

CHEMICAL PRODUCTS CORPORATION

SAFETY DATA SHEET

SDS No. 45A

February 13, 2019

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1. PRODUCT IDENTIFIER

1.1 Trade Name: Ammonium Sulfide Solution 40-44%

Synonyms: Ammonium Bisulfide, Ammonium Hydrogen Sulfide, Ammonium Hydrosulfide, Ammonium Sulphydrate Solution, Diammonium Sulfide Solution

CAS Number: 12135-76-1

Product Use: Industrial use only for manufacture of substances, mining

Industrial uses advised against: None.

1.3 MANUFACTURER:

Chemical Products Corporation
102 Old Mill Road
P.O. Box 2470
Cartersville, Georgia 30120-1688
Telephone: 1-770-382-2144

1.4 EMERGENCY PHONE NUMBER: CHEMTREC, 800-424-9300
(24 hours every day)

2. HAZARD IDENTIFICATION

2.1 Classification in accordance with paragraph (d) of §1910.1200

Acute Toxicity-Oral, Category 3, H301

Acute Toxicity-Inhalation, Category 3, H331

Skin Corrosion/Irritation, Category 1B, H314

Eye Damage/Irritation, Category 1, H318

Flammable Liquids, Category 2, H225

2.2 Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200.



Signal Word **DANGER**

Hazard Statements

H314 Causes severe skin burns and eye damage.

H301 Toxic if swallowed.

H225 Highly flammable liquid and vapor.

H331 Toxic if inhaled

H318 Causes serious eye damage.

Precautionary Statements

Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P264 Wash skin thoroughly after handling.

P273 Avoid release to the environment

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

P363 Wash contaminated clothing before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

2.3 Other hazards not otherwise classified that have been identified during the classification process

- Contact with acids liberates toxic gas (Hydrogen Sulfide).
 - Contact with strong bases liberates toxic gas (Ammonia).
 - May be corrosive to metals.
 - Very toxic to aquatic life
-

3. COMPOSITION / INFORMATION ON INGREDIENTS

<u>COMPONENT</u>	<u>CAS #</u>	<u>EXPOSURE LIMITS</u>	<u>% BY WT</u>
Ammonium Sulfide	12135-76-1	No ACGIH TLV or OSHA PEL established for Ammonium Sulfide. For Hydrogen Sulfide gas: OSHA PEL - 10 ppm. ACGIH TLV-TWA - 1 ppm For Ammonia: OSHA PEL - 50 ppm. ACGIH TLV-TWA - 25 ppm	40 - 44 %
Water	7732-18-5		56 - 60 %

4. FIRST AID MEASURES

4.1 Description of necessary first-aid measures

If swallowed

Rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Have victim drink as much milk or water as possible. Never give anything by mouth to an unconscious person.

If inhaled

Move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

For eye contact

Flush eyes with large amounts of water for at least 15 minutes and get IMMEDIATE medical attention. Continue rinsing eyes during transport to hospital.

For skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

Signs and Symptoms of Overexposure: Eye and nasal irritation, headache, dizziness, nausea, vomiting, difficulty breathing, itching or burning of the skin.

Acute Effects:

Eye Contact: may cause severe damage to the cornea and conjunctiva.

Skin Contact: may cause reddening, blistering or burns. Harmful if absorbed through the skin. May cause allergic skin reaction.

Inhalation: may cause severe irritation with possible lung damage (pulmonary edema).

Ingestion: may cause severe gastrointestinal burns.

Target Organ Effects: May cause gastrointestinal (oral), respiratory tract, nervous system and blood effects

4.3 Indication of any immediate medical attention and special treatment needed, if necessary

- No data available. Seek medical treatment if you feel unwell after being exposed to this product.

- **Physician:** This product is extremely destructive to mucous membranes and tissue of the upper respiratory tract, eyes, and skin.

5. FIRE FIGHTING MEASURES

Ammonium Sulfide solutions do not support a continuous pooling liquid fire. Released vapors will flash off and then have to build again before and outside ignition source can re-ignite the vapors.

5.1 Suitable (and unsuitable) extinguishing media.

- Use dry chemical or foam to extinguish fire. Water may be ineffective but should be used to cool fire-exposed containers, structures and to protect personnel. Use water to dilute spills and to flush them away from sources of ignition.

- Avoid CO₂ fire extinguishers

5.2 Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products).

Poison, flammable hydrogen sulfide gas and/or poison, flammable ammonia will be evolved from this product on exposure to heat, acid, or strong alkali. Containers may explode in heat of fire. Vapors may concentrate in confined areas.

Combustion Products: Irritating or toxic substances may be emitted upon thermal decomposition. Thermal decomposition products may include ammonia, hydrogen sulfide, nitrogen oxides, and sulfur oxides.

5.3 Special protective equipment and precautions for fire-fighters.

- Wear self-contained breathing apparatus for firefighting.

Fire Fighting Procedures: Do not flush down sewers or other drainage systems. Exposed firefighters must wear NIOSH-approved positive pressure self-contained breathing apparatus with full-face mask and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures.

- Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind; keep out of low areas. (Also see Section 8). Wear respiratory protection for spills and leaks. Avoid breathing vapors or mist. Shut off ignition sources; no flares, smoking or flames in hazard area.

6.2 Methods and materials for containment and cleaning up.

- Do not let product enter drains. Discharge into the environment must be avoided.

Small spills: Take up with sand or other noncombustible absorbent material and place into containers for later disposal.

Large spills: Dike far ahead of liquid spill for later disposal. Do not flush to sewer or waterways. Prevent release to the environment if possible.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling.

- Do not get in eyes, on skin or on clothing. Do not breathe vapors or mists. Keep container closed. Use only with adequate ventilation. Use good personal hygiene practices. Wash hands before eating, drinking, smoking. Remove contaminated clothing and clean before re-use.

Keep away from heat and flame.

Hygiene measures

- Eye wash bottles or eye wash stations in compliance with applicable standards should be readily available.
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities.

- Store in tightly closed containers in cool, dry, well-ventilated area away from heat, sources of ignition and incompatibles. Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion. Store at ambient or lower temperature. Store out of direct sunlight. Keep containers tightly closed and upright when not in use. Protect containers against physical damage.

Empty containers may contain toxic, flammable and explosive residue or vapors. Do not cut, grind, drill, or weld on or near containers unless precautions are taken against these hazards.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV)

Chemical	OSHA PELs		ACGIH TLVs	
	TWA	STEL	TWA	STEL
Ammonia	50 ppm	None	25 ppm	35 ppm
Ammonium sulfide solution	None	None	None	None
Hydrogen Sulfide	10 ppm	20 ppm (Ceiling)	1 ppm	5 ppm
Water	None	None	None	None

8.2 Appropriate engineering controls.

- Handle in accordance with good industrial hygiene and safety practice. The use of local ventilation is recommended to control emissions near the source. Provide mechanical ventilation for confined spaces. Eye wash bottles or eye wash stations in compliance with applicable standards should be readily available.

8.3 Individual protection measures, such as personal protective equipment.

- Eye Protection: Wear chemical safety goggles and face shield. Have eye-wash stations available where eye contact can occur.
- Skin Protection: Avoid skin contact. Wear gloves impervious to conditions of use. Additional protection may be necessary to prevent skin contact including use of apron, face shield, boots or full body protection. A safety shower should be located in the work area. Recommended protective materials include nitrile rubber.
- Respiratory Protection: Engineering controls are the preferred means for controlling chemical exposures. Respiratory protection may be needed for non-routine or emergency situations. Respiratory protection must be provided in accordance with OSHA 29 CFR 1910.134.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.): Yellow liquid, transparent.

Odor: Ammonia odor combined with "rotten egg" odor.

Odor Threshold: No data available.

pH: Highly alkaline. No data available.

Melting point/Freezing point: No data available. Probably below -15 °C (5 °F).

Initial boiling point and boiling range: about 40 °C (104 °F).

Flash point: 22 °C (71.6 °F)

Evaporation rate: No data available.

Flammability (solid, gas): Not applicable (liquid product).

Upper/lower flammability or explosive limits: 46% (V) / 4.3% (V)

Vapor pressure: about 600 hPa (450 mm Hg) at 20°C (68 °F)

Vapor density: No data available.

Relative density – Specific Gravity: about 0.98

Solubility in water: Complete.

Partition coefficient: n-octanol/water: No data available.

Auto-ignition temperature: No data available.

Decomposition temperatures: No data available.

Viscosity: No data available.

10. STABILITY AND REACTIVITY

10.1 Reactivity

- Stability/Incompatibility: Incompatible with strong oxidizers, strong bases and strong acids.

- Hazardous Reactions/Decomposition Products:

Mixing with acids liberates poisonous hydrogen sulfide.

Mixing with strong alkalies liberates poisonous ammonia gas.

Mixing with strong oxidizers causes a rapid reaction which liberates heat.

- Thermal decomposition products include oxides of sulfur and nitrogen. Vapors may form explosive mixture with air.

10.2 Chemical Stability

- Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

- No data available.

10.4 Conditions to avoid (e.g., static discharge, shock, or vibration)

- Avoid heat, sparks, flames.

10.5 Incompatible materials

- Strong oxidizers; strong bases; strong acids; Copper, Zinc or their alloys (i.e. bronze, brass, galvanized metals, etc.).

10.6 Hazardous decomposition products

- Oxides of sulfur and nitrogen.

- Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

11.1 Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact)

- No data available. Skin contact expected to be most likely.

11.2 Symptoms related to the physical, chemical and toxicological characteristics

Eye Contact: may cause severe damage to the cornea and conjunctiva.

Skin Contact: may cause reddening, blistering or burns. Harmful if absorbed through the skin. May cause allergic skin reaction.

Inhalation: may cause severe irritation with possible lung damage (pulmonary edema).

Ingestion: may cause severe gastrointestinal burns.

Target Organ Effects: May cause gastrointestinal (oral), respiratory tract, nervous system and blood effects

This product is extremely destructive to mucous membranes and tissue of the upper respiratory tract, eyes, and skin.

11.3 Delayed and immediate effects and also chronic effects from short- and long-term exposure

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

No data available

11.4 Numerical measures of toxicity (such as acute toxicity estimates)

- Oral: Oral-Mus LD_{LO}: 80 mg/kg (ammonium sulfide)

Oral-Rat, LD₅₀: 350 mg/kg (ammonia)

- Dermal: Skin-Mus, LD₅₀: 132 mg/kg (ammonium sulfide)

Skin-Rabbit, LD_{LO}: 119 mg/kg (ammonium sulfide)

- Inhalation: Rat, LC₅₀: 2,000 ppm, 4 hr. exposure (ammonia).

Rat, LC₅₀: 444 ppm, 1 hr. exposure (hydrogen sulfide)

11.5 Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA.

- 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

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity (aquatic and terrestrial, where available)

- Ammonia ingredient is known to be very toxic to aquatic life. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

12.2 Persistence and degradability

- No data available. Only the strength of this product contributes to its environmental toxicity. Dilution yields only naturally-occurring chemical species.

12.3 Bioaccumulative potential

- No data available. No appreciable bioconcentration is expected in the environment.

12.4 Mobility in soil

- No data available. Expected to be highly mobile.

12.5 Other adverse effects

- No data available.

CHEMICAL FATE: With dilution, both the ammonia and the sulfide are expected to be readily incorporated into the preexisting natural nitrogen cycle and sulfur cycle, respectively.

13. DISPOSAL CONSIDERATIONS

As sold, this product, when discarded or disposed of, would be a hazardous waste according to Federal regulations (40 CFR 261). It would meet the definition of a characteristic reactive waste, Hazardous Waste Number D003. The transportation, storage, treatment and disposal of this waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Refer to state and local requirements for any additional requirements, as these may be different from Federal laws and regulations. Chemical additions, processing or otherwise altering this material may make waste management information presented in this SDS incomplete, inaccurate or otherwise inappropriate. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging: Dispose of as unused product.

14. TRANSPORT INFORMATION

U.S. DOT

Proper Shipping Name: Ammonium sulfide solution

Hazard Class: 8 (6.1, 3)

UN/NA Number: UN2683

Packing Group: PG II

Reportable Quantity (RQ): 238 lbs of this product
(100 lbs of ammonium sulfide).

Poison Inhalation Hazard: No

IATA

UN number: 2683

Proper shipping name: Ammonium sulphide solution

Class: 8 (3, 6.1) Packing group: II

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

15. REGULATORY INFORMATION

Comprehensive Environmental Response and Liability Act of 1980 (CERCLA):

The reportable quantity (RQ) for this product is 238 pounds (100 pounds of ammonium sulfide). If appropriate, immediately report to the National Response Center (800/424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies.

Toxic Substances Control Act (TSCA):

All components of this product are included on the TSCA inventory and are listed as ACTIVE.

Superfund Amendments and Reauthorization Act (SARA) Title III Information:

SARA 302 Components

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

SARA Section 311/312 (40 CFR 370) Hazard Categories:

Immediate Hazard (Acute Health Hazard), Fire Hazard

SARA 313 Components

This material does not contain any chemical components that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

State Regulations

Massachusetts Right To Know Components

Ammonium sulfide CAS No. 12135-76-1

Pennsylvania Right To Know Components

Ammonium sulfide 12135-76-1

New Jersey Right To Know Components

Ammonium sulfide 12135-76-1

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.

International Regulations

Canadian Environmental Protection Act: All of the components of this product are included on the Canadian Domestic Substances list (DSL).

European Inventory of Existing Chemicals (EINECS): All of the components of this product are included on EINECS.

16. OTHER INFORMATION

NFPA Rating (National Fire Protection Association):

Health - 3 (Materials that can affect health or cause serious injury, during periods of short exposure, even though prompt medical treatment is given).

Fire - 3 (Liquids and solids that can be ignited under the most ambient conditions)

Reactivity - 1 (Materials that are normally stable, but become explosive at elevated temperatures and pressure).

Special - NA

Reason for Issue..... : 29 CFR 1910 compliance.

Prepared by..... : Jerry A. Cook.

Title..... : Technical Director.

Approval Date..... : February 13, 2019

Supersedes Date..... : May 15, 2015.

MSDS Number..... : 45A.

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