

MATERIAL SAFETY DATA SHEET

POTASSIUM NITRATE

PRODUCT CODE NUMBER(S): 6320-1

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: Potassium nitrate; Nitric acid potassium salt; Saltpeter

Chemical Family: Inorganic salt

Chemical Formula: KNO_3

Product Use: Laboratory reagent

Manufacturer's Name and Address:

Caledon Laboratories Ltd.
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Georgetown, Ontario L7G 4R9

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Hazardous Decomposition Products: NO_x , KO_x , oxygen.

FIRE AND EXPLOSION DATA

Flammability: Not combustible but strong oxidizer. Will increase the burning rate of combustible matter. Contact with easily oxidizable, organic, or other combustible materials may result in ignition, violent combustion or explosion. 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: NO_x , KO_x , oxygen

Sensitivity to Impact: May explode when shocked

Sensitivity to Static discharge: Mixtures of dust with air may be sensitive under certain conditions, particularly when contaminated with organic materials, when ignited by an electrostatic or other high-voltage spark, or other ignition source.

HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	%	TLV Units	CAS No.
Potassium nitrate	>99	Not established	7757-79-1

PHYSICAL DATA

Physical State: Solid

Odour and Appearance: Colourless, transparent crystals or white powder with a saline taste. Odourless.

Odour Threshold (ppm): Not applicable

Vapour Pressure (mm Hg): Negligible @ 20°C

Vapour Density (Air = 1): 3.0

Evaporation Rate: Not available

Boiling Point (degrees C): 400°C (decomposes)

Melting Point (degrees C): 337°C

pH: ~7

Specific Gravity: 2.109 @ 16°C

Coefficient of Water/Oil distribution: Not available

TOXICOLOGICAL PROPERTIES AND HEALTH DATA

Toxicological Data:

LD₅₀: (oral, rat) 3,750 mg/kg; (oral, rabbit) 1,900 mg/kg

LC₅₀: Not applicable

Effects of Acute Exposure to Product:

Inhaled: Very irritating to the mucous membranes, symptoms may include coughing, sore throat, and shortness of breath. At high temperatures, exposure to toxic nitrogen oxides decomposition products can quickly cause acute respiratory problems. Absorption leads to systemic poisoning with headache, fall in blood pressure, 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: Dust may cause mild irritation, symptoms including redness, itching and pain. Symptoms will be increased on moist skin. Solutions may cause moderate to severe irritation, even burns and ulceration, depending on concentration and duration of exposure.

In contact with eyes: Dust or solutions may cause irritation, with tearing, redness, and pain, depending on concentration and duration of exposure.

Ingested: Harmful. Ingestion may cause gastrointestinal upset with symptoms of abdominal pain, vomiting, purging

SHIPPING DESCRIPTION

UN: 1486

T.D.G. Class: 5.1

Pkg. Group: III

REACTIVITY DATA

Chemical Stability: Stable under normal temperatures and pressures. Hygroscopic; absorbs moisture from air.

Incompatibility with other substances: May react violently or explosively with strong reducing agents, finely powdered metals, heavy metals, strong acids, organic compounds, phosphites, carbonaceous materials. Reaction with organic or combustible materials, or oxidizers may cause fire. May explode when exposed to shock or friction.

Reactivity: Avoid excessive heat, ignition sources, generation of dust, incompatible and combustible materials. Do not shock.

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and diuretsis. Severe overexposure can also decrease the ability of blood to carry oxygen (see "Chronic Exposure . . .")

Effects of Chronic Exposure to Product:

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: An association has been noted between the incidence of stomach cancer and the use of nitrate (potassium and sodium) fertilisers.

Teratogenicity: Repeated or prolonged exposure to nitrates may cause fetal anemia, nephritis, and possibly methemoglobinemia.

Reproductive Effects: Insufficient information available

Mutagenicity: Negative in bacterial tests

Synergistic Products: None known

PREVENTIVE MEASURES

Engineering Controls: Local exhaust ventilation required.

Respiratory Protection: Dust mask. If dust or mist is present, NIOSH/MSHA-approved half-face dust/mist respirator. High or unknown concentrations, as in fire or spill conditions: full facepiece, positive pressuresupplied-air respirator.

Eye Protection: Chemical safety goggles and/or face shield.

Skin Protection: Impervious rubber gloves, aprons, and general protective clothing sufficient to prevent contact.

Other Personal Protective Equipment: Emergency shower and eye wash facilities in working order and within easy access.

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: Observe all federal, provincial and local regulations when disposing of this substance.

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 cool, 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.

Skin: Remove contaminated clothing (including shoes, belts, watches, rings). Wipe off excess from skin. Drench skin with running water for at least fifteen (15) minutes, taking care to clean folds, creases, and groin. Unless exposure is very minor, get medical attention. Decontaminate clothing before reuse, or discard. Clothing contaminated with this chemical can burn spontaneously.

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, rinse mouth thoroughly with water and give 2 to 4 glasses of water to drink to dilute. Get medical attention. Induce vomiting as directed by medical personnel. If spontaneous vomiting occurs, hold head low to prevent aspiration of vomitus, rinse mouth thoroughly and give more water to drink.

REFERENCES USED

CCINFO disc: Cheminfo, MSDS's February 2007

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

Royal Society of Chemistry: Chemical Safety Data Sheets, Vol. 2, 1989

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

Suppliers' Material Safety Data Sheets

ADDITIONAL INFORMATION

Date Issued: March 10th, 1989

Revision: February 2010

MSDS: 6320-1

Proposed WHMIS Designation: C; D2B

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