

**CHEMTRADE****PULP CHEMICALS****MATERIAL SAFETY DATA SHEET****SECTION 1 – PRODUCT IDENTIFICATION AND USE**

PRODUCT IDENTIFIER Sodium Chlorate Crystal UN 1495		CAS REGISTRY NO. 7775-09-9	
PRODUCT USE Production of Chlorine dioxide for bleaching pulp			
MANUFACTURER'S NAME Chemtrade Pulp Chemicals LP		SUPPLIER'S NAME Chemtrade Pulp Chemicals LP	
STREET ADDRESS 2711 Pulpmill Road		STREET ADDRESS 2711 Pulpmill Road	
CITY Prince George	PROVINCE BC	CITY Prince George	PROVINCE BC
POSTAL CODE V2N 2S6	EMERGENCY TELEPHONE NO. (250) 563-4206 or CANUTEC (613) 996-6666	POSTAL CODE V2N 2S6	EMERGENCY TELEPHONE NO. (250) 563-4206 or CANUTEC (613) 996-6666

SECTION 2- HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS	%	CAS NUMBER	LD50 OF INGREDIENT (SPECIFY SPECIES AND ROUTE)	LC50 OF INGREDIENT (SPECIFIC SPECIES)
Sodium Chlorate	>99	7775-09-9	1200 mg/Kg (rat, oral)	Not available

SECTION 3 – PHYSICAL DATA

PHYSICAL STATE Solid	ODOUR AND APPEARANCE White or colourless crystal or granules, odourless		ODOUR THRESHOLD (PPM) Not applicable	
SPECIFIC GRAVITY 2.490	VAPOUR DENSITY (AIR = 1) Not available	VAPOUR PRESSURE (mm Hg) Zero		EVAPORATION RATE Not available
BOILING POINT (°C) 265 (decomposes)	MELTING POINT (°C) 248	pH 7	COEFF. OF WATER/OIL DIST. Not available	Very soluble

SECTION 4 – FIRE AND EXPLOSION HAZARD

FLAMMABILITY YES [X] NO []	IF YES, UNDER WHAT CONDITIONS? M mixtures with flammable or combustible materials may ignite readily or explode and be sensitive to shock, heat or friction. Mixtures with organic materials may be readily ignited by heat or friction.	
MEANS OF EXTINCTION	Use water in flooding amounts or as spray to extinguish fire, cool exposed containers, and to flush solid or vapours away from fire. Fire fighters must wear protective equipment and clothing sufficient to prevent inhalation of dusts or vapours, and contact with skin and eyes.	
FLASHPOINT (°C) AND METHOD Not applicable	UPPER FLAMMABLE LIMIT (% BY VOLUME) Not applicable	LOWER FLAMMABLE LIMIT (% BY VOLUME) Not applicable
AUTOIGNITION TEMPERATURE (°C) Not applicable	HAZARDOUS COMBUSTION PRODUCTS O ₂ , ClO ₂	
SENSITIVITY TO IMPACT Not sensitive when pure. When contaminated with dry organic or incompatible materials, can explode violently on impact.	SENSITIVITY TO STATIC DISCHARGE Not sensitive when pure. When contaminated with dry organic or incompatible materials, readily ignites and may explode violently.	

**MATERIAL SAFETY DATA SHEET****SECTION 5 – REACTIVITY DATA**

CHEMICAL STABILITY YES [X] NO []	IF NO, UNDER WHAT CONDITIONS?	Stable at ambient conditions. May undergo violent chemical changes at elevated temperature and pressure.
INCOMPATIBILITY WITH OTHER SUBSTANCES YES [X] NO []	IF YES, WHICH ONES?	Mixture with combustible or flammable materials may ignite readily, explode, or be sensitive to shock or friction. May burn vigorously with phosphorus, sulfur compounds, ammonium salts and metal salts (especially copper). Mixtures with acids can produce chlorine and chlorine dioxide. Mixture with finely divided metals or metal oxides may be explosive. Corrosive to zinc and mild steel.
SPECIFIC HAZARDS Strong oxidizer	HAZARDOUS DECOMPOSITION PRODUCTS O ₂ , ClO ₂	

SECTION 6 – TOXICOLOGICAL PROPERTIES

ROUTES OF ENTRY	[X]	[]	[X]	[X]	[X]
	SKIN CONTACT	SKIN ABSORPTION	EYE CONTACT	INHALATION	INGESTION
EFFECTS OF ACUTE EXPOSURE					
SKIN / EYE CONTACT : Mild irritation, redness and mild pain.					
INHALATION : Mild, temporary, irritation with coughing and sneezing.					
INGESTION : Toxic. Causes nausea, vomiting, abdominal pain, diarrhea. May cause severe intestinal bleeding, destruction of red blood cells, formation of inactive hemoglobin (Methemoglobinemia). May cause kidney damage or failure, with bloody urine, and then cessation of urination. May cause liver damage, laboured breathing, convulsions, coma. Estimated human lethal dose is 10 to 30 grams. Recovery from non-lethal dose may take several weeks and may not be complete.					
EFFECTS OF CRONIC EXPOSURE					
Prolonged or repeated skin exposure may cause dermatitis. Prolonged or repeated inhalation or ingestion may cause abdominal pain, internal bleeding, hemolytic anemia, lung damage causing edema and cyanosis, liver damage causing jaundice, kidney damage causing bloody urine.					
EXPOSURE LIMITS ACGIH TLV-TWA: 10mg/m ³ nuisance particulates OSHA PEL-TWA: 15 mg/m ³ total dust	IRRITANCY Mild irritant to skin and eyes.	SENSITIVITY Not available	CARCINOGENICITY IARC reports inadequate evidence for classification as human carcinogen. Not listed by NTP, OSHA, or ACGIH		
TERATOGENICITY Not available	REPRODUCTIVE TOXICITY Not available	MUTAGENICITY Not available	SYNERGISTIC PRODUCTS Not available		

**MATERIAL SAFETY DATA SHEET****SECTION 7 – PREVENTENTIVE MEASURES**

PERSONAL PROTECTIVE EQUIPMENT

GLOVES (SPECIFY) Impervious gloves.	RESPIRATOR (SPECIFY) Dust Mask or positive-pressure self contained breathing apparatus	EYE (SPECIFY) Safety goggles or face shield.
FOOTWEAR (SPECIFY) Rubber boots	CLOTHING (SPECIFY) Impervious protective clothing, sleeves, apron, coveralls sufficient to prevent contact.	OTHER (SPECIFY) Safety shower and / or eye wash station

ENGINEERING CONTROLS (SPECIFY)

VENTING: General or local exhaust ventilation required. Provide dust collectors with explosion vents.

LEAK AND SPILL PROCEDURE

Restrict access to are of spill. Eliminate all sources of ignition and remove all combustible materials from the area. 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. Prevent from entering sewers and waterways. Contain spill with inert material (earth, sand, and inert absorbent). Avoid generating dust. Collect in suitable, labeled, covered containers for disposal. Contaminated absorbent may pose same hazards as the chemical; treat with caution. Flush area of spill with large amounts of running water.

WASTE DISPOSAL

Follow all federal, provincial and local regulations for disposal.

HANDLING PROCEDURES AND EQUIPMENT

Workers using this chemical must be thoroughly trained in its hazards and its safe use. Keep away from combustible or organic materials, and all sources of ignition. Use non-sparking tools. Avoid contact. Use the smallest possible amount for purpose, in designated areas with adequate ventilation. Keep containers closed when not in use and when empty. Empty containers may contain hazardous residue; treat with caution.

STORAGE REQUIREMENTS

Store in suitable, labeled containers, in a cool, dry, well-ventilated area, out of direct sunlight. Store away from incompatible, combustible or organic materials. Storage facilities 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.

SPECIAL SHIPPING INFORMATION

Product is shipped using aluminum hopper cars equipped with spargers.

UN 1495

T.D.G. Class 5.1

PKG. Group II

CEPA: All ingredients are on the Domestic Substances List (DSL).

WHIMIS Classification: C – Oxidizing material

D1B – Poisonous material, immediate and serious effects, toxic.

WHIMIS ingredient disclosure list : 1% or greater (proposed)

**CHEMTRADE****PULP CHEMICALS****MATERIAL SAFETY DATA SHEET****SECTION 8 – FIRST AID MEASURES**

SPECIFIC MEASURES

EYE CONTACT:	Flush eyes with plenty of low pressure running water for at least 20 minutes, holding eyelids open during flushing. If irritation persists, repeat flushing and get medical attention.
SKIN CONTACT:	Remove contaminated clothing, including watches, rings, belts and shoes under running water. Flush affected areas with soap and running water for at least 20 minutes. If irritation persists, obtain medical advice. Decontaminate clothing completely before reuse, or discard. Clothing contaminated with oxidizing material can be dangerously and/or spontaneously flammable.
INGESTION:	If victim is alert and not convulsive, give 1 to 2 glasses of water to drink to dilute material. Do not induce vomiting. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. Obtain medical attention immediately.
INHALATION:	Move victim to fresh air. If not breathing, give artificial respiration. If laboured, give oxygen. Get immediate medical attention.

SECTION 9 – PREPARATION INFORMATION

DATE PREPARED	LAST REVISED	PREPARED BY	PHONE NUMBER
April 23, 1999	March 30, 2005	Anna Heitman	(250) 565-8719
IMPORTANT:	<i>The technical information herein is believed to be accurate. It is offered for your consideration, investigation and verification. Buyer assumes all risk of storage, handling and use of product. NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Nothing contained herein shall be construed as license to operate under recommendation to infringe any patents.</i>		