We create chemistry

Safety Data Sheet
Caprolactam extract

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 Canada Inc.
5025 Creekbank Road
Building A, Floor 2
Mississauga, ON, L4W 0B6, CANADA

Telephone: +1 289 360-1300

Emergency telephone number

24 Hour Emergency Response Information
CHEMTREC: 1-800-424-9300
BASF HOTLINE: (800) 454-COPE (2673)

Other means of identification
Chemical family: organic compounds

2. Hazards Identification

According to Hazardous Products Regulations (HPR) (SOR/2015-17)

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
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.

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 Hazardous Products Regulations (HPR) (SOR/2015-17)

caprolactam
CAS Number: 105-60-2
Content (W/W): >= 50.0 - <= 100.0%
Synonym: Caprolactam

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:
Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. Seek medical attention.

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
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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.

5. Fire-Fighting Measures

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
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.

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.

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)

8. Exposure Controls/Personal Protection

Components with occupational exposure limits

caprolactam	ACGIH, US:	TWA value 5 mg/m3 Inhalable fraction and vapor ;

Advice on system design:
Ensure adequate ventilation. Provide local exhaust ventilation to maintain recommended P.E.L.

Personal protective equipment

Respiratory protection:
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 ISO 374-1), Suitable materials also with prolonged, direct contact (Recommended: Protective index 6, corresponding > 480 minutes of permeation time according to EN ISO 374-1):, 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:
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. apron, protecting boots, chemical-protection suit (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

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 temperature:	14.5 °C (80 %(m)) 41.4 °C (90 %(m))
Melting point:	No data available.
Freezing point:	No data available.
Boiling range:	No data available.
Information on: Water	
Boiling point:	100 °C

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	
Information on: Caprolactam		
Vapour pressure:	0.0013 hPa (20 °C) 0.089 hPa (60 °C)	
Density:	1 g/cm3 (20 °C)	
Relative density:	No data available.	
Vapour density:	No data available. No data available.	
Information on: caprolactam		
Partitioning coefficient n-octanol/water (log Pow):	0.12 (25 °C)	(OECD Guideline 107)
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
strong acids, bases, 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.

Information on: caprolactam
Assessment of acute toxicity:Of moderate toxicity after single ingestion. Of moderate toxicity after short-term inhalation. Of low toxicity after short-term skin contact.

Oral
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)

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.

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)

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.

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

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

Information on: caprolactam
modified Buehler test
Species: guinea pig
Result: Non-sensitizing.
Method: OECD Guideline 406

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.

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.

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.

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

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)

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)

Chronic toxicity to fish

Information on: caprolactam
Study scientifically not justified.

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.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

Information on: caprolactam
other aquatic
bacterium/EC50 (17 h): 4,240 mg/l

Persistence and degradability

Assessment biodegradation and elimination (H2O)

Information on: caprolactam

Readily biodegradable (according to OECD criteria).

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).

Assessment of stability in water

Information on: caprolactam

In contact with water the substance will hydrolyse slowly.

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.

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.

Additional information

Sum parameter

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

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

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

13. Disposal considerations

Waste disposal of substance:
Incinerate in suitable incineration plant, observing local authority regulations.

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

14. Transport Information

Land transport
TDG

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 DSL, CA released / listed

NFPA Hazard codes:
Health: 2 Fire: 0 Reactivity: 0 Special:

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2022/10/26

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END OF DATA SHEET