

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Carsystem Power Mix Schwarz A-Component

Version	Revision Date:	Date of last issue: 27.06.2022
1.1 DE / EN	25.10.2023	Date of first issue: 27.06.2022

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

1.1 Product identifier

Trade name : Carsystem Power Mix Schwarz A-Component
Product code : 144.501

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

Use of the Sub-stance/Mixture : Adhesives and/or sealants
Recommended restrictions on use : Reserved for industrial and professional use.
Industrial use, professional use

1.3 Details of the supplier of the safety data sheet

Company : JASA AG
Müslistrasse 43
8957 Spreitenbach
Schweiz
info@jasa-ag.ch, www.jasa-ag.ch
Telephone : +41 (0)44 431 60 70
Telefax : +41 (0)44 432 63 17
Responsible Department : Productmanagement, Tel: +41 (0)44 431 60 70, sds@jasa-ag.ch

1.4 Emergency telephone

Telephone : Tox Info Suisse (STIZ), Tel: 145

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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 2

H315: Causes skin irritation.

Serious eye damage, Category 1

H318: Causes serious eye damage.

Skin sensitization, Category 1

H317: May cause an allergic skin reaction.

2.2 Label elements

Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal Word

:

Danger

Hazard Statements

:

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.

Precautionary Statements

:

Prevention:
P280 Wear protective gloves/ eye protection/ face protection.

Response:
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

Disposal:
P501 Dispose of contents/ container to an approved facility in accordance with local, regional, national and international regulations.

Hazardous ingredients which must be listed on the label:

4,4'-methylenebis(cyclohexylamine)
Trimethoxyvinylsilane

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.

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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 : Mixture

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Ethylenediamine, propoxylated	25214-63-5 500-035-6 01-2119471485-32	Eye Irrit. 2; H319	>= 50 - <= 80
4,4'-methylenebis(cyclohexylamine)	1761-71-3 217-168-8 01-2119541673-38	Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1B; H317 STOT RE 2; H373 specific concentration limit Skin Sens. 1B; H317 1 % Acute toxicity esti- mate Acute oral toxicity: 380 mg/kg	>= 3 - < 5
Trimethoxyvinylsilane	2768-02-7 220-449-8 01-2119513215-52	Flam. Liq. 3; H226 Acute Tox. 4; H332 Skin Sens. 1B; H317 Acute toxicity esti- mate Acute inhalation tox- icity (vapor): 16,8 mg/l	>= 2 - <= 5

For explanation of abbreviations see section 16.

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SECTION 4: First aid measures

4.1 Description of first-aid measures

- General advice : First aider needs to protect himself.
Remove from exposure, lie down.
If unconscious, place in recovery position and seek medical advice.
Take off contaminated clothing and shoes immediately.
- If inhaled : Move to fresh air.
Keep patient warm and at rest.
Get medical attention.
- In case of skin contact : Wash off immediately with soap and plenty of water.
Get medical attention immediately.
Wash contaminated clothing before reuse.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids,
for at least 15 minutes.
If easy to do, remove contact lens, if worn.
Protect unharmed eye.
Call a physician immediately.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.
Do NOT induce vomiting.
Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

- Risks : Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye damage.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically.
-

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Carbon dioxide (CO₂)
Dry powder
Water spray jet
- Unsuitable extinguishing media : High volume water jet

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5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting : Hazardous decomposition products formed under fire conditions.

Hazardous combustion products : Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
Nitrogen oxides (NOx)

5.3 Advice for firefighters

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus and protective suit.

Further information : Use water spray to cool unopened containers.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
In the event of fire and/or explosion do not breathe fumes.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Wear personal protective equipment.
Evacuate personnel to safe areas.
Ensure adequate ventilation, especially in confined areas.
Remove all sources of ignition.
Do not smoke.
Avoid contact with skin, eyes and clothing.
Material can create slippery conditions.

6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.
If the product contaminates rivers and lakes or drains inform respective authorities.

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 : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Shovel into suitable container for disposal.

6.4 Reference to other sections

For personal protection see section 8., For disposal considerations see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Technical measures : Ensure that eyewash stations and safety showers are close to the workstation location.
- Advice on safe handling : Handle in accordance with good industrial hygiene and safety practice.
Wear personal protective equipment.
Never return unused material to storage receptacle.
Avoid inhalation of vapor or mist.
Keep container closed when not in use.

Use only with adequate ventilation.
- Advice on protection against fire and explosion : Normal measures for preventive fire protection. Keep away from open flames, hot surfaces and sources of ignition.

7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Keep away from direct sunlight.
- Further information on storage conditions : Protect from moisture.
- Advice on common storage : Keep away from food and drink.

Incompatible with oxidizing agents.
- Storage class (TRGS 510) : 10
- Recommended storage temperature : < 50 °C

7.3 Specific end use(s)

- Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Routes of exposure	Potential health effects	Value
Ethylenediamine, propoxylated	Workers	Inhalation	Long-term systemic effects	35,2 mg/m ³
	Workers	Dermal	Long-term systemic	5 mg/kg

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			effects	
	Consumers	Inhalation	Long-term systemic effects	10,4 mg/m ³
	Consumers	Dermal, Oral	Long-term systemic effects	3 mg/kg
4,4'-methylenebis(cyclohexylamine)	Workers	Inhalation	Long-term systemic effects	1 mg/m ³
	Workers	Skin contact	Long-term systemic effects	0,1 mg/kg
	Consumers	Inhalation	Long-term systemic effects	0,21 mg/m ³
	Consumers	Skin contact, Oral	Long-term systemic effects	0,06 mg/kg
Trimethoxyvinylsilane	Workers	Inhalation	Long-term systemic effects	27,6 mg/m ³
	Workers	Skin contact	Long-term systemic effects	3,9 mg/kg
	Consumers	Inhalation	Long-term systemic effects	18,9 mg/m ³
	Consumers	Skin contact	Long-term systemic effects	7,8 mg/kg
	Consumers	Oral	Long-term systemic effects	0,3 mg/kg

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

Substance name	Environmental Compartment	Value
Ethylenediamine, propoxylated	Fresh water	0,085 mg/l
	Sea water	0,009 mg/l
	Sewage treatment plant (STP)	70 mg/l
	Fresh water sediment	0,193 mg/kg
	Sea sediment	0,019 mg/kg
	Soil	0,018 mg/kg
4,4'-methylenebis(cyclohexylamine)	Fresh water	0,08 mg/l
	Sea water	0,008 mg/l
	Sewage treatment plant (STP)	3,2 mg/l
	Fresh water sediment	137 mg/kg
	Sea sediment	13,7 mg/kg
	Soil	27,2 mg/kg

8.2 Exposure controls

Personal protective equipment

Eye/face protection : Safety glasses with side-shields conforming to EN166

Hand protection

Material : Nitrile rubber
Break through time : > 480 min
Glove thickness : >= 0,11 mm
Directive : DIN EN 374
Protective index : Class 6

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Material : butyl-rubber
Break through time : < 480 min
Glove thickness : 0,11 mm
Directive : DIN EN 374
Protective index : Class 6

Material : PVC
Directive : DIN EN 374

Remarks : Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. The data about break through time/strength of material are standard values! The exact break through time/strength of material has to be obtained from the producer of the protective glove. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other.

Skin and body protection : Please wear suitable protective clothing, e.g. made of cotton or heat-resistant synthetic fibres.
Long sleeved clothing

Respiratory protection : Apply technical measures to comply with the occupational exposure limits.
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Filter type : Combined particulates and organic vapor type (A-P)

Protective measures : Ensure that eye flushing systems and safety showers are located close to the working place.
Avoid contact with the skin and the eyes.
Follow the skin protection plan.
Handle and open container with care.
When using do not eat or drink.

Use only with adequate ventilation.

Environmental exposure controls

Soil : Avoid subsoil penetration.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid
Color : black
Odor : characteristic

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Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	> 150 °C
Autoignition temperature	:	> 300 °C
pH	:	Not applicable substance/mixture is non-soluble (in water)
Viscosity		
Viscosity, dynamic	:	1.800 mPa.s (23 °C)
Viscosity, kinematic	:	not determined
Solubility(ies)		
Water solubility	:	immiscible
Partition coefficient: n-octanol/water	:	No data available
Vapor pressure	:	No data available
Density	:	1,02 g/cm ³ (20 °C)

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if used as directed.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions : Incompatible with oxidizing agents.

10.4 Conditions to avoid

Conditions to avoid : Heat.

10.5 Incompatible materials

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Materials to avoid : Incompatible with oxidizing agents.
Isocyanates

10.6 Hazardous decomposition products

Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
Nitrogen oxides (NOx)

SECTION 11: Toxicological information

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

Acute toxicity

Not classified based on available information.

Product:

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

Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Components:

Ethylenediamine, propoxylated:

Acute oral toxicity : LD50 Oral (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 Dermal (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 402

4,4'-methylenebis(cyclohexylamine):

Acute oral toxicity : LD50 Oral (Rat): 380 mg/kg

Acute inhalation toxicity : LC0 (Rat): 0,4 mg/l
Exposure time: 6 h
Test atmosphere: vapor
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 Dermal (Rabbit): 2.110 mg/kg

Trimethoxyvinylsilane:

Acute oral toxicity : LD50 Oral (Rat): 7.120 - 7.236 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 16,8 mg/l
Exposure time: 4 h
Test atmosphere: vapor

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Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 Dermal (Rabbit): 3.259 - 3.880 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

Causes skin irritation.

Components:

4,4'-methylenebis(cyclohexylamine):

Result : Corrosive after 3 minutes to 1 hour of exposure

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

Ethylenediamine, propoxylated:

Result : Moderate eye irritation

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

Not classified based on available information.

Components:

4,4'-methylenebis(cyclohexylamine):

Assessment : The product is a skin sensitizer, sub-category 1B.

Trimethoxyvinylsilane:

Assessment : The product is a skin sensitizer, sub-category 1B.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Not classified based on available information.

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Components:

4,4'-methylenebis(cyclohexylamine):

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

Aspiration toxicity

Not classified based on available information.

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.

SECTION 12: Ecological information

12.1 Toxicity

Components:

Ethylenediamine, propoxylated:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 2.700 mg/l
End point: mortality
Exposure time: 48 h
Method: DIN 38412

Toxicity to daphnia and other aquatic invertebrates : EC0 (Daphnia magna (Water flea)): >= 100 mg/l
End point: Immobilization
Exposure time: 48 h
Method: Regulation (EC) No. 440/2008, Annex, C.2

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 150,67 mg/l
End point: Growth rate
Exposure time: 72 h
Method: Regulation (EC) No. 440/2008, Annex, C.3

Toxicity to microorganisms : NOEC (Bacteria): 700 mg/l
Exposure time: 3 h
Method: ISO 8192

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: >= 10 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: Regulation (EC) No. 440/2008, Annex, C.20

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Ecotoxicology Assessment

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

4,4'-methylenebis(cyclohexylamine):

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 68 mg/l
Exposure time: 96 h

LC0 (Leuciscus idus (Golden orfe)): 46,4 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 7,07 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

EC0 (Daphnia magna (Water flea)): 2,5 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Scenedesmus subspicatus): 140 - 200 mg/l
End point: Growth rate
Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 4 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

Ecotoxicology Assessment

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Trimethoxyvinylsilane:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 191 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 168,7 mg/l
Exposure time: 48 h
Method: Regulation (EC) No. 440/2008, Annex, C.2

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): > 89 mg/l
End point: Growth rate
Exposure time: 72 h

Toxicity to microorganisms : EC50 (Bacteria): > 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 28,1 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

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12.2 Persistence and degradability

Components:

Ethylenediamine, propoxylated:

Biodegradability : Result: Not rapidly biodegradable
Biodegradation: 36 %
Exposure time: 28 d

4,4'-methylenebis(cyclohexylamine):

Biodegradability : Result: Not readily biodegradable.

Trimethoxyvinylsilane:

Biodegradability : Result: Readily biodegradable.

12.3 Bioaccumulative potential

Components:

Ethylenediamine, propoxylated:

Partition coefficient: n- : log Pow: 1,82 (25 °C)
octanol/water

4,4'-methylenebis(cyclohexylamine):

Partition coefficient: n- : log Pow: 2,03 (25 °C)
octanol/water

Trimethoxyvinylsilane:

Partition coefficient: n- : log Pow: 1,1 (20 °C)
octanol/water

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.

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

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levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information : No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Do not mix waste streams during collection.
Do not dispose of with domestic refuse.
Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.
Dispose of in accordance with local regulations.

Contaminated packaging : Dispose of as unused product.

Waste Code : The following Waste Codes are only suggestions:
08 04 09, waste adhesives and sealants containing organic solvents or other hazardous substances
15 01 10, packaging containing residues of or contaminated by hazardous substances

SECTION 14: Transport information

14.1 UN number or ID number

ADN : Not regulated as a dangerous good
ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.2 UN proper shipping name

ADN : Not regulated as a dangerous good
ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.3 Transport hazard class(es)

ADN : Not regulated as a dangerous good

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ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.4 Packing group

ADN : Not regulated as a dangerous good
ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA (Cargo) : Not regulated as a dangerous good
IATA (Passenger) : Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

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

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

REACH - Candidate List of Substances of Very High Concern for Authorization (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

REACH - List of substances subject to authorisation (Annex XIV) : 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. : Not applicable

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Water hazard class (Germany) : WGK 3 highly water endangering
Classification according to AwSV, Annex 1 (5.2)

Other regulations:

BG-Merkblatt M004, M051 (German regulatory requirements)

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

15.2 Chemical Safety Assessment

A chemical safety assessment according to (EC) regulation 1907/2006 (REACH) has not been carried out for this product.

SECTION 16: Other information

Full text of H-Statements

H226 : Flammable liquid and vapor.
H302 : Harmful if swallowed.
H314 : Causes severe skin burns and eye damage.
H317 : May cause an allergic skin reaction.
H318 : Causes serious eye damage.
H319 : Causes serious eye irritation.
H332 : Harmful if inhaled.
H373 : May cause damage to organs through prolonged or repeated exposure.

Full text of other abbreviations

Acute Tox. : Acute toxicity
Eye Dam. : Serious eye damage
Eye Irrit. : Eye irritation
Flam. Liq. : Flammable liquids
Skin Corr. : Skin corrosion
Skin Sens. : Skin sensitization
STOT RE : Specific target organ toxicity - repeated exposure

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;

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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

Classification of the mixture:

Skin Irrit. 2	H315
Eye Dam. 1	H318
Skin Sens. 1	H317

Classification procedure:

Calculation method
Calculation method
Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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

1.1 Product identifier

Trade name : Carsystem Power Mix Schwarz B-Component
Product code : 144.501

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

Use of the Sub-stance/Mixture : Curing chemical, Adhesives and/or sealants
Recommended restrictions on use : Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use.
Industrial use, professional use

1.3 Details of the supplier of the safety data sheet

Company : JASA AG
Müslistrasse 43
8957 Spreitenbach
Schweiz
info@jasa-ag.ch, www.jasa-ag.ch
Telephone : +41 (0)44 431 60 70
Telefax : +41 (0)44 432 63 17
Responsible Department : Productmanagement, Tel: +41 (0)44 431 60 70, sds@jasa-ag.ch

1.4 Emergency telephone

Telephone : Tox Info Suisse (STIZ), Tel: 145

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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

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

2.2 Label elements

Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P260 Do not breathe mist or vapors.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protec-

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tion/ face protection.

Response:

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

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.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved facility in accordance with local, regional, national and international regulations.

Hazardous ingredients which must be listed on the label:

Diphenylmethanediisocyanate, isomeres and homologues
MDI-based polyisocyanate prepolymer
4,4'-methylenediphenyl diisocyanate
diphenylmethane-2,4'-diisocyanate
2,2'-methylenediphenyl diisocyanate

Additional Labeling

EUH204 Contains isocyanates. May produce an allergic reaction.

"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.

Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.

Persons already sensitized to diisocyanates may develop allergic reactions when using this product.

This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used.

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SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Mixture
contains
Isocyanates

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Diphenylmethanediisocyanate, isomeres and homologues	9016-87-9	Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1B; H334 Skin Sens. 1B; H317 Carc. 2; H351 STOT SE 3; H335 (Respiratory system) STOT RE 2; H373 (Lungs) specific concentration limit Eye Irrit. 2; H319 >= 5 % STOT SE 3; H335 >= 5 % Skin Irrit. 2; H315 >= 5 % Resp. Sens. 1; H334 >= 0,1 % Acute toxicity esti- mate Acute inhalation tox- icity (dust/mist): 1,5 mg/l	>= 25 - <= 70
MDI-based polyisocyanate pre- polymer	Not Assigned	Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1B; H334 Skin Sens. 1B; H317 Carc. 2; H351 STOT SE 3; H335 (Respiratory system) STOT RE 2; H373	>= 25 - <= 50

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		Acute toxicity estimate Acute inhalation toxicity (vapor): 11 mg/l	
4,4'-methylenediphenyl diisocyanate	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 >= 5 % STOT SE 3; H335 >= 5 % Skin Irrit. 2; H315 >= 5 % Resp. Sens. 1; H334 >= 0,1 % Acute toxicity estimate Acute inhalation toxicity (dust/mist): 1,5 mg/l	>= 10 - <= 20
diphenylmethane-2,4'-diisocyanate	5873-54-1 227-534-9 615-005-00-9 01-2119480143-45	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 >= 5 % STOT SE 3; H335 >= 5 % Skin Irrit. 2; H315 >= 5 % Resp. Sens. 1; H334	>= 5 - <= 10

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		>= 0,1 %	
		Acute toxicity estimate	
		Acute inhalation toxicity (dust/mist): 1,5 mg/l	
[3-(2,3-epoxypropyl)trimethoxysilane	2530-83-8 219-784-2 01-2119513212-58	Eye Dam. 1; H318 Aquatic Chronic 3; H412	>= 1 - < 3
2,2'-methylenediphenyl diisocyanate	2536-05-2 219-799-4 615-005-00-9 01-2119927323-43	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	>= 0,1 - < 1
		specific concentration limit	
		Eye Irrit. 2; H319	
		>= 5 %	
		STOT SE 3; H335	
		>= 5 %	
		Skin Irrit. 2; H315	
		>= 5 %	
		Resp. Sens. 1; H334	
		>= 0,1 %	
		Acute toxicity estimate	
		Acute inhalation toxicity (dust/mist): 1,5 mg/l	

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
Move out of dangerous area.
Take off contaminated clothing and shoes immediately.
Wash contaminated clothing before re-use.
Do not leave the victim unattended.

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Symptoms of poisoning may appear several hours later.
Show this material safety data sheet to the doctor in attendance.

- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
- If inhaled : Move to fresh air.
Keep patient warm and at rest.
If breathing is irregular or stopped, administer artificial respiration.
Call a physician immediately.
- In case of skin contact : Wash off with polyethylene glycol and afterwards with plenty of water.
Call a physician if irritation develops or persists.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Keep eye wide open while rinsing.
If easy to do, remove contact lens, if worn.
Consult a physician.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.
Do NOT induce vomiting.
Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

- Risks : Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
Harmful if inhaled.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause respiratory irritation.
Suspected of causing cancer.
May cause damage to organs through prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically.
Keep under medical supervision for at least 48 hours.
-

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Carbon dioxide (CO₂)
Dry powder
Alcohol-resistant foam
- Unsuitable extinguishing : High volume water jet

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media

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting : Build-up of dangerous/toxic fumes possible in cases of fire/high temperature.
If the temperature rises there is danger of the vessels bursting due to the high vapor pressure.
Cool closed containers exposed to fire with water spray.

Hazardous combustion products : Hazardous decomposition products due to incomplete combustion
Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
Nitrogen oxides (NO_x)
Isocyanates
Hydrogen cyanide (hydrocyanic acid)

5.3 Advice for firefighters

Special protective equipment for fire-fighters : In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Complete suit protecting against chemicals

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

In the event of fire and/or explosion do not breathe fumes.
Standard procedure for chemical fires.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Wear personal protective equipment.
Evacuate personnel to safe areas.
Ensure adequate ventilation, especially in confined areas.
Avoid contact with skin, eyes and clothing.
In the case of vapor formation use a respirator with an approved filter.

6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.
Local authorities should be advised if significant spillages cannot be contained.

Prevent spreading over a wide area (e.g., by containment or

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oil barriers).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Sweep up and shovel into suitable containers for disposal. After approximately one hour, transfer to waste container and do not seal, due to evolution of carbon dioxide. Waste must NOT be included in a tight way.

6.4 Reference to other sections

For personal protection see section 8., For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Local/Total ventilation : Use only with adequate ventilation.

Advice on safe handling : Avoid exposure - obtain special instructions before use. All processes must be supervised by specialists or authorized personnel. Provide sufficient air exchange and/or exhaust in work rooms. Keep container closed when not in use. Wear personal protective equipment. Avoid formation of aerosol. Do not breathe vapors, aerosols. Persons allergic to isocyanates, and particularly those suffering from asthma or other respiratory conditions, should not work with isocyanates.

Advice on protection against fire and explosion : No special protective measures against fire required.

Hygiene measures : General industrial hygiene practice. Persons already sensitized to diisocyanates may develop allergic reactions when using this product. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. Take off all contaminated clothing immediately. Wash contaminated clothing before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place.

Further information on storage conditions : Storage must be in accordance with the BetrSichV (Germany). Keep locked up or in an area accessible only to qualified or authorized persons. Protect from moisture.

Advice on common storage : Keep away from food and drink. Incompatible with oxidizing agents.

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Reacts with water.

Storage class (TRGS 510) : 10

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Diphenylmethanediisocyanate, isomeres and homologues	9016-87-9	AGW (Inhalable fraction)	0,05 mg/m ³ (MDI)	DE TRGS 900
	Peak-limit category: 1;=2=(I)			
	Further information: In well-founded cases also a momentary value can be established, that never can be exceeded. This substance will be indicated by = = in combination with an exceeding value., Skin absorption, When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child, Substance sensitizing through the skin and respiratory system			
4,4'-methylenediphenyl diisocyanate	101-68-8	AGW (Vapour and aerosols)	0,05 mg/m ³	TRGS 430
	Peak-limit category: 1;=2=(I)			
	Further information: In well-founded cases also a momentary value can be established, that never can be exceeded. This substance will be indicated by = = in combination with an exceeding value., airway sensitizing substance			
		AGW (Vapour and aerosols, inhalable fraction)	0,05 mg/m ³	DE TRGS 900
	Peak-limit category: 1;=2=(I)			
	Further information: In well-founded cases also a momentary value can be established, that never can be exceeded. This substance will be indicated by = = in combination with an exceeding value., Skin absorption, When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child, Substance sensitizing through the skin and respiratory system			
diphenylmethane-2,4'-diisocyanate	5873-54-1	AGW (Vapour and aerosols)	0,05 mg/m ³	TRGS 430
	Peak-limit category: 1;=2=(I)			
	Further information: In well-founded cases also a momentary value can be established, that never can be exceeded. This substance will be indicated by = = in combination with an exceeding value., airway sensitizing substance			
		AGW (Vapour	0,05 mg/m ³	DE TRGS

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		and aerosols)		900
	Peak-limit category: 1;=2=(I)			
	Further information: In well-founded cases also a momentary value can be established, that never can be exceeded. This substance will be indicated by = = in combination with an exceeding value.			
2,2'-methylenediphenyl diisocyanate	2536-05-2	AGW (Vapour and aerosols)	0,05 mg/m3	TRGS 430
	Peak-limit category: 1;=2=(I)			
	Further information: In well-founded cases also a momentary value can be established, that never can be exceeded. This substance will be indicated by = = in combination with an exceeding value., airway sensitizing substance			
		AGW (Vapour and aerosols)	0,05 mg/m3	DE TRGS 900
	Peak-limit category: 1;=2=(I)			
	Further information: In well-founded cases also a momentary value can be established, that never can be exceeded. This substance will be indicated by = = in combination with an exceeding value.			

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Routes of exposure	Potential health effects	Value
4,4'-methylenediphenyl diisocyanate	Workers	Inhalation	Long-term local effects	0,05 mg/m3
	Workers	Inhalation	Acute local effects	0,1 mg/m3
	Consumers	Inhalation	Long-term local effects	0,025 mg/m3
diphenylmethane-2,4'-diisocyanate	Consumers	Inhalation	Acute local effects	0,05 mg/m3
	Workers	Inhalation	Long-term local effects	0,05 mg/m3
	Workers	Inhalation	Acute local effects	0,1 mg/m3
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Consumers	Inhalation	Long-term local effects	0,025 mg/m3
	Consumers	Inhalation	Acute local effects	0,05 mg/m3
	Workers	Inhalation	Long-term systemic effects	70,5 mg/m3
	Workers	Skin contact	Long-term systemic effects	10 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	17 mg/m3
	Consumers	Skin contact, Oral	Long-term systemic effects	5 mg/kg bw/day
2,2'-methylenediphenyl diisocyanate	Workers	Inhalation	Long-term systemic effects, Long-term local effects	0,05 mg/m3
	Workers	Inhalation	Acute systemic effects, Acute local effects	0,1 mg/m3
	Workers	Skin contact	Acute systemic ef-	50 mg/kg

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			ffects	
	Workers	Skin contact	Acute local effects	28,7 mg/kg
	Consumers	Inhalation	Long-term systemic effects, Long-term local effects	0,025 mg/m3
	Consumers	Inhalation	Acute systemic effects, Acute local effects	0,05 mg/m3
	Consumers	Skin contact	Acute systemic effects	25 mg/kg
	Consumers	Skin contact	Acute local effects	17,2 mg/kg
	Consumers	Oral	Acute systemic effects	20 mg/kg

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

Substance name	Environmental Compartment	Value
4,4'-methylenediphenyl diisocyanate	Fresh water	1 mg/l
	Sea water	0,1 mg/l
	Sewage treatment plant (STP)	1 mg/l
	Soil	1 mg/kg
	Intermittent use/release	10 mg/l
diphenylmethane-2,4'-diisocyanate	Fresh water	1 mg/l
	Sea water	0,1 mg/l
	Sewage treatment plant (STP)	1 mg/l
	Soil	1 mg/kg
	Intermittent use/release	10 mg/l
[3-(2,3-epoxypropoxy)propyl]trimethoxysilane	Fresh water	0,45 mg/l
	Sea water	0,045 mg/l
	Sewage treatment plant (STP)	8,2 mg/l
	Fresh water sediment	1,6 mg/kg dry weight (d.w.)
	Sea sediment	0,16 mg/kg dry weight (d.w.)
2,2'-methylenediphenyl diisocyanate	Soil	0,063 mg/kg dry weight (d.w.)
	Fresh water	1 mg/l
	Sea water	0,1 mg/l
	Sewage treatment plant (STP)	1 mg/l
	Soil	1 mg/kg

8.2 Exposure controls

Personal protective equipment

Eye/face protection : Safety glasses with side-shields conforming to EN166

Hand protection

Material : Nitrile rubber

Break through time : >= 480 min

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Glove thickness : $\geq 0,35$ mm
Directive : DIN EN 374
Protective index : Class 6

Material : butyl-rubber
Break through time : > 480 min
Glove thickness : $\geq 0,5$ mm
Directive : DIN EN 374
Protective index : Class 6

Material : Chloroprene
Break through time : ≥ 480 min
Glove thickness : $\geq 0,5$ mm
Directive : DIN EN 374
Protective index : Class 6

Remarks : Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. The data about break through time/strength of material are standard values! The exact break through time/strength of material has to be obtained from the producer of the protective glove. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other.

Skin and body protection : Please wear suitable protective clothing, e.g. made of cotton or heat-resistant synthetic fibres.
Long sleeved clothing

Respiratory protection : In order to avoid inhalation of spray-mist and sanding dust, all spraying and sanding must be done wearing adequate respirator.
Apply technical measures to comply with the occupational exposure limits.
Equipment should conform to EN 14387

Filter type : Combined particulates and organic vapor type (A-P)

Protective measures : Ensure that eye flushing systems and safety showers are located close to the working place.
Handle in accordance with good industrial hygiene and safety practice.

Wear suitable protective equipment.
Avoid contact with skin, eyes and clothing.
Do not breathe vapors or spray mist.

Environmental exposure controls

Soil : Avoid subsoil penetration.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	: liquid
Color	: brown
Odor	: characteristic
Melting point/freezing point	: No data available
Boiling point/boiling range	: > 300 °C
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
Flash point	: > 200 °C
Autoignition temperature	: > 400 °C
pH	: Not applicable substance/mixture reacts with water
Viscosity	
Viscosity, dynamic	: 500 mPa.s (23 °C)
Viscosity, kinematic	: not determined
Solubility(ies)	
Water solubility	: immiscible
Partition coefficient: n-octanol/water	: No data available
Vapor pressure	: No data available
Density	: 1,17 g/cm ³ (20 °C)

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if used as directed.

10.2 Chemical stability

No decomposition if stored and applied as directed.

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10.3 Possibility of hazardous reactions

Hazardous reactions : Amines and alcohols cause exothermic reactions.
Incompatible with acids and bases.
Mixture reacts slowly with water resulting in evolution of CO₂.
Evolution of CO₂ in closed containers causes overpressure and produces a risk of bursting.

10.4 Conditions to avoid

Conditions to avoid : Avoid moisture.

Heat.

10.5 Incompatible materials

Materials to avoid : Amines
Alcohols
Acids and bases
Water

10.6 Hazardous decomposition products

Build-up of dangerous/toxic fumes possible in cases of fire/high temperature.
Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
Nitrogen oxides (NO_x)
Isocyanates

SECTION 11: Toxicological information

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

Acute toxicity

Harmful if inhaled.

Product:

Acute inhalation toxicity : Acute toxicity estimate: 11 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Components:

Diphenylmethanediisocyanate, isomeres and homologues:

Acute oral toxicity : LD50 Oral (Rat): 49.000 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: 1,5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgment

Acute dermal toxicity : LD50 Dermal (Rabbit): > 9.400 mg/kg
Method: OECD Test Guideline 402

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MDI-based polyisocyanate prepolymer:

Acute inhalation toxicity : Acute toxicity estimate: 11 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Expert judgment

4,4'-methylenediphenyl diisocyanate:

Acute oral toxicity : LD50 Oral (Rat): > 2.000 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: 1,5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgment

LC50 (Rat): 0,368 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 Dermal (Rabbit): > 9.400 mg/kg
Method: OECD Test Guideline 402

diphenylmethane-2,4'-diisocyanate:

Acute oral toxicity : LD50 Oral (Rat): > 2.000 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: 1,5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgment

LC50 (Rat): 0,31 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 Dermal (Rabbit): > 9.400 mg/kg
Method: OECD Test Guideline 402

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Acute oral toxicity : LD50 Oral (Rat): 8.025 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 5,3 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 Dermal (Rabbit): 4.250 mg/kg
Method: OECD Test Guideline 402

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2,2'-methylenediphenyl diisocyanate:

Acute oral toxicity : LD50 Oral (Rat): > 2.000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 1,5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgment

Acute dermal toxicity : LD50 Dermal (Rabbit): > 9.400 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

Causes skin irritation.

Components:

Diphenylmethanediisocyanate, isomeres and homologues:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation

MDI-based polyisocyanate prepolymer:

Result : Skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:

Diphenylmethanediisocyanate, isomeres and homologues:

Result : Moderate eye irritation

MDI-based polyisocyanate prepolymer:

Result : Moderate eye irritation

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Result : Irreversible effects on the eye

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Components:

Diphenylmethanediisocyanate, isomeres and homologues:

Test Type : Local lymph node assay (LLNA)

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Routes of exposure : Dermal
Species : Mouse
Assessment : The product is a skin sensitizer, sub-category 1B.
Method : OECD Test Guideline 429
Result : positive

Routes of exposure : inhalation (dust/mist/fume)
Species : Rat
Assessment : The product is a respiratory sensitizer, sub-category 1B.
Result : positive

MDI-based polyisocyanate prepolymer:

Assessment : The product is a skin sensitizer, sub-category 1B.

Assessment : The product is a respiratory sensitizer, sub-category 1B.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Suspected of causing cancer.

Components:

Diphenylmethanediisocyanate, isomers and homologues:

Carcinogenicity - Assessment : Limited evidence of a carcinogenic effect.

MDI-based polyisocyanate prepolymer:

Carcinogenicity - Assessment : Limited evidence of a carcinogenic effect.

Reproductive toxicity

Not classified based on available information.

STOT-single exposure

May cause respiratory irritation.

Components:

Diphenylmethanediisocyanate, isomers and homologues:

Assessment : May cause respiratory irritation.

MDI-based polyisocyanate prepolymer:

Assessment : May cause respiratory irritation.

STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure.

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Components:

Diphenylmethanediisocyanate, isomeres and homologues:

Routes of exposure : Inhalation
Target Organs : Lungs
Assessment : May cause damage to organs through prolonged or repeated exposure.

MDI-based polyisocyanate prepolymer:

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

Aspiration toxicity

Not classified based on available information.

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 : Persons allergic to isocyanates, and particularly those suffering from asthma or other respiratory conditions, should not work with isocyanates.

SECTION 12: Ecological information

12.1 Toxicity

Components:

Diphenylmethanediisocyanate, isomeres and homologues:

Toxicity to fish : LC0 (Fish): > 1.000 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC0 (Daphnia): > 500 mg/l
Exposure time: 24 h

Toxicity to algae/aquatic plants : EC0 (Scenedesmus subspicatus): 1.640 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

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Toxicity to microorganisms : EC50 (Bacteria): > 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Toxicity to daphnia and other : NOEC: > 10 mg/l
aquatic invertebrates (Chronic toxicity) Exposure time: 21 d
Species: Daphnia magna (Water flea)

4,4'-methylenediphenyl diisocyanate:

Toxicity to fish : LC0 (Oryzias latipes (Orange-red killifish)): > 3.000 mg/l
End point: mortality
Exposure time: 96 h

Toxicity to daphnia and other : LC50 (Daphnia magna (Water flea)): 1.000 mg/l
aquatic invertebrates Exposure time: 48 h
Method: OECD Test Guideline 202

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

Toxicity to microorganisms : EC50 (Bacteria): > 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Toxicity to daphnia and other : NOEC: 10 mg/l
aquatic invertebrates (Chronic toxicity) Exposure time: 21 d
Species: Daphnia magna (Water flea)

diphenylmethane-2,4'-diisocyanate:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 1.000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): > 1.000 mg/l
aquatic invertebrates Exposure time: 24 h
Method: OECD Test Guideline 202

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

Toxicity to daphnia and other : NOEC: > 10 mg/l
aquatic invertebrates (Chronic toxicity) Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 55 mg/l
Exposure time: 96 h

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Method: Regulation (EC) No. 440/2008, Annex, C.1

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia): 324 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: \geq 100 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

2,2'-methylenediphenyl diisocyanate:

Toxicity to fish : LC0 (Oryzias latipes (Orange-red killifish)): $>$ 3.000 mg/l
End point: mortality
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): $>$ 1.000 mg/l
End point: Immobilization
Exposure time: 24 h

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): $>$ 1.640 mg/l
End point: Growth rate
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 (Bacteria): $>$ 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

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

12.2 Persistence and degradability

Components:

Diphenylmethanediisocyanate, isomeres and homologues:

Biodegradability : Result: According to the results of tests of biodegradability this product is not readily biodegradable.
Biodegradation: $<$ 10 %
Exposure time: 28 d

4,4'-methylenediphenyl diisocyanate:

Biodegradability : Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 302C

diphenylmethane-2,4'-diisocyanate:

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Biodegradability : Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 302C

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 37 %
Exposure time: 28 d
Method: Regulation (EC) No. 440/2008, Annex, C.4-A

2,2'-methylenediphenyl diisocyanate:

Biodegradability : Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 302C

12.3 Bioaccumulative potential

Components:

Diphenylmethanediisocyanate, isomeres and homologues:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Exposure time: 42 d
Concentration: 0,2 mg/l
Bioconcentration factor (BCF): < 14
Method: OECD Test Guideline 305C
Remarks: Accumulation in aquatic organisms is unlikely.

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

4,4'-methylenediphenyl diisocyanate:

Bioaccumulation : Bioconcentration factor (BCF): 200
Method: OECD Test Guideline 305

Partition coefficient: n-octanol/water : log Pow: 4,51 (20 °C)

diphenylmethane-2,4'-diisocyanate:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 92 - 200
Method: OECD Test Guideline 305

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

[3-(2,3-epoxypropoxy)propyl]trimethoxysilane:

Partition coefficient: n-octanol/water : log Pow: 0,5 (20 °C)

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2,2'-methylenediphenyl diisocyanate:

Bioaccumulation : Bioconcentration factor (BCF): 92 - 200
Method: OECD Test Guideline 305

Partition coefficient: n-octanol/water : log Pow: 5,22

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.

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

Product:

Additional ecological information : No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Do not dispose of with domestic refuse.
Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.
Dispose of in accordance with local regulations.
Dispose of wastes in an approved waste disposal facility.
Send to a licensed waste management company.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Packaging that is not properly emptied must be disposed of as the unused product.
Dispose of in accordance with local regulations.

Waste Code : The following Waste Codes are only suggestions:

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08 05 01, waste isocyanates

15 01 10, packaging containing residues of or contaminated
by hazardous substances

SECTION 14: Transport information

14.1 UN number or ID number

ADN : Not regulated as a dangerous good
ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.2 UN proper shipping name

ADN : Not regulated as a dangerous good
ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.3 Transport hazard class(es)

ADN : Not regulated as a dangerous good
ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.4 Packing group

ADN : Not regulated as a dangerous good
ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA (Cargo) : Not regulated as a dangerous good
IATA (Passenger) : Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

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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

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 75, 3

If you intend to use this product as tattoo ink, please contact your vendor.

4,4'-methylenediphenyl diisocyanate (Number on list 74, 56)
diphenylmethane-2,4'-diisocyanate (Number on list 74, 56)
2,2'-methylenediphenyl diisocyanate (Number on list 74, 56)
Diphenylmethanediisocyanate, isomers and homologues (Number on list 56)

REACH - Candidate List of Substances of Very High Concern for Authorization (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

REACH - List of substances subject to authorisation (Annex XIV) : 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. : Not applicable

Water hazard class (Germany) : WGK 1 slightly water endangering
Classification according to AwSV, Annex 1 (5.2)

Other regulations:

Take note of Law on the protection of mothers at work, in education and in studies (Maternity

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Protection Act - MuSchG).

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

Contains a substance which is subject to the TRGS 905 list of carcinogenic, germ cell mutagenic and reproductive toxic substances. : Diphenylmethanediisocyanate, isomers and homologues
carcinogenic: category 2 according to Annex I of the CLP Directive
mutagenic: based on the available data no classification in the categories of Annex I of the CLP Directive could be made
Harmful for fertility: based on the available data no classification in the categories of Annex I of the CLP Directive could be made
Harmful for development: based on the available data no classification in the categories of Annex I of the CLP Directive could be made

15.2 Chemical Safety Assessment

A chemical safety assessment according to (EC) regulation 1907/2006 (REACH) has not been carried out for this product.

SECTION 16: Other information

Full text of H-Statements

H315	: Causes skin irritation.
H317	: May cause an allergic skin reaction.
H318	: Causes serious eye damage.
H319	: Causes serious eye irritation.
H332	: Harmful if inhaled.
H334	: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	: May cause respiratory irritation.
H351	: Suspected of causing cancer.
H373	: May cause damage to organs through prolonged or repeated exposure if inhaled.
H373	: May cause damage to organs through prolonged or repeated exposure.
H412	: Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Carc.	: Carcinogenicity
Eye Dam.	: Serious eye damage
Eye Irrit.	: Eye irritation
Resp. Sens.	: Respiratory sensitization
Skin Irrit.	: Skin irritation

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Skin Sens. : Skin sensitization
STOT RE : Specific target organ toxicity - repeated exposure
STOT SE : Specific target organ toxicity - single exposure
DE TRGS 900 : Germany. TRGS 900 - Occupational exposure limit values.
TRGS 430 : Germany. TRGS 430 - Isocyanates
DE TRGS 900 / AGW : Time Weighted Average
TRGS 430 / AGW : Occupational Exposure Limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - 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:

Acute Tox. 4 H332
Skin Irrit. 2 H315
Eye Irrit. 2 H319
Resp. Sens. 1 H334

Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method

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Skin Sens. 1	H317	Calculation method
Carc. 2	H351	Calculation method
STOT SE 3	H335	Calculation method
STOT RE 2	H373	Calculation method

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