

SAFETY DATA SHEET

Version 3.9
Revision Date 07/28/2015
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Ammonium hydroxide solution

Product Number : A6899

Brand : Sigma

Product Use : For laboratory research purposes.

Supplier : Sigma-Aldrich Canada Co.
2149 Winston Park Drive
OAKVILLE ON L6H 6J8
CANADA

Manufacturer : Sigma-Aldrich Corporation
3050 Spruce St.
St. Louis, Missouri 63103
USA

Telephone : +1 9058299500

Fax : +1 9058299292

Emergency Phone # (For both supplier and manufacturer) : +1-703-527-3887 (CHEMTREC)

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

2. HAZARDS IDENTIFICATION

Emergency Overview

Other hazards which do not result in classification

Lachrymator.

WHMIS Classification

| | | |
|-----|--|---|
| D1B | Toxic Material Causing Immediate and Serious Toxic Effects | Toxic by ingestion |
| E | Corrosive Material | Corrosive to metals Corrosive to skin Corrosive |

GHS Classification

Acute toxicity, Oral (Category 4)
Skin corrosion/irritation (Category 1)
Serious eye damage/eye irritation (Category 1)
Acute aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram



Signal word : Danger

Hazard statement(s)

H302 : Harmful if swallowed.
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.
P304 + P340 + P310 : IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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

HMIS Classification

Health hazard: 3
Flammability: 0
Physical hazards: 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 Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Ammonia aqueous
Ammonia water

| CAS-No. | EC-No. | Index-No. | Concentration |
|---------------------------|-----------|--------------|---------------------|
| Ammonium hydroxide | | | |
| 1336-21-6 | 215-647-6 | 007-001-01-2 | >= 57.6 - <= 61.7 % |
| Water | | | |
| 7732-18-5 | 231-791-2 | - | >= 38.3 - <= 42.4 % |

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

Not flammable or combustible.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides (NOx)

Explosion data - sensitivity to mechanical impact

No data available

Explosion data - sensitivity to static discharge

No data available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe 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

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

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.

Recommended storage temperature 2 - 8 °C

May develop pressure. Refrigerate before opening. Handle and open container with care.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

| | | | | |
|--|--|------|---------------|---|
| | | TWA | 25.000000 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | | TWA | 25.000000 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | | STEL | 35.000000 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | | STEL | 35.000000 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | | TWA | 25 ppm | USA. ACGIH Threshold Limit Values (TLV) |
| | | STEL | 35 ppm | USA. ACGIH Threshold Limit Values (TLV) |

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, 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.

Specific engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

| | |
|--------|---------------|
| Form | liquid, clear |
| Colour | colourless |

Safety data

| | |
|--|--|
| pH | 11.7 at 20 °C (68 °F) |
| Melting point/freezing point | -60 °C (-76 °F) |
| Boiling point | 38 - 100 °C (100 - 212 °F) at 1,013 hPa (760 mmHg) |
| Flash point | Not applicable |
| Ignition temperature | 651 °C (1,204 °F) |
| Auto-ignition temperature | No data available |
| Lower explosion limit | 16 %(V) |
| Upper explosion limit | 27 %(V) |
| Vapour pressure | 153 hPa (115 mmHg) at 20 °C (68 °F) |
| Density | 9.0 g/cm ³ at 25 °C (77 °F) |
| Water solubility | No data available |
| Partition coefficient: n-octanol/water | No data available |
| Relative vapour density | 1.21 - (Air = 1.0) |
| Odour | No data available |
| 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

No data available

Conditions to avoid

No data available

Materials to avoid

Copper, Iron, Zinc

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides (NO_x)

Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50

LD50 Oral - Rat - 350 mg/kg (Ammonium hydroxide)

Remarks: Gastrointestinal:Other changes. Liver:Other changes. Kidney, Ureter, Bladder:Other changes.

Inhalation LC50

No data available (Ammonium hydroxide)

Dermal LD50

No data available (Ammonium hydroxide)

Other information on acute toxicity

No data available (Ammonium hydroxide)

Skin corrosion/irritation

No data available (Ammonium hydroxide)

Serious eye damage/eye irritation

No data available (Ammonium hydroxide)

Respiratory or skin sensitisation

No data available (Ammonium hydroxide)

Germ cell mutagenicity

No data available (Ammonium hydroxide)
(Ammonium hydroxide)

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.

Reproductive toxicity

No data available (Ammonium hydroxide)

(Ammonium hydroxide)

Teratogenicity

(Ammonium hydroxide)

No data available (Ammonium hydroxide)

Specific target organ toxicity - single exposure (Globally Harmonized System)

No data available (Ammonium hydroxide)

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

No data available

Aspiration hazard

No data available (Ammonium hydroxide)

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 | Toxic if swallowed. |
| Skin | May be harmful if absorbed through skin. Causes skin burns. |
| Eyes | Causes eye burns. |

Signs and Symptoms of Exposure

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. (Ammonium hydroxide)

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 (Ammonium hydroxide)

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.

No data available

13. DISPOSAL CONSIDERATIONS**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

UN number: 2672 Class: 8 Packing group: III

Proper shipping name: Ammonia solution

Reportable Quantity (RQ): 1621 lbs

Marine pollutant: No

Poison Inhalation Hazard: No

IMDG

UN number: 2672 Class: 8 Packing group: III EMS-No: F-A, S-B

Proper shipping name: AMMONIA SOLUTION

Marine pollutant: No

IATA

UN number: 2672 Class: 8 Packing group: III

Proper shipping name: Ammonia solution

15. REGULATORY INFORMATION**WHMIS Classification**

D1B Toxic Material Causing Immediate and Serious Toxic by ingestion

Toxic Effects

E Corrosive Material Corrosive to metals

Corrosive to skin

Corrosive

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

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

Further information

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