CALEDON LABORATORY CHEMICALS

MATERIAL SAFETY DATA SHEET

ETHYL ACETATE

PRODUCT CODE NUMBER(S): 4600-1, 4600-2, 4600-3. 4600-4, 4600-30, 4601-2, 4601-7, 4605-2, 4609-1

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: *Ethyl acetate; Ethyl ester; Ethyl ethanoate acetoxyethane*
Chemical Family: *Saturated aliphatic carboxylic acid ester*
Chemical Formula: $CH_3COOC_2H_5$
Product Use: *Laboratory solvent*
Manufacturer's Name and Address:
Caledon Laboratories Ltd.
40 Armstrong Avenue
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HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	*%*	*TLV Units*	*CAS No.*
Ethyl acetate	*>99*	*(TWA) 400 ppm*	*141-78-6*

PHYSICAL DATA

Physical State: *Liquid*
Odour and Appearance: *Clear, colourless liquid with strong fruity odour*
Odour Threshold (ppm): *6.4 to 50 ppm (detection); 13.3 to 75 (recognition). Not a reliable indicator, varies widely.*
Vapour Pressure (mm Hg): *73 mm Hg @ 20°C*
Vapour Density (Air = 1): *3.04*
Evaporation Rate (bu ac = 1): *6.2*
Boiling Point (°C): *76.5 to 77.5°C*
Freezing Point (°C): *-83°C*
pH: *Neutral if pure*
Specific Gravity: *0.9019 @ 20°C*
Coefficient of Water/Oil distribution: *log P(oct) = 0.66*

SHIPPING DESCRIPTION

UN: *1173*
T.D.G. Class: *3*
Pkg. Group: *II*

REACTIVITY DATA

Chemical Stability: *Stable. In presence of water may slowly hydrolize to ethanol and acetic acid.*
Incompatibility with other substances: *May react violently or explosively with oxidizing agents (hydrogen peroxide, nitric acid, perchloric acid, chromium trioxide) or with potassium tert-butoxide or lithium aluminum hyride. Reacts vigorously with strong acids, and strong bases. Not corrosive to metals. May attack some plastics, rubber, and coatings.*
Reactivity: *Avoid heat, all ignition sources, all incompatible materials, moisture. Avoid generation of mist or vapours.*
Hazardous Decomposition Products: *Ethanol and acetic acid may be produced if water is present. Polymerization will not occur.*

FIRE AND EXPLOSION DATA

Flammability: *Flammable liquid and vapour. Readily ignites at room temperature. Vapour is heavier than air and can travel considerable distance to source of ignition and flash back. Can float on water and travel considerable distance or spread fire. Can accumulate in confined spaces, resulting in a toxicity and flammability hazard. Forms ignitable or explosive mixtures with air at room temperature or at freezing temperatures.*
Extinguishing Media: *Use CO_2 or dry chemicals for small fires, and alcohol or polymer foam for large fires. Water, as a spray or fog, will be ineffective for fighting fire, but may be used to absorb heat, cool containers, disperse vapours, and flush spills away from source of ignition. Fight fire from upwind, from a safe distance. Firefighters must wear protective equipment (full face-piece, positive-pressure self-contained breathing apparatus) and clothing (full Bunker gear) sufficient to prevent inhalation of fumes 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): *-4.4°C (TCC)*
Autoignition Temperature: *427°C*
Upper Flammable Limit (% by volume): *11.5%*
Lower Flammable Limit (% by volume): *2.0%*
Hazardous Combustion Products: *CO_x, ethyl alcohol, acetic acid*
Sensitivity to Impact: *None identified*
Sensitivity to Static discharge: *Liquid is unlikely to accumulate a static charge which could act as an ignition source. However, vapours in the flammable range may be ignited by static discharge.*

TOXICOLOGICAL PROPERTIES AND HEALTH DATA

Toxicological Data:

LD_{50}: *(oral, rat) 5,600 mg/kg; (oral, mouse) 4,100 mg/kg; (dermal, rabbit) >20 mL/kg*
LC_{50}: *(rat) 16,000 ppm/6h; (mouse) 44,000 mg/m^3/3h*

Effects of Acute Exposure to Product:

Inhaled: *Vapours are irritating to nasal passages and throat. Exposure to 400 ppm for 3 to 5 minutes caused irritation to nose and throat in humans. High concentrations can cause CNS depression with drowsinesss, headache, eventual stupor, congestion of the upper respiratory tract, spleen and kidney, and hemorrhaging in lung tissue.*
In contact with skin: *Not irritating to skin in tests with human volunteers and animals.*
In contact with eyes: *Vapour and liquid can be irritating to the eyes. Vapour has produced irritation at 400 ppm. Ani-*

mal studies indicate liquid will cause moderate irritation but no permanent injury.

Ingested: *Not a typical route of industrial exposure. Does not appear to be very toxic by ingestion (animal studies). Ingestion of large amounts would probably cause nausea and vomiting, shortness of breath, headache, drowsiness, loss of coordination, possibly even coma and death.*

Effects of Chronic Exposure to Product:

Workers exposed to 375 to 1,500 ppm for several months experienced no adverse effects. Repeated or prolonged skin contact can cause irritation, drying, and cracking of skin. Can cause sensitization and dermatitis. Prolonged exposure of workers to high concentrations (4,00 to 14,000 ppm) caused only mild irritation, but more severe exposure could cause symptoms as in "Inhaled".

Carcinogenicity: *No human or animal information available. Group A4, not classifiable as human carcinogen*

Teratogenicity: *No human or animal information available.*

Reproductive Effects: *No human or animal information available.*

Mutagenicity: *No evidence of mutagenicity (Haglund; Scand. J. Work, Envir., Health, 1986)*

Synergistic Products: *One study showed combination of ethyl acetate and formaldehyde to be more toxic than the individual chemicals.*

PREVENTIVE MEASURES

Engineering Controls: *Local exhaust ventilation required*

Respiratory Protection: *To 2,000 ppm, NIOSH/OSHA approved chemical cartridge respirator with organic vapour cartridge, or approved supplied-air respirator operated in continuous-flow mode or full face-piece self-contained breathing apparatus; higher or unknown concentrations, as in fire or spill conditions, positive pressure, full face-piece self-contained breathing apparatus or supplied-air respirator with an auxiliary positive-pressure self-contained breathing apparatus.*

Eye Protection: *Chemical safety goggles, face shield.*

Skin Protection: *4H™(polyethylene/ethylene vinyl alcohol), Barricade™, CPF 3™, Responder™, Trellchem HPS™, Tychem 10000™ gloves. Impervious apron and boots and other clothing sufficient to prevent contact.*

Other Personal Protective Equipment: *Safety shower and eye bath close to work area*

Leak and Spill Procedure: *Eliminate all sources of ignition. Evacuate area. Do not touch spilled material. Cleanup personnel must be thoroughly trained in the hazards of this chemical and must wear protective equipment and clothing sufficient to prevent inhalation and contact. Stop or reduce discharge if safe to do so. Prevent from entering sewers or waterways. Recover product and collect contaminated soil for disposal. For small spills, contain by applying absorbent. Collect waste for disposal. Contaminated absorbent may pose the same hazards as the spilled product; treat with caution. Flush area thoroughly with running water.*

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

Handling Procedures and Equipment: *FLAMMABLE LIQUID AND VAPOUR. Workers must be thoroughly trained in the hazards of this material and its safe use, and must wear appropriate protective equipment and clothing. Post "No Smoking" signs. Ground and bond equipment to prevent static charge accumulation. Use non-sparking tools. Avoid splash filling. Keep workplace free of flammable materials. Avoid contact with skin and eyes and inhalation of vapours. Avoid generating vapours or mists. Use the smallest amount possible for the purpose, in an area with adequate ventilation. Empty containers may contain hazardous residues; treat with extreme caution.*

Storage Requirements: *Store in suitable, labelled containers, in a cool, dry, well-ventilated area, out of direct sunlight and away from all sources of ignition and incompatible materials. Post "NO SMOKING" signs. Keep tightly closed when not in use. Protect from damage. Inspect regularly for signs of leaking or damage. Keep storage area clear of combustible materials. Ground and bond equipment and containers to prevent a static charge buildup. Storage facilities should be made of fire-resistant materials. Provide raised sills and trenches to drain to a safe area.*

FIRST AID MEASURES

Specific Measures:

Eyes: *Immediately flush eyes with large amounts of gently running water for five to ten (5-10) minutes, holding eyelids open during flushing, until no trace of chemical remains. If irritation persists, get medical attention.*

Skin: *Remove contaminated clothing (including rings, watches, belts, and shoes). Flush exposed area with large amounts of warm running water for five to ten (5-10) minutes, until no trace of chemical remains. If irritation persists, get medical attention.*

Inhalation: *Eliminate all ignition sources. Immediately remove casualty to fresh air (caution must be used by rescuers to avoid exposure to contaminating fumes). Give oxygen and get medical help for breathing difficulty. If breathing has STOPPED give artificial respiration. Stay with casualty until medical assistance is reached.*

Ingestion: *DO NOT INDUCE VOMITING. If the casualty is alert and not convulsing, give2 to 4 glasses of water to drink to dilute the material. Get medical attention. If spontaneous vomiting occurs, have casualty lean forward to avoid breathing in of emesis. Rinse mouth and administer more water.*

REFERENCES USED

CCINFO disc

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

Royal Society of Chemistry, Chemical Safety Data Sheets, Vol. 1, 1992

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: *November 1, 1988*

Revision: *December 2009*

MSDS: *4600-1, 4600-2, 4600-3. 4600-4, 4600-30, 4601-2, 4601-7, 4605-2, 4609-1*

Proposed WHMIS Designation: *B2; D2B (irritation)*

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