/day	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Consumer	inhalation	short term (systemic effects)	0,05 mg/m ³	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Consumer	oral	short term (systemic effects)	20 mg/kg bw/day	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Consumer	dermal	short term (local effects)	17,2 mg/cm ²	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Consumer	inhalation	short term (local effects)	0,05 mg/m ³	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Consumer	inhalation	long term (systemic effects)	0,025 mg/m ³	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Consumer	inhalation	long term (local effects)	0,025 mg/m ³	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Worker	dermal	short term (local effects)	28,7 mg/cm ²	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Worker	dermal	short term (systemic effects)	50 mg/kg bw/day	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Worker	inhalation	long term (local effects)	0,05 mg/m ³	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Worker	inhalation	long term (systemic effects)	0,05 mg/m ³	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Worker	inhalation	short term (local effects)	0,1 mg/m ³	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Worker	inhalation	short term (systemic effects)	0,1 mg/m ³	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Consumer	dermal	short term (systemic effects)	25 mg/kg bw/day	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Consumer	inhalation	short term (systemic effects)	0,05 mg/m ³	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Consumer	oral	short term (systemic effects)	20 mg/kg bw/day	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Consumer	dermal	short term (local effects)	17,2 mg/cm ²	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Consumer	inhalation	short term (local effects)	0,05 mg/m ³	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Consumer	inhalation	long term (systemic effects)	0,025 mg/m ³	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Consumer	inhalation	long term (local effects)	0,025 mg/m ³	

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8.1.4. PNEC values

For components

Name	Exposure route	Value	Remark
'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	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	soil	1 mg/kg	dry weight
diphenylmethane-2,4'-diisocyanate (5873-54-1)	fresh water	1 mg/L	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	marine water	0,1 mg/L	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	water treatment plant	1 mg/L	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	soil	1 mg/kg	dry weight
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	fresh water	1 mg/L	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	marine water	0,1 mg/L	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	water treatment plant	1 mg/L	

8.2. EXPOSURE CONTROLS

8.2.1. 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.

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 glasses with side protection (EN 166).

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.

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

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

Respiratory protection

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

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Thermal hazards

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8.2.3. Environmental exposure controls

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

-	Physical state:	liquid
-	Colour:	dark brown
-	Odour:	mild, slightly aromatic

Important health, safety and environmental information

-	pH	No information.
-	Melting point/freezing point	> 0 °C
-	Initial boiling point/boiling range	> 350 °C (1013 hPa)
-	Flash point	210 °C (DIN 22719)
-	Evaporation rate	No information.
-	Flammability (solid, gas)	> 400 °C (DIN 51794)
-	Explosion limits (vol%)	No information.
-	Vapour pressure	1,0E-5 hPa at 20 °C (MDI)
-	Vapour density	No information.
-	Density	Density: ca. 1,17 g/cm ³ at 20 °C
-	Solubility	Water: insoluble
-	Partition coefficient	No information.
-	Auto-ignition temperature	Not applicable
-	Decomposition temperature	No information.
-	Viscosity	Dynamic: ca. 220 mPas at 25 °C
-	Explosive properties	No information.
-	Oxidising properties	No information.

9.2. OTHER INFORMATION

-	Remarks:	
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SECTION 10. STABILITY AND REACTIVITY

10.1. REACTIVITY

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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 CO₂, which can cause overpressure in closed containers. Danger of explosion..
Exothermic reaction with amines and alcohols.

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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 TOXICOLOGICAL EFFECTS

(a) Acute toxicity

Name	Exposure route	Type	Species	Time	Value	Method	Remark
For product	inhalation (dusts/mists)	-			1,5 mg/l		Expert judgment
'4,4'-methylenediphenyl diisocyanate (101-68-8)	oral	LD ₅₀	rat (male/female)		> 2000 mg/kg	84/449/EEC, B.1	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	dermal	LD ₅₀	rabbit (male/female)		> 9400 mg/kg	OECD 402	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	inhalation (dusts/mists)	LC ₅₀	rat (male)	4 h	0,368 mg/l	OECD 403	
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	oral	LD ₅₀	rat (male/female)		> 2000 mg/kg	84/449/EEC, B.1	
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	dermal	LD ₅₀	rabbit (male/female)		> 9400 mg/kg	OECD 402	
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	inhalation	-					Harmful if inhaled.
diphenylmethane-2,4'-diisocyanate (5873-54-1)	oral	LD ₅₀	rat (male/female)		> 2000 mg/kg	84/449/EEC, B.1	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	dermal	LD ₅₀	rabbit (male/female)		> 9400 mg/kg	OECD 402	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	inhalation (dusts/mists)	LC ₅₀	rat (male)	4 h	0,387 mg/l		
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	oral	LD ₅₀	rat (male/female)		> 10000 mg/kg	OECD 401	
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	dermal	LD ₅₀	rabbit (male/female)		> 9400 mg/kg	OECD 402	
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	inhalation (dusts/mists)	LC ₅₀	rat (male/female)	4 h	0,31 mg/l	OECD 403	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	oral	LD ₅₀	rat (male/female)		> 2000 mg/kg	84/449/EEC, B.1	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	dermal	LD ₅₀	rabbit (male/female)		> 9400 mg/kg	OECD 402	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	inhalation (dusts/mists)	LC ₅₀	rat (male)	4 h	0,527 mg/l	OECD 403	
Additional information: Harmful if inhaled.							

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(b) Skin corrosion/irritation

Name	Species	Time	Result	Method	Remark
'4,4'-methylenediphenyl diisocyanate (101-68-8)	rabbit		Irritating.	OECD 404	
Aromatic Polyisocyanate-Prepolymer (67815-87-6)			Irritating.		
diphenylmethane-2,4'-diisocyanate (5873-54-1)	rabbit		Irritating.	OECD 404	
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	rabbit		Mild irritating.	OECD 404	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	rabbit		Mild irritating.	OECD 404	
Additional information: Irritating to eyes, respiratory system and skin.					

(c) Serious eye damage/irritation

Name	Species	Time	Result	Method	Remark
'4,4'-methylenediphenyl diisocyanate (101-68-8)	rabbit		No irritant effect.	OECD 405	
Aromatic Polyisocyanate-Prepolymer (67815-87-6)			Irritating.		
diphenylmethane-2,4'-diisocyanate (5873-54-1)	rabbit		No irritant effect.	OECD 405	
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	rabbit		No irritant effect.	OECD 405	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	rabbit		Mild irritating.	OECD 405	

(d) Respiratory or skin sensitisation

Name	Exposure route	Species	Time	Result	Method	Remark
'4,4'-methylenediphenyl diisocyanate (101-68-8)	dermal	mouse		Sensitizing.	OECD 429 Skin Sensitisation: Local Lymph Node Assay	
'4,4'-methylenediphenyl diisocyanate (101-68-8)	dermal	guinea pig		Non sensitising.	OECD 406	Buehler test
'4,4'-methylenediphenyl diisocyanate (101-68-8)	inhalation	guinea pig		Sensitizing.		
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	dermal	mouse		Sensitizing.	OECD 429 Skin Sensitisation: Local Lymph Node Assay	
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	inhalation	guinea pig		Sensitizing.		
diphenylmethane-2,4'-diisocyanate (5873-54-1)	dermal	guinea pig		Non sensitising.	OECD 406	Buehler test
diphenylmethane-2,4'-diisocyanate (5873-54-1)	dermal	mouse		Sensitizing.	OECD 429 Skin Sensitisation: Local Lymph Node Assay	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	inhalation	guinea pig		Sensitizing.		
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	dermal	guinea pig		Non sensitising.	OECD 406, Magnusson & Kligman test	
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	dermal	mouse		Sensitizing.	OECD 429 Skin Sensitisation: Local Lymph Node Assay	
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	inhalation	rat		Sensitizing.		
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	dermal	mouse		Sensitizing.	OECD 429 Skin Sensitisation: Local Lymph Node Assay	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	inhalation	guinea pig		Sensitizing.		
Additional information: May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.						

SAFETY DATA SHEET

(e) (Germ cell) mutagenicity

Name	Type	Species	Time	Result	Method	Remark
'4,4'-methylenediphenyl diisocyanate (101-68-8)	in-vitro mutagenicity	Salmonella typhimurium		Negative with metabolic activation, negative without metabolic activation.	Ames test, OECD 471	Test conducted with a similar formulation.
'4,4'-methylenediphenyl diisocyanate (101-68-8)	in-vivo mutagenicity	rat (male)	3 weeks	Negative.	OECD 474	inhalation ; 3 x 1 h per day
'4,4'-methylenediphenyl diisocyanate (101-68-8)	in-vivo mutagenicity	rat (male)		Negative.	OECD 489	Dose: 2 - 5 - 11 mg/m ³
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	in-vitro mutagenicity	Salmonella typhimurium		Negative with metabolic activation, negative without metabolic activation.	Ames test, OECD 471	Test conducted with a similar formulation.
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	in-vivo mutagenicity	rat (male)	3 weeks	Negative.	OECD 474	inhalation ; 3 x 1 h per day
diphenylmethane-2,4'-diisocyanate (5873-54-1)	in-vitro mutagenicity	Salmonella typhimurium		Negative with metabolic activation, negative without metabolic activation.	Ames test, OECD 471	Test conducted with a similar formulation.
diphenylmethane-2,4'-diisocyanate (5873-54-1)	in-vivo mutagenicity	rat (male)	3 weeks	Negative.	OECD 474	inhalation ; 3 x 1 h per day
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	in-vitro mutagenicity	Salmonella typhimurium		Negative with metabolic activation, negative without metabolic activation.	Ames test, OECD 471	Test conducted with a similar formulation.
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	in-vivo mutagenicity	rat (male)	3 weeks	Negative.	OECD 474	inhalation ; 3 x 1 h per day
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	in-vitro mutagenicity	Salmonella typhimurium		Negative with metabolic activation, negative without metabolic activation.	Ames test, OECD 471	Test conducted with a similar formulation.
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	in-vivo mutagenicity	rat (male)	3 weeks	Negative.	OECD 474	inhalation ; 3 x 1 h per day

(f) Carcinogenicity

Name	Exposure route	Type	Species	Time	Value	Result	Method	Remark
'4,4'-methylenediphenyl diisocyanate (101-68-8)	inhalation (aerosol)		rat (male/female)	2 years	6 mg/m ³	Tumor formation	OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies	5 days per week, 6 h per day
diphenylmethane-2,4'-diisocyanate (5873-54-1)	inhalation (aerosol)		rat (male/female)	2 years	6 mg/m ³	Tumor formation	OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies	5 days per week, 6 h per day
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	inhalation (aerosol)		rat (male/female)	2 years	6 mg/m ³	Tumor formation	OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies	5 days per week, 6 h per day
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	inhalation (aerosol)		rat (male/female)	2 years	6 mg/m ³	Tumor formation	OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies	5 days per week, 6 h per day

SAFETY DATA SHEET

(g) Reproductive toxicity

Name	Reproductive toxicity type	Type	Species	Time	Value	Result	Method	Remark
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Teratogenicity	NOAEL	rat (female)	20 days	12 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Maternal toxicity	NOAEL	rat (female)	20 days	4 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Developmental toxicity	NOAEL	rat (female)	20 days	4 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	Teratogenicity	NOAEL	rat (female)	20 days	12 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	Maternal toxicity	NOAEL	rat (female)	20 days	4 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	Developmental toxicity	NOAEL	rat (female)	20 days	4 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Teratogenicity	NOAEL	rat (female)	20 days	12 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Maternal toxicity	NOAEL	rat (female)	20 days	4 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Developmental toxicity	NOAEL	rat (female)	20 days	4 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	Teratogenicity	NOAEL	rat (female)	20 days	12 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	Maternal toxicity	NOAEL	rat (female)	20 days	4 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	Developmental toxicity	NOAEL	rat (female)	20 days	4 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Teratogenicity	NOAEL	rat (female)	20 days	12 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Maternal toxicity	NOAEL	rat (female)	20 days	4 mg/m ³	not teratogenic	OECD 414	6 hours per day, Inhalation
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Developmental toxicity	NOAEL	rat (female)	20 days	4 mg/m ³	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.

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(h) STOT-single exposure

Name	Exposure route	Type	Species	Time	Organ	Value	Result	Method	Remark
'4,4'-methylenediphenyl diisocyanate (101-68-8)	inhalation	-			Respiratory tract		May cause respiratory irritation.		
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	inhalation	-			Respiratory tract		May cause respiratory irritation.		
diphenylmethane-2,4'-diisocyanate (5873-54-1)	inhalation	-			Respiratory tract		May cause respiratory irritation.		
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	inhalation	-			Respiratory tract		May cause respiratory irritation.		
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	inhalation	-			Respiratory tract		May cause respiratory irritation.		

(i) STOT-repeated exposure

Name	Exposure route	Type	Species	Time	Organ	Value	Result	Method	Remark
'4,4'-methylenediphenyl diisocyanate (101-68-8)	inhalation (aerosol)	NOAEL	rat (male/female)	2 years	Lungs, inner lining of the nose	0,2 mg/m ³	irritation	OECD 453	6 h per day, 5 days per week
'4,4'-methylenediphenyl diisocyanate (101-68-8)	inhalation (aerosol)	LOAEL	rat (male/female)	2 years	Lungs, inner lining of the nose	1 mg/m ³	irritation	OECD 453	6 h per day, 5 days per week
'4,4'-methylenediphenyl diisocyanate (101-68-8)	inhalation	-			Respiratory tract		May cause damage to organs through prolonged or repeated exposure.		
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	inhalation (aerosol)	NOAEL	rat (male/female)	2 years	Lungs, inner lining of the nose	0,2 mg/m ³	irritation	OECD 453	6 h per day, 5 days per week
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	inhalation (aerosol)	LOAEL	rat (male/female)	2 years	Lungs, inner lining of the nose	1 mg/m ³	irritation	OECD 453	6 h per day, 5 days per week
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	inhalation	-			Respiratory tract		May cause damage to organs through prolonged or repeated exposure.		
diphenylmethane-2,4'-diisocyanate (5873-54-1)	inhalation (aerosol)	NOAEL	rat (male/female)	2 years	Lungs, inner lining of the nose	0,2 mg/m ³	irritation	OECD 453	6 h per day, 5 days per week

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diphenylmethane-2,4'-diisocyanate (5873-54-1)	inhalation (aerosol)	LOAEL	rat (male/female)	2 years	Lungs, inner lining of the nose	1 mg/m ³	irritation	OECD 453	6 h per day, 5 days per week
diphenylmethane-2,4'-diisocyanate (5873-54-1)	inhalation	-			Respiratory tract		May cause damage to organs through prolonged or repeated exposure.		
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	inhalation (aerosol)	NOAEL	rat (male/female)	2 years	Lungs, inner lining of the nose	0,2 mg/m ³	irritation	OECD 453	6 h per day, 5 days per week
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	inhalation (aerosol)	LOAEL	rat (male/female)	2 years	Lungs, inner lining of the nose	1 mg/m ³	irritation	OECD 453	6 h per day, 5 days per week
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	inhalation	-			Respiratory tract		May cause damage to organs through prolonged or repeated exposure.		
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	inhalation (aerosol)	NOAEL	rat (male/female)	2 years	Lungs, inner lining of the nose	0,2 mg/m ³	irritation	OECD 453	6 h per day, 5 days per week
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	inhalation (aerosol)	LOAEL	rat (male/female)	2 years	Lungs, inner lining of the nose	1 mg/m ³	irritation	OECD 453	6 h per day, 5 days per week
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	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.

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
'4,4'-methylenediphenyl diisocyanate (101-68-8)	LC ₅₀	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	
	EC ₅₀	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	
	ErC ₅₀	> 1640 mg/L	72 h	algae	<i>Scenedesmus subspicatus</i>	OECD 201	

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	EC ₅₀	> 100 mg/L	3 h	bacteria	Activated sludge	OECD 209	
	NOEC	> 1000 mg/kg	14 days	Soil macroorganisms	<i>Eisenia fetida</i>	OECD TG 207	
	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Avena sativa</i>	OECD 208	
	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Lactuca sativa</i>	OECD 208	
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	LC ₅₀	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	
	EC ₅₀	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	
	ErC ₅₀	> 1640 mg/L	72 h	algae	<i>Scenedesmus subspicatus</i>	OECD 201	
	EC ₅₀	> 100 mg/L	3 h	bacteria	Activated sludge	OECD 209	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	LC ₅₀	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	
	EC ₅₀	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	
	ErC ₅₀	> 1640 mg/L	72 h	algae	<i>Scenedesmus subspicatus</i>	OECD 201	
	EC ₅₀	> 100 mg/L	3 h	bacteria	Activated sludge	OECD 209	
	NOEC	> 1000 mg/kg	14 days	Soil macroorganisms	<i>Eisenia fetida</i>	OECD TG 207	
	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Avena sativa</i>	OECD 208	
	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Lactuca sativa</i>	OECD 208	
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	LC ₅₀	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	
	EC ₅₀	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	static system
	ErC ₅₀	> 1640 mg/L	72 h	algae	<i>Scenedesmus subspicatus</i>	OECD 201	
	EC ₅₀	> 100 mg/L	3 h	bacteria	Activated sludge	OECD 209	
	NOEC	> 1000 mg/kg	14 days	Soil macroorganisms	<i>Eisenia fetida</i>	OECD TG 207	
	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Avena sativa</i>	OECD 208	
	NOEC	> 1000 mg/kg	14 days	terrestrial plants	<i>Lactuca sativa</i>	OECD 208	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	LC ₅₀	> 1000 mg/L	96 h	fish	<i>Danio rerio</i>	OECD 203	
	EC ₅₀	> 1000 mg/L	24 h	crustacea	<i>Daphnia magna</i>	OECD 202	
	EC ₅₀	> 1640 mg/L	72 h	algae	<i>Scenedesmus subspicatus</i>	OECD 201	
	EC ₅₀	> 100 mg/L	3 h	bacteria	Activated sludge	OECD 209	
	NOEC	> 1000 mg/kg	14 days	Soil macroorganisms	<i>Eisenia fetida</i>	OECD TG 207	

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NOEC > 1000 mg/kg	14 days	terrestrial plants	<i>Avena sativa</i>	OECD 208	
NOEC > 1000 mg/kg	14 days	terrestrial plants	<i>Lactuca sativa</i>	OECD 208	

12.1.2. Chronic (long-term) toxicity

For components

Substance (CAS Nr.)	Type	Value	Exposure time	Species	Organism	Method	Remark
'4,4'-methylenediphenyl diisocyanate (101-68-8)	NOEC	> 10 mg/l	21 days	Magna Daphnia	<i>Daphnia magna</i>	OECD 211	reproduction
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	NOEC	> 10 mg/l	21 days	Magna Daphnia	<i>Daphnia magna</i>	OECD 211	reproduction
diphenylmethane-2,4'-diisocyanate (5873-54-1)	NOEC	> 10 mg/l	21 days	Magna Daphnia	<i>Daphnia magna</i>	OECD 211	reproduction
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	NOEC	> 10 mg/l	21 days	crustacea	<i>Daphnia magna</i>	OECD 211	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	NOEC	> 10 mg/l	21 days	Magna Daphnia	<i>Daphnia magna</i>	OECD 211	reproduction

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
'4,4'-methylenediphenyl diisocyanate (101-68-8)	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 ³ ; 1,16E-11 cm ³ /s
'4,4'-methylenediphenyl diisocyanate (101-68-8)	water	hydrolysis	20 h	Substance rapidly hydrolyzes in water.	half-life	25°C
diphenylmethane-2,4'-diisocyanate (5873-54-1)	water	hydrolysis	20 h	Substance rapidly hydrolyzes in water.	half-life	25°C
diphenylmethane-2,4'-diisocyanate (5873-54-1)	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 ³ ; 1,16E-11 cm ³ /s
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	water	hydrolysis	20 h	Substance rapidly hydrolyzes in water.	half-life	25°C
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	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 ³ /s; 25 °C
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	water	hydrolysis	20 h	Substance rapidly hydrolyzes in water.	half-life	25°C
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	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 ³ ; 1,16E-11 cm ³ /s

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12.2.2. Biodegradation

For components

Substance (CAS Nr.)	Type	Rate	Time	Evaluation	Method	Remark
'4,4'-methylenediphenyl diisocyanate (101-68-8)	aerobic	0 %	28 days	Non-biodegradable	OECD 302 C	
Aromatic Polyisocyanate-Prepolymer (67815-87-6)	aerobic	0 %	28 days	Non-biodegradable	OECD 302 C	
diphenylmethane-2,4'-diisocyanate (5873-54-1)	aerobic	0 %	28 days	Non-biodegradable	OECD 302 C	
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	aerobic	0 %	28 days	Non-biodegradable	OECD 302 C	
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	aerobic	0 %	28 days	Non-biodegradable	OECD 302 C	

Additional information

Contains non readily biodegradable component(s).

12.3. BIOACCUMULATIVE POTENTIAL

12.3.1. Partition coefficient

No information.

12.3.2. Bioconcentration factor (BCF)

For components

Substance (CAS Nr.)	species	Organism	Value	Duration	Evaluation	Method	Remark
'4,4'-methylenediphenyl diisocyanate (101-68-8)	BCF	<i>Cyprinus carpio</i>	200	28 days		OECD 305 E	0,00008 mg/l
diphenylmethane-2,4'-diisocyanate (5873-54-1)	BCF	<i>Cyprinus carpio</i>	200	28 days		OECD 305 E	0,00008 mg/l
diphenylmethane diisocyanate, isomers and homologues (9016-87-9)	BCF	<i>Cyprinus carpio</i>	< 14	42 days		OECD 305 C	0,2 mg/l
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	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

12.4.1. Known or predicted distribution to environmental compartments

No information.

12.4.2. Surface tension

No information.

12.4.3. Adsorption/Desorption

For components

Substance (CAS Nr.)	Type	Criterion	Value	Evaluation	Method	Remark
'4,4'-methylenediphenyl diisocyanate (101-68-8)	Water	Henry constant (H)	0,0229 Pa.m ³ / mol	slightly volatile in water		
diphenylmethane-2,4'-diisocyanate (5873-54-1)	Water	Henry constant (H)	0,0229 Pa.m ³ / mol	slightly volatile in water		
'2,2'-methylenediphenyl diisocyanate (2536-05-2)	Water	Henry constant (H)	0,0229 Pa.m ³ / mol	slightly volatile in water		

SAFETY DATA SHEET

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. OTHER ADVERSE EFFECTS

No information.

12.7. 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 CO₂ and a hard insoluble substance (polyurea).

For components

Substance: '4,4'-methylenediphenyl diisocyanate

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

Substance: diphenylmethane-2,4'-diisocyanate

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

Substance: diphenylmethane diisocyanate, isomers and homologues

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

Substance: '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

13.1.1. 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.

Packaging

Residues must be completely removed from the tank (to the state with no drops, powder or paste). After removing the remains of the product, glued to the walls of the containers, it is necessary to remove the product marks and hazards. Deliver completely emptied containers to approved waste disposal authorities.

13.1.2. Waste treatment-relevant information

-

13.1.3. Sewage disposal-relevant information

-

13.1.4. Other disposal recommendations

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SECTION 14. TRANSPORT INFORMATION

14.1. UN NUMBER

Not applicable.

SAFETY DATA SHEET

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.

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

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

Regulation (EC) No. 1907/2006 (REACH) Annex XVII - Terms of restriction: 56 Methylene-diphenyl 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

SAFETY DATA SHEET

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
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
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

SAFETY DATA SHEET

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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List of relevant H phrases

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 .

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.