

**MATERIAL SAFETY DATA SHEET****LITHIUM NITRATE**

PRODUCT CODE NUMBER(S): 4640-1

**PRODUCT IDENTIFICATION****Chemical Name and Synonyms:** *Lithium nitrate; Nitric acid, lithium salt***Chemical Family:** *Inorganic salt***Chemical Formula:** *LiNO<sub>3</sub>***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**

<i>Ingredients</i>	<i>%</i>	<i>TLV Units</i>	<i>CAS No.</i>
<i>Lithium nitrate</i>	<i>99</i>	<i>Not established</i>	<i>7790-69-4</i>

**PHYSICAL DATA****Physical State:** *Solid***Odour and Appearance:** *White crystalline powder and chunks, odourless***Odour Threshold (ppm):** *Not applicable***Vapour Pressure (mm Hg):** *Not available***Vapour Density (Air = 1):** *2.4***Evaporation Rate:** *Not available***Boiling Point (degrees C):** *600°C (decomposes)***Melting Point (degrees C):** *264°C***pH:** *Not available***Specific Gravity:** *2.380***Coefficient of Water/Oil distribution:** *Not available***SHIPPING DESCRIPTION****UN:** *2722 (Inorganic nitrates, N.O.S.)***T.D.G. Class:** *5.1***Pkg. Group:** *III***REACTIVITY DATA****Chemical Stability:** *Unstable***Incompatibility with other substances:** *Strong reducing agents, organic materials, combustible materials, cyanides, thiocyanates, isothiocyanates, hypophosphites.***Reactivity:** *A strong oxidizing agent; may react violently to shock, heat, or friction. May react explosively with alkyl esters, reducing agents, phosphinates.***Hazardous Decomposition Products:** *Nitrogen oxides***FIRE AND EXPLOSION DATA****Flammability:** *Non combustible; however, substance is a powerful oxidizing material, forms explosive mixtures with**combustible organic or other easily oxidizable materials. Releases oxygen in fire situation, which promotes combustion. Can form shock sensitive mixtures with finely divided metals, strong reducing agents, sulphur. Can decompose violently or explosively at high temperatures. Containers may explode in heat of fire.***Extinguishing Media:** *Use any means suitable for extinguishing surrounding fire. Use flooding amounts of water to blanket fire, cool exposed containers, and to flush solid or vapours away from fire. Fight fire from upwind, from a safe distance. Firefighters must wear protective equipment (full face-piece, positive-pressure self-contained breathing apparatus) and clothing sufficient to prevent inhalation of dusts or vapours, 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:** *Nitrous oxides, lithium oxides.***Sensitivity to Impact:** *May explode when shocked, particularly if mixed with organic or combustible materials.***Sensitivity to Static discharge:** *Mixtures of dust with air may act as initiation source for dust or vapour explosions, particularly when contaminated with organic materials, when ignited by an electrostatic or other spark, or other ignition source.***TOXICOLOGICAL PROPERTIES AND HEALTH DATA****Toxicological Data:****LD<sub>50</sub>:** *Not available***LC<sub>50</sub>:** *Not available***Effects of Acute Exposure to Product:****Inhaled:** *Harmful. Irritating to mucous membranes and upper respiratory tract. Severe overexposure by inhalation can cause systemic poisoning with nausea, vomiting, diarrhea, drowsiness, slurred speech, blurred vision, irregular eye movements, weakness, incoordination, lethargy, heart and brain effects, tremors, thyroid changes, renal failure. Overexposure to nitrates causes the formation of methemoglobin which decreases the ability of the blood to carry oxygen, causing cyanosis, possible convulsions, coma, and death. Onset may be delayed 2 to 4 hours or longer. Severe overexposure can be fatal.***In contact with skin:** *Irritating; causes redness, itching and pain. Extent of irritation depends on concentration and duration of exposure. May be harmful by absorption.***In contact with eyes:** *Irritating; causes redness, itching and pain. Extent of irritation depends on concentration and duration of exposure.***Ingested:** *Ingestion can cause vomiting, diarrhea, blurring of vision, tinnitis, weakness, staggering, tremor. May cause symptoms similar to chronic exposure, which may be delayed for several hours.*

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**Effects of Chronic Exposure to Product:**

Lithium salts are given to humans therapeutically to produce plasma levels of 0.6 to 1.5 meq/L. Gastrointestinal effects, such as vomiting, diarrhea, loss of appetite, excessive thirst and urination, weakness, drowsiness, tremor, muscle twitching, slurred speech can occur with plasma levels of 1 meq/L. Kidney damage may result if sodium intake is limited. When plasma levels exceed 2 meq/L serious side effects, irregular heart beat, low blood pressure, circulatory failure, seizures, coma and death can occur. Chronic overexposure to nitrates can lead to methemoglobinemia (see "Inhaled"), and conversion of nitrate to nitrite in the stomach, causing nausea and vomiting, blood and central nervous system effects, weakness, depression, headache, irregular heart rate; severe overexposure can cause coma and death.

**Carcinogenicity:** Not listed as carcinogenic by NTP, IARC, OSHA.

**Teratogenicity:** No information available

**Reproductive Effects:** No information available

**Mutagenicity:** No information available

**Synergistic Products:** None known

**PREVENTIVE MEASURES**

**Engineering Controls:** Local exhaust ventilation required.

**Respiratory Protection:** Dust mask. For high 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 and/or face shield. Do not wear contact lenses when working with chemicals.

**Skin Protection:** Impervious gloves. Other impervious protective clothing, sleeves, apron, coverall, boots, sufficient to prevent contact.

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

**Leak and Spill Procedure:** Restrict access to area of spill. Eliminate all sources of ignition and combustible materials. Cleanup personnel must be thoroughly trained in the hazards of this chemical and its safe use, and must wear protective equipment and clothing sufficient to prevent inhalation of dust or fumes, and contact with skin and eyes. Wet if necessary to avoid generating dust. Prevent from entering sewers and waterways. Contain spill with inert material (earth, sand, inert absorbent). Use non-sparking tools to collect material, in suitable, labelled, covered containers for disposal. Contaminated absorbent may pose the same hazards as the chemical; treat with caution. Flush area of spill with large amounts of running water.

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

**Handling Procedures and Equipment:** OXIDIZER.

Workers using this chemical must be thoroughly trained in its hazards and its safe use, and must wear appropriate protective equipment and clothing. Keep away from combustible or organic materials, and all sources of ignition. Use non-sparking tools. Avoid all contact and inhalation. Do not shock. Use the smallest amount possible for the purpose, in designated areas with adequate ventilation. Keep work area clean and free of extraneous, particularly combustible, materials. Do not use on porous surfaces (wood); use surfaces that can be easily and thoroughly cleaned. Clean up spills immediately and thoroughly. Keep containers closed when

not in use and when empty. Empty containers may contain hazardous residues; treat with caution. Wash hands thoroughly after use.

**Storage Requirements:** Store in suitable, labelled containers, in a cool, dry, well-ventilated area, out of direct sunlight, and away from incompatible, combustible or organic materials. Storage facilities (shelves, floors) should be constructed of non-combustible materials. Keep away from all ignition sources. Keep containers tightly closed when not in use and when empty. Protect from damage, and inspect frequently for signs of leaking; unattended spillage onto combustible materials (wood, paper, etc.) could result in fire.

**FIRST AID MEASURES****Specific Measures:**

**Eyes:** Flush eyes immediately with large amounts of gently running water or normal saline, holding eyelids open, for at least fifteen (15) minutes, or until no evidence of chemical remains. Take care not to flush contaminated water into unaffected eye. Get medical attention if irritation persists.

**Skin:** Remove contaminated clothing, including watches, rings, belts, and shoes. Wash skin with plenty of running water for five to ten (5-10) minutes, or until no trace of chemical remains. If irritation develops get medical attention. Decontaminate clothing before reuse, or discard; clothing may become dangerously flammable after contact with this chemical.

**Inhalation:** Remove to fresh air. Eliminate all sources of ignition. Give oxygen and get medical attention for any breathing difficulty. Because exposure to nitrates can cause methemoglobinemia, the symptoms of which may be delayed, unless exposure is minor, the victim needs to be monitored for several hours for cyanosis, irregular heart rate, loss of consciousness.

**Ingestion:** If victim is alert and not convulsing, give 1 to 2 glasses of water to drink to dilute material. DO NOT induce vomiting. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. Obtain medical attention IMMEDIATELY.

**REFERENCES USED**

CCINFO disc: Cheminfo, MSDS's, February 2007

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:** July 15, 1991

**Revision:** February 2010

**MSDS:** 4640-1

**Proposed WHMIS Designation:** C; D2B

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