

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 12/19/2007

Reviewed on 01/22/2007

1 Identification of substance:**Product details:****Product name:** Ammonium sulfide solution**Stock number:** 33286**Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company
 Johnson Matthey Catalog Company, Inc.
 30 Bond Street
 Ward Hill, MA 01835-8099
 Emergency Phone: (978) 521-6300
 CHEMTREC: (800) 424-9300
 Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency information:**

During normal hours the Health, Safety and Environmental Department.
 After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:**Chemical characterization:****Description: (CAS#)**

Ammonium sulfide (CAS# 12135-76-1), 20-24%

Water (CAS# 7732-18-5), 76-80%

Identification number(s):**EINECS Number:** 235-223-4**3 Hazards identification****Hazard description:**

C Corrosive

N Dangerous for the environment

Information pertaining to particular dangers for man and environment

R 10 Flammable.

R 31 Contact with acids liberates toxic gas.

R 34 Causes burns.

R 50 Very toxic to aquatic organisms.

Classification system**HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	3
FIRE	3
REACTIVITY	2

Health (acute effects) = 3

Flammability = 3

Reactivity = 2

4 First aid measures**General information**

Immediately remove any clothing soiled by the product.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

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After skin contact

Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing Seek immediate medical advice.

5 Fire fighting measures**Suitable extinguishing agents**

Water haze
Alcohol resistant foam
Dry sand

For safety reasons unsuitable extinguishing agents Carbon dioxide
Special hazards caused by the material, its products of combustion or resulting gases:

In case of fire, the following can be released:

Nitrogen oxides (NOx)
Sulfur dioxide (SO₂)
Ammonia

Hydrogen sulfide

Protective equipment:

Wear self-contained respirator.
Wear fully protective impervious suit.

6 Accidental release measures

Person-related safety precautions: Mount respiratory protective device.

Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Information for safe handling:**

Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.

Information about protection against explosions and fires:

Keep ignition sources away.
Protect from heat.

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Storage**Requirements to be met by storerooms and receptacles:**

No special requirements.

Information about storage in one common storage facility:

Do not store together with acids.

Do not store together with alkalies (caustic solutions).

Aqueous solutions are incompatible with alkali and alkaline earth metals and many reactive organic and inorganic chemicals.

Further information about storage conditions:

Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

Not required.

Additional information: No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment:

Use suitable respirator when high concentrations are present.

Protection of hands: Impervious gloves**Eye protection:**

Safety glasses

Tightly sealed goggles

Full face protection

Body protection: Protective work clothing.**9 Physical and chemical properties:****General Information**

Form:	Liquid
Color:	Clear
	Yellow
Odor:	Like rotten eggs

Change in condition

Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined

Flash point: 60°C (140°F)**Ignition temperature:** Not determined**Decomposition temperature:** Not determined

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Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure at 20°C (68°F):	546 hPa (410 mm Hg)
Density at 20°C (68°F):	0.997 g/cm ³
Solubility in / Miscibility with Water:	Fully miscible

10 Stability and reactivity**Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Materials to be avoided:

Acids

Aluminum/aluminum alloys.

Copper

Aqueous solutions are incompatible with alkali and alkaline earth metals and many reactive organic and inorganic chemicals.

Dangerous reactions

Reacts with acids forming hydrogen sulfide

Reacts with alkali metals.

Reacts with alkaline earth metals.

Reacts with strong oxidizing agents

Dangerous products of decomposition:

Hydrogen sulfide

Sulfur oxides (SO_x)

Ammonia

Nitrogen oxides (NO_x)

11 Toxicological information**Acute toxicity:****Primary irritant effect:****on the skin:**

Corrosive effect on skin and mucous membranes.

Irritant to skin and mucous membranes.

on the eye:

Strong corrosive effect.

Irritating effect.

Sensitization: No sensitizing effects known.

Subacute to chronic toxicity:

Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus. May cause skin burns or irritation depending on the severity of the exposure.

Sulfides show variable toxicity. The alkaline sulfides are similar in action to alkalies. They cause irritation of the skin and are corrosive by ingestion. The heavy metal sulfides are generally insoluble and show

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little toxic action except through the liberation of hydrogen sulfide. Hydrogen sulfide, if generated, is toxic, a severe irritant and flammable. Effects include conjunctivitis, headache, nausea, dizziness, coughing, pulmonary edema and possibly death.

Additional toxicological information:

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information:**Ecotoxicological effects:**

Remark: Very toxic for fish

General notes:

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground. Also poisonous for fish and plankton in water bodies.

Do not allow material to be released to the environment without proper governmental permits.

Very toxic for aquatic organisms

13 Disposal considerations**Product:****Recommendation**

Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information**DOT regulations:**

Hazard class:

8

Identification number:

UN2683

Packing group:

II

Hazardous substance:

100 lbs, 45.4 kg

Proper shipping name (technical name):

AMMONIUM SULPHIDE SOLUTION

Label

8+6.1+3

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Land transport ADR/RID (cross-border)

ADR/RID class: 8 (CFT) Corrosive substances
Danger code (Kemler): 86
UN-Number: 2683
Packaging group: II
Description of goods: 2683 AMMONIUM SULPHIDE SOLUTION

Maritime transport IMDG:

IMDG Class: 8
UN Number: 2683
Label 8+6.1+3
Packaging group: II
Proper shipping name: AMMONIUM SULPHIDE SOLUTION

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 8
UN/ID Number: 2683
Label 8+6.1+3
Packaging group: II
Proper shipping name: AMMONIUM SULPHIDE SOLUTION

15 Regulations**Product related hazard informations:****Hazard symbols:**

C Corrosive

N Dangerous for the environment

Risk phrases:

10 Flammable.

31 Contact with acids liberates toxic gas.

34 Causes burns.

50 Very toxic to aquatic organisms.

Safety phrases:

20 When using do not eat or drink.

23 Do not breathe gas/fumes/vapour/spray.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately.

57 Use appropriate container to avoid environmental contamination.

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National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

Information about limitation of use:

For use only by technically qualified individuals.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact: Paul V. Connolly

USA