

MATERIAL SAFETY DATA SHEET

AMMONIA SOLUTIONS (AMMONIUM HYDROXIDE)

DISTRIBUTOR:

W.D. SERVICE COMPANY, INC.

780 CREEK ROAD, P.O. BOX 147

BELLMAWR, NJ 08099

CORPORATE EMERGENCY TELEPHONE NUMBER: 856-931-6100, 24 HOUR 800-424-9300

DESCRIPTION

CHEMICAL NAME: Ammonia Solutions (24° Baume)

SYNONYMS: Aqua Ammonia

CHEMICAL FAMILY: Ammonia

COMPOSITION: 25.5% by weight of ammonia gas dissolved in water.

CAS REGISTRY NO.1336-21-6

FORMULA NH₄OH + H₂O MOL. WT. 35.05(NH₄OH)

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

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|-------|---------|----------------------------|-------------|
| OSHA | 50 ppm, | 35mg/m ³ PEL, | 8 hour TWA |
| NIOSH | 35 ppm, | 27 mg/m ³ STEL, | 15 minutes |
| | 25 ppm, | 18 mg/m ³ PEL, | 10 hour TWA |
| ACGIH | 25 ppm, | 18 mg/m ³ TLV, | 8 hour TWA |
| | 35 ppm, | 27 mg/m ³ STEL, | 15 minutes |

EMERGENCY TREATMENT

EFFECTS OF OVEREXPOSURE: Eye & Skin: Overexposure can severely irritate and burn the skin or eye causing permanent damage. Inhalation: Severe irritation to nose, throat and lungs causing headaches, coughing, severe lung congestion, breathing difficulty, convulsion or shock.

EMERGENCY AID: Skin: flush with copious amount of water while removing contaminated clothing and shoes. Wash clothing before re-use. Do not rub, or apply ointment on affected area. Ingestion: if conscious, give large amounts of water to drink and follow with vinegar or fruit juice. Refer immediately to physician. Eye: flush with copious amounts of water for 15 minutes. Eyelids should be held apart and away from eyeball for thorough rinsing. Inhalation: remove to fresh air. Administer oxygen or artificial respiration if necessary. **SEEK IMMEDIATE MEDICAL HELP.**

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

PHYSICAL DATA

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| BOILING PT: NH ₃ , vapors released upon warming | FREEZING PT: -99 °F |
| VAPOR PRESSURE: 6.4 psia @ 60 °F | VAPOR DENSITY (Air=1): less than 1 |
| SPECIFIC GRAVITY: 0.9089 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 | SURFACE TENSION: 63 Dynes/cm |

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 most skin. Closed containers exposed to extreme heat may develop pressure. Combustion of released ammonia may form nitrogen oxides.

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 and 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 amounts of water. Contain spill by diking.

WASTE DISPOSAL: Listed as hazardous substance under CWA (40 CFR 116.40 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 25ppm 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 boots 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.

WORK-PLACE 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. Classified as RCRA Hazardous waste due to corrosivity with designation D002 if disposed of in original form.

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

LABELING AND SHIPPING

HAZARD CLASS: 8(Corrosive)

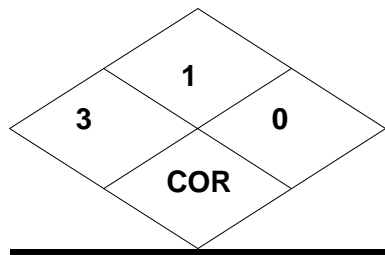
PROPER SHIPPING DESCRIPTION: Ammonia Solutions(Ammonium Hydroxide), 8,UN2672, PG III, RQ

PLACARD: Corrosive

IDENTIFICATION NO: UN 2672

National Fire Protection Assoc. Hazardous Rating:

Hazardous Materials Identification System Labels:



| AMMONIA SOLUTIONS | |
|---------------------|---|
| HEALTH | 3 |
| FLAMMABILITY | 1 |
| REACTIVITY | 0 |
| PERSONAL PROTECTION | H |

OTHER REGULATORY REQUIREMENTS

Under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Section 103, 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)).

The material is subject to the reporting requirements of Section 313, Section 304 and Section 312, Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372. As of June 30, 1995, this material is reportable with the following qualifications: 10% of total aqueous ammonia is reportable as Ammonia (7664-41-4) under this listing.

EPA hazard categories - Immediate: Yes; Delayed No; Fire: No; Sudden: Release: No; Reactive: No

Regulated Air Act – 40 CFR 112(r) at concentrations greater than 20% or amounts greater than 20,000 lbs.

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.

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