1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

- **Product name**: Ammonium sulfide solution
- **Product Number**: A1952
- **Brand**: Sigma-Aldrich
- **CAS-No.**: 12135-76-1

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

- **Identified uses**: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

- **Company**: Sigma-Aldrich
  - 3050 Spruce Street
  - SAINT LOUIS MO 63103
  - USA
- **Telephone**: +1 800-325-5832
- **Fax**: +1 800-325-5052

1.4 Emergency telephone number

- **Emergency Phone #**: +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

- Flammable liquids (Category 3), H226
- Skin corrosion (Category 1B), H314
- Serious eye damage (Category 1), H318
- Acute aquatic toxicity (Category 1), H400
- Acute toxicity (Category 3), H301

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

- **Pictogram**: Danger
- **Hazard statement(s)**
  - H314: Causes severe skin burns and eye damage.
  - H400: Very toxic to aquatic life.
  - H301: Toxic if swallowed.
- **Precautionary statement(s)**
  - P264: Wash skin thoroughly after handling.
  - P273: Avoid release to the environment.
  - P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
  - P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

<table>
<thead>
<tr>
<th>Formula</th>
<th>Molecular weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₈N₂S</td>
<td>68.14 g/mol</td>
</tr>
</tbody>
</table>

Hazardous components

<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; Eye Dam. 1; Aquatic Acute 1;</td>
<td>&gt;= 20 - &lt; 30%</td>
</tr>
</tbody>
</table>

Ammonium sulphide

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12135-76-1</td>
<td>235-223-4</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

4.1 Description of first aid measures

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

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.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
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. For personal protection see section 8.

6.2 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.

6.3 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.

6.4 Reference to other sections
For disposal see section 13.
7. HANDLING AND STORAGE

7.1 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.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
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.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
Components with workplace control parameters
Contains no substances with occupational exposure limit values.
Hazardous components without workplace control parameters

8.2 Exposure controls
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face 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 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.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

   Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

   Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

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.
**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.

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose 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).

**Control of environmental exposure**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1 Information on basic physical and chemical properties

- **a)** Appearance
  - Form: clear, liquid
- **b)** Odour
  - Stench.
- **c)** Odour Threshold
  - No data available
- **d)** pH
  - No data available
- **e)** Melting point/freezing point
  - No data available
- **f)** Initial boiling point and boiling range
  - No data available
- **g)** Flash point
  - 32 °C (90 °F) - closed cup
- **h)** Evaporation rate
  - No data available
- **i)** Flammability (solid, gas)
  - No data available
- **j)** Upper/lower flammability or explosive limits
  - No data available
- **k)** Vapour pressure
  - No data available
- **l)** Vapour density
  - No data available
- **m)** Relative density
  - No data available
- **n)** Water solubility
  - No data available
- **o)** Partition coefficient: n-octanol/water
  - No data available
- **p)** Auto-ignition temperature
  - No data available
- **q)** Decomposition temperature
  - No data available
- **r)** Viscosity
  - No data available
- **s)** Explosive properties
  - No data available
- **t)** Oxidizing properties
  - No data available

#### 9.2 Other safety information
No data available

### 10. STABILITY AND REACTIVITY

#### 10.1 Reactivity
No data available
10.2 Chemical stability
Stable under recommended storage conditions.

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

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Nitrogen oxides (NOx), Sulphur oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

   Acute toxicity
   No data available
   Inhalation: No data available
   Dermal: No data available
   No data available

   Skin corrosion/Irritation
   No data available

   Serious eye damage/eye irritation
   No data available

   Respiratory or skin sensitisation
   No data available

   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.
   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
   No data available

   Specific target organ toxicity - single exposure
   No data available

   Specific target organ toxicity - repeated exposure
   No data available

   Aspiration hazard
   No data available

   Additional Information
   RTECS: Not available
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

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 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

13.1 Waste treatment methods
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
Reportable Quantity (RQ): 400 lbs

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
Marine pollutant: yes

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

15. REGULATORY INFORMATION

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

SARA 313 Components
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
16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute: Acute aquatic toxicity
Eye Dam.: Serious eye damage
Flam. Sol.: Flammable solids
H226: Flammable liquid and vapour.
H228: Flammable solid.
H301: Toxic if swallowed.
H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.
H400: Very toxic to aquatic life.
Skin Corr.: Skin corrosion

HMIS Rating
Health hazard: 3
Chronic Health Hazard: 3
Flammability: 3
Physical Hazard: 0

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

Further information
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Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

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