

ALFAAL05637

## epsilon-Caprolactone

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

|   |  |
|---|--|
| <b>产品说明:</b><br><b>Product Description:</b>           | <b>epsilon-Caprolactone</b><br><b>epsilon-Caprolactone</b>   |
| <b>Cat No. :</b>                                      | <b>L05637</b>  |
| <b>Synonyms</b>                                       | 6-Hexanolactone, 2-Oxepanone.  |
| <b>CAS No</b>   | 502-44-3   |
| <b>Molecular Formula</b>                              | C6H10O2  |
| <b>Supplier</b>                                       | Avocado Research Chemicals Ltd.<br>(Part of Thermo Fisher Scientific)<br>Shore Road, Heysham<br>Lancashire, LA3 2XY,<br>United Kingdom<br>Office Tel: +44 (0) 1524 850506<br>Office Fax: +44 (0) 1524 850608   |
| <b>Emergency Telephone Number</b>                     | For information <b>US</b> call: 001-800-227-6701 / <b>Europe</b> call: +32 14 57 52 11<br>Emergency Number <b>US</b> :001-201-796-7100 / <b>Europe</b> : +32 14 57 52 99<br><b>CHEMTREC</b> Tel. No. <b>US</b> :001-800-424-9300 / <b>Europe</b> :001-703-527-3887 |
| <b>E-mail address</b>                                 | begel.sdsdesk@thermofisher.com   |
| <b>Recommended Use</b><br><b>Uses advised against</b> | Laboratory chemicals.<br>No Information available  |

### SECTION 2. HAZARD IDENTIFICATION

|  |                                |                      |
|--|--------------------------------|----------------------|
| <b>Physical State</b><br>Liquid  | <b>Appearance</b><br>Colorless | <b>Odor</b><br>sweet |
| <b>Emergency Overview</b><br>May be harmful if swallowed. Causes serious eye irritation. |                                |                      |

#### Classification of the substance or mixture

|                                   |            |
|-----------------------------------|------------|
| Acute Oral Toxicity               | Category 5 |
| Serious Eye Damage/Eye Irritation | Category 2 |

#### Label Elements



**Signal Word**

**Warning**

**Hazard Statements**

# SAFETY DATA SHEET

## epsilon-Caprolactone

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

### Precautionary Statements

#### Prevention

P264 - Wash face, hands and any exposed skin thoroughly after handling  
P270 - Do not eat, drink or smoke when using this product  
P280 - Wear eye protection/ face protection

#### Response

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P337 + P313 - If eye irritation persists: Get medical advice/attention

#### Storage

P403 - Store in a well-ventilated place

#### Disposal

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

### Physical and Chemical Hazards

None identified.

### Health Hazards

May be harmful if swallowed. Causes serious eye irritation.

### Environmental hazards

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants.

This product does not contain any known or suspected endocrine disruptors.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component    | CAS No   | Weight % |
|--------------|----------|----------|
| Caprolactone | 502-44-3 | 99       |

## SECTION 4. FIRST AID MEASURES

### General Advice

If symptoms persist, call a physician.

### Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

### Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

### Inhalation

Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

### Ingestion

Clean mouth with water and drink afterwards plenty of water.

### Most important symptoms and effects

None reasonably foreseeable.

### Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

### Notes to Physician

Treat symptomatically.

**SECTION 5. FIRE-FIGHTING MEASURES****Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Extinguishing media which must not be used for safety reasons**

No information available.

**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**SECTION 6. ACCIDENTAL RELEASE MEASURES****Personal Precautions**

Ensure adequate ventilation. Use personal protective equipment as required.

**Environmental Precautions**

Should not be released into the environment. See Section 12 for additional Ecological Information.

**Methods for Containment and Clean Up**

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

Refer to protective measures listed in Sections 8 and 13.

**SECTION 7. HANDLING AND STORAGE****Handling**

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

**Storage**

Keep container tightly closed in a dry and well-ventilated place.

**Specific Use(s)**

Use in laboratories

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control Parameters****Exposure Controls****Engineering Measures**

Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

**Personal protective equipment****Eye Protection**

Goggles (European standard - EN 166)

**SAFETY DATA SHEET****epsilon-Caprolactone****Hand Protection**

Protective gloves

| Glove material    | Breakthrough time                 | Glove thickness | EU standard | Glove comments        |
|-------------------|-----------------------------------|-----------------|-------------|-----------------------|
| Disposable gloves | See manufacturers recommendations | -               | EN 374      | (minimum requirement) |

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Skin and body protection**

Long sleeved clothing

**Respiratory Protection**

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Large scale/emergency use**

In case of insufficient ventilation, wear suitable respiratory equipment

**Small scale/Laboratory use**Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.  
When RPE is used a face piece Fit Test should be conducted**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**Environmental exposure controls**

No information available.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

|  |   |  |
|--|---|--|
| <b>Appearance</b>                              | Colorless                                   |  |
| <b>Physical State</b>                          | Liquid                                      |  |
| <b>Odor</b>                                    | sweet                                       |  |
| <b>Odor Threshold</b>                          | No data available                           |  |
| <b>pH</b>                                      |   |  |
| <b>Melting Point/Range</b>                     | -1 °C / 30.2 °F                             |  |
| <b>Softening Point</b>                         | No data available                           |  |
| <b>Boiling Point/Range</b>                     | 96.5 - 97.5 °C / 205.7 - 207.5 °F @ 15 mmHg |  |
| <b>Flash Point</b>                             | 109 °C / 228.2 °F                           | <b>Method -</b> No information available |
| <b>Evaporation Rate</b>                        | No information available                    |  |
| <b>Flammability (solid,gas)</b>                | Not applicable                              | Liquid                                   |
| <b>Explosion Limits</b>                        | No data available                           |  |
| <b>Vapor Pressure</b>                          | 0.01 mmHg @ 20 °C                           |  |
| <b>Vapor Density</b>                           | 3.9 (Air = 1.0)                             | (Air = 1.0)                              |
| <b>Specific Gravity / Density</b>              | 1.030                                       |  |
| <b>Bulk Density</b>                            | Not applicable                              | Liquid                                   |
| <b>Water Solubility</b>                        | No information available                    |  |
| <b>Solubility in other solvents</b>            | No information available                    |  |
| <b>Partition Coefficient (n-octanol/water)</b> |   |  |
| <b>Component</b>                               | <b>log Pow</b>                              |  |
| Caprolactone                                   | 0.32  |  |
| <b>Autoignition Temperature</b>                | 200 - °C / 392 - °F                         |  |
| <b>Decomposition Temperature</b>               | No data available                           |  |
| <b>Viscosity</b>                               | No data available                           |  |
| <b>Explosive Properties</b>                    | No information available                    |  |
| <b>Oxidizing Properties</b>                    | No information available                    |  |

# SAFETY DATA SHEET

## epsilon-Caprolactone

Molecular Formula C6H10O2  
Molecular Weight 114.14

### SECTION 10. STABILITY AND REACTIVITY

**Stability** Stable under normal conditions.

**Hazardous Reactions** None under normal processing.  
**Hazardous Polymerization** No information available.

**Conditions to Avoid** None known.

**Materials to avoid** No information available.

**Hazardous Decomposition Products** None under normal use conditions.

### SECTION 11. TOXICOLOGICAL INFORMATION

#### Product Information

**(a) acute toxicity;**

| Component    | LD50 Oral                 | LD50 Dermal                  | LC50 Inhalation |
|--------------|---------------------------|------------------------------|-----------------|
| Caprolactone | LD50 = 4290 mg/kg ( Rat ) | LD50 = 5.99 mL/kg ( Rabbit ) |                 |

**(b) skin corrosion/irritation;** Based on available data, the classification criteria are not met

**(c) serious eye damage/irritation;** Category 2

**(d) respiratory or skin sensitization;**

**Respiratory** Based on available data, the classification criteria are not met  
**Skin** Based on available data, the classification criteria are not met

**(e) germ cell mutagenicity;** Based on available data, the classification criteria are not met

**(f) carcinogenicity;** Based on available data, the classification criteria are not met  
There are no known carcinogenic chemicals in this product

**(g) reproductive toxicity;** Based on available data, the classification criteria are not met

**(h) STOT-single exposure;** Based on available data, the classification criteria are not met

**(i) STOT-repeated exposure;** Based on available data, the classification criteria are not met

**Target Organs** None known.

**(j) aspiration hazard;** Based on available data, the classification criteria are not met

**Symptoms / effects, both acute and delayed** No information available

### SECTION 12. ECOLOGICAL INFORMATION

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## epsilon-Caprolactone

### Ecotoxicity effects

| Component    | Freshwater Fish                                    | Water Flea | Freshwater Algae | Microtox              |
|--------------|--|------------|------------------|-----------------------|
| Caprolactone | LC50: = 280 mg/L, 96h static (Poecilia reticulata) |            |                  | EC50 = 1260 mg/L 16 h |

**Persistence and Degradability** No information available

**Bioaccumulative Potential** No information available

| Component    | log Pow | Bioconcentration factor (BCF) |
|--------------|---------|-------------------------------|
| Caprolactone | 0.32    | 3.9 dimensionless             |

**Mobility in soil** No information available

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors  
**Persistent Organic Pollutant** This product does not contain any known or suspected substance  
**Ozone Depletion Potential** This product does not contain any known or suspected substance

### SECTION 13. DISPOSAL CONSIDERATIONS

**Waste from Residues/Unused Products** Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point.

**Other Information** Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

### SECTION 14. TRANSPORT INFORMATION

**Road and Rail Transport** Not Regulated

**IMDG/IMO** Not regulated

**IATA** Not regulated

**Special Precautions for User** No special precautions required

### SECTION 15. REGULATORY INFORMATION

#### International Inventories

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

| Component | The Inventory of Hazardous Chemicals | List of dangerous goods GB 12268 - | TCSI | IECSC | EINECS | TSCA | DSL | PICCS | ENCS | ISHL | AICS | KECL |
|-----------|--------------------------------------|------------------------------------|------|-------|--------|------|-----|-------|------|------|------|------|
|           |                                      |                                    |      |       |        |      |     |       |      |      |      |      |

**SAFETY DATA SHEET****epsilon-Caprolactone**

|              | (2015 Edition) | 2012 |   |   |           |   |   |   |   |   |   |          |
|--------------|----------------|------|---|---|-----------|---|---|---|---|---|---|----------|
| Caprolactone | -              | -    | X | X | 207-938-1 | X | X | X | X | X | X | KE-27460 |

**National Regulations****SECTION 16. OTHER INFORMATION**

**Prepared By** Health, Safety and Environmental Department  
**Revision Date** 23-Apr-2024  
**Revision Summary** New emergency telephone response service provider.

**Training Advice**

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

**Legend**

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**PNEC** - Predicted No Effect Concentration

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - (Volatile Organic Compound)

**Key literature references and sources for data**

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Disclaimer**

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**End of Safety Data Sheet**