

# Sodium Chlorate Solution (Cell liquor blend)

## Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

Revision Date: 005/10/18

Date of Issue: 05/15/2015

Version: 3.0

## SECTION 1: IDENTIFICATION

### Product Identifier

**Product Form:** Mixture

**Product Name:** Sodium Chlorate Solution (Cell liquor blend)

**Synonyms:** Chlorate of soda; Chloric acid, sodium salt

### Intended Use of the Product

Production of Chlorine dioxide for bleaching pulp; Herbicide

### Name, Address, and Telephone of the Responsible Party

#### Manufacturer

CHEMTRADE LOGISTICS INC.

155 Gordon Baker Road

Suite 300

Toronto, Ontario M2H 3N5

For SDS Info: (416) 496-5856

[www.chemtradelogistics.com](http://www.chemtradelogistics.com)

### Emergency Telephone Number

**Emergency Number :**

Canada: CANUTEC +1-613-996-6666 / US: CHEMTREC +1-800-424-9300

INTERNATIONAL: +1-703-741-5970

Chemtrade Emergency Contact: (866) 416-4404

For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, call CHEMTREC – Day or Night

## SECTION 2: HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

#### GHS Classification

Ox. Liq. 2 H272

Aquatic Acute 3 H402

Aquatic Chronic 2 H411

Full text of hazard classes and H-statements : see section 16

### Label Elements

#### GHS Labeling

##### Hazard Pictograms



##### Signal Word

: Danger

##### Hazard Statements

: H272 - May intensify fire; oxidizer.

H402 - Harmful to aquatic life.

H411 - Toxic to aquatic life with long lasting effects.

##### Precautionary Statements

: P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P220 - Keep away from clothing and other combustible materials.

P273 - Avoid release to the environment.

P280 - Wear protective gloves, protective clothing, and eye protection.

P370+P378 - In case of fire: Use appropriate media (see section 5) to extinguish.

P391 - Collect spillage.

P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

### Other Hazards

May cause the blood disorder Methemoglobinemia, and with over exposure in predisposed individuals may cause: renal problems, cardiac abnormalities, other blood disorders. Methemoglobinemia decreases the blood's ability to carry oxygen and results in

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symptoms such as dizziness, drowsiness, headache, shortness of breath, blue skin and lips, rapid heart rate, unconsciousness, and possibly death.

### Unknown acute toxicity

No data available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### Mixture

Name	Product Identifier	%*	GHS Ingredient Classification
Sodium chlorate	(CAS No) 7775-09-9	30 - 60 <sup>+</sup>	Ox. Sol. 2, H272 Acute Tox. 4 (Oral), H302 Aquatic Chronic 2, H411
Water	(CAS No) 7732-18-5	40 - 70	Not classified
Sodium chloride	(CAS No) 7647-14-5	0.04 - 1.4	Not classified
Sodium dichromate	(CAS No) 10588-01-9	< 0.1	Ox. Sol. 2, H272 Acute Tox. 2 (Oral), H300 Acute Tox. 3 (Dermal), H311 Acute Tox. 2 (Inhalation:dust,mist), H330 Skin Corr. 1A, H314 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 1A, H340 Carc. 1A, H350 Repr. 1A, H360 STOT RE 1, H372 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of H-phrases: see section 16

\*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

\*The actual concentration of the ingredient(s) is withheld as a trade secret in accordance with Regulations Amending the Hazardous Products Regulations (HPR) SOR/2018-68 and 29 CFR 1910.1200.

## SECTION 4: FIRST AID MEASURES

### Description of First-aid Measures

**General:** Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

**Inhalation:** When symptoms occur: go into open air and ventilate suspected area. If you feel unwell, seek medical advice.

**Skin Contact:** Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Seek immediate medical advice/attention.

**Eye Contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention immediately if exposure is severe.

**Ingestion:** If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

### Most Important Symptoms and Effects Both Acute and Delayed

**General:** Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

**Inhalation:** Inhalation of vapors may cause respiratory irritation.

**Skin Contact:** May cause skin irritation.

**Eye Contact:** Direct contact with the eyes is likely irritating.

**Ingestion:** Ingestion is likely to be harmful or have adverse effects. Oxidation may cause significant metabolic issues such as: methemoglobinemia, hemolysis, and intravascular coagulation and renal failure. Methemoglobinemia decreases the blood's ability to carry oxygen and results in symptoms such as dizziness, drowsiness, headache, shortness of breath, blue skin and lips, rapid heart rate, unconsciousness, and possibly death.

**Chronic Symptoms:** May cause the blood disorder Methemoglobinemia, and with over exposure in predisposed individuals may cause: renal problems, cardiac abnormalities, other blood disorders.

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### Indication of Any Immediate Medical Attention and Special Treatment Needed

If medical advice is needed, have product container or label at hand.

## SECTION 5: FIRE-FIGHTING MEASURES

### Extinguishing Media

**Suitable Extinguishing Media:** Use extinguishing media appropriate for surrounding fire.

**Unsuitable Extinguishing Media:** Do not use water jet. Use of heavy stream of water may spread fire.

### Special Hazards Arising From the Substance or Mixture

**Fire Hazard:** May intensify fire; oxidizer. Will burn if exposed to heat, and in addition, will accelerate the burning of other combustibles, resulting in more rapid spread of fire.

**Explosion Hazard:** Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

**Reactivity:** 'Oxidizing': substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances. Oxidizing activity increases with decreasing pH.

### Advice for Firefighters

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire.

**Firefighting Instructions:** Use water spray or fog for cooling exposed containers. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

**Hazardous Combustion Products:** Oxygen. Hydrogen chloride. Sodium oxides.

### Reference to Other Sections

Refer to Section 9 for flammability properties.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

**General Measures:** Avoid prolonged contact with eyes, skin and clothing. Avoid breathing (vapor, mist, spray). Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Keep away from combustible material.

### For Non-Emergency Personnel

**Protective Equipment:** Use appropriate personal protective equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel.

### For Emergency Personnel

**Protective Equipment:** Equip cleanup crew with proper protection.

### Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

### Methods and Materials for Containment and Cleaning Up

**For Containment:** Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Do not take up in combustible material such as: saw dust or cellulosic material.

**Methods for Cleaning Up:** Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill. Absorb and/or contain spill with inert material, then place in suitable container. Do not take up in combustible material such as: saw dust or cellulosic material.

### Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

## SECTION 7: HANDLING AND STORAGE

### Precautions for Safe Handling

Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid prolonged contact with eyes, skin and clothing. Avoid breathing vapor, mist, spray. Keep away from extremely high or low temperatures, ignition sources, and incompatible materials - No smoking.

**Additional Hazards When Processed:** May cause or intensify fire; oxidizer.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

### Conditions for Safe Storage, Including Any Incompatibilities

**Technical Measures:** Proper grounding procedures to avoid static electricity should be followed.

**Storage Conditions:** Keep container closed when not in use. Store in a dry, cool place. Keep in fireproof place.

**Incompatible Materials:** Strong acids. Strong bases. Leather.

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### Specific End Use(s)

Production of Chlorine dioxide for bleaching pulp; Herbicide

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

### Exposure Controls

**Appropriate Engineering Controls:** Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Gas detectors should be used when flammable gases or vapors may be released. Proper grounding procedures to avoid static electricity should be followed.

**Personal Protective Equipment:** Gloves. Protective goggles. Insufficient ventilation: wear respiratory protection.



**Materials for Protective Clothing:** Chemically resistant materials and fabrics. Wear fire/flame resistant/retardant clothing.

**Hand Protection:** Wear chemically resistant protective gloves.

**Eye Protection:** Chemical goggles or safety glasses.

**Skin and Body Protection:** Clothing contaminated with sodium chlorate may become dangerously flammable and should not be allowed to dry (keep wet). Remove contaminated clothing and wash immediately. Clothing and gloves worn in areas where chlorate is stored or used should be washed at the end of each work shift. Leather materials should be kept out of chlorate areas. Change clothing at end of each work shift or when contaminated.

**Respiratory Protection:** If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

**Other Information:** When using, do not eat, drink or smoke

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on Basic Physical and Chemical Properties

Physical State	: Liquid
Appearance	: Colorless yellow or green solution
Odor	: Odorless
Odor Threshold	: Not available
pH	: 7 - 10 Oxidizing activity increases with decreasing pH.
Evaporation Rate	: Not available
Melting Point	: 248 °C (478.4 °F)
Freezing Point	: Not available
Boiling Point	: 265 °C (509 °F) decomposes
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not applicable
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: 0 Does not form vapor
Relative Vapor Density at 20°C	: Not available
Relative Density	: Not available
Specific Gravity	: 1.375 – 1.425
Solubility	: Fully miscible
Partition Coefficient: N-Octanol/Water	: Log Pow -7.18 (estimated)
Viscosity	: Not available

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### SECTION 10: STABILITY AND REACTIVITY

**Reactivity:** 'Oxidizing': substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances. Oxidizing activity increases with decreasing pH.

**Chemical Stability:** May intensify fire; oxidizer. May undergo violent chemical changes at elevated temperature and pressure. Thermal decomposition occurs at temperatures above 482°F (250°C).

**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.

**Conditions to Avoid:** Direct sunlight. Extremely high or low temperatures. Heat. Sparks. Overheating. Open flame. Combustible materials.

**Incompatible Materials:** Strong acids. Strong bases. Leather.

**Hazardous Decomposition Products:** None expected under normal conditions of use.

### SECTION 11: TOXICOLOGICAL INFORMATION

#### Information on Toxicological Effects - Product

**Acute Toxicity (Oral):** Not classified

**Acute Toxicity (Dermal):** Not classified

**Acute Toxicity (Inhalation):** Not classified

**LD50 and LC50 Data:** Not available

**Skin Corrosion/Irritation:** Not classified

**pH:** 7 - 10 Oxidizing activity increases with decreasing pH.

**Eye Damage/Irritation:** Not classified

**pH:** 7 - 10 Oxidizing activity increases with decreasing pH.

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** Not classified

**Carcinogenicity:** Not classified

**Specific Target Organ Toxicity (Repeated Exposure):** Not classified

**Reproductive Toxicity:** Not classified

**Specific Target Organ Toxicity (Single Exposure):** Not classified

**Aspiration Hazard:** Not classified

**Symptoms/Effects After Inhalation:** Inhalation of vapors may cause respiratory irritation.

**Symptoms/Effects After Skin Contact:** May cause skin irritation.

**Symptoms/Effects After Eye Contact:** Direct contact with the eyes is likely irritating.

**Symptoms/Effects After Ingestion:** Ingestion is likely to be harmful or have adverse effects. Oxidation may cause significant metabolic issues such as: methemoglobinemia, hemolysis, and intravascular coagulation and renal failure. Methemoglobinemia decreases the blood's ability to carry oxygen and results in symptoms such as dizziness, drowsiness, headache, shortness of breath, blue skin and lips, rapid heart rate, unconsciousness, and possibly death.

**Chronic Symptoms:** May cause the blood disorder Methemoglobinemia, and with over exposure in predisposed individuals may cause: renal problems, cardiac abnormalities, other blood disorders.

#### Information on Toxicological Effects - Ingredient(s)

**LD50 and LC50 Data:**

<b>Sodium chlorate (7775-09-9)</b>	
LD50 Oral Rat	1200 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg
LC50 Inhalation Rat	> 5.59 mg/l (Exposure time: 4.5 h)
<b>Sodium chloride (7647-14-5)</b>	
LD50 Oral Rat	3 g/kg
LC50 Inhalation Rat	> 42 g/m <sup>3</sup> (Exposure time: 1 h)
<b>Sodium dichromate (10588-01-9)</b>	
LD50 Oral Rat	46 mg/kg
LD50 Dermal Rabbit	960 mg/kg
LC50 Inhalation Rat	0.124 mg/l/4h
LC50 Inhalation Rat	0.2 mg/l/4h

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<b>Sodium chlorate (7775-09-9)</b>	
<b>National Toxicology Program (NTP) Status</b>	Evidence of Carcinogenicity.
<b>Sodium dichromate (10588-01-9)</b>	
<b>IARC Group</b>	1
<b>National Toxicology Program (NTP) Status</b>	Known Human Carcinogens.
<b>OSHA Hazard Communication Carcinogen List</b>	In OSHA Hazard Communication Carcinogen list.

## SECTION 12: ECOLOGICAL INFORMATION

### Toxicity

**Ecology - General:** Toxic to aquatic life with long lasting effects.

<b>Sodium chlorate (7775-09-9)</b>	
<b>LC50 Fish 1</b>	13500 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
<b>LC50 Fish 2</b>	1750 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
<b>Sodium chloride (7647-14-5)</b>	
<b>LC50 Fish 1</b>	5560 (5560 - 6080) mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
<b>EC50 Daphnia 1</b>	1000 mg/l (Exposure time: 48 h - Species: Daphnia magna)
<b>LC50 Fish 2</b>	12946 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
<b>EC50 Daphnia 2</b>	340.7 (340.7 - 469.2) mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
<b>Sodium dichromate (10588-01-9)</b>	
<b>LC50 Fish 1</b>	33.2 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
<b>EC50 Daphnia 1</b>	0.098 - 0.129 mg/l (Exposure time: 48 h - Species: Daphnia magna)
<b>LC50 Fish 2</b>	69 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [flow-through])

### Persistence and Degradability

<b>Sodium Chlorate Solution (Cell liquor blend)</b>	
<b>Persistence and Degradability</b>	Not established. May cause long-term adverse effects in the environment.

### Bioaccumulative Potential

<b>Sodium Chlorate Solution (Cell liquor blend)</b>	
<b>Bioaccumulative Potential</b>	Not established.
<b>Sodium chloride (7647-14-5)</b>	
<b>BCF Fish 1</b>	(no bioaccumulation)

**Mobility in Soil** Not available

### Other Adverse Effects

**Other Information:** Avoid release to the environment.

## SECTION 13: DISPOSAL CONSIDERATIONS

**Waste Disposal Recommendations:** Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations

**Additional Information:** Hazardous waste due to potential risk of explosion.

**Ecology - Waste Materials:** This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

## SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

\*When shipped in accordance with US DOT 49 CFR part 171.4(c) and other appropriate sections/provisions this material is not designated as a marine pollutant when transported by road or rail.





\*\*When shipped in accordance with the Canada Transport of Dangerous Goods Regulations part 1.45.1 and other appropriate sections/provisions this material is not designated as a marine pollutant when transported by road or rail

TRANSPORTATION CLASSIFICATION	DOT	TDG	IMDG	IATA
<b>Identification Number</b>	UN2428	UN2428	UN2428	UN2428

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<b>Proper Shipping Name</b>	SODIUM CHLORATE, AQUEOUS SOLUTION	SODIUM CHLORATE, AQUEOUS SOLUTION	SODIUM CHLORATE, AQUEOUS SOLUTION	SODIUM CHLORATE, AQUEOUS SOLUTION
<b>Transport Hazard Class(es)</b>	5.1	5.1	5.1	5.1
				
<b>Packing Group</b>	II	II	II	II
<b>Environmental Hazards</b>	Marine Pollutant : Yes*	Marine Pollutant : Yes**	Marine Pollutant : Yes	Marine Pollutant: N/A
<b>Emergency Response</b>	ERG Number : 140	ERAP Index: Not applicable	EMS: F-H, S-Q	ERG code (IATA): 5L
<b>Additional Information</b>	Not applicable	Not applicable	Not applicable	Not applicable

## SECTION 15: REGULATORY INFORMATION

### US Federal Regulations

Chemical Name (CAS No.)	CERCLA RQ	EPCRA 304 RQ	SARA 302 TPQ	SARA 313
Sodium chlorate (7775-09-9)	Not applicable	Not applicable	Not applicable	No
Sodium chloride (7647-14-5)	Not applicable	Not applicable	Not applicable	No
Sodium dichromate (10588-01-9)	10 lb	Not applicable	Not applicable	No

### SARA 311/312

<b>Sodium Chlorate Solution (Cell liquor blend)</b>
Fire hazard

### US TSCA Flags

Chemical Name (CAS No.)	US TSCA Flags/ Other Information
Sodium dichromate (10588-01-9)	R - R - indicates a substance that is the subject of a Section 6 risk management rule under TSCA

### US State Regulations

#### California Proposition 65

Chemical Name (CAS No.)	Carcinogenicity	Developmental Toxicity	Female Reproductive Toxicity	Male Reproductive Toxicity
Sodium chlorate (7775-09-9)	No	No	No	No
Sodium chloride (7647-14-5)	No	No	No	No
Sodium dichromate (10588-01-9)	No	No	No	No

### State Right-To-Know Lists

<b>Sodium chlorate (7775-09-9)</b> U.S. - Massachusetts - Right To Know List - Yes U.S. - New Jersey - Right to Know Hazardous Substance List - Yes U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List - No U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances - No U.S. - Pennsylvania - RTK (Right to Know) List - Yes
<b>Sodium chloride (7647-14-5)</b> U.S. - Massachusetts - Right To Know List - No U.S. - New Jersey - Right to Know Hazardous Substance List - No U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List - No U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances - No U.S. - Pennsylvania - RTK (Right to Know) List - No

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### Sodium dichromate (10588-01-9)

U.S. - Massachusetts - Right To Know List - Yes  
 U.S. - New Jersey - Right to Know Hazardous Substance List - Yes  
 U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List - Yes  
 U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances - No  
 U.S. - Pennsylvania - RTK (Right to Know) List - Yes

### Canadian Regulations

#### Sodium chlorate (7775-09-9)

Listed on the Canadian DSL (Domestic Substances List)  
 Not listed on the Canadian NDSL (Non-Domestic Substances List)

#### Sodium chloride (7647-14-5)

Listed on the Canadian DSL (Domestic Substances List)  
 Not listed on the Canadian NDSL (Non-Domestic Substances List)

#### Sodium dichromate (10588-01-9)

Listed on the Canadian DSL (Domestic Substances List)  
 Not listed on the Canadian NDSL (Non-Domestic Substances List)

### International Inventories/Lists

Chemical Name (CAS No.)	Australia AICS	Turkey CICR	Korea ECL	EU EINECS	EU ELINCS	EU SVHC	EU NLP	Mexico INSQ
Sodium chlorate (7775-09-9)	Yes	Yes	Yes	Yes	No	No	No	Yes
Sodium chloride (7647-14-5)	Yes	Yes	Yes	Yes	No	No	No	Yes
Sodium dichromate (10588-01-9)	Yes	Yes	Yes	Yes	No	Yes	No	Yes

Chemical Name (CAS No.)	China IECSC	Japan ENCS	Japan ISHL	Japan PDSCL	Japan PRTR	Philippines PICCS	New Zealand NZIOC	US TSCA
Sodium chlorate (7775-09-9)	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Sodium chloride (7647-14-5)	Yes	Yes	No	No	No	Yes	Yes	Yes
Sodium dichromate (10588-01-9)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes

## SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 05/10/2018

### Revision Summary

Section	Change	Date Changed
3	HPR statement	05/10/2018

**Other Information** : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR).

### GHS Full Text Phrases:

Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 2 (Oral)	Acute toxicity (oral) Category 2
Acute Tox. 3 (Dermal)	Acute toxicity (dermal) Category 3
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Carc. 1A	Carcinogenicity Category 1A



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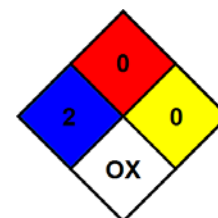
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Muta. 1A	Germ cell mutagenicity Category 1A
Ox. Liq. 2	Oxidizing liquids Category 2
Ox. Sol. 2	Oxidizing solids Category 2
Repr. 1A	Reproductive toxicity Category 1A
Resp. Sens. 1	Respiratory sensitisation Category 1
Skin Corr. 1A	Skin corrosion/irritation Category 1A
Skin Sens. 1	Skin sensitization Category 1
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
H272	May intensify fire; oxidizer
H300	Fatal if swallowed
H302	Harmful if swallowed
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H330	Fatal if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H340	May cause genetic defects
H350	May cause cancer
H360	May damage fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H402	Harmful to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects

### NFPA 704

- NFPA Health Hazard** : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.
- NFPA Fire Hazard** : 0 - Materials that will not burn.
- NFPA Reactivity Hazard** : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.
- NFPA Specific Hazards** : OX - This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.



### HMIS Rating

- Health** : 2 Moderate Hazard - Temporary or minor injury may occur  
\* Chronic - Chronic (long-term) health effects may result from repeated overexposure
- Flammability** : 0 Minimal Hazard
- Physical** : 0 Minimal Hazard
- PPE** See Section 8

### Abbreviations and Acronyms

AICS – Australian Inventory of Chemical Substances  
 ACGIH – American Conference of Governmental Industrial Hygienists  
 AIHA – American Industrial Hygiene Association  
 ATE - Acute Toxicity Estimate  
 BCF - Bioconcentration factor  
 BEI - Biological Exposure Indices (BEI)  
 CAS No. - Chemical Abstracts Service number  
 CERCLA RQ - Comprehensive Environmental Response, Compensation, and Liability Act - Reportable Quantity  
 CICR - Turkish Inventory and Control of Chemicals  
 DOT – 49 CFR – US Department of Transportation – Code of Federal Regulations Title 49 – Transportation.  
 EC50 - Median effective concentration

ISHL - Japan Industrial Safety and Health Law  
 LC50 - Median Lethal Concentration  
 LD50 - Median Lethal Dose  
 LOAEL - Lowest Observed Adverse Effect Level  
 LOEC - Lowest-observed-effect Concentration  
 NFPA 704 – National Fire Protection Association - Standard System for the Identification of the Hazards of Materials for Emergency Response  
 NIOSH - National Institute for Occupational Safety and Health  
 NLP - Europe No Longer Polymers List  
 NOAEL - No-Observed Adverse Effect Level  
 NOEC - No-Observed Effect Concentration  
 NZIOC - New Zealand Inventory of Chemicals  
 OEL - Occupational Exposure Limits

# Sodium Chlorate Solution (Cell liquor blend)

## Safety Data Sheet

According to U.S. Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations and according to Canada's Hazardous Products Regulation, February 11, 2015.

ECL - Korea Existing Chemicals List	OSHA – Occupational Safety and Health Administration
EINECS - European Inventory of Existing Commercial Chemical Substances	PEL - Permissible Exposure Limits
ELINCS - European List of Notified Chemical Substances	PICCS - Philippine Inventory of Chemicals and Chemical Substances
EmS - IMDG Emergency Schedule Fire & Spillage	PDSCL - Japan Poisonous and Deleterious Substances Control Law
ENCS - Japanese Existing and New Chemical Substances Inventory	PPE – Personal Protective Equipment
EPA – Environmental Protection Agency	PRTR - Japan Pollutant Release and Transfer Register
EPCRA 304 RQ – EPCRA 304 Extremely Hazardous Substance Emergency	REL - Recommended Exposure Limit
Planning and Community Right-to-Know-Act – Reportable Quantity	SADT - Self Accelerating Decomposition Temperature
ERAP Index – Emergency Response Assistance Plan Quantity Limit	SARA - Superfund Amendments and Reauthorization Act
ErC50 - EC50 in Terms of Reduction Growth Rate	SARA 302 - Section 302, 40 CFR Part 355
ERG code (IATA) - Emergency Response Drill Code as found in the International Civil Aviation Organization (ICAO)	SARA 311/312 - Sections 311 and 312, 40 CFR Part 370 Hazard Categories
ERG No. - Emergency Response Guide Number	SARA 313 - Section 313, 40 CFR Part 372
HCCL - Hazard Communication Carcinogen List	SRCL - Specifically Regulated Carcinogen List
HMIS – Hazardous Materials Information System	STEL - Short Term Exposure Limit
IARC - International Agency for Research on Cancer	SVHC – European Candidate List of Substance of Very High Concern
IATA - International Air Transport Association – Dangerous Goods Regulations	TDG – Transport Canada Transport of Dangerous Goods Regulations
IDLH - Immediately Dangerous to Life or Health	TLM - Median Tolerance Limit
IECSC - Inventory of Existing Chemical Substances Produced or Imported in China	TLV - Threshold Limit Value
IMDG - International Maritime Dangerous Goods Code	TPQ - Threshold Planning Quantity
INSQ - Mexican National Inventory of Chemical Substances	TSCA – United States Toxic Substances Control Act
	TWA - Time Weighted Average
	WEEL - Workplace Environmental Exposure Levels

*Handle product with due care and avoid unnecessary contact. This information is supplied under U.S. OSHA'S "Right to Know" (29 CFR 1910.1200) and Canada's WHMIS regulations. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The information contained herein is based on data available to us and is believed to be true and accurate but it is not offered as a product specification. No warranty, expressed or implied, regarding the accuracy of this data, the hazards connected with the use of the product, or the results to be obtained from the use thereof, is made and Chemtrade and its affiliates assume no responsibility. Chemtrade is a member of the CIAC (Chemistry Industry Association of Canada) and adheres to the codes and principles of Responsible Care™.*



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