

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 16.03.2015

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Revision: 16.03.2015

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

- **1.1 Product identifier**
  - **Trade name:** CARSYSTEM 2K VOC-Hardener 422 Slow
  - **1.2 Relevant identified uses of the substance or mixture and uses advised against**  
The product is intended for professional use.  
Uses advised against:  
Not suitable for use in homemaker (DIY) applications.
  - **Application of the substance / the mixture** Hardening agent/ Curing agent
  - **1.3 Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:**  
Vosschemie GmbH  
Esinger Steinweg 50  
D-25436 Uetersen  
Phone: +49 (0)4122 717 0; Fax: +49 (0)4122 717158; info@vosschemie.de
  - **Further information obtainable from:**  
Abteilung Labor / +49 (0)4122 717 0  
s.schaller@vosschemie.de
  - **1.4 Emergency telephone number:**  
Giftinformationszentrum (GIZ)-Nord, Goettingen, Deutschland  
Phone: +49 (0)551 19240
- 

**SECTION 2: Hazards identification**

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

Flam. Liq. 3 H226 Flammable liquid and vapour.

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GHS08 health hazard

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

STOT SE 3 H335 May cause respiratory irritation.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xn; Harmful

R20/21: Harmful by inhalation and in contact with skin.



Xi; Irritant

R37: Irritating to respiratory system.



Xi; Sensitising

R43: May cause sensitisation by skin contact.

R10: Flammable.

· **Information concerning particular hazards for human and environment:**

Vapours of the product are heavier than air and may accumulate on the ground, in mines, drains or cellars with higher concentration.

Heightened risk of fire and danger of explosion at accumulation in lower-lying or closed rooms

At long or repeated contact with skin it may cause dermatitis due to the degreasing effect of the solvent.

Has a narcotising effect.

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

· **Hazard pictograms**



GHS02



GHS07



GHS08

· **Signal word Danger**

· **Hazard-determining components of labelling:**

Hexamethylene diisocyanate homopolymer  
xylene, mixture of isomers

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2-butoxyethyl acetate

Tosylisocyanate

**· Hazard statements**

H226 Flammable liquid and vapour.

H332 Harmful if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H335 May cause respiratory irritation.

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

H304 May be fatal if swallowed and enters airways.

**· Precautionary statements**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260 Do not breathe mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**· Additional information:**

Contains isocyanates. May produce an allergic reaction.

**· 2.3 Other hazards**

**· Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

**SECTION 3: Composition/information on ingredients**

**· 3.2 Chemical characterisation: Mixtures**

· **Description:** Mixture of substances listed below with nonhazardous additions.

**· Dangerous components:**

CAS: 28182-81-2 NLP: 500-060-2 Reg.nr.: 01-2119488934-20 01-2119485796-17	Hexamethylene diisocyanate homopolymer Xn R20; Xi R37; Xi R43 Acute Tox. 4, H332; Skin Sens. 1, H317; STOT SE 3, H335	50-100%
CAS: 108-65-6 EINECS: 203-603-9 Reg.nr.: 01-2119475791-29	2-methoxy-1-methylethyl acetate R10 Flam. Liq. 3, H226	5-15%
CAS: 1330-20-7 EINECS: 215-535-7 Reg.nr.: 01-2119488216-32	xylene, mixture of isomers Xn R20/21; Xi R38 R10 Flam. Liq. 3, H226; STOT RE 2, H373; Asp. Tox. 1, H304; Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	5-15%
CAS: 112-07-2 EINECS: 203-933-3 Reg.nr.: 01-2119475112-47	2-butoxyethyl acetate Xn R20/21 Acute Tox. 4, H312; Acute Tox. 4, H332	2.5-10%

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CAS: 123-86-4 EINECS: 204-658-1 Reg.nr.: 01-2119485493-29	n-butyl acetate R10-66-67 ⚠ Flam. Liq. 3, H226; ⚠ STOT SE 3, H336	1-5%
CAS: 4083-64-1 EINECS: 223-810-8 Reg.nr.: 01-2119980050-47	Tosylisocyanate ⚠ Xi R36/37/38; ⚠ Xn R42 R14 ⚠ Resp. Sens. 1, H334; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	0.1-<1.0%

· **Additional information:** For the wording of the listed risk phrases refer to section 16.

### SECTION 4: First aid measures

· **4.1 Description of first aid measures**

· **General information:**

Personal protection for the First Aider.

Take affected persons out of danger area and lay down.

In case of irregular breathing or respiratory arrest provide artificial respiration.

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation:**

Supply fresh air or oxygen; call for doctor.

In case of unconsciousness place patient stably in side position for transportation.

· **After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

· **After eye contact:**

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:** Do not induce vomiting; call for medical help immediately.

· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

· **4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

### SECTION 5: Firefighting measures

· **5.1 Extinguishing media**

· **Suitable extinguishing agents:** CO<sub>2</sub>, sand, extinguishing powder. Do not use water.

· **For safety reasons unsuitable extinguishing agents:**

Water with full jet

Water

· **5.2 Special hazards arising from the substance or mixture**

Can form explosive gas-air mixtures.

Formation of toxic gases is possible during heating or in case of fire.

Hydrogen cyanide (HCN)

Carbon monoxide and carbon dioxide

· **5.3 Advice for firefighters**

· **Protective equipment:**

Wear self-contained respiratory protective device.

Do not inhale explosion gases or combustion gases.

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**· Additional information***Cool endangered receptacles with water spray.**Collect contaminated fire fighting water separately. It must not enter the sewage system.**Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.***SECTION 6: Accidental release measures****· 6.1 Personal precautions, protective equipment and emergency procedures***Wear protective equipment. Keep unprotected persons away.**Ensure adequate ventilation**Keep away from ignition sources.**Use respiratory protective device against the effects of fumes/dust/aerosol.**Avoid contact with the eyes and skin.***· 6.2 Environmental precautions:***Inform respective authorities in case of seepage into water course or sewage system.**Do not allow to enter sewers/ surface or ground water.***· 6.3 Methods and material for containment and cleaning up:***Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).**Dispose of the material collected according to regulations.**Do not flush with water or aqueous cleansing agents***· 6.4 Reference to other sections***See Section 7 for information on safe handling.**See Section 8 for information on personal protection equipment.**See Section 13 for disposal information.***SECTION 7: Handling and storage****· 7.1 Precautions for safe handling***Ensure good ventilation/exhaustion at the workplace.**Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).**Restrict the quantity stored at the work place.**Use only in well ventilated areas.**Do not inhale gases / fumes / aerosols.**Avoid contact with the eyes and skin.**Adhere to the workplace limit values and / or other threshold values.***· Information about fire - and explosion protection:***Fumes can combine with air to form an explosive mixture.**Vapours of the product are heavier than air and may accumulate on the ground, in mines, drains or cellars with higher concentration.**Flammable gas-air mixtures may form in empty receptacles.**Keep ignition sources away - Do not smoke.**Protect against electrostatic charges.**Use explosion-proof apparatus / fittings and spark-proof tools.***· 7.2 Conditions for safe storage, including any incompatibilities****· Storage:****· Requirements to be met by storerooms and receptacles:***Store only in the original receptacle.**Adhere to the provisions of the Law on Water Protection.***· Information about storage in one common storage facility:***Store away from foodstuffs.*

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Pls. refer to section 10

· **Further information about storage conditions:**

Store in cool, dry conditions in well sealed receptacles.

Protect from heat and direct sunlight.

Store receptacle in a well ventilated area.

Protect from humidity and water.

· **7.3 Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**

**110-43-0 heptan-2-one**

WEL (Great Britain) Short-term value: 475 mg/m<sup>3</sup>, 100 ppm  
Long-term value: 237 mg/m<sup>3</sup>, 50 ppm  
Sk

IOELV (EU) Short-term value: 475 mg/m<sup>3</sup>, 100 ppm  
Long-term value: 238 mg/m<sup>3</sup>, 50 ppm  
Skin

**123-86-4 n-butyl acetate**

WEL (Great Britain) Short-term value: 966 mg/m<sup>3</sup>, 200 ppm  
Long-term value: 724 mg/m<sup>3</sup>, 150 ppm

**108-94-1 cyclohexanone**

WEL (Great Britain) Short-term value: 82 mg/m<sup>3</sup>, 20 ppm  
Long-term value: 41 mg/m<sup>3</sup>, 10 ppm  
Sk, BMGV

IOELV (EU) Short-term value: 81.6 mg/m<sup>3</sup>, 20 ppm  
Long-term value: 40.8 mg/m<sup>3</sup>, 10 ppm  
Skin

· **DNELs**

**28182-81-2 Hexamethylene diisocyanate homopolymer**

Inhalative	Acute/short-term exposure - local effects	1.0 mg/m <sup>3</sup> (worker)
	Long-term exposure - local effects	0.5 mg/m <sup>3</sup> (worker)

**108-65-6 2-methoxy-1-methylethyl acetate**

Oral	Long-term exposure - systemic effects	1.67 mg/kg bw/day (general population)
Dermal	Long-term exposure - systemic effects	54.8 mg/kg bw/day (general population)
		153.5 mg/kg bw/day (worker)
Inhalative	Long-term exposure - systemic effects	33 mg/m <sup>3</sup> (general population)
		275 mg/m <sup>3</sup> (worker)

**1330-20-7 xylene, mixture of isomers**

Oral	Long-term exposure - systemic effects	1.6 mg/kg bw/day (general population)
Dermal	Long-term exposure - systemic effects	108 mg/kg bw/day (general population)
		180 mg/kg bw/day (worker)
Inhalative	Acute/short-term exposure - local effects	174 mg/m <sup>3</sup> (general population)

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	Acute/short-term exposure - systemic effects	289 mg/m <sup>3</sup> (worker) 174 mg/m <sup>3</sup> (general population)
	Long-term exposure - systemic effects	289 mg/m <sup>3</sup> (worker) 14.8 mg/m <sup>3</sup> (general population) 77 mg/m <sup>3</sup> (worker)

**112-07-2 2-butoxyethyl acetate**

Dermal	Acute/short-term exposure - systemic effects	102 mg/kg bw/day (worker)
	Long-term exposure - systemic effects	102 mg/kg bw/day (worker)
Inhalative	Acute/short-term exposure - local effects	333 mg/m <sup>3</sup> (worker)
	Acute/short-term exposure - systemic effects	775 mg/m <sup>3</sup> (worker)
	Long-term exposure - systemic effects	133 mg/m <sup>3</sup> (worker)

**123-86-4 n-butyl acetate**

Oral	Long-term exposure - systemic effects	3.4 mg/kg bw/day (general population)	
Dermal	Long-term exposure - systemic effects	3.4 mg/kg bw/day (general population) 7 mg/kg bw/day (worker)	
Inhalative	Acute/short-term exposure - local effects	859.7 mg/m <sup>3</sup> (general population) 960 mg/m <sup>3</sup> (worker)	
	Acute/short-term exposure - systemic effects	859.7 mg/m <sup>3</sup> (general population) 960 mg/m <sup>3</sup> (worker)	
	Long-term exposure - local effects	102.34 mg/m <sup>3</sup> (general population) 480 mg/m <sup>3</sup> (worker)	
	Long-term exposure - systemic effects	102.34 mg/m <sup>3</sup> (general population) 480 mg/m <sup>3</sup> (worker)	

**· PNECs**
**28182-81-2 Hexamethylene diisocyanate homopolymer**

PNEC STP	100 mg/l (-)
PNEC aqua	0.199 mg/l (freshwater)
	0.0199 mg/l (marine water)
PNEC sediment	44551 mg/kg (freshwater)
	4455 mg/kg (marine water)

**108-65-6 2-methoxy-1-methylethyl acetate**

PNEC STP	100 mg/l (-)
PNEC aqua	0.635 mg/l (freshwater)
	0.0635 mg/l (marine water)
	6.35 mg/l (intermittent releases)
PNEC sediment	3.29 mg/kg (freshwater)
	0.329 mg/kg (marine water)
PNEC soil	0.29 mg/kg (soil dw)

**1330-20-7 xylene, mixture of isomers**

PNEC STP	6.58 mg/l (-)
PNEC aqua	0.327 mg/l (freshwater)
	0.327 mg/l (marine water)

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<i>PNEC sediment</i>	0.327 mg/l (intermittent releases) 12.46 mg/kg (freshwater) 12.46 mg/kg (marine water)
<b>112-07-2 2-butoxyethyl acetate</b>	
<i>PNEC STP</i>	90 mg/l (-)
<i>PNEC aqua</i>	0.304 mg/l (freshwater) 0.0304 mg/l (marine water) 0.56 mg/l (intermittent releases)
<i>PNEC sediment</i>	2.03 mg/kg (freshwater) 0.203 mg/kg (marine water)
<i>PNEC soil</i>	0.68 mg/kg (soil dw)
<b>123-86-4 n-butyl acetate</b>	
<i>PNEC STP</i>	35.6 mg/l (-)
<i>PNEC aqua</i>	0.18 mg/l (freshwater) 0.018 mg/l (marine water) 0.36 mg/l (intermittent releases)
<i>PNEC sediment</i>	0.981 mg/kg (freshwater) 0.0981 mg/kg (marine water)
<i>PNEC soil</i>	0.0903 mg/kg (soil dw)
<b>· Ingredients with biological limit values:</b>	
<b>108-94-1 cyclohexanone</b>	
<i>BMGV (Great Britain)</i>	2 mmol/mol creatinine Medium: urine Sampling time: post shift Parameter: cyclohexanol

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash contaminated clothing before reuse.

Do not eat, drink, smoke or sniff while working.

Do not inhale gases / fumes / aerosols.

Avoid contact with the eyes and skin.

Wash hands before breaks and at the end of work.

· **Respiratory protection:**

Adhere to the workplace limit values and / or other threshold values.

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Filter A/P2

Use suitable respiratory protective device in case of insufficient ventilation.

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· **Protection of hands:**

Protective gloves

To avoid skin problems reduce the wearing of gloves to the required minimum.

Check the permeability prior to each renewed use of the glove.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

Fluorocarbon rubber (Viton)

Recommended thickness of the material:  $\geq 0.7$  mm

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

Value for the permeation: Level  $\leq 6$  ( $\geq 480$  min.)

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Tightly sealed goggles

· **Body protection:** Protective work clothing

## SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**· **General Information**· **Appearance:**

· <b>Form:</b>	Fluid
· <b>Colour:</b>	Colourless
· <b>Odour:</b>	Characteristic

· **Change in condition**

· <b>Melting point/Melting range:</b>	Undetermined.
· <b>Boiling point/Boiling range:</b>	124 °C

· **Flash point:** 24 °C

· **Ignition temperature:** Not determined

· **Self-igniting:** Not determined

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

· **Explosion limits:**

· **Lower:** 1.0 Vol %

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<b>Upper:</b>	15.0 Vol %
· <b>Vapour pressure at 20 °C:</b>	10.7 hPa
· <b>Density at 20 °C:</b>	~ 1 g/cm <sup>3</sup>
· <b>Solubility in / Miscibility with water:</b>	Reacts with water.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic at 40 °C:</b>	< 20.5 mm <sup>2</sup> /s
· <b>9.2 Other information</b>	No further relevant information available.

### SECTION 10: Stability and reactivity

- **10.1 Reactivity** No decomposition if used according to specifications.
- **10.2 Chemical stability** No decomposition if used and stored according to specifications.
- **10.3 Possibility of hazardous reactions**  
Fumes can combine with air to form an explosive mixture.  
Reacts with alkali, amines and strong acids.  
Reacts with water.  
Reacts with oxidising agents.
- **10.4 Conditions to avoid** Protect from heat and direct sunlight.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:**  
Formation of toxic gases is possible during heating or in case of fire.  
Carbon monoxide and carbon dioxide

### SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values relevant for classification:**

<b>28182-81-2 Hexamethylene diisocyanate homopolymer</b>		
Oral	LD 50	> 5000 mg/kg (rat) (OECD 423)
Dermal	LD 50	> 2000 mg/kg (rat) (OECD 402) > 2000 mg/kg (rabbit)
<b>108-65-6 2-methoxy-1-methylethyl acetate</b>		
Oral	LD 50	> 5000 mg/kg (rat)
Dermal	LD 50	> 2000 mg/kg (rat) > 5000 mg/kg (rabbit)
Inhalative	LC50 /4h	35.7 mg/l (rat)
	LC50 /6h	>23.8 mg/l (rat) (Dust/Mist)
<b>1330-20-7 xylene, mixture of isomers</b>		
Oral	LD 50	> 4000 mg/kg (rat)

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Dermal	LD 50	> 1700 mg/kg (rabbit)
Inhalative	LC 50 / 4h	21.7 mg/l (rat) (Vapour)
	LC50 /4h	5000 ppm (rat) (Gas)
<b>112-07-2 2-butoxyethyl acetate</b>		
Oral	LD50	2400 mg/kg (rat)
Dermal	LD50	1580 mg/kg (rabbit)
Inhalative	LC50 /6h	> 3.06 mg/l (rat) (saturated vapour concentration)
<b>123-86-4 n-butyl acetate</b>		
Oral	LD50	10760 mg/kg (rat) (OECD 423)
Dermal	LD 50	> 5000 mg/kg (rabbit)
Inhalative	LC 50 / 4h	23.4 mg/l (rat) (OECD 403, aerosol)
	LC50 /4h	> 21 mg/l (rat) (OECD 403, vapour)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.

· **Subacute to chronic toxicity:**

**28182-81-2 Hexamethylene diisocyanate homopolymer**

Inhalative	NOAEL	3.3 mg/m <sup>3</sup> (rat) (OECD 413, 90d)
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- **Additional toxicological information:**  
May cause respiratory irritation.  
Vapours may cause drowsiness and dizziness.  
Has a narcotising effect.
- **Sensitisation**  
Sensitising effect through inhalation is possible by prolonged exposure.  
May cause sensitisation by skin contact.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**  
No further relevant information available.

## SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

**28182-81-2 Hexamethylene diisocyanate homopolymer**

EC50/3h	> 10000 mg/l (activated slugde) (EG-RL 88/302/EEC)
EC50/48h	> 100 mg/l (daphnia magna) (67/548/EWG, Apendix V, C.2.)
EC50/72h	199 mg/l (scenedesmus subspicatus) (67/548/EWG, Apendix V, C.3.)
LC50/96h	> 100 mg/l (danio rerio) (67/548/EWG, Apendix V, C.1.)

**108-65-6 2-methoxy-1-methylethyl acetate**

EC10/0,5h	> 1000 mg/l (activated slugde) (OECD 209)
EC50/48h	> 500 mg/l (daphnia magna) (67/548/EWG Apendix V, C.2.)
EC50/72h	> 1000 mg/l (Pseudokirchneriella subcapitata) (OECD- 201)
LC50/96h	134 mg/l (oncorhynchus mykiss) (OECD- 203)
	> 100 mg/l (Oryzias latipes) (OECD 203)
NOEC	≥ 100 mg/l (daphnia magna) (21d, OECD 202)

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	47.5 mg/l ( <i>Oryzias latipes</i> ) (14d, OECD 204)
<b>1330-20-7 xylene, mixture of isomers</b>	
EC50	> 175 mg/l (activated slugde)
EC50/48h	3.82 mg/l ( <i>daphnia magna</i> )
EC50/72h	4.7 mg/l ( <i>Pseudokirchneriella subcapitata</i> )
LC50/96h	7.6 mg/l ( <i>oncorhynchus mykiss</i> )
NOEC	> 1.3 mg/l ( <i>oncorhynchus mykiss</i> ) (56 d)
<b>112-07-2 2-butoxyethyl acetate</b>	
EC50/0.5h	22 mg/l (activated slugde) (OECD 209)
EC50/48h	67.5 mg/l ( <i>daphnia magna</i> ) (ISO 6341 15)
EC50/72h	1570 mg/l ( <i>Pseudokirchneriella subcapitata</i> ) (ISO 8692)
LC50/96h	28 mg/l ( <i>oncorhynchus mykiss</i> ) (OECD 203)
<b>123-86-4 n-butyl acetate</b>	
EC50	356 mg/l (bacteria) ( <i>Tetrahymena</i> , 40h)
EC50/48h	44 mg/l ( <i>daphnia magna</i> )
EC50/72h	674.7 mg/l ( <i>scenedesmus subspicatus</i> ) 647.7 mg/l ( <i>desmodesmus subspicatus</i> )
LC50	64 mg/l ( <i>danio rerio</i> ) (48h)
LC50/96h	18 mg/l ( <i>pimephales promelas</i> ) (OECD 203)
NOEC	200 mg/l ( <i>desmodesmus subspicatus</i> )
<b>· 12.2 Persistence and degradability</b>	
<b>28182-81-2 Hexamethylene diisocyanate homopolymer</b>	
Biodegradation	2 % (-) (aerob, 28d, 67/548/EWG, Apendix V, C.4.E.)
<b>108-65-6 2-methoxy-1-methylethyl acetate</b>	
BSB	83 % (activated slugde) (28d, OECD 301 F)
Biodegradation	100 % (-) (OECD 302 B, 8d)
<b>1330-20-7 xylene, mixture of isomers</b>	
Biodegradation	87.8 % (-) (28d)
<b>123-86-4 n-butyl acetate</b>	
Biodegradation	83 % (-) (OECD 301 D 28d)
<b>· 12.3 Bioaccumulative potential</b>	
<b>28182-81-2 Hexamethylene diisocyanate homopolymer</b>	
BCF	706.2 (-) (calculated)
<b>108-65-6 2-methoxy-1-methylethyl acetate</b>	
log Pow	0.43 (-)
<b>1330-20-7 xylene, mixture of isomers</b>	
BCF	6 - 23.4 (-)
log Pow	> 3 (-)
<b>112-07-2 2-butoxyethyl acetate</b>	
BCF	1.51 (-)
log Kow	1.51 (-)

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**123-86-4 n-butyl acetate**

BCF	15.3 (-)
log Pow	2.3 (-) (OECD 117)

- **Behaviour in environmental systems:**
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

**SECTION 13: Disposal considerations**

- **13.1 Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.
- **Waste disposal key:**  
The waste codes given above are to be considered recommendations; because of regional and industrial sector specific features, application of different waste codes is possible.

· <b>European waste catalogue</b>	
08 01 11	waste paint and varnish containing organic solvents or other dangerous substances

- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

**SECTION 14: Transport information**

· <b>14.1 UN-Number</b>	
· <b>ADR, IMDG, IATA</b>	UN1263
· <b>14.2 UN proper shipping name</b>	
· <b>ADR</b>	1263 PAINT RELATED MATERIAL
· <b>IMDG, IATA</b>	PAINT RELATED MATERIAL

- **14.3 Transport hazard class(es)**
- **ADR, IMDG, IATA**



- **Class** 3 Flammable liquids.
- **Label** 3

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· 14.4 Packing group · ADR, IMDG, IATA	III
· 14.5 Environmental hazards:	Not applicable.
· 14.6 Special precautions for user · Danger code (Kemler): · EMS Number:	Warning: Flammable liquids. 30 F-E,S-D
· 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· Transport category	3
· Tunnel restriction code	D/E
· Remarks:	ADR 2.2.3.1.5 > 450 l: 3 F1, III
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· Remarks:	IMDG-Code 2.3.2.5 > 30 l: 3, III

### SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
- National regulations:
- Information about limitation of use:  
Employment restrictions concerning juveniles must be observed.  
Employment restrictions concerning pregnant and lactating women must be observed.
- 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Relevant phrases
- H226 Flammable liquid and vapour.
- H304 May be fatal if swallowed and enters airways.
- H312 Harmful in contact with skin.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.

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- H319 Causes serious eye irritation.  
 H332 Harmful if inhaled.  
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
 H335 May cause respiratory irritation.  
 H336 May cause drowsiness or dizziness.  
 H373 May cause damage to organs through prolonged or repeated exposure.
- R10 Flammable.  
 R14 Reacts violently with water.  
 R20 Harmful by inhalation.  
 R20/21 Harmful by inhalation and in contact with skin.  
 R36/37/38 Irritating to eyes, respiratory system and skin.  
 R37 Irritating to respiratory system.  
 R38 Irritating to skin.  
 R42 May cause sensitisation by inhalation.  
 R43 May cause sensitisation by skin contact.  
 R66 Repeated exposure may cause skin dryness or cracking.  
 R67 Vapours may cause drowsiness and dizziness.

· **Department issuing MSDS:** Abteilung Labor

· **Contact:** Frau S. Schaller

· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Flam. Liq. 3: Flammable liquids, Hazard Category 3

Acute Tox. 4: Acute toxicity, Hazard Category 4

Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2

Resp. Sens. 1: Sensitisation - Respirat., Hazard Category 1

Skin Sens. 1: Sensitisation - Skin, Hazard Category 1

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2

Asp. Tox. 1: Aspiration hazard, Hazard Category 1