

MATERIAL SAFETY DATA SHEET**POTASSIUM PERMANGANATE**

PRODUCT CODE NUMBER(S): 6520-1, 6520-4, 6535-1

PRODUCT IDENTIFICATION**Chemical Name and Synonyms:** *Potassium permanganate, Chameleon mineral***Chemical Family:** *Inorganic salt***Chemical Formula:** *KMnO₄***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>Potassium permanganate</i>	<i>>97</i>	<i>0.2 mg/m³ (TWA, ACGIH, as Mn)</i>	<i>7722-64-7</i>

PHYSICAL DATA**Physical State:** *Solid***Odour and Appearance:** *Odourless, dark purple or bronze-like rhombic crystals with a blue metallic sheen***Odour Threshold (ppm):** *Not applicable***Vapour Pressure (mm Hg):** *Practically 0***Vapour Density (Air = 1):** *Not applicable***Evaporation Rate:** *Not applicable***Boiling Point (degrees C):** *Not applicable***Melting Point (degrees C):** *~240°C (decomposes)***pH:** *Not available***Specific Gravity:** *2.70 @ 15°C***Coefficient of Water/Oil distribution:** *Not available***SHIPPING DESCRIPTION****UN:** *1490***T.D.G. Class:** *5.1***Pkg. Group:** *II***REACTIVITY DATA****Chemical Stability:** *Stable when dry.***Incompatibility with other substances:** *May react violently or explosively with strong acids, strong reducing materials, alcohols, active metals (titanium, arsenic, antimony). Reaction with organic or combustible materials, or peroxides may cause fire. Containers may explode. Explosive or vigorous fire in contact with sulphuric acid, hydrogen peroxide, acetic acid, acetic anhydride, arsenic, glycerol, hydrochloric acid, phosphorus, sulphur, hydrofluoric acid.***Reactivity:** *Avoid excessive heat, ignition sources, generation of dust, incompatible and combustible materials.***Hazardous Decomposition Products:** *Releases oxygen, which greatly increases the burning rate of combustible substances.***FIRE AND EXPLOSION DATA****Flammability:** *Not combustible but is a strong oxidizer. Ignites or explodes in contact with organic or easily oxidizable substances or powdered metals, promotes combustion of inflammable materials.***Extinguishing Media:** *Use flooding amounts of water. Use water as spray or fog to minimize dust, absorb heat, cool containers, and disperse vapours. Do not use CO₂, dry chemicals, or foams. Firefighters must wear protective equipment (positive-pressure, full face-piece self-contained breathing apparatus), and clothing sufficient to prevent inhalation of dusts or fumes and contact with skin and eyes.***Flash Point (Method Used):** *Will not burn***Autoignition Temperature:** *Not applicable***Upper Flammable Limit (% by volume):** *Not applicable***Lower Flammable Limit (% by volume):** *Not applicable***Hazardous Combustion Products:** *May release toxic and irritating gases.***Sensitivity to Impact:** *None identified***Sensitivity to Static discharge:** *None identified***TOXICOLOGICAL PROPERTIES AND HEALTH DATA****Toxicological Data:****LD₅₀:** *(oral, rat) 750 mg/kg***LC₅₀:** *Not available***LC_{Lo}:** *(human) 143 mg/kg***Effects of Acute Exposure to Product:****Inhaled:** *Causes severe irritation of the respiratory tract, shortness of breath, laboured breathing, choking, stridor, persistent spasmodic cough, pain in the nose, mouth and throat, and burns of the mucous membranes. Severe overexposure can cause pulmonary edema which may be fatal. Symptoms (tightness in the chest, shortness of breath, frothy sputum, cyanosis) may appear several hours after exposure.***In contact with skin:** *Dilute aqueous solutions are mildly irritating. Concentrated solutions or solid are highly corrosive and cause severe burns with redness, pain, and a thick brownish-purple area of dead tissue.***In contact with eyes:** *Dilute aqueous solutions are irritating. Strong solutions and crystals can cause severe eye damage, with ulceration, swelling, lacrimation, bleeding. Damage may cause permanent clouding of the cornea.***Ingested:** *May cause discoloration, inflammation, and corrosion of the lips, gums, teeth, tongue, tonsils, pharynx and the larynx, beginning as purple-brown, within minutes changing to dark brown and later coal black with slight metallic lustre. Causes burning pain from the mouth to the pit of the stomach, nausea and vomiting. Vomitus may contain purple-brown or brown material. Other symptoms may include high-pitched noisy breathing, difficulty in speaking or swallowing which may persist for several days, black stools and epigastric pain and tenderness, distension of the abdomen, slow pulse, shock, low blood pressure and possible death. Fatal oral dose is estimated to be about 10 g. Death may occur up to one month after the poisoning. If death is not immediate, liver and kidney damage may occur, producing jaundice and oliguria or anuria. If this chemical is inadvertently inhaled while being ingested symptoms as those in "Inhaled" may also occur.*

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Effects of Chronic Exposure to Product:

Proplonged or repeated exposure to manganese compounds can cause liver and kidney damage, harmful effects to the CNS, with difficulty walking and speaking, weakness or cramps in the legs, poor co-ordination, tremors of the limbs, trouble with memory and judgement, and unstable emotions. A higher than normal level of pneumonia has been found in workers exposed to airborne manganese compounds.

Carcinogenicity: Not listed as carcinogenic by ACGIH, IARC, NTP.

Teratogenicity: No human information available. Tests on laboratory animals were not teratogenic and were embryotoxic only at doses toxic to the mother.

Reproductive Effects: No specific information available. Male miners with chronic manganese poisoning have reported impotence and decreased sexual desire.

Mutagenicity: No human information available. Mutation data cited in tests involving bacteria and mouse cells.

Synergistic Products: None known

PREVENTIVE MEASURES

Engineering Controls: Local, corrosion-proof, exhaust ventilation required.

Respiratory Protection: Use in a fumehood. Up to 10 mg/m³: NIOSH/OSHA approved dust and mist respirator (not single-use or quarter mask; up to 25 mg/m³: powered air-purifying respirator with dust and mist filters or continuous-flow supplied-air respirator; up to 50 mg/m³: full face-piece respirator with high-efficiency particulate filters, or continuous-flow supplied-air respirator with tight-fitting facepiece, or self-contained breathing apparatus or supplied-air respirator; up to 500 mg/m³: positive pressure supplied-air respirator; higher or unknown concentrations, or fire or spill conditions - self-contained breathing apparatus with a full facepiece operated in positive pressure mode.

Eye Protection: Chemical safety goggles and face shield.

Skin Protection: Polyethylene, Responder™ gloves; other impervious protective clothing, apron, sleeves, coveralls, boots, as required to prevent contact.

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

Leak and Spill Procedure: Restrict access to spill area. Ventilate area. Eliminate all ignition sources and isolate from combustible materials. Cleanup personnel must be thoroughly trained in the handling of hazardous products and in the hazards of this particular product, and must wear protective equipment and clothing sufficient to prevent inhalation of dust or fumes, and contact with skin and eyes. Do not touch spilled material. Keep combustible and organic materials (wood, paper, oil, etc.) away from spilled material. Mix with wet sand and collect in a manner that does not raise dust, for re-use or disposal. Prevent from entering sewers or waterways. Contaminated absorbent may pose the same hazards as the spilled product; treat with caution. Wash area of spillage and contaminated equipment and clothing thoroughly with copious amounts of water.

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

Handling Procedures and Equipment: OXIDIZER, TOXIC, CORROSIVE. 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. Avoid generation of dust. Avoid inhalation and contact with skin and eyes. Use the smallest possible amount for the purpose, in designated areas with adequate ventilation. Keep work area clean and free of extraneous, particularly combustible, materials. Keep containers closed when not in use and when empty. Empty containers may contain hazardous residues; treat with caution.

Storage Requirements: Store in suitable, labelled containers, a cool, dry, well-ventilated area, out of direct sunlight and away

from food and water, heat, and incompatible materials. Keep containers tightly closed when not in use and when empty. Protect from damage, and inspect frequently for signs of leaking. Store away from ignition sources and incompatible materials. Storage facilities should be constructed of non-combustible materials. Have appropriate fire extinguishers in and near storage area.

FIRST AID MEASURES**Specific Measures:**

Eyes: Flush eyes immediately with large amounts of gently running water, holding eyelids open while flushing, for at least 20-30 minutes, or until no evidence of chemical remains. Take care not to flush contaminated water into non-affected eye. Wear protective gloves to avoid contact during first aid procedures. In case of burns, apply sterile bandages loosely without medication. Get medical attention immediately.

Skin: Under running water, immediately remove contaminated clothing (including shoes, watches, belts, and rings). Wash affected area with soap or mild detergent and large amounts of gently running water for at least 20 minutes, or until no evidence of chemical remains. Wear protective gloves to avoid contact during first aid procedures. In case of chemical burns, cover area securely, but not too tightly, with sterile, dry dressing. Get medical attention immediately. Decontaminate clothing before reuse, or before discarding; clothing may become dangerously flammable after contact with this chemical.

Inhalation: Remove to fresh air immediately. Get medical attention immediately. Give oxygen for breathing difficulty. If breathing has stopped, give artificial respiration (use a mouth guard to prevent contact with chemical). Keep affected person warm and at rest. Treat symptomatically and supportively. Onset of pulmonary edema may be delayed; if victim feels unwell during the next 48-72 hours, get medical attention immediately.

Ingestion: Get medical attention immediately. DO NOT INDUCE VOMITING or use gastric lavage. Dilute the acid immediately by giving large quantities of water or milk to drink. If vomiting occurs, have victim lean forward to avoid breathing in of emesis. Rinse mouth and continue to administer fluids. Ingested substance must be diluted approximately 100 times to render it harmless to tissues. If symptoms are severe and perforation of the stomach or esophagus is suspected, give nothing by mouth until endoscopic examination has been done. Treatment should be administered by qualified medical personnel.

REFERENCES USED

CCINFO disc: Cheminfo

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 10, 1989

Revision: October 2011

MSDS: 6520-1, 6520-4, 6535-1

Proposed WHMIS Designation: C; E; Insufficient data for toxicological classification

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