

## BUTYL ACETATE

**PRODUCT IDENTIFICATION**
**Chemical Name and Synonyms:**

Butyl acetate; *n*-Butyl acetate; *n*-Butyl ester; Butyl ethanoate; 1-Acetoxybutane

**Chemical Family:**

Saturated aliphatic monocarboxylic ester

**Chemical Formula:**

CH3COOC4H9

**Product Use:**

Laboratory solvent

**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.
Butyl acetate	>99	150 ppm	123-86-4

**PHYSICAL DATA**
**Physical State:**

Liquid

**Odour and Appearance:**

Clear, colourless, mobile liquid with fruity, banana-like odour

**Odour Threshold (ppm):**

Reports vary widely 0.063-7.4 ppm (detection); 0.038-12 ppm (recognition). Good warning properties; all values well below TLV.

**Vapour Pressure (mm Hg):**

10 mm Hg @ 20°C

**Vapour Density (Air = 1):**

4.0

**Evaporation Rate (ether=1):**

12

**Boiling Point (degrees C):**

126°C

**Freezing Point (degrees C):**

-73.5°C

**pH:**

Not available (probably neutral)

**Specific Gravity:**

0.882 at 20°C

**Coefficient of Water/Oil distribution:**

$\text{Log}P_{\text{oct}}=1.82$

**SHIPPING DESCRIPTION**
**UN:**

1123

**T.D.G. Class:**

3

**Pkg. Group:**

III

**REACTIVITY DATA**
**Chemical Stability:**

Stable in anhydrous state. May slowly hydrolyze to acetic acid and butanol in presence of water.

**Incompatibility with other substances:**

May react violently, with increased risk of fire and explosion, with strong oxidizers, Lewis or mineral acids, strong bases, alkali metals and their hydroxides. Contact between *n*-butyl acetate vapour and potassium tert-butoxide can cause ignition. Not corrosive to iron, stainless steel, aluminum, copper, nickel and their alloys. Attacks many plastics and resins.

**Reactivity:**

Avoid high temperatures, sparks, flame and all other ignition sources. moisture, incompatible materials, generation of mist.

**Hazardous Decomposition Products:**

$\text{CO}_x$ , irritating gases, acetic acid, *n*-butanol.

**FIRE AND EXPLOSION DATA**
**Flammability:**

Flammable liquid and vapour. Can form explosive mixtures with air at or above 22°C. Vapour is heavier than air and may travel to a source of ignition and flash back. Liquid can float on water and spread fire. Can accumulate in confined spaces, causing toxicity and flammability hazard. Closed containers can rupture violently when heated.

**Extinguishing Media:**

Alcohol or polymer foam, dry chemical powder, carbon dioxide. Water may be ineffective for fighting fire, but as spray or fog should be used to cool containers and disperse vapours or flush spills away from ignition sources. Fight fire from upwind, from safe distance or protected area. Firefighters must wear protective equipment (NIOSH/OSHA approved self-contained breathing apparatus) and clothing (full Bunker Gear) sufficient to prevent inhalation of mists or vapours, and contact with skin and eyes. Closed containers may rupture violently during fire; withdraw immediately in case of rising sound from vent or discolouration of tank.

**Flash Point (Method Used):**

22°C (CC)

**Autoignition Temperature:**

407°C

**Upper Flammable Limit (% by volume):**

7.6

**Lower Flammable Limit (% by volume):**

1.3

**Hazardous Combustion Products:**

$\text{CO}_x$ , toxic, irritating gases, acetic acid, *n*-butanol.

**Sensitivity to Impact:**

None identified

**Sensitivity to Static discharge:**

Liquid will probably not accumulate static charge. Vapours in the flammable range may be ignited by static discharge of sufficient energy.

**TOXICOLOGICAL PROPERTIES AND HEALTH DATA**
**Toxicological Data:**
**LD<sub>50</sub>:**

(oral, rat) 10,770 mg/kg; (dermal, rabbit) >15,000 mg/kg

**LC<sub>50</sub>:**

(rat) 390 ppm/4h

**Effects of Acute Exposure to Product:**
**Inhaled:**

Vapours are irritating to the eyes, nose, throat, and respiratory tract. 3-5 minute exposure to 200-300 ppm irritates.

Concentrations over 3300 ppm were extremely irritating and not easily tolerated. Mild central nervous system depressant. High vapour concentrations may cause headache, nausea, dizziness, incoordination, confusion and unconsciousness.

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## **In contact with skin:**

May cause defatting, drying and cracking of the skin. In humans, 4 % did not cause irritation in a 48-hr patch test. Is absorbed through skin, but not likely to cause toxic effects by this route of exposure.

## **In contact with eyes:**

Liquid and vapour may cause moderate to severe irritation, depending on concentration and length of exposure. 300 ppm/4h can cause mild irritation. 3,300 ppm produces severe irritation.

## **Ingested:**

No human information available. Animal testing indicates low oral toxicity. May cause irritation of the mouth and throat; large amounts may cause central nervous system depression (see "Inhaled").

## **Effects of Chronic Exposure to Product:**

Prolonged and repeated skin contact may lead to dermatitis.

## **Carcinogenicity:**

No human or animal information available. Not anticipated to be carcinogenic.

## **Teratogenicity:**

No human information available. Has caused teratogenic effects in one animal test; insufficient evidence for conclusions.

## **Reproductive Effects:**

No human or animal data available.

## **Mutagenicity:**

No human or animal data available. Negative in Ames test

## **Synergistic Products:**

Toxic effects may be increased in combination with carbon tetrachloride, or n-butyl alcohol.

## **PREVENTIVE MEASURES**

### **Engineering Controls:**

Non-sparking, grounded, separate, exhaust ventilation required.

### **Respiratory Protection:**

Up to 1,500 ppm: NIOSH/OSHA approved chemical cartridge respirator with organic vapour cartridges or supplied-air respirator. Up to 1,700 ppm: continuous-flow supplied-air respirator with organic vapour cartridges, or full face-piece chemical cartridge respirator with organic vapour cartridges or full face-piece supplied-air respirator or self-contained breathing apparatus. 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 goggles and/or face shield.

### **Skin Protection:**

Barrier (PE/PA/PE), Silver Shield/4H™ (polyethylene/ethylene vinyl alcohol) gloves. Polyvinyl alcohol (PVA) is suitable for shorter-term use (4 hours). Other impervious protective clothing, apron, sleeves, coveralls, boots, as required to prevent contact.

### **Other Personal Protective Equipment:**

Safety shower and eye bath located close to chemical exposure area.

### **Leak and Spill Procedure:**

Eliminate all sources of ignition. Evacuate area. Cleanup personnel must be thoroughly trained in the hazards of this chemical and must wear protective equipment and clothing sufficient to prevent inhalation of vapours or mists and contact

with skin and eyes. Stop or reduce discharge if safe to do so. Contain spill with inert absorbent (sand, earth). Prevent from entering sewers or waterways. Recover product and collect contaminated soil for disposal. For small spills, contain by applying inert absorbent. Collect waste for disposal.

Contaminated absorbent may pose the same hazards as the spilled product. Flush area of spill with running water.

### **Waste Disposal:**

Follow all federal, provincial, and local regulations.

### **Handling Procedures and Equipment:**

**FLAMMABLE, EYE IRRITANT.** Personnel working with this chemical must be thoroughly trained in its hazards, and its safe use, and must wear appropriate protective clothing and equipment. Ground and bond all equipment to prevent static charge accumulation. Use non-sparking tools. Post "No Smoking" signs. Use the smallest amount possible for the purpose, in a designated area with adequate ventilation. Avoid generating vapour or mist. Do not use pressure to transfer liquid. Keep containers closed when not in use. Avoid all contact with eyes, skin or clothing. Treat empty containers with caution; they may contain hazardous residues.

### **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 combustible or incompatible materials. Do not expose sealed containers to heat. Keep containers closed when not in use. 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. Use spark-resistant tools and avoid splash filling of containers. Storage area should be constructed of fire-resistant materials. It is good practice to seal the floors of the storage area to prevent absorption, and to provide raised sills or a trench to a safe location.

## **FIRST AID MEASURES**

### **Specific Measures:**

#### **Eyes:**

Immediately flush eyes with warm, gently running water for at least twenty (20) minutes, holding eyelids open while flushing. Take care not to flush contaminated water into unaffected eye. Get medical attention immediately.

#### **Skin:**

Remove contaminated clothing (including rings, watches, belts and shoes). Flush exposed area with large amounts of warm running water and non-abrasive soap for five (5) minutes. If irritation persists, get medical attention. Decontaminate clothing before reuse, or discard.

#### **Inhalation:**

Remove to fresh air (caution must be used by rescuers to avoid exposure to contaminating fumes). Eliminate sources of ignition. Give oxygen and get medical attention for any breathing difficulty. Stay with casualty until medical assistance is reached. Individuals experiencing breathing difficulty after exposure to vapours from aerosol application should be observed for at least 48 hours in case delayed respiratory complications develop.

#### **Ingestion:**

**DO NOT INDUCE VOMITING.** If the casualty is alert and not convulsing, give 2 to 4 glasses of water to drink to dilute the material. If spontaneous vomiting occurs, have casualty lean forward to avoid breathing in of emesis. Rinse mouth and administer more water.

## **REFERENCES USED**

CCINFO disc: Cheminfo

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

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

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

Suppliers' *Material Safety Data Sheets*

## ADDITIONAL INFORMATION

### Date Issued:

November 1, 1988

### Revision:

March 2012

### MSDS:

2500-1, 2500-3, 2501-2

### Proposed WHMIS Designation:

B2; D2B (eye irritation)

Prepared by: Caledon Laboratories Ltd. (905)

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