

AMMONIUM HYDROXIDE

Material Safety Data Sheet

Mallinckrodt Chemical Inc.

P.O. Box 800

Paris, Kentucky 40362

Emergency Telephone Number
314-539-1600

Effective Date: 04-06-89 Supersedes 07-22-85

PRODUCT IDENTIFICATION:

Synonyms: Aqua ammonia; ammonia water; ammonium hydrate; ammonia solution

Formula CAS No.: 1336-21-6 Listed on TSCA Molecular Weight: 35.05
InventoryHazardous Ingredients: Ammonium hydroxide Chemical Formula: NH_4OH

PRECAUTIONARY MEASURES

DANGER! MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. CAUSES BURNS.

Do not get in eyes, on skin, or on clothing.

Avoid breathing vapor.

Keep container closed.

Use with adequate ventilation.

Wash thoroughly after handling.

This substance is classified as a POISON under the Federal Caustic Poison Act.

EMERGENCY FIRST AID

If swallowed, give several glasses of water to drink to dilute. Vomiting may occur spontaneously, but DO NOT INDUCE! If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. In all cases call a physician.
SEE SECTION 5.

Physical Data

SECTION 1

Appearance: Clear, colorless solution.

Odor: Ammonia

Solubility: Infinite in water.

Boiling Point: ca. 36 C (97 F)

Vapor Density (Air=1): 1.2

Melting Point: -72 C (-98 F)

Vapor Pressure (mm Hg): 115 @ 20 C (68 F)

Specific Gravity : 0.9

Evaporation Rate: No information found.

Fire and Explosion

SECTION 2

Information

Fire:

Autoignition temperature 651 C (1204 F) as NH_3 .
Flammable limits in air volume % (as NH_3): lcl: 16; ucl: 27.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing

surrounding fire. Use water spray to blanket fire, cool fire exposed containers, and to flush non-ignited spills or vapors away from fire.

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.

Reactivity Data

SECTION 3

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Emits toxic fumes of ammonia and nitric oxides when heated to decomposition.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Acids, acrolein, dimethyl sulfate, halogens, silver nitrate, propylene oxide, nitromethane, silver oxides, silver permanganate, oleum, beta-propiolactone.

Leak/Spill Disposal Information

SECTION 4

Ventilate and evacuate area. Clean-up personnel require protective clothing and respiratory protection from vapors. Allow only qualified personnel to handle the spill. Contain and recover liquid when possible. Spills may be neutralized with dilute hydrochloric acid or dilute sulfuric acid and discharged to sewer with large amounts of water. Regulations for pH, ammonia content and salts for effluents must be considered. Do not flush directly to sewers. Alternatively, spills may be absorbed with dry inert material and collected for disposal in a RCRA approved facility. Reportable Quantity (RQ) (CWA/CERCLA) : 1000 lbs.

Ensure compliance with local, state and federal regulations.

Health Hazard Information

SECTION 5

A. Exposure/Health Effects

Inhalation:

May cause irritation to the respiratory tract, symptoms may include coughing, sore throat, and labored breathing. High concentrations may cause laryngitis, tracheitis, pulmonary edema, chest pains, or pneumonitis.

Ingestion:

Toxic! May cause corrosion to the esophagus and stomach with perforation and peritonitis. Symptoms may include pain in the mouth, chest, and abdomen, with coughing, vomiting and collapse.

Skin Contact:

May cause skin burns with vesication.

Eye Contact:

Vapors may cause irritation. Splashes may cause severe pain and eye injuries such as glaucoma, corneal scars, iris atrophy, and cataracts.

Chronic Exposure:

No information found.

Aggravation of Pre-existing Conditions:

Persons with pre-existing eye disorders or impaired respiratory function may be more susceptible to the effects of this material.

B. FIRST AID

- Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- Ingestion: Give several glasses of water to drink to dilute. Vomiting may occur spontaneously, but do not induce. Get medical attention immediately.
- Skin Exposure: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician.
- Eye Exposure: Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

C. TOXICITY (RTECS, 1986)

Oral rat LD50: 350 mg/kg Mutation Effects cited Irritation eye rabbit: 44ug
Severe Aquatic Toxicity Rating: TLM 96: 100 - 10 ppm

Occupational Control Measures SECTION 6

- Airborne Exposure Limits: -OSHA Permissible Exposure Limit (PEL): 35 ppm (NH*3) (STEL) -ACGIH Threshold Limit Value (TLV): 25 ppm (NH*3) (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. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.
- Personal Respirators (NIOSH Approved) If the TLV is exceeded, a dust/mist respirator with chemical goggles may be worn, in general, up to ten times the TLV. Consult respirator supplier for limitations. Alternatively, a supplied air full facepiece respirator or airlined hood may be worn.
- 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 full face shield where dusting or splashing of solutions is possible. Contact lenses should not be worn when working with this material. Maintain eye wash fountain and quick-drench facilities in work area.

Storage and Special Information SECTION 7

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Separate from incompatibilities. Protect from direct sunlight.

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Addendum to Material Safety Data Sheet

REGULATORY STATUS

Hazard Categories for SARA
Section 311/312 Reporting

Acute	Chronic	Fire	Pressure	Reactive
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X				

Product or Components of Product:	SARA EHS Sec. 302		SARA Sec. 313 Chemicals Name Chemical List Category		CERCLA Sec.103 RQ lbs	RCRA Sec. 261.33
	RQ	TPQ	----	-----	-----	-----
AMMONIUM HYDROXIDE Ammonium hydroxide (1336-21-6) 58%	No	No	No	No	No	No

SARA Section 302 EHS RQ:
Reportable Quantity of Extremely Hazardous Substance, listed at 40 CFR 355.

SARA Section 302 EHS TPQ:
Threshold Planning Quantity of Extremely Hazardous substance. An asterisk (*) following a Threshold Planning Quantity signifies that if the material is a solid and has a particle size equal to or larger than 100 micrometers, the Threshold Planning Quantity = 10,000 LBS.

SARA Section 313 Chemicals:
Toxic Substances subject to annual release reporting requirements listed at 40 CFR 372.65.

CERCLA Sec. 103:
Comprehensive Environmental Response, Compensation and Liability Act (Superfund) Releases to air, land or water of these hazardous substances which exceed the Reportable Quantity (RQ) must be reported to the National Response Center, (800-424-8802); Listed at 40 CFR 302.4

RCRA:
Resource Conservation and Recovery Act. Commercial chemical product wastes designated as acute hazards and toxic under 40 CFR 261.33

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