

## MATERIAL SAFETY DATA SHEET

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### SECTION 1 – IDENTIFICATION

PRODUCT IDENTIFIER:	<b>SODIUM CHLORATE SOLUTION (R8 AND R10)</b>
PRODUCT USE:	Mainly used in the on-site production of chlorine dioxide for bleaching pulp. Also used in the manufacture of dyes, explosives & matches, perchlorate manufacturing, ore processing, leather tanning and finishing, production of oxygen in rescue breathing apparatus, as an oxidizing agent, analytical reagent, and herbicide.
MANUFACTURER:	<b>Canexus Chemicals Canada Limited Partnership (For all Manufacturing Plants)</b> 1500 Richmond Avenue East Brandon, Manitoba, Canada R7A 6A6 <b>Emergency, call: (204) 725-5301</b> To Request an MSDS, call: 1-800-699-6924

**This MSDS is available in French upon request.**

***Cette fiche signalétique est disponible en français sur demande.***

### SECTION 2 – HAZARDS IDENTIFICATION

**WHMIS CLASSIFICATION:**

**C - Oxidizing Material**



**D2B - Toxic Material causing other toxic effects**



**EMERGENCY OVERVIEW:**

Strong oxidizer. Extremely reactive with combustible materials. Serious fire and explosion hazard when contaminated with dry organic materials such as cloth, leather or paper. Toxic by ingestion.

**EFFECTS OF SHORT-TERM (ACUTE) EXPOSURE:**

**SKIN CONTACT:** Direct contact with concentrated solutions or dried product can cause mild irritation.

**EYE CONTACT:** Mist may cause temporary eye irritation and mild pain until material is rinsed from the surface of the eye.

**INGESTION:** Non-occupational ingestion has produced death. Initial symptoms include vomiting, diarrhea, nausea, and abdominal pain. After several hours or more, there may be severe intestinal bleeding, destruction of red blood cells and formation of inactive hemoglobin. Urine may be dark with blood clots. Within a day, kidney damage or kidney failure may occur, with cessation of urination. Liver damage, laboured breathing, convulsions, and coma may also develop. Recovery may take several weeks and may not be complete. The human adult lethal dose is estimated at 5 to 10 grams of pure product.

**INHALATION:** Sodium chlorate mist may cause coughing and mild temporary irritation of the nose and throat.

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### EFFECTS OF LONG-TERM (CHRONIC) EXPOSURE:

Repeated and prolonged exposure of the skin can cause dermatitis. Repeated exposure by inhalation or ingestion may result in toxic effects which appear gradually over weeks. Initially there may be abdominal pain, followed by internal bleeding, destruction of red blood cells, lung damage, liver damage, and kidney damage. The skin may be bluish.

### MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

None indicated.

## SECTION 3 – COMPOSITION

HAZARDOUS INGREDIENTS	% (w/w)	CAS NUMBER
Sodium Chlorate	44 - 50	7775-09-9

## SECTION 4 - FIRST AID MEASURES

**SKIN CONTACT:** As quickly as possible, flush contaminated area with lukewarm, gently running water for at least 5 minutes, or until the chemical is removed. Immediately remove contaminated clothing, shoes, and leather goods such as watchbands and belts. If irritation persists, repeat flushing. Obtain medical advice immediately. Completely decontaminate clothing, shoes and leather goods before reuse or discarding.

**EYE CONTACT:** Immediately flush contaminated eye(s) with lukewarm, gently running water for 15 minutes, or until substance is removed, while holding the eyelid(s) open. Take care not to rinse contaminated water into a non-affected eye. Neutral saline solution may be used for flushing if available. If irritation persists, obtain medical attention immediately.

**INGESTION:** DO NOT INDUCE VOMITING. Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or is convulsing. Have victim rinse mouth thoroughly with water. Have victim drink 300 mL (10 oz.) of water. Milk, egg whites or gelatin may be administered if water is not available. If vomiting occurs naturally, have the victim lean forward to reduce risk of aspiration. Repeat administration of water. Obtain medical attention immediately.

**INHALATION:** Remove source of contamination or remove victim to fresh air. If symptoms persist, obtain medical advice.

**GENERAL COMMENTS:** Seek medical attention for all exposures involving ingestion of chlorate solutions. First-aid procedures should be reviewed by appropriate personnel familiar with sodium chlorate and its conditions of use in the workplace.

## SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT:	Strong oxidizer	LOWER FLAMMABILITY LIMITS:	Not applicable	SENSITIVITY TO MECHANICAL IMPACT:	Not sensitive when pure.
AUTOIGNITION TEMPERATURE:	Not applicable	UPPER FLAMMABILITY LIMITS:	Not applicable	SENSITIVITY TO STATIC DISCHARGE:	Not sensitive when pure.

**EXTINGUISHING MEDIA:** Water (spray or deluge) is the only effective means for fires involving sodium chlorate. Do not use fire blankets, carbon dioxide, or dry chemicals.

**FIRE FIGHTING INSTRUCTIONS:** Evacuate area and fight fire from a safe distance. Wear adequate personal protective equipment. Approach fire from upwind. Remove or isolate materials not involved in the fire if it can be done without risk. At high temperatures, toxic fuming may occur. Chemical resistant clothing and positive pressure SCBA may be required. Water may be used to keep fire-exposed containers cool to prevent rupture. Water spray may be used to reduce vapours.

**HAZARDOUS COMBUSTION PRODUCTS:** Sodium chlorate initially decomposes to sodium perchlorate, but liberates oxygen above 265 degrees Celsius. Produces hydrogen chloride and other toxic fumes with strong heating.

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### SECTION 6 – ACCIDENTAL RELEASE MEASURES

**SPILL OR LEAK:** Keep flammable or combustible materials (wood, paper, oil, etc.) away from spilled material. Do not touch damaged containers or spilled material unless wearing appropriate personal protective equipment. Ventilate area. Extinguish or remove all ignition sources. If flammable, combustible or incompatible materials (e.g. wood, paper, oil, etc.) come in contact with spilled product, the materials should be removed by trained personnel wearing appropriate personal protective equipment and disposed of in an acceptable manner. Prior to implementing disposal (in accordance with all applicable laws and regulations), it is advisable to consult an environmental consultant or other qualified specialist to determine the appropriate means of disposal for the waste materials.

**ENVIRONMENTAL PRECAUTIONS:** Implement a spill response plan. Stop or reduce leak if safe to do so. Prevent from entering sanitary or storm sewers, waterways, or confined spaces.

**REMEDIAL MEASURES:** Restrict access to area until completion of cleanup. Ensure cleanup is conducted by trained personnel only. Use all appropriate personal protective equipment. Shovel into clean, dry, labelled containers and cover. Recover contaminated soil and gravel. Flush area with water. If a powdery residue is present when area is dry, flush again. Notify government occupational health and safety and environmental authorities as per applicable regulations.

### SECTION 7 - HANDLING AND STORAGE

**HANDLING:** Do not skid or slide containers. Use non-combustible or fire-resistant greases, lubricants, and hydraulic fluids in chlorate handling areas. Keep away from sparks, flames or other ignition sources. Avoid contamination with organic materials. Avoid generating mists and dusts. Have emergency equipment readily available. Avoid use of wood or paper products.

**STORAGE:** Store in a cool, dry, well ventilated area out of direct sunlight and in an isolated fireproof building, if feasible. Store away from incompatible materials. Keep storage area separate from populated work areas. Keep containers tightly closed. Wood and other organic materials should not be used on floors, structural materials, or ventilation systems in the storage area.

### SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

**EXPOSURE LIMITS:** None established

**ENGINEERING CONTROLS:** Use general or local exhaust ventilation to limit exposure. These controls may need to be augmented by the use of process or personnel enclosures, control of process conditions, or by process modification.

**RESPIRATORY PROTECTION:** If respiratory protection is required, a NIOSH approved dust/mist respirator should be used.

**In Brazil, use equipment with certificate of approval emitted by the Ministry of Labour.**

**SKIN PROTECTION:** It is good practice to prevent skin contact. Wear impervious gloves, boots and/or other protective equipment according to circumstances. Fire retardant coveralls and other protective clothing is recommended. Avoid leather and wool. It is advisable to tuck pants into boots to avoid absorbing chlorate liquor that may be on the floor. Contaminated clothing may ignite due to friction or heat. Contaminated clothing should be laundered immediately.

**EYE AND FACE PROTECTION:** Eye protection is required. Chemical safety goggles are recommended. The wearing of contact lenses is not recommended.

**OTHER:** Have a safety shower and eye wash station readily available in the immediate work area.

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### SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Clear, pale yellow solution.	MELTING POINT:	3 °C
ODOUR:	Slight salty odour.	BOILING POINT:	106 °C
pH:	Neutral (solution in water)	CRITICAL TEMPERATURE:	Not applicable.
VAPOUR PRESSURE:	Not available	RELATIVE DENSITY:	1.38 @ 20 °C
SOLUBILITY:	Very soluble in water.	PARTION COEFFICIENT: n-OCTANOL/WATER	Not available.
VAPOUR DENSITY:	Vapour is water	EVAPORATION RATE:	Not applicable.

### SECTION 10 - STABILITY AND REACTIVITY

**CHEMICAL STABILITY:** Normally stable. May undergo chemical change at elevated temperature.

**INCOMPATIBILITY:** Dry mixture with flammable or combustible materials may ignite readily or explode and be sensitive to shock, heat, or friction. Mixtures of dry sodium chlorate with organic materials such as cloth, paper, leather, oils, greases, paint, and solvents may be readily ignited by heat or friction. May react violently with phosphorus, sulphur compounds, ammonium salts, and metal salts (especially copper). Mixture with acids can produce chlorine and chlorine dioxide. Mixture with finely divided metals or metal oxides may be explosive. Sodium chlorate is corrosive to zinc and mild steel.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Reacts with acids to produce chlorine, chlorine dioxide, and perchloric acid.

**HAZARDOUS POLYMERIZATION:** Does not occur.

### SECTION 11 - TOXICOLOGICAL INFORMATION

**ACUTE EFFECTS (Sodium Chlorate):**

LD50 Rat oral: 1200 mg/kg

LD50 Mouse oral: 3600 mg/kg

LD50 Rabbit oral: 7200 mg/kg

Standard Draize Test :

Rabbit skin: 500 mg/24H (mild)

Rabbit eye: 10 mg (mild)

**CARCINOGENICITY:** Not listed by ACGIH, IARC, NTP or OSHA

**SENSITIZATION:** Not a sensitizer

**TERATOGENICITY:** No information available

**REPRODUCTIVE EFFECTS:** No information available

**MUTAGENICITY:** No information available

### SECTION 12 - ECOLOGICAL INFORMATION

**ECOTOXICOLOGICAL INFORMATION:**

Soil contamination can destroy germinating seeds and inhibit plant growth. Toxic to fish and wildlife.

**ECOLOGICAL FATE INFORMATION:**

Remains in soil for 0.5 to 5 years, depending upon organic matter content, moisture and weather conditions

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### **SECTION 13 - DISPOSAL CONSIDERATIONS**

Prompt cleanup and removal are necessary. Control runoff and isolate discharged material for proper disposal. Prior to implementing disposal, consult with environmental regulatory agencies for guidance on acceptable disposal practices.

### **SECTION 14 - TRANSPORT INFORMATION**

#### **CANADIAN TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:**

Sodium chlorate, aqueous solutions, Class 5.1, UN 2428, PG II

#### **US DOT HAZARDOUS MATERIALS REGULATIONS:**

Sodium chlorate, aqueous solutions, Class 5.1, UN 2428, PG II

#### **BRAZILIAN TRANSPORTATION REQUIREMENTS:**

Decreto Lei N 96.044 de 18.05.88: Regulamentação do Transporte Rodoviário de Produtos Perigosos

Portaria MT 204 de 20.05.1997: Instrução Complementar aos Regulamentos dos Transportes Rodoviários e Ferroviários de Produtos Perigosos

NBR 7500: Símbolos de Risco e Manuseio para o Transporte e Armazenagem de Materiais

NBR 7501: Terminologia - Transporte de Produtos Perigosos

NBR 7502: Transporte de Cargas Perigosas - Classificação

NBR 7503: Ficha de Emergência para o Transporte de Produto Perigoso - Características e Dimensões

NBR 7504: Envelope para o Transporte de Produtos Perigosos - Dimensões e Utilização

NBR 8285: Preenchimento da Ficha de Emergência para o Transporte de Produtos Perigosos - Procedimento

NBR 8286: Emprego de Simbologia para o Transporte de Produtos Perigosos - Procedimentos

NBR 9734: Conjunto de Equipamentos de Proteção Individual para Avaliação de Emergência e Fuga no Transporte Rodoviário de Produtos Perigosos – Procedimentos

NBR 9735: Conjunto de Equipamentos para Emergência no Transporte Rodoviário de Produtos Perigosos – Procedimentos.

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### SECTION 15 - REGULATORY INFORMATION

#### **CANADIAN FEDERAL REGULATIONS:** (not a comprehensive list)

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA): All ingredients are on the Domestic Substances List (DSL).

#### WHMIS CLASSIFICATION:

C - Oxidizing Materials

D2B - Materials Causing Other Toxic Effects. Subdivision B: Toxic Material

WHMIS INGREDIENT DISCLOSURE LIST: No

#### **CPR COMPLIANCE**

This product has been classified with the hazard criteria of the CPR, and the MSDS contains all the information required by CPR.

#### **UNITED STATES FEDERAL REGULATIONS:** (not a comprehensive list)

TOXIC SUBSTANCES CONTROL ACT (TSCA): CAS# 7775-09-9 is listed on the inventory.

OSHA: Not a Hazardous Substance under 29 CFR Section 1910, Subpart Z.

CERCLA: Not a Hazardous Substance under 40 CFR Part 302

SARA 313: Not subject to the reporting requirements of 40 CFR Part 372

SARA 311/312 EPA HAZARD CATEGORIES: Fire Hazard, Reactive Hazard, Immediate (Acute) Health

SARA 302: Not subject to 40 CFR Part 355

### SECTION 16 - OTHER INFORMATION

VERSION:	3.0
PREPARED BY:	Canexus Chemicals Responsible Care Department. If you have any questions, contact Canexus at: 1-800-699-6924
REVISIONS:	Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.