

Safety data sheet according to Regulation (EC) No 1907/2006, Annex II
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 Replacing version dated / version: 02.08.2021 / 0012
 Valid from: 01.11.2021
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 COSMO® PU-160.160
 COSMO® PU-160.161
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Safety data sheet according to Regulation (EC) No 1907/2006, Annex II

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

COSMO® PU-160.160
COSMO® PU-160.161
COSMO® PU-160.163

(COSMOPUR 812.60)
(COSMOPUR 812.60 weißgrün)

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

Weiss Chemie + Technik GmbH & Co. KG
 Hansastrasse 2
 35708 Haiger
 Tel: +49 (0) 2773 / 815-0
 msds@weiss-chemie.de
 www.weiss-chemie.de

Qualified person's e-mail address: info@chemical-check.de, k.schnurbusch@chemical-check.de Please DO NOT use for requesting Safety Data Sheets.

1.4 Emergency telephone number

Emergency information services / official advisory body:

Telephone number of the company in case of emergencies:

+49 (0) 700 / 24 112 112 (WIC)
 +1 872 5888271 (WIC)

SECTION 2: Hazards identification

2.1 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.
Aquatic	3	H412-Harmful to aquatic life with long lasting effects.
Chronic		
STOT RE	2	H373-May cause damage to organs through prolonged or repeated exposure by inhalation (respiratory system).

2.2 Label elements

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



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. H412-Harmful to aquatic life with long lasting effects. 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.

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

Dibutyltin dilaurate
 Diphenylmethanediisocyanate, isomeres and homologues
 4,4'-methylenediphenyl diisocyanate
 o-(p-isocyanatobenzyl)phenyl isocyanate
 2,2'-methylenediphenyl diisocyanate

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 %).

SECTION 3: Composition/information on ingredients

3.1 Substances

n.a.

3.2 Mixtures

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 %	5<-25
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 %

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 %	5<-20
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

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)
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 %

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
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

Dibutyltin dilaurate	
Registration number (REACH)	01-2119496068-27-XXXX
Index	050-030-00-3
EINECS, ELINCS, NLP, REACH-IT List-No.	201-039-8
CAS	77-58-7
content %	0,25<-0,3

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

Skin Corr. 1C, H314
 Eye Dam. 1, H318
 Skin Sens. 1, H317
 Muta. 2, H341
 Repr. 1B, H360FD
 STOT SE 1, H370 (thymus)
 STOT RE 1, H372 (immune system)
 Aquatic Acute 1, H400 (M=1)
 Aquatic Chronic 1, H410 (M=1)

Isophthaloyl dichloride**Registration number (REACH)**

01-2119493993-19-XXXX

Index

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

202-774-7

CAS

99-63-8

content %

<0,25

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

Acute Tox. 3, H331
 Acute Tox. 4, H312
 Skin Corr. 1A, H314
 Eye Dam. 1, H318

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**4.1 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.

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.

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**CO₂

Extinguishing 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

Danger of bursting (explosion) when heated

5.3 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 measures**6.1 Personal precautions, protective equipment and emergency procedures****6.1.1 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.

6.1.2 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 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.

6.3 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.

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.

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.

7.1 Precautions for safe handling**7.1.1 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.

7.1.2 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.

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 packing.

Keep protected from direct sunlight and temperatures over 50°C.

Only store at temperatures from 15°C to 25°C.

Store in a dry place.

7.3 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 controls/personal protection**8.1 Control parameters**

(GB)	Chemical Name	4,4'-methylenediphenyl diisocyanate	
	WEL-TWA: 0,02 mg/m ³ (Isocyanates, all (as -NCO))	WEL-STEL: 0,07 mg/m ³ (Isocyanates, all (as -NCO))	---
	Monitoring procedures:	ISO 16702 (Workplace air quality – determination of total isocyanate groups in air using 2-(1-methoxyphenyl)piperazine and liquid chromatography) - 2007 - MDHS 25/4 (Organic isocyanates in air – Laboratory method using sampling either onto 2-(1-methoxyphenyl)piperazine 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)	

(GB)	Chemical Name	o-(p-isocyanatobenzyl)phenyl isocyanate	
	WEL-TWA: 0,02 mg/m ³ (Isocyanates, all (as -NCO))	WEL-STEL: 0,07 mg/m ³ (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)	

(GB)	Chemical Name	Diphenylmethanediisocyanate, isomeres and homologues	
	WEL-TWA: 0,02 mg/m ³ (Isocyanates, all (as -NCO))	WEL-STEL: 0,07 mg/m ³ (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)	

(GB)	Chemical Name	2,2'-methylene-diphenyl diisocyanate	
	WEL-TWA: 0,02 mg/m ³ (Isocyanates, all (as -NCO))	WEL-STEL: 0,07 mg/m ³ (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)	

(GB)	Chemical Name	Dibutyltin dilaurate	
	WEL-TWA: 0,1 mg/m ³ (Sn) (tin compounds, organic)	WEL-STEL: 0,2 mg/m ³ (Sn) (tin compounds, organic)	---
	Monitoring procedures:	---	
	BMGV: ---	Other information: Sk (tin compounds, organic)	

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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 - soil		PNEC	2,33	mg/kg dw	
	Environment - sporadic (intermittent) release		PNEC	37	µg/l	
	Environment - sediment, freshwater		PNEC	11,7	mg/kg dry weight	
	Environment - sediment, marine		PNEC	1,17	mg/kg dry weight	
Consumer	Human - oral	Short term, systemic effects	DNEL	20	mg/kg bw/day	
Consumer	Human - dermal	Short term, local effects	DNEL	17,2	mg/cm ²	
Consumer	Human - dermal	Short term, systemic effects	DNEL	25	mg/kg bw/day	
Consumer	Human - inhalation	Short term, local effects	DNEL	0,05	mg/m ³	
Consumer	Human - inhalation	Short term, systemic effects	DNEL	0,05	mg/m ³	
Consumer	Human - inhalation	Long term, local effects	DNEL	0,02	mg/m ³	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	0,02	mg/m ³	
Workers / employees	Human - dermal	Short term, local effects	DNEL	28,7	mg/cm ²	
Workers / employees	Human - dermal	Short term, systemic effects	DNEL	50	mg/kg bw/day	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	0,1	mg/m ³	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	0,1	mg/m ³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	0,05	mg/m ³	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	0,05	mg/m ³	

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 - 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/cm ²	
Consumer	Human - dermal	Short term, systemic effects	DNEL	25	mg/kg bw/day	
Consumer	Human - inhalation	Short term, local effects	DNEL	0,05	mg/m ³	
Consumer	Human - inhalation	Short term, systemic effects	DNEL	0,05	mg/m ³	
Consumer	Human - inhalation	Long term, local effects	DNEL	0,02	mg/m ³	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	0,02	mg/m ³	
Workers / employees	Human - dermal	Short term, local effects	DNEL	50	mg/kg bw/day	
Workers / employees	Human - dermal	Short term, systemic effects	DNEL	28,7	mg/cm ²	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	0,1	mg/m ³	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	0,1	mg/m ³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	0,05	mg/m ³	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	0,05	mg/m ³	

Diphenylmethanediisocyanate, isomers 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 dw	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	0,1	mg/m ³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	0,05	mg/m ³	

2,2'-methylene-diphenyl 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/day	
Consumer	Human - dermal	Short term, local effects	DNEL	17,2	mg/cm ²	
Consumer	Human - dermal	Short term, systemic effects	DNEL	25	mg/kg bw/day	
Consumer	Human - inhalation	Short term, local effects	DNEL	0,05	mg/m ³	
Consumer	Human - inhalation	Short term, systemic effects	DNEL	0,05	mg/m ³	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	0,02	mg/m ³	
Consumer	Human - inhalation	Long term, local effects	DNEL	0,02	mg/m ³	
Workers / employees	Human - dermal	Short term, local effects	DNEL	28,7	mg/cm ²	
Workers / employees	Human - dermal	Short term, systemic effects	DNEL	50	mg/kg bw/day	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	0,1	mg/m ³	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	0,1	mg/m ³	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	0,05	mg/m ³	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	0,05	mg/m ³	

Dibutyltin dilaurate						
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - sediment, freshwater		PNEC	0,05	mg/kg wet weight	
	Environment - freshwater		PNEC	0,00	0463	mg/l
	Environment - marine		PNEC	0,00	0046	mg/l
	Environment - sediment, marine		PNEC	0,00	5	mg/kg wet weight
Consumer	Human - dermal	Short term, systemic effects	DNEL	0,5	mg/kg body weight/day	
Consumer	Human - inhalation	Short term, systemic effects	DNEL	0,02	mg/m ³	
Consumer	Human - oral	Short term, systemic effects	DNEL	0,01	mg/kg body weight/day	
Consumer	Human - dermal	Long term, systemic effects	DNEL	0,08	mg/kg body weight/day	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	0,00	3	mg/m ³
Consumer	Human - oral	Long term, systemic effects	DNEL	0,00	2	mg/kg body weight/day
Workers / employees	Human - dermal	Short term, systemic effects	DNEL	1	mg/kg body weight/day	
Workers / employees	Human - inhalation	Short term, systemic effects	DNEL	0,07	mg/m ³	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	0,2	mg/kg body weight/day	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	0,01	mg/m ³	

Isophthaloyl dichloride						
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	0,13	3	mg/l
	Environment - marine		PNEC	0,01	33	mg/l
	Environment - sporadic (intermittent) release		PNEC	1,33	7	mg/l
	Environment - sewage treatment plant		PNEC	6,17	1	mg/l

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	Environment - sediment, freshwater		PNEC	0,63	mg/kg	
	Environment - sediment, marine		PNEC	0,06	mg/kg	
	Environment - soil		PNEC	0,04	mg/kg	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	3,94	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	4,47	mg/kg bw/d	

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- 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/EC, 2017/164/EU), (9) = Respirable fraction (2004/37/EC, 2017/164/EU), (11) = Inhalable fraction (2004/37/EC), (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/EC). |

| 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/EC), (14) = The substance can cause sensitisation of the skin (2004/37/EC). |

8.2 Exposure controls

8.2.1 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.

Apples only if maximum permissible exposure values are listed here.

Suitable assessment methods for reviewing the effectiveness of protection measures adopted include

metrolological and non-metrolological 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".

8.2.2 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 feedstuffs.

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.

8.2.3 Environmental exposure controls

No information available at present.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state:

Liquid

Colour:

Odour:

Melting point/freezing point:

Boiling point or initial boiling point and boiling range:

Flammability:

Lower explosion limit:

Upper explosion limit:

Flash point:

Auto-ignition temperature:

Decomposition temperature:

pH:

Kinematic viscosity:

Solubility:

Partition coefficient n-octanol/water (log value):

Vapour pressure:

Density and/or relative density:

Relative vapour density:

Particle characteristics:

9.2 Other information

Explosives:

Oxidising liquids:

Bulk density:

According to specification

Characteristic

There is no information available on this parameter.

There is no information available on this parameter.

Combustible.

There is no information available on this parameter.

There is no information available on this parameter.

There is no information available on this parameter.

There is no information available on this parameter.

There is no information available on this parameter.

Mixture reacts with water.

3200-3900 mPas (20°C, Dynamic viscosity)

Insoluble

Does not apply to mixtures.

There is no information available on this parameter.

1,07-1,14 g/cm3

There is no information available on this parameter.

Does not apply to liquids.

Product is not explosive.

No

n.a.

SECTION 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 reactions

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 > 200°C

10.5 Incompatible materials

Acids

Bases

Amines

Alcohols

Water

10.6 Hazardous decomposition products

No decomposition when used as directed.

SECTION 11: Toxicological information

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

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

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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			calculated value, Vapours
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.
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.

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:	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.
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Skin Irrit. 2, Analogous conclusion

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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)	Negative
Germ cell mutagenicity:				Rat	OECD 489 (In Vivo Mammalian Alkaline Comet Assay)	Negative
Carcinogenicity:				Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Analogous conclusion, Carc. 2
Reproductive toxicity:	NOAE L	4-12	mg/m ³	Rat	OECD 414 (Prenatal Developmental Toxicity Study)	Aerosol, Analogous conclusion
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.:	LOAE L	1	mg/m ³	Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Analogous conclusion, Target organ(s): respiratory system
Specific target organ toxicity - single exposure (STOT-SE), inhalative:						May cause respiratory irritation.
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.:	NOAE L	0,2	mg/m ³	Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Analogous conclusion, Target organ(s): respiratory system

n-(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:	LC50	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.
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Skin Irrit. 2, Analogous conclusion
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/Carcinogenicity Studies)	Aerosol, Analogous conclusion, Carc. 2

Reproductive toxicity:	NOAE L	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.:	NOAE L	0,2	mg/m ³	Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Analogous conclusion, Target organ(s): respiratory system
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.:	LOAE L	1	mg/m ³	Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Analogous conclusion, Target organ(s): respiratory system

Diphenylmethanediisocyanate, isomers 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:	LC50	0,31-0,49	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	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:	NOAE L	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.
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, breathing difficulties
Symptoms:						
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.:	LOAE L	1	mg/m ³	Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Analogous conclusion
Specific target organ toxicity - repeated exposure (STOT-RE), inhalat.:	NOAE L	0,2	mg/m ³	Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Analogous conclusion

2,2'-methylenebis(phenyl 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:	LC50	0,527	mg/l/4h	Rat	OECD 403 (Acute Inhalation Toxicity)	Aerosol, Does not conform with EU classification.

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Acute toxicity, by inhalation:	ATE	1,5	mg/l			Aerosol, Expert judgement
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/Carcinogenicity Studies)	Analogous conclusion, Aerosol, Carc. 2
Reproductive toxicity:	NOAEL	4-12	mg/m ³	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/m ³	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/m ³	Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Aerosol, Target organ(s): respiratory system, Analogous conclusion

Dibutyltin dilaurate						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Skin corrosion/irritation:				Rat		Corrosive
Respiratory or skin sensitisation:				Guinea pig	OECD 406 (Skin Sensitisation)	Sensitising
Aspiration hazard:						Negative

Isophthaloyl dichloride						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>5000	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	1410	mg/kg	Rabbit		
Acute toxicity, by inhalation:	LC50	0,7	mg/l/4h	Rat		Aerosol, Analogous conclusion
Skin corrosion/irritation:				Rabbit		Corrosive, Analogous conclusion
Serious eye damage/irritation:				Rabbit		Corrosive, Analogous conclusion
Respiratory or skin sensitisation:				Guinea pig		No (skin contact)
Germ cell mutagenicity:					OECD 476 (In Vitro Mammalian Cell Gene Mutation Test)	Negative, Analogous conclusion
Specific target organ toxicity - repeated exposure (STOT-RE), oral:	NOAEL	474	mg/kg	Rat	OECD 408 (Repeated Dose 90-Day Oral Toxicity Study in Rodents)	Analogous conclusion

11.2. Information on other hazards

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Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Endocrine disrupting properties:						Does not apply to mixtures.
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).

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Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:							n.d.a.
12.1. Toxicity to daphnia:							n.d.a.
12.1. Toxicity to algae:							n.d.a.
12.2. 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 non-degradable.
12.3. Bioaccumulative potential:							n.d.a.
12.4. Mobility in soil:							n.d.a.
12.5. Results of PBT and vPvB assessment							n.d.a.
12.6. Endocrine disrupting properties:							Does not apply to mixtures.
12.7. Other adverse effects:							No information available on other adverse effects on the environment.

4,4'-methylenediphenyl diisocyanate							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	>1000	mg/l	Brachydanio rerio	OECD 203 (Fish, Acute Toxicity Test)	Analogous conclusion
12.1. Toxicity to daphnia:	EC50	24h	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
12.1. Toxicity to daphnia:	NOEC/NOEL	21d	>10	mg/l	Daphnia magna	OECD 211 (Daphnia magna Reproduction Test)	Analogous conclusion
12.1. Toxicity to algae:	ErC50	72h	>1640	mg/l	Desmodesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion

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12.2. 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 non-degradable. Analogous conclusion
12.3. Bioaccumulative potential:	Log Pow		5,22				A notable biological accumulation potential has to be expected (LogPow > 3).
12.3. Bioaccumulative potential:	BCF	28d	200		Cyprinus caprio	IUCLID Chem. Data Sheet (ESIS)	Not to be expected
12.4. Mobility in soil:	H (Henry)		0,0229	Pa*m ³ /mol			
12.5. 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:	NOEC/N OEL	14d	>1000	mg/kg	Lactuca sativa	OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion
Other organisms:	NOEC/N OEL	14d	>1000	mg/kg	Avena sativa	OECD 208 (Terrestrial Plants, Growth Test)	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 non-degradable. 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/N OEL	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
12.1. Toxicity to fish:	LC50	96h	>1000	mg/l	Brachydanio rerio	OECD 203 (Fish, Acute Toxicity Test)	Analogous conclusion
12.1. Toxicity to daphnia:	EC50	24h	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
12.1. Toxicity to daphnia:	NOEC/N OEL	21d	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
12.1. Toxicity to algae:	ErC50	72h	>1640	mg/l	Scenedesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion
12.2. Persistence and degradability:		28d	0	%		OECD 302 C (Inherent Biodegradability - Modified MITI Test (II))	Not biodegradable, Analogous conclusion, According to experience available to date, polycarbamide is inert and non-degradable. With water at the interface, transforms slowly with formation of CO ₂ into a firm, insoluble reaction product with a high melting point (polycarbamide).
12.3. Bioaccumulative potential:	BCF	28d	200		Cyprinus caprio	OECD 305 (Bioconcentration - Flow-Through Fish Test)	Not to be expected. Analogous conclusion
12.4. Mobility in soil:	H (Henry)		0,0229	Pa*m ³ /mol			
12.5. 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:	NOEC/N OEL	14d	>1000	mg/kg	Avena sativa	OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion

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Other organisms:	NOEC/N OEL	14d	>1000	mg/kg	Lactuca sativa	OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion
Toxicity to annelids:	NOEC/N OEL	14d	>1000	mg/kg	Eisenia foetida	OECD 207 (Earthworm, Acute Toxicity Tests)	Analogous conclusion

Diphenylmethanediisocyanate, isomers and homologues

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	>1000	mg/l	Brachydanio rerio	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to daphnia:	NOEC/N OEL	21d	>=10	mg/l	Daphnia magna	OECD 211 (Daphnia magna Reproduction Test)	
12.1. Toxicity to daphnia:	EC50	24h	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	ErC50	72h	>1640	mg/l	Scenedesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	
12.2. 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 non-degradable. With water at the interface, transforms slowly with formation of CO2 into a firm, insoluble reaction product with a high melting point (polycarbamide).
12.3. Bioaccumulative potential:	BCF	42d	<14		Cyprinus carpio	OECD 305 (Bioconcentration - Flow-Through Fish Test)	Not to be expected
12.5. 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/N OEL	14d	>1000	mg/kg	Avena sativa	OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion
Other organisms:	NOEC/N OEL	14d	>1000	mg/kg	Lactuca sativa	OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion
Toxicity to annelids:	NOEC/N OEL	14d	>1000	mg/kg	Lumbricus terrestris	OECD 207 (Earthworm, Acute Toxicity Tests)	Analogous conclusion

2,2'-methylenebis(phenyl diisocyanate)

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	>1000	mg/l	Brachydanio rerio	OECD 203 (Fish, Acute Toxicity Test)	Analogous conclusion

12.1. Toxicity to daphnia:	NOEC/N OEL	21d	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
12.1. Toxicity to daphnia:	EC50	24h	>1000	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	Analogous conclusion
12.1. Toxicity to algae:	EC50	72h	>1640	mg/l	Scenedesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	Analogous conclusion
12.2. 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 CO2 into a firm, insoluble reaction product with a high melting point (polycarbamide). According to experience available to date, polycarbamide is inert and non-degradable. Analogous conclusion
12.3. Bioaccumulative potential:	Log Pow		5,22				A notable biological accumulation potential has to be expected (LogPow > 3).
12.3. Bioaccumulative potential:	BCF	28d	200		Cyprinus caprio	OECD 305 (Bioconcentration - Flow-Through Fish Test)	Not to be expected, Analogous conclusion
12.4. Mobility in soil:	H (Henry)		0,0229	Pa*m ³ /mol			
12.5. 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:	NOEC/N OEL	14d	>1000	mg/kg	Avena sativa	OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion
Other organisms:	NOEC/N OEL	14d	>1000	mg/kg	Lactuca sativa	OECD 208 (Terrestrial Plants, Growth Test)	Analogous conclusion
Toxicity to annelids:	NOEC/N OEL	14d	>1000	mg/kg	Eisenia foetida	OECD 207 (Earthworm, Acute Toxicity Tests)	Analogous conclusion

Dibutyltin dilaurate

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to algae:	EC50	72h	>1	mg/l	Desmodesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	
12.2. Persistence and degradability:		28d	22	%		OECD 301 F (Ready Biodegradability - Manometric Respirometry Test)	Not readily biodegradable

Isophthaloyl dichloride

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	134	mg/l	Pimephales promelas		
12.1. Toxicity to daphnia:	EC50	48h	>952	mg/l	Daphnia magna		Analogous conclusion
12.1. Toxicity to algae:	EC50	96h	>996	mg/l	Selenastrum capricornutum		Analogous conclusion

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 COSMO® PU-160.163

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SECTION 13: Disposal considerations

13.1 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)

14.1. UN number or ID number: Not applicable
 14.2. UN proper shipping name: Not applicable
 14.3. Transport hazard class(es): Not applicable
 14.4. Packing group: Not applicable
 14.5. 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)

14.1. UN number or ID number: Not applicable
 14.2. UN proper shipping name: Not applicable
 14.3. Transport hazard class(es): Not applicable
 14.4. Packing group: Not applicable
 14.5. Environmental hazards: Not applicable
 Marine Pollutant: Not applicable
 EmS: Not applicable

Transport by air (IATA)

14.1. UN number or ID number: Not applicable
 14.2. UN proper shipping name: Not applicable
 14.3. Transport hazard class(es): Not applicable
 14.4. Packing group: Not applicable
 14.5. Environmental hazards: 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.

SECTION 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 1907/2006, Annex XVII
 4,4'-methylenebis(phenyl) diisocyanate
 o-(p-isocyanatobenzyl)phenyl isocyanate
 Diphenylmethanediisocyanate, isomeres and homologues
 2,2'-methylenebis(phenyl) diisocyanate
 Dibutyltin dilaurate
 Regulation (EU) No 649/2012 'concerning the export and import of hazardous chemicals' must be adhered to, as the product contains a substance that falls within the scope of this Regulation.
 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): 0,99 %

National requirements/regulations on safety and health protection must be applied when using work equipment.

15.2 Chemical safety assessment

A chemical safety assessment is not provided for mixtures.

SECTION 16: Other information

Revised sections: 1-16
 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.
Aquatic Chronic 3, H412	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.

H314 Causes severe skin burns and eye damage.
 H360FD May damage fertility. May damage the unborn child.
 H373 May cause damage to organs through prolonged or repeated exposure by inhalation.
 H312 Harmful in contact with skin.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H318 Causes serious eye damage.
 H319 Causes serious eye irritation.
 H331 Toxic if inhaled.
 H332 Harmful if inhaled.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H335 May cause respiratory irritation.
 H341 Suspected of causing genetic defects.
 H351 Suspected of causing cancer.
 H370 Causes damage to organs.
 H372 Causes damage to organs through prolonged or repeated exposure.
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.

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
 Aquatic Chronic — Hazardous to the aquatic environment - chronic
 STOT RE — Specific target organ toxicity - repeated exposure
 Acute Tox. — Acute toxicity - inhalation
 Skin Corr. — Skin corrosion
 Eye Dam. — Serious eye damage
 Muta. — Germ cell mutagenicity
 Repr. — Reproductive toxicity
 STOT SE — Specific target organ toxicity - single exposure
 Aquatic Acute — Hazardous to the aquatic environment - acute
 Acute Tox. — Acute toxicity - dermal

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
 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)
 CMR carcinogenic, mutagenic, reproductive toxic
 DMEL Derived Minimum Effect Level
 DNEL Derived No Effect Level
 DOC Dissolved organic carbon
 dw dry weight
 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)

(GB)

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COSMO® PU-160.163

(COSMOPUR 812.60)

(COSMOPUR 812.60 weißgrün)

ErCx, E_uCx, 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

IUCRID 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

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. 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

wwt wet weight

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.

These statements were made by:

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