1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Ammonium sulfide solution

Product Number : W205303
Brand : Aldrich

Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Flammable liquid, Corrosive

Other hazards which do not result in classification
Stench.

GHS Classification
Flammable liquids (Category 3)
Skin corrosion (Category 1B)
Serious eye damage (Category 1)
Acute aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word : Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H314 Causes severe skin burns and eye damage.
H400 Very toxic to aquatic life.

Precautionary statement(s)
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/ physician.

Other hazards
Contact with acids liberates toxic gas.

HMIS Classification
Health hazard: 3
Flammability: 3
Physical hazards: 0

NFPA Rating
- Health hazard: 3
- Fire: 3
- Reactivity Hazard: 0

Potential Health Effects
- **Inhalation**: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
- **Skin**: May be harmful if absorbed through skin. Causes skin burns.
- **Eyes**: Causes eye burns.
- **Ingestion**: May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

- **Formula**: \( \text{H}_8\text{N}_2\text{S} \)
- **Molecular Weight**: 68.14 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium sulphide</td>
<td>Flam. Sol. 2; Skin Corr. 1B; Aquatic Acute 1; H228, H314, H400, EUH031</td>
<td>10 - 30 %</td>
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<tr>
<td>CAS-No.</td>
<td>12135-76-1</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>235-223-4</td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

**If swallowed**
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

**Conditions of flammability**
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

**Suitable extinguishing media**
Dry powder

**Special protective equipment for firefighters**
Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**
Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx), Sulphur oxides

6. ACCIDENTAL RELEASE MEASURES
Personal precautions
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Never allow product to get in contact with water during storage. Do not store near acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form clear, liquid
Colour yellow

Safety data
pH no data available
Melting point/freezing point no data available
Boiling point: no data available
Flash point: 32.2 °C (90.0 °F) - closed cup
Ignition temperature: no data available
Auto-ignition temperature: no data available
Lower explosion limit: 4 %(V)
Upper explosion limit: 46 %(V)
Vapour pressure: 600 hPa (450 mmHg) at 20 °C (68 °F)
Density: 0.997 g/cm³ at 25 °C (77 °F)
Water solubility: no data available
Partition coefficient: n-octanol/water: no data available
Relative vapour density: no data available
Odour: Stench.
Odour Threshold: no data available
Evaporation rate: no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
Vapours may form explosive mixture with air.

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx), Sulphur oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50: no data available
Inhalation LC50: no data available
Dermal LD50: no data available

Other information on acute toxicity: no data available

Skin corrosion/irritation: no data available

Serious eye damage/eye irritation
Eyes: no data available

Respiratory or skin sensitisation
Germ cell mutagenicity
no data available

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Teratogenicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects
Inhalation May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion May be harmful if swallowed.
Skin May be harmful if absorbed through skin. Causes skin burns.
Eyes Causes eye burns.

Signs and Symptoms of Exposure
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea

Synergistic effects
no data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION
Toxicity
no data available

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

### 13. DISPOSAL CONSIDERATIONS

**Product**
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**
Dispose of as unused product.

### 14. TRANSPORT INFORMATION

**DOT (US)**
UN number: 2683  Class: 8 (6.1, 3)  Packing group: II
Proper shipping name: Ammonium sulfide solution (Ammonium sulphide)
Reportable Quantity (RQ): 500 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

**IMDG**
UN number: 2683  Class: 8 (3, 6.1)  Packing group: II
EMS-No: F-E, S-C
Proper shipping name: AMMONIUM SULPHIDE SOLUTION (Ammonium sulphide)
Marine pollutant: No

**IATA**
UN number: 2683  Class: 8 (3, 6.1)  Packing group: II
Proper shipping name: Ammonium sulphide solution (Ammonium sulphide)

### 15. REGULATORY INFORMATION

**OSHA Hazards**
Flammable liquid, Corrosive

**SARA 302 Components**
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**
Fire Hazard, Acute Health Hazard

**Massachusetts Right To Know Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
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<td>12135-76-1</td>
<td>1993-04-24</td>
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**Pennsylvania Right To Know Components**

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<td>Ammonium sulphide</td>
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<td>1993-04-24</td>
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**New Jersey Right To Know Components**

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<td>Ammonium sulphide</td>
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<td>1993-04-24</td>
</tr>
</tbody>
</table>
California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Text of H-code(s) and R-phase(s) mentioned in Section 3

<table>
<thead>
<tr>
<th>Aquatic Acute</th>
<th>Acute aquatic toxicity</th>
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<tr>
<td>EUH031</td>
<td>Contact with acids liberates toxic gas.</td>
</tr>
<tr>
<td>Flam. Sol.</td>
<td>Flammable solids</td>
</tr>
<tr>
<td>H228</td>
<td>Flammable solid.</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life.</td>
</tr>
<tr>
<td>Skin Corr.</td>
<td>Skin corrosion</td>
</tr>
</tbody>
</table>

Further information
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