



255 Norman.
Lachine (Montreal), Que
H8R 1A3

Material Safety Data Sheet

EMERGENCY NUMBERS:

(USA) CHEMTREC : 1(800) 424-9300 (24hrs)
(CAN) CANUTEC : 1(613) 996-6666 (24hrs)
(USA) Anachemia : 1(518) 297-4444
(CAN) Anachemia : 1(514) 489-5711

| WHMIS | Protective Clothing | TDG Road/Rail |
|---------------------|---------------------|-------------------------------------|
| WHMIS CLASS: E D-1B | | TDG CLASS: 8 PIN: UN2672 PG: III |
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Section I. Product Identification and Uses

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|-------------------------|---|-----------------------|----------------|
| Product name | AMMONIUM HYDROXIDE | CI# | Not available. |
| Chemical formula | NH4OH | CAS# | 1336-21-6 |
| Synonyms | Ammonia, aqueous, AC-0622, AC-0622PG, AC-0622T, CD-0622, EG-0622, EP-0622, R-0380O, 05600, 05566, 05658, 05555, 05560, 05562, 05563, M-0163, M-10252, M-10008 | Code | AC-0622 |
| Supplier | Anachemia Canada. 255 Norman. Lachine (Montreal), Que H8R 1A3 | Formula weight | 35.05 |
| Material uses | For laboratory use only. | | |
| | | Supersedes | |

Section II. Ingredients

| Name | CAS # | % | TLV |
|-----------------------|-----------|---------|--|
| 1) AMMONIA, ANHYDROUS | 7664-41-7 | 20-30 | Exposure limits: ACGIH TWA 25 ppm (17 mg/m3); STEL 35 ppm (24 mg/m3) |
| 2) WATER | 7732-18-5 | Balance | Not established by ACGIH |

Toxicity values of the hazardous ingredients

AMMONIUM HYDROXIDE:
ORAL (LD50): Acute: 350 mg/kg (Rat).
ORAL (LDLo): Acute: 43 mg/kg (Human).

Section III. Physical Data

AMMONIUM HYDROXIDE

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| Physical state and appearance / Odor | Liquid (Water-white, irritating strong pungent ammonia odor.). |
| pH (1% soln/water) | 12 (Product) |
| Odor threshold | 5 ppm |
| Percent volatile | 100% (V/V) |
| Freezing point | -75°C |
| Boiling point | 27°C |
| Specific gravity | 0.90 @ 15.5°C |
| Vapor density | 0.6 (Ammonia) (Air = 1) |
| Vapor pressure | 475 mm Hg @ 15.5°C |
| Water/oil dist. coeff. | Not available. |
| Evaporation rate | Not available. |
| Solubility | Miscible in water. |

Section IV. Fire and Explosion Data

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| Flash point | Not available. |
| Flammable limits | LOWER: 15% (Ammonia) UPPER: 28% (Ammonia) |
| Auto-ignition temperature | 651°C (Ammonia) |
| Fire degradation products | Ammonia. Oxides of nitrogen. |
| Fire extinguishing procedures | Use extinguishing media appropriate to surrounding fire conditions. Carbon dioxide may react with ammonia vapors. Wear adequate personal protection to prevent contact with material or its combustion products. Self contained breathing apparatus with a full facepiece operated in a pressure demand or other positive pressure mode. Cool containing vessels with flooding quantities of water until well after fire is out. DO NOT get water inside container. Disperse vapors with water spray if they have not ignited. |
| Fire and Explosion Hazards | When heated, flammable and toxic vapors emitted. High pressure will build in closed containers at elevated temperatures. Vapor forms explosive mixture with air. NH ₃ vapors in the presence of oil or other combustible materials will increase the fire hazard. Contact with oxidizers may cause fire and/or explosion. The sensitivity to impact is not applicable. The sensitivity to static discharge is not available. |

Section V. Toxicological Properties

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| Routes of entry | Inhalation and ingestion. Skin contact. Eye contact. |
| Effects of Acute Exposure | May be fatal by ingestion, inhalation or skin absorption. Corrosive! Severe lachrymator. Target organs: eyes, skin, respiratory system, lungs. 300 ppm (AMMONIA) is immediately dangerous to life or health. |
| Eye | Immediate intense irritation and pain. Ulceration of the conjunctiva and cornea, iritis, cataract, glaucoma. Causes severe burns and loss of vision. May cause permanent damage. IRRITATION: EYE-RABBIT 44 ug SEVERE. |
| Skin | Causes severe burns. Blister formation and vesiculation. May be fatal. |
| Inhalation | Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation may be fatal as a result of spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, dyspnea, headache, nausea, vomiting, bronchospasm, chest pain, laryngeal oedema, possible suffocation, and possibly death. Some symptoms may be delayed and/or accompanied by pink frothy sputum. Airway obstruction and diminished diffusion capacity and impaired ciliary function may result from overexposure. |
| Ingestion | Burns in mouth, pharynx and gastrointestinal tract. Gastritis, coughing, vomiting, possibility of oesophageal and gastric perforations, of lung irritation and of pulmonary oedema after a delay. Possible death from shock or asphyxia may result. As little as 1 teaspoon (5 ml) of 28% NH ₄ OH solution has been recorded as fatal. |

Section V. Toxicological Properties

Effects of Chronic Overexposure Irritation: eyes, respiratory tract. Chronic bronchitis and dermatitis. Olfactory fatigue (the odor and irritation effects are detected at higher concentrations). Repeated or prolonged exposure to the substance can produce target organs damage. Carcinogenic effects: Not available. Mutagenic effects: Not available. Teratogenic effects: Not available. Toxicity of the product to the reproductive system: Not available. To the best of our knowledge, the chemical, physical, and toxicity of this substance has not been fully investigated. Medical conditions which may be aggravated: Individuals with preexisting diseases of the skin, eye, or respiratory system may be more susceptible to the toxicity of overexposure to this product.

Section VI. First Aid Measures

Eye contact Immediate first aid is needed to prevent eye damage. Washing within 1 minute is essential to achieve maximum effectiveness. Immediately flush eyes with copious quantities of water for at least 30 minutes holding lids apart to ensure flushing of the entire surface. Seek immediate medical attention. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

Skin contact Immediately flush skin with plenty of water for at least 30 minutes while removing contaminated clothing and shoes. If irritation persists, repeat flushing. Seek immediate medical attention. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

Inhalation Remove patient to fresh air. Administer approved oxygen supply if breathing is difficult. Administer artificial respiration or CPR if breathing has ceased. Seek immediate medical attention.

Ingestion If conscious, wash out mouth with water. If conscious, promptly give lots of dilute vinegar or citrus juice to drink, followed by milk. DO NOT induce vomiting. Seek immediate medical attention. Never give anything by mouth to an unconscious or convulsing person. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus.

Section VII. Reactivity Data

Stability Stable. Conditions to avoid: High temperatures, sparks, open flames and all other sources of ignition, contamination.

Hazardous decomp. products Ammonia.

Incompatibility Oxidizers, halogens, acids (hydrochloric, hydrofluoric, nitric, sulfuric, chlorosulfonic acid, etc.), acrolein, acrylic acid, dimethyl sulfate, gold, silver nitrate, silver oxide, silver permanganate, silver oxide plus ethyl alcohol, hypochlorites, mercury, propylene oxide, nitromethane, iron, 1,2-dichloroethane, gold salts, sodium hydroxide, interhalogens, metal halides, ethylene oxide, halogenated compounds, hydrocarbons, β -propiolactone, acetaldehyde, picric acid, calcium hypochlorite, chlorites, amines, silver compounds, boron halides, potassium, phosphorus oxides, galvanized metals, potassium ferricyanide, stibine, chloroformates, bleach, calcium, acid anhydrides, acid chlorides. Attacks some metals such as copper, tin, zinc, aluminum, silver and their alloys, oleum. May attack some forms of plastics, rubbers and coatings.

Reaction Products Will liberate ammonia. Will corrode a wide variety of metals. Contact with other material may cause fire and/or explosion. Hazardous polymerization will not occur.

Section VIII. Preventive Measures

AMMONIUM HYDROXIDE

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Protective Clothing in case of spill and leak Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. Full suit.

Spill and leak Evacuate and ventilate the area. Eliminate all sources of ignition. Stay upwind: Keep out of low areas. Stop leak if without risk. Dyke the area with sand or a natural barrier. Dilute with a large volume of water. Place in a suitable container and mark for disposal. Wash spill site after material pick up is complete. DO NOT empty into drains. DO NOT touch damaged container or spilled material.

Waste disposal According to all applicable regulations. Harmful to aquatic life at low concentrations. Can be dangerous if allowed to enter drinking water intakes. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers.

Storage and Handling Store in a cool place away from heated areas, sparks, and flame. Store in a well ventilated area. Store away from incompatible materials. Do not add any other material to the container. Do not wash down the drain. Do not breathe gas/fumes/vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. Keep away from direct sunlight or strong incandescent light. Keep container tightly closed in a cool, well-ventilated place. Manipulate under an adequate fume hood. May catch fire in presence of oxidizing materials. Do not use pressure to dispense. Empty containers may contain a hazardous residue. Handle and open container with care. Take off immediately all contaminated clothing. This product must be manipulated by qualified personnel. Do not get in eyes, on skin, or on clothing. Wash well after use. In accordance with good storage and handling practices. Do not allow smoking and food consumption while handling. May develop pressure; vent periodically. Refrigerate before opening. May corrode metallic surfaces. In case of accident or if you feel unwell, seek medical advice immediately (show the label when possible.). Where necessary, closed containers should be provided with safety relief valves. Use caution in opening sealed containers for proper pressure relief.

Section IX. Protective Measures

Protective clothing Face shield and safety goggles. Use a rubber suit, boots, gloves, apron, or other protective clothing as required for workplace conditions to prevent contact with ammonium hydroxide solutions. A OSHA/MSHA jointly approved respirator is advised in the absence of proper environmental controls. If more than TLV, do not breathe vapor. Wear self-contained breathing apparatus. Do not wear contact lenses. Make eye bath and emergency shower available. Ensure that eyewash station and safety shower is proximal to the work-station location.

Engineering controls Use in a chemical fume hood to keep airborne levels below recommended exposure limits. Ventilation should be corrosion proof. Do not use in unventilated spaces.

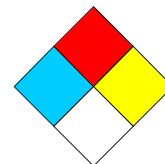
Section X. Other Information

Special Precautions or comments Corrosive! Toxic! Lachrymator. Causes severe burns! Corrosive effects on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain. Strict adherence to first aid measures following any exposure is essential. Do not breathe vapor. Avoid all contact with the product. Avoid prolonged or repeated exposure. Use in a chemical fume hood. Keep away from heat, sparks and flame. May develop pressure. Refrigerate before opening. Handle and open container with care. Container should be opened only by a technically qualified person.

NOTE TO PHYSICIAN: Pulmonary edema may be delayed. Injury may be more severe than would be indicated on early presentation. Medical conditions that may be aggravated by exposure include asthma, bronchitis, emphysema and other lung diseases and chronic nose, sinus or throat conditions. In the event of skin or eye contact, rapid and thorough flushing is essential.

Synergistic materials: Not available.

RTECS NO: BQ9625000 (Ammonium hydroxide).



NFPA

Prepared by MSDS Department/Département de F.S..

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