

# SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



Commercial Product Name: SEEVENAX-Hardener 135-44  
Quality No.: 135440000E000

Revision Date 24.01.2023  
Print Date 24.01.2023  
Version 1

## 1. PRODUCT AND COMPANY IDENTIFICATION

Chinese name : Hardener SEEVENAX-Hardener 135-44  
English name : Hardener SEEVENAX-Hardener 135-44  
Chemical nature : Hardener based on polyamine / amino adduct

### Manufacturer or supplier's details

Producer : Mankiewicz Gebr. & Co. (GmbH & Co. KG)  
Address : Georg-Wilhelm-Strasse 189  
Hamburg 21107  
Germany  
Telephone : +49 (0) 40 75103 0  
Emergency telephone number : +44 1865 407333 (NCEC)  
E-mail address : sdb\_info@umco.de  
Telefax : +49 (0) 40 75103 375

### Recommended use of the chemical and restrictions on use

Recommended use : Industrial serial painting

## 2. HAZARDS IDENTIFICATION

### Emergency Overview

**Appearance** : liquid  
**Colour** : farblos / transparent  
**Odour** : characteristic

Highly flammable liquid and vapour. May be harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause drowsiness or dizziness. Toxic to aquatic life with long lasting effects. Highly flammable liquid and vapour. May be harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Harmful if inhaled. May cause drowsiness or dizziness. Toxic to aquatic life with long lasting effects.

### GHS Classification

Flammable liquids : Category 2  
Acute toxicity (Oral) : Category 5  
Acute toxicity (Inhalation) : Category 4  
Skin corrosion/irritation : Category 1C  
Serious eye damage/eye irritation : Category 1



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Skin sensitisation : Category 1

Specific target organ toxicity - single exposure : Category 3 (Narcotic effects)

Short-term (acute) aquatic hazard : Category 2

Long-term (chronic) aquatic hazard : Category 2

## GHS label elements

Hazard pictograms :



Signal word : Danger  
Danger

Hazard statements : H225 Highly flammable liquid and vapour.  
H303 May be harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H336 May cause drowsiness or dizziness.  
H411 Toxic to aquatic life with long lasting effects.  
H225 Highly flammable liquid and vapour.  
H303 May be harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H332 Harmful if inhaled.  
H336 May cause drowsiness or dizziness.  
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
P210 Keep away from heat/ sparks/ open flames/ hot surfaces.  
No smoking.  
P233 Keep container tightly closed.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P261 Avoid breathing mist or vapours.  
P264 Wash skin thoroughly after handling.



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P271 Use only outdoors or in a well-ventilated area.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.**

**P233 Keep container tightly closed.**

**P240 Ground/bond container and receiving equipment.**

**P241 Use explosion-proof electrical/ ventilating/ lighting equipment.**

**P242 Use only non-sparking tools.**

**P243 Take precautionary measures against static discharge.**

**P261 Avoid breathing mist or vapours.**

**P264 Wash skin thoroughly after handling.**

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

**P272 Contaminated work clothing should not be allowed out of the workplace.**

**P273 Avoid release to the environment.**

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

## Response:

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

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.

P312 Call a POISON CENTER/ doctor if you feel unwell.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P362 + P364 Take off contaminated clothing and wash it before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

P391 Collect spillage.

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**P304 + P340 + P310 IF INHALED:** Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

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**P312** Call a POISON CENTER/ doctor if you feel unwell.

**P333 + P313** If skin irritation or rash occurs: Get medical advice/ attention.

**P362 + P364** Take off contaminated clothing and wash it before reuse.

**P370 + P378** In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**P391** Collect spillage.

## Storage:

**P403 + P233** Store in a well-ventilated place. Keep container tightly closed.

**P403 + P235** Store in a well-ventilated place. Keep cool.

**P405** Store locked up.

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**P403 + P235** Store in a well-ventilated place. Keep cool.

**P405** Store locked up.

## Disposal:

**P501** Dispose of contents/ container to an approved waste disposal plant.

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## Physical and chemical hazards

Highly flammable liquid and vapour.



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## Health hazards

May be harmful if swallowed. Harmful if inhaled. Causes severe skin burns and eye damage. Causes serious eye damage. May cause an allergic skin reaction. May cause drowsiness or dizziness.

## Environmental hazards

Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

## Other hazards which do not result in classification

None known.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Components

Chemical name	CAS-No.	Concentration (% w/w)
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane]	25036-25-3	>= 20 -< 25
benzyl alcohol	100-51-6	>= 20 -< 25
butanone	78-93-3	>= 12.5 -< 20
1-methoxy-2-propanol	107-98-2	>= 5 -< 12.5
Polymer	Not Assigned	>= 5 -< 10
Fatty acids C18 unsat, reaction products with triethylenetetramine	1226892-44-9	>= 5 -< 12.5
xylene	1330-20-7	>= 5 -< 10
m-phenylenebis(methylamine)	1477-55-0	>= 2.5 -< 3
ethylbenzene	100-41-4	>= 1 -< 2.5
3-aminomethyl-3,5,5-trimethylcyclohexylamine	2855-13-2	>= 1 -< 2.5
butan-1-ol	71-36-3	>= 1 -< 3
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	>= 1 -< 3
3-aminopropyldimethylamine	109-55-7	>= 0.25 -< 0.5

## 4. FIRST AID MEASURES

- General advice : In all cases of doubt, or when sickness symptoms persist, seek medical attention.  
Never give anything by mouth to an unconscious person.
- If inhaled : Remove to fresh air, keep patient warm and at rest.  
Irregular breathing/no breathing: artificial respiration.  
If unconscious place in recovery position and seek medical advice.
- In case of skin contact : Take off all contaminated clothing immediately.  
Wash skin thoroughly with soap and water or use recognised skin cleanser.  
Do NOT use solvents or thinners !
- In case of eye contact : Remove contact lenses, irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart and seek medical advice.



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- If swallowed : Do NOT induce vomiting.  
If accidentally swallowed obtain immediate medical attention.  
Never give anything by mouth to an unconscious person.  
Keep at rest.
- Most important symptoms and effects, both acute and delayed : May be harmful if swallowed.  
May cause an allergic skin reaction.  
Causes serious eye damage.  
Harmful if inhaled.  
May cause drowsiness or dizziness.  
Causes severe burns.

## 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Alcohol resistant foam, CO2, powders
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire-fighting : Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard.
- Specific extinguishing methods : Cool endangered containers with water in case of fire.  
DO NOT ALLOW RUN-OFF FROM FIRE FIGHTING TO ENTER DRAINS OR WATER COURSES!!
- Special protective equipment for firefighters : Appropriate breathing apparatus may be required.

## 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Exclude sources of ignition and ventilate the area.  
Do not inhale vapours.  
Refer to protective measures listed in sections 7 and 8.
- Environmental precautions : Do not let product enter drains.  
If the product contaminates lakes, rivers or sewage, inform appropriate authorities in accordance with local regulations.
- Methods and materials for containment and cleaning up : Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations (see chapter 13).  
Clean preferably with a detergent; avoid use of solvents.
- Prevention of secondary hazards :

## 7. HANDLING AND STORAGE

### Handling

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**Advice on protection against fire and explosion** : The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Preparation may charge electrostatically: always use earthing leads when transferring from one container to another. Operators should wear anti-static footwear and clothing. No sparking tools should be used. Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air.

**Advice on safe handling** : Avoid contact with the skin and the eyes. Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentrations higher than the occupational exposure limits. Comply with the health and safety at work laws. Smoking, eating and drinking should be prohibited in the application area.

**Avoidance of contact** : Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.

## Storage

**Conditions for safe storage** : Electrical equipment should be protected to the appropriate standard. Floors should be of the conducting type. Keep container tightly closed. Never use pressure to empty: container is not a pressure vessel. No smoking. Prevent unauthorized access. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

**Further information on storage conditions** : Always keep in containers of same material as the original one. See also instructions on the label. Avoid heating and direct sunlight. Keep container dry in a cool, well-ventilated place.

**Materials to avoid** : Keep away from oxidizing agents and strongly acid or alkaline materials.

**Recommended storage temperature** : 5 - 35 °C

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
butanone	78-93-3	PC-TWA	300 mg/m <sup>3</sup>	CN OEL
		PC-STEL	600 mg/m <sup>3</sup>	CN OEL
		PC-TWA	300 mg/m <sup>3</sup>	CN OEL
		PC-STEL	600 mg/m <sup>3</sup>	CN OEL
		PC-TWA	300 mg/m <sup>3</sup>	GBZ 2.1-

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				2007
		TWA	200 ppm	ACGIH
		STEL	300 ppm	ACGIH
1-methoxy-2-propanol	107-98-2	TWA	50 ppm	ACGIH
		STEL	100 ppm	ACGIH
xylene	1330-20-7	PC-TWA	50 mg/m3	CN OEL
		PC-STEL	100 mg/m3	CN OEL
		TWA	20 ppm	ACGIH
m-phenylenebis(methylamine)	1477-55-0	C	0.018 ppm	ACGIH
ethylbenzene	100-41-4	PC-TWA	100 mg/m3	CN OEL
Further information: G2B - Possibly carcinogenic to humans				
		PC-STEL	150 mg/m3	CN OEL
Further information: G2B - Possibly carcinogenic to humans				
		TWA	20 ppm	ACGIH
butan-1-ol	71-36-3	PC-TWA	100 mg/m3	CN OEL
		PC-TWA	100 mg/m3	CN OEL
		PC-TWA	100 mg/m3	GBZ 2.1-2007
		TWA	20 ppm	ACGIH

## Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam-pling time	Permissible concentra-tion	Basis
butanone	78-93-3	methyl ethyl ketone	Urine	End of shift (As soon as possible after exposure ceases)	2 mg/l	ACGIH BEI
xylene	1330-20-7	methylhip-puric acids	Urine	End of shift	0.3 g/g cre-atinine	CN BEI
		methylhip-puric acids	Urine	End of shift	0.4 g/l	CN BEI
		Methylhip-puric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g cre-atinine	ACGIH BEI
ethylbenzene	100-41-4	Mandelic acid and phenylgly-oxalic acid (MA and PGA)	Urine	End of shift	0.8 g/g cre-atinine	CN BEI
		Sum of mandelic acid and phenyl gly-	Urine	End of shift (As soon as possible	0.15 g/g creatinine	ACGIH BEI

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		oxylic acid		after exposure ceases)		
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**Engineering measures** : Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain aerosol- and solvent vapours concentration below the OEL, suitable respiratory protection must be worn.

## Personal protective equipment

**Respiratory protection** : If the solvent concentration is above the air limit values, a breathing apparatus approved for this purpose must be worn. Use half-mask model with cartridge or air-fed.

**Eye/face protection** : Wear safety goggles to protect against solvent splashes.

**Skin and body protection** : Depending on the probability of the occurrence of dangerously explosive atmospheres, adapted protective clothing must be worn.

## Hand protection

**Remarks** : Adhere to the professional organisation rule "Use of protective gloves". Appropriate chemicals resistant glove tested in compliance with EN 374.  
Recommendation for protection against components generally found in the products:

For short-term contact (i.e. splash protection):

Appropriate material:

nitrile rubber, Neoprene

Material thickness: > 0,4 mm

Breakthrough time: > 480 min

Before use, the protective glove should be tested in any case for its specific work-station suitability (i.e. mechanical resistance, product compatibility and antistatic properties). Adhere to the manufacturer's instructions and information relating to the use, storage, care and replacement of protective gloves. Protective gloves shall be replaced immediately when physically damaged or worn. Preventive hand protection (skin protection cream) recommended. Wash immediately contaminated skin. Design operations thus to avoid permanent use of protective gloves.

**Protective measures** : Do not eat or drink during work - no smoking.  
Avoid product contact with skin, eyes and clothing.  
Avoid the inhalation of dust from sanding, particulates and spray mist arising from the application of this preparation.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

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Appearance : liquid

Colour : according product name

Odour : characteristic

Boiling point/boiling range : ca. 120 °C

Flash point : 15 °C  
Method: ISO 13736

Upper explosion limit / Upper flammability limit : 10.0 %(V)

Lower explosion limit / Lower flammability limit : 1.0 %(V)

Vapour pressure : ca. 100 hPa (50 °C)

Density : ca. 0.9 g/cm<sup>3</sup> (20 °C)

Solubility(ies)  
Water solubility : insoluble

Auto-ignition temperature : > 400 °C

Viscosity  
Viscosity, kinematic : > 6 mm<sup>2</sup>/s

Flow time : < 61 s  
Cross section: 4 mm  
Method: DIN 53211

< 41 s  
Cross section: 6 mm  
Method: ISO 2431

Volatile organic compounds (VOC) content :  
300 g/l

## 10. STABILITY AND REACTIVITY

Reactivity : No decomposition if stored and applied as directed.

Chemical stability : Stable under normal conditions.



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- Possibility of hazardous reactions : No dangerous reaction known under conditions of normal use.
- Conditions to avoid : Stable under recommended storage and handling conditions (See section 7).
- Incompatible materials : Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid exothermic reactions.
- Hazardous decomposition products : When exposed to high temperatures may produce hazardous decomposition products such as carbon monoxide and dioxide, smoke, oxides of nitrogen.

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

May be harmful if swallowed.

Harmful if inhaled.

### Product:

- Acute oral toxicity : Acute toxicity estimate: 3,871 mg/kg  
Method: Calculation method
- Acute inhalation toxicity : Assessment: The substance/mixture is not toxic on inhalation as defined by dangerous goods regulations.
- Acute toxicity estimate: 4.69 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method
- Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg  
Method: Calculation method

### Components:

#### benzyl alcohol:

- Acute oral toxicity : LD50 (Rat): 1,610 mg/kg

#### 1-methoxy-2-propanol:

- Acute oral toxicity : LD50 Oral (Rat, male and female): 4,016 mg/kg  
Method: Regulation (EC) No. 440/2008, Annex, B.1 tris
- Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg  
Method: Regulation (EC) No. 440/2008, Annex, B.3

#### xylene:

- Acute oral toxicity : LD50 Oral (Rat): 4,300 mg/kg

#### m-phenylenebis(methylamine):

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Acute oral toxicity : LD50 Oral (Rat): 980 mg/kg

Acute inhalation toxicity : LC50 (Rat): 2.4 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour

LC50 (Rat): 1.34 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

## 3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Acute oral toxicity : LD50 (Rat): 1,030 mg/kg  
Method: OECD Test Guideline 401

## butan-1-ol:

Acute oral toxicity : LD50 (Rat): 790 mg/kg

## Skin corrosion/irritation

Causes severe burns.

## Serious eye damage/eye irritation

Causes serious eye damage.

## Respiratory or skin sensitisation

## Skin sensitisation

May cause an allergic skin reaction.

## Respiratory sensitisation

Not classified based on available information.

## 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

May cause drowsiness or dizziness.

## STOT - repeated exposure

Not classified based on available information.

## Aspiration toxicity

Not classified based on available information.

## Further information

## Product:

Remarks : Exposure of vapour concentration in excess of the stated OEL's may result in adverse health effects such as mucous

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membrane and respiratory system irritation and adverse effects on kidney, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue muscular weakness, drowsiness and in extrem cases, loss of consciousness.

Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in non-allergic contact dermatitis and absorption through the skin. The liquid splashed in the eyes may cause irritation and reversible damage.

Corrosive effect of product in contact with skin, eyes and mucous membranes.

Risk of serious damage to eyes.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Product:

#### Ecotoxicology Assessment

Acute aquatic toxicity : There are no data available on the preparation itself.

#### Components:

##### 3-aminomethyl-3,5,5-trimethylcyclohexylamine:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 110 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 14.6 - 21.5 mg/l  
aquatic invertebrates Exposure time: 48 h

Toxicity to algae/aquatic : EC50 (Desmodesmus subspicatus (green algae)): 37 mg/l  
plants Exposure time: 72 h

### Persistence and degradability

#### Product:

Biodegradability : Remarks: There are no data available on the preparation itself.

### Bioaccumulative potential

#### Product:

Bioaccumulation : Remarks: There are no data available on the preparation itself.

### Mobility in soil

#### Product:



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Mobility : Remarks: There are no data available on the preparation itself.

## Other adverse effects

### Product:

Additional ecological information : There are no data available on the preparation itself.  
The product should not be allowed to enter drains or water courses.

## 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : Dispose of in accordance with local regulations.

Contaminated packaging : Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.  
Packaging that cannot be cleaned should be disposed off in agreement with the regional waste disposal company.

## 14. TRANSPORT INFORMATION

### ADR

UN number : UN 2924

Proper shipping name : FLAMMABLE LIQUID, CORROSIVE, N.O.S.  
(butanone, Fatty acids C18 unsat, reaction products with triethylenetetramine)

Class : 3

Subsidiary risk : 8

Packing group : II

Labels : 3 (8)

Hazard Identification Number : 338

Tunnel restriction code : (D/E)

Environmentally hazardous : yes

Remarks : If transported within the user's premises: To be transported always in closed, upright and safe containers. Make sure that persons handling these containers are aware of the rules of conduct in case of incident or spillage.

### IATA-DGR

UN/ID No. : UN 2924

Proper shipping name : FLAMMABLE LIQUID, CORROSIVE, N.O.S.  
(butanone, Fatty acids C18 unsat, reaction products with triethylenetetramine)

Class : 3

Subsidiary risk : 8

Packing group : II

Labels : Flammable Liquids, Corrosive

Packing instruction (cargo aircraft) : 363

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Packing instruction (passenger aircraft) : 352

## IMDG-Code

UN number : UN 2924

Proper shipping name : FLAMMABLE LIQUID, CORROSIVE, N.O.S.  
(butanone, Fatty acids C18 unsat, reaction products with tri-ethylenetetramine)

Class : 3

Subsidiary risk : 8

Packing group : II

Labels : 3 (8)

EmS Code : F-E, S-C

Marine pollutant : yes

## Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

## National Regulations

Remarks : If transported within the user's premises: To be transported always in closed, upright and safe containers. Make sure that persons handling these containers are aware of the rules of conduct in case of incident or spillage.

## 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.

## 15. REGULATORY INFORMATION

### National regulatory information

#### Law on the Prevention and Control of Occupational Diseases

#### Regulations on Safety Management of Hazardous Chemicals

Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218)

No. / Code	Chemical name / Category	Threshold quantity
W5.3	Flammable liquids	1,000 TO

Relevant regulations : Ministry of Environmental Protection:  
Existing list of chemicals

State Administration of Work Safety:  
Catalog of Hazardous Chemicals(2015 edition)

Catalog of Dangerous goods  
(GB12268-2012)

Ministry of Environmental Protection :  
Catalog of hazardous waste list (2016)

Other regulations : Production, packaging, storage, use,

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waste of this product shall abide by the law of PRC on Production Safety, Environment protection law, Hazardous Chemicals Control Ordinance and other laws and regulations in China.

## 16. OTHER INFORMATION

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### Further information

Other information : The information given in this material safety data sheet does not release the user from its duty of risk assessment and control in the work place defined in other health and safety law. Adhere to the national sanitary and occupational safety regulations when using this product.

Date format : yyyy/mm/dd

### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)  
CN BEI : China. Biological Occupational Exposure Indices  
CN OEL : Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.  
GBZ 2.1-2007 : Occupational Exposure Limit for Hazardous Agents in the Workplace  
  
ACGIH / TWA : 8-hour, time-weighted average  
ACGIH / STEL : Short-term exposure limit  
ACGIH / C : Ceiling limit  
CN OEL / PC-TWA : Permissible concentration - time weighted average  
CN OEL / PC-STEEL : Permissible concentration - short term exposure limit  
GBZ 2.1-2007 / PC-TWA : Permissible concentration - time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; ERG - Emergency Response Guide; 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; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect

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Bank Name	Ort	Kto.-Nr.	BLZ	BIC	IBAN
Deutsche Bank	Hamburg	600227300	200 700 00	DEUTDE33HAN	DE58 2007 0000 0600 2273 00
HypoVereinsbank	Hamburg	59273300	200 300 00	HYVEDE33HAN	DE34 2003 0000 0059 2733 00
Postbank	Hamburg	373205	200 100 20	PNKDEFF200	DE85 2001 0020 0000 3732 05

Sitz/Registergericht Hamburg: HRA 42442  
Persönlich haftende Gesellschafterin:  
Grau Gebr. Beteiligungs-GmbH  
Sitz/Registergericht Hamburg: HRB 17189  
Geschäftsführender Gesellschafter:  
Michael O. Grau

Bureau Veritas  
Certification:  
ISO 9001,  
TS 16949,  
EN 9100





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Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; 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; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

## Disclaimer

Department issuing safety data sheet

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