

MATERIAL SAFETY DATA SHEET**AMMONIUM CARBONATE**

PRODUCT CODE NUMBER(S): 1310-1

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: Ammonium carbonate; crystal ammonia; Carbonic acid, diammonium salt
Chemical Family: Mixture of ammonium hydrogen carbonate and ammonium carbamate
Chemical Formula: $NH_4HCO_3 + NH_2COONH_4$
Product Use: Laboratory reagent
Manufacturer's Name and Address:
Caledon Laboratories Ltd.
40 Armstrong Avenue
Georgetown, Ontario L7G 4R9
Telephone No: (905) 877-0101
Fax No: (905) 877-6666
Emergency Telephone No: CANUTEC (613) 996-6666

HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	%	TLV Units	CAS No.
Ammonium carbonate } Ammonium carbamate	>30	25 ppm (as NH_3)	506-87-6

PHYSICAL DATA

Physical State: Solid
Odour and Appearance: White translucent crystalline lumps and powder with strong ammonia odour.
Odour Threshold (ppm): Not available
Vapour Pressure (mm Hg): 80 mbar @ 20°C
Vapour Density (Air = 1): 2.7
Evaporation Rate: Not available
Boiling Point (degrees C): Volatilizes at 60°C
Melting Point (degrees C): Not applicable
pH: 9.0 (100 g/L, aqueous,)
Specific Gravity: 1.50 @ 20°C
Coefficient of Water/Oil distribution: Not available

SHIPPING DESCRIPTION

UN: Not regulated
T.D.G. Class: Not regulated
Pkg. Group: Not regulated

REACTIVITY DATA

Chemical Stability: Decomposes in air, releasing ammonia
Incompatibility with other substances: Avoid acids and acid salts, iron salts, alkaloids, alcohols, strong bases, zinc, aluminum, humidity. Reacts violently and possibly explosively with nitrates and nitrites, even at room temperature. Corrosive to nickel, copper, other alloys.

Reactivity: Decomposes on exposure to air with loss of NH_3 and CO_2 becoming white and powdery and converting into ammonium bicarbonate. Avoid heat, exposure to air, all incompatible materials.

Hazardous Decomposition Products: NH_3 , CO_2 , NO_x

FIRE AND EXPLOSION DATA

Flammability: Not combustible

Extinguishing Media: Use an extinguisher appropriate to the surrounding material that is burning. Use water as spray or fog to cool fire-exposed containers, disperse vapours, and flush material away from fire. Fight fire from upwind, from a safe distance. Firefighters must wear protective equipment (positive pressure, full face-piece self-contained breathing apparatus) and clothing sufficient to prevent inhalation of toxic and irritating gases produced in fire, and contact with skin and eyes.

Flash Point (Method Used): Not applicable

Autoignition Temperature: Not applicable

Upper Flammable Limit (% by volume): Not applicable

Lower Flammable Limit (% by volume): Not applicable

Hazardous Combustion Products: NH_3 , CO_2 , NO_x

Sensitivity to Impact: None identified

Sensitivity to Static discharge: None identified

TOXICOLOGICAL PROPERTIES AND HEALTH DATA**Toxicological Data:**

LD₅₀: (oral, rat, female) 1,800 mg/kg; (oral, rat, male) 2,150 mg/kg; (iv, mouse) 96 mg/kg (NH_4HCO_3); (dermal, rat) 4,840 mg/m²/60 min

LC₅₀: (rat) 2,000 ppm/4h

Effects of Acute Exposure to Product:

Inhaled: Irritation of upper respiratory tract. May cause tightness and pain in chest, coughing, shortness of breath. Concentrations >1000 ppm may cause restlessness, tightness in the chest, weak pulse, cyanosis, even pulmonary edema, which can be fatal.

In contact with skin: May cause irritation, with redness, itching, and pain. Continued exposure (as if confined under clothing or rubber gloves) can cause burns. Risk of absorption is slight.

In contact with eyes: Irritating to eyes, causing redness, tearing, pain. Lack of rapid decontamination can lead to serious burns.

Ingested: Irritating to gastrointestinal tract. Ingestion of large amounts may cause nausea and vomiting. Substance is very toxic by injection in animal testing, less toxic by oral route.

Effects of Chronic Exposure to Product:

Persons with pre-existing lung disease may be more susceptible to the effects of this substance

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Carcinogenicity: Some carbamates are suspected carcinogens. There is no specific information about this product.

Teratogenicity: No information available

Reproductive Effects: No information available

Mutagenicity: No information available

Synergistic Products: None known

PREVENTIVE MEASURES

Engineering Controls: Local exhaust ventilation recommended

Respiratory Protection: Dust/mist mask. Up to 50x TLV, or the maximum use specified by the respirator supplier, whichever is lowest, NIOSH approved full face-piece filter respirator with ammonia/methylamine cartridge. Higher or unknown concentrations, or for fire or spill conditions, self-contained breathing apparatus, or full face-piece, positive-pressure supplied-air respirator.

Eye Protection: Safety goggles. Do not wear contact lenses when working with chemicals.

Skin Protection: Rubber or plastic gloves. Plastic apron, sleeves and boots as required to prevent contact.

Other Personal Protective Equipment: Safety shower and eye-wash fountain in work area.

Leak and Spill Procedure: Cleanup personnel must be trained in the handling of hazardous materials, and must wear protective equipment and clothing sufficient to prevent inhalation of dust and fumes, and contact with skin and eyes. Prevent from entering sewers and waterways. Gather up material in a manner that does not raise dust, and place into clean, dry containers for disposal. Wash site of spill thoroughly with running water.

Waste Disposal: Follow all federal, provincial and local regulations for disposal.

Handling Procedures and Equipment: IRRITANT. Personnel working with this material should be thoroughly trained regarding its hazards and its safe use, and must wear appropriate protective equipment and clothing. Use the smallest amount possible for the purpose, in a designated area with adequate ventilation. Avoid generating dust or mist. Keep work area clean and free of extraneous materials. Avoid contact with skin and eyes. Avoid inhalation. Avoid repeated or prolonged exposure. Wash thoroughly after handling.

Storage Requirements: Store in suitable, labelled containers, in a cool, dry, well-ventilated area, out of direct sunlight, away from incompatible materials. Store below 30°C. Keep containers tightly closed when not in use and when empty. Empty containers may contain hazardous residues or gases; treat with caution. Inspect frequently for signs of damage or leaking.

FIRST AID MEASURES

Specific Measures:

Eyes: Immediately flush eyes with gently running water or normal saline for at least fifteen (15) minutes, holding eyelids open during flushing. Wear protective gloves to prevent contact during first aid procedures. Take care not to flush contaminated water into unaffected eye. Get medical attention immediately.

Skin: Remove contaminated clothing (including rings, watches, belts and shoes). Wear protective gloves to prevent contact. Brush or wipe off dry material. Immediately flush exposed area with large amounts of warm running wa-

ter for fifteen (15) minutes. Get medical advice. Wash or discard contaminated clothing before reuse.

Inhalation: Remove to fresh air. Give oxygen and get medical attention for any breathing difficulty.

Ingestion: If the victim is alert and not convulsing, rinse mouth thoroughly with water, and give 2-4 glasses of water to drink to dilute. Do not induce vomiting. Get medical attention.

REFERENCES USED

CCINFO disc

Budavari: The Merck Index, 12th ed., 1997

Sax, Lewis: Hawley's Condensed Chemical Dictionary, 11th ed., 1987

Sax: Dangerous Properties of Industrial Materials, 5th ed., 1979

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: May 6, 1991

Revision: November 2010

MSDS: 1310-1

Proposed WHMIS Designation: D2B

Prepared by: Caledon Laboratories Ltd. (905) 877-0101
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