

## Chemical Safety Data Sheet

### 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

#### 1.1 Product identifier

<b>Product name</b>	Epsilon- Caprolactone
<b>Synonyms, trade names</b>	ε -Caprolactone

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

<b>Recommended use</b>	Manufacture of substances. Formulation and (re)packing of substances and mixtures. Distribution and storage. Manufacture of fine chemicals, of polymers including resins, of oligomers and of polycaprolactone. Use as laboratory reagent. Use in paints, in inks, in adhesives, in sealants and Additive.
<b>Restrictions on use</b>	No information available

#### 1.3 Details of the Manufacturer and the Supplier

##### 1.3.1 Details of the Manufacturer


<b>Name</b>	Unilong Industry Co., Ltd
<b>Address</b>	No.10 Bldg Shuntai, No.2000 Shunhua Rd, High-Tech Zone , Jinan City, Shandong Province, China
<b>Telephone</b>	0531—5569 0079
<b>Fax</b>	/

### 2 HAZARDS IDENTIFICATION

#### 2.1 Classification of substance or mixture

Acute Toxicity-Oral 5: H303  
 Eye Irritation.2: H319

#### 2.2 Label elements

<b>Pictogram(s)</b>	
<b>Signal word</b>	Warning

#### | Hazard statements

H303 May be harmful if swallowed.  
 H319 Causes serious eye irritation.

#### | Precautionary statements

**Prevention**



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P264 Wash hands thoroughly after handling. Do not touch eyes.

P280 Wear eye protection/ face protection.

## Response

P301+P317 IF SWALLOWED: Get medical help.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P317 If eye irritation persists: Get medical advice/ attention.

## Storage

No information available.

## Disposal

No information available.

## 2.3 Other hazards

No information available.

## 3 COMPOSITION/INFORMATION ON INGREDIENTS

Product type: Substance

Name	EC-No	CAS-No	Content	Classification
Hexan-6-olide	207-938-1	502-44-3	>99%	Acute Toxicity-Oral 5: H303 Eye Irritation.2:H319

## 4 FIRST-AID MEASURES

### 4.1 Description of first aid measures

<b>General advice</b>	First aid is usually required, please present this SDS to the first aid personnel.
<b>Eye contact</b>	Rinse cautiously with tempered water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/ attention.
<b>Skin contact</b>	Wash thoroughly with soap and water
<b>Ingestion</b>	Rinse mouth and then drink plenty of water.
<b>Inhalation</b>	Remove exposed person to fresh air if adverse effects are observed.

### 4.2 Most important symptoms and effects, both acute and delayed

No information available.

### 4.3 Indication of any immediate medical attention and special treatment needed

Treat according to symptoms.

## 5 FIRE-FIGHTING MEASURES

### 5.1 Extinguishing media



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<b>Suitable</b>	All types of extinguishing media are suitable. Use fire extinguishing methods suitable to surrounding conditions
<b>Unsuitable</b>	Water with full jet.

## 5.2 Special hazards arising from the substances or mixture

Nitrogen oxides, carbon oxides

The substances/ groups of substances mentioned can be released in case of fire. Under certain conditions in case of fire other hazardous combustion products may be generated.

## 5.3 Advice for firefighters

Special protective equipment:

Wear self-contained breathing apparatus and chemical-protective clothing.

## 6 ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Avoid contact with the skin, eyes and clothing .

Wear tightly sealed goggles. Wear gloves, protective clothing and rubber boots for hygienic reasons.

### 6.2 Environmental precautions

Discharge into the environment must be avoided.

Minimise area spreading ( e. g. by damming-in ) and cover the drains.

### 6.3 Methods and materials for containment and cleaning up

Small spill: Absorb with liquid binding material and shovel up.

Large spill: Collect by pumping. Clean area with water and detergent.

## 7 HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid handling where splashing may arise. Wear tightly sealed goggles, protective gloves and clothing with long sleeves.

Wash hands thoroughly after handling.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well-ventilated area. See section 10 for incompatible materials

### 7.3 Special end use(s)

No information available

## 8 EXPOSURE CONTROLS/ PERSONAL PROTECTION

### 8.1 Control parameters

| Occupational Exposure limit values

Component	Country	Occupational exposure limits
Hexan-6-olide	Germany ( AGS)	No information available
	Austria	No information available



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## 8.2 Appropriate engineering controls

Prevent inhalation by providing effective general and, when necessary, local exhaust ventilation to draw spray, aerosol, fume, mist, or vapor away from workers.

## 8.3 Individual protection measures, such as personal protective equipment (PPE)

<b>Hand protection</b>	Wear suitable gloves. Material thickness Breakthrough times of the glove material - material: isobutene- isoprene ( butyl) rubber - material thickness: $\geq 0,5$ mm - breakthrough time of the glove material: $>480$ minutes (permeation: level 6) Check leak- tightness/ impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.
<b>Eye protection</b>	Safety glasses. If potential for splash or mist exists, wear chemical goggles or faceshield
<b>Hygiene measures</b>	Wash thoroughly after handling this product.
<b>Skin protection</b>	Butyl rubber. Polyethylene. Long sleeve shirt is recommended. Do not wear rings, watches or similar apparel that could entrap the material and cause a skin reaction. Launder contaminated clothing before reuse
<b>Respiratory</b>	Under normal use conditions, respirator is not usually required.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	Liquid
<b>Color</b>	Colorless
<b>Odour</b>	Weak characteristic
<b>Odour threshold</b>	No information available
<b>pH</b>	4.8(20°C)
<b>Melting/ freezing point</b>	-2°C
<b>Initial boiling point and boiling range</b>	241°C
<b>Flash point</b>	111°C
<b>Evaporation rate</b>	No information available
<b>Flammability( solid, gas)</b>	No information available
<b>Lower and upper explosion limit/ flammability limit</b>	Upper explosive limits: 9 % Lower explosive limits: 1 2 %
<b>Vapour pressure</b>	0.081 kPa(25°C)



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Vapour density	No information available
Density	1.07 g/cm <sup>3</sup> (20°C)
Bulk density	No information available
Solubility(ies)	No information available
Partition coefficient n- octanol/ water	Log Kow=0.32(20°C)
Auto- ignition temperature	340°C
Decomposition temperature	No information available
Viscosity	6.1 mPa
Explosive properties	No explosive properties
Oxidising properties	No oxidising properties
Water solubility	100%
Surface tension	69 mN/m (20°C)

## 10 STABILITY AND REACTIVITY

### 10.1 Reactive

The substance is stable under normal pressure and temperature.

### 10.2 Chemical stability

The product is stable if stored and handled as prescribed/indicated.

### 10.3 Possibility of hazardous reactions

No hazardous reactions known under intended use.

### 10.4 Conditions to avoid

Elevated temperatures.

### 10.5 Incompatible materials

Strong oxidizing agents.

Hygroscopic - avoid presence of moisture. Acids. Alkalis. Polymerization initiators. Metals. Drying agents.

### 10.6 Hazardous decomposition products

No dangerous decomposition products known.

## 11 TOXICOLOGICAL INFORMATION

### | Acute toxicity

Component	Oral <sup>1</sup>	Dermal <sup>2</sup>	Inhalation
Hexan-6-olide	Rat, LD <sub>50</sub> > 2000 mg/kg bw Rat, LD <sub>50</sub> = 4290 mg/kg bw	Rabbit(male), LD <sub>50</sub> = 6400 mg/kg bw	No information available

### | Carcinogenicity

Component	IARC	NTP
Hexan-6-olide	Not listed	Not listed

### | Other

Endpoint	Component	Toxicological Information
Skin corrosion/ irritation	Hexan-6-olide	Not irritating



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<b>Serious eye damage/ irritation</b>	Hexan- 6 - olide	Eye Irritation 2
<b>Skin sensitization</b>	Hexan- 6 - olide	Not sensitising
<b>Respiratory sensitization</b>	Hexan- 6 - olide	No information available
<b>Reproductive toxicity</b>	Hexan- 6 - olide	No information available
<b>STOT- single exposure</b>	Hexan- 6 - olide	No information available
<b>STOT- repeated exposure</b>	Hexan- 6 - olide	No information available
<b>Aspiration hazard</b>	Hexan- 6 - olide	No information available
<b>Germ cell mutagenicity</b>	Hexan- 6 - olide	Negative( in vitro/ vivo)

## 12 ECOLOGICAL INFORMATION

### | Ecological toxicity

Component	Fish	Aquatic invertebrates	Aquatic algae and cyanobacteria
Hexan-6-olide	Acute: Poecilia reticulata, KC <sub>50</sub> = 280mg/L (96h)  Long term: No information available	Acute: Daphnia magna, EC <sub>50</sub> = 204 mg/L (48h)  Long term: No information available	Desmodesmus subspicatus, EC <sub>50</sub> > 1217mg/L (72h)

### | Other

Endpoint	Component	Toxicological Information
<b>Persistence and degradability</b>	Hexan- 6 - olide	Readily biodegradable ( in water)
<b>Bioaccumulative potential</b>	Hexan- 6 - olide	No information available
<b>Mobility in soil</b>	Hexan- 6 - olide	No information available
<b>PBT/ vPvB</b>	Hexan- 6 - olide	The substance is not PBT / vPvB

## 13 DISPOSAL CONSIDERATIONS

### | GENERAL INFORMATION

Incinerate in suitable incineration plant, observing local authority regulations.

### | DISPOSAL METHODS

All disposal practices must be in accordance with local, regional, national and international regulations.  
Dispose of packaging or containers in accordance with local, regional, national and international regulations.

## 14 TRANSPORT INFORMATION

<b>Transport pictograph</b>	No information available
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Transport	Classification
<b>Land transport ( ADR/ RID)</b>	
<b>UN Number</b>	Not classified as dangerous good
<b>UN proper shipping name</b>	No information available
<b>Transport hazard class( es)</b>	No information available
<b>Packing group</b>	No information available



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<b>Classification code</b>	No information available
<b>Marine transport ( IMDG)</b>	
<b>UN Number</b>	Not classified as dangerous good
<b>UN proper shipping name</b>	No information available
<b>Transport hazard class( es)</b>	No information available
<b>Packing group</b>	No information available
<b>EMS No.</b>	No information available
<b>Remarks</b>	No information available
<b>Air transport ( ICAO/ IATA)</b>	
<b>UN Number</b>	Not classified as dangerous good
<b>UN proper shipping name</b>	No information available
<b>Transport hazard class( es)</b>	No information available
<b>Packing group</b>	No information available
<b>Classification code</b>	No information available

## 15 REGULATORY INFORMATION

### | International Chemical Inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS
Hexan-6-olide	Listed	Listed	Listed	Listed	Listed	Listed	Listed	Listed

### | Note

<b>EINECS</b>	European Inventory of Existing Commercial Chemical Substances.
<b>TSCA</b>	United States Toxic Substances Control Act Inventory.
<b>DSL</b>	Canadian Domestic Substances List.
<b>IECSC</b>	Inventory of Existing Chemical Substances in China
<b>NZIoC</b>	New Zealand Inventory of Chemicals.
<b>PICCS</b>	Philippines Inventory of Chemicals and Chemical Substances.
<b>KECI</b>	Korea Existing Chemicals Inventory
<b>AICS</b>	Australia Inventory of Chemical Substances.

## 16 OTHER INFORMATION

### ABBREVIATIONS AND ACRONYMS

CAS: Chemical Abstracts Service  
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road  
 RID: Regulation concerning the International Carriage of Dangerous Goods by Rail  
 IMDG: International Maritime Dangerous Goods  
 IATA: International Air Transportation Association  
 TWA: Time Weighted Average  
 STEL: Short term exposure limit  
 LC<sub>50</sub> : Lethal Concentration 50 %  
 LD<sub>50</sub> : Lethal Dose 50 %



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EC<sub>50</sub> : Effective Concentration 50%