

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

Sodium perchlorate, anhydrous; Perchloric acid, sodium salt

Chemical Family:

Inorganic halogen oxygen acid salt, perchlorates

Chemical Formula:

NaClO₄

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

Ingredients	%	TLV Units	CAS No.
Sodium perchlorate	>98	Not established	7601-89-0

PHYSICAL DATA**Physical State:**

Solid

Odour and Appearance:

White crystalline powder; odourless

Odour Threshold (ppm):

Not applicable

Vapour Pressure (mm Hg):

Does not form vapour

Vapour Density (Air = 1):

Not applicable

Evaporation Rate:

Not applicable

Boiling Point (degrees C):

Not applicable

Melting Point (degrees C):

482°C (decomposes)

pH:

6 to 8 (5% aqueous, 25°C)

Specific Gravity:

2.5

Coefficient of Water/Oil distribution:

Not available

SHIPPING DESCRIPTION**UN:**

1502

T.D.G. Class:

5.1

Pkg. Group:

II

REACTIVITY DATA**Chemical Stability:**

Stable at normal temperatures, unless contaminated. Very hygroscopic; absorbs moisture from air and forms wet solid or solution.

Incompatibility with other substances:

Mixtures with combustible and flammable materials are highly explosive and may easily be ignited by friction, heat, sparks or

shock. Forms friction and impact-sensitive explosive mixtures with finely powdered metals (e.g. magnesium), strong reducing agents, (e.g. calcium hydride, strontium hydride). Mixtures with organic material are more readily flammable and can be explosive if finely divided. May react violently or explosively with strong acids, alcohols, ammonium nitrate, hot charcoal. Mixtures with sulphur can explode on impact. Mixtures with hydrazine can explode with friction. Corrosive to steel and gray cast iron. Not corrosive to stainless steel, copper, bronze, copper-nickel alloy, aluminum, nickel and its alloys.

Reactivity:

Strong oxidizer; can undergo reactions ranging from vigorous to explosive when oxidizable materials are present.

Decomposes, possibly violently or explosively, above 400°C, releasing toxic gases. Avoid heat, sparks, open flame, all incompatible or combustible materials.

Hazardous Decomposition Products:

Toxic fumes of chlorine, hydrogen chloride

FIRE AND EXPLOSION DATA**Flammability:**

Not combustible but strong oxidizer. Will enhance the burning rate or cause spontaneous combustion of organic or combustible material. Forms flammable, explosive or shock-sensitive mixtures with many materials, therefore is a serious fire and explosion risk. Strong oxidants may explode when shocked or if exposed to heat, flame or friction. May be initiation source for dust or vapour explosions.

Extinguishing Media:

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 and clothing (chemical-resistant splash suit, Bunker Gear is not adequate) sufficient to prevent inhalation of fumes and contact with skin and eyes. Remove all flammable and combustible materials from area, if it is safe to do so. Do not attempt to approach heated containers until they have cooled, and then wear protective equipment; decomposition products (chlorine, hydrogen chloride) are extremely hazardous to health.

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:

Chlorine, oxygen, chlorine dioxide, hydrogen chloride, sodium oxides

Sensitivity to Impact:

Pure product is relatively insensitive. Forms shock-sensitive mixtures with many substances.

Sensitivity to Static discharge:

Mixtures of dust with air may be sensitive under certain conditions, particularly when contaminated with organic materials, when exposed to electrostatic or other high-voltage spark, or other ignition source.

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

LD₅₀:

SODIUM PERCHLORATE

(oral, rat) 2,100 mg/kg

LC₅₀:

Not available

Effects of Acute Exposure to Product:

Inhaled:

Irritant; may cause respiratory tract. May cause coughing and choking. Animal information indicates low toxicity by inhalation.

In contact with skin:

Does not appear to be irritating either as solid or concentrated solution (based on animal testing, no human information available). Not absorbed through skin to significant extent.

In contact with eyes:

Irritant; may cause tearing, temporary pain, and reversible corneal opacity. Solutions or mists may cause severe irritation (animal testing).

Ingested:

No specific human information available. Animal testing indicates low oral toxicity. Perchlorates may cause methemoglobinemia (conversion of oxygen-carrying components of blood to an inactive form); symptoms are headache, and bluish discoloration of the lips and skin.

Effects of Chronic Exposure to Product:

Prolonged high-level exposure may cause liver damage, and may affect the use of iodine by the thyroid gland, causing dysfunction such as goitre. These effects are not relevant to occupational exposure.

Carcinogenicity:

No human or animal information available

Teratogenicity:

No human or animal information available

Reproductive Effects:

No human or animal information available

Mutagenicity:

Effects in some laboratory testing. Not mutagenic in in vitro 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, to the maximum use specified by the respirator supplier. High or unknown concentrations, as in fire or spill conditions: full facepiece, positive pressure-supplied-air respirator or full face-piece, positive pressure self-contained breathing apparatus.

Eye Protection:

Chemical safety goggles

Skin Protection:

Impervious gloves. Other protective clothing, apron, sleeves, coveralls, boots sufficient to prevent contact.

Other Personal Protective Equipment:

Eye wash and safety shower in work area.

Leak and Spill Procedure:

Evacuate area. Eliminate all sources of ignition and all combustible materials. Cleanup personnel must be thoroughly trained in the hazards of this chemical, and must wear protective equipment and clothing sufficient to prevent inhalation of dusts or mists and contact with skin and eyes. Prevent from entering sewers or waterways. Cover with sand, earth or other non-combustible material, transfer carefully into container and arrange removal by disposal company. Wash site of spillage thoroughly with water and detergent.

Waste Disposal:

Follow all federal, provincial and local regulations for disposal.

Handling Procedures and Equipment:

OXIDIZER, IRRITANT. 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 contact and inhalation of dust or mist. 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. Post "No Smoking" signs. Keep containers closed when not in use and when empty. Wash thoroughly after handling. Empty containers may contain hazardous residues; treat with caution. Never reuse containers, even if they appear to be clean.

Storage Requirements:

Store in suitable, labelled containers, in a cool, dry, well-ventilated area, away from incompatible or combustible materials, and out of direct sunlight. Store away from ignition sources. Keep tightly closed. Protect from damage and from shock. Inspect frequently for signs of damage. Have appropriate fire extinguishers nearby. Use fire-resistant or non-combustible structural materials, lighting and ventilation systems in the storage area. Provide raised sills or trenches to contain or direct spill product. Treat empty containers with caution; they may contain hazardous residues.

FIRST AID MEASURES

Specific Measures:

Eyes:

Do not rub eyes. Allow eyes to tear naturally for a few minutes. Flush thoroughly with gently running water for five to ten (5 to 10) minutes, holding eyelids open while flushing, until no trace of chemical remains. Take care not to flush contaminated water into unaffected eye. Get medical advice if irritation persists.

Skin:

Remove contaminated clothing (including shoes, belts, watchbands) under running water. Wash skin with running water for five to ten (5 to 10) minutes or until chemical is removed. If irritation persists, get medical attention. Keep clothing wet until decontamination is possible. Completely decontaminate clothing before reuse, or discard. Clothing contaminated with this chemical can burn spontaneously.

Inhalation:

Remove to fresh air. Remove combustible or oxidizable materials from area. Give oxygen and get medical attention for any breathing difficulty.

Ingestion:

If victim is alert and not convulsing, rinse mouth thoroughly and give 2 to 4 glasses of water to drink to dilute. Do not induce vomiting. Get medical attention immediately. If spontaneous vomiting occurs, rinse mouth thoroughly and give more water to drink.

REFERENCES USED

CCINFO disc: Cheminfo
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:

March 13, 1992

SODIUM PERCHLORATE

Revision:

May 2012

MSDS:

8090-1

Proposed WHMIS Designation:

C; D2B (eye irritation)

Prepared by: Caledon Laboratories Ltd. 877-0101 Caledon Laboratories Ltd. believes the information contained herein is reliable and accurate. Caledon makes no warranty with respect thereto and expressly disclaims all liability for reliance thereon. Such information is solely for your consideration, investigation, and verification.