

1. Chemical Product and Company Identification

Eka Chemicals Inc.

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USA
Telephone 1-770-578-0858
24 Hour Emergency Number
US CHEMTREC 1-800-424-9300
CANADA CANUTEC 1-613-966-6666

Product Name

PURATE®

Chemical Type

Sodium Chlorate and Hydrogen Peroxide as a stabilized aqueous solution.

Intended Use

Reagent feed for SVP-Pure® Chlorine Dioxide generation

2. Composition / Information on Ingredients

<i>Component</i>	<i>CAS #</i>	<i>% Wt/Wt</i>
Hydrogen peroxide	7722-84-1	7 - 10 %
ACGIH - Occupational Exposure Limits - TWAs	1 ppm TWA	
Sodium Chlorate	7775-09-9	40 %
<i>Ingredient Information</i>	Exposure Limits not established for sodium chlorate solution.	

3. Hazards Identification

<i>Emergency Overview</i>	A clear, faintly blue colored, faintly odored solution which may cause moderate skin irritation and severe irritation of eyes and mucous membranes, including possible blindness.
<i>Hazard Statements</i>	Sodium Chlorate is odorless and very soluble in water. Sodium Chlorate not listed as a possible carcinogenic by OSHA, IARC or NTP.
<i>Route of entry</i>	Inhalation, skin and ingestion
<i>Target organs</i>	Skin, eyes, mucous membranes, and renal system.
Acute Effects	
<i>Ingestion</i>	Irritation of the gastrointestinal tract, abdominal pain, gas evolution, and red blood cell destruction.
<i>Skin</i>	May cause moderate skin irritation.
<i>Eyes</i>	May cause severe eye irritation, tearing and blurring of vision, with irreversible corneal damage and possible blindness in instances of overexposure.
<i>Inhalation</i>	May cause irritation of the upper respiratory passages; nausea, headache, or weakness.
<i>Chronic Effects</i>	No Information
<i>Medical Conditions Aggravated by Exposure</i>	None documented

4. First Aid Measures

First Aid

Ingestion

If victim is conscious, give plenty of water to dilute stomach contents. Do not induce vomiting without medical advice. Seek immediate medical attention.

Notes to Physician

Sodium chlorate poisoning is rare, but is associated with a high mortality rate with death generally occurring from massive intravascular hemolysis and acute renal failure. Sodium thiosulfate (2 to 5 gm. in 200 ml of 5% sodium bicarbonate) is a specific antidote that can be given orally or by I.V. DO NOT treat with methylene blue because of risk of methemoglobinemia. Sodium Chlorate is freely dialyzable, and early treatment by peritoneal or hemodialysis is recommended. Direct contact of hydrogen peroxide with the eye is likely to cause corneal damage, especially if not washed away immediately careful ophthalmologic evaluation is recommended. Attempts at evacuating the stomach via emesis induction or gastric lavage should be avoided. In the event of severe distention of the stomach or esophagus due to gas formation, insertion of a gastric tube may be required.

5. Fire Fighting Measures

Extinguishing Media

USE WATER ONLY.

Unsuitable Extinguishing Media

If allowed to evaporate, solid sodium chlorate could be formed. Solid sodium chlorate does not burn, but if exposed to fire it decomposes to give off oxygen which feeds the fire. Consequently, ONLY WATER is effective in cooling and diluting solid sodium chlorate. DO NOT USE CO₂, Halon, dry chemical or powder fire extinguishers, or fire blankets in the event solid sodium chlorate is involved as these are totally ineffective and may confine the heat and create a worse situation.

Special Protective Equipment

Avoid all bodily contact. Wear self-contained breathing apparatus, pressure demand, MSHA/NIOSH approved and full protective gear. Do not allow clothing, shoes, or gloves to become impregnated with sodium chlorate in solution, as they will become highly combustible if allowed to dry, and may be ignited by friction or heat. In case of external fire, cool containers of sodium chlorate and hydrogen peroxide solution with plenty of water.

Special Exposure Hazards

DO NOT allow solution to come in contact with any combustible materials. Paper, wood, cloth, and leather impregnated with sodium chlorate solution are highly combustible if allowed to dry, and may be ignited by friction or heat. DO NOT allow the temperature of the storage container to rise above 100 F (38 C).

Hazardous Combustion Products

No Information

General Fire Hazards

Non flammable liquid.

Sensitivity to mechanical/static discharge

Refer to "Special Exposure Hazards" noted above.

6. Accidental Release Measures

Spill Or Leak Procedure

DO NOT ALLOW RELEASES TO ACIDIC DRAINS AS CHLORINE DIOXIDE GAS CAN BE LIBERATED. Contain runoff and contact appropriate local spill response personnel and/or Eka Chemicals. Do not allow escape into sewers, drains or natural watercourses. Waste disposal in approved chemical disposal area or in a manner which complies with all local, State and Federal regulations.

Evacuation Procedures

Isolate area. Keep unnecessary personnel away.

Containment Procedures

Block any potential routes to water systems. Contain spill using noncombustible material such as vermiculite, sand or earth.

Clean-Up Procedures

Local authorities should be advised if significant spillages cannot be contained.

7. Handling and Storage

<i>Handling Procedures</i>	Prevent possible eye and skin contact by wearing protective clothing and equipment. AVOID PRODUCT CONTACT WITH ACIDIC MEDIA WHICH CAN LIBERATE CHLORINE DIOXIDE GAS.
<i>Storage Procedures</i>	Store in properly vented containers or tanks. Do not block vent. Do not store where contact with incompatible materials could occur, even with a spill. Have a clean water source available for dilution. Keep storage containers out of direct sunlight and away from heat, sparks and flames. DO NOT add any other product to storage container. Never return unused product to storage container.
<i>Unsuitable handling/storage materials</i>	Mild steel. Aluminum. Copper and its alloys.

8. Exposure Controls / Personal Protection

Personal Protective Equipment

<i>General</i>	Avoid all bodily contact. Wear self-contained breathing apparatus and appropriate protective equipment. Do not allow clothing, shoes or gloves to become impregnated with sodium chlorate in solution, as they will become highly combustible if allowed to dry, and may be ignited by friction or heat. In case of external fire, cool containers of sodium chlorate and hydrogen peroxide solution with plenty of water.
<i>Respiratory</i>	Not applicable under normal conditions of use. For vapor or mist concentration in excess of 10 ppm, a self-contained breathing apparatus should be used. DO NOT USE OXIDIZABLE SORBANTS.
<i>Skin</i>	Use impervious clothing to avoid skin contact.
<i>Eyes/Face</i>	Wear safety glasses with side shields or chemical goggles. Where appropriate, wear a full face shield. Contact lenses should not be worn when handling this product.
<i>Engineering Controls</i>	Use site specific diking / spill control to avoid uncontrolled releases. Eye wash facility, emergency shower or jump tank should be in close proximity.
<i>Occupational exposure limits</i>	No TLVs have been established for this mixture. The PEL for hydrogen peroxide is 1 ppm. The PEL for sodium chlorate is: Total Dust = 15 mg/m ³ ; Respirable Fraction = 5 mg/m ³ .

9. Physical & Chemical Properties

<i>Form</i>	Aqueous solution
<i>Color</i>	Faint blue to colorless
<i>Odor</i>	Faint
<i>Boiling Point</i>	104 °C
<i>Specific Gravity</i>	1.377 at 20 degrees C
<i>Melting Point</i>	N/A
<i>Vapor Pressure</i>	< 0.1 kPa at 40 degrees and at 80 degrees C
<i>Evaporation Rate</i>	> 1 (butyl acetate = 1)
<i>Viscosity</i>	water-like
<i>Solubility (H₂O)</i>	not applicable
<i>pH</i>	1.7
<i>Bulk Density</i>	1377 @ 20C
<i>Coefficient of Water/Oil Distribution</i>	No data available

10. Chemical Stability & Reactivity Information

<i>Hazardous Decomposition</i>	Purate® will react with strong mineral acids liberating chlorine dioxide gas. Contamination from various metals or organic materials may cause rapid decomposition of the hydrogen peroxide, resulting in oxygen gas release and pressure buildup if not properly vented.
<i>Hazardous Reactions</i>	Strong mineral acids, organic materials, and powdered metals. Polymerization will not occur.
<i>Hazardous Polymerization</i>	Will not occur.
<i>Conditions to Avoid</i>	Avoid heat, flame, strong UV light and other sources of ignition. ELEVATED pH > 4 CAN ENHANCE MORE RAPID DECOMPOSITION OF THE HYDROGEN PEROXIDE.
<i>Incompatibility</i>	Purate® solutions may react with acids, organic matter, expanded plastics such as polystyrene or polyurethane, ammonium salts, sulfur or sulfides, phosphorus, arsenic, metals including copper, zinc, aluminum or other metals, manganese dioxide, potassium cyanide, and thiocyanates. Purate® is incompatible with soluble metals and their salts (i.e. iron, copper, chromium, vanadium, tungsten, molybdenum, and platinum), reducing agents, organic materials, as well as flammable and combustible materials.

11. Toxicological Information

<i>Acute Toxicity</i>	<p>The oral LD50 in rats for sodium chlorate is greater than 5000 mg/kg (practically nontoxic). The oral LD50 for a 10% concentration of hydrogen peroxide in rats ranges from 1500 mg/kg to greater than 5000 mg/kg (moderately toxic to practically nontoxic). Ingestion of large doses of sodium chlorate will result in methemoglobinemia and kidney damage.</p> <p>Acute: Rat LD50: > 5000 mg/kg Lethal Dose: NOAEL:</p>
<i>Inhalation Effects</i>	<p>The LC50 of sodium chlorate is greater than 5.6 mg/L. There was no mortality in rats following a 4 hour exposure to hydrogen peroxide at the minimal attainable concentration of 122 ppm.</p> <p>Acute: Rat LC50: > 5.6 mg/l Lethal Concentration: NOAEL:</p>
<i>Irritation to skin</i>	<p>Sodium chlorate was not irritating to rabbits. Hydrogen peroxide at concentrations of less than 35% is not considered irritating.</p> <p>Acute: Rabbit LD50: > 2000 mg/kg Lethal Dose: NOAEL:</p>
<i>Irritation to eyes</i>	<p>Sodium chlorate was mildly irritating to rabbits. Hydrogen peroxide at concentrations greater than 10% is considered severely irritating and corrosive.</p>
<i>Sensitisation Data</i>	<p>Sodium chlorate was not sensitizing to guinea pigs. Hydrogen peroxide was not sensitizing to guinea pigs at a concentration of 6%.</p>
<i>Reproductive toxicity/teratogenicity</i>	<p>Sodium chlorate was not teratogenic to rats at doses up to 1000 mg/kg/day during days 6-15 of gestation. Sufficient data is not available for evaluation of hydrogen peroxide.</p>
<i>Carcinogenicity/mutagenicity & long term effects</i>	<p>Sodium chlorate and hydrogen peroxide are not considered carcinogenic.</p>
Rhode Island - Hazardous Substance List	
Hydrogen peroxide	7722-84-1 Toxic, Flammable
<i>Epidemiology</i>	No Information
<i>Neurotoxicity</i>	No data available for this product.

12 Ecological Information

<i>Biodegradability</i>	Hydrogen Peroxide is readily biodegradable and does not bioconcentrate.
<i>Aquatic toxicity</i>	The 96 hour LC50 in rainbow trout for sodium chlorate is greater than 1000 mg/L (practically nontoxic). The 96 hour LC50 values for hydrogen peroxide in fish range from 16.4 - 37.4 mg/L (slightly toxic).
<i>Environmental Effects</i>	Hydrogen peroxide occurs naturally as a result of photochemical processes in living organisms.
<i>Fish</i>	rainbow trout EC50: > 1000 mg/l, 96 Hours, fish NOEL: 16.4 - 37.4 mg/l, 96 Hours,

13. Disposal Considerations

<i>Disposal Instructions</i>	In accordance with municipal, provincial, state and federal regulations. D002
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14. Transportation Information

Material DOT HMR Information

<i>Proper Shipping Name</i>	Oxidizing Liquid, N.O.S.
<i>Hazard Class</i>	5.1
<i>Packaging Group</i>	II
<i>UN Number</i>	3139
<i>Air (ICAO/IATA DGR)</i>	No data available

Canadian Transportation of Dangerous Goods (CTDG) Requirements:

<i>Proper Shipping Name</i>	Oxidizing liquid, N.O.S.
<i>Classification</i>	5.1
<i>Packaging Group</i>	II

15. Regulatory Information

<i>Canada DSL</i>	In compliance.
<i>US Federal Regulations</i>	Components of this product have been checked against the non-confidential TSCA inventory by CAS Registry Number. Components not identified on this non-confidential inventory are exempt from listing (i.e. as polymers) or are listed on the confidential inventory as declared by the supplier.
CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs	
Hydrogen peroxide	7722-84-1 1000 lb TPQ (concentration > 52%); 1000 lb EPCRA RQ
<i>WHMIS Classification</i>	Class E: Corrosive
<i>OSHA Regulated</i>	Eye/skin irritant as defined in 29 CFR 1910.1200.
<i>SARA 302</i>	Not subject to SARA Section 302.
<i>SARA 311/312</i>	Classified as immediate health hazard and fire hazard. Minimum threshold quantity for reporting is 10,000 pounds.
<i>SARA 313</i>	Not subject to SARA Section 313.
<i>General</i>	Not subject to Proposition 65. D002 - RCRA corrosive waste

HMIS RATINGS

Health 2
 Flammability Classification 0
 Reactivity 2
 Pers. Prot X

NFPA RATINGS

Health 2
 Flammability Classification 0
 Reactivity 2
 Special Hazards OXY

16. Other Information

* Estimated from analogous products.

The product is intended for sale only to industrial users. The information in this MSDS is intended to assist these users in determining the suitability of this product for their business applications. Users must inspect and test the product before use to satisfy themselves as to the contents and suitability. Eka Chemicals specifically disclaims all warranties express or implied; specifically, all warranties as to suitability, fitness for a particular purpose or merchantability of this product. The exclusive remedy for all proven claims is replacement of our product. In no event shall Eka Chemicals be liable for any special, incidental, or consequential damages. The information in this MSDS should be provided by the buyer, transporter or other handlers of this product to all who will use, handle, store, transport or otherwise potentially be exposed to this product. The MSDS has been prepared for the guidance of such persons and Eka Chemicals believes this information to be reliable and up-to-date as to the date of publication, but makes no warranty that it is. If the revision date of this MSDS is more than three years old then contact Eka Chemicals for an updated version.

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MSDS Sections Updated

Chemical Product and Company Identification: Product & Company Identification

Chemical Product and Company Identification: Product Type

Composition / Information on Ingredients: Ingredients

Disposal Considerations: Disposal Instructions

First Aid Measures: Notes to Physician

Physical & Chemical Properties: Physical & Chemical Properties

Regulatory Information: Canada DSL

Regulatory Information: General

Regulatory Information: OSHA Regulated

Regulatory Information: SARA 302

Regulatory Information: SARA 311/312

Regulatory Information: SARA 313

Regulatory Information: US Federal Regulations

Regulatory Information: WHMIS Classification

Toxicological Information: Acute Toxicity

Toxicological Information: Carcinogenicity/mutagenicity & long term effects

Toxicological Information: Epidemiology

Toxicological Information: Inhalation Effects

Toxicological Information: Irritation to eyes

Toxicological Information: Irritation to skin

Toxicological Information: Neurotoxicity

Toxicological Information: Reproductive toxicity/teratogenicity

Toxicological Information: Sensitization data