

Safety data sheet

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BASF Safety data sheet according to 91/155/EEC

Date / Revised: 10.04.2007

Product: **Caprolactam tablets**

Version: 4.0

(30056382/SDS_GEN_EU/EN)

Date of print 30.07.2009

1. Substance/preparation and company identification

Caprolactam tablets

Use: Intermediate

Company:

BASF SE

67056 Ludwigshafen

GERMANY

Telephone: +49 621 60-0

E-mail address: global.info@basf.com

Emergency information:

International emergency number:

Telephone: +49 180 2273-112

2. Composition/information on ingredients

Chemical nature

caprolactam

CAS Number: 105-60-2

EC-Number: 203-313-2

INDEX-Number: 613-069-00-2

3. Hazard identification

Harmful by inhalation and if swallowed.

Irritating to eyes, respiratory system and skin.

4. First-aid measures

General advice:

Immediately remove contaminated clothing. Avoid contact with the skin, eyes and clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention.

On skin contact:

Wash thoroughly with soap and water. Burns caused by molten material require hospital treatment.

On contact with eyes:

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

On ingestion:

Rinse mouth immediately and then drink plenty of water, seek medical attention.

5. Fire-fighting measures

Suitable extinguishing media:

foam, carbon dioxide, water spray, water

Specific hazards:

hydrogen cyanide, nitrogen oxides

The substances/groups of substances mentioned can be released in case of fire.

Further information:

Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

6. Accidental release measures

Personal precautions:

Ensure adequate ventilation. Use breathing apparatus if exposed to vapours/dust/aerosol.

Environmental precautions:

Do not empty into drains. Retain and dispose of contaminated wash water.

Methods for cleaning up or taking up:

For large amounts: Sweep/shovel up.

For residues: Rinse away with water.

7. Handling and storage

Handling

Ensure thorough ventilation of stores and work areas.

Protection against fire and explosion:

Dust can form an explosive mixture with air. Take precautionary measures against static discharges.

Storage

Segregate from acids and bases. Segregate from oxidants.

Further information on storage conditions: Store in unopened original containers in a cool and dry place.

8. Exposure controls and personal protection

Components with workplace control parameters

| 105-60-2: caprolactam

Personal protective equipment

Respiratory protection:

Breathing protection if breathable aerosols/dust are formed. Respiratory protection in case of vapour/aerosol release. Gas filter for gases/vapours of organic compounds (boiling point >65 °C, e. g. EN 14387 Type A)

Hand protection:

Chemical resistant protective gloves (EN 374)

Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN 374):

butyl rubber (butyl) - 0.7 mm coating thickness

nitrile rubber (NBR) - 0.4 mm coating thickness

Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection:

Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Body protection:

Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit (according to DIN-EN 465).

General safety and hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Take off immediately all contaminated clothing. At the end of the shift the skin should be cleaned and skin-care agents applied.

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9. Physical and chemical properties

Form:	crystalline, tablets	
Colour:	white	
Odour:	faint specific odour	
pH value:	7 - 8.5 (333 g/l, 20 °C)	
solidification temperature:	69.2 °C	
boiling temperature:	270.8 °C (1,013 mbar)	
Flash point:	152 °C	(DIN 51758)
Lower explosion limit:	1.6 %(V) (136 °C)	(air)
Upper explosion limit:	11.9 %(V) (188 °C)	(air)
Ignition temperature:	395 °C	(DIN 51794)
Vapour pressure:	0.0014 hPa (20 °C) 0.089 hPa (60 °C)	
Density:	1.014 g/cm ³ (80 °C)	
Bulk density:	500 - 550 kg/m ³	
Solubility in water:	4,560 g/l (20 °C)	
Partitioning coefficient n-octanol/water (log Pow):	0.12 (25 °C)	(OECD Guideline 107)
Viscosity, dynamic:	8.52 mPa.s (80 °C)	

10. Stability and reactivity

Thermal decomposition: No decomposition if correctly stored and handled.

Hazardous reactions:

Reacts with oxidizing agents. Polymerization coupled with heat formation.

11. Toxicological information

Acute toxicity

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Assessment of acute toxicity:
Harmful by inhalation and if swallowed.

LD50 rat (oral): 1,660 mg/kg (BASF-Test)

LC50 rat (by inhalation): 8.16 mg/l 4 h (BASF-Test)

LD50 rat (dermal): > 2,000 mg/kg (Directive 92/69/EEC, B.3)

Irritation

Assessment of irritating effects:
Irritating to eyes, respiratory system and skin.

Sensitization

Assessment of sensitization:
Skin sensitizing effects were not observed in animal studies.

Guinea pig maximization test guinea pig: Non-sensitizing. (other)

Genetic toxicity

Assessment of mutagenicity:
Most of the results from the numerous studies available show no evidence of a mutagenic effect.

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect.

Other relevant toxicity information

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses.

Experiences in humans

local skin irritation, irritations of the mucous membrane:
The symptoms/diagnosis/findings mentioned can occur in higher concentrations.

12. Ecological information

Ecotoxicity

Assessment of aquatic toxicity:
There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish:

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LC50 (96 h) 500 - 1,000 mg/l, *Salmo gairdneri*, syn. *O. mykiss* (OECD 203; ISO 7346; 84/449/EEC, C.1, static)

Aquatic invertebrates:

EC50 (48 h) > 500 mg/l, *Daphnia magna* (DIN 38412 Part 11, static)

Aquatic plants:

EC50 (72 h) 130 mg/l, *Scenedesmus subspicatus* (DIN 38412 Part 9, static)

Microorganisms/Effect on activated sludge:

EC50 (17 h) 4,200 mg/l, *Pseudomonas putida* (other, aquatic)

Persistence and degradability

Elimination information:

82 % BOD of the ThOD (14.000000 d) (OECD 301C; ISO 9408; 92/69/EEC, C.4-F) (aerobic, activated sludge) Readily biodegradable (according to OECD criteria).

sum parameter

Chemical oxygen demand (COD): 1,960 mg/g

Biochemical oxygen demand (BOD): 1,110 mg/g

Bioaccumulation potential

Bioaccumulation potential:

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Additional information

Other ecotoxicological advice:

Do not release untreated into natural waters.

13. Disposal considerations

Contact manufacturer.

Incinerate in suitable incineration plant, observing local authority regulations.

Contaminated packaging:

Uncleaned empties should be disposed of in the same manner as the contents.

14. Transport information

Land transport

ADR

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Not classified as a dangerous good under transport regulations

RID

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Inland waterway transport*ADNR*

Not classified as a dangerous good under transport regulations

Sea transport*IMDG*

Not classified as a dangerous good under transport regulations

Air transport*IATA/ICAO*Not classified as a dangerous good under transport regulations

15. Regulatory information**Regulations of the European union (Labelling) / National legislation/Regulations**

EC-Number: 203-313-2

as in Annex I of Directive 67/548/EEC:

Hazard symbol(s)

Xn

Harmful.

R-phrases(s)

R20/22

Harmful by inhalation and if swallowed.

R36/37/38

Irritating to eyes, respiratory system and skin.

Other regulations

16. Other information

Recommended use: initial product for chemical syntheses, for the production of homopolymerisates and copolymerisates

Vertical lines in the left hand margin indicate an amendment from the previous version.

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The data contained in this safety data sheet are based on our current knowledge and experience and describe the product only with regard to safety requirements. The data do not describe the product's properties (product specification). Neither should any agreed property nor the suitability of the product for any specific purpose be deduced from the data contained in the safety data sheet. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.