

MATERIAL SAFETY DATA SHEET**PROPIONIC ACID**

PRODUCT CODE NUMBER(S): 6860-5

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: Propionic acid;
Propanoic acid; Carboxyethane
Chemical Family: Aliphatic carboxylic acid/alkanoic acid
Chemical Formula: CH₃CH₂COOH
Product Use: Laboratory reagent
Manufacturer's Name and Address:
Caledon Laboratories Ltd.
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HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	%	TLV Units	CAS No.
Propionic acid	99	10 ppm	79-09-4

PHYSICAL DATA

Physical State: Liquid
Odour and Appearance: Clear, colourless, oily liquid with a rancid odour
Odour Threshold (ppm): 0.026-0.17 ppm (detection); 0.033 ppm (recognition). Good warning properties, TLV greater than odour threshold.
Vapour Pressure (mm Hg): 2.4 to 3.0 mm Hg at 20°C
Vapour Density (Air = 1): 2.55
Evaporation Rate (bu ac = 1): Not available
Boiling Point (degrees C): 141°C
Freezing Point (degrees C): -20.7°C
pH: 2.9 (0.1M solution, aqueous)
Specific Gravity: 0.992-0.994
Coefficient of Water/Oil distribution: log P (oct) = 0.25

SHIPPING DESCRIPTION

UN: 1848
T.D.G. Class: 8
Pkg. Group: III

REACTIVITY DATA

Chemical Stability: Stable
Incompatibility with other substances: May react violently or explosively with oxidizing agents. May react violently with strong bases, reducing agents, producing heat and pressure. Forms spontaneously flammable phosphine with phosphorus trichloride; may explode. Produces flammable hydrogen gas with reactive metals (powdered aluminum or zinc). May ignite with potassium t-butoxide. Corrosive to grey cast iron, steel, nickel, nickel-chromium-iron alloy and lead. Aqueous acid corrodes aluminum, anhydrous form does not.

Reactivity: Avoid elevated temperatures, ignition sources, incompatible and combustible materials, generation of mist or vapour.

Hazardous Decomposition Products: CO_x

FIRE AND EXPLOSION DATA

Flammability: Combustible liquid and vapour. Can form combustible mixtures with air at, or above, 52.2°C. Can accumulate in confined spaces, causing a toxicity and explosion hazard.

Extinguishing Media: Dry chemical; alcohol or polymer foam or carbon dioxide. Water spray may be used to cool containers, disperse vapours, dilute chemical to a non-flammable level, and flush material away from ignition sources, but may be ineffective for extinguishing fire. Fight fire from a distance, from upwind direction. Firefighters must wear protective respiratory equipment and clothing (chemical splash suit) sufficient to prevent inhalation of mists or vapours, and contact with skin and eyes. Containers may explode in heat of fire; withdraw immediately in case of rising sound from vent or discoloration of tank.

Flash Point (Method Used): 51°C (CC)

Autoignition Temperature: 466°C (lowest reported value)

Upper Explosion Limit (% by volume): 12

Lower Explosion Limit (% by volume): 2.1

Hazardous Combustion Products: CO_x, acrid smoke, irritating fumes.

Sensitivity to Impact: None identified

Sensitivity to Static discharge: Liquid and vapour may be ignited by static discharge. Liquid may accumulate static charge by flow or agitation.

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

LD₅₀: (oral, rat) 2,600 mg/kg; (dermal, rabbit) 496 mg/kg

LC₅₀: Not available

Effects of Acute Exposure to Product:

Inhaled: Corrosive. Inhalation of vapours or mists may cause severe irritation, with sore throat, nasal irritation, coughing, shortness of breath. Extreme overexposure may cause spasm, chemical pneumonitis, pulmonary edema and death. Below 0.25 ppm/8h, no effects were observed.

In contact with skin: Corrosive. Causes moderate to severe irritation depending on the concentration and duration of contact. Can cause burns, permanent scarring, if exposure is prolonged. Animal testing indicates the chemical may be absorbed through skin with systemic toxic effects.

In contact with eyes: Corrosive. Exposure to vapours, mist, or dilute solutions causes moderate to severe irritation depending on the concentration and duration of contact. Can cause burns, permanent scarring, blindness if exposure is severe.

Ingested: Used as a food additive because of its antimicrobial effect. However, it is corrosive and ingestion of concentrated solutions may burn tissue of gastrointestinal

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tract. Aspiration of even a small amount (during ingestion or vomiting) could cause severe lung damage, pulmonary edema, respiratory failure, cardiac arrest, and death. Ingestion is not a typical route of occupational exposure.

Effects of Chronic Exposure to Product:

Carcinogenicity: No human information available. Not considered carcinogenic (RTECS No. UE5950000)

Teratogenicity: No human or animal information available

Reproductive Effects: No human or animal information available

Mutagenicity: Human mutation data reported (RTECS)

Synergistic Products: None found

PREVENTIVE MEASURES

Engineering Controls: Non-sparking, grounded, corrosion resistant exhaust system, separate from other systems, required.

Respiratory Protection: Dust/mist mask. Use only in fumehood. NIOSH approved respirator with organic vapour cartridges for concentrations above TLV. Higher or unknown concentrations, as in fire or spill conditions: positive pressure, full facepiece self-contained breathing apparatus, or positive pressure, full face-piece air-supplied respirator with an auxiliary positive pressure self-contained breathing apparatus.

Eye Protection: Chemical safety goggles and/or face shield. Do not wear contact lenses.

Skin Protection: Telfon™ gloves. Other impervious body-covering clothing, sleeves, coveralls, boots, sufficient to prevent contact.

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

Leak and Spill Procedure: Evacuate area. Shut off all sources of ignition. Cleanup personnel must be trained in the handling of hazardous materials, and must wear protective equipment and clothing sufficient to prevent inhalation of dust or fumes, and contact with skin and eyes. DO NOT TOUCH SPILLED MATERIAL. Stop leak if safe to do so. Absorb on inert absorbent, transfer to container and transport to safe area. Contaminated absorbent material may pose the same hazards as the spilled product; treat with caution. Arrange removal by disposal company. Wash site of spillage thoroughly with water and detergent.

Waste Disposal: Dispose of in compliance with local, provincial and federal regulations.

Handling Procedures and Equipment: CORROSIVE, COMBUSTIBLE, TOXIC LIQUID. Workers using this material must be thoroughly trained in its hazards and its safe use, and must wear protective equipment and clothing sufficient to prevent inhalation of mists or vapours and contact with skin and eyes. Keep away from heat, sparks, flame, hot surfaces, and all sources of ignition, and from all combustible or incompatible materials. Use non-sparking tools. Use corrosion resistant equipment. Use the smallest amount possible for the purpose, in an area with adequate ventilation. Avoid generating mist or vapour. Avoid inhalation of mist or vapours. Avoid all contact. Never add water to acid; always add acid to water. Use cold water; stir in small amounts slowly.

Storage Requirements: Store in suitable, labelled containers, in a cool, dry, well-ventilated area, out of direct sunlight. Keep containers tightly closed when not in use and when empty. Protect from damage. Store away from incompatible materials and all sources of ignition. Storage facilities

should be made of fire and corrosion and fire-resistant materials, and have raised sills and a trench which drains to a safe location. Inspect periodically for damage or leaks.

FIRST AID MEASURES**Specific Measures:**

Eyes: IMMEDIATELY flush eyes with gently running water for at least twenty to thirty (20-30) minutes, holding eyelids open while flushing. DO NOT INTERRUPT FLUSHING. Take care not to flush contaminated water into unaffected eye or onto face. Normal saline may be used if it is available. Wear protective gloves to avoid contact with chemical. Obtain medical advice immediately. (Flushing may be continued while casualty is transported to medical facility.)

Skin: Remove contaminated clothing under running water (including shoes, watches, belts, and rings). IMMEDIATELY flush the exposed area with large amounts of running water for at least twenty to thirty (20-30) minutes. Do not interrupt flushing. Wear protective gloves and clothing to avoid contact with material. Get medical attention immediately. Completely decontaminate clothing and shoes before reuse, or discard.

Inhalation: Immediately remove to fresh air (caution must be used by rescuers to avoid exposure to contaminating fumes). Give oxygen and get medical attention for any breathing difficulty. Stay with casualty until medical assistance is reached.

Ingestion: DO NOT INDUCE VOMITING. If the casualty is alert and NOT convulsing, immediately give 1 to 2 glasses of WATER OR MILK to dilute the material. Transport to medical facility. If spontaneous vomiting occurs, have casualty lean forward to avoid breathing in of emesis. Rinse mouth and administer more water or milk.

REFERENCES USED

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

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

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

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: July 22, 1991

Revision: September 2010

MSDS: 6860-5

Proposed WHMIS Designation: B3; D1B; E

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