Safety Data Sheet

According to Regulation (EC) 1907/2006, Annex II

Revision date: 3/05/2023

UNI-ALU

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

1.1 Product identifier

Trade name: UNI-ALU
Article number: D511111

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses of the substance or mixture: Adhesive.
Uses advised against: No information available at present.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:
MULTITASK INDUSTRIES
KARNEMELKSTRAAT 12
9060 ZELZATE / BELGIUM
TEL : +32 (0)9 282 43 61
FAX : +32 (0)9 337 04 96
HOMEPAGE: www.multitaskindustries.be
EMAIL: info@multitaskindustries.be

Information department:
Technical information: info@multitaskindustries.be

1.4 Emergency telephone number:

Aid organisation: Poison control centre (Brussels): +32 70 245 245

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) 1272/2008 (CLP)

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

2.2 Label elements

Labelling according to Regulation (EC) 1272/2008 (CLP)
Hazard pictograms:

Signal word: Danger.

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Hazard statement:
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
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 by inhalation (respiratory system).

Precautionary statement:
P201 Obtain special instructions before use.
P260 Do not breathe vapours or spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P284 Wear respiratory protection.
P302+P352 IF ON SKIN: Wash with plenty of water/soap.
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.

EUH statements:
EUH204 Contains isocyanates. May produce an allergic reaction.
EUH211 Warning! Hazardous respirable droplets may be formed when sprayed. Do no breathe spray or mist.

As from the 24th of August 2023 adequate training is required before industrial or professional use:
4,4'-methylenediphenyl diisocyanate
2,2'-methylenediphenyl diisocyanate
o-(p-isocyanatobenzyl)phenyl isocyanate
Diphenylmethanediisocyanate, isomeres and homologues

2.3 Other hazards
The mixture does not contain any vPvB substance (vPvB= very persistent, very bioaccumulative) or is not included under XIII of the regulation (EC) 1907/2006 (<0,1%).
The mixture does not contain any PBT substance (PBT= persistent, bioaccumulative, toxic) or is not included under XIII of the regulation (EC) 1907/2006 (<0,1%).
The mixture does not contain any substance with endocrine disrupting properties (<0,1%).

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Not applicable.

3.2 Mixtures

Name	Identification of the product	Content %	Classification according to Regulation (EC) 1272/2008 (CLP)	Specific Concentration Limits and ATE
Propylene carbonate	No.-REACH: 01-2119537232-48-XXXX Index: 607-194-00-1 EINECS/ELINCS/NLP: 203-572-1 CAS: 108-32-7	1-<10	Eye Irrit. 2, H319	/
Diphenylmethanediisocyanate, isomeres and homologues	CAS: 9016-87-9	1-<10	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373 (respiratory system) (as inhalation)	Skin Irrit. 2, H315: >=5% Eye Irrit. 2, H319: >=5% Resp. Sens. 1, H334: >=0,1% STOT SE 3, H335: >=5%
4,4'-methylenediphenyl diisocyanate	No.-REACH: 01-2119457014-47-XXXX Index: 615-005-00-9 EINECS/ELINCS/NLP: 202-966-0 CAS: 101-68-8	1-<10	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373 (respiratory system) (as inhalation)	Skin Irrit. 2, H315: >=5% Eye Irrit. 2, H319: >=5% Resp. Sens. 1, H334: >=0,1% STOT SE 3, H335: >=5%
o-(p-isocyanatobenzyl)phenyl isocyanate	No.-REACH: 01-2119480143-45-XXXX Index: 615-005-00-9 EINECS/ELINCS/NLP: 227-534-9 CAS: 5873-54-1	1-<10	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373 (respiratory system) (as inhalation)	Skin Irrit. 2, H315: >=5% Eye Irrit. 2, H319: >=5% Resp. Sens. 1, H334: >=0,1% STOT SE 3, H335: >=5% ATE (as inhalation, Aerosol): 1,5 mg/l/4h
2,2'-methylenediphenyl diisocyanate	No.-REACH: 01-2119927323-43-XXXX Index: 615-005-00-9 EINECS/ELINCS/NLP: 219-799-4 CAS: 2536-05-2	0,1-<1	Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 Skin Sens. 1, H317 Carc. 2, H351	Skin Irrit. 2, H315: >=5% Eye Irrit. 2, H319: >=5% Resp. Sens. 1, H334: >=0,1% STOT SE 3, H335: >=5% ATE (as inhalation, Aerosol): 1,5 mg/l

			STOT SE 3, H335 STOT RE 2, H373 (respiratory system) (as inhalation)	
Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10 µm)	No.-REACH: 01-2119489379-17-XXXX Index: 022-006-002 EINECS/ELINCS/NLP/ REACH-IT List-No.: 236-675-5 CAS: 13463-67-7	<5	Carc. 2, H351 (as inhalation)	/

For the text of the H-phrases and classification codes (GHS/CLP), see section 16.
The substances named in this section are given with their actual, appropriate classification.
For substances that are listed in appendix VI, table 3.1 of the regulation (EC) no. 1272/2008 (CLP regulation) this means that all notes that may be given here for the named classification have been taken into account.

4. FIRST AID MEASURES

4.1 Description of the first aid measures

General information: First-aiders should ensure that they are protected. Never pour anything into the mouth of an unconscious person.
After inhalation: Remove person from danger area. Supply person with fresh air and consult doctor according to symptoms. If the person is unconscious, place in a stable side position and consult a doctor. Respiratory arrest – Artificial respiration apparatus necessary.
After skin contact: Wipe off residual product carefully with a soft, dry cloth. Remove polluted, soaked clothing immediately, wash thoroughly with plenty of water and soap, in case of irritation of the skin (flare), consult a doctor. Dab away with polyethylene glycol 400.
After eye contact: Remove contact lenses. Wash thoroughly for several minutes using copious water – Call doctor immediately, have Data Sheet available.
After ingestion: Rinse the mouth thoroughly with water. Do not induce vomiting – give copious water to drink. Consult doctor immediately.

4.2 Most important symptoms and effects, both acute and delayed

If applicable delayed symptoms and effects can be found in section 11 and the absorption route in section 4.1.
The following may occur:
Dermatitis (skin inflammation).
Drying of the skin.
Allergic contact eczema.
Discoloration of the skin.
Irritant to mucosa of the nose and throat.
Coughing.
Headaches.
Effect on the central nervous system.
Asthmatic symptoms.
In case of sensitivity, concentrations below the limit value may already result in asthmatic symptoms.
Respiratory distress.
In certain cases, the symptoms of poisoning may only appear after an extended period/after several hours.

4.3 Indication of any immediate medical attention and special treatment Needed
In case of irritation of the lungs, perform first-aid with controlled-dosage aerosol dexamethasone.
Pulmonary oedema prophylaxis.
Medical supervision necessary due to possibility of delayed reaction.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media: CO2, extinction powder, water jet spray, foam.
Unsuitable extinguishing media: High volume water jet.

5.2 Special hazards arising from the substance or mixture
In case of fire the following can develop:
Oxides of carbon.
Oxides of nitrogen.
Isocyanates.
Hydrocyanic acid (hydrogen cyanide).
Toxic gases.

5.3 Advice for fire fighters
For personal protective equipment see Section 8. In case of fire and/or explosion do not breathe fumes. Protective respirator with independent air supply. According to size of fire. Full protection, if necessary. Cool container at risk with water. Dispose of contaminated extinction water according to official regulations.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
For non-emergency personnel: In case of spillage or accidental release, wear personal protective equipment as specified in section 8 to prevent contamination. Ensure sufficient ventilation, remove sources of ignition. Avoid dust formation with solid or powder products. Leave the danger zone if possible, use existing emergency plans if necessary. Ensure sufficient supply of air. Avoid inhalation, and contact with eyes or skin. If applicable, caution – risk of slipping.
For emergency responders: See section 8 for suitable protective equipment and material specifications.

6.2 Environmental precautions
If leakage occurs, dam up. Resolve leaks if possible without risk. Prevent surface and ground-water infiltration, as well as ground penetration. Prevent from entering drainage system. If accidental entry into drainage system occurs, inform responsible authorities.

6.3 Methods and materials for containment and cleaning up
Soak up with absorbent material (e.g. universal binding agent, sand, diatomaceous earth, sawdust) and dispose of according to Section 13. Allow to stand for a few days in an unclosed container until reaction no longer occurs. Keep moist. Do not close packing drum. CO2 formation in closed tanks causes pressure to rise.

6.4 Reference to other sections
For personal protective equipment see Section 8 and for disposal instructions see Section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

General recommendations: Ensure good ventilation. Avoid inhalation of the vapours. If applicable, suction measures at the workstation or on the processing machine necessary. Avoid contact with eyes or skin. No contact with products of this type in case of allergies, asthma and chronic respiratory tract disorders. Eating, drinking, smoking, as well as food-storage, is prohibited in work-room. Observe directions on label and instructions for use. Use working methods according to operating instructions.

Notes on general hygiene measures at the workplace: General hygiene measures for the handling of chemicals are applicable. Wash hands before breaks and at end of work. Keep away from food, drinks and animal feed. Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

7.2 Conditions for safe storage, including any incompatibilities

Keep out of access to unauthorised individuals. Not to be stored in gangways or stair wells. Store product closed and only in original packaging. Keep protected from direct sunlight and temperatures over 50°C. Store in a dry place.

7.3 Specific end use(s)

Adhesive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Diphenylmethanediisocyanate, isomeres and homologues
GW/VL: 0,005 ppm (0,052 mg/m³) (4,4'-MDI)
GW-kw/VL-cd: /
GW-M/VL-M: /
Monitoring procedures: /
BGW/VLB: /
Other information: /

4,4'-methylenediphenyl diisocyanate
GW/VL: 0,005 ppm (0,052 mg/m³)
GW-kw/VL-cd: /
GW-M/VL-M: /
Monitoringsprocedures:

- ISO 16702 (Workplace air quality – determination of total isocyanate groups in air using 2-(1-methoxyphenylpiperazine and liquid chromatography) – 2001.
- MDHS 25/4 (Organic isocyanates in air – Laboratory method using sampling either onto 2-(1-methoxyphenylpiperazine coated glass fibre filters followed by solvent desorption or into impingers and analysis using high performance liquid chromatography) – 2015 –
- EU project BC/CEN/ENTR/000/2002-16 card 7-4 (2004).
- NIOSH 5521 (ISOCYANATES, MONOMERIC) – 1994.
- NIOSH 5522 (ISOCYANATES) – 1998.
- NIOSH 5525 (ISOCYANATES, TOTAL (MAP)) – 2003.
- OSHA 18 (Diisocyanates 2,4-TDI and MDI) – 1980.
- OSHA 47 (Methylene Bisphenyl Isocyanates (MDI)) – 1984.

BGW/VLB: /
Other information: /

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)
GW/VL: 10 mg/m³
GW-kw/VL-cd: /
GW-M/VL-M: /
Monitoring procedures: /
BGW/VLB: /
Other information: /

Silicon dioxide
GW/VL: 3 mg/m³ (respirable fraction), 10 mg/m³ (inhalable fraction) (Silica (amorphous): Silica, not calcined).
GW-kw/VL-cd: /
GW-M/VL-M: /
Monitoring procedures: /
BGW/VLB: /
Other information: /

Calcium carbonate
GW/VL: 10 mg/m³
GW-kw/VL-cd: /
GW-M/VL-M: /
Monitoring procedures: /
BGW/VLB: /
Other information: /

DNEL's:

Propylene carbonate		
Oral	DNEL Long term-systemic	10 mg/kg (Consumer)
Dermal	DNEL Long term-systemic	10 mg/kg (Consumer) 20 mg/kg (Worker/employees)
Inhalation	DNEL Long term-local	10 mg/m^3 (Consumer) 20 mg/m^3 (Worker/employees)
	DNEL Long term-systemic	17,4 mg/m^3 (Consumer) 70,53 mg/kg (Worker/employees) 176 mg/m^3 (Worker/employees)

4,4'-methylenediphenyl diisocyanate		
Oral	DNEL Short term-systemic	20 mg/kg bw/day (Consumer)
Dermal	DNEL Short term-local	17,2 mg/cm² (Consumer) 28,7 mg/cm² (Worker/employees)
	DNEL Short term-systemic	25 mg/kg bw/day (Consumer) 50 mg/kg bw/day (Worker/employees)
Inhalation		0,05 mg/m³ (Consumer)
	DNEL Short term-local	0,1 mg/m³ (Worker/employees)
		0,05 mg/m³ (Consumer)
	DNEL Short term-systemic	0,1 mg/m³ (Worker/employees)
		0,025 mg/m³ (Consumer)
	DNEL Long term-local	0,05 mg/m³ (Worker/employees)
		0,025 mg/m³ (Consumer)
	DNEL Long term-systemic	0,05 mg/m³ (Worker/employees)

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o-(p-isocyanatobenzyl)phenyl isocyanate		
Oral	DNEL Short term-systemic	20 mg/kg bw/day (Consumer)
Dermal	DNEL Short term-local	17,2 mg/cm² (Consumer) 28,7 mg/cm² (Worker/employees)
	DNEL Short term-systemic	25 mg/kg bw/d (Consumer) 50 mg/kg bw/d (Worker/employees)
Inhalation	DNEL Short term-local	0,05 mg/m³ (Consumer) 0,1 mg/m³ (Worker/employees)
	DNEL Short term-systemic	0,05 mg/m³ (Consumer) 0,1 mg/m³ (Worker/employees)
	DNEL Long term-local	0,025 mg/m³ (Consumer) 0,05 mg/m³ (Worker/employees)
	DNEL Long term-systemic	0,025 mg/m³ (Consumer) 0,05 mg/m³ (Worker/employees)

2,2'-methylenediphenyl diisocyanate		
Oral	DNEL Short term-systemic	20 mg/kg bw/d (Consumer)
Dermal	DNEL Short term-local	17,2 mg/cm² (Consumer) 28,7 mg/cm² (Worker/employees)
	DNEL Short term-systemic	25 mg/kg bw/d (Consumer) 50 mg/kg bw/d (Worker/employees)
Inhalation	DNEL Short term-local	0,05 mg/m³ (Consumer) 0,1 mg/m³ (Worker/employees)
	DNEL Short term-systemic	0,05 mg/m³ (Consumer) 0,1 mg/m³ (Worker/employees)
	DNEL Long term-local	0,025 mg/m³ (Consumer) 0,05 mg/m³ (Worker/employees)
	DNEL Long term-systemic	0,025 mg/m³ (Consumer) 0,05 mg/m³ (Worker/employees)

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)		
Oral	DNEL Long term-systemic	700 mg/kg (Consumer)
Inhalation	DNEL Long term-local	10 mg/m³ (Worker/employees)

4,4'-methylenediphenyl diisocyanate		
Oral	DNEL Short term-systemic	20 mg/kg bw/d (Consumer)
Dermal	DNEL Short term-local	17,2 mg/cm² (Consumer) 28,7 mg/cm² (Worker/employees)
	DNEL Short term-systemic	25 mg/kg bw/d (Consumer) 50 mg/kg bw/d (Worker/employees)
Inhalation	DNEL Short term-local	0,05 mg/m³ (Consumer) 0,1 mg/m³ (Worker/employees)
	DNEL Short term-systemic	0,05 mg/m³ (Consumer) 0,1 mg/m³ (Worker/employees)
	DNEL Long term-local	0,025 mg/m³ (Consumer) 0,05 mg/m³ (Worker/employees)
	DNEL Long term-systemic	0,025 mg/m³ (Consumer) 0,05 mg/m³ (Worker/employees)

o-(p-isocyanatobenzyl)phenyl isocyanate		
Oral	DNEL Short term-systemic	20 mg/kg bw/day (Consumer)
Dermal	DNEL Short term-local	17,2 mg/cm² (Consumer) 28,7 mg/cm² (Worker/employees)
	DNEL Short term-systemic	25 mg/kg bw/d (Consumer) 50 mg/kg bw/d (Worker/employees)
Inhalation	DNEL Short term-local	0,1 mg/m³ (Worker/employees)
	DNEL Short term-systemic	0,05 mg/m³ (Consumer) 0,1 mg/m³ (Worker/employees)
	DNEL Long term-local	0,025 mg/m³ (Consumer) 0,05 mg/m³ (Worker/employees)
	DNEL Long term-systemic	0,025 mg/m³ (Consumer) 0,05 mg/m³ (Worker/employees)

Diphenylmethanediisocyanate, isomeres and homologues		
Oral	DNEL Short term-local	20 mg/kg bw/day (Consumer)
Dermal	DNEL Short term-local	17,2 mg/cm² (Consumer) 28,7 mg/cm² (Worker/employees)
	DNEL Short term-systemic	25 mg/kg bw/d (Consumer) 50 mg/kg bw/d (Worker/employees)
Inhalation	DNEL Short term-local	0,05 mg/m³ (Consumer) 0,1 mg/m³ (Worker/employees)
	DNEL Short term-systemic	0,05 mg/m³ (Consumer) 0,1 mg/m³ (Worker/employees)
	DNEL Long term-local	0,025 mg/m³ (Consumer) 0,05 mg/m³ (Worker/employees)
	DNEL Long term-systemic	0,025 mg/m³ (Consumer) 0,05 mg/m³ (Worker/employees)

PNEC's:

Propylene carbonate	
PNEC Freshwater	0,9 mg/l
PNEC Freshwater sediment	0,83 mg/l
PNEC Marine water	0,09 mg/l
PNEC Marine water sediment	0,083 mg/l
PNEC Sewage treatment plant	7400 mg/l
PNEC Soil	0,81 mg/l
PNEC Sporadic (intermittent release)	9 mg/l

4,4'-methylenediphenyl diisocyanate	
PNEC Freshwater	3,7 µg/l
PNEC Freshwater sediment	11,7 mg/kg dry weight
PNEC Marine water	0,37 µg/l
PNEC Marine water sediment	1,17 mg/kg dry weight
PNEC Sporadic (intermittent release)	37 µg/l
PNEC Sewage treatment plant	1 mg/l

PNEC Soil	2,33 mg/kg dw

o-(p-isocyanatobenzyl)phenyl isocyanate	
PNEC Freshwater	1 mg/l
PNEC Marine water	0,1 mg/l
PNEC Sporadic (intermittent release)	10 mg/l
PNEC Sewage treatment plant	1 mg/l
PNEC Soil	1 mg/kg dw

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)	
PNEC Freshwater	0,184 mg/l
PNEC Freshwater sediment	1000 mg/kg dw
PNEC Marine water	0,0184 mg/l
PNEC Marine water sediment	100 mg/kg dw
PNEC Sewage treatment plant	100 mg/l
PNEC Soil	100 mg/kg dw
PNEC Sporadic (intermittent release)	0,193 mg/l
PNEC Oral (pet food)	1667 mg/kg feed

2,2'-methyleendifenyldiisocyanaat	
PNEC Freshwater	1 mg/l
PNEC Marine water	0,1 mg/l
PNEC Sporadic (intermittent release)	10 mg/l
PNEC Sewage treatment plant	1 mg/l
PNEC Soil	1 mg/kg dw

4,4'-methylenediphenyl diisocyanate	
PNEC Freshwater	1 mg/l
PNEC Marine water	0,1 mg/l
PNEC Sporadic (intermittent release)	10 mg/l
PNEC Sewage treatment plant	1 mg/l
PNEC Soil	1 mg/kg dw

o-(p-isocyanatobenzyl)phenyl isocyanate	
PNEC Freshwater	1 mg/l
PNEC Marine water	0,1 mg/l
PNEC Sewage treatment plant	1 mg/l
PNEC Soil	1 mg/kg dw

Diphenylmethanediisocyanate, isomeres and homologues	
PNEC Freshwater	1 mg/l
PNEC Marine water	0,1 mg/l
PNEC Sporadic (intermittent release)	10 mg/l
PNEC Sewage treatment plant	1 mg/l
PNEC Soil	1 mg/kg dw

BE
GW / VL = Occupational Exposure Limit. / Valeur limite d'exposition professionnelle.
(8) = Respirable fraction. (Directive 2017/164/EU, Directive 2004/37/EC).
(9) = Respirable fraction (Directive 2017/164/EU, Directive 2004/37/EC).
(11) = Inhalable fraction (Directive 2004/37/EC).
(12) = Respirable fraction. Respirable fraction in the Member States that, on the date of entry into force of this Directive, implement a biomonitoring system with a maximum biological limit value of 0.002 mg Cd/g creatinine in the urine (Directive 2004/37/CE).
GW-kw / VL-cd = Occupational Exposure Limit – Short Time Value. / Valeur limite d'exposition professionelle – Valeur courte durée.
(8) = Inhalable fraction / Fraction inhalable (2017/164/EU, 2017/2398/EU).
(9) = Respirable fraction / Fraction alveolar (2017/164/EU, 2017/2398/EU).
(10) = Limit value for short-term exposure in relation to a reference period of 1 minute / Valeur limite d'exposition à court terme sur une période de référence de 1 minute (2017/164/EU).
GW-M / VL-M = Occupational Exposure Limit – “Ceiling”. / Valeur limite d'exposition professionelle – “Ceiling”.
BGW / VLB = Biological limit value / Valeur limite biologique.
Other info / Autres info.: Additional classification / Classification additionelle – A = suffocating / asphyxiant, C = carcinogenic and/or mutagen agent / agent cancérigène et/ou mutagène, D = absorption of the agent through the skin / la résorption de l' agent via la peau.
(13) = The substance may cause skin and respiratory sensitization (Directive 2004/37/EC).
(14) = The substance may cause skin sensitization (Directive 2004/37/EC).
(13) = La substance peut provoquer une sensitization de la peau et des voies respiratoires (Directive 2004/37/CE).
(14) = La substance peut provoquer une sensitization de la peau (Directive 2004/37/CE).

8.2 Exposure controls

Appropriate engineering controls: Ensure good ventilation. This can be achieved by local suction or general air extraction. If this is insufficient to maintain the concentration under the WEL or AGW or BE-GW values, suitable breathing protection should be worn. Applies only if maximum permissible exposure values are listed here. Suitable assessment methods for reviewing the effectiveness of protection measures adopted include metrological and non-metrological investigative techniques. These are specified by e.g. EN 14042. EN 14042 “Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents”.

Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable: Wash hands before breaks and at the end of work. Keep away from food, drink and animal feed. Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection: Tight fitting protectives goggles with side protection (EN 166).

Skin protection – hand protection: Chemical resistant gloves (EN ISO 374).
Recommended: Protective nitrile gloves (EN ISO 374). Minimum layer thickness in mm: >= 0,35. Permeation time (penetration time) in minutes: >= 480. The breakthrough times determined in accordance with EN 16523-1

were not obtained under practical conditions. The recommended maximum wearing time is 50% of breakthrough time. Protective hand cream recommended.
Skin protection – other: Protective working garments (e.g. safety shoes EN ISO 20345, long-sleeved protective working garments).
Respiratory protection: Not required under normal circumstances. When exceeding the limit value (WNG or DE-AGW or BE-GW). Filter A2 P2 (EN 14387), color code brown, white. Observe wearing time restrictions for respiratory protection devices.
Thermal hazards: Not applicable.
Additional information on hand protection: No tests have been performed. In case of mixtures, the selection has been made according to the knowledge available and the information about the contents. Selection of materials derived from glove manufacturer's indications. Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account. Selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to manufacturer. In the case of mixtures, the resistance of glove materials cannot be predicted and must therefore be tested before use. The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.
Environmental exposure controls: No information available at present.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state:	Paste, liquid.
Colour:	According to specification.
Odour:	Characteristic.
Melting point/Freezing point:	There is no information available on this parameter.
Boiling point or initial boiling point and boiling range:	There is no information available on this parameter.
Flammability:	There is no information available on this parameter.
Lower explosive limits:	There is no information available on this parameter.
Upper explosive limits:	There is no information available on this parameter.
Flash point:	There is no information available on this parameter.
Auto-ignition temperature:	There is no information available on this parameter.
Decomposition temperature:	There is no information available on this parameter.
pH:	Substance reacts with water.
Kinematic viscosity:	There is no information available on this parameter.
Solubility:	Insoluble.
Partition coefficient n-octanol/water (log value):	Does not apply to mixtures.
Vapour pressure:	There is no information available on this parameter.
Density and/or relative density:	1,52 g/cm³ (relative density)
Relative vapour density:	There is no information available on this parameter.
Particle characteristics:	Does not apply to liquids.

9.2 Other information

No other information available at present.

10. STABILITY AND REACTIVITY

10.1 Reactivity
Reacts with water.

10.2 Chemical stability
Stable with proper storage and handling.

10.3 Possibility of hazardous reaction
Exothermic reaction possible with:
Alcohols
Amines
Bases
Acids
Water
Development of:
Carbon dioxide
CO2 formation in closed tanks causes pressure to rise.
Pressure increase will result in danger of bursting.

10.4 Conditions to avoid
Protect from humidity. Polymerisation due to high heat is possible. T > ~ 260°C

10.5 Incompatible materials
Acids
Bases
Amines
Alcohols
Water

10.6 Hazardous decomposition products
No decomposition when used as directed.

11. TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008
Acute toxicity:

UNI-ALU			
Oral	No data available.		
Dermal	No data available.		
Inhalation	ATE (4h)	>20 mg/l	Hazardous fumes, calculated value.

Propylene carbonate		
Oral	LD50	>5000 mg/kg (Rat), OECD 401(Acute Oral Toxicity)
Dermal	LD50	>2000 mg/kg (Rabbit), OECD 402 (Acute Dermal Toxicity)

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Diphenylmethanediisocyanate, isomeres and homologues			
Oral	LD50	>5000 mg/kg (Rat), OECD 401 (Acute Oral Toxicity)	
Dermal	LD50	>5000 mg/kg (Rabbit), OECD 402 (Acute Dermal Toxicity)	
Inhalation	LC50 (4h)	0,31-0,49 mg/l (Rat), OECD 403 (Acute Inhalation Toxicity)	Aerosol, The EU classification does not correspond to this.

4,4'-methylenediphenyl diisocyanate			
Oral	LD50	>2000 mg/kg (Rat), Regulation (EC) 440/2008 B.1 (Acute Oral Toxicity)	Analogous conclusion.
Dermal	LD50	>9400 mg/kg (Rabbit), OECD 402 (Acute Dermal Toxicity)	Analogous conclusion.
Inhalation	LC50 (4h)	1,5 mg/l	Aerosol, Expert assessment.
Inhalation	LC50 (4h)	0,368 mg/l (Rat), OECD 403 (Acute Inhalation Toxicity)	Aerosol, The EU classification does not correspond to this.

o-(p-isocyanatobenzyl)phenyl isocyanate			
Oral	LD50	>2000 mg/kg (Rat), Regulation (EC) 440/2008 B.1 (Acute Oral Toxicity)	Analogous conclusion.
Dermal	LD50	>9400 mg/kg (Rabbit), OECD 402 (Acute Dermal Toxicity)	Analogous conclusion.
Inhalation	ATE (4h)	1,5 mg/l	Aerosol, Expert assessment.
Inhalation	LC50 (4h)	0,387 mg/l (Rat)	Aerosol, The EU classification does not correspond to this.

2,2'-methylenediphenyl diisocyanate			
Oral	LD50	>2000 mg/kg (Rat), Regulation (EC) 440/2008 B.1 (Acute Oral Toxicity)	Analogous conclusion.
Dermal	LD50	>9400 mg/kg (Rabbit), OECD 402 (Acute Dermal Toxicity)	Analogous conclusion.
Inhalation	LC50 (4h)	0,527 mg/l (Rat), OECD 403 (Acute Inhalation Toxicity)	Aerosol, The EU classification does not correspond to this.
Inhalation	ATE	1,5 mg/l	Aerosol, Expert assessment.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)		
Oral	LD50	>5000 mg/kg (Rat), OECD 425 (Acute Oral Toxicity - Up-and-Down Procedure)
Dermal	LD50	>5000 mg/kg (Rabbit)
Inhalation	LD50 (4h)	>6,8 mg/l (Rat)

4,4'-methylenediphenyl diisocyanate			
Oral	LD50	>10000 mg/kg (Rat), OECD 401 (Acute Oral Toxicity)	
Oral	LD50	>2000 mg/kg (Rat), Regulation (EC) 440/2008 B.1 (Acute Oral Toxicity)	
Dermal	LD50	>9400 mg/kg (Rabbit), OECD 402 (Acute Dermal Toxicity)	
Inhalation	LC50 (4h)	>2,24 mg/l (Rat), OECD 403 (Acute Inhalation Toxicity)	Aerosol.
Inhalation	LC50 (4h)	0,368 mg/l (Rat), OECD 403 (Acute Inhalation Toxicity)	The EU classification

			does not correspond to this.

Silicon dioxide		
Oral	LD50	>5000 mg/kg (Rat), OECD 423 (Acute Oral Toxicity – Acute Toxic Class Method)
Dermal	LD50	>2000 mg/kg (Rat), OECD 402 (Acute Dermal Toxicity)

o-(p-isocyanatobenzyl)phenyl isocyanate			
Oral	LD50	>2000 mg/kg (Rat), Regulation (EC) 440/2008 B.1 (Acute Oral Toxicity)	Analogous conclusion.
Dermal	LD50	>9400 mg/kg (Rabbit), OECD 402 (Acute Dermal Toxicity)	Analogous conclusion.
Inhalation	LC50 (4h)	0,387 mg/l (Rat)	The EU classification does not correspond to this.

Calcium carbonate		
Oral	LD50	>2000 mg/kg (Rat), OECD 420 (Acute Oral Toxicity – Fixe Dose Procedure)
Oral	LD50	>5000 mg/kg (Rat)
Dermal	LD50	>2000 mg/kg (Rat), OECD 402 (Acute Dermal Toxicity)
Inhalation	LC50 (4h)	>3 mg/l (Rat), OECD 403 (Acute Inhalation Toxicity)

Diphenylmethanediisocyanate, isomeres and homologues			
Oral	LD50	>10000 mg/kg (Rat), OECD 401 (Acute Oral Toxicity)	
Dermal	LD50	>9400 mg/kg (Rabbit), OECD 402 (Acute Dermal Toxicity)	
Inhalation	LC50 (4h)	0,49 mg/l (Rat), OECD 403 (Acute Inhalation Toxicity)	Aerosol, The EU classification does not correspond to this.

Skin corrosion/irritation:

UNI-ALU
Notes
No data available.

Propylene carbonate		
Organism	**Test method**	**Notes**
Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Not Irritant.

Diphenylmethanediisocyanate, isomeres and homologues		
Organism	**Test method**	**Notes**
Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Skin Irrit. 2

4,4'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Skin Irrit. 2, Analogous conclusion.

o-(p-isocyanatobenzyl)phenyl isocyanate		
Organism	**Test method**	**Notes**
Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Skin Irrit. 2, Analogous conclusion.

2,2'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Skin Irrit. 2

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)		
Organism	**Test method**	**Notes**
Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Not irritant.

4,4'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Irritant, Analogous conclusion.

Silicon dioxide		
Organism	**Test method**	**Notes**
Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Not irritant.

o-(p-isocyanatobenzyl)phenyl isocyanate		
Organism	**Test method**	**Notes**
Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Irritant, Analogous conclusion.

Calcium carbonate		
Organism	**Test method**	**Notes**
Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Not irritant.

Diphenylmethanediisocyanate, isomeres and homologues		
Organism	**Test method**	**Notes**
Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Skin Irrit. 2

Serious eye damage/irritation:

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Notes
No data available.

Propylene carbonate		
Organism	**Test method**	**Notes**
Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Irritant.

Diphenylmethanediisocyanate, isomeres and homologues		
Organism	**Test method**	**Notes**
Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Eye Irrit. 2

o-(p-isocyanatobenzyl)phenyl isocyanate		
Organism	**Test method**	**Notes**
Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Not irritant, Analogous conclusion, The EU classification does not correspond to this.

2,2'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Slightly irritant.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)		
Organism	**Test method**	**Notes**
Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Not Irritant, Mechanical irritation possible.

4,4'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Irritant, Analogous conclusion.

Silicon dioxide		
Organism	**Test method**	**Notes**
Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Not irritant.

Calcium carbonate		
Organism	**Test method**	**Notes**
Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Not irritant, Mechanical irritation possible.

Diphenylmethanediisocyanate, isomeres and homologues		
Organism	**Test method**	**Notes**
Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Mildly irritant.

Respiratory or skin sensitisation:

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Notes
No data available.

Propylene carbonate		
Organism	**Test method**	**Notes**
Human being	/	No (skin contact).

Diphenylmethanediisocyanate, isomeres and homologues		
Organism	**Test method**	**Notes**
Mouse	OECD 429 (Skin Sensitisation-Local Lymph Node Assay)	Yes (skin contact), Analogous conclusion.
Guinea pig	OECD 406 (Skin Sensitisation)	Yes (skin contact).
Rat		Yes (inhalation).

4,4'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
Mouse	OECD 429 (Skin Sensitisation-Local Lymph Node Assay)	Skin Sens. 1
Guinea pig		Yes (inhalation).

o-(p-isocyanatobenzyl)phenyl isocyanate		
Organism	**Test method**	**Notes**
Mouse	OECD 429 (Skin Sensitisation-Local Lymph Node Assay)	Yes (skin contact), Analogous conclusion.
Guinea pig	OECD 406 (Skin Sensitisation)	No (skin contact), Analogous conclusion.
Guinea pig		Yes (inhalation), Analogous conclusion.

2,2'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
Mouse	OECD 429 (Skin Sensitisation-Local Lymph Node Assay)	Yes (skin contact).
Guinea pig		Yes (inhalation), Analogous conclusion.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)		
Organism	**Test method**	**Notes**
Mouse	OECD 429 (Skin Sensitisation-Local Lymph Node Assay)	Not sensitising.
Guinea pig	OECD 406 (Skin Sensitisation)	No (skin contact).

4,4'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
Mouse	OECD 429 (Skin Sensitisation-Local Lymph Node Assay)	Yes (skin contact), Analogous conclusion.
Guinea Pig		Yes (inhalation).

o-(p-isocyanatobenzyl)phenyl isocyanate		
Organism	**Test method**	**Notes**
Mouse	OECD 429 (Skin Sensitisation-Local Lymph Node Assay)	Sensitizing (skin contact), Analogous conclusion.
Guinea pig	OECD 406 (Skin Sensitisation)	Yes (inhalation), Analogous conclusion.

Calcium carbonate
Notes
No (skin contact).

Diphenylmethanediisocyanate, isomeres and homologues		
Organism	**Test method**	**Notes**
Guinea pig	OECD 406 (Skin Sensitisation)	Yes (skin contact).
Rat		Yes (inhalation).

Germ cell mutagenicity:

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Notes
No data available.

Propylene carbonate		
Organism	**Test method**	**Notes**
	OECD 471 (Bacterial Reverse Mutation Test)	Negative.
	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative.
	OECD 482 (Gen. Tox. – DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells In Vitro)	Negative.

Diphenylmethanediisocyanate, isomeres and homologues		
Organism	**Test method**	**Notes**
Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative, Analogous conclusion.
Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative.

4,4'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative male.
Rat	OECD 489 (In Vitro Mammalian Alkaline Comet Assay)	Negative male.
Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative, Analogous conclusion.

o-(p-isocyanatobenzyl)phenyl isocyanate		
Organism	**Test method**	**Notes**
Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative, Analogous conclusion, male.
Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative, Analogous conclusion.

2,2'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative.
Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative, Analogous conclusion.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)		
Organism	**Test method**	**Notes**
Salmonella typhimurium	(Ames-Test)	Negative.
Mammalian	OECD 473 (In Vitro Mammalian Chromosome Aberration Test)	Negative.
Mouse	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative.
	OECD 476 (In Vitro Mammalian Cell Gene Mutation Test)	Negative.
	OECD 471 (Bacterial Reverse Mutation Test)	Negative.

4,4'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative, Analogous conclusion.
	OECD 471 (Bacterial Reverse Mutation Test)	Negative, Analogous conclusion.

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Silicon dioxide		
Organism	**Test method**	**Notes**
	OECD 471 (Bacterial Reverse Mutation Test)	Negative.

o-(p-isocyanatobenzyl)phenyl isocyanate		
Organism	**Test method**	**Notes**
	OECD 471 (Bacterial Reverse Mutation Test)	Negative, Analogous conclusion.

Calcium carbonate		
Organism	**Test method**	**Notes**
	In vitro	Negative.

Diphenylmethanediisocyanate, isomeres and homologues		
Organism	**Test method**	**Notes**
Salmonella typhimurium	Regulation (EC) 440/2008 B.13/B.14 (REVERSE MUTATION TEST USING BACTERIA)	Analogous conclusion, Negative.
Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative, Analogous conclusion.

Carcinogenicity:

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Notes
No data available.

Propylene carbonate		
Organism	**Test method**	**Notes**
Mouse	OECD 451 (Carcinogenicity Studies)	Negative.

Diphenylmethanediisocyanate, isomeres and homologues		
Organism	**Test method**	**Notes**
Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Carcinogenic effects cannot be ruled out.

4,4'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Analogous conclusion, Carc. 2.

o-(p-isocyanatobenzyl)phenyl isocyanate		
Organism	**Test method**	**Notes**
Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Analogous conclusion, Carc. 2.

2,2'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Analogous conclusion, Aerosol, Carc. 2.

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4,4'-methylenediphenyl diisocyanate		
Organism	**Test method**	**Notes**
	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Analogous conclusion, Carcinogenic effects cannot be ruled out.

o-(p-isocyanatobenzyl)phenyl isocyanate		
Organism	**Test method**	**Notes**
	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Analogous conclusion, Carcinogenic effects cannot be ruled out.

Calcium carbonate
Notes
Negative, administered as CA lactate.

Diphenylmethanediisocyanate, isomeres and homologues				
Value	**Unit**	**Organism**	**Test method**	**Notes**
1	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Positive.

Reproductive toxicity:

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Notes
No data available.

Propylene carbonate					
Endpoint	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
NOAEL	1000	mg/kg	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Negative.

Diphenylmethanediisocyanate, isomeres and homologues					
Endpoint	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
NOAEL	4	mg/m³	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Aerosol, Negative.

4,4'-methylenediphenyl diisocyanate					
Endpoint	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
NOAEL	4-12	mg/m³	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Aerosol, Analogous conclusion.

o-(p-isocyanatobenzyl)phenyl isocyanate					
Endpoint	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
NOAEL	4-12	mg/kg	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Aerosol, Analogous conclusion.

2,2'-methylenediphenyl diisocyanate					
Endpoint	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
NOAEL	4-12	mg/m³	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	No indications of such an effect., Aerosol, Analogous conclusion.

4,4'-methylenediphenyl diisocyanate					
Endpoint	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
NOAEL	4	mg/m³	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Negative, Analogous conclusion.

o-(p-isocyanatobenzyl)phenyl isocyanate	
Test method	**Notes**
OECD 414 (Prenatal Developmental Toxicity Study)	Negative.

Calcium carbonate
Notes
Negative, administered as Ca-carbonate.

Diphenylmethanediisocyanate, isomeres and homologues					
Endpoint	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
NOAEL	12	mg/m³	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Negative, Aerosol.

Reproductive Toxicity (Developmental toxicity):

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)		
Organism	**Test method**	**Notes**
Rat	OECD 414 (Prenatal Developmental Toxicity Study)	No indications of such an effect.

Diphenylmethanediisocyanate, isomeres and homologues				
Value	**Unit**	**Organism**	**Test method**	**Notes**
4	mg/m³	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Negative.

Reproductive Toxicity (Effects on fertility):

Diphenylmethanediisocyanate, isomeres and homologues		
Organism	**Test method**	**Notes**
Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Negative.

Aspiration hazard:

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Notes
No data available.

Propylene carbonate
Notes
No.

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Silicon dioxide
Notes
No.

Diphenylmethanediisocyanate, isomeres and homologues
Notes
No.

Specific target organ toxicity – single exposure (STOT-SE):

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Notes
No data available.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)
Notes
Not irritant (respiratory tract).

Diphenylmethanediisocyanate, isomeres and homologues
Notes
Irritation of the respiratory tract.

Specific target organ toxicity – single exposure (STOT-SE) – inhalative:

Diphenylmethanediisocyanate, isomeres and homologues
Notes
Target organ(s): respiratory system, may cause respiratory irritation.

4,4'-methylenediphenyl diisocyanate
Notes
Target organ(s): May cause respiratory irritation.

4,4'-methylenediphenyl diisocyanate
Notes
Irritation of the respiratory tract.
Irritation of the respiratory tract, Target organ(s): respiratory system.

o-(p-isocyanatobenzyl)phenyl isocyanate
Notes
Target organ(s): respiratory tract, Irritant.

Diphenylmethanediisocyanate, isomeres and homologues
Notes
Target organ(s): respiratory organs, may cause respiratory irritation.

Specific target organ toxicity – repeated exposure (STOT-RE):

UNI-ALU
Notes
No data available.

Propylene carbonate						
Toxicity/effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Oral	NOEL	>5000	mg/kg		OECD 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)	
Inhalation	NOEC	100	mg/m³		OECD 413 (Sub chronic Inhalation toxicity – 90-Day Study)	Dust, mist.

Diphenylmethanediisocyanate, isomeres and homologues						
Toxicity/effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Inhalation	LOAEL	1	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Analogous conclusion.
Inhalation	NOAEL	0,2	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Analogous conclusion.
Inhalation						Target organ(s): respiratory system.

4,4'-methylenediphenyl diisocyanate						
Toxicity/effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Inhalation	LOAEL	1	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Analogous conclusion, Target organ(s): respiratory system.
Inhalation	NOAEL	0,2	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Analogous conclusion, Target organ(s): respiratory system.

o-(p-isocyanatobenzyl)phenyl isocyanate						
Toxicity/ effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Inhalation	LOAEL	1	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/ Carcinogenicity Studies)	Aerosol, Analogous conclusion, Target organ(s): respiratory system.
Inhalation	NOAEL	0,2	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/ Carcinogenicity Studies)	Aerosol, Analogous conclusion, Target organ(s): respiratory system.

2,2'-methylenediphenyl diisocyanate						
Toxicity/ effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Inhalation	LOAEL	1	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/ Carcinogenicity Studies)	Aerosol, Target organ(s): respiratory system, Analogous conclusion.
Inhalation	NOAEL	0,2	mg/m³	Rat	OECD 453 (Combined Chronic	Aerosol, Target organ(s):

					Toxicity/ Carcinogenicity Studies)	respiratory system, Analogous conclusion.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)					
Toxicity/effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Notes**
Oral	NOAEL	3500	mg/kg/d	Rat	90d
Inhalation	NOAEC	10	mg/m³	Rat	90d

Diphenylmethanediisocyanate, isomeres and homologues			
Endpoint	**Value**	**Unit**	**Test method**
NOEC	0,2	mg/kg	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)

Symptoms:

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Symptoms
No data available.

4,4'-methylenediphenyl diisocyanate
Symptoms
Respiratory distress, coughing, mucous membrane irritation.

o-(p-isocyanatobenzyl)phenyl isocyanate
Symptoms
Mucous membrane irritation, breathing difficulties, coughing, asthmatic symptoms.

Propylene carbonate
Symptoms
Breathing difficulties, headaches, gastrointestinal disturbances, dizziness, nausea.

Diphenylmethanediisocyanate, isomeres and homologues
Symptoms
Breathing difficulties.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)
Symptoms
Mucous membrane irritation, coughing, respiratory distress, drying of the skin.

2,2'-methylenediphenyl diisocyanate
Symptoms
Respiratory distress, coughing, mucous membrane irritation.

o-(p-isocyanatobenzyl)phenyl isocyanate
Symptoms
Asthmatic symptoms, mucous membrane irritation.

Diphenylmethanediisocyanate, isomeres and homologues
Symptoms
Fever, coughing, headaches, nausea and vomiting, dizziness, breathing difficulties, laryngeal oedema, abdominal pain, diarrhoea.

11.2 Other information

Endocrine disrupting properties: Does not apply to mixtures.
Other information: No other relevant information available on adverse effects on health.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish:

UNI-ALU
Notes
No data available.

Propylene carbonate	
LC50 (96h)	>1000 mg/l (Cyprinus carpio), 92/69/EC

Diphenylmethanediisocyanate, isomeres and homologues	
LC0 (96h)	>1000 mg/l (Brachydanio rerio), OECD 203 (Fish, Acute Toxicity Test)

4,4'-methylenediphenyl diisocyanate		
LC50 (96h)	>1000 mg/l (Brachydanio rerio), OECD 203 (Fish, Acute Toxicity Test)	Analogous conclusion.

o-(p-isocyanatobenzyl)phenyl isocyanate		
LC50 (96h)	>1000 mg/l (Brachydanio rerio), OECD 203 (Fish, Acute Toxicity Test)	Analogous conclusion.

2,2'-methylenediphenyl diisocyanate		
LC50 (96h)	>1000 mg/l (Brachydanio rerio), OECD 203 (Fish, Acute Toxicity Test)	Analogous conclusion.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)	
LC50 (96h)	>100 mg/l (Oncorhynchus mykiss), OECD 203 (Fish, Acute Toxicity Test)

4,4'-methylenediphenyl diisocyanate		
LC50 (96h)	>1000 mg/l (Brachydanio rerio), OECD 203 (Fish, Acute Toxicity Test)	
LC0 (96h)	>1000 mg/l (Brachydanio rerio), OECD 203 (Fish, Acute Toxicity	Analogous conclusion.

	Test)	

Silicon dioxide	
EC0 (96h)	>10000 mg/l (Brachydanio rerio), OECD 203 (Fish, Acute Toxicity Test)

o-(p-isocyanatobenzyl)phenyl isocyanate		
LC0 (96h)	>1000 mg/l (Brachydanio rerio), OECD 203 (Fish, Acute Toxicity Test)	Analogous conclusion.

Calcium carbonate	
LC50 (96h)	>100 mg/l (Oncorhynchus mykiss), OECD 203 (Fish, Acute Toxicity Test)
LC50 (96h)	>10000 mg/l (Oncorhynchus mykiss)

Diphenylmethanediisocyanate, isomeres and homologues	
LC50 (96h)	>1000 mg/l (Brachydanio rerio), OECD 203 (Fish, Acute Toxicity Test)

Toxicity to daphnia:

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Notes
No data available.

Propylene carbonate	
EC50 (48h)	>1000 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)

Diphenylmethanediisocyanate, isomeres and homologues	
NOEC/NOEL (21d)	>=10 mg/l (Daphnia magna), OECD 211 (Daphnia magna Reproduction Test)
EC50 (24h)	>1000 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)

4,4'-methylenediphenyl diisocyanate		
EC50 (24h)	>1000 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion.
NOEC/NOEL (21d)	>10 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion.

o-(p-isocyanatobenzyl)phenyl isocyanate		
EC50 (24h)	>1000 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion.
NOEC/NOEL (21d)	>10 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion.

2,2'-methylenediphenyl diisocyanate		
EC50 (24h)	>1000 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion.
NOEC/NOEL (21d)	>10 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)	
LC50 (48h)	>100 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)

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4,4'-methylenediphenyl diisocyanate		
EC50 (24h)	>1000 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion.

Silicon dioxide	
EC0 (24h)	>1000 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)

o-(p-isocyanatobenzyl)phenyl isocyanate		
EC50 (24h)	>1000 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion.
NOEC/NOEL (21d)	>10 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion.

Calcium carbonate	
EC50 (48h)	>100 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)
EC50 (48h)	>1000 mg/l (Daphnia magna)

Diphenylmethanediisocyanate, isomeres and homologues	
NOEC/NOEL (21d)	>=10 mg/l (Daphnia magna), OECD 211 (Daphnia magna Reproduction Test)
EC50 (24h)	>1000 mg/l (Daphnia magna), OECD 202 (Daphnia sp. Acute Immobilisation Test)

Toxicity to algae:

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Notes
No data available.

Propylene carbonate	
EC50 (72h)	>900 mg/l (Desmodesmus subspicatus), OECD 201 (Alga, Growth Inhibition Test)

Diphenylmethanediisocyanate, isomeres and homologues	
ErC50 (72h)	>1640 mg/l (Scenedesmus subspicatus), OECD 201 (Alga, Growth Inhibition Test)

4,4'-methylenediphenyl diisocyanate		
ErC50 (72h)	>1640 mg/l (Desmodesmus subspicatus), OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion.

o-(p-isocyanatobenzyl)phenyl isocyanate		
ErC50 (72h)	>1640 mg/l (Scenedesmus subspicatus), OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion.

2,2'-methylenediphenyl diisocyanate		
EC50 (72h)	>1640 mg/l (Scenedesmus subspicatus), OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)	
EC50 (72h)	16 mg/l (Pseudokirchneriella subcapitata), U.S. EPA-600/9-78-018

4,4'-methylenediphenyl diisocyanate		
EC50 (72h)	1640 mg/l (Desmodesmus subspicatus), OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion.
EC50 (72h)	1,5 mg/l, OECD 201 (Alga, Growth Inhibition Test)	
NOEC/NOEL (72h)	1640 mg/l (Desmodesmus subspicatus), OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion.

Silicon dioxide	
ErC50 (72h)	>=10000 mg/l (Scenedesmus subspicatus), OECD 201 (Alga, Growth Inhibition Test)

o-(p-isocyanatobenzyl)phenyl isocyanate		
ErC50 (72h)	>1640 mg/l (Scenedesmus subspicatus), OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion.

Calcium carbonate	
EC50 (72h)	>14 mg/l (Desmodesmus subspicatus), OECD 201 (Alga, Growth Inhibition Test)
EC50 (72h)	>200 mg/l (Desmodesmus subspicatus)

Diphenylmethanediisocyanate, isomeres and homologues	
EC50 (72h)	>1640 mg/l (Desmodesmus subspicatus), OECD 201 (Alga, Growth Inhibition Test)

Toxicity to bacteria:

Propylene carbonate	
EC10 (16h)	7400 mg/l (Pseudomonas putida), DIN 38412 T.8

Diphenylmethanediisocyanate, isomeres and homologues	
EC50 (3h)	>100 mg/l (activated sludge), OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))

4,4'-methylenediphenyl diisocyanate		
EC50 (3h)	>100 mg/l (activated sludge), OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	Analogous conclusion.

o-(p-isocyanatobenzyl)phenyl isocyanate		
EC50 (3h)	>100 mg/l (activated sludge), OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	Analogous conclusion.

2,2'-methylenediphenyl diisocyanate		
EC50 (3h)	>100 mg/l (activated sludge), OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	Analogous conclusion.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)	
	>5000 mg/l (Escherichiacoli)
LC0 (24h)	>10000 mg/l (Pseudomonas fluorescens)

4,4'-methylenediphenyl diisocyanate		
EC50 (3h)	>100 mg/l (activated sludge), OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	
EC50 (3h)	>100 mg/l (activated sludge), OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	Analogous conclusion.

o-(p-isocyanatobenzyl)phenyl isocyanate		
EC50 (3h)	>100 mg/l (activated sludge), OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	Analogous conclusion.

Calcium carbonate	
EC50 (3h)	>1000 mg/l (activated sludge), OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))

Diphenylmethanediisocyanate, isomeres and homologues	
EC50 (3h)	>100 mg/l (activated sludge), OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))

Toxicity to annelids:

Diphenylmethanediisocyanate, isomeres and homologues	
NOEC/NOEL (14d)	>1000 mg/kg (Lumbricus terrestris), OECD 207 (Earthworm, Acute Toxicity Tests)

4,4'-methylenediphenyl diisocyanate		
EC50 (14d)	>1000 mg/kg (Eisenia foetida), OECD 207 (Earthworm, Acute Toxicity Tests)	Analogous conclusion.
NOEC/NOEL (14d)	>1000 mg/kg (Lumbricus terrestris), OECD 207 (Earthworm, Acute Toxicity Tests)	Analogous conclusion.

o-(p-isocyanatobenzyl)phenyl isocyanate		
NOEC/NOEL (14d)	>1000 mg/kg (Eisenia foetida), OECD 207 (Earthworm, Acute Toxicity Tests)	Analogous conclusion.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)	
NOEL/NOEC	>1000 mg/kg (Eisenia foetida)

2,2'-methylenediphenyl diisocyanate		
NOEC/NOEL (14d)	>1000 mg/kg (Eisenia foetida), OECD 207 (Earthworm, Acute Toxicity Tests)	Analogous conclusion.

4,4'-methylenediphenyl diisocyanate	
EC50 (14d)	>=1000 mg/kg (Eisenia foetida), OECD 207 (Earthworm, Acute Toxicity Tests)

Calcium carbonate	
Eisenia foetida, OECD 207 (Earthworm, Acute Toxicity Tests)	Negative.

Toxicity to other organisms:

Diphenylmethanediisocyanate, isomeres and homologues	
NOEC/NOEL (14d)	>1000 mg/kg (Avena sativa), OECD 208 (Terrestrial Plants, Growth Test)
NOEC/NOEL (14d)	>1000 mg/kg (Lactuca sativa), OECD 208 (Terrestrial Plants, Growth Test)

4,4'-methylenediphenyl diisocyanate		
NOEC/NOEL (14d)	>1000 mg/kg (Avena sativa), OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion.
NOEC/NOEL (14d)	>1000 mg/kg (Lactuca sativa), OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion.

o-(p-isocyanatobenzyl)phenyl isocyanate		
NOEC/NOEL (14d)	>1000 mg/kg (Avena sativa), OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion.
NOEC/NOEL (14d)	>1000 mg/kg (Lactuca sativa), OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion.

2,2'-methylenediphenyl diisocyanate		
NOEC/NOEL (14d)	>1000 mg/kg (Avena sativa), OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion.
NOEC/NOEL (14d)	>1000 mg/kg (Lactuca sativa), OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion.

o-(p-isocyanatobenzyl)phenyl isocyanate		
NOEC/NOEL (14d)	>1000 (Lumbricus terrestris), OECD 207 (Earthworm, Acute Toxicity Tests)	Analogous conclusion.

Diphenylmethanediisocyanate, isomeres and homologues	
NOEC/NOEL (14d)	>1000 mg/kg (Eisenia foetida), OECD 207 (Earthworm, Acute Toxicity Tests)

12.2 Persistence and degradability

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Notes
With water at the interface, transforms slowly with formation of CO2 into a firm, insoluble reaction product with a high melting point (polycarbamide). According to experience available at the moment, polycarbamide is inert and non-degradable.

Propylene carbonate		
	83,5-87-7 %, OECD 301 B (Ready Biodegradability – Co2 Evolution Test)	Readily biodegradable 29d.
DOC (14d)	90-100 %, OECD 301 A (Ready Biodegradability – DOC Die-Away Test)	

Diphenylmethanediisocyanate, isomeres and homologues		
(28d)	0 % (activated sludge), OECD 302 C (Inherent Biodegradability – Modified MITI Test (II))	Not biodegradable, With water at the interface, transforms slowly with formation of CO2 into a firm, insoluble reaction product with a high melting point (polycarbamide). According to experience available at the moment, polycarbamide is inert and non-degradable.

4,4'-methylenediphenyl diisocyanate		
(28d)	0 %, OECD 302 C (Inherent Biodegradability – Modified MITI Test (II))	Not biodegradable, With water at the interface, transforms slowly with formation of CO2 into a firm, insoluble reaction product with a high melting point (polycarbamide). According to experience available at the moment, polycarbamide is inert and non-degradable., Analogous conclusion.

o-(p-isocyanatobenzyl)phenyl isocyanate		
(28d)	0 %, OECD 302 C (Inherent Biodegradability – Modified MITI Test (II))	Not biodegradable, Analogous conclusion, With water at the interface, transforms slowly with formation of CO2 into a firm, insoluble reaction product with a high melting point (polycarbamide). According to experience available at the moment, polycarbamide is inert and non-degradable.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)
Notes
Not relevant for inorganic substances.

2,2'-methylenediphenyl diisocyanate		
(28d)	0 % (activated sludge), OECD 302 C (Inherent Biodegradability – Modified MITI Test (II))	With water at the interface, transforms slowly with formation of CO2 into a firm, insoluble reaction product with a high melting point (polycarbamide). According to experience available at the moment, polycarbamide is inert and non-degradable., Analogous conclusion.

4,4'-methylenediphenyl diisocyanate		
(28d)	0 % (activated sludge), OECD 302 C (Inherent Biodegradability – Modified MITI Test (II))	With water at the interface, transforms slowly with formation of CO2 into a firm, insoluble reaction product with a high melting point (polycarbamide). According to experience available at the moment, polycarbamide is inert and non-degradable.
BOD (28d)	0 %, OECD 302 C (Inherent Biodegradability – Modified MITI Test (II))	With water at the interface, transforms slowly with formation of CO2 into a firm, insoluble reaction product with a high melting point (polycarbamide). According to experience available at the moment, polycarbamide is inert and non-degradable.

Silicon dioxide
Notes
Inorganic products cannot be eliminated from water through biological purification methods.

o-(p-isocyanatobenzyl)phenyl isocyanate		
(28d)	0 %, OECD 302 C (Inherent Biodegradability – Modified MITI Test (II))	With water at the interface, transforms slowly with formation of CO2 into a firm, insoluble reaction product with a high melting point (polycarbamide)., Analogous conclusion.

Calcium carbonate
Notes
Inorganic products cannot be eliminated from water through biological purification methods.

Diphenylmethanediisocyanate, isomeres and homologues		
(28d)	0 % (activated sludge), OECD 301 C (Ready Biodegradability – Modified MITI Test (I))	Not biodegradable.

12.3 Bioaccumulative potential

UNI-ALU
Notes
No data available.

Propylene carbonate		
Log Pow	- 0,48	Bioaccumulation is unlikely (Log Pow <1)., calculated value.

Diphenylmethanediisocyanate, isomeres and homologues		
BCF (42d)	<14 (Cyprinus Carpio), OECD 305 (Biioconcentration – Flow-Through Fish Test)	Not to be expected.

4,4'-methylenediphenyl diisocyanate		
BCF (28d)	200 (Cyprinus Carpio), IUCLID Chem. Data Sheet (ESIS)	No to be expected.
Log Pow	5,22	A notable biological accumulation potential has to be expected. (Log Pow >3).

o-(p-isocyanatobenzyl)phenyl isocyanate		
BCF (28d)	200 (Cyprinus Carpio), OECD 305 (Bioconcentration – Flow-Through Fish Test)	Not to be expected, Analogous conclusion.

2,2'-methylenediphenyl diisocyanate		
Log Pow	5,22	A notable biological accumulation potential has to be expected. (Log Pow >3).
BCF (28d)	200 (Cyprinus Carpio), OECD 305 (Bioconcentration – Flow-Through Fish Test)	Not to be expected, Analogous conclusion.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)		
BCF (14d)	19-352	Oncorhynchus mykiss
BCF (42d)	9,6	Not to be expected.

4,4'-methylenediphenyl diisocyanate		
BCF (28d)	200 (Cyprinus Carpio), OECD 305 (Bioconcentration – Flow-Through Fish Test)	A notable biological accumulation potential has to be expected. (Log Pow >3).
Log Pow	4,51-5,22, OECD 117 (Partition Coefficient (n-octanol/water) – HPLC method)	A notable biological accumulation potential has to be expected. (Log Pow >3).

o-(p-isocyanatobenzyl)phenyl isocyanate		
BCF (28d)	200 (Cyprinus Carpio), OECD 305 (Bioconcentration – Flow-Through Fish Test)	Not to be expected, Analogous conclusion.

Calcium carbonate
Notes
Not relevant for inorganic substances.

Diphenylmethanediisocyanate, isomeres and homologues		
BCF (42d)	<14 (Cyprinus Carpio), OECD 305 (Bioconcentration – Flow-Through Fish Test)	A notable biological accumulation potential is not to be expected. (Log Pow 1-3).

12.4 Mobility in soil

UNI-ALU
Notes
No data available.

4,4'-methylenediphenyl diisocyanate	
H (Henry)	0,0229 Pa*m3/mol

o-(p-isocyanatobenzyl)phenyl isocyanate	
H (Henry)	0,0229 Pa*m3/mol

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)
Notes
Negative.

2,2'-methylenediphenyl diisocyanate	
H (Henry)	0,0229 Pa*m3/mol

Calcium carbonate
Notes
Not relevant for inorganic substances.

12.5 Results of PBT and vPvB assessment:

UNI-ALU
Notes
No data available.

Propylene carbonate
Notes
No PBT substance, No vPvB substance.

Diphenylmethanediisocyanate, isomeres and homologues
Notes
No PBT substance, No vPvB substance.

4,4'-methylenediphenyl diisocyanate
Notes
No PBT substance, No vPvB substance.

o-(p-isocyanatobenzyl)phenyl isocyanate
Notes
No PBT substance, No vPvB substance.

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)
Notes
No PBT substance, No vPvB substance.

2,2'-methylenediphenyl diisocyanate
Notes
No PBT substance, No vPvB substance.

4,4'-methylenediphenyl diisocyanate
Notes
No PBT substance, No vPvB substance.

Silicon dioxide
Notes
No PBT substance, No vPvB substance.

o-(p-isocyanatobenzyl)phenyl isocyanate
Notes
No PBT substance, No vPvB substance.

Calcium carbonate
Notes
Not relevant for inorganic substances.

Diphenylmethanediisocyanate, isomeres and homologues
Notes
No PBT substance, No vPvB substance.

12.6 Endocrine disrupting properties

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Notes
Does not apply to mixtures.

12.7 Other adverse effects

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Notes
No information available on other adverse effects on the environment.

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Other information:

UNI-ALU		
AOX	0%	According tot he recipe, contains no AOX.
		DOC-elimination degree (complexing organic substance) >=80%/28d: No.

Propylene carbonate		
AOX	0%	Does not contain any organically bound halogens which can contribute to the AOX value in wastewater.

4,4'-methylenediphenyl diisocyanate	
AOX	Does not contain any organically bound halogens which can contribute to the AOX value in wastewater.
	With water at the interface, transforms slowly with formation of CO2 into a firm, insoluble reaction product with a high melting point (polycarbamide). According to experience available at the moment, polycarbamide is inert and non-degradable.

4,4'-methylenediphenyl diisocyanate
Notes
Does not contain any organically bound halogens which can contribute to the AOX value in wastewater.

Diphenylmethanediisocyanate, isomeres and homologues		
BOD (28d)	<10%, OECD 302 C (Inherent Biodegradability – Modified MITI Test (II))	
		Does not contain any organically bound halogens which can contribute to the AOX value in wastewater.

Water solubility:

Titanium dioxide (in powder form containing 1% or more of particles with aerodynamic diameter <=10µm)
Notes
Insoluble 20°C.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

For the substance/mixture/residual amounts:

EC disposal code no.:
The wase codes are recommendations based on the scheduled use of this product. Owing to the user's specific conditions for use and disposal, other waste codes may be allocated under certain circumstances. (2014/955/EU)
08 04 09 waste adhesives and sealants containing organic solvents or other hazardous substances.
08 05 01 waste isocyanates

Recommendation: Sewage disposal shall be discouraged. Pay attention to local and national official regulations. E.g. suitable incineration plant. Hardened product. E.g. dispose at suitable refuse site.

For contaminated packing material:

Pay attention to local and national official regulations. Empty container completely. Uncontaminated packaging can be recycled. Dispose of packaging that cannot be cleaned in the same manner as the substance.
15 01 10 packaging containing residues of or contaminated by hazardous substances.

14. TRANSPORT INFORMATION

14.1 UN Number or ID number
ADR, RID, IMDG, IATA: Not applicable.

14.2 UN proper shipping name
ADR, RID, IMDG, IATA: Not applicable.

14.3 Transport hazard class(es)
ADR, RID, IMDG, IATA: Not applicable.

14.4 Packing group
ADR/RID: Not applicable.
Classification code (ADR/RID): Not applicable.
LQ (ADR/RID): Not applicable.
IMDG: Not applicable.
Marine Pollutant (IMDG): Not applicable
IATA: Not applicable

14.5 Environmental hazards
ADR, RID, IMDG, IATA: Not applicable.
Tunnel restriction code (ARD/RID): Not applicable.

14.6 Special precautions for user
Unless specified otherwise, general measures for safe transport must be followed.

14.7 Maritime transport in bulk according to IMO instruments
Non-dangerous material according to Transport Regulations.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Observe restrictions:
Comply with national regulations/laws governing the protection of young people at work (national implementation of the Directive 94/33/EC).
Regulation (EC) No 1307/2006, Annex XVII
Diphenylmethanediisocyanate, isomers and homologues
4,4'-methylenediphenyl diisocyanate
o-(p-isocyanatobenzyl)phenyl isocyanate
2,2'-methylenediphenyl diisocyanate
Comply with national regulations/laws governing maternity protection (national implementation of the Directive 92/85/EEC)
Comply with trad association/occupational health regulations.

Directive 2010/75/EU (VOC): 0 g/l
Water hazard category according to the General Assessment Method (ABM) 2016: B(4)

Compliance with the Royal Decree of 28 April 2017 establishing book X-Work organization and special employee categories of the Codex on well-being at work (BS 2.6.2017, art. X.5-4 and X.5-7, appendix X .5-1 and X.5-2).
Compliance with the Royal Decree of 28 April 2017 establishing book X-Work organization and special employee categories of the Codex on well-being at work (BS 2.6.2017, art. X.3-3 and X.3-8, appendix X .3-1 – youth).

15.2 Chemical safety assessment
A Chemical Safety Assessment is not provided for mixtures.

16. OTHER INFORMATION

Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EC) 1272/2008 (CLP):

Classification in accordance with regulation (EC) No. 1272/2008 (CLP)	Evaluation method used
Eye Irrit. 2, H319	Classification according to calculation procedure.
STOT SE 3, H335	Classification according to calculation procedure.
Skin Irrit. 2, H315	Classification according to calculation procedure.
Resp. Sens. 1, H334	Classification according to calculation procedure.
Skin Sens. 1, H317	Classification according to calculation procedure.
Carc. 2, H351	Classification according to calculation procedure.
STOT RE 2, H373	Classification according to calculation procedure.

The following phrases represent the posted Hazard Class and Risk Category Code (GHS/CLP) of the product and the constituents (specified in Section 2 and 3):
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 by inhalation (respiratory system).

Eye Irrit. – Eye irritation
STOT SE – Specific target organ toxicity – single exposure – respiratory tract irritation
Skin Irrit. – Skin irritation
Resp. Sens. – Respiratory sensitization
Skin Sens. – Skin sensitization
Carc. – Carcinogenicity
STOT RE – Specific target organ toxicity – repeated exposure
Acute Tox. – Acute toxicity – inhalation

Abbreviations and acronyms:
ADR: Accord européen relatif au transport international des marchandises Dangereuses par Route (=European Agreement concerning the International Carriage of Dangerous Goods by Road).
AOX: Absorbable organic halogen compounds.
ATE: Acute Toxicity Estimate.

BCF: Bioconcentration factor.
Bw: body weight.
CAS: Chemical Abstracts Service.
CLP: Classification, Labelling and Packaging (REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures).
DNEL: Derived No Effect Level.
DOC: Dissolved organic carbon.
Dw: dry weight.
EC: European Community.
EEC: European Economic Community.
EINECS: European Inventory of Existing Commercial Substances.
ELINCS: European List of Notified Chemical Substances.
EN: European norms.
EPA: United States Environmental Protection Agency (United States of America).
EU: European Union.
GHS: Globally Harmonised System of Classification and Labelling Chemicals.
IATA: International Air Transport Association.
IBC (Code): International Bulk Chemical (Code).
IMDG-code: International Maritime Code for Dangerous Goods.
IUCLID: International Uniform Chemical Information Database.
LC50: Lethal Concentration to 50% of a test population.
LD50: Lethal Dose to 50% of a test population (Median Lethal Dose).
Log Pow: Logarithm of octanol-water partition coefficient.
LQ: Limited Quantities.
Min.: Minute.
NIOSH: National Institute for Occupational Safety and Health (USA).
NLP: No-longer-Polymer.
NOEC, NOEL: No observed Effect Concentration/Level.
OECD: Organisation for Economic Co-operation and Development.
Org.: Organic.
OSHA: Occupational Safety and Health Administration (USA).
PBT: Persistent, bioaccumulative and toxic.
PNEC: Predicted No Effect Concentration.
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals (REGULATION (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals).
REACH-IT List-No.: 9xx-xxx-x No. is automatically assigned, e.g. to pre-registrations without a CAS No. or other numerical identifier. List Numbers do not have any legal significance, rather they are purely technical identifiers for processing a submission via REACH-IT.
RID: Règlement concernant le transport International ferroviaire de marchandises Dangereuses (=Regulation concerning the International Carriage of Dangerous Goods by Rail).
SVHC: Substances of Very High Concern.
VOC: Volatile Organic Compounds.
vPvB: very Persistent and very Bioaccumulative.