

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



Elmotherm® F93 B

Version
8.1 SDB_GB

Revision Date:
06.07.2023

Date of last issue: 30.08.2022
Date of first issue: 05.01.2013

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

1.1 Product identifier

Trade name : Elmotherm® F93 B

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

Type of Application (Use) : Resin Hardener

Recommended restrictions on use : For industrial use only.

1.3 Details of the supplier of the safety data sheet

Company : ELANTAS Europe S.r.l.
Strada Antolini 1
43044 Collecchio
Italy

Telephone : +3907363081

Telefax : +390736402746

E-mail address of person responsible for the SDS : msds.elantas.europe@altana.com

1.4 Emergency telephone number

+44 1235 239670 (All languages)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3 H226: Flammable liquid and vapour.

Acute toxicity, Category 4 H332: Harmful if inhaled.

Skin irritation, Category 2 H315: Causes skin irritation.

Eye irritation, Category 2 H319: Causes serious eye irritation.

Respiratory sensitisation, Category 1 H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin sensitisation, Category 1 H317: May cause an allergic skin reaction.

Carcinogenicity, Category 2 H351: Suspected of causing cancer.

Specific target organ toxicity - single exposure, Category 3, Central nervous H336: May cause drowsiness or dizziness.

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system

Specific target organ toxicity - single exposure, Category 3, Respiratory system

H335: May cause respiratory irritation.

Specific target organ toxicity - repeated exposure, Category 2

H373: May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard, Category 1

H304: May be fatal if swallowed and enters airways.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements : H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements : **Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe mist or vapours.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P331 Do NOT induce vomiting.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

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Hazardous components which must be listed on the label:

Isocyanic acid, polymethylenepolyphenylene ester

Benzene, 2,4-diisocyanato-1-methyl-, homopolymer

n-butyl acetate

Xylene, mixture of isomers

4,4'-methylenediphenyl diisocyanate

o-(p-isocyanatobenzyl)phenyl isocyanate

4-methyl-m-phenylene diisocyanate

Additional Labelling

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

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Blocked Isocyanate Resin Solution

Components

Chemical name	CAS-No. EC-No. Index-No.	Classification	Concentration (% w/w)

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	Registration number		
Isocyanic acid, polymethylenepol- phenylene ester	9016-87-9	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 (Respiratory system) STOT RE 2; H373	>= 12,5 - < 20
Benzene, 2,4-diisocyanato-1- methyl-, homopolymer	26006-20-2	Eye Irrit. 2; H319 Skin Sens. 1; H317	>= 12,5 - < 20
n-butyl acetate	123-86-4 204-658-1 607-025-00-1 01-2119485493-29	Flam. Liq. 3; H226 STOT SE 3; H336 (Central nervous system) EUH066	>= 12,5 - < 20
Xylene, mixture of isomers	1330-20-7 601-022-00-9 01-2119488216-32	Flam. Liq. 3; H226 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335 (Respiratory system) STOT RE 2; H373 Asp. Tox. 1; H304	>= 10 - < 12,5
Reaction mass of ethyl benzene and xylene	Not Assigned 01-2119539452-40	Flam. Liq. 3; H226 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335 (Respiratory system) STOT RE 2; H373 Asp. Tox. 1; H304	>= 10 - < 12,5
2-methoxy-1-methylethyl acetate	108-65-6 203-603-9 607-195-00-7 01-2119475791-29	Flam. Liq. 3; H226 STOT SE 3; H336	>= 7 - < 10
4,4'-methylenediphenyl diisocya- nate	101-68-8 202-966-0 615-005-00-9 01-2119457014-47	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 (Respiratory system) STOT RE 2; H373 specific concentration limit Eye Irrit. 2; H319	>= 1 - < 3

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		<p>>= 5 % STOT SE 3; H335 >= 5 % Skin Irrit. 2; H315 >= 5 % Resp. Sens. 1; H334 >= 0,1 % Eye Irrit. 2; H319 >= 5 % STOT SE 3; H335 >= 5 % Skin Irrit. 2; H315 >= 5 % Resp. Sens. 1; H334 >= 0,1 %</p> <hr/> <p>Acute toxicity estimate</p> <p>Acute inhalation toxicity (dust/mist): 1,5 mg/l</p>	
o-(p-isocyanatobenzyl)phenyl isocyanate	5873-54-1 227-534-9 615-005-00-9 01-2119480143-45	<p>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 (Respiratory system) STOT RE 2; H373</p> <hr/> <p>specific concentration limit</p> <p>Eye Irrit. 2; H319 >= 5 % STOT SE 3; H335 >= 5 % Skin Irrit. 2; H315 >= 5 % Resp. Sens. 1; H334 >= 0,1 % Eye Irrit. 2; H319 >= 5 % STOT SE 3; H335 >= 5 % Skin Irrit. 2; H315 >= 5 % Resp. Sens. 1; H334 >= 0,1 %</p>	>= 1 - < 3
4-methyl-m-phenylene diisocyanate	584-84-9 209-544-5 615-006-00-4	<p>Acute Tox. 1; H330 Skin Irrit. 2; H315 Eye Irrit. 2; H319</p>	>= 0,025 - < 0,1

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	01-2119486974-18	Resp. Sens. 1; H334 Skin Sens. 1; H317 Carc. 2; H351 STOT SE 3; H335 (Respiratory system) Aquatic Chronic 3; H412
		specific concentration limit Resp. Sens. 1; H334 >= 0,1 % Resp. Sens. 1; H334 >= 0,1 %

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Do not leave the victim unattended.
Consult a physician.
- Protection of first-aiders : If potential for exposure exists refer to Section 8 for specific personal protective equipment.
- If inhaled : Move to fresh air.
If unconscious, place in recovery position and seek medical advice.
Oxygen or artificial respiration if needed.
If symptoms persist, call a physician.
- In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off immediately with plenty of water for at least 15 minutes.
Use a mild soap if available.
Wash contaminated clothing before re-use.
- In case of eye contact : Immediately flush eye(s) with plenty of water.
Consult a physician.
Keep eye wide open while rinsing.
Protect unharmed eye.
If eye irritation persists, consult a specialist.
- If swallowed : Gently wipe or rinse the inside of the mouth with water.
Call a physician immediately.
Never give anything by mouth to an unconscious person.
Do not give milk or alcoholic beverages.

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4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Nausea
Vomiting
Central nervous system depression

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : The first aid procedure should be established in consultation with the doctor responsible for industrial medicine.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Warning: water promotes the spread of fire.
Cool containers/tanks with water spray.
Burning produces irritant fumes.
The pressure in sealed containers can increase under the influence of heat.
Exposure to decomposition products may be a hazard to health.

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment. Exposure to decomposition products may be a hazard to health.

Further information : Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Refer to protective measures listed in sections 7 and 8.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Remove all sources of ignition.
Ensure adequate ventilation.
Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Environmental precautions : Do not allow contact with soil, surface or ground water.
Local authorities should be advised if significant spillages

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cannot be contained.
Retain and dispose of contaminated wash water.
Prevent spreading over a wide area (e.g. by containment or oil barriers).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).
Sweep up and shovel into suitable containers for disposal.
Clean contaminated surface thoroughly.

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms. Ensure all equipment is electrically grounded before beginning transfer operations.
Avoid inhalation, ingestion and contact with skin and eyes.
Keep away from fire, sparks and heated surfaces.
Keep container closed when not in use.

Advice on protection against fire and explosion : Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air. Keep away from heat and sources of ignition.

Hygiene measures : Store personal protection equipment in a clean location away from the work area. Keep working clothes separately.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Do not store together with explosives, gases, oxidizing solids, products which form flammable gases in contact with water, oxidizing products, infectious products and radioactive products.

7.3 Specific end use(s)

Specific use(s) : Consult the technical guidelines for the use of this substance/mixture.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis	
Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9	TWA	0,02 mg/m ³ (NCO)	GB EH40	
		Further information: Capable of causing occupational asthma.			
		STEL	0,07 mg/m ³ (NCO)	GB EH40	
Further information: Capable of causing occupational asthma.					
n-butyl acetate	123-86-4	TWA	150 ppm 724 mg/m ³	GB EH40	
		STEL	200 ppm 966 mg/m ³	GB EH40	
		STEL	150 ppm 723 mg/m ³	2019/1831/EU	
		Further information: Indicative			
		TWA	50 ppm 241 mg/m ³	2019/1831/EU	
Further information: Indicative					
Xylene, mixture of isomers	1330-20-7	TWA	50 ppm 221 mg/m ³	2000/39/EC	
		Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		STEL	100 ppm 442 mg/m ³	2000/39/EC	
		Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		TWA	50 ppm 220 mg/m ³	GB EH40	
Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.					
		STEL	100 ppm 441 mg/m ³	GB EH40	
Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.					
2-methoxy-1-methylethyl acetate	108-65-6	TWA	50 ppm 275 mg/m ³	2000/39/EC	
		Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		STEL	100 ppm 550 mg/m ³	2000/39/EC	
Further information: Identifies the possibility of significant uptake through the skin, Indicative					
		TWA	50 ppm	GB EH40	

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			274 mg/m ³	
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		STEL	100 ppm 548 mg/m ³	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
4,4'-methylenediphenyl diisocyanate	101-68-8	TWA	0,02 mg/m ³ (NCO)	GB EH40
	Further information: Capable of causing occupational asthma.			
		STEL	0,07 mg/m ³ (NCO)	GB EH40
	Further information: Capable of causing occupational asthma.			
o-(p-isocyanatobenzyl)phenyl isocyanate	5873-54-1	TWA	0,02 mg/m ³ (NCO)	GB EH40
	Further information: Capable of causing occupational asthma.			
		STEL	0,07 mg/m ³ (NCO)	GB EH40
	Further information: Capable of causing occupational asthma.			
4-methyl-m-phenylene diisocyanate	584-84-9	TWA	0,02 mg/m ³ (NCO)	GB EH40
	Further information: Capable of causing occupational asthma.			
		STEL	0,07 mg/m ³ (NCO)	GB EH40
	Further information: Capable of causing occupational asthma.			

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
Isocyanic acid, polymethylenepolyphenylene ester	9016-87-9	isocyanate-derived diamine (Isocyanates): 1 µmol/mol creatinine (Urine)	At the end of the period of exposure	GB EH40 BAT
Xylene, mixture of isomers	1330-20-7	methyl hippuric acid: 650 Millimoles per mole creatinine (Urine)	After shift	GB EH40 BAT
4,4'-methylenediphenyl diisocyanate	101-68-8	isocyanate-derived diamine (Isocyanates): 1 µmol/mol creatinine (Urine)	At the end of the period of exposure	GB EH40 BAT
o-(p-isocyanatobenzyl)phenyl isocyanate	5873-54-1	isocyanate-derived diamine (Isocyanates): 1 µmol/mol creatinine (Urine)	At the end of the period of exposure	GB EH40 BAT

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4-methyl-m-phenylene diisocyanate	584-84-9	isocyanate-derived diamine (Isocyanates): 1 µmol/mol creatinine (Urine)	At the end of the period of exposure	GB EH40 BAT
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Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value	
n-butyl acetate	Workers	Inhalation	Acute local effects	600 mg/m ³	
	Workers	Inhalation	Long-term local effects	300 mg/m ³	
	Consumers	Inhalation	Acute local effects	300 mg/m ³	
	Consumers	Inhalation	Long-term local effects	35,7 mg/m ³	
	Workers	Dermal	Long-term systemic effects	11 mg/kg	
	Workers	Dermal	Acute systemic effects	11 mg/kg	
	Consumers	Dermal	Long-term systemic effects	6 mg/kg	
	Consumers	Dermal	Acute systemic effects	6 mg/kg	
	Consumers	Oral	Long-term systemic effects	2 mg/m ³	
	Consumers	Oral	Acute systemic effects	2 mg/m ³	
	Xylene, mixture of isomers	Workers	Inhalation	Long-term systemic effects	221 mg/m ³
		Workers	Inhalation	Acute local effects	442 mg/m ³
Workers		Dermal	Long-term systemic effects	212 mg/kg	
Consumers		Inhalation	Long-term systemic effects	65,3 mg/m ³	
Consumers		Dermal	Long-term systemic effects	125 mg/kg	
Consumers		Oral	Long-term systemic effects	1,5 mg/kg	
Consumers		Inhalation	Acute local effects	260 mg/m ³	
2-methoxy-1-methylethyl acetate		Workers	Skin contact	Long-term systemic effects	796 mg/kg
	Workers	Inhalation	Long-term systemic effects	275 mg/m ³	
	Consumers	Skin contact	Long-term systemic effects	320 mg/kg	
	Consumers	Inhalation	Long-term systemic effects	33 mg/m ³	
	Consumers	Ingestion	Long-term systemic effects	36 mg/kg	
	Workers	Inhalation	Acute local effects	550 mg/m ³	
4,4'-methylenediphenyl diisocyanate	Consumers	Inhalation	Acute local effects	33 mg/m ³	
	Workers	Skin contact	Acute systemic effects	50 mg/kg	

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	Workers	Skin contact	Acute local effects	28,7 mg/cm ²
	Workers	Inhalation	Acute systemic effects	0,1 mg/m ³
	Workers	Inhalation	Acute local effects	0,1 mg/m ³
	Workers	Inhalation	Long-term systemic effects	0,05 mg/m ³
	Workers	Inhalation	Long-term local effects	0,05 mg/m ³
	Consumers	Skin contact	Acute systemic effects	25 mg/kg
	Consumers	Inhalation	Acute systemic effects	0,05 mg/m ³
	Consumers	Ingestion	Acute systemic effects	20 mg/kg
	Consumers	Skin contact	Acute local effects	17,2 mg/cm ²
	Consumers	Inhalation	Acute local effects	0,05 mg/m ³
	Consumers	Inhalation	Long-term systemic effects	0,025 mg/m ³
	Consumers	Inhalation	Long-term local effects	0,025 mg/m ³
o-(p-isocyanatobenzyl)phenyl isocyanate	Workers	Dermal	Acute local effects	28,7 mg/cm ²
	Workers	Inhalation	Long-term systemic effects	0,05 mg/m ³
	Workers	Inhalation	Acute systemic effects	0,1 mg/m ³
	Workers	Inhalation	Long-term local effects	0,05 mg/m ³
	Workers	Dermal	Acute local effects	0,1 mg/m ³
	Workers	Dermal	Acute systemic effects	50 mg/kg
	Consumers	Inhalation	Long-term systemic effects	0,025 mg/m ³
	Consumers	Inhalation	Acute systemic effects	0,05 mg/m ³
	Consumers	Inhalation	Long-term local effects	0,025 mg/m ³
	Consumers	Inhalation	Acute local effects	0,05 mg/m ³
	Consumers	Dermal	Acute systemic effects	25 mg/kg
	Consumers	Dermal	Acute local effects	17,2 mg/cm ²
	Consumers	Ingestion	Acute systemic effects	20 mg/kg
4-methyl-m-phenylene diisocyanate	Workers	Inhalation	Acute systemic effects, Acute local effects	0,14 mg/m ³
	Consumers	Inhalation	Long-term systemic effects, Long-term local effects	0,035 mg/m ³

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
n-butyl acetate	Fresh water	0,18 mg/l

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	Marine water	0,018 mg/l
	Intermittent releases	0,36 mg/l
	Fresh water sediment	0,981 mg/kg
	Marine sediment	0,0981 mg/kg
	Soil	0,0903 mg/kg
	Sewage treatment plant	35,6 mg/l
Xylene, mixture of isomers	Fresh water	0,327 mg/l
	Marine water	0,327 mg/l
	Fresh water sediment	12,46 mg/kg
	Marine sediment	12,46 mg/kg
	Soil	2,31 mg/kg
	Sewage treatment plant	6,58 mg/l
	Intermittent releases	0,327 mg/l
2-methoxy-1-methylethyl acetate	Fresh water	0,635 mg/l
	Marine water	0,0635 mg/l
	Intermittent releases	6,35 mg/l
	Sewage treatment plant	100 mg/l
	Fresh water sediment	3,29 mg/kg
	Marine sediment	0,329 mg/kg
	Soil	0,29 mg/kg
4,4'-methylenediphenyl diisocyanate	Fresh water	> 1 mg/l
	Marine water	> 0,1 mg/l
	Soil	1 mg/kg
	Sewage treatment plant	> 1 mg/l
o-(p-isocyanatobenzyl)phenyl isocyanate	Fresh water	< 1 mg/l
	Marine water	> 0,1 mg/l
	Sewage treatment plant	> 1 mg/l
	Soil	> 1 mg/kg
4-methyl-m-phenylene diisocyanate	Fresh water	0,0125 mg/l
	Marine water	0,00125 mg/l
	Sewage treatment plant	> 1 mg/l
	Intermittent releases	0,125 mg/l
	Soil	> 1 mg/l

8.2 Exposure controls

Engineering measures

Use only appropriately classified electrical equipment and powered industrial trucks.

Personal protective equipment

Eye protection : Safety glasses with side-shields conforming to EN166
Ensure that eyewash stations and safety showers are close to the workstation location.
Do not wear contact lenses.

Hand protection

Material : Polyvinyl alcohol or nitrile- butyl-rubber gloves

Material : Protective gloves complying with EN 374.

Remarks : Gloves should be discarded and replaced if there is any indi-

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		cation of degradation or chemical breakthrough.
Skin and body protection	:	Workers should wear antistatic footwear. Remove and wash contaminated clothing before re-use. Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Respiratory protection	:	In the case of vapour formation use a respirator with an approved filter. Equipment should conform to EN 14387
Filter type	:	Organic vapour type (A)
Protective measures	:	Ensure that eye flushing systems and safety showers are located close to the working place. Do not wear contact lenses.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Colour	:	amber
Odour	:	characteristic
Melting point/freezing point	:	lower -15 °C
Boiling point/boiling range	:	137 - 145 °C
Upper explosion limit / Upper flammability limit	:	7 %(V)
Lower explosion limit / Lower flammability limit	:	0,8 %(V)
Flash point	:	27 °C
Auto-ignition temperature	:	not determined
Decomposition temperature	:	No data available
pH	:	Not applicable substance/mixture is non-soluble (in water)
Solubility(ies) Water solubility	:	immiscible
Partition coefficient: n-octanol/water	:	No data available
Vapour pressure	:	not determined

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Density : 1,04 g/ml (23 °C)
Bulk density : not determined
Relative vapour density : upper 1
(Air = 1.0)

9.2 Other information

Self-ignition : 333 °C

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Keep away from oxidizing agents, strongly acid or alkaline materials and amines.
Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid : No decomposition if used as directed.

10.5 Incompatible materials

Materials to avoid : Strong acids and strong bases
Strong oxidizing agents
Strong reducing agents
Alkali metals
Alkaline earth metals

10.6 Hazardous decomposition products

Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke.
Hazardous decomposition products : Stable under recommended storage conditions.
Heating can release vapours which can be ignited.
Burning produces noxious and toxic fumes.

SECTION 11: Toxicological information

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

Acute toxicity

Product:

Acute oral toxicity : Remarks: No data available

Acute inhalation toxicity : Acute toxicity estimate: 3,08 mg/l
Exposure time: 4 h

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Test atmosphere: dust/mist
Method: Calculation method

Remarks: No data available

Acute dermal toxicity : Acute toxicity estimate: > 2.000 mg/kg
Method: Calculation method

Remarks: No data available

Acute toxicity (other routes of administration) : Remarks: No data available

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Acute oral toxicity : LD50 (Rat, male and female): > 10,000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male and female): 0,31 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: Harmful by inhalation.

Acute dermal toxicity : LD50 (Rabbit, male and female): > 9.400 mg/kg
Method: OECD Test Guideline 402

n-butyl acetate:

Acute oral toxicity : LD50 (Rat, male): > 10.000 mg/kg
Method: OECD Test Guideline 423

Acute inhalation toxicity : LC50 (Rat, male and female): > 21,1 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
GLP: yes

Acute dermal toxicity : LD50 (Rabbit, male and female): > 14.000 mg/kg
Method: OECD Test Guideline 402

Xylene, mixture of isomers:

Acute oral toxicity : LD50 (Rat): 4.300 mg/kg
Method: EC Directive 92/69/EEC B.1 Acute Toxicity (Oral)
GLP: no

Acute dermal toxicity : LD50 (Rabbit): > 4.200 mg/kg
GLP: No information available.

Reaction mass of ethyl benzene and xylene:

Acute oral toxicity : LD50 (Rat, male): 3.523 mg/kg
Method: Directive 67/548/EEC, Annex V, B.1.

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2-methoxy-1-methylethyl acetate:

Acute oral toxicity : LD50 (Rat, female): > 5.000 mg/kg
Method: OECD Test Guideline 401
GLP: yes

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Remarks: No data available

4,4'-methylenediphenyl diisocyanate:

Acute oral toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Method: Tested according to Annex V of Directive 67/548/EEC.
GLP: yes

Acute inhalation toxicity : LC50 (Rat, male): 1,5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes

Acute toxicity estimate: 1,5 mg/l
Test atmosphere: dust/mist
Method: Calculation method

o-(p-isocyanatobenzyl)phenyl isocyanate:

Acute oral toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Method: Directive 84/449/EEC, B.1
GLP: yes

Acute dermal toxicity : LD50 (Rabbit, male and female): > 9.400 mg/kg
Method: OECD Test Guideline 402

4-methyl-m-phenylene diisocyanate:

Acute oral toxicity : LD50 (Rat, male): 5.110 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rabbit, male and female): > 9.400 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

Product:

Remarks : No data available

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Species : Rabbit
Method : OECD Test Guideline 404

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Result : slight irritation

n-butyl acetate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

2-methoxy-1-methylethyl acetate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
GLP : yes

4,4'-methylenediphenyl diisocyanate:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
GLP : yes

o-(p-isocyanatobenzyl)phenyl isocyanate:

Species : Rabbit
Assessment : Irritating to skin.
Method : OECD Test Guideline 404
Result : irritating
GLP : yes

Serious eye damage/eye irritation

Product:

Remarks : No data available

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation

n-butyl acetate:

Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation
GLP : yes

2-methoxy-1-methylethyl acetate:

Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation
GLP : yes

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4,4'-methylenediphenyl diisocyanate:

Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation

o-(p-isocyanatobenzyl)phenyl isocyanate:

Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation
GLP : yes

Respiratory or skin sensitisation

Product:

Remarks : No data available

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Assessment : Does not cause skin sensitisation.
Method : OECD Test Guideline 406
Result : negative

Test Type : Mouse Local Lymph Node assay (LLNA)
Exposure routes : Skin contact
Species : Mouse
Assessment : May cause sensitisation by skin contact.
Method : OECD Test Guideline 429
Result : positive

Exposure routes : intratracheal
Species : Rat
Assessment : May cause sensitisation by inhalation.
Result : positive

Assessment : Harmful if inhaled., The product causes irritation of eyes, skin and mucous membranes.
May cause sensitisation by inhalation and skin contact.

n-butyl acetate:

Test Type : Buehler Test
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.

Reaction mass of ethyl benzene and xylene:

Test Type : Mouse Local Lymph Node assay (LLNA)

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Exposure routes : Dermal
Species : Mouse
Method : OECD Test Guideline 429
Result : Does not cause skin sensitisation.

2-methoxy-1-methylethyl acetate:

Species : Guinea pig
Method : OECD Test Guideline 406
Result : Not a skin sensitizer.
GLP : yes

4,4'-methylenediphenyl diisocyanate:

Test Type : Buehler Test
Exposure routes : Dermal
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.
GLP : yes

Assessment : Harmful if inhaled., The product causes irritation of eyes, skin and mucous membranes.
May cause sensitisation by inhalation and skin contact.

o-(p-isocyanatobenzyl)phenyl isocyanate:

Test Type : Buehler Test
Species : Guinea pig
Assessment : Does not cause skin sensitisation.
Method : OECD Test Guideline 406
Result : negative

Assessment : Harmful if inhaled., The product causes irritation of eyes, skin and mucous membranes.
May cause sensitisation by inhalation and skin contact.

Germ cell mutagenicity

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Rat (male)
Application Route: Inhalation
Exposure time: 3x1h/day over 3 weeks)
Method: OECD Test Guideline 474

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Result: negative

Germ cell mutagenicity- Assessment : In vitro tests did not show mutagenic effects, In vivo tests did not show mutagenic effects

4,4'-methylenediphenyl diisocyanate:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Rat (male)
Application Route: Inhalation
Exposure time: 3x1 h/ day over 3 weeks
Method: OECD Test Guideline 474
Result: negative

Germ cell mutagenicity- Assessment : In vitro tests did not show mutagenic effects, In vivo tests did not show mutagenic effects

o-(p-isocyanatobenzyl)phenyl isocyanate:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Rat (male)
Application Route: Inhalation
Exposure time: 3x1h/day over 3 weeks
Method: OECD Test Guideline 474
Result: negative

Germ cell mutagenicity- Assessment : In vitro tests did not show mutagenic effects, In vivo tests did not show mutagenic effects

Carcinogenicity

Product:

Remarks : No data available

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Species : Rat, male and female
Application Route : Inhalation
Exposure time : 2 h
Dose : 0 - 0,2 - 1 - 6 mg/m³
Frequency of Treatment : 6 hours/day, 5 days/week

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Method : OECD Test Guideline 453
Test substance : see user defined free text

Carcinogenicity - Assessment : Suspected of causing cancer if inhaled.

4,4'-methylenediphenyl diisocyanate:

Species : Rat, male and female
Exposure time : 2 hrs
Dose : 0 - 0,2 - 1 - 6 mg/m³
Frequency of Treatment : 6 hours/ day, 5 days/ week
Method : OECD Test Guideline 453

Carcinogenicity - Assessment : Suspected of causing cancer if inhaled.

o-(p-isocyanatobenzyl)phenyl isocyanate:

Species : Rat, male and female
Application Route : Inhalation
Exposure time : 2 h
Dose : 0 - 0,2 - 1 - 6 mg/m³
Frequency of Treatment : 6 hours/day, 5 days/week
Method : OECD Test Guideline 453

Carcinogenicity - Assessment : Suspected of causing cancer if inhaled.

Reproductive toxicity

Product:

Effects on fertility : Remarks: No data available

Effects on foetal development : Remarks: No data available

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Reproductive toxicity - Assessment : Based on available data, the classification criteria are not met.
Did not show teratogenic effects in animal experiments.

4,4'-methylenediphenyl diisocyanate:

Reproductive toxicity - Assessment : Based on available data, the classification criteria are not met.
Did not show teratogenic effects in animal experiments.

o-(p-isocyanatobenzyl)phenyl isocyanate:

Reproductive toxicity - Assessment : Based on available data, the classification criteria are not met.
Did not show teratogenic effects in animal experiments.

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STOT - single exposure

Product:

Remarks : No data available

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Exposure routes : Inhalation
Target Organs : Respiratory organs
Assessment : May cause respiratory irritation.

2-methoxy-1-methylethyl acetate:

Assessment : May cause drowsiness or dizziness.

4,4'-methylenediphenyl diisocyanate:

Exposure routes : Inhalation
Target Organs : Respiratory Tract
Assessment : May cause respiratory irritation.

o-(p-isocyanatobenzyl)phenyl isocyanate:

Exposure routes : Inhalation
Target Organs : Respiratory Tract
Assessment : May cause respiratory irritation.

STOT - repeated exposure

Product:

Remarks : No data available

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Exposure routes : Inhalation
Target Organs : Respiratory Tract
Assessment : May cause damage to organs through prolonged or repeated exposure.

4,4'-methylenediphenyl diisocyanate:

Exposure routes : Inhalation
Target Organs : Respiratory Tract
Assessment : May cause damage to organs through prolonged or repeated exposure.

o-(p-isocyanatobenzyl)phenyl isocyanate:

Exposure routes : Inhalation
Target Organs : Respiratory Tract
Assessment : May cause damage to organs through prolonged or repeated exposure.

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Repeated dose toxicity

Product:

Remarks : No data available

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

Species : Rat, male and female
NOAEL : 0,2 mg/m³
Application Route : Inhalation
Exposure time : 2 h
Number of exposures : 6 hours a day, 5 days a week
Dose : 0 - 0,2 - 1 - 6 mg/m³
Method : OECD Test Guideline 453

4,4'-methylenediphenyl diisocyanate:

Species : Rat, male and female
NOAEL : 0,2 mg/m³
Application Route : Inhalation
Exposure time : 2 hrs
Number of exposures : 6 hours/ day, 5 days/ week
Dose : 0 - 0,2 - 1 - 6 mg/m³
Method : OECD Test Guideline 453
Target Organs : Lungs, Nasal inner lining

o-(p-isocyanatobenzyl)phenyl isocyanate:

Species : Rat, male and female
NOAEL : 0,2 mg/m³
LOAEL : 1 mg/m³
Application Route : Inhalation
Exposure time : 2 h
Number of exposures : 6 hours a day, 5 days a week
Dose : 0 - 0,2 - 1 - 6 mg/m³
Method : OECD Test Guideline 453
Target Organs : Lungs, Nasal inner lining

Aspiration toxicity

Components:

Isocyanic acid, polymethylenepolyphenylene ester:

No aspiration toxicity classification

Reaction mass of ethyl benzene and xylene:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

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4,4'-methylenediphenyl diisocyanate:

No aspiration toxicity classification

o-(p-isocyanatobenzyl)phenyl isocyanate:

No aspiration toxicity classification

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Product:

Remarks : No data available

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish : Remarks: No data available

Toxicity to daphnia and other aquatic invertebrates : Remarks: No data available

Components:

n-butyl acetate:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 18 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 44 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Scenedesmus subspicatus): 675 mg/l
Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 23 mg/l
End point: Reproduction
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

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Xylene, mixture of isomers:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1 mg/l
Exposure time: 24 h
Test Type: Immobilization
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): 2,2 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

NOEC (Pseudokirchneriella subcapitata (green algae)): 0,44 mg/l
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity) : NOEC: > 1,3 mg/l
Exposure time: 56 d
Species: Oncorhynchus mykiss (rainbow trout)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 1,17 mg/l
Exposure time: 7 d
Species: Daphnia sp. (water flea)

NOEC: 0,96 mg/l
Exposure time: 7 d
Species: Daphnia sp. (water flea)

Reaction mass of ethyl benzene and xylene:

Toxicity to fish : LC50 (Fish): 2,6 mg/l
End point: mortality
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: Immobilization

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 2,2 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Toxicity to fish (Chronic toxicity) : > 1,3 mg/l
Exposure time: 56 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,96 mg/l
End point: Reproduction
Exposure time: 7 d
Species: Daphnia sp. (water flea)

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2-methoxy-1-methylethyl acetate:

Toxicity to fish : LC50 (Fish): 100 - 180 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203
GLP: no

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): > 1.000 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: no

4,4'-methylenediphenyl diisocyanate:

Toxicity to algae/aquatic plants : ErC50 (Scenedesmus subspicatus): > 1.640 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

o-(p-isocyanatobenzyl)phenyl isocyanate:

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 1.640 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: \geq 10 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Method: OECD Test Guideline 211

4-methyl-m-phenylene diisocyanate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 133 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 12,5 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Chlorella vulgaris (Fresh water algae)): 4.300 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 1,1 mg/l
End point: Reproduction
Exposure time: 21 d
Species: Daphnia magna (Water flea)

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Method: OECD Test Guideline 211
GLP: yes

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: No data available

Physico-chemical removability : Remarks: No data available

Components:

n-butyl acetate:

Biodegradability : Result: Readily biodegradable.
Method: OECD Test Guideline 301D

Xylene, mixture of isomers:

Biodegradability : Test Type: aerobic
Result: Readily biodegradable.
Method: OECD Test Guideline 301F
GLP: yes

Reaction mass of ethyl benzene and xylene:

Biodegradability : Test Type: aerobic
Result: Readily biodegradable.
Method: OECD Test Guideline 301F
GLP: yes

2-methoxy-1-methylethyl acetate:

Biodegradability : Result: Readily biodegradable.
Method: OECD Test Guideline 301F
GLP: yes

o-(p-isocyanatobenzyl)phenyl isocyanate:

Biodegradability : Test Type: aerobic
Result: Not rapidly biodegradable
Exposure time: 28 d
Method: OECD Test Guideline 302C

4-methyl-m-phenylene diisocyanate:

Biodegradability : Result: Not biodegradable

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: No data available

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Components:

n-butyl acetate:

Partition coefficient: n-octanol/water : log Pow: 2,3 (25 °C)
pH: 7
Method: OECD Test Guideline 117
GLP: yes

Xylene, mixture of isomers:

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
Exposure time: 56 d
Bioconcentration factor (BCF): 25,9
GLP: no

Partition coefficient: n-octanol/water : Pow: 3,2 (20 °C)
pH: 7

2-methoxy-1-methylethyl acetate:

Partition coefficient: n-octanol/water : log Pow: 1,2 (20 °C)
pH: 6,8
Method: OECD Test Guideline 117
GLP: yes

4,4'-methylenediphenyl diisocyanate:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Exposure time: 28 d
Concentration: 0,00008 mg/l
Bioconcentration factor (BCF): 200
Method: OECD Test Guideline 305
GLP: yes

o-(p-isocyanatobenzyl)phenyl isocyanate:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Exposure time: 28 d
Method: OECD Test Guideline 305
GLP: yes

Partition coefficient: n-octanol/water : log Pow: 4,51 (22 °C)
pH: 7
Method: OECD Test Guideline 117

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Do not dispose of with domestic refuse.
The product should not be allowed to enter drains, water courses or the soil.
Container hazardous when empty.
Dispose of in accordance with local regulations.
Can be incinerated, when in compliance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID/ADN : UN 1263

IMDG : UN 1263

IATA : UN 1263

14.2 UN proper shipping name

ADR/RID/ADN : PAINT RELATED MATERIAL

IMDG : PAINT RELATED MATERIAL

IATA : Paint related material

14.3 Transport hazard class(es)

ADR/RID/ADN : 3

IMDG : 3

IATA : 3

14.4 Packing group

ADR/RID/ADN

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Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3
Tunnel restriction code : D/E

IMDG

Packing group : III
Labels : 3
EmS Code : F-E, S-E
Remarks : IMDG Code segregation group - none

IATA (Cargo)

Packing instruction (cargo aircraft) : 366
Packing group : III
Labels : Flammable Liquids

IATA (Passenger)

Packing instruction (passenger aircraft) : 355
Packing instruction (LQ) : Y344
Packing group : III
Labels : Flammable Liquids

14.5 Environmental hazards

ADR/RID/ADN

Environmentally hazardous : no

IMDG

Marine pollutant : no

14.6 Special precautions for user

Remarks : The transport of dangerous goods, including their loading and unloading, must be done by people who received the necessary training required by Modal Regulations.

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant EU provisions transposed through retained EU law

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Conditions of restriction for the following entries should be considered: Number on list 3

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		Isocyanic acid, polymethylenepolyphenylene ester (Number on list: 74, 56) 4,4'-methylenediphenyl diisocyanate (Number on list: 74, 56) o-(p-isocyanatobenzyl)phenyl isocyanate (Number on list: 74, 56) 4-methyl-m-phenylene diisocyanate (Number on list: 74)
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list: 3 Isocyanic acid, polymethylenepolyphenylene ester (Number on list: 74, 56) 4,4'-methylenediphenyl diisocyanate (Number on list: 74, 56) o-(p-isocyanatobenzyl)phenyl isocyanate (Number on list: 74, 56) 4-methyl-m-phenylene diisocyanate (Number on list: 74)
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	Not applicable
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	:	Not applicable
UK REACH List of substances subject to authorisation (Annex XIV)	:	Not applicable
Regulation (EU) 2019/1148 on the marketing and use of explosives precursors	:	Not applicable
International Chemical Weapons Convention (CWC) Schedules of Toxic Chemicals and Precursors	:	Not applicable
Council Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors	:	Not applicable
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	P5c	FLAMMABLE LIQUIDS

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Seveso III Directive (2012/18/EU) implemented P5c FLAMMABLE LIQUIDS
by Control of Major Accident Hazards Regulations 2015 (COMAH)

15.2 Chemical safety assessment

Not applicable

SECTION 16: Other information

Full text of H-Statements

H226	:	Flammable liquid and vapour.
H304	:	May be fatal if swallowed and enters airways.
H312	:	Harmful in contact with skin.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H319	:	Causes serious eye irritation.
H330	:	Fatal if inhaled.
H332	:	Harmful if inhaled.
H334	:	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	:	May cause respiratory irritation.
H336	:	May cause drowsiness or dizziness.
H351	:	Suspected of causing cancer.
H373	:	May cause damage to organs through prolonged or repeated exposure.
H412	:	Harmful to aquatic life with long lasting effects.
EUH066	:	Repeated exposure may cause skin dryness or cracking.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Asp. Tox.	:	Aspiration hazard
Carc.	:	Carcinogenicity
Eye Irrit.	:	Eye irritation
Flam. Liq.	:	Flammable liquids
Resp. Sens.	:	Respiratory sensitisation
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure
2000/39/EC	:	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
2019/1831/EU	:	Europe. Commission Directive 2019/1831/EU establishing a fifth list of indicative occupational exposure limit values
GB EH40	:	UK. EH40 WEL - Workplace Exposure Limits
GB EH40 BAT	:	UK. Biological monitoring guidance values
2000/39/EC / TWA	:	Limit Value - eight hours
2000/39/EC / STEL	:	Short term exposure limit
2019/1831/EU / TWA	:	Limit Value - eight hours
2019/1831/EU / STEL	:	Short term exposure limit
GB EH40 / TWA	:	Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL	:	Short-term exposure limit (15-minute reference period)

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ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Training advice : Provide adequate information, instruction and training for operators.

Classification of the mixture:

Flam. Liq. 3	H226
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	H336
STOT SE 3	H335
STOT RE 2	H373
Asp. Tox. 1	H304

Classification procedure:

Based on product data or assessment
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method

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