

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

Acetone; 2-Propanone; Dimethyl ketone;
Dimethylformaldehyde

Chemical Family:

Ketones

Chemical Formula:

CH₃COCH₃

Product Use:

Laboratory solvent

Manufacturer's Name and Address:

Caledon Laboratories Ltd.
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HAZARDOUS INGREDIENTS OF MATERIALS

| Ingredients | % | TLV Units | CAS No. |
|-------------|-----|-----------|---------|
| Acetone | >99 | 500 ppm | 67-64-1 |

PHYSICAL DATA**Physical State:**

Liquid

Odour and Appearance:

Colourless, volatile liquid with a pungent, sweet, aromatic, fruity odour

Odour Threshold (ppm):

Varies widely: 3.6 to 653 ppm (detection); 33 to 669 (recognition). Not reliable warning properties. because of wide variation, olfactory fatigue also reported.

Vapour Pressure (mm Hg):

181 mg Hg @ 20°C

Vapour Density (Air = 1):

2

Evaporation Rate:

5.6 (n-butyl acetate = 1)

Boiling Point (°C):

56.2°C

Freezing Point (°C):

-94.6°C

pH:

Not available (weak acid)

Specific Gravity:

0.791 @ 20°C

Coefficient of Water/Oil distribution:

LogP(oct) = -0.24

SHIPPING DESCRIPTION**UN:**

1090

T.D.G. Class:

3

Pkg. Group:

II

REACTIVITY DATA**Chemical Stability:**

Normally stable. Prolonged exposure to direct sunlight may result in the formation of carbon monoxide.

Incompatibility with other substances:

May react violently or explosively, with increased risk of fire, with strong oxidizers or strong reducing agents. Reacts violently, with ignition or explosion if confined, with hexachloromelamine or trichloromelamine. Reacts violently with evolution of heat and pressure, with halogenated solvent/alkali mixtures, or bases. Contact of solid potassium tert-butoxide with acetone vapour will ignite. Reacts vigorously with sulphur dichloride. Not corrosive to carbon steel, stainless steel, cast iron, copper or nickel and their alloys, or aluminum. May attack some forms of plastics and rubber, and rayon.

Reactivity:

High temperatures, sunlight, sparks, open flames, all ignition sources, generation of mist or vapour.

Hazardous Decomposition Products:

CO, CO₂

FIRE AND EXPLOSION DATA**Flammability:**

Extremely flammable liquid and vapour. Will ignite at room temperature. Even dilute solutions may be flammable. Vapour readily forms explosive mixtures with air. Vapours are heavier than air and may travel to distant ignition source and flash back. Closed containers may rupture violently when exposed to fire.

Extinguishing Media:

Carbon dioxide, dry chemical, alcohol or polymer foam. Water is ineffective for fighting fire, but may be used to disperse vapours, cool containers, and to flush spill away from ignition sources. Fight fire from upwind, from a safe distance. Firefighters must wear protective equipment (positive-pressure, full face-piece self-contained breathing apparatus) and full Bunker Gear. Closed containers may rupture violently during fire; withdraw immediately in case of rising sound from vent or discoloration of tank.

Flash Point (Method Used):

-18.0°C (CC)

Autoignition Temperature:

465°C

Upper Flammable Limit (% by volume):

12.8

Lower Flammable Limit (% by volume):

2.5

Hazardous Combustion Products:

CO, CO₂, toxic and irritating vapours.

Sensitivity to Impact:

None identified

Sensitivity to Static discharge:

Mixtures of vapour and air may be ignited by electrostatic or other high-voltage spark, or other ignition source. Liquid will not accumulate static charge; electrical conductivity is high.

TOXICOLOGICAL PROPERTIES AND HEALTH DATA**Toxicological Data:****LD₅₀:**

(oral, mature rat) 5,800 mg/kg; (oral, newborn rat) 1,750 mg/kg; (dermal, rabbit) >16,000 mg/kg

LC₅₀:

(rat) 50,100 mg/m³/8h; (mouse) 44 gm/m³/4h

Effects of Acute Exposure to Product:

Inhaled:

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300 to 500 ppm cause slight irritation of eyes, nose and throat. 1,000 ppm caused noticeable irritation, headaches, light-headedness, fatigue. Concentrations above 2,000 ppm can cause dizziness, drowsiness, motor incoordination and speech abnormalities, nausea and vomiting. Higher concentrations (>10,000 ppm) can cause unconsciousness, coma, respiratory failure and death.

In contact with skin:

Direct contact with vapour, mist or liquid may cause mild irritation, defatting, drying and cracking of the skin. May be absorbed through skin, but unlikely to be absorbed through unbroken skin in toxic amounts.

In contact with eyes:

Liquid is a severe irritant; may cause corneal damage and conjunctivitis. Corneal damage is usually reversible, but if exposure is severe and prolonged, permanent clouding may result. Vapour is an irritant at 500 to 1,000 ppm.

Ingested:

Animal studies indicate acetone is not very toxic by ingestion. May cause drowsiness, nausea, vomiting, headache, stupor. However, aspiration during ingestion or vomiting can cause life-threatening pulmonary edema and chemical pneumonia.

Effects of Chronic Exposure to Product:

Prolonged or repeated skin exposure can cause defatting of the skin, dermatitis, redness, cracking. Prolonged or repeated inhalation caused nausea, weight loss, and hematologic changes, increased leukocyte and eosinophil counts and decreased neutrophil phagocytic activity. In human volunteers exposed to 500 ppm 6h/day for 6 days.

Carcinogenicity:

No human information available. No evidence of carcinogenicity in animal testing.

Teratogenicity:

No human information available. Animal studies indicate effects only at doses toxic to mother.

Reproductive Effects:

Some abnormalities in menstrual cycles in studies with female volunteers.

Mutagenicity:

Negative in studies with live animals, cultured mammalian cells, cultured human cells, and bacteria.

Synergistic Products:

May react synergistically with chlorinated solvents. Has increased toxicity of chlorinated compounds, styrene, acetonitrile, ethyl alcohol, 2,5-hexanedione, 1,2-dichlorobenzene.

PREVENTIVE MEASURES

Engineering Controls:

Non-sparking, grounded exhaust ventilation, separate from other ventilation systems.

Respiratory Protection:

Up to 2,500 ppm: NIOSH approved chemical cartridge respirator equipped with organic vapour cartridges, or powered air-purifying respirator with organic vapour cartridges. Higher or unknown concentrations, as in fire or spill conditions: positive-pressure, full face-piece self-contained breathing apparatus, or positive-pressure, full face-piece supplied-air respirator with auxiliary positive-pressure self-contained breathing apparatus.

Eye Protection:

Chemical safety goggles or face shield.

Skin Protection:

Butyl rubber, Viton™/Butyl rubber, Barrier (PE/PA/PE), Silver Shield/4H™ (polyethylene/ethylene vinyl alcohol), Responder™,

Trelchem™ HPS, Tychem™ BR/LV, Tychem™ TK gloves.

Impermeable apron, boots, overalls as required to prevent contact.

Other Personal Protective Equipment:

Safety shower and eyebath in work area.

Leak and Spill Procedure:

Evacuate and ventilate area. Eliminate all sources of ignition. Cleanup personnel must be thoroughly trained in the handling of hazardous chemicals and their safe use, and must wear protective equipment and clothing sufficient to prevent inhalation or contact with skin and eyes. Stop or reduce leak if safe to do so. Surround and cover the spilled material with inert absorbent. Do not touch spilled material. Do not breathe mist or vapours. Prevent from entering sewers or waterways. Collect contaminated material and place in suitable, labelled containers for disposal. Wash area of spill thoroughly with copious amounts of water.

Waste Disposal:

Follow all federal, provincial, and local regulations.

Handling Procedures and Equipment:

EXTREMELY FLAMMABLE, EYE IRRITANT. Workers must be thoroughly trained in handling hazardous materials safely, and must wear appropriate protective equipment and clothing depending on the application. Avoid all contact with skin and eyes and any inhalation of vapours. Keep away from heat and ignition sources. Avoid generating mists or vapours. Ground and bond all equipment to prevent static charge accumulation. Post "No Smoking" signs. Use non-sparking tools and avoid "splash filling" of containers. Keep storage and work areas free of combustible or incompatible materials. Use the smallest amount possible for the purpose, in a designated area with adequate ventilation. Keep containers closed when not in use. Empty containers may contain hazardous residues; treat with caution.

Storage Requirements:

Store in suitable, labelled containers, in a cool, dry, well-ventilated area, out of direct sunlight and away from incompatible materials. Storage facilities must be constructed of fire-resistant materials and have raised sills and trenches to drain to a safe area. Do not expose sealed containers to elevated temperatures. Keep away from heat, sparks, flames, and all sources of ignition. Protect from damage, and inspect frequently for signs of leaking. Treat empty containers with caution, as they may contain hazardous residues.

FIRST AID MEASURES

Specific Measures:

Eyes:

IMMEDIATELY flush eyes with warm running water for at least twenty (20) minutes, holding eyelids open during 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 gently running water for five to ten (5 to 10) minutes, or until no trace of chemical remains. If irritation persists, get medical attention.

Inhalation:

IMMEDIATELY remove to fresh air (caution must be used by rescuers to avoid exposure to contaminating fumes.)

Eliminate ignition sources. Give oxygen and get medical attention for any breathing difficulty. Stay with casualty until medical assistance is reached.

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Ingestion:

DO NOT INDUCE VOMITING. If the casualty is alert and not convulsing, give 1 to 2 glasses of water to dilute the material. Get medical attention immediately. If spontaneous vomiting occurs, have casualty lean forward to avoid breathing in of emesis. Rinse mouth and administer more water.

REFERENCES USED

CCINFO disc

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

Royal Society of Chemistry: Material 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:

September 2012

MSDS:

1200-1, 1200-3, 1200-4, 1201-2, 1201-7, 1200-30, 1209-1, CAL 1335

Proposed WHMIS Designation:

B2; D2B (eye irritant)

Prepared by: Caledon Laboratories Ltd. (905)

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