SECTION 1: Identification

1.1. Identification

Product form: Substance
Substance name: Ammonium Sulfate
CAS-No.: 7783-20-2
Formula: \((\text{NH}_4\text{)}_2\text{SO}_4\)

1.2. Recommended use and restrictions on use

Use of the substance/mixture: Pharmaceutical manufacturing; Laboratory Reagent or Buffer

1.3. Supplier

Manufacturer
Jost Chemical Co.
8150 Lackland Rd.
Saint Louis, Missouri 63114
T 314-428-4300 - F 314-428-4366
sds@jostchemical.com - www.jostchemical.com

1.4. Emergency telephone number

Emergency number: For Hazardous Materials [or Dangerous Goods] Incident Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
United States and Canada: 1-800-424-9300 / +1 703-527-3887
Global: +1 703-741-5970

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification
Not classified

2.2. GHS Label elements, including precautionary statements

GHS-US labeling
No labeling applicable

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type: Mono-constituent

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Sulfate</td>
<td>(CAS-No.) 7783-20-2</td>
<td>100</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

**Ammonium Sulfate**

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**First-aid measures after inhalation**: Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

**First-aid measures after skin contact**: Rinse with water. Soap may be used. Take victim to a doctor if irritation persists. Wash skin with plenty of water.

**First-aid measures after eye contact**: Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists. Rinse eyes with water as a precaution.

**First-aid measures after ingestion**: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Call a poison center/doctor/physician if you feel unwell.

---

**4.2. Most important symptoms and effects (acute and delayed)**

**Potential Adverse human health effects and symptoms**: Practically non-toxic if swallowed (LD50 oral 2000/5000 mg/kg). Slightly harmful in contact with skin. Slightly irritant to skin. Slightly irritant to respiratory organs. Slightly irritant to eyes.

**Symptoms/effects after inhalation**: AFTER INHALATION OF DUST: Dry/sore throat. Coughing. ON CONTINUOUS EXPOSURE/CONTACT: Irritation of the respiratory tract.

**Symptoms/effects after skin contact**: Red skin. Slight irritation.

**Symptoms/effects after eye contact**: Slight irritation.

**Symptoms/effects after ingestion**: Vomiting. Nausea. Diarrhoea.

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**4.3. Immediate medical attention and special treatment, if necessary**

Treat symptomatically.

**SECTION 5: Fire-fighting measures**

**5.1. Suitable (and unsuitable) extinguishing media**


**5.2. Specific hazards arising from the chemical**

**Fire hazard**: DIRECT FIRE HAZARD: Non combustible. INDIRECT FIRE HAZARD: Reactions involving a fire hazard: see "Reactivity Hazard".

**Explosion hazard**: INDIRECT EXPLOSION HAZARD: Reactions with explosion hazards: see "Reactivity Hazard".

**Reactivity**: Reacts with (strong) oxidizers: (increased) risk of fire/explosion.

**5.3. Special protective equipment and precautions for fire-fighters**

**Precautionary measures fire**: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighborhood close doors and windows.

**Firefighting instructions**: Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water spray.

**Protection during firefighting**: Heat/fire exposure: compressed air/oxygen apparatus. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

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**SECTION 6: Accidental release measures**

**6.1. Personal precautions, protective equipment and emergency procedures**

**General measures**: Contain the extinguishing fluids by bunding.

**6.1.1. For non-emergency personnel**


**Measures in case of dust release**: In case of dust production: keep upwind. Dust production: have neighborhood close doors and windows.

**6.1.2. For emergency responders**

**Protective equipment**: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

---

**6.2. Environmental precautions**

Avoid release to the environment.
6.3. Methods and material for containment and cleaning up

For containment: Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray. If reacting: dilute toxic gas/vapor with water spray.

Methods for cleaning up: Mechanically recover the product. Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling


Hygiene measures: Observe normal hygiene standards. Keep container tightly closed. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Does not require any specific or particular technical measures.

Storage conditions: Store locked up. Store in a well-ventilated place. Keep cool.

Heat-ignition: KEEP SUBSTANCE AWAY FROM: heat sources.

Information on mixed storage: KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) acids. (strong) bases. metals. water/moisture.

Storage area: Store in a dry area. Meet the legal requirements.

Special rules on packaging: SPECIAL REQUIREMENTS: closing, watertight, dry, clean, correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.


SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
<th>DNEL</th>
<th>DNEL</th>
<th>&lt;= 42.667 mg/l Long-term - systemic effects, dermal</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNEC</td>
<td>PNEC</td>
<td>&lt;= 0.312 mg/l aqua, freshwater</td>
<td></td>
</tr>
</tbody>
</table>

8.2. Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.

Environmental exposure controls: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Dust production: dust mask with filter type P2. Gloves. Safety glasses.

Materials for protective clothing:

GIVE GOOD RESISTANCE: butyl rubber. neoprene. PVC. GIVE LESS RESISTANCE: polyethylene. styrene-butadiene rubber. nitrile rubber/PVC

Hand protection:

Gloves

Eye protection:

Safety glasses. In case of dust production: protective goggles. Safety glasses

Skin and body protection:
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Protective clothing

Respiratory protection:
Dust production: dust mask with filter type P1

Personal protective equipment symbol(s):

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- **Physical state**: Solid
- **Appearance**: White, crystals, free flowing granulated.
- **Color**: Colorless-white Unpurified: grey-brown
- **Odor**: Odorless
- **Odor threshold**: No data available
- **pH**: 5.5 (1.3 %)
- **Melting point**: 280 °C
- **Freezing point**: Not applicable
- **Boiling point**: Not applicable
- **Flash point**: Not applicable
- **Relative evaporation rate (butyl acetate=1)**: No data available
- **Flammability (solid, gas)**: Non-flammable
- **Vapor pressure**: 0.000405 mPa
- **Relative vapor density at 20 °C**: Not applicable
- **Relative density**: 1.8
- **Specific gravity / density**: 1770 kg/m³
- **Molecular mass**: 132.14 g/mol
- **Solubility**: Soluble in water.
  Water: 77 g/100ml
- **Log Pow**: -5.1
- **Auto-ignition temperature**: Not applicable
- **Decomposition temperature**: > 280 °C
- **Viscosity, kinematic**: Not applicable
- **Viscosity, dynamic**: Not applicable
- **Explosion limits**: Not applicable
- **Explosive properties**: Not applicable
- **Oxidizing properties**: Not applicable

9.2. Other information

- **Minimum ignition energy**: Not applicable
- **SADT**: Not applicable
- **VOC content**: 0 %
- **Other properties**: Hygroscopic. Substance has acid reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity
Reacts with (strong) oxidizers: (increased) risk of fire/explosion.

10.2. Chemical stability
Hygroscopic.
10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
Heat.

10.5. Incompatible materials
Strong acids, metals, oxidizing agent, strong bases.

10.6. Hazardous decomposition products
Violent exothermic reaction with (some) bases: release of toxic and corrosive gases/vapors (ammonia, sulphur oxides). Decomposes on exposure to temperature rise: release of toxic and corrosive gases/vapors (ammonia, nitrous vapors, sulphur oxides).

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity (oral): Not classified
Acute toxicity (dermal): Not classified
Acute toxicity (inhalation): Not classified

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
<th>(mg/kg, Rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>2840</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
<td>&gt; 2000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
<th>(mg/kg, Rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>pH: 5.5 (1.3 %)</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
<th>(mg/kg, Rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious eye damage/irritation</td>
<td>Not classified</td>
</tr>
<tr>
<td>pH: 5.5 (1.3 %)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
<th>(mg/kg, Rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory or skin sensitization</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
<th>(mg/kg, Rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
<th>(mg/kg, Rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL (chronic, oral, animal/male, 2 years)</td>
<td>256</td>
</tr>
<tr>
<td>NOAEL (chronic, oral, animal/female, 2 years)</td>
<td>284</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity – single exposure</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
<th>(mg/kg, Rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL (oral, rat)</td>
<td>1288.2</td>
</tr>
<tr>
<td>Specific target organ toxicity – repeated exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Potential Adverse human health effects and symptoms</td>
<td>Practically non-toxic if swallowed (LD50 oral 2000/5000 mg/kg). Slightly harmful in contact with skin. Slightly irritant to skin. Slightly irritant to respiratory organs. Slightly irritant to eyes.</td>
</tr>
<tr>
<td>Symptoms/effects after inhalation</td>
<td>AFTER INHALATION OF DUST: Dry/sore throat. Coughing. ON CONTINUOUS EXPOSURE/CONTACT: Irritation of the respiratory tract.</td>
</tr>
<tr>
<td>Symptoms/effects after skin contact</td>
<td>Red skin. Slight irritation.</td>
</tr>
<tr>
<td>Symptoms/effects after eye contact</td>
<td>Slight irritation.</td>
</tr>
</tbody>
</table>

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.
Ecology - air: Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
<th>(mg/l, Brachydanio rerio, Flow-through system)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>250 - 480</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 Daphnia 1</td>
<td>202 mg/l (96 h, Daphnia magna)</td>
</tr>
<tr>
<td>ErC50 (algae)</td>
<td>2700 mg/l 18 days, Chlorella Vulgaris</td>
</tr>
<tr>
<td>LOEC (chronic)</td>
<td>22 mg/l Oncorhynchus gorbuscha</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
<td>Biodegradability in water: no data available.</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>-5.1</td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>Not bioaccumulative.</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods
Regional legislation (waste) : LWCA (the Netherlands): KGA category 05.
Waste treatment methods : Dispose of contents/container in accordance with licensed collector’s sorting instructions.
Product/Packaging disposal recommendations : Do not discharge into surface water. Remove to an authorized dump. Precipitate/make insoluble.

SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT
Not regulated

Transportation of Dangerous Goods

Transport by sea
Proper Shipping Name (IMDG) : Not regulated for transport
Class (IMDG) : Not regulated for transport

Air transport
Proper Shipping Name (IATA) : Not regulated for transport
Class (IATA) : Not regulated for transport

SECTION 15: Regulatory information

15.1. US Federal regulations
Ammonium Sulfate (7783-20-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations
CANADA
Ammonium Sulfate (7783-20-2)
Listed on the Canadian DSL (Domestic Substances List)
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EU-Regulations

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)</td>
</tr>
</tbody>
</table>

National regulations

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed on the AICS (Australian Inventory of Chemical Substances)</td>
</tr>
<tr>
<td>Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)</td>
</tr>
<tr>
<td>Listed on the Korean ECL (Existing Chemicals List)</td>
</tr>
<tr>
<td>Listed on the Japanese ENCS (Existing &amp; New Chemical Substances) inventory</td>
</tr>
<tr>
<td>Listed on INSC (Mexican national Inventory of Chemical Substances)</td>
</tr>
<tr>
<td>Listed on NZIoC (New Zealand Inventory of Chemicals)</td>
</tr>
<tr>
<td>Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)</td>
</tr>
</tbody>
</table>

15.3. US State regulations

<table>
<thead>
<tr>
<th>Ammonium Sulfate (7783-20-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State or local regulations</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

SECTION 16: Other information

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Revision date : 06/07/2018

NFPA health hazard : 1 - Materials that, under emergency conditions, can cause significant irritation.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 2 - Materials that readily undergo violent chemical change at elevated temperatures and pressures.

Hazard Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 2 Moderate Hazard - Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air.

SDS US (HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.