Section 1: Identification of the mixture and of the company

Product identifier:
Product name:
OBEX CORTEX 1-Part Adhesive

Details of the Supplier of the Safety Data Sheet:

Supplier: Obex Protection Ltd
Unit 5,
St Modwen Park,
Norton Road,
Broomhall,
Worcester,
WR5 2QR
Tel (including for emergencies): 01905 337800
(Mon-Fri 7am-5pm)
Fax: 01905 337186
Email: sales@obexuk.com

Section 2: Hazards identification

Classification of the substance or mixture:
Classification according to Regulation (EC) 1272/2008 (CLP)

Hazard class	Hazard category	Hazard statement
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).

Label elements:
Labeling according to Regulation (EC) 1272/2008 (CLP):

Hazard pictograms

Warning Signal word

Danger:
H319-Causes serious eye irritation.
H335-May cause respiratory irritation.
H315-Causes skin irritation.
H334-May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317-May cause an allergic skin reaction.
H351-Suspected of causing cancer.
H373-May cause damage to organs through prolonged or repeated exposure by inhalation (respiratory system).
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.
EUH204-Contains isocyanates. May produce an allergic reaction.
EUH211-Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist.
As from 24 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

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 %).

Section 3: Composition/information on ingredients

Substances: n.a.
Mixtures:

Propylene carbonate

Registration number (REACH)

01-2119537232-48-XXXX

Index

607-194-00-1

EINECS, ELINCS, NLP, REACH-IT List-No.

203-572-1

CAS

108-32-7

content %

1-<10

Classification according to Regulation (EC) 1272/2008 (CLP), M-factors

Eye Irrit. 2, H319

4,4'-methylenediphenyl diisocyanate

Registration number (REACH)

01-2119457014-47-XXXX

Index

615-005-00-9

EINECS, ELINCS, NLP, REACH-IT List-No.

202-966-0

CAS

101-68-8

content %

1-<10

Classification according to Regulation (EC) 1272/2008 (CLP), M-factors

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)

Specific Concentration Limits and ATE

Skin Irrit. 2, H315: >=5 %
Eye Irrit. 2, H319: >=5 %
Resp. Sens. 1, H334: >=0,1 %
STOT SE 3, H335: >=5 %
ATE (as inhalation, Dusts or mist): 1,5 mg/l/4h
ATE (as inhalation, Vapours): 11 mg/l/4h

o-(p-isocyanatobenzyl)phenyl isocyanate

Registration number (REACH)

01-2119480143-45-XXXX

Index

615-005-00-9

EINECS, ELINCS, NLP, REACH-IT List-No.

227-534-9

CAS

5873-54-1

content %

1-<10

o-(p-isocyanatobenzyl)phenyl isocyanate

Classification according to Regulation (EC) 1272/2008 (CLP), M-factors

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)

Specific Concentration Limits and ATE

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
ATE (as inhalation, Vapours): 11 mg/l/4h

Diphenylmethanediisocyanate, isomeres and homologues

Registration number (REACH)

Index

EINECS, ELINCS, NLP, REACH-IT List-No.

CAS

9016-87-9

content %

1-<10

Classification according to Regulation (EC) 1272/2008 (CLP), M-factors

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)

Diphenylmethanediisocyanate, isomeres and homologues

Specific Concentration Limits and ATE

Skin Irrit. 2, H315: >=5 %
Eye Irrit. 2, H319: >=5 %
Resp. Sens. 1, H334: >=0,1 %
STOT SE 3, H335: >=5 %
ATE (as inhalation, Dusts or mist): 1,5 mg/l/4h
ATE (as inhalation, Vapours): 11 mg/l/4h

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

Registration number (REACH)

01-2119489379-17-XXXX

Index

022-006-002

EINECS, ELINCS, NLP, REACH-IT List-No.

236-675-5

CAS

13463-67-7

content %

<5

Classification according to Regulation (EC) 1272/2008 (CLP), M-factors

Carc. 2, H351 (as inhalation)

Specific Concentration Limits and ATE

2,2'-methylenediphenyl diisocyanate

Registration number (REACH)

01-2119927323-43-XXXX

Index

615-005-00-9

EINECS, ELINCS, NLP, REACH-IT List-No.

219-799-4

CAS

2536-05-2

content %

0,1-<1

2,2'-methylenediphenyl diisocyanate

Classification according to Regulation (EC) 1272/2008 (CLP), M-factors

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)

Specific Concentration Limits and ATE

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
ATE (as inhalation, Vapours): 11 mg/l/4h

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.
The addition of the highest concentrations listed here can result in a classification. Only when this classification is listed in Section 2 does it apply. In all other cases the total concentration is below the classification.

Section 4: First-aid measures

Description of first aid measures:
First-aiders should ensure they are protected!
Never pour anything into the mouth of an unconscious person!
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.
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
Eye contact: Remove contact lenses.
Wash thoroughly for several minutes using copious water - call doctor immediately, have Data Sheet available.
Ingestion: Rinse the mouth thoroughly with water.
Do not induce vomiting - give copious water to drink. Consult doctor immediately.

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.

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.

Section 5: Firefighting measures

Extinguishing media:

Suitable extinguishing media:
CO_2
Extinction powder

Water jet spray
Foam
Unsuitable extinguishing media:
High volume water jet

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

Advice for firefighters:
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.

Section 6: Accidental release measure

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.

Environmental precautions:
If leakage occurs, dam up.
Resolve leaks if this 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.

Methods and material 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.
CO_2 formation in closed tanks causes pressure to rise.

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

Section 7: Handling and storage

In addition to information given in this section, relevant information can also be found in section 8 and 6.1.

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 und 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, drink and animal feedingstuffs.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

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 packing.
Keep protected from direct sunlight and temperatures over 50°C.
Only store at temperatures from to .
Store in a dry place.

Specific end use(s):
Adhesive
Observe the instructions for good working practice and the recommendations for risk assessment.
Consult hazardous substance information systems, e.g. from the professional associations, the chemical industry or different industries, depending on the application (building materials, wood, chemistry, laboratory, leather, metal).
Observe special requirements for isocyanates, also within the framework of the risk assessment and definition of protective measures.

Section 8: Exposure control and personal protection

Chemical Name	4,4'-methylenediphenyl diisocyanate	
WEL-TWA: 0,02 mg/m³ (Isocyanates, all (as -NCO))	WEL-STEL: 0,07 mg/m³ (Isocyanates, all (as -NCO))	---
Monitoring procedures	ISO 16702 (Workplace air quality – determination of total isocyanate groups in air using 2-(1-methoxyphenylpiperazine and liquid chromatography) - 2007 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 Isocyanate (MDI)) - 1984	
BMGV: 1 µmol isocyanate-derived diamine/mol creatinine in urine (At the end of the period of exposure)		Other information: Sen (Isocyanates, all)

Chemical Name	o-(p-isocyanatobenzyl)phenyl isocyanate	
WEL-TWA: 0,02 mg/m³ (Isocyanates, all (as -NCO))	WEL-STEL: 0,07 mg/m³ (Isocyanates, all (as -NCO))	---
Monitoring procedures	---	
BMGV: 1 µmol isocyanate-derived diamine/mol creatinine in urine (At the end of the period of exposure)	Other information: Sen (Isocyanates, all)	

Chemical Name	Diphenylmethanediisocyanate, isomeres and homologues
WEL-TWA: 0,02 mg/m³ (Isocyanates, all (as -NCO))	WEL-STEL: 0,07 mg/m³ (Isocyanates, all (as -NCO)) ---
Monitoring procedures	---
BMGV: 1 µmol isocyanate-derived diamine/mol creatinine in urine (At the end of the period of exposure)	Other information: Sen (Isocyanates, all)

Chemical Name	Titanium dioxide (in powder form containing 1 % or more of particles with aerodynamic diameter <= 10 µm)
WEL-TWA: 10 mg/m³ (total inhalable dust), 4 mg/m3 (respirable dust)	WEL-STEL: --- ---
Monitoring procedures	---
BMGV: ---	Other information: ---

Chemical Name	2,2'-methylenediphenyl diisocyanate
WEL-TWA: 0,02 mg/m³ (Isocyanates, all (as -NCO))	WEL-STEL: 0,07 mg/m³ (Isocyanates, all (as -NCO)) ---
Monitoring procedures	---
BMGV: 1 µmol isocyanate-derived diamine/mol creatinine in urine (At the end of the period of exposure)	Other information: Sen (Isocyanates, all)

Chemical Name	4,4'-methylenediphenyl diisocyanate
WEL-TWA: 0,02 mg/m³ (Isocyanates, all (as -NCO))	WEL-STEL: 0,07 mg/m³ (Isocyanates, all (as -NCO)) ---
Monitoring procedures	ISO 16702 (Workplace air quality – determination of total isocyanate groups in air using 2-(1-methoxyphenylpiperazine and liquid chromatography) - 2007 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 Isocyanate (MDI)) - 1984
BMGV: 1 µmol isocyanate-derived diamine/mol creatinine in urine (At the end of the period of exposure)	Other information: Sen (Isocyanates, all)

Chemical Name	Silicon dioxide
WEL-TWA: 6 mg/m³ (total inh. dust), 2,4 mg/m³ (resp. dust)	WEL-STEL: --- ---
Monitoring procedures	---
BMGV: ---	Other information: ---

Chemical Name	o-(p-isocyanatobenzyl)phenyl isocyanate	
WEL-TWA: 0,02 mg/m³ (Isocyanates, all (as -NCO))	WEL-STEL: 0,07 mg/m³ (Isocyanates, all (as -NCO))	---
Monitoring procedures	---	
BMGV: 1 µmol isocyanate-derived diamine/mol creatinine in urine (At the end of the period of exposure)	Other information: Sen (Isocyanates, all)	

Chemical Name	Calcium carbonate	
WEL-TWA: 4 mg/m³ (respirable dust), 10 mg/m³ (total inhalable dust)	WEL-STEL: ---	---
Monitoring procedures	---	
BMGV: ---	Other information: ---	

Chemical Name	Diphenylmethanediisocyanate, isomeres and homologues	
WEL-TWA: 0,02 mg/m³ (Isocyanates, all (as -NCO))	WEL-STEL: 0,07 mg/m³ (Isocyanates, all (as -NCO))	---
Monitoring procedures	---	
BMGV: 1 µmol isocyanate-derived diamine/mol creatinine in urine (At the end of the period of exposure)	Other information: Sen (Isocyanates, all)	

Propylene carbonate

Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - sporadic (intermittent) release		PNEC	9	mg/l	
	Environment - marine		PNEC	0,09	mg/l	
	Environment - sediment, marine		PNEC	0,083	mg/l	
	Environment - soil		PNEC	0,81	mg/l	
	Environment - freshwater		PNEC	0,9	mg/l	
	Environment - sediment, freshwater		PNEC	0,83	mg/l	
	Environment - sewage treatment plant		PNEC	7400	mg/l	
Consumer	Human - oral	Long term, systemic effects	DNEL	10	mg/kg	
Consumer	Human - dermal	Long term, systemic effects	DNEL	10	mg/kg	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	10	mg/m³	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	17,4	mg/m³	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	70,53	mg/kg	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	176	mg/m³	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	20	mg/kg	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	20	mg/m³	

4,4'-methylenediphenyl diisocyanate						
Area of application	**Exposure route / Environmental compartment**	**Effect on health**	**Descriptor**	**Value**	**Unit**	**Note**
	Environment - freshwater		PNEC	3,7	µg/l	
	Environment - marine		PNEC	0,37	µg/l	
	Environment - sewage treatment plant		PNEC	1	mg/l	
	Environment - freshwater		PNEC	1	mg/l	
	Environment - marine		PNEC	0,1	mg/l	
	Environment - sewage treatment plant		PNEC	1	mg/l	
	Environment - soil		PNEC	1	mg/kg dw	
	Environment - sporadic (intermittent) release		PNEC	10	mg/l	
Consumer	Human - oral	Short term, systemic effects	DNEL	20	mg/kg bw/day	
Consumer	Human - dermal	Short term, local effects	DNEL	17,2	mg/cm²	
Consumer	Human - dermal	Short term, systemic effects	DNEL	25	mg/kg bw/d	
Consumer	Human - inhalation	Short term, local effects	DNEL	0,05	mg/m³	
Consumer	Human - inhalation	Short term, systemic effects	DNEL	0,05	mg/m³	
Consumer	Human - inhalation	Long term, local effects	DNEL	0,025	mg/m³	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	0,025	mg/m³	
Workers / employees	Human - dermal	Short term, systemic effects	DNEL	50	mg/kg bw/d	
Workers / employees	Human - dermal	Short term, local effects	DNEL	28,7	mg/cm²	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	0,1	mg/m³	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	0,1	mg/m³	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	0,05	mg/m³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	0,05	mg/m³	

Diphenylmethanediisocyanate, isomeres and homologues						
Area of application	**Exposure route / Environmental compartment**	**Effect on health**	**Descriptor**	**Value**	**Unit**	**Note**
	Environment - freshwater		PNEC	3,7	µg/l	
	Environment - marine		PNEC	0,37	µg/l	
	Environment - sediment, freshwater		PNEC	11,7	mg/kg	
	Environment - sediment, marine		PNEC	1,17	mg/kg	
	Environment - soil		PNEC	2,33	mg/kg	

Diphenylmethanediisocyanate, isomeres and homologues

Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
Workers / employees	Human - inhalation	Short term, local effects	DNEL	0,1	mg/m³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	0,05	mg/m³	

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

Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	0,184	mg/l	
	Environment - marine		PNEC	0,0184	mg/l	
	Environment - water, sporadic (intermittent) release		PNEC	0,193	mg/l	
	Environment - sewage treatment plant		PNEC	100	mg/l	
	Environment - sediment, freshwater		PNEC	1000	mg/kg dw	
	Environment - sediment, marine		PNEC	100	mg/kg dw	
	Environment - soil		PNEC	100	mg/kg dw	
	Environment - oral (animal feed)		PNEC	1667	mg/kg feed	
Consumer	Human - oral	Long term, systemic effects	DNEL	700	mg/kg bw/d	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	10	mg/m³	

2,2'-methylenediphenyl diisocyanate

Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	1	mg/l	
	Environment - marine		PNEC	0,1	mg/l	
	Environment - sewage treatment plant		PNEC	1	mg/l	
	Environment - soil		PNEC	1	mg/kg dw	
	Environment - water, sporadic (intermittent) release		PNEC	10	mg/l	
Consumer	Human - oral	Short term, systemic effects	DNEL	20	mg/kg bw/d	
Consumer	Human - dermal	Short term, local effects	DNEL	17,2	mg/cm²	
Consumer	Human - dermal	Short term, systemic effects	DNEL	25	mg/kg bw/d	
Consumer	Human - inhalation	Short term, systemic effects	DNEL	0,05	mg/m³	
Consumer	Human - inhalation	Short term, local effects	DNEL	0,05	mg/m³	

2,2'-methylenediphenyl diisocyanate

Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
Consumer	Human - inhalation	Long term, systemic effects	DNEL	0,025	mg/m³	
Consumer	Human - inhalation	Long term, local effects	DNEL	0,025	mg/m³	
Workers / employees	Human - dermal	Short term, local effects	DNEL	28,7	mg/cm²	
Workers / employees	Human - dermal	Short term, systemic effects	DNEL	50	mg/kg bw/d	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	0,1	mg/m³	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	0,1	mg/m³	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	0,05	mg/m³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	0,05	mg/m³	

4,4'-methylenediphenyl diisocyanate

Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	1	mg/l	
	Environment - marine		PNEC	0,1	mg/l	
	Environment - soil		PNEC	1	mg/kg dw	
	Environment - sewage treatment plant		PNEC	1	mg/l	
	Environment - water, sporadic (intermittent) release		PNEC	10	mg/l	
Consumer	Human - dermal	Short term, systemic effects	DNEL	25	mg/kg bw/d	
Consumer	Human - inhalation	Short term, systemic effects	DNEL	0,05	mg/m³	
Consumer	Human - oral	Short term, systemic effects	DNEL	20	mg/kg bw/d	
Consumer	Human - dermal	Short term, local effects	DNEL	17,2	mg/cm²	
Consumer	Human - inhalation	Short term, local effects	DNEL	0,05	mg/m³	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	0,025	mg/m³	
Consumer	Human - inhalation	Long term, local effects	DNEL	0,025	mg/m³	
Workers / employees	Human - dermal	Short term, systemic effects	DNEL	50	mg/kg bw/d	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	0,1	mg/m³	
Workers / employees	Human - dermal	Short term, local effects	DNEL	28,7	mg/cm²	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	0,1	mg/m³	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	0,05	mg/m³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	0,05	mg/m³	

o-(p-isocyanatobenzyl)phenyl isocyanate						
Area of application	**Exposure route / Environmental compartment**	**Effect on health**	**Descriptor**	**Value**	**Unit**	**Note**
	Environment - freshwater		PNEC	1	mg/l	
	Environment - marine		PNEC	0,1	mg/l	
	Environment - soil		PNEC	1	mg/kg dry weight	
	Environment - sewage treatment plant		PNEC	1	mg/l	
Consumer	Human - dermal	Short term, systemic effects	DNEL	25	mg/kg body weight/day	
Consumer	Human - inhalation	Short term, systemic effects	DNEL	0,05	mg/m³	
Consumer	Human - oral	Short term, systemic effects	DNEL	20	mg/kg body weight/day	
Consumer	Human - dermal	Short term, local effects	DNEL	17,2	mg/cm²	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	0,025	mg/m³	
Consumer	Human - inhalation	Long term, local effects	DNEL	0,025	mg/m³	
Workers / employees	Human - dermal	Short term, systemic effects	DNEL	50	mg/kg bw/day	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	0,1	mg/m³	
Workers / employees	Human - dermal	Short term, local effects	DNEL	28,7	mg/cm²	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	0,1	mg/m³	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	0,05	mg/m³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	0,05	mg/m³	

Diphenylmethanediisocyanate, isomeres and homologues						
Area of application	**Exposure route / Environmental compartment**	**Effect on health**	**Descriptor**	**Value**	**Unit**	**Note**
	Environment - freshwater		PNEC	1	mg/l	
	Environment - marine		PNEC	0,1	mg/l	
	Environment - water, sporadic (intermittent) release		PNEC	10	mg/l	
	Environment - sewage treatment plant		PNEC	1	mg/l	
	Environment - soil		PNEC	1	mg/kg	
Consumer	Human - oral	Short term, local effects	DNEL	20	mg/kg bw/d	
Consumer	Human - inhalation	Short term, local effects	DNEL	0,05	mg/m³	
Consumer	Human - inhalation	Short term, systemic effects	DNEL	0,05	mg/m³	
Consumer	Human - inhalation	Long term, local effects	DNEL	0,025	mg/m³	

Diphenylmethanediisocyanate, isomeres and homologues						
Area of application	**Exposure route / Environmental compartment**	**Effect on health**	**Descriptor**	**Value**	**Unit**	**Note**
Consumer	Human - inhalation	Long term, local effects	DNEL	0,025	mg/m³	
Consumer	Human - dermal	Short term, local effects	DNEL	17,2	mg/cm²	
Consumer	Human - dermal	Short term, systemic effects	DNEL	25	mg/kg bw/d	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	0,1	mg/m³	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	0,1	mg/m³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	0,05	mg/m³	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	0,05	mg/m³	
Workers / employees	Human - dermal	Short term, local effects	DNEL	28,7	mg/cm²	
Workers / employees	Human - dermal	Short term, systemic effects	DNEL	50	mg/kg bw/d	

United Kingdom | WEL-TWA = Workplace Exposure Limit - Long-term exposure limit - 8-hour TWA (= time weighted average) reference period (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:
(8) = Inhalable fraction (2004/37/CE, 2017/164/EU).
(9) = Respirable fraction (2004/37/CE, 2017/164/EU).
(11) = Inhalable fraction (2004/37/CE).
(12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (2004/37/CE).
WEL-STEL = Workplace Exposure Limit - Short-term exposure limit - 15-minute reference period (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:
(8) = Inhalable fraction (2004/37/EC, 2017/164/EU).
(9) = Respirable fraction (2004/37/EC, 2017/164/EU).
(10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU).
BMGV = Biological monitoring guidance value (EH40/2005 Workplace exposure limits (Fourth Edition 2020)).
(EU) = Directive 98/24/EC or 2004/37/EC or SCOEL (Biological Limit Value - BLV, Recommendation from the Scientific Committee on Occupational Exposure Limits (SCOEL))
Other information (EH40/2005 Workplace exposure limits (Fourth Edition 2020)): Sen = Capable of causing occupational asthma. Sk = Can be absorbed through skin. Carc = Capable of causing cancer and/or heritable genetic damage.
(EU) = Directive 91/322/EEC, 98/24/EC, 2000/39/EC, 2004/37/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU or 2019/1831/EU:
(13) = The substance can cause sensitisation of the skin and of the respiratory tract (2004/37/CE), (14) = The substance can cause sensitisation of the skin (2004/37/CE).

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 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 end of work.
Keep away from food, drink and animal feedingstuffs.
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection:
Tight fitting protective goggles with side protection (EN 166).
Skin protection - Hand protection:
Chemical resistant protective 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:
Normally not necessary.
If OES or MEL is exceeded.
Filter A2 P2 (EN 14387), code colour brown, white
Observe wearing time limitations for respiratory protection equipment.

Thermal hazards:
Not applicable

Additional information on hand protection - No tests have been performed.
In the 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.

Section 9: Physical and chemical properties

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 explosion limit
There is no information available on this parameter.
Upper explosion limit
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/cm^3 (relative density
Relative vapour density
There is no information available on this parameter.
Particle characteristics
Does not apply to liquids.

Section 10: Stability and reactivity

Reactivity: reacts with water
Chemical stability
Stable with proper storage and handling.

Possibility of hazardous reactions:
Exothermic reaction possible with:
Alcohols
Amines
Bases
Acids
Water
Developement of:
Carbon dioxide
CO_2 formation in closed tanks causes pressure to rise.
Pressure increase will result in danger of bursting.
Conditions to avoid:
Protect from humidity.
Polymerisation due to high heat is possible.
T > ~ 260°C
Incompatible materials:
Acids
Bases
Amines
Alcohols
Water
Hazardous decomposition products:
No decomposition when used as directed.

Section 11: Toxicological information

Information on hazard classes as defined in Regulation (EC) No 1272/2008
Possibly more information on health effects, see Section 2.1 (classification).

OBEX CORTEX 0363 1-Part Adhesive						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route						n.d.a.
Acute toxicity, by dermal route						n.d.a.
Acute toxicity, by inhalation	ATE	>20	mg/l/4h			Vapours, calculated value
Skin corrosion/irritation						n.d.a.
Serious eye damage/irritation						n.d.a.
Respiratory or skin sensitisation						n.d.a.
Germ cell mutagenicity						n.d.a.
Carcinogenicity						n.d.a.
Reproductive toxicity						n.d.a.

OBEX CORTEX 0363 1-Part Adhesive						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Specific target organ toxicity - single exposure (STOT-SE)						n.d.a.
Specific target organ toxicity - repeated exposure (STOT-RE)						n.d.a.
Aspiration hazard						n.d.a.
Symptoms						n.d.a.

Propylene carbonate						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route	LD50	>5000	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by dermal route	LD50	>2000	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	
Skin corrosion/irritation				Rabbit	OECD 404 (Acute Dermal Irritation/ Corrosion)	Not irritant
Serious eye damage/irritation				Rabbit	OECD 405 (Acute Eye Irritation/ Corrosion)	Irritant
Respiratory or skin sensitisation				Human being		No (skin contact)
Germ cell mutagenicity					OECD 471 (Bacterial Reverse Mutation Test)	Negative
Germ cell mutagenicity					OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative
Germ cell mutagenicity					OECD 482 (Gen. Tox. - DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells In Vitro)	Negative
Carcinogenicity				Mouse	OECD 451 (Carcinogenicity Studies)	Negative
Reproductive toxicity	NOAEL	1000	mg/kg	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Negative
Aspiration hazard						No

Propylene carbonate						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Symptoms						breathing difficulties, headaches, gastrointestinal disturbances, dizziness, nausea
Specific target organ toxicity - repeated exposure (STOT-RE), oral	NOEL	>5000	mg/kg		OECD 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)	
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.	NOEC	100	mg/m³		OECD 413 (Subchronic Inhalation Toxicity - 90-Day Study)	Dust, Mist

4,4'-methylenediphenyl diisocyanate						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route	LD50	>2000	mg/kg	Rat	Regulation (EC) 440/2008 B.1 (ACUTE ORAL TOXICITY)	Analogous conclusion
Acute toxicity, by dermal route	LD50	>9400	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	Analogous conclusion
Acute toxicity, by inhalation	ATE	11	mg/l/4h			Vapours
Acute toxicity, by inhalation	ATE	1,5	mg/l/4h			Dusts or mist
Acute toxicity, by inhalation	LC50	0,368	mg/l/4h	Rat	OECD 403 (Acute Inhalation Toxicity)	Aerosol, Does not conform with EU classification.
Acute toxicity, by inhalation	LC50	1,5	mg/l/4h			Aerosol, Expert judgement.

4,4'-methylenediphenyl diisocyanate						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Skin corrosion/irritation				Rabbit	OECD 404 (Acute Dermal Irritation/ Corrosion)	Skin Irrit. 2, Analogous conclusion
Respiratory or skin sensitisation				Guinea pig		Yes (inhalation)
Respiratory or skin sensitisation				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Skin Sens. 1
Germ cell mutagenicity				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative, Analogous conclusion
Germ cell mutagenicity				Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negativem ale
Germ cell mutagenicity				Rat	OECD 489 (In Vivo Mammalian Alkaline Comet Assay)	Negativem ale
Carcinogenicity				Rat	OECD 453 (Combined Chronic Toxicity/Carcinog enicity Studies)	Aerosol, Analogous conclusion, Carc. 2
Reproductive toxicity	NOAEL	4-12	mg/m³	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Aerosol, Analogous conclusion
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.	NOAEL	1	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/ Carcinogenicity Studies)	Aerosol, Analogous conclusion, Target organ(s): respiratory system

4,4'-methylenediphenyl diisocyanate

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Specific target organ toxicity - single exposure (STOT-SE), inhalative						May cause respiratory irritation.
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.	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
Acute toxicity, by oral route	LD50	>2000	mg/kg	Rat	Regulation (EC) 440/2008 B.1 (ACUTE ORAL TOXICITY)	Analogous conclusion
Acute toxicity, by dermal route	LD50	>9400	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	Analogous conclusion
Acute toxicity, by inhalation	LD50	0,387	mg/l/4h	Rat		Aerosol, Does not conform with EU classification.
Acute toxicity, by inhalation	ATE	1,5	mg/l/4h			Aerosol, Expert judgement.
Acute toxicity, by inhalation	ATE	11	mg/l/4h			Vapours
Skin corrosion/irritation				Rabbit	OECD 404 (Acute Dermal Irritation/ Corrosion)	Skin Irrit. 2, Analogous conclusion

o-(p-isocyanatobenzyl)phenyl isocyanate						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Serious eye damage/irritation				Rabbit	OECD 405 (Acute Eye Irritation/ Corrosion)	Not irritant, Analogous conclusion, Does not conform with EU classification.
Respiratory or skin sensitisation				Guinea pig	OECD 406 (Skin Sensitisation)	No (skin contact), Analogous conclusion
Respiratory or skin sensitisation				Guinea pig		Yes (inhalation), Analogous conclusion
Respiratory or skin sensitisation				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Yes (skin contact), Analogous conclusion
Germ cell mutagenicity				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative, Analogous conclusion
Germ cell mutagenicity				Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative, Analogous conclusion male
Carcinogenicity				Rat	OECD 453 (Combined Chronic Toxicity/Carcinog enicity Studies)	Aerosol, Analogous conclusion, Carc. 2

o-(p-isocyanatobenzyl)phenyl isocyanate						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Reproductive toxicity	NOAEL	4-12	mg/kg	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Aerosol, Analogous conclusion
Symptoms						mucous membrane irritation, breathing difficulties, coughing, asthmatic symptoms
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.	NOAEL	0,2	mg/m^3	Rat	OECD 453 (Combined Chronic Toxicity/ Carcinog enicity Studies)	Aerosol, Analogous conclusion, Target organ(s): respiratory system
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.	LOAEL	1	mg/m^3	Rat	OECD 453 (Combined Chronic Toxicity/ Carcinog enicity Studies)	Aerosol, Analogous conclusion, Target organ(s): respiratory system

Diphenylmethanediisocyanate, isomeres and homologues						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route	LD50	>5000	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by dermal route	LD50	>5000	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	
Acute toxicity, by inhalation	LD50	0,31-0,49	mg/l/4h	Rat	OECD 403 (Acute Inhalation Toxicity)	Aerosol, Does not conform with EU classification.
Acute toxicity, by inhalation	ATE	11	mg/l/4h			Vapours
Acute toxicity, by inhalation	ATE	1,5	mg/l/4h			Dusts or mist
Skin corrosion/irritation				Rabbit	OECD 404 (Acute Dermal Irritation/ Corrosion)	Skin Irrit. 2
Serious eye damage/irritation				Rabbit	OECD 405 (Acute Eye Irritation/ Corrosion)	Eye Irrit. 2
Respiratory or skin sensitisation				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Yes (skin contact), Analogous conclusion
Respiratory or skin sensitisation				Guinea pig	OECD 406 (Skin Sensitisation)	Yes (skin contact)
Respiratory or skin sensitisation				Rat		Yes (inhalation)
Germ cell mutagenicity				Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative, Analogous conclusion
Germ cell mutagenicity				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Reproductive toxicity	NOAEL	4	mg/m^3	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Aerosol, Negative
Carcinogenicity				Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Limited evidence of a carcinogenic effect.

Diphenylmethanediisocyanate, isomeres and homologues						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Specific target organ toxicity - single exposure (STOT-SE), inhalative						Target organ(s): respiratory system, May cause respiratory irritation.
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.						Target organ(s): respiratory system
Symptoms						breathing difficulties
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.	LOAEL	1	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/ Carcinogenicity Studies)	Aerosol, Analogous conclusion
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.	NOAEL	0,2	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/ Carcinog enicity Studies)	Aerosol, Analogous conclusion

Titanium dioxide (in powder form containing 1 % or more of particles with aerodynamic diameter <= 10µm)						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route	LD50	>5000	mg/kg	Rat	OECD 425 (Acute Oral Toxicity - Upand-Down Procedure)	
Acute toxicity, by dermal route	LD50	>5000	mg/kg	Rabbit		
Acute toxicity, by inhalation	LD50	>6,8	mg/l/4h	Rat		
Skin corrosion/irritation				Rabbit	OECD 404 (Acute Dermal Irritation/ Corrosion)	Not irritant
Serious eye damage/irritation				Rabbit	OECD 405 (Acute Eye Irritation/ Corrosion)	Not irritant, Mechanical irritation possible.

Titanium dioxide (in powder form containing 1 % or more of particles with aerodynamic diameter <= 10µm)						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Respiratory or skin sensitisation				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Not sensiti-zising
Respiratory or skin sensitisation				Guinea pig	OECD 406 (Skin Sensitisation)	No (skin contact)
Germ cell mutagenicity				Mouse	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative
Germ cell mutagenicity				Mammalian	OECD 473 (In Vitro Mammalian Chromosome Aberration Test)	Negative
Germ cell mutagenicity				Salmonella typhimurium	(Ames-Test)	Negative
Germ cell mutagenicity					OECD 476 (In Vitro Mammalian Cell Gene Mutation Test)	Negative
Germ cell mutagenicity					OECD 471 (Bacterial Reverse Mutation Test)	Negative
Reproductive toxicity (Developmental toxicity)				Rat	OECD 414 (Prenatal Developmental Toxicity Study)	No indi-cations of such an effect.
Specific target organ toxicity - single exposure (STOT-SE)						Not irritant (res-piratory tract).
Specific target organ toxicity - re-peated exposure (STOT-RE), oral	NOAEL	3500	mg/kg/d	Rat		(90d)
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.	NOAEC	10	mg/m³	Rat		(90d)
Symptoms						mucous mem-brane ir-ritation, cough-ing, res-piratory distress, drying of the skin.

2,2'-methylenediphenyl diisocyanate						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route	LD50	>2000	mg/kg	Rat	Regulation (EC) 440/2008 B.1 (ACUTE ORAL TOXICITY)	Analogous conclusion
Acute toxicity, by dermal route	LD50	>9400	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	Analogous conclusion
Acute toxicity, by inhalation	LD50	0,527	mg/l/4h	Rat	OECD 403 (Acute Inhalation Toxicity)	Aerosol, Does not conform with EU classification.
Acute toxicity, by inhalation	ATE	1,5	mg/l			Aerosol, Expert judgement
Acute toxicity, by inhalation	ATE	11	mg/l/4h			Vapours
Skin corrosion/irritation				Rabbit	OECD 404 (Acute Dermal Irritation/ Corrosion)	Skin Irrit. 2
Serious eye damage/irritation				Rabbit	OECD 405 (Acute Eye Irritation/ Corrosion)	Slightly irritant
Respiratory or skin sensitisation				Guinea pig		Yes (inhalation), Analogous conclusion
Respiratory or skin sensitisation				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Yes (skin contact)
Germ cell mutagenicity				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Germ cell mutagenicity				Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative, Analogous conclusion
Carcinogenicity				Rat	OECD 453 (Combined Chronic Toxicity/ Carcinog enicity Studies)	Analogous conclusion, Aerosol, Carc. 2

2,2'-methylenediphenyl diisocyanate

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Reproductive toxicity	NOAEL	4-12	mg/m³	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	No indications of such an effect., Aerosol, Analogous conclusion
Symptoms						respiratory distress, coughing, mucous membrane irritation
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.	NOAEL	0,2	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/ Carcinogenicity Studies)	Aerosol, Target organ(s): respiratory system, Analogous conclusion
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.	LOAEL	1	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/ Carcinogenicity Studies)	Aerosol, Target organ(s): respiratory system, Analogous conclusion

4,4'-methylenediphenyl diisocyanate

Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route	LD50	>10000	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by oral route	LD50	>2000	mg/kg	Rat	Regulation (EC) 440/2008 B.1 (ACUTE ORAL TOXICITY)	
Acute toxicity, by dermal route	LD50	>9400	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	

4,4'-methylenediphenyl diisocyanate						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by inhalation	LD50	>2,24	mg/l/4h	Rat	OECD 403 (Acute Inhalation Toxicity)	Aerosol
Acute toxicity, by inhalation	LC50	0,368	mg/l/4h	Rat	OECD 403 (Acute Inhalation Toxicity)	Does not conform with EU classification.
Skin corrosion/irritation				Rabbit	OECD 404 (Acute Dermal Irritation/ Corrosion)	Irritant, Analogous conclusion
Serious eye damage/irritation				Rabbit	OECD 405 (Acute Eye Irritation/ Corrosion)	Irritant, Analogous conclusion
Respiratory or skin sensitisation				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Yes (skin contact), Analogous conclusion
Respiratory or skin sensitisation				Guinea pig		Yes (inhalation)
Germ cell mutagenicity				Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative
Germ cell mutagenicity					OECD 471 (Bacterial Reverse Mutation Test)	Negative, Analogous conclusion
Reproductive toxicity	NOAEL	4	mg/m^3	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Negative, Analogous conclusion
Carcinogenicity					OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Analogous conclusion, Limited evidence of a carcinogenic effect.

4,4'-methylenediphenyl diisocyanate						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Symptoms						respiratory distress, coughing, mucous membrane irritation
Specific target organ toxicity - single exposure (STOT-SE), inhalative						Irritation of the respiratory tract
Specific target organ toxicity - single exposure (STOT-SE), inhalative						Irritation of the respiratory tract, Target organ(s): respiratory system

Silicon dioxide						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by dermal route	LD50	> 2000	mg/kg	Rat	OECD 402 (Acute Dermal Toxicity)	
Skin corrosion/irritation				Rabbit	OECD 404 (Acute Dermal Irritation/ Corrosion)	Not irritant
Serious eye damage/irritation				Rabbit	OECD 405 (Acute Eye Irritation/ Corrosion)	Not irritant
Germ cell mutagenicity					OECD 405 (Acute Eye Irritation/ Corrosion)	Negative
Aspiration hazard					OECD 471 (Bacterial Reverse Mutation Test)	No

o-(p-isocyanatobenzyl)phenyl isocyanate						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route	LD50	>2000	mg/kg	Rat	Regulation (EC) 440/2008 B.1 (ACUTE ORAL TOXICITY)	Analogous conclusion

o-(p-isocyanatobenzyl)phenyl isocyanate						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by dermal route	LD50	>9400	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	Analogous conclusion
Acute toxicity, by inhalation	LD50	0,387	mg/l/4h	Rat		Does not conform with EU classification.
Skin corrosion/irritation				Rabbit	OECD 404 (Acute Dermal Irritation/ Corrosion)	Irritant, Analogous conclusion
Respiratory or skin sensitisation				Mouse	OECD 429 (Skin Sensitisation - Local Lymph Node Assay)	Sensitising (skin contact), Analogous conclusion
Respiratory or skin sensitisation				Guinea pig	OECD 406 (Skin Sensitisation)	Yes (inhalation), Analogous conclusion
Germ cell mutagenicity					OECD 471 (Bacterial Reverse Mutation Test)	Negative, Analogous conclusion
Carcinogenicity					OECD 453 (Combined Chronic Toxicity/ Carcinog enicity Studies)	Analogous conclusion, Limited evidence of a carcinogenic effect.
Reproductive toxicity					OECD 414 (Prenatal Developmental Toxicity Study)	Negative

o-(p-isocyanatobenzyl)phenyl isocyanate						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Symptoms						asthmatic symptoms, mucous membrane irritation
Specific target organ toxicity - single exposure (STOT-SE), inhalative						Target organ(s): respiratory tract, Irritant

Calcium carbonate						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route	LD50	>2000	mg/kg	Rat	OECD 420 (Acute Oral toxicity - Fixe Dose Procedure)	
Acute toxicity, by oral route	LD50	>5000	mg/kg	Rat		
Acute toxicity, by dermal route	LD50	>2000	mg/kg	Rat	OECD 402 (Acute Dermal Toxicity)	
Acute toxicity, by inhalation	LD50	>3	mg/l/4h	Rat	OECD 403 (Acute Inhalation Toxicity)	
Skin corrosion/irritation				Rabbit	OECD 404 (Acute Dermal Irritation/ Corrosion)	Not irritant
Serious eye damage/irritation				Rabbit	OECD 405 (Acute Eye Irritation/ Corrosion)	Not irritant, Mechanical irritation possible.
Respiratory or skin sensitisation						No (skin contact)
Germ cell mutagenicity					in vitro	Negative
Carcinogenicity						Negative, administered as Calactate
Reproductive toxicity						Negative, administered as Cacarbonate

Diphenylmethanediisocyanate, isomeres and homologues						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Acute toxicity, by oral route	LD50	>10000	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by dermal route	LD50	>9400	mg/kg	Rabbit	OECD 402 (Acute Dermal Toxicity)	
Acute toxicity, by inhalation	LD50	0,49	mg/l/4h	Rat	OECD 403 (Acute Inhalation Toxicity)	Aerosol, Does not conform with EU classification.
Skin corrosion/irritation				Rabbit	OECD 404 (Acute Dermal Irritation/ Corrosion)	Skin Irrit. 2
Serious eye damage/irritation				Rabbit	(Acute Eye Irritation/ Corrosion)	Mild irritant
Respiratory or skin sensitisation				Guinea pig	OECD 406 (Skin Sensitisation)	Yes (skin contact)
Respiratory or skin sensitisation				Rat		Yes (inhalation)
Germ cell mutagenicity				Salmonella typhimurium	Regulation (EC) 440/2008 B.13/B.14 (REVERSE MUTATION TEST USING BACTERIA)	Analogous conclusion, Negative
Germ cell mutagenicity				Rat	OECD 474 (Mammalian Erythrocyte Micronucleus Test)	Negative, Analogous conclusion
Carcinogenicity		1	mg/m³	Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Positive
Reproductive toxicity (Developmental toxicity)		4	mg/m³	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Negative
Reproductive toxicity (Effects on fertility)				Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Negative
Reproductive toxicity			mg/m³	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Negative, Aerosol
Specific target organ toxicity - single exposure (STOT-SE)						Irritation of the respiratory tract

Diphenylmethanediisocyanate, isomeres and homologues						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Specific target organ toxicity - repeated exposure (STOT-RE)	NOEC	0,2	mg/kg		OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	
Aspiration hazard						No
Symptoms						fever, coughing, headaches, nausea and vomiting., dizziness, breathing difficulties, laryngeal oedema, abdominal pain, diarrhoea
Specific target organ toxicity - single exposure (STOT-SE), inhalative						Target organ(s): respiratory organs, May cause respiratory irritation.

11.2. Information on other hazards

OBEX CORTEX 0363 1-Part Adhesive						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Endocrine disrupting properties						Does not apply to mixtures.

OBEX CORTEX 0363 1-Part Adhesive						
Toxicity / effect	**Endpoint**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Other information						No other relevant information available on adverse effects on health.

Section 12: Ecological information

Possibly more information on environmental effects, see Section 2.1 (classification).

OBEX CORTEX 0363 1-Part Adhesive							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to fish							n.d.a.
Toxicity to daphnia							n.d.a.
Toxicity to algae							n.d.a.
Persistence and degradability							With water at the interface, transforms slowly with formation of CO_2 into a firm, insoluble reaction product with a high melting point (polycarbamide). According to experience available to date, polycarbamide is inert and nondegradable
Bioaccumulative potential							n.d.a.
Mobility in soil							n.d.a.
Results of PBT and vPvB assessment							n.d.a.
Endocrine disrupting properties							Does not apply to mixtures.
Other adverse effects							No information available on other adverse effects on the environment.

OBEX CORTEX 0363 1-Part Adhesive							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Other information							DOC-elimination degree (complexing organic substance) >= 80%/28d: No
Other information	AOX		0	%			According to the recipe, contains no AOX.

Propylene carbonate							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to fish	LC50	96h	>1000	mg/l	Cyprinus caprio	92/69/EC	
Toxicity to daphnia	EC50	48h	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
Toxicity to algae	EC50	72h	>900	mg/l	Desmodesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	
Persistence and degradability			83,5-87-7	%		OECD 301 B (Ready Biodegradability - Co_2 Evolution Test)	Readily biodegrada ble29d
Persistence and degradability	DOC	14d	90-100	%		OECD 301 A (Ready Biodegradability - DOC Die-Away Test)	
Bioaccumulative potential	Log Pow		-0,41				Bioaccumulation is unlikely (LogPow < 1)., calculated value
Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria	EC10	16h	7400	mg/l	Pseudomonas putida	DIN 38412 T.8	
Other information	AOX		0	%			Does not contain any organically bound halogens which can contribute to the AOX value in waste water.

4,4'-methylenediphenyl diisocyanate							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to fish	LC50	96h	>1000	mg/l	Brachydanio-rerio	OECD 203 (Fish, Acute Toxicity Test)	Analogous conclusion
Toxicity to daphnia	EC50	24h	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
Toxicity to daphnia	NOEC/ NOEL	21d	>10	mg/l	Daphnia magna	OECD 211 (Daphnia magna Reproduction Test)	Analogous conclusion
Toxicity to algae	ErC50	72h	>1640	mg/l	Desmodesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion
Persistence and degradability		28d	0	%		OECD 302 C (Inherent Biodegradability - Modified MITI Test (II))	Not biodegradable, With water at the interface, transforms slowly with formation of CO_2 into a firm, insoluble reaction product with a high melting point (polycarbamide)., According to experience available to date, polycarbamide is inert and nondegradable., Analogous conclusion
Bioaccumulative potential	Log Pow		5,22				A notable biological accumulation potential has to be expected (LogPow > 3).
Bioaccumulative potential	BCF	28d	200		Cyprinus caprio	IUCLID Chem. Data Sheet (ESIS)	Not to be expected
Mobility in soil	H (Henry)		0,0229	Pa*m³/ mol			
Results of PBT and vPvB assessment							No PBT substance, No vPvB substance

4,4'-methylenediphenyl diisocyanate							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to bacteria	EC50	3h	>100	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	Analogous conclusion
Other organisms	NOEC/ NOEL	14d	>1000	mg/kg	Lactuca sativa	OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion
Other organisms	NOEC/ NOEL	14d	>1000	mg/kg			Analogous conclusion
Other information	AOX						Does not contain any organically bound halogens which can contribute to the AOX value in waste water.
Other information							According to experience available to date, polycarbamide is inert and nondegradable ., With water at the interface, transforms slowly with formation of CO_2 into a firm, insoluble reaction product with a high melting point (polycarbamide).
Toxicity to annelids	NOEC/ NOEL	14d	>1000	mg/kg	Lumbricus terrestris	OECD 207 (Earthworm, Acute Toxicity Tests)	Analogous conclusion
Toxicity to annelids	EC50	14d	>1000	mg/kg	Eisenia foetida	OECD 207 (Earthworm, Acute Toxicity Tests)	Analogous conclusion

o-(p-isocyanatobenzyl)phenyl isocyanate							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to fish	LC50	96h	>1000	mg/l	Brachydanio rerio	OECD 203 (Fish, Acute Toxicity Test)	Analogous conclusion
Toxicity to daphnia	EC50	24h	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
Toxicity to daphnia	NOEC/ NOEL	21d	>10	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
Toxicity to algae	ErC50	72h	>1640	mg/l	Scenedesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion
Persistence and degradability		28d	0	%		OECD 302 C (Inherent Biodegradability - Modified MITI Test (II))	Not biodegradable, Analogous conclusion, According to experience available to date, polycarbam ide is inert and nondegradable., With water at the interface, transforms slowly with formation of CO_2 into a firm, insoluble reaction product with a high melting point (polycarbamide).
Bioaccumulative potential	BCF	28d	200		Cyprinus caprio	OECD 305 (Bioconcentration - Flow-Through Fish Test)	Not to be expected, Analogous conclusion
Mobility in soil	H (Henry)	0,0229	Pa*m³/ mol				
Results of PBT and vPvB assessment							No PBT substance, No vPvB substance

o-(p-isocyanatobenzyl)phenyl isocyanate							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to bacteria	EC50	3h	>100	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	Analogous conclusion
Other organisms	NOEC/ NOEL	14d	>1000	mg/kg	Avena sativa	OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion
Other organisms	NOEC/ NOEL	14d	>1000	mg/kg	Lactuca sativa	OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion
Toxicity to annelids	NOEC/ NOEL	14d	>1000	mg/kg	Eisenia foetida	OECD 207 (Earthworm, Acute Toxicity Tests)	Analogous conclusion

Diphenylmethanediisocyanate, isomeres and homologues							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to fish	LC50	96h	>1000	mg/l	Brachydanio rerio	OECD 203 (Fish, Acute Toxicity Test)	
Toxicity to daphnia	NOEC/ NOEL	21d	>=10	mg/l	Daphnia magna	OECD 211 (Daphnia magna Reproduction Test)	
Toxicity to daphnia	EC50	24h	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
Toxicity to algae	ErC50	72h	>1640	mg/l	Scenedesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	

Diphenylmethanediisocyanate, isomeres and homologues							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Persistence and degradability		28d	0	%	activated sludge	OECD 302 C (Inherent Biodegradability - Modified MITI Test (II))	Not biodegradable, According to experience available to date, polycarbamide is inert and nondegradable ., With water at the interface, transforms slowly with formation of CO_2 into a firm, insoluble reaction product with a high melting point (polycarbamide).
Bioaccumulative potential	BCF	42d	<14		Cyprinus carpio	OECD 305 (Bioconcentration - Flow-Through Fish Test)	Not to be expected
Results of PBT and vPvB assessment							No vPvB substance, No PBT substance
Toxicity to bacteria	EC50	3h	>100	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	
Other organisms	NOEC/ NOEL	14d	>1000	mg/kg	Avena sativa	OECD 208 (Terrestrial Plants, Growth Test)	
Other organisms	NOEC/ NOEL	14d	>1000	mg/kg	Lactuca sativa	OECD 208 (Terrestrial Plants, Growth Test)	
Toxicity to annelids	NOEC/ NOEL	14d	>1000	mg/kg	Lumbricus terrestris	OECD 207 (Earthworm, Acute Toxicity Tests)	

Titanium dioxide (in powder form containing 1 % or more of particles with aerodynamic diameter <= 10µm)							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to fish	LC50	96h	>100	mg/l	Oncorhynchus mykiss	OECD 203 (Fish, Acute Toxicity Test)	
Toxicity to daphnia	LC50	48h	>100	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
Toxicity to algae	EC50	72h	16	mg/l	Pseudokirchneriella subcapitata	U.S. EPA-600/9-78-018	
Persistence and degradability							Not relevant for inorganic substances
Bioaccumulative potential	BCF	42d	9,6				Not to be expected
Bioaccumulative potential	BCF	14d	19-352				Oncorhynchus mykiss
Mobility in soil							Negative
Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria			>5000	mg/l	Escherichia coli		
Toxicity to bacteria	LC0	24h	>10000	mg/l	Pseudomonas fluorescens		
Toxicity to annelids	NOEC/ NOEL		>1000	mg/kg	Eisenia foetida		
Water solubility							Insoluble20°C

2,2'-methylenediphenyl diisocyanate							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to fish	LC50	96h	>1000	mg/l	Brachydanio-rerio	OECD 203 (Fish, Acute Toxicity Test)	Analogous conclusion
Toxicity to daphnia	NOEC/ NOEL	21d	>10	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
Toxicity to daphnia	EC50	24h	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
Toxicity to algae	EC50	72h	>1640	mg/l	Scenedesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion
Persistence and degradability		28d	0	%	activated sludge	OECD 302 C (Inherent Biodegradability - Modified MITI Test (II))	With water at the interface, transforms slowly with formation of CO_2 into a firm, insoluble reaction product with a high melting point (polycarbamide)., According to experience available to date, polycarbamide is inert and nondegradable., Analogous conclusion
Bioaccumulative potential	Log Pow		5,22				A notable biological accumulation potential has to be expected (LogPow > 3).
Bioaccumulative potential	BCF	28d	200		Cyprinus caprio	OECD 305 (Bioconcentration - Flow-Through Fish Test)	Not to be expected, Analogous conclusion
Mobility in soil	H (Henry)		0,0229	Pa*m³/ mol			
Results of PBT and vPvB assessment							No PBT substance, No vPvB substance

2,2'-methylenediphenyl diisocyanate

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
Toxicity to bacteria	EC50	3h	>100	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	Analogous conclusion
Other organisms	NOEC/ NOEL	14d	>1000	mg/kg	Avena sativa	OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion
Other organisms	NOEC/ NOEL	14d	>1000	mg/kg	Lactuca sativa	OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion
Toxicity to annelids	NOEC/ NOEL	14d	>1000	mg/kg	Eisenia foetida	OECD 207 (Earthworm, Acute Toxicity Tests)	Analogous conclusion

4,4'-methylenediphenyl diisocyanate

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
Toxicity to fish	LC50	96h	>1000	mg/l	Brachydanio rerio	OECD 203 (Fish, Acute Toxicity Test)	
Toxicity to fish	LC0	96h	>1000	mg/l	Brachydanio rerio	OECD 203 (Fish, Acute Toxicity Test)	Analogous conclusion
Toxicity to daphnia	EC50	24h	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
Toxicity to algae	EC50	72h	1,5	mg/l		OECD 201 (Alga, Growth Inhibition Test)	
Toxicity to algae	EC50	72h	1640	mg/l	Desmodesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion
Toxicity to algae	NOEC/ NOEL	72h	1640	mg/l	Desmodesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion

4,4'-methylenediphenyl diisocyanate							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Persistence and degradability		28d	0	%	activated sludge	OECD 302 C (Inherent Biodegradability - Modified MITI Test (II))	With water at the interface, transforms slowly with formation of CO_2 into a firm, insoluble reaction product with a high melting point (polycarbamide)., According to experience available to date, polycarbamide is inert and nondegradable
Persistence and degradability	BOD	28d	0	%		OECD 302 C (Inherent Biodegradability - Modified MITI Test (II))	With water at the interface, transforms slowly with formation of CO_2 into a firm, insoluble reaction product with a high melting point (polycarbamide)., According to experience available to date, polycarbamide is inert and nondegradable
Bioaccumulative potential	BCF	28d	200		Cyprinus caprio	OECD 305 (Bioconcentration - Flow-Through Fish Test)	A notable biological accumulation potential has to be expected (LogPow > 3).
Bioaccumulative potential	Log Pow		4,51-5,22			OECD 117 (Partition Coefficient (noctanol/water) - HPLC method)	A notable biological accumulation potential has to be expected (LogPow > 3).
Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria	EC50	3h	>100	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	

4,4'-methylenediphenyl diisocyanate							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to bacteria	EC50	3h	>100	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	Analogous conclusion
Other information							Does not contain any organically bound halogens which can contribute to the AOX value in waste water.
Toxicity to annelids	EC50	14d	>=1000	mg/kg	Eisenia foetida	OECD 207 (Earthworm, Acute Toxicity Tests)	

Silicon dioxide							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Persistence and degradability							Inorganic products cannot be eliminated from water through biological purification methods.
Results of PBT and vPvB assessment							No PBT substance, No vPvB substance

o-(p-isocyanatobenzyl)phenyl isocyanate							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to fish	LC0	96h	>1000	mg/l	Brachydaniorerio	OECD 203 (Fish, Acute Toxicity Test)	Analogous conclusion
Toxicity to daphnia	EC50	24h	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
Toxicity to daphnia	NOEC/ NOEL	21d	>10	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
Toxicity to algae	ErC50	72h	>1640	mg/l	Scenedesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion

o-(p-isocyanatobenzyl)phenyl isocyanate							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Persistence and degradability		28d	0	%		OECD 302 C (Inherent Biodegradability - Modified MITI Test (II))	With water at the interface, transforms slowly with formation of CO_2 into a firm, insoluble reaction product with a high melting point (polycarbamide)., Analogous conclusion
Bioaccumulative potential	BCF	28d	200		Cyprinus caprio	OECD 305 (Bioconcentration - Flow-Through Fish Test)	Not to be expected, Analogous conclusion
Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria	EC50	3h	>100	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	Analogous conclusion
Other organisms						OECD 207 (Earthworm, Acute Toxicity Tests)	Analogous conclusion

Calcium carbonate							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to fish	LC50	96h	>100	mg/l	Oncorhynchus mykiss	OECD 203 (Fish, Acute Toxicity Test)	
Toxicity to fish	LC50	96h	>10000	mg/l	Oncorhynchus mykiss		
Toxicity to daphnia	EC50	48h	>1000	mg/l	Daphnia magna		
Toxicity to daphnia	EC50	48h	>100	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	

Calcium carbonate							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to algae	EC50	72h	>200	mg/l	Desmodesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	
Persistence and degradability							Inorganic products cannot be eliminated from water through biological purification methods.
Bioaccumulative potential							Not relevant for inorganic substances
Mobility in soil							Not relevant for inorganic substances
Results of PBT and vPvB assessment							Not relevant for inorganic substances
Endocrine disrupting properties							Not to be expected
Toxicity to bacteria	EC50	3h	>1000	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	
Toxicity to annelids					Eisenia foetida	OECD 207 (Earthworm, Acute Toxicity Tests)	Negative

Diphenylmethanediisocyanate, isomeres and homologues							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to fish	LC50	96h	>1000	mg/l	Brachydanio rerio	OECD 203 (Fish, Acute Toxicity Test)	
Toxicity to daphnia	NOEC/ NOEL	21d	>=10	mg/l	Daphnia magna	OECD 211 (Daphnia magna Reproduction Test)	
Toxicity to daphnia	EC50	24h	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	

Diphenylmethanediisocyanate, isomeres and homologues							
Toxicity / effect	**Endpoint**	**Time**	**Value**	**Unit**	**Organism**	**Test method**	**Notes**
Toxicity to algae	EC50	72h	>1640	mg/l	Desmodesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	
Persistence and degradability		28d	0	%	activated sludge	OECD 301 C (Ready Biodegradability - Modified MITI Test (I))	Not biodegradable
Bioaccumulative potential	BCF	42d	<14		Cyprinus caprio	OECD 305 (Bioconcentration - Flow-Through Fish Test)	A notable biological accumulation potential is not to be expected (LogPow 1-3).
Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria	EC50	3h	>100	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	
Other organisms	NOEC/ NOEL	14d	>1000	mg/kg	Eisenia foetida	OECD 207 (Earthworm, Acute Toxicity Tests)	
Other information	BOD	28d	<10	%	OECD 302 C (Inherent Biodegradability - Modified MITI Test (II))		
Other information							Does not contain any organically bound halogens which can contribute to the AOX value in waste water.

Section 13: Disposal considerations

Waste treatment methods:
For the substance / mixture / residual amounts:
EC disposal code no.:
The waste 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

Section 14: Transport information

General statements:
Transport by road/by rail (ADR/RID):
UN number or ID number: Not applicable
UN proper shipping name: Not applicable
Transport hazard class(es): Not applicable
Packing group: Not applicable
Environmental hazards: Not applicable
Tunnel restriction code: Not applicable
Classification code: Not applicable
LQ: Not applicable
Transport category: Not applicable

Transport by sea (IMDG-code):
UN number or ID number: Not applicable
UN proper shipping name: Not applicable
Transport hazard class(es): Not applicable
Packing group: Not applicable
Environmental hazards: Not applicable
Marine Pollutant: Not applicable
EmS: Not applicable

Transport by air (IATA):
UN number or ID number: Not applicable
UN proper shipping name: Not applicable
Transport hazard class(es): Not applicable
Packing group: Not applicable
Environmental hazards: Not applicable

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

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

Section 15: Regulatory information

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 1907/2006, Annex XVII
4,4'-methylenediphenyl diisocyanate
o-(p-isocyanatobenzyl)phenyl isocyanate
Diphenylmethanediisocyanate, isomeres and homologues
2,2'-methylenediphenyl diisocyanate
Comply with national regulations/laws governing maternity protection (national implementation of the Directive 92/85/EEC)!
Comply with trade association/occupational health regulations.
Directive 2010/75/EU (VOC): 0 g/l
National requirements/regulations on safety and health protection must be applied when using work equipment.

Chemical safety assessment:
A chemical safety assessment is not provided for mixtures.

Section 16: Other information

Revised sections: 2
These details refer to the product as it is delivered.
Employee instruction/training in handling hazardous materials is required.
Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EG) 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.
H351 Suspected of causing cancer by inhalation.
H373 May cause damage to organs through prolonged or repeated exposure by inhalation.
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.

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

Key literature references and sources for data:
Regulation (EC) No 1907/2006 (REACH) and Regulation (EC) No 1272/2008 (CLP) as amended. Guidelines for the preparation of safety data sheets as amended (ECHA). Guidelines on labelling and packaging according to the Regulation (EG) Nr. 1272/2008 (CLP) as amended (ECHA).
Safety data sheets for the constituent substances.
ECHA Homepage - Information about chemicals.
GESTIS Substance Database (Germany).
German Environment Agency "Rigoletto" information site on substances that are hazardous to water (Germany).
EU Occupation Exposure Limits Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164, (EU) 2019/1831, each as amended.
National Lists of Occupational Exposure Limits for each country as amended.
Regulations on the transport of hazardous goods by road, rail, sea and air (ADR, RID, IMDG, IATA) as amended.

Any abbreviations and acronyms used in this document

acc., acc. to

according, according to

ADR

Accord européen relatif au transport international des marchandises Dangereuses par Route (=European Agreement concerning the International Carriage of Dangerous Goods by Road)

AOX

Adsorbable organic halogen compounds

approx.

approximately

Art., Art. no.

Article number

ASTM

ASTM International (American Society for Testing and Materials)

ATE

Acute Toxicity Estimate

BAM

Bundesanstalt für Materialforschung und -prüfung (Federal Institute for Materials Research and Testing, Germany)

BAuA

Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (= Federal Institute for Occupational Health and Safety, Germany)

BCF

Bioconcentration factor

BSEF

The International Bromine Council

CAS

Chemical Abstracts Service

CLP

Classification, Labelling and Packaging (REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures)

CMR

carcinogenic, mutagenic, reproductive toxic

DMEL

Derived Minimum Effect Level

DNEL

Derived No Effect Level

DOC

Dissolved organic carbon

e.g.

for example (abbreviation of Latin 'exempli gratia'), for instance

EbCx, EyCx, EbLx (x = 10, 50)

Effect Concentration/Level of x % on reduction of the biomass (algae, plants)

EC

European Community

ECHA

European Chemicals Agency

ECx, ELx (x = 0, 3, 5, 10, 20, 50, 80, 100)

Effect Concentration/Level for x % effect

EEC

European Economic Community

EINECS

European Inventory of Existing Commercial Chemical Substances

ELINCS

European List of Notified Chemical Substances

EN

European Norms

EPA

United States Environmental Protection Agency (United States of America)

ErCx, EμCx, ErLx (x = 10, 50)

Effect Concentration/Level of x % on inhibition of the growth rate (algae, plants)

etc.

et cetera

EU

European Union

EVAL

Ethylene-vinyl alcohol copolymer

Fax.

Fax number

gen.

general

GHS

Globally Harmonized System of Classification and Labelling of Chemicals

GWP

Global warming potential

Koc

Adsorption coefficient of organic carbon in the soil

Kow

octanol-water partition coefficient

IARC

International Agency for Research on Cancer

IATA

International Air Transport Association

IBC (Code)

International Bulk Chemical (Code)

IMDG-code

International Maritime Code for Dangerous Goods

incl.

including, inclusive

IUCLID

International Uniform Chemical Information Database

IUPAC

International Union for Pure Applied Chemistry

LC50

Lethal Concentration to 50 % of a test population

LD50
Lethal Dose to 50% of a test population (Median Lethal Dose)

Log Koc
Logarithm of adsorption coefficient of organic carbon in the soil

Log Kow, Log Pow
Logarithm of octanol-water partition coefficient

LQ
Limited Quantities

MARPOL
International Convention for the Prevention of Marine Pollution from Ships

mg/kg bw
mg/kg body weight

mg/kg bw/d, mg/kg bw/day
mg/kg body weight/day

mg/kg dw
mg/kg dry weight

mg/kg wwt
mg/kg wet weight

n.a.
not applicable

n.av.
not available

n.c.
not checked

n.d.a.
no data available

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

PE
Polyethylene

PNEC
Predicted No Effect Concentration

ppm
parts per million

PVC
Polyvinylchloride

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.
6/7/8/9xx-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

Tel.
Telephone

TOC
Total organic carbon

UN RTDG
United Nations Recommendations on the Transport of Dangerous Goods

VOC
Volatile organic compounds

vPvB
very persistent and very bioaccumulative

The statements made here should describe the product with regard to the necessary safety precautions - they are not meant to guarantee definite characteristics - but they are based on our present up-to-date knowledge. No responsibility.