

Revision Date 16-Nov-2010

Revision Number 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Description: e-Caprolactam
Cat No. 108230000; 108230010; 108230025; 108230050; 108231000
Synonyms 2-Oxohexamethylenimine

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

Recommended Use Laboratory chemicals
Uses advised against No Information available

Details of the supplier of the safety data sheet

Company

Acros Organics BVBA
 Janssen Pharmaceuticaaan 3a
 2440 Geel, Belgium

E-mail address begel.sdsdesk@thermofisher.com

Emergency Telephone Number

For information in the US, call: 800-ACROS-01
 For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99
 Emergency Number, US: 201-796-7100

CHEMTREC Phone Number, US: 800-424-9300
 CHEMTREC Phone Number, Europe: 703-527-3887

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Dusts and Mists	Category 4
Skin Corrosion / irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2A
Specific target organ systemic toxicity (single exposure)	Category 3

Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R phrases mentioned in this Section, see Section 16

Symbol(s) Xn - Harmful
R -phrase(s) none
Risk Combination Phrases R20/22 - Harmful by inhalation and if swallowed
 R36/37/38 - Irritating to eyes, respiratory system and skin

2. HAZARDS IDENTIFICATION

Label Elements



Signal Word

Warning

Hazard Statements

H319 - Causes serious eye irritation
 H315 - Causes skin irritation
 H335 - May cause respiratory irritation
 H302 - Harmful if swallowed
 H332 - Harmful if inhaled

Precautionary Statements - EU (§28, 1272/2008)

P280 - Wear protective gloves/protective clothing/eye protection/face protection
 P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
 P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
 P280 - Wear protective gloves/protective clothing/eye protection/face protection
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Other Hazards

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC No.	Weight %	CAS-No	Classification	GHSCAS	REACH Reg. No.
Caprolactam 105-60-2	EEC No. 203-313-2	99	105-60-2	Xn;R20/22 Xi;R36/37/38	Acute Tox. 4 (H302) Acute Tox. 4 (H332) Eye Irrit. 2 (H319) STOT SE 3 (H335) Skin Irrit. 2 (H315)	-

For the full text of the R phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

Description of first aid measures

Eye Contact

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

Skin Contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes Obtain medical attention
Ingestion	Clean mouth with water Get medical attention
Inhalation	Remove from exposure, lie down Move to fresh air If breathing is difficult, give oxygen If not breathing, give artificial respiration Obtain medical attention
Notes to Physician	Treat symptomatically

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media

Water spray Carbon dioxide (CO₂) Dry chemical Use water spray to cool unopened containers chemical foam

Extinguishing media which must not be used for safety reasons

No information available.

Special hazards arising from the substance or mixture

Dust can form an explosive mixture in air

Advice for fire-fighters

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation

Environmental precautions

Prevent further leakage or spillage if safe to do so

Methods and material for containment and cleaning up

Sweep up or vacuum up spillage and collect in suitable container for disposal Do not let this chemical enter the environment

7. HANDLING AND STORAGE

Precautions for Safe Handling

Avoid contact with skin and eyes Do not breathe dust Do not breathe vapors or spray mist Take precautionary measures against static discharges Do not ingest Use only in area provided with appropriate exhaust ventilation

Conditions for safe storage, including any incompatibilities

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

Specific End Uses

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure limits

Component

European Union	The United Kingdom	France	Belgium	Spain
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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Caprolactam			VME: 10 mg/m ³ VLCT: 40 mg/m ³	STEL: 40 mg/m ³ STEL: 8.7 ppm STEL: 3 mg/m ³ TWA: 1 mg/m ³ TWA: 10 mg/m ³ TWA: 2.2 ppm	VLA-EC: 40 mg/m ³ VLA-ED: 10 mg/m ³
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	Italy	Portugal	The Netherlands	Finland	Denmark
Component Caprolactam	TWA: 10 mg/m ³ STEL: 40 mg/m ³	TWA: 5 mg/m ³	STEL: 1 mg/m ³ STEL: 20 mg/m ³	TWA: 10 mg/m ³ STEL: 40 mg/m ³	TWA: 1 mg/m ³ TWA: 10 mg/m ³ TWA: 2 ppm

	Austria	Switzerland	Poland	Norway	Ireland
Component Caprolactam	STEL: 40 mg/m ³ MAK: 5 mg/m ³	MAK: 5 mg/m ³	NDSch: 15 mg/m ³ NDS: 5 mg/m ³	TWA: 1 mg/m ³ TWA: 25 mg/m ³ TWA: 5 ppm	TWA: 1 ppm TWA: 1 mg/m ³ TWA: 10 mg/m ³ STEL: 10 ppm STEL: 3 mg/m ³ STEL: 40 mg/m ³

Derived No Effect Level (DNEL) No information available.

Predicted No Effect Concentration (PNEC) No information available.

Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas Ensure that eyewash stations and safety showers are close to the workstation location

Personal protective equipment

Eye Protection

Goggles

Hand Protection

Protective gloves

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

Environmental exposure controls

No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	White
odor	pungent
pH	7-8.5 333 g/l aq.solution
Vapor Pressure	0.0014 hPa @ 20 °C
Vapor Density	3.01 (Air = 1.0)
Viscosity	8.52 mPa s at 80 °C
Boiling Point/Range	268°C / 514.4°F @ 760 mmHg
Melting Point/Range	68 - 71°C / 154.4 - 159.8°F
Flash Point	152°C / 305.6°F
Explosion Limits	
Lower	1.6
Upper	11.9
Water Solubility	4560 g/L (20°C)
Specific Gravity	1.02 @ 75°C

9. PHYSICAL AND CHEMICAL PROPERTIES

Molecular Formula C₆H₁₁N O
Molecular Weight 113.16

10. STABILITY AND REACTIVITY

Reactivity

Chemical Stability

Stable under normal conditions. Hygroscopic.

Possibility of Hazardous Reactions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions . No information available.

Conditions to Avoid

Burning produces obnoxious and toxic fumes, Avoid dust formation, Temperatures above .?1°C, Incompatible products, Exposure to moist air or water.

Incompatible Materials

Strong oxidizing agents, Strong bases.

Hazardous Decomposition Products

Nitrogen oxides (NO_x). Carbon monoxide (CO). Carbon dioxide (CO₂). Hydrogen cyanide (hydrocyanic acid). Ammonia.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component

Caprolactam

	LD50 Oral	LD50 Dermal	LC50 Inhalation
Caprolactam	1155 mg/kg (Rat)	1410 µL/kg (Rabbit) 2000 mg/kg (Rat)	8.16 mg/L (Rat) 4 h

Chronic Toxicity

Carcinogenicity

There are no known carcinogenic chemicals in this product

Sensitization

No information available.

Mutagenic Effects

No information available

Reproductive Effects

No information available.

Developmental Effects

No information available.

Target Organs

No information available.

Other Adverse Effects

See actual entry in RTECS for complete information

Endocrine Disruptor Information

None known

12. ECOLOGICAL INFORMATION

Toxicity**Ecotoxicity effects**

Do not empty into drains

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Caprolactam	4320 - 4800 mg/L EC50 72 h 160 mg/L EC50 = 96 h 130 mg/L EC50 = 72 h	930 mg/L LC50 96 h 1400 mg/L LC50 96 h	EC50 = 4200 mg/L 17 h	500 mg/L EC50 > 48 h 828 - 2920 mg/L EC50 48 h

Persistence and degradability

Expected to be biodegradable

Bioaccumulative potential

No information available.

Component	log Pow
Caprolactam	0

Mobility in soil**Results of PBT and vPvB assessment****Other adverse effects**

No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods**Waste from Residues / Unused Products**

Dispose of in accordance with local regulations

Contaminated Packaging

Empty containers should be taken for local recycling, recovery or waste disposal

14. TRANSPORT INFORMATION

IMDG/IMO

Not regulated

ADR

Not regulated

IATA

Not regulated

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture**International Inventories**

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
Caprolactam	203-313-2	-		X	X	-	X	X	X	X	KE-18554 X

Legend

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

EINECS/ELINCS - European Inventory Lists

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

PICCS - Philippines Inventory of Chemicals and Chemical Substances

ENCS - Japan Existing and New Chemical Substances

CHINA - China Inventory of Existing Chemical Substances

AICS - Inventory of Chemical Substances

KECL - Existing and Evaluated Chemical Substances

Chemical Safety Assessment**16. OTHER INFORMATION****Text of R phrases mentioned in Section 2-3**

R20/22 - Harmful by inhalation and if swallowed

R36/37/38 - Irritating to eyes, respiratory system and skin

Revision Date 16-Nov-2010

Revision Summary Not applicable

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text

End of Safety Data Sheet