

MATERIAL SAFETY DATA SHEET

AMMONIUM HYDROXIDE

GS031



DISTRIBUTORS:

NATIONAL AMMONIA COMPANY
BOWER AMMONIA & CHEMICAL COMPANY
NORTHEASTERN AMMONIA COMPANY, INC.
AL WELLS, INC.

TACONY & VANKIRK STS. PHILADELPHIA PA 19135

CORPORATE EMERGENCY TELEPHONE NUMBER:

215-535-7530

CHEMTREC (CMA)

800-424-9300

DESCRIPTION

CHEMICAL NAME: Ammonium Hydroxide Solution

CAS REGISTRY NO. 1336-21-6

SYNONYMS: Aqua Ammonia

CHEMICAL FAMILY: Ammonia

FORMULA: $\text{NH}_4\text{OH} + \text{H}_2\text{O}$

MOL. WT.: 35.05 (NH_4OH)

COMPOSITION: 29.4% by weight of ammonia gas dissolved in water.

STATEMENT OF HEALTH HAZARD

HAZARD DESCRIPTION: Irritant and corrosive to skin, eye, respiratory tract and mucous membranes. May cause severe burns, eye and lung injuries. Skin and respiratory related diseases aggravated by exposure.

Not recognized by OSHA as a carcinogen.

Not listed in the National Toxicology Program annual report.

Not listed as a carcinogen by the International Agency for Research on Cancer.

EXPOSURE LIMITS: Vapor - OSHA - 35 ppm, 27 mg/m³ STEL, 15 minutes

ACGIH - 25 ppm, 18 mg/m³ TLV, 8 hour TWA

35 ppm, 27 mg/m³ STEL, 15 minutes

EMERGENCY TREATMENT

EFFECTS OF OVEREXPOSURE: Skin: local irritation, burns; blister formation. Eye: burns, may lead to blindness. Ingestion: burning pain in mouth, throat, stomach, thorax, constriction of throat, coughing, followed by vomiting or diarrhea. Probable lethal ingestion dose is 3-4 ml. (1 ounce). Inhalation: irritation, headache coughing, severe lung congestion, breathing difficulty, convulsions, shock).

EMERGENCY AID: Skin: flush with copious amount of water while removing contaminated clothing, shoes. Do not rub, or apply ointment on affected area. Ingestion: if conscious, give large amount of water to drink. Refer immediately to physician. Eye: flush with copious amount of water for 15 min. Eyelids should be held apart and away from eyeball for thorough rinsing. Inhalation: remove to fresh air. Administer oxygen or artificial respiration if necessary. IF SYMPTOMS PERSIST OR EXPOSURE IS SEVERE, SEEK PROMPT MEDICAL HELP.

NOTE TO PHYSICIAN: Eye injury may appear as delayed phenomenon. Pulmonary edema may follow chemical bronchitis. Supportive treatment with necessary ventilatory actions, including oxygen, may warrant consideration.

PHYSICAL DATA

BOILING PT.: NH_3 vapors released on warming

FREEZING PT.: -77.7°C (-108°F)

VAPOR PRESSURE: @ 15.5°C: 420-475 mm Hg

VAPOR DENSITY (Air=1): less than 1

SPECIFIC GRAVITY: 0.8974 at 60°F

SOLUBILITY IN WATER: Complete

PERCENT VOLATILE: 100% at 212°F

EVAPORATION RATE (Water=1): Similar

APPEARANCE AND ODOR: Colorless liquid and pungent odor

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: None

AUTOIGNITION TEMP.: Not applicable

FLAMMABLE LIMITS IN AIR: for evolved ammonia: LEL: 16% UEL: 25%

EXTINGUISHING MEDIA: Non-combustible

SPECIAL FIRE-FIGHTING PROCEDURES: Not considered a primary fire hazard, but care should be taken to avoid exposure to liquid product involved in fire. Wear splash-proof, gas-tight chemical goggles, respiratory protection, rubber gloves and clothing to avoid contact as needed. Cool fire-exposed containers.

UNUSUAL FIRE AND EXPLOSION HAZARDS: When heated, material will give off ammonia gas, a strong irritant to eye, respiratory tract, and moist skin. Closed containers exposed to extreme heat may develop pressure. Combustion of released ammonia may form nitrogen oxides.

Revision: January 1990

SAL 000009466

MATERIAL SAFETY DATA SHEET

AMMONIUM HYDROXIDE (Continued)

CHEMICAL REACTIVITY

STABILITY: Stable at room temperature. Aqua ammonia will react exothermically with acids. Releases ammonia vapor when heated.

CONDITIONS TO AVOID: Avoid mixing with sulfuric acid or other strong mineral acids; mixing with hypochlorites (chlorine bleach), other halogens, sodium hydroxide. Avoid contact with galvanized surfaces, copper, brass, bronze, aluminum alloys, mercury, gold, silver, strong oxidizers. Avoid heating.

HAZARDOUS DECOMPOSITION PRODUCTS: Ammonia decomposition to hydrogen and nitrogen gases above 450°C (842°F).

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN: Wear respiratory protection and protective clothing, see PROTECTIVE EQUIPMENT. Stop source if possible. Stay upwind and use water spray to absorb the evolved gas. Dilute with large amount of water. Contain spill by diking.

WASTE DISPOSAL: Listed as hazardous substance under CWA (40 CFR 116.4, 40 CFR 117.3 Reportable Quantity Category C, 1000 #/454kg). Comply with all regulations. Suitably diluted, product may be disposed of on agricultural land as fertilizer. Keep spill from entering streams or lakes.

SPECIAL PROTECTION AND PROCEDURES

RESPIRATORY PROTECTION: MSHA/NIOSH approved respiratory protection with full facepiece for gas and vapor contaminants effective for ammonium hydroxide and able to be used for entry and escape in emergencies. Refer to 29 CFR 1910.134 and ANSI Z88.2 for requirements and selection.

VENTILATION: Local exhaust sufficient to keep ammonia gas to 25 ppm or less. Refer to 29 CFR 1910.134 and ANSI Z9.2 for requirements and selection.

PROTECTIVE EQUIPMENT: Splash-proof, gas-tight chemical safety goggles, rubber gloves and overshoes to prevent contact. Cotton work clothes recommended. Refer to 29 CFR 1910.132 to 1910.136 for requirements.

SPECIAL PRECAUTIONS

HANDLING AND STORING: Keep in strong glass or plastic, tightly closed containers. Store in cool (26.7°C/80°F) and well-ventilated area.

WORKPLACE PROTECTIVE EQUIPMENT: as discussed above should be near, but outside of aqua ammonia area. Eyewash and safety shower in immediate vicinity. See 29 CFR 1910.141 for workplace requirements.

DISPOSAL: Aqua ammonia is listed as a hazardous substance under FWPCA. See WASTE DISPOSAL.

PERSONAL: Avoid unnecessary exposure. Use protective equipment as needed. Do not wear contact lenses.

LABELING AND SHIPPING

HAZARD CLASS: Corrosive Material

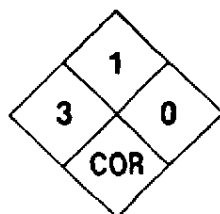
PROPER SHIPPING NAME: Ammonium Hydroxide (Aqua Ammonia) Corrosive Material NA-2672 (RQ)

PLACARD: Corrosive

LABEL: Corrosive NA-2672

IDENTIFICATION NO.: NA-2672

**National Fire
Protection Assoc.
Hazard Rating:**



**Hazardous Materials
Identification System
Label:**

AMMONIUM HYDROXIDE	
HEALTH	3
FLAMMABILITY	1
REACTIVITY	0
PERSONAL PROTECTION	G

OTHER REGULATORY REQUIREMENTS

Under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 any environmental release of this chemical equal to or over the reportable quantity of 1000 lbs. must be reported promptly to the National Response Center, Washington, D.C. (1-800-424-8802). Any consumer product containing 5% or more ammonia requires a POISON label under FHSA (16 CFR 1500.129(1)).

This material is subject to the reporting requirements of Section 313, Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40CFR372.

The information, data, and recommendations in this material safety data sheet relate only to the specific material designated herein and do not relate to use in combination with any other material or in any process. The information, data, and recommendations set forth herein are believed by us to be accurate. We make no warranties, either expressed or implied, with respect thereto and assume no liability in connection with any use of such information, data, and recommendations.