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AMMONIUM SULFIDE SOLUTION

1. Product Identification
Synonyms: Diammonium sulfide; Ammonium sulfide in aqueous solution , Ammonium polysulfide
CAS No.: 12135-76-1
Molecular Weight: 68.15
Chemical Formula: $(NH_4)_2S$ in aqueous solutions
Product Codes: 30206

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
Ammonium Sulfide	12135-76-1	10 - 20%
Water	7732-18-5	80 - 90%

3. Hazards Identification
Potential Health Effects

Inhalation: Inhalation of vapors causes irritation to the respiratory tract; symptoms may include coughing and shortness of breath. Concentrations of hydrogen sulfide above 50 ppm may cause headache, insomnia, nausea, sore throat,dizziness, drowsiness, and pulmonary edema.
Ingestion: May be corrosive to the gastrointestinal tract through liberation of hydrogen sulfide. Can cause nausea, vomiting, headache, cyanosis, respiratory depression, blood pressure fall, unconsciousness
Skin Contact: Causes irritation, redness, and pain. May be absorbed through skin and cause hydrogen sulfide poisoning.
Eye Contact: Splashes can cause burns to the eyes. Vapors can cause irritation with redness and pain.
Chronic Exposure: Chronic exposure may cause damage to exposed tissues.
Aggravation of Pre-existing Conditions: Persons with pre-existing pulmonary diseases may be more susceptible to the effects of this substance.

4. First Aid Measures
Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion: If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.
Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally.Get medical attention immediately.

5. Fire Fighting Measures
Fire: Flash point: 22C (72F) CC
Flammable limits in air % by volume: lel: 4; uel: 46
Listed fire data is for Pure Ammonium Sulfide.
The flashpoint of a 20-24% solution of ammonium sulfide is 60C (140F) (closed cup).
Toxic hydrogen sulfide gas is released when heated. If ignited, irritating sulfur dioxide gas will form.

Explosion: Not considered an explosion hazard, but contact with powerful oxidizers may cause an explosion. Sealed containers may rupture when heated. Contact with strong oxidizers may cause fire. Sensitive to static discharge.
Fire Extinguishing Media: Use water in flooding quantities as fog; solid streams of water may be ineffective to knock down vapors. do not use carbon dioxide as flammable, toxic hydrogen sulfide gas can be generated. Apply water from as far a distance as possible. Alcohol foam or dry chemical may be used.
Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures
Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment
as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust.

7. Handling and Storage
Protect against physical damage. Outside or detached storage is preferred. Inside storage should be a standard
flammable liquids storage room or cabinet. Separate from acids and oxidizing materials. Storage and use areas
should be no smoking areas. Isolate from incompatible substances. Toxic hydrogen sulfide and ammonia gases may collect in enclosed spaces. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection
Airborne Exposure Limits:
-OSHA Permissible Exposure Limit (PEL):
Hydrogen sulfide: 10 ppm (TWA), 15 ppm (STEL)
Ammonia: 50 ppm (TWA)
-ACGIH Threshold Limit Value (TLV):
Hydrogen sulfide gas: 10 ppm (TWA) 15 ppm (STEL)
Ammonia: 25 ppm (TWA), 35 ppm (STEL)
Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Respirators (NIOSH Approved): If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full-face piece respirator, airlined hood, or full-facepiece self-contained breathing apparatus.
Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
Eye Protection: Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties
Appearance: Clear, yellow liquid.
Odor: Strong odor of sulfide and ammonia.
Solubility: Infinitely soluble.
Density: ca. 1.0 @ 20 C (68F)
pH: 9.5 (45% aqueous solution)
% Volatiles by volume @ 21C (70F): 100
Boiling Point: Decomposes.
Melting Point: No information found.
Vapor Density (Air=1): No information found.
Vapor Pressure (mm Hg): No information found.
Evaporation Rate (BuAc=1): No information found.

10. Stability and Reactivity
Stability: Stable under ordinary conditions of use and storage. May lose integrity with age; ammonium sulfide slowly produces hydrogen sulfide and ammonia in the presence of moisture.
Hazardous Decomposition Products: Emits toxic fumes of sulfur oxides, nitrogen oxides, hydrogen sulfide, ammonium bisulfite, and ammonia when heated to decomposition.
Hazardous Polymerization: Will not occur.
Incompatibilities: Contact with acids may evolve hydrogen sulfide. Oxidizers, zinc. Severely corrodes copper, zinc and their alloys.
Conditions to Avoid: Heat, flames, ignition sources and incompatibles.

11. Toxicological Information
No LD50/LC50 information found relating to normal routes of occupational exposure.
--------\Cancer Lists\----------
---NTP Carcinogen---

Ingredient	Known	Anticipated	IARC Category
Ammonium Sulfide (12135-76-1)	No	No	None
Water (7732-18-5)	No	No	None

12. Ecological Information
Environmental Fate: No information found.
Environmental Toxicity: No information found.

13. Disposal Considerations
Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information
Land

Proper Shipping Name: AMMONIUM SULFIDE SOLUTION
Hazard Class: 8, 6.1UN/NA: UN2683
Packing Group: II
Information reported for product/size: 2.5L

International (Water, I.M.O.)

Proper Shipping Name: AMMONIUM SULPHIDE SOLUTION
Hazard Class: 8, 6.1
UN/NA: UN2683
Packing Group: II
Information reported for product/size: 2.5L

15. Regulatory Information
SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No
Reactivity: Yes (Mixture / Liquid)
Poison Schedule: None allocated.

16. Other Information
Product Use:
Laboratory Reagent.