

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

VOSSCHEMIE

Carsystem 2K HARDENER SPEED PLUS

Version 1.0 GB/EN Revision Date: 21.10.2019 Date of last issue: -
Date of first issue: 21.10.2019

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

1.1 Product identifier

Trade name : Carsystem 2K HARDENER SPEED PLUS

Product code : 151.901

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

Use of the Sub-
stance/Mixture : Curing chemical

Recommended restrictions
on use : Reserved for industrial and professional use.

1.3 Details of the supplier of the safety data sheet

Company : Vosschemie GmbH
Esinger Steinweg 50
25436 Uetersen
Germany
info@vosschemie.de

Telephone : 04122 717 0
Telefax : 04122 717158

Responsible Department : Laboratory

04122 717 0
sds@vosschemie.de

1.4 Emergency telephone number

Telephone : POISONS INFORMATION CENTRE
Australia

13 11 26

1.5 Details of the supplier/importer

Company : Sydney Automotive Paints and Equipment
Unit A3, 366 Edgar Street
Condell Park, 2200

reception@sape.com.au

Telephone : 02 9772 9000
Telefax : 02 9772 9001

Responsible Department : Marketing
02 9772 9000

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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 sensitisation, Category 1	H317: May cause an allergic skin reaction.
Specific target organ toxicity - single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms	:	 
Signal word	:	Warning
Hazard statements	:	H226 Flammable liquid and vapour. H317 May cause an allergic skin reaction. H332 Harmful if inhaled. H335 May cause respiratory irritation. H336 May cause drowsiness or dizziness.
Supplemental Hazard Statements	:	EUH066 Repeated exposure may cause skin dryness or cracking.
Precautionary statements	:	Prevention: P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 Avoid breathing mist or vapours. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. Storage: P403 + P235 Store in a well-ventilated place. Keep cool. Disposal: P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and interna-

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tional regulations.

Hazardous components which must be listed on the label:

Hexamethylene diisocyanate, oligomers
n-butyl acetate
heptan-2-one
4-isocyanatosulphonyltoluene

Additional Labelling

EUH204 Contains isocyanates. May produce an allergic reaction.

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.

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)
Hexamethylene diisocyanate, oligomers	28182-81-2 500-060-2 01-2119488934-20	Acute Tox. 4; H332 Skin Sens. 1; H317 STOT SE 3; H335	>= 30 - < 50
n-butyl acetate	123-86-4 204-658-1 607-025-00-1 01-2119485493-29	Flam. Liq. 3; H226 STOT SE 3; H336	>= 10 - < 25
heptan-2-one	110-43-0 203-767-1 606-024-00-3 01-2119902391-49	Flam. Liq. 3; H226 Acute Tox. 4; H302 Acute Tox. 4; H332 STOT SE 3; H336	>= 10 - < 20
4-isocyanatosulphonyltoluene	4083-64-1 223-810-8 615-012-00-7 01-2119980050-47	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1; H334 STOT SE 3; H335	>= 0.1 - < 0.5
hexamethylene-di-isocyanate	822-06-0 212-485-8 615-011-00-1 01-2119457571-37	Acute Tox. 4; H302 Acute Tox. 1; H330 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1B; H334 Skin Sens. 1B; H317 STOT SE 3; H335	>= 0.1 - < 0.5

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 : 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.
Do not leave the victim unattended.
Symptoms of poisoning may appear several hours later.
Show this 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 immediately with soap and plenty of water while removing all contaminated clothes and shoes.
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 : Rinse mouth with water.
Do NOT induce vomiting.
Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

- Risks : May cause an allergic skin reaction.
Harmful if inhaled.
May cause respiratory irritation.
May cause drowsiness or dizziness.
Repeated exposure may cause skin dryness or cracking.

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

Hazchem: •3Y

5.1 Extinguishing media

- Suitable extinguishing media : Carbon dioxide (CO₂)

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Dry powder
Alcohol-resistant foam
Water spray in large fire situations
Water spray jet

Unsuitable extinguishing media : High volume water jet

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

5.3 Advice for firefighters

Special protective equipment for firefighters : 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.

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 vapour 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.

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,

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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

- Advice on safe handling : Avoid exposure - obtain special instructions before use.
All processes must be supervised by specialists or authorised 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 vapours, 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 sensitised 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 authorised persons.
Protect from moisture.
- Advice on common storage : Keep away from food and drink.
Incompatible with acids and bases.

7.3 Specific end use(s)

- Specific use(s) : No data available

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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
Hexamethylene diisocyanate, oligomers	28182-81-2	TWA	0.02 mg/m ³ (NCO)	GB EH40
Further information	<p>Substances that can cause occupational asthma (also known as asthmagens and respiratory sensitisers) can induce a state of specific airway hyper-responsiveness via an immunological irritant or other mechanism. Once the airways have become hyper-responsive, further exposure to the substance, sometimes even in tiny quantities, may cause respiratory symptoms. These symptoms can range in severity from a runny nose to asthma. Not all workers who are exposed to a sensitiser will become hyper-responsive and it is impossible to identify in advance those who are likely to become hyper-responsive. Substances that can cause occupational asthma should be distinguished from substances which may trigger the symptoms of asthma in people with pre-existing airway hyper-responsiveness, but which do not include the disease themselves. The latter substances are not classified as asthmagens or respiratory sensitisers. Further information can be found in the HSE publication Asthmagen? Critical assessments of the evidence for agents implicated in occupational asthma., Wherever it is reasonably practicable, exposure to substances that can cause occupational asthma should be prevented. Where this is not possible, the primary aim is to apply adequate standards of control to prevent workers from becoming hyper-responsive. For substances that can cause occupational asthma, COSHH requires that exposure be reduced to as low as is reasonably practicable. Activities giving rise to short-term peak concentrations should receive particular attention when risk management is being considered. Health surveillance is appropriate for all employees exposed or liable to be exposed to a substance which may cause occupational asthma and there should be appropriate consultation with an occupational health professional over the degree of risk and level of surveillance., Capable of causing occupational asthma., The 'Sen' notation in the list of WELs has been assigned only to those substances which may cause occupational asthma in the categories shown in Table 1. It should be remembered that other substances not in these tables may cause occupational asthma. HSE's asthma web pages (www.hse.gov.uk/asthma) provide further information.</p>			
		STEL	0.07 mg/m ³ (NCO)	GB EH40
Further information	<p>Substances that can cause occupational asthma (also known as asthmagens and respiratory sensitisers) can induce a state of specific airway hyper-responsiveness via an immunological irritant or other mechanism. Once the airways have become hyper-responsive, further exposure to the substance, sometimes even in tiny quantities, may cause respiratory symptoms. These symptoms can range in severity from a runny nose to asthma. Not all workers who are exposed to a sensitiser will become hyper-responsive and it is impossible to identify in advance those who are likely to become hyper-</p>			

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n-butyl acetate	123-86-4	TWA	150 ppm 724 mg/m ³	GB EH40
		STEL	200 ppm 966 mg/m ³	GB EH40
heptan-2-one	110-43-0	TWA	50 ppm 238 mg/m ³	2000/39/EC
Further information	Identifies the possibility of significant uptake through the skin, Indicative			
		STEL	100 ppm 475 mg/m ³	2000/39/EC
Further information	Identifies the possibility of significant uptake through the skin, Indicative			
		TWA	50 ppm 237 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 475 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-isocyanatosulphonyltoluene	4083-64-1	TWA	0.02 mg/m ³ (NCO)	GB EH40
Further information	Substances that can cause occupational asthma (also known as asthmagens and respiratory sensitisers) can induce a state of specific airway hyper-responsiveness via an immunological irritant or other mechanism. Once the airways have become hyper-responsive, further exposure to the substance, sometimes even in tiny quantities, may cause respiratory symptoms. These symptoms can range in severity from a runny nose to asthma. Not all workers who are exposed to a sensitiser will become hyper-responsive and it is impossible to identify in advance those who are likely to become hyper-responsive. Substances that can cause occupational asthma should be dis-			

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	<table border="1"> <tr> <td data-bbox="491 1088 670 1151"></td> <td data-bbox="670 1088 911 1151">STEL</td> <td data-bbox="911 1088 1249 1151">0.07 mg/m³ (NCO)</td> <td data-bbox="1249 1088 1449 1151">GB EH40</td> </tr> </table>		STEL	0.07 mg/m ³ (NCO)	GB EH40
	STEL	0.07 mg/m ³ (NCO)	GB EH40		
Further information	<p>Substances that can cause occupational asthma (also known as asthmagens and respiratory sensitisers) can induce a state of specific airway hyper-responsiveness via an immunological irritant or other mechanism. Once the airways have become hyper-responsive, further exposure to the substance, sometimes even in tiny quantities, may cause respiratory symptoms. These symptoms can range in severity from a runny nose to asthma. Not all workers who are exposed to a sensitiser will become hyper-responsive and it is impossible to identify in advance those who are likely to become hyper-responsive. Substances that can cause occupational asthma should be distinguished from substances which may trigger the symptoms of asthma in people with pre- existing airway hyper-responsiveness, but which do not include the disease themselves. The latter substances are not classified as asthmagens or respiratory sensitisers. Further information can be found in the HSE publication Asthmagen? Critical assessments of the evidence for agents implicated in occupational asthma., Wherever it is reasonably practicable, exposure to substances that can cause occupational asthma should be prevented. Where this is not possible, the primary aim is to apply adequate standards of control to prevent workers from becoming hyper-responsive. For substances that can cause occupational asthma, COSHH requires that exposure be reduced to as low as is reasonably practicable. Activities giving rise to short-term peak concentrations should receive particular attention when risk management is being considered. Health surveillance is appropriate for all employees exposed or liable to be exposed to a substance which may cause occupational asthma and there should be appropriate consultation with an occupational health professional over the degree of risk and level of surveillance., Capable of causing occupational asthma., The 'Sen' notation in the list of WELs has been assigned only to those substances which may cause occupational asthma in the categories shown in Table 1. It should be remembered that other substances not in these tables may cause occupational asthma. HSE's asthma web pages (www.hse.gov.uk/asthma) provide further infor-</p>				

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hexamethylene-di-isocyanate	822-06-0	TWA	0.02 mg/m3 (NCO)	GB EH40
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Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
Hexamethylene diisocyanate, oligomers	28182-81-2	isocyanate-derived diamine (Isocyanates): 1 µmol/mol creatinine (Urine)	At the end of the period of exposure	GB EH40 BAT
4-isocyanatosulphonyltoluene	4083-64-1	isocyanate-derived diamine (Isocyanates): 1 µmol/mol creatinine (Urine)	At the end of the period of exposure	GB EH40 BAT
hexamethylene-diisocyanate	822-06-0	urinary diamine (Isocyanates): 1 µmol/mol creatinine (Urine)	Post task	GB EH40 BAT

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

Substance name	End Use	Exposure routes	Potential health effects	Value
Hexamethylene diisocyanate, oligomers	Workers	Inhalation	Long-term local effects	0.5 mg/m ³
	Workers	Inhalation	Acute local effects	1 mg/m ³
n-butyl acetate	Workers	Inhalation	Long-term systemic effects	300 mg/m ³
	Workers	Dermal	Long-term systemic effects	11 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	35.7 mg/m ³
	Consumers	Dermal	Long-term systemic effects	6 mg/kg bw/day
heptan-2-one	Consumers	Oral	Long-term systemic effects	2 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	394.25 mg/m ³
	Workers	Dermal	Long-term systemic effects	54.27 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	84.31 mg/m ³

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	Consumers	Oral	Long-term systemic effects	23.32 mg/kg bw/day
	Consumers	Dermal	Long-term systemic effects	23.32 mg/kg bw/day
4-isocyanatosulphonyltoluene	Workers	Inhalation	Long-term systemic effects	3.24 mg/m ³
	Workers	Skin contact	Long-term systemic effects	0.92 mg/kg
	Consumers	Inhalation	Long-term systemic effects	0.8 mg/m ³
	Consumers	Skin contact	Long-term systemic effects	0.46 mg/kg
	Consumers	Oral	Long-term systemic effects	0.46 mg/kg
hexamethylene-diisocyanate	Workers	Inhalation	Long-term local effects	0.035 mg/m ³
	Workers	Inhalation	Acute local effects	0.07 mg/m ³

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

Substance name	Environmental Compartment	Value
Hexamethylene diisocyanate, oligomers	Fresh water	0.1 mg/l
	Marine water	0.01 mg/l
	Sewage treatment plant	100 mg/l
	Fresh water sediment	2530 mg/kg
	Marine sediment	253 mg/kg
	Soil	505 mg/kg
n-butyl acetate	Fresh water	0.18 mg/l
	Marine water	0.018 mg/l
	Fresh water sediment	0.981 mg/kg dry weight (d.w.)
	Marine sediment	0.098 mg/kg dry weight (d.w.)
	Sewage treatment plant	35.6 mg/l
	Soil	0.09 mg/kg dry weight (d.w.)
heptan-2-one	Fresh water	0.098 mg/l
	Marine water	0.01 mg/l
	Fresh water sediment	1.89 mg/kg dry weight (d.w.)
	Marine sediment	0.189 mg/kg dry weight (d.w.)
	Sewage treatment plant	12.5 mg/l
	Soil	0.321 mg/kg dry weight (d.w.)
4-isocyanatosulphonyltoluene	Fresh water	0.03 mg/l
	Marine water	0.003 mg/l
	Sewage treatment plant	0.4 mg/l
	Fresh water sediment	0.172 mg/kg
	Marine sediment	0.017 mg/kg
hexamethylene-diisocyanate	Sewage treatment plant	8.42 mg/l

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8.2 Exposure controls

Personal protective equipment

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

Hand protection

Material : Nitrile rubber

Material : PVA

Material : butyl-rubber

Break through time : > 480 min

Glove thickness : ≥ 0.7 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 vapour 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.

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

Appearance	:	liquid
Colour	:	colourless
Odour	:	characteristic
Odour Threshold	:	not determined
pH	:	Not applicable
	:	124 °C
Flash point	:	> 23 °C
Upper explosion limit / Upper flammability limit	:	Upper explosion limit 15.0 %(V)
Lower explosion limit / Lower flammability limit	:	Lower explosion limit 1.2 %(V)
Vapour pressure	:	10.7 hPa (20 °C)
Density	:	1.0 g/cm ³ (20 °C)
Solubility(ies)	:	
Water solubility	:	Reacts with water.
Viscosity	:	
Viscosity, kinematic	:	not determined

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 : Amines and alcohols cause exothermic reactions.
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

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Conditions to avoid : Avoid moisture.

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 toxicological effects

Acute toxicity

Harmful if inhaled.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 1.0 - < 5.0 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:

Hexamethylene diisocyanate, oligomers:

Acute oral toxicity : LD50 Oral (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 423

Acute inhalation toxicity : Acute toxicity estimate: 1.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgement

LC50 (Rat): 0.39 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute toxicity estimate: 11 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Expert judgement

Acute dermal toxicity : LD50 Dermal (Rat): > 2,000 mg/kg

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Method: OECD Test Guideline 402

n-butyl acetate:

Acute oral toxicity : LD50 (Rat): 10,760 mg/kg

Acute inhalation toxicity : LD50 (Rat): > 21 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

heptan-2-one:

Acute oral toxicity : Acute toxicity estimate: 500.0 mg/kg
Method: Converted acute toxicity point estimate

Acute inhalation toxicity : LC50 (Rat): > 16.7 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 Dermal (Rat): > 2,000 mg/kg

4-isocyanatosulphonyltoluene:

Acute oral toxicity : LD50 Oral (Rat): 2,330 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 Dermal (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402

hexamethylene-di-isocyanate:

Acute oral toxicity : LD50 Oral (Rat): 959 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 0.124 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 Dermal (Rat): > 7,000 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

Repeated exposure may cause skin dryness or cracking.

Components:

Hexamethylene diisocyanate, oligomers:

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

hexamethylene-di-isocyanate:

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

Serious eye damage/eye irritation

Not classified based on available information.

Components:

Hexamethylene diisocyanate, oligomers:

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

hexamethylene-di-isocyanate:

Species : Rabbit
Method : OECD Test Guideline 405
Result : Moderate eye irritation

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

Components:

Hexamethylene diisocyanate, oligomers:

Test Type : 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

hexamethylene-di-isocyanate:

Species : Guinea pig
Method : OECD Test Guideline 406
Result : The product is a skin sensitiser, sub-category 1B.

Species : Guinea pig
Result : The product is a respiratory sensitiser, sub-category 1B.

Germ cell mutagenicity

Not classified based on available information.

Components:

Hexamethylene diisocyanate, oligomers:

Genotoxicity in vitro : Test Type: Microbial mutagenesis assay (Ames test)

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Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: Not mutagenic in Ames Test

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure

May cause respiratory irritation.

May cause drowsiness or dizziness.

Components:

Hexamethylene diisocyanate, oligomers:

Exposure routes : Inhalation
Assessment : May cause respiratory irritation.

heptan-2-one:

Assessment : May cause drowsiness or dizziness.

hexamethylene-di-isocyanate:

Assessment : May cause respiratory irritation.

STOT - repeated exposure

Not classified based on available information.

Repeated dose toxicity

Components:

Hexamethylene diisocyanate, oligomers:

Species : Rat, male and female
NOAEL : 0.0033 mg/l
Application Route : Inhalation
Test atmosphere : dust/mist
Exposure time : 90d
Number of exposures : 6h / d
Dose : 0 - 0,0005 - 0,003 - 0,0264
Method : OECD Test Guideline 413

Aspiration toxicity

Not classified based on available information.

Further information

Product:

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

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SECTION 12: Ecological information

12.1 Toxicity

Components:

Hexamethylene diisocyanate, oligomers:

- Toxicity to fish : LC0 (Danio rerio (zebra fish)): \geq 100 mg/l
End point: mortality
Exposure time: 96 h
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC0 (Daphnia magna (Water flea)): \geq 100 mg/l
End point: Immobilization
Exposure time: 48 h
Method: OECD Test Guideline 202
- Toxicity to algae : NOEC (Desmodesmus subspicatus (green algae)): 50 mg/l
End point: Growth rate
Exposure time: 72 h
Method: OECD Test Guideline 201

heptan-2-one:

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 131 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

4-isocyanatosulphonyltoluene:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): $>$ 45 mg/l
End point: mortality
Exposure time: 96 h
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): $>$ 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 30 mg/l
End point: Growth rate
Exposure time: 72 h
Method: OECD Test Guideline 201

Ecotoxicology Assessment

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

hexamethylene-di-isocyanate:

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- Toxicity to fish : LC50 (Danio rerio (zebra fish)): \geq 82.8 mg/l
End point: mortality
Exposure time: 96 h
Method: Regulation (EC) No. 440/2008, Annex, C.1
- Toxicity to daphnia and other aquatic invertebrates : EC0 (Daphnia magna (Water flea)): \geq 89.1 mg/l
End point: Immobilization
Exposure time: 48 h
Method: Regulation (EC) No. 440/2008, Annex, C.2
- Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 77.4 mg/l
Exposure time: 72 h
- Toxicity to microorganisms : EC50 (Bacteria): 842 mg/l
Exposure time: 3 h

Ecotoxicology Assessment

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

12.2 Persistence and degradability

Components:

Hexamethylene diisocyanate, oligomers:

- Biodegradability : Result: Not rapidly biodegradable
Biodegradation: 2 %
Exposure time: 28 d
Method: Regulation (EC) No. 440/2008, Annex, C.4-E

heptan-2-one:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 100 %
Method: OECD Test Guideline 310

4-isocyanatosulphonyltoluene:

- Biodegradability : Biodegradation: 86 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

hexamethylene-di-isocyanate:

- Biodegradability : Biodegradation: 42 %
Exposure time: 28 d

12.3 Bioaccumulative potential

Components:

Hexamethylene diisocyanate, oligomers:

- Bioaccumulation : Bioconcentration factor (BCF): 706

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Partition coefficient: n-octanol/water : log Pow: 8.38

heptan-2-one:

Partition coefficient: n-octanol/water : log Pow: 2.26 (30 °C)

4-isocyanatosulphonyltoluene:

Partition coefficient: n-octanol/water : log Pow: 0.6

hexamethylene-di-isocyanate:

Bioaccumulation : Bioconcentration factor (BCF): 59.6

Partition coefficient: n-octanol/water : log Pow: 3.2 (20 °C)

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 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.
Store containers and offer for recycling of material when in accordance with the local regulations.
Packaging that is not properly emptied must be disposed of as

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the unused product.
Dispose of in accordance with local regulations.

Waste Code : The following Waste Codes are only suggestions:
08 05 01, waste isocyanates

08 01 11, waste paint and varnish containing organic solvents
or other hazardous substances

SECTION 14: Transport information

14.1 UN number

ADN : UN 1263
ADR : UN 1263
RID : UN 1263
IMDG : UN 1263
IATA : UN 1263

14.2 UN proper shipping name

ADN : PAINT RELATED MATERIAL
ADR : PAINT RELATED MATERIAL
RID : PAINT RELATED MATERIAL
IMDG : PAINT RELATED MATERIAL
IATA : Paint related material

14.3 Transport hazard class(es)

ADN : 3
ADR : 3
RID : 3
IMDG : 3
IATA : 3

14.4 Packing group

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

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RID

Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3

IMDG

Packing group : III
Labels : 3
EmS Code : F-E, S-E

IATA (Cargo)

Packing instruction (cargo aircraft) : 366
Packing instruction (LQ) : Y344
Packing group : III
Labels : Class 3 - Flammable liquids

IATA (Passenger)

Packing instruction (passenger aircraft) : 355
Packing instruction (LQ) : Y344
Packing group : III
Labels : Class 3 - Flammable liquids

14.5 Environmental hazards

ADN

Environmentally hazardous : no

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG

Marine pollutant : no

Hazchem: •3Y

14.6 Special precautions for user

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 Transport in bulk according to Annex II of Marpol and the IBC Code

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 - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

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

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Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

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

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

Other regulations:

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

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 vapour.
H302 : Harmful if swallowed.
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.

Full text of other abbreviations

Acute Tox. : Acute toxicity
Eye Irrit. : Eye irritation
Flam. Liq. : Flammable liquids
Resp. Sens. : Respiratory sensitisation
Skin Irrit. : Skin irritation
Skin Sens. : Skin sensitisation
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
GB EH40 : UK. EH40 WEL - Workplace Exposure Limits

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GB EH40 BAT : UK. Biological monitoring guidance values
2000/39/EC / TWA : Limit Value - eight hours
2000/39/EC / 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)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; 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; 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.

Other information :

Classification of the mixture:

Flam. Liq. 3 H226
Acute Tox. 4 H332
Skin Sens. 1 H317
STOT SE 3 H336
STOT SE 3 H335

Classification procedure:

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

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