

MATERIAL SAFETY DATA SHEET
REV. 2 Issued: April 8, 2009

1. Chemical Product And Company Information

Chemical Name: Sodium Chlorate Crystal
Synonyms/Trade Names: Chlorate of Soda; ERCOCID C
Chemical Family: Inorganic compound
Formula: NaClO₃
Molecular Weight: 106.45
CAS No.: 7775-09-9
Uses: Oxidizing agent; pulp bleaching; defoliant; herbicide.

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

ERCO Worldwide Inc.
5700 Hunt Road
Valdosta, Georgia 31606
(912) 244-6780

Canadian WHMIS Classification (s):



D - 2 (Other Toxic Effects)



C (Oxidizing Material)

2. Composition / Information On Ingredients

Name:	Conc. % By Weight	CAS No.
Sodium Chlorate	>99	7775-09-9

3. Hazard Identification

Emergency Overview:

Sodium chlorate is a white crystalline product. It may be dry or contain about 2% water. It is very soluble in water forming a colourless solution. It is harmful if swallowed. Sodium chlorate is a very strong oxidizer. Sodium chlorate does not burn but contact with organic materials such as wood, paper, oil, clothing may cause fire or explosion. In case of a fire, only use water to extinguish the fire. May form shock sensitive mixtures. Contact with acids may produce toxic chlorine dioxide and chlorine gas.

Routes of Entry:

EFFECTS OF SHORT-TERM (ACUTE) EXPOSURE:

SKIN CONTACT: Direct contact with dust or concentrated solutions can cause mild irritation.

EYE CONTACT: Dust or 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.

INHALATION: Sodium chlorate dust or 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 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.

Symptoms of Exposure:

Mild irritation on skin contact. Prolonged exposure may cause dermatitis. Eye contact may cause itching and burning.

Sodium chlorate is harmful if swallowed. Ingestion of large amounts may be fatal. May be irritating to the respiratory system if sodium chlorate dust is inhaled.

4. First Aid Measures

Skin:

Wash with soap and water. Remove any contaminated clothing and water wash it on site before reuse.

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:

Sodium chlorate is not combustible, but it is a strong oxidizer. Mixtures with combustible materials ignite easily and burn fiercely, or may explode.

Means To Extinguish:

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

Hazardous Combustion Products :

When heated, 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. Not notably sensitive unless contaminated with combustibles.

Static Discharge Sensitivity: Experimental data is not available. Not notably sensitive unless contaminated with combustibles.

6. Accidental Release Measures

Leak Or Spill Procedures :

Contain and collect spilled material into clean, dry, covered metal 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 may be allowed where sodium chlorate is stored or used. Clothing fires are the principal hazard when working with this material in an industrial setting. If welding or flame cutting must be done near sodium chlorate a designated fire watcher with water hose in hand should be in attendance throughout the operation.

Storage:

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

8. Exposures Controls / Personal Protection

Protective Equipment:

For intermittent exposures with a higher likelihood of exposure to 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.

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. A dust mask should be worn where there may be exposure to sodium chlorate dust.

Engineering Controls:

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

9. Physical And Chemical Properties

State: Solid
Odour: None
Odour Threshold: Not applicable
Boiling Point: Not applicable (decomposes)
Melting Point: 265°C
Freezing Point: NA
pH: 7.0 (1% solution)
Coefficient Of Water/Oil Distribution: Not available
Appearance: White crystals; forms lumps in moist conditions.
Specific Gravity: 2.49
Vapour Pressure: Not applicable
Vapour Density: Not applicable
Evaporation Rate: Not applicable
Solubility In Water: ~50 wt.% @ 20°C
Bulk Density: 1,300 to 1,500 kg/m³

10. Stability And Reactivity

Chemical Stability:

Stable, but see "Hazardous decomposition products" below. Note: In intense fire situations there have been several cases of violent explosions attributed to sodium chlorate by itself.

Reactivity Conditions:

Reaction may occur when mixed with any combustibles, especially in the presence of heat, friction, or a source of ignition. Reaction with acids will occur on contact.

Incompatible Substances:

Mixtures with combustible materials burn fiercely when ignited, and may explode. Reaction with strong acids releases chlorine (a toxic gas) and chlorine dioxide (a toxic gas which may decompose spontaneously and explosively). Other incompatible substances include, but are not limited to, phosphorus, sulfur, sulfides, ammonium compounds and powdered metals.

Hazardous Decomposition Products:

When 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: Dust may cause irritation.

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

LD₅₀: 1200 mg/kg (rat,oral)

LC₅₀: LC₅₀ (rat): greater than 7000 mg/m³ (4-hour exposure); cited as greater than 28 mg/L (1-hour exposure) (administered as an aerosol of a 10.0% (w/v) water solution) (3)

Exposure Limits: No limits have been published.

Irritancy: Mild

Sensitization: No information is available.

Carcinogenicity: Not listed by IARC or ACGIH

Teratogenicity & Mutagenicity: The available information does not suggest that sodium chlorate causes developmental toxicity.

Reproductive Toxicology: No conclusions can be drawn based on the available information.

Toxicological Synergism: No information is available.

12. Ecological Information

Ecological Information:

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

Biodegradability:

Sodium chlorate degrades very slowly in soil under aerobic conditions. May decompose by microbial degradation more rapidly under anaerobic conditions.

Aquatic Toxicity:

Slightly toxic to aquatic organisms.

13. Disposal Considerations

Disposal Considerations :

Sodium chlorate is classed as a 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	1495	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)

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

WHMIS CLASSIFICATION:

C - Oxidizing Material

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

WHMIS INGREDIENT DISCLOSURE LIST: No

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

Environmental:

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

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

Transportation:

Refer to Section 14: Transportation Information

16. Other Information

Prepared By:

ERCO Worldwide, A division of Superior Plus LP
Toronto, ON
416-239-7111

Summary of Changes Made in this Revision :

LC₅₀ information added.

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