

MATERIAL SAFETY DATA SHEET

REV. 1 Issued: April 28, 2009

1. Chemical Product And Company Information

Chemical Name: Electrolyzer Feed Liquor
Synonyms/Trade Names: Sodium Chloride Solution
Chemical Family: Inorganic Chemicals
Formula: NaCl
Molecular Weight: 58.44
CAS No.: 7647-14-5
Uses: Feed chemical for sodium chlorate production

Manufacturer & Supplier:

ERCO Worldwide, A division of Superior Plus LP
302 The East Mall, Ste. 200
Toronto, Ontario Canada M9B 6C7
(416) 239-7111

Transportation Emergency Telephone Numbers :

CANADA: (613) 996-6666
CANUTEC
USA: 1-800-424-9300
CHEMTREC

Canadian WHMIS Classification(s):

Class C - Oxidizing Material

Class D, Division 2
Poisonous and Infectious Material:
Other toxic effects



2. Composition / Information On Ingredients

Name:	Conc. % By Weight	CAS No.
Sodium chloride	10 - 25	7647-14-5
Sodium chlorate	0.1 - 10	7775-09-9

3. Hazard Identification

Emergency Overview:

Sodium Chloride solution is clear, colourless or with pale yellow tinge. The solution is odorless. It is harmful if swallowed. Sodium chloride solution with the presence of small and variable amounts of sodium chlorate makes the solution an oxidizer. The solution may also contain trace amounts of sodium dichromate.

Routes of Entry:

SKIN CONTACT: Direct contact with solutions may 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: May cause nausea, vomiting, abdominal pain, diarrhea, cyanosis, and/or anuria (urine shutdown). May be fatal if ingested in significant amounts.

INHALATION: Mist may cause coughing and mild temporary irritation of the nose and throat.

EFFECTS OF LONG-TERM (CHRONIC) EXPOSURE:

Repeated and prolonged exposure of the skin may 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.

Symptoms of Exposure:

Mild irritation on skin contact. Prolonged exposure may cause dermatitis. Eye contact may cause itching and burning. Sodium Chloride solution may be harmful if swallowed. Ingestion of large amounts may be fatal.

4. First Aid Measures

Skin:

Wash with soap and water. Remove any contaminated clothing and water wash it on site before re-use.

Eyes:

Flush immediately with plenty of lukewarm water for at least 15 minutes, holding the eyelids open. Get medical attention if irritation persists.

Inhalation:

Move the victim to fresh air. If symptoms persist get medical attention.

Ingestion:

DO NOT GIVE ANYTHING BY MOUTH OR INDUCE VOMITING IF THE PATIENT IS UNCONSCIOUS. If the patient is conscious, give one or two glasses of water to dilute stomach contents, and induce vomiting. Sodium thiosulfate (2-5g in 200 ml of 5% sodium bicarbonate) is a specific antidote that inactivates the chlorate ion. Get medical attention promptly.

5. Fire-Fighting Measures

Conditions Of Flammability:

The product is not flammable but the presence of small and variable amounts of sodium chlorate make it an oxidizer. Mixtures with combustible materials, especially when dried, may ignite and burn fiercely as oxygen is supplied by the thermal decomposition of chlorate.

Means To Extinguish:

WATER IS THE ONLY EFFECTIVE EXTINGUISHER for fires involving sodium chlorate.

Hazardous Combustion Products :

When water is lost on heating as in a fire situation, oxygen is released. This promotes fierce burning of any combustibles which are present.

Flash Point & Method: Not applicable

Upper Flammability Limit: Not applicable

Lower Flammability Limit: Not applicable

Auto-Ignition Temperature: Not applicable

Mechanical Impact Sensitivity: Experimental data is not available. Is not expected to be sensitive (it is a solution).

Static Discharge Sensitivity: Experimental data is not available. Is not expected to be sensitive (it is a solution).

6. Accidental Release Measures

Leak Or Spill Procedures :

Contain and collect spilled material if possible into clean containers, then flush down the spill area with water. Keep spills and residues out of sewers and the external environment.

Waste Control Procedures :

Reuse recovered material if possible, otherwise return it to the manufacturer. Thoroughly wash or incinerate all contaminated combustible material in an environmentally acceptable manner before it dries out.

7. Handling Storage

Handling Procedures And Equipment :

No smoking, flames or sparks are allowed where mixtures containing sodium chlorate is stored or used. Clothing fires are the principal hazard when working with this material in an industrial setting - immediately wash any clothing contaminated with chlorate. If welding or flame cutting must be done near sodium chlorate a designated fire watcher with a charged water hose in hand should be in attendance throughout the operation.

Storage:

Store in a cool, fireproof area. Keep away from combustible or readily oxidizable materials and acids. Recover any spillage promptly.

8. Exposures Controls / Personal Protection

Protective Equipment:

For intermittent exposures with a higher likelihood of contact with sodium chlorate, wear PVC or rubber rainsuit, hard hat, rubber or plastic gloves, rubber boots, and safety glasses or goggles. Wash down clothing, gloves and boots after each use to remove traces of sodium chlorate. The solution may also contain trace amounts of sodium dichromate reinforcing the need to wear the appropriate PPE. For continuous use with a low likelihood of exposure to sodium chlorate, wear polyester/cotton clothing (flame retardant recommended) in lieu of rainsuit, but keeping rubber boots and gloves, hard hat and safety glasses. Change clothing at the end of each work shift or when it may be contaminated. Keep contaminated clothing wetted between taking it off and washing it. Do not send clothing which may be contaminated with chlorate off site to be washed. Tuck pants into boots, to avoid absorbing any solution which may be on the floor.

Engineering Controls:

Keep solutions contained. Do not use combustible materials of construction where chlorate will be used or stored.

9. Physical And Chemical Properties

State: Liquid

Odour: None

Odour Threshold: Not applicable

Boiling Point: This will vary according to solution composition, and is typically in the range 102 - 110°C

Melting Point: Not applicable

Freezing Point: This will vary according to solution composition and concentration.

pH: 7 - 9 for all concentrations

Coefficient Of Water/Oil Distribution: Not available

Appearance: Clear, colourless or with pale yellow tinge.

Specific Gravity: This will vary according to solution composition, and is typically in the range 1.1 - 1.2 @ 20°C

Vapour Pressure: Not applicable. Vapour is water.

Vapour Density: Not applicable

Evaporation Rate: no information available

Solubility In Water: Soluble in all proportions

Bulk Density: not applicable

10. Stability And Reactivity

Chemical Stability:

Stable, but see "Hazardous decomposition products" below.

Reactivity Conditions:

Reaction with acids will occur on contact generating chlorine and /or chlorine dioxide gas.

Incompatible Substances :

Reaction with strong acids releases chlorine (a toxic gas) and chlorine dioxide (a toxic gas which may decompose spontaneously and explosively depending on the concentration). Other incompatible substances include, but are not limited to, phosphorus, sulfur, sulfides, ammonium compounds and powdered metals. Contact with combustible materials must be avoided.

Hazardous Decomposition Products :

When evaporated to dryness and heated above 265°C sodium chlorate will decompose to give oxygen gas (not poisonous, but a hazardous oxidizer) and common salt.

11. Toxicological Information

Skin Contact: Prolonged contact may cause irritation

Skin Absorption: No information is available.

Eye Contact: May cause irritation.

Inhalation: not applicable

Ingestion: May cause nausea, vomiting, abdominal pain, diarrhea, cyanosis, and/or anuria (urine shutdown). May be fatal if ingested in significant amounts (10 to 30 grams pure sodium chlorate have been reported as fatal in humans).

LD₅₀: 24,000 mg/kg (rat, oral) for solution containing 5% NaClO₃. May be calculated for other concentrations in accordance with CPR subsection 45 (1)

LC₅₀: Not applicable

Exposure Limits: No limits have been published.

Irritancy: Mild

Sensitization: No information is available.

Carcinogenicity: Not listed by IARC or ACGIH

Teratogenicity & Mutagenicity: No information is available.

Reproductive Toxicology: No information is available.

Toxicological Synergism: No information is available.

12. Ecological Information

Ecological Information :

The product can be leached out of soil. Sodium chlorate present in the product accumulates in plant cells until toxic concentrations are reached and the plant dies.

Biodegradability:

Sodium chlorate degrades very slowly in soil under aerobic conditions.

Aquatic Toxicity:

Slightly toxic to aquatic organisms.

13. Disposal Considerations

Disposal Considerations :

Solutions containing sodium chlorate are classified as hazardous waste. Contact a waste disposal company for advice for regional regulations. Empty containers may contain residues and should be washed thoroughly prior to disposal. The wash water should be handled as a hazardous waste.

14. Transportation Information

Shipping Name (TDGR)	UN Number	Hazard Class	Packing Group
Sodium Chlorate, Aqueous Solution	UN2428	5.1	II

15. Regulatory Information

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

Safety:

CANADIAN FEDERAL REGULATIONS : (not a comprehensive list)

WHMIS Classification :

C - Oxidizing material

D2B - Poisonous and Infectious Material: Other toxic effects

UNITED STATES FEDERAL REGULATIONS :

OSHA Hazard Communication Evaluation :

Meets criteria for hazardous material, as defined by 29 CFR 1910.1200.

Environmental:

All components of this product are either on the Canadian Domestic Substances List (DSL) or the Non-Domestic Substances List (NDSL) or exempt.

All components of this product are either on the U.S. Toxic Substances Control Act (TSCA) Inventory List or exempt.

Transportation:

Refer to Section 14.

16. Other Information

Prepared By:

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416-239-7111

Summary of Changes Made in this Revision :

Review of newly available information: No changes made except re-wording of some statements for better clarity.

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