

# Safety Data Sheet

## Caprolactam extract

Revision date : 2022/03/28  
Version: 5.0

Page: 1/12  
(30043509/SDS\_GEN\_US/EN)

### 1. Identification

#### Product identifier used on the label

### Caprolactam extract

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

Recommended use\*: Chemical

Recommended use\*: for the production of homopolymerisates and copolymerisates; initial product for chemical syntheses

Unsuitable for use: Not intended for sale to or use by the general public.

\* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

#### Details of the supplier of the safety data sheet

##### Company:

BASF CORPORATION  
100 Park Avenue  
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

#### Emergency telephone number

##### 24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300  
BASF HOTLINE: 1-800-832-HELP (4357)

#### Other means of identification

Chemical family: organic compounds

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### 2. Hazards Identification

#### According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

#### Classification of the product

Acute Tox.	4 (Inhalation - dust)	Acute toxicity
Acute Tox.	4 (oral)	Acute toxicity
Skin Corr./Irrit.	2	Skin corrosion/irritation
Eye Dam./Irrit.	2A	Serious eye damage/eye irritation

# Safety Data Sheet

## Caprolactam extract

Revision date : 2022/03/28

Version: 5.0

Page: 2/12

(30043509/SDS\_GEN\_US/EN)

STOT SE

3 (irritating to  
respiratory system)

Specific target organ toxicity — single exposure

### Label elements

Pictogram:



Signal Word:

Warning

Hazard Statement:

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

Precautionary Statements (Prevention):

P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves and eye protection or face protection.
P261	Avoid breathing dust.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P270	Do not eat, drink or smoke when using this product.
P264	Wash contaminated body parts thoroughly after handling.

Precautionary Statements (Response):

P312	Call a POISON CENTER or physician 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.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P352	IF ON SKIN (or hair): Wash with plenty of soap and water.
P330	Rinse mouth
P332 + P313	If skin irritation occurs: Get medical attention.
P337 + P311	If eye irritation persists: Call a POISON CENTER or physician.
P362 + P364	Take off contaminated clothing and wash it before reuse.

Precautionary Statements (Storage):

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents/container in accordance with local regulations.
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### Hazards not otherwise classified

No specific dangers known, if the regulations/notes for storage and handling are considered.

## 3. Composition / Information on Ingredients

**According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200**

caprolactam

CAS Number: 105-60-2

# Safety Data Sheet

## Caprolactam extract

Revision date : 2022/03/28

Version: 5.0

Page: 3/12

(30043509/SDS\_GEN\_US/EN)

Content (W/W):  $\geq 50.0$  -  $\leq 100.0\%$

Synonym: Hexahydro-2H-azepin-2-one;  $\epsilon$ -Caprolactam

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### 4. First-Aid Measures

#### Description of 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. Assist in breathing if necessary.

##### If on skin:

Wash thoroughly with soap and water

##### If in eyes:

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

##### If swallowed:

Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

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

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

*Information on: caprolactam*

*Symptoms: Overexposure may cause: , headache, tachycardia, hypertension, hypotension (low blood pressure), fever, anorexia, epigastric distress, nausea, convulsions*

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

##### Note to physician

Treatment:

Treat according to symptoms (decontamination, vital functions), no known specific antidote.

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### 5. Fire-Fighting Measures

#### Extinguishing media

Suitable extinguishing media:

foam, carbon dioxide, water spray

Unsuitable extinguishing media for safety reasons:

No data available.

#### Special hazards arising from the substance or mixture

Hazards during fire-fighting:

hydrogen cyanide, nitrogen oxides

# Safety Data Sheet

## Caprolactam extract

Revision date : 2022/03/28  
Version: 5.0

Page: 4/12  
(30043509/SDS\_GEN\_US/EN)

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

### Advice for fire-fighters

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

### Further information:

Product itself is non-combustible; fire extinguishing method of surrounding areas must be considered. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.

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## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Avoid contact with skin and eyes. Use breathing apparatus if exposed to vapours/dust/aerosol. Information regarding personal protective measures, see section 8.

### Environmental precautions

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

### Methods and material for containment and cleaning up

For large amounts: Pump off product.

For residues: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr). Rinse away with water.

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## 7. Handling and Storage

### Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Avoid contact with skin and eyes. Wear suitable protective clothing and eye/face protection. Handle in accordance with good industrial hygiene and safety practice.

Protection against fire and explosion:

No special precautions necessary.

### Conditions for safe storage, including any incompatibilities

Segregate from acids and bases. Segregate from oxidants.

Suitable materials for containers: Stainless steel 1.4301 (V2), Stainless steel 1.4401, Carbon steel (Iron)

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## 8. Exposure Controls/Personal Protection

### Components with occupational exposure limits

caprolactam	ACGIH, US:	TWA value 5 mg/m <sup>3</sup> Inhalable fraction and vapor ;
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### Advice on system design:

Ensure adequate ventilation. Provide local exhaust ventilation to maintain recommended P.E.L.

# Safety Data Sheet

## Caprolactam extract

Revision date : 2022/03/28

Version: 5.0

Page: 5/12

(30043509/SDS\_GEN\_US/EN)

### Personal protective equipment

#### **Respiratory protection:**

Observe OSHA regulations for respirator use (29 CFR 1910.134). Wear a NIOSH-certified (or equivalent) respirator as necessary.

#### **Hand protection:**

Wear chemical resistant protective gloves., Consult with glove manufacturer for testing data.

#### **Eye protection:**

Wear face shield or tightly fitting safety goggles (chemical goggles) if splashing hazard exists.

#### **Body protection:**

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

#### **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.

## 9. Physical and Chemical Properties

Form:	solution
Odour:	pungent odour
Odour threshold:	No data available.
Colour:	slightly yellow
pH value:	8
solidification	14.5 °C
temperature:	(80 %(m))
	41.4 °C
	(90 %(m))
Melting point:	No data available.
Freezing point:	No data available.
Boiling range:	No data available.
<i>Information on: Water</i>	
Boiling point:	100 °C
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Sublimation point:	No applicable information available.
Flash point:	not applicable
Flammability:	not highly flammable
Lower explosion limit:	not applicable
Upper explosion limit:	not applicable
Autoignition:	not applicable
<i>Information on: Caprolactam</i>	
Vapour pressure:	0.0013 hPa
	( 20 °C)
	0.089 hPa
	( 60 °C)
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Density:	1 g/cm <sup>3</sup>
	( 20 °C)
Relative density:	No data available.
Vapour density:	No data available.
	No data available.
<i>Information on: caprolactam</i>	
Partitioning coefficient n-octanol/water (log Pow):	0.12
	( 25 °C)

(OECD Guideline  
107)

# Safety Data Sheet

## Caprolactam extract

Revision date : 2022/03/28  
Version: 5.0

Page: 6/12  
(30043509/SDS\_GEN\_US/EN)

Self-ignition temperature:	Based on its structural properties the product is not classified as self-igniting.
Thermal decomposition:	No decomposition if correctly stored and handled.
Viscosity, dynamic:	No data available.
Viscosity, kinematic:	No data available.
Solubility in water:	miscible
Molar mass:	113.16 g/mol
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.

## 10. Stability and Reactivity

### Reactivity

Corrosion to metals:  
No corrosive effect on metal.

Oxidizing properties:  
Based on its structural properties the product is not classified as oxidizing.

### Chemical stability

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

### Possibility of hazardous reactions

Reacts with oxidizing agents. Polymerization coupled with heat formation.

### Conditions to avoid

Temperature: > 100 degrees Celsius  
Avoid all sources of ignition: heat, sparks, open flame. Avoid formation of polymers in valves and pipes.

### Incompatible materials

oxidizing agents

### Hazardous decomposition products

Thermal decomposition:  
No decomposition if correctly stored and handled.

## 11. Toxicological information

### Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

### Acute Toxicity/Effects

#### Acute toxicity

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

#### Oral

# Safety Data Sheet

## Caprolactam extract

Revision date : 2022/03/28

Version: 5.0

Page: 7/12

(30043509/SDS\_GEN\_US/EN)

Type of value: ATE  
Value: 1,560 mg/kg

*Information on: caprolactam*

*Type of value: LD50*

*Species: rat (female)*

*Value: 1,475 mg/kg (Directive 84/449/EEC, B.1)*

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### Inhalation

Type of value: ATE  
Value: > 20.0000 mg/l  
Determined for vapor

Type of value: ATE  
Value: > 5.0000 mg/l  
Determined for mist

*Information on: caprolactam*

*Type of value: LC50*

*Species: rat (male/female)*

*Value: approx. 8.16 mg/l (BASF-Test)*

*Exposure time: 4 h*

*An aerosol with respirable particles was tested.*

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### Dermal

Type of value: ATE  
Value: > 5,000 mg/kg

*Information on: caprolactam*

*Type of value: LD50*

*Species: rat (male/female)*

*Value: > 2,000 mg/kg (Directive 92/69/EEC, B.3)*

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### Assessment other acute effects

Assessment of STOT single:  
Causes temporary irritation of the respiratory tract.

### Irritation / corrosion

Assessment of irritating effects: Causes serious eye irritation. Causes skin irritation.

*Information on: caprolactam*

*Assessment of irritating effects: May cause slight irritation to the skin. May cause slight irritation to the eyes.*

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### Sensitization

Assessment of sensitization: Based on available data, the classification criteria are not met.

*Information on: caprolactam*

*modified Buehler test*

*Species: guinea pig*

*Result: Non-sensitizing.*

*Method: OECD Guideline 406*

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# Safety Data Sheet

## Caprolactam extract

Revision date : 2022/03/28  
Version: 5.0

Page: 8/12  
(30043509/SDS\_GEN\_US/EN)

### Aspiration Hazard

No aspiration hazard expected.

## **Chronic Toxicity/Effects**

### Repeated dose toxicity

Assessment of repeated dose toxicity: Based on available data, the classification criteria are not met.

#### *Information on: caprolactam*

*Assessment of repeated dose toxicity: After repeated exposure the prominent effect is local irritation. The substance may cause damage to the upper respiratory tract after repeated inhalation, as shown in animal studies.*

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### Genetic toxicity

Assessment of mutagenicity: Based on available data, the classification criteria are not met.

### Carcinogenicity

Assessment of carcinogenicity: Based on available data, the classification criteria are not met.

### Reproductive toxicity

Assessment of reproduction toxicity: Based on available data, the classification criteria are not met.

### Teratogenicity

Assessment of teratogenicity: Based on available data, the classification criteria are not met.

### Other Information

The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

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## **12. Ecological Information**

### **Toxicity**

#### Aquatic toxicity

Assessment of aquatic toxicity:

Based on available data, the classification criteria are not met.

#### Aquatic toxicity

##### *Information on: caprolactam*

*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.*

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#### Toxicity to fish

##### *Information on: caprolactam*

*LC0 (96 h) 100 mg/l, Oryzias latipes (OECD Guideline 203, semistatic)*

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



# Safety Data Sheet

## Caprolactam extract

Revision date : 2022/03/28

Version: 5.0

Page: 9/12

(30043509/SDS\_GEN\_US/EN)

LC50 (96 h) 707.1 mg/l, *Salmo gairdneri*, syn. *O. mykiss* (OECD 203; ISO 7346; 84/449/EEC, C.1, static)  
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### Aquatic invertebrates

Information on: caprolactam

EC50 (48 h) > 1,000 mg/l, *Daphnia magna* (OECD Guideline 202, part 1, static)

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

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

Information on: caprolactam

No observed effect concentration (72 h) 1,000 mg/l (growth rate), *Pseudokirchneriella subcapitata* (OECD Guideline 201, static)

EC50 (72 h) > 1,000 mg/l (growth rate), *Selenastrum capricornutum* (OECD Guideline 201, static)

EC50 (72 h) 427.5 mg/l (growth rate), *Scenedesmus subspicatus* (DIN 38412 Part 9, static)

EC50 (72 h) > 1,000 mg/l (biomass), *Selenastrum capricornutum* (OECD Guideline 201, static)  
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### Chronic toxicity to fish

Information on: caprolactam

Study scientifically not justified.  
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### Chronic toxicity to aquatic invertebrates

Information on: caprolactam

No observed effect concentration (21 d) 100 mg/l, *Daphnia magna* (OECD Guideline 211, semistatic)  
-----

### Assessment of terrestrial toxicity

Information on: caprolactam

No data available.

Study scientifically not justified.  
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## Microorganisms/Effect on activated sludge

### Toxicity to microorganisms

Information on: caprolactam

other aquatic

bacterium/EC50 (17 h): 4,240 mg/l  
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## Persistence and degradability

### Assessment biodegradation and elimination (H2O)

Information on: caprolactam

Readily biodegradable (according to OECD criteria).

# Safety Data Sheet

## Caprolactam extract

Revision date : 2022/03/28  
Version: 5.0

Page: 10/12  
(30043509/SDS\_GEN\_US/EN)

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### Elimination information

*Information on: caprolactam*  
82 % BOD of the ThOD (14 d) (OECD 301C; ISO 9408; 92/69/EEC, C.4-F) (aerobic, activated sludge) Readily biodegradable (according to OECD criteria).

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### Assessment of stability in water

*Information on: caprolactam*

*In contact with water the substance will hydrolyse slowly.*

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## Bioaccumulative potential

### Bioaccumulation potential

*Information on: caprolactam*

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

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## Mobility in soil

### Assessment transport between environmental compartments

*Information on: caprolactam*

*The substance will not evaporate into the atmosphere from the water surface.*  
*Adsorption to solid soil phase is not expected.*

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## Additional information

### Sum parameter

*Information on: Caprolactam*  
Chemical oxygen demand (COD): 1,960 mg/g

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*Information on: Caprolactam*  
Biochemical oxygen demand (BOD): 1,110 mg/g

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Other ecotoxicological advice:  
Do not release untreated into natural waters.

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## 13. Disposal considerations

### **Waste disposal of substance:**

Dispose of in accordance with national, state and local regulations.

# Safety Data Sheet

## Caprolactam extract

Revision date : 2022/03/28  
Version: 5.0

Page: 11/12  
(30043509/SDS\_GEN\_US/EN)

### Container disposal:

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

## 14. Transport Information

### Land transport

USDOT

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

### Federal Regulations

#### Registration status:

Chemical TSCA, US released / listed

**EPCRA 311/312 (Hazard categories):** Refer to SDS section 2 for GHS hazard classes applicable for this product.

### State regulations

#### State RTK

PA

NJ

#### CAS Number

105-60-2

105-60-2

#### Chemical name

caprolactam

caprolactam

#### NFPA Hazard codes:

Health: 2

Fire: 0

Reactivity: 0

Special:

## 16. Other Information

### SDS Prepared by:

BASF NA Product Regulations

SDS Prepared on: 2022/03/28

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

# Safety Data Sheet

## Caprolactam extract

Revision date : 2022/03/28

Version: 5.0

Page: 12/12

(30043509/SDS\_GEN\_US/EN)

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