We create chemistry

Safety data sheet

1. Identification

Product identifier

Ammonium sulfate special grade bulk

Chemical name: Ammonium sulphate
CAS Number: 7783-20-2

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

Relevant identified uses: Chemical
Recommended use: fertilizers, Chemical, Intermediate, process chemical, Fire extinguishing compounds, Laboratory chemicals

Details of the supplier of the safety data sheet

Company:
BASF SE
67056 Ludwigshafen
GERMANY
Division Monomers

Telephone: +49 621 60 42737
E-mail address: pss.monomers@basf.com

Emergency telephone number

International emergency number:
Telephone: +49 180 2273-112

2. Hazards Identification

Classification of the substance or mixture

According to UN GHS criteria

Acute Tox. 5 (oral)
Aquatic Acute 3

For the classifications not written out in full in this section the full text can be found in section 16.

Label elements

Globally Harmonized System (GHS)

Signal Word:
Warning

Hazard Statement:

H303	May be harmful if swallowed.
H402	Harmful to aquatic life.

Precautionary Statements (Prevention):

P273	Avoid release to the environment.

Precautionary Statements (Response):

P312	Call a POISON CENTER or physician if you feel unwell.

Precautionary Statements (Disposal):

P501	Dispose of contents and container to hazardous or special waste collection point.

Other hazards

According to UN GHS criteria

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

3. Composition/Information on Ingredients

Substances

Chemical nature

Ammonium sulphate
CAS Number: 7783-20-2

EC-Number: 231-984-1
caprolactam (Content (W/W): < 0,5 %)
CAS Number: 105-60-2
EC-Number: 203-313-2
INDEX-Number: 613-069-00-2

For the classifications not written out in full in this section the full text can be found in section 16.

Mixtures

Not applicable

4. First-Aid Measures

Description of first aid measures

Remove contaminated clothing.

If inhaled:
After inhalation of dust. Fresh air. If difficulties occur: Seek medical attention. After inhalation of decomposition products: Keep patient calm, remove to fresh air, seek medical attention.

On skin contact:
Wash thoroughly with soap and water

On contact with eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open. Seek medical attention.

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

Most important symptoms and effects, both acute and delayed

Symptoms: (Further) symptoms and / or effects are not known so far

Hazards: After inhalation of decomposition products: Risk of pulmonary edema. Symptoms can appear later.

Indication of any immediate medical attention and special treatment needed

Treatment: After inhalation of decomposition products: Pulmonary odema prophylaxis.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, foam, dry powder

Unsuitable extinguishing media for safety reasons:
water jet

Special hazards arising from the substance or mixture

See SDS section 7 - Handling and storage.

At temperatures of 235 °C can be emitted: Ammonia, anhydrous

nitrogen oxides, sulfur oxides
The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters

Further information:
Product itself is non-combustible; fire extinguishing method of surrounding areas must be considered. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Handle in accordance with good industrial hygiene and safety practice. Information regarding personal protective measures, see section 8.

Environmental precautions

Do not discharge into drains/surface waters/groundwater. Retain and dispose of contaminated wash water.

Methods and material for containment and cleaning up

For large amounts: Sweep/shovel up.
For residues: Sweep/shovel up. Rinse away with water.

7. Handling and Storage

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Segregate from alkalies and alkalizing substances. Segregate from nitrites and alkaline substances.

Suitable materials for containers: Stainless steel 1.4401, Stainless steel 1.4301 (V2), Aluminium, Polyester resin, glass reinforced (Palatal A410), High density polyethylene (HDPE), glass, Low density polyethylene (LDPE)
Further information on storage conditions: Protect against moisture. The substance/product may cake under the influence of moisture.

Storage stability:

Storage temperature: 20 °C
Storage duration: 24 Months

Specific end use(s)

For the relevant identified use(s) listed in Section 1 the advice mentioned in this section 7 is to be observed.

8. Exposure Controls/Personal Protection

Control parameters

Components with occupational exposure limits

105-60-2: caprolactam
7783-20-2: Ammonium sulphate
10039-54-0: Bis(hydroxylammonium) sulphate

Exposure controls

Personal protective equipment

Respiratory protection:
Breathing protection if breathable aerosols/dust are formed. Particle filter with low efficiency for solid particles (e.g. EN 143 or 149, Type P1or FFP1)

Hand protection:
Chemical resistant protective gloves (EN ISO 374-1)
e.g. nitrile rubber (0.4 mm), chloroprene rubber (0.5 mm), polyvinylchloride (0.7 mm) and other
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 based on level of activity and exposure.

General safety and hygiene measures
Handle in accordance with good industrial hygiene and safety practice. At the end of the shift the skin should be cleaned and skin-care agents applied.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

State of matter:	solid
Form:	crystalline
Colour:	white
Odour:	odourless
Odour threshold:	
	No data available.

melting point (decomposition):	approx. 350 °C The substance / product decomposes.	(other)
onset of boiling:	The substance / product decomposes therefore not determined.	(other)
Flammability:	not flammable	(other)
Lower explosion limit:	For solids not relevant for classification and labelling.	
Upper explosion limit:	For solids not relevant for classification and labelling.	
Flash point:	not applicable, the product is a solid	
Auto-ignition temperature:	not applicable	
Self-ignition temperature:		Test type: Self-ignition at high temperatures. (Method: other)
	The value has not be determined because of the low risk of self-ignition in consequence of the high flash-point.	
Thermal decomposition:	> 235 °C (internal method) To avoid thermal decomposition, do not overheat.	
pH value:	approx. 5 (100 g/l, 20 °C)	(pH Meter)
Viscosity, kinematic:	not applicable, the product is a solid	
Viscosity, dynamic:	not applicable	
Solubility in water:	764 g/l (20 °C)	(internal method)
	843 g/l (50 °C)	(internal method)
Partitioning coefficient n-octanol/water (log Kow):	not applicable	
Vapour pressure:	0,0000001 hPa (25 °C) Literature data.	(measured)
Relative density:	1,77 (25 °C, 1.013 hPa) Literature data.	(other)
Density:	1,766 g/cm3 (20 °C)	(OECD Guideline 109)
Relative vapour density (air):	not applicable, The product is a non-volatile solid.	
<u>Particle characteristics</u>		
Particle size distribution:	560 µm fine particles -	(D50, calculated)

9.2. Other information

Information with regard to physical hazard classes

Explosives

Explosion hazard:	Based on the chemical structure there is no indication of explosive properties.	(other)
Impact sensitivity:	not shock-sensitive Based on the chemical structure there is no shock-sensitivity.	

Oxidizing properties

Fire promoting properties:	Based on its structural properties the product is not classified as oxidizing.	(other)

Pyrophoric properties

Self-ignition temperature:		Test type: Spontaneous self-ignition at room-temperature. (Method: other)
	not self-igniting	

Self-heating substances and mixtures

Self heating ability:	It is not a substance capable of spontaneous heating.

Substances and mixtures, which emit flammable gases in contact with water

Formation of flammable gases:
Forms no flammable gases in the presence of water.

Other safety characteristics

Bulk density:	1.000 kg/m3 (20 °C)	(other)
Adsorption:	Study scientifically not justified.	
Surface tension:	Based on chemical structure, surface activity is not to be expected.	(other)
Evaporation rate:	not applicable, The product is a non-volatile solid.	

10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Formation of flammable gases:	Remarks:	Forms no flammable gases in the presence of water.

Chemical stability

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

Possibility of hazardous reactions

Generation of ammonia upon exposure to alkaline substances. Reacts with alkalis and nitrites.

Conditions to avoid

See SDS section 7 - Handling and storage.

Incompatible materials

Substances to avoid:
alkaline reactive substances, nitrites

Hazardous decomposition products

Hazardous decomposition products:
Ammonia, anhydrous

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Assessment of acute toxicity:
Of low toxicity after single ingestion. Of low toxicity after short-term skin contact.

Experimental/calculated data:
LD50 rat (oral): 4.250 mg/kg (BASF-Test)

(by inhalation):Study does not need to be conducted.

LD50 rat (dermal): > 2.000 mg/kg
Literature data.

Information on: Ammonium sulphate
Assessment of acute toxicity:
Of low toxicity after single ingestion. Of low toxicity after short-term skin contact.

Irritation

Assessment of irritating effects:
Not irritating to the skin. Not irritating to the eyes.

Experimental/calculated data:
Skin corrosion/irritation rabbit: non-irritant (BASF-Test)

Serious eye damage/irritation rabbit: non-irritant (BASF-Test)

Respiratory/Skin sensitization

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

Experimental/calculated data:
Guinea pig maximization test guinea pig: Non-sensitizing. (other)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Germ cell mutagenicity

Assessment of mutagenicity:
The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture. The substance was not mutagenic in studies with mammals.

Experimental/calculated data:
Ames-test
negative (OECD Guideline 471)

Cytogenetic assay
negative (OECD Guideline 473)
Literature data.

HGPRT assay
CHO cells: negative (OECD Guideline 476)

Carcinogenicity

Assessment of carcinogenicity:
In long-term animal studies in which the substance was given in high concentrations by feed, a carcinogenic effect was not observed.

Reproductive toxicity

Assessment of reproduction toxicity:
The results of animal studies gave no indication of a fertility impairing effect. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Developmental toxicity

Assessment of teratogenicity:
No indications of a developmental toxic / teratogenic effect were seen in animal studies. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Specific target organ toxicity (single exposure)

Assessment of STOT single:
The available information is not sufficient for the evaluation of specific target organ toxicity.

Repeated dose toxicity and Specific target organ toxicity (repeated exposure)

Assessment of repeated dose toxicity:
No substance-specific organtoxicity was observed after repeated administration to animals.

Aspiration hazard

not applicable

Other relevant toxicity information

The product has not been tested. The statement has been derived from the properties of the individual components.

12. Ecological Information

Toxicity

Assessment of aquatic toxicity:
The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations. Acutely harmful for aquatic organisms.

Toxicity to fish:
LC50 (96 h) 53 mg/l, Oncorhynchus mykiss (Fish test acute)

Aquatic invertebrates:
EC50 (48 h) 121,7 mg/l, Ceriodaphnia sp. (Daphnia test acute, static)

Aquatic plants:
EC50 (18 d) 2.700 mg/l (growth rate), Chlorella vulgaris (other)
The details of the toxic effect relate to the nominal concentration.

Microorganisms/Effect on activated sludge:
EC20 (0,5 h) approx. 1.050 mg/l, activated sludge (OECD Guideline 209, aquatic)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Chronic toxicity to aquatic invertebrates:
EC10 (70 d) 3,12 mg/l (semistatic)

Soil living organisms:
LC50 (14 d) 201 mg/kg, Eisenia foetida (artificial soil)
The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Other terrestrial non-mammals:
Study scientifically not justified.

Persistence and degradability

Assessment biodegradation and elimination (H2O):

Inorganic product which cannot be eliminated from water by biological purification processes. Can be oxidized to nitrate, or be reduced to nitrogen, by microorganisms.

Elimination information:
Study scientifically not justified.

Bioaccumulative potential

Assessment bioaccumulation potential:
Accumulation in organisms is not to be expected.

Bioaccumulation potential:
Study scientifically not justified.

Mobility in soil

Assessment transport between environmental compartments:
Adsorption in soil: Adsorption to solid soil phase is not expected.

Other adverse effects

The substance is not listed in Regulation (EC) 1005/2009 on substances that deplete the ozone layer.

13. Disposal Considerations

Waste treatment methods

Test for use in agriculture.
Contact manufacturer.

Contaminated packaging:
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Land transport

ADR

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable

Special precautions for user	None known

RID

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

Inland waterway transport

ADN

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user:	None known

Transport in inland waterway vessel

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable

Sea transport

IMDG

	Not classified as a dangerous good under transport regulations
UN number or ID number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

Air transport

IATA/ICAO

	Not classified as a dangerous good under transport regulations
UN number or ID number	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group:	Not applicable
Environmental hazards:	Not applicable
Special precautions for user	None known

Maritime transport in bulk according to IMO instruments

Maritime transport in bulk is not intended.

15. Regulatory Information

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

If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.

16. Other Information

Full text of classifications, hazard symbols and hazard statements, if mentioned in section 2 or 3:

Acute Tox.	Acute toxicity
Aquatic Acute	Hazardous to the aquatic environment - acute

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. This safety data sheet is neither a Certificate of Analysis (CoA) nor technical data sheet and shall not be mistaken for a specification agreement. Identified uses in this safety data sheet do neither represent an agreement on the corresponding contractual quality of the substance/mixture nor a contractually designated use. It is the responsibility of the recipient of the product to ensure any proprietary rights and existing laws and legislation are observed.

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