

MATERIAL SAFETY DATA SHEET

1. Chemical Product And Company Information

Chemical Name: Sodium Chlorite Solution 15% - 41%
Synonyms/Trade Names: Sodium Chlorite Solution, ER COPURE
Chemical Family:
Formula: NaClO₂
Molecular Weight: 90.45
CAS No.: 7758-19-2

Uses: Generation of chlorine dioxide for use as a disinfectant or for use as an oxidant. Bleaching of textiles and other fibers.

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):

D1B - Very Toxic



C - Oxidizing



E - Corrosive



2. Composition / Information On Ingredients

Name:	Conc. % By Weight	CAS No.
Sodium Chlorite	15-41	7758-19-2
Water	Balance	7732-18-5

3. Hazard Identification

Emergency Overview:

Clear, water white to slightly yellow liquid, slight chlorine odor. If product is allowed to dry, heat or friction can easily ignite this product. Do not allow this product to dry on cloth or clothing. Water is the only effective extinguisher. Oxidation can cause a fire hazard. Contact with acids, organic materials, reducing agents or chlorine donors will produce chlorine dioxide gas and heat. Ventilate area with large amounts of air to keep the chlorine dioxide concentration low.

Routes of Entry:

Eye Contact: Direct contact may cause severe irritation and possibly burns. Symptoms may include tearing, redness and in severe cases, eye damage due to burns.

Skin Contact: Direct contact may cause severe irritation and / or burns with symptoms of redness, itching, swelling and possible destruction of tissue.

Inhalation: Material is irritating to mucous membranes and upper respiratory tract. Symptoms may include coughing, bloody nose and sneezing. High concentrations can cause lung damage.

Ingestion: May cause nausea, vomiting, lethargy, diarrhea, bleeding or ulceration. Acute ingestion of large quantities may also cause anemia due to the oxidizing effects of the chemical. Other symptoms may include methemoglobinemia (causes bluish discoloration of the skin and mucous membranes)

Symptoms of Exposure:

Eye Contact: Symptoms may include tearing, redness and in severe cases, eye damage due to burns.

Skin Contact: Symptoms of redness, itching, swelling and possible destruction of tissue may occur.

Inhalation: Symptoms may include coughing, bloody nose and sneezing. High concentrations can cause lung damage.

Ingestion: Symptoms may include methemoglobinemia (causes bluish discoloration of the skin and mucous membranes)

4. First Aid Measures

Skin:

Remove contaminated clothing and keep it wet until washed. Wash the affected area with soap and water. If irritation develops, get medical attention.

Eyes:

Flush with water for a minimum of 15 minutes. Get medical attention.

Inhalation:

If irritation or other symptoms are experienced, remove victim to fresh air. If symptoms persist get medical attention.

Ingestion:

DO NOT INDUCE VOMITING. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Otherwise rinse mouth with water and give 8 to 10 ounces (or 250 to 300 ml) of milk, egg whites or gelatin solution. Get medical attention immediately.

5. Fire-Fighting Measures

Conditions Of Flammability :

Does not burn, but combustibles wetted with this solution and subsequently dried are easily ignited and burn vigorously.

Means To Extinguish :

Water is the only effective extinguisher.

DO NOT use dry chemical fire extinguishing agents containing ammonium compounds (such as some A:B:C agents), since an explosive compound can be formed. DO NOT use carbon dioxide, dry chemical powder or other extinguishing agents that smother flames, since they are not effective in extinguishing fires involving oxidizers.

Hazardous Combustion Products :

None, does not burn.

Flash Point & Method: Not applicable
Upper Flammability Limit: Not applicable
Lower Flammability Limit: Not applicable
Auto-Ignition Temperature: Not applicable
Mechanical Impact Sensitivity: Not applicable (water solution)
Static Discharge Sensitivity: Not applicable (water solution)

6. Accidental Release Measures

Leak Or Spill Procedures :

Contain spills. Collect into clean compatible metal or high density polyethylene containers. Wash away residues with large amounts of water.

DO NOT USE RAGS, SAWDUST OR OTHER COMBUSTIBLE ABSORBENTS. Keep materials which can burn away from spilled material. Extinguish or remove all ignition sources.

Waste Control Procedures :

Wash or incinerate all contaminated combustible material in an environmentally acceptable manner before it dries out. Consult supplier regarding disposal of reclaimed sodium chlorite.

7. Handling Storage

Handling Procedures And Equipment :

Use corrosion resistant tools and equipment. Avoid skin or clothing contact.

Storage:

Store in a cool, dry fireproof building.

KEEP AWAY FROM COMBUSTIBLES, ORGANICS AND ACIDS.

8. Exposures Controls / Personal Protection

Protective Equipment:

Eye Protection:

- Wear chemical safety goggles. Add a face shield where the possibility exists for face contact due to splashing or spraying or airborne contact with this material.

Hand Protection

- Wear butyl rubber or neoprene gloves.

Respiratory Protection:

- Wear approved respiratory protection with dust/mist cartridges where the potential for airborne exposures exceed applicable limits .

Skin and Body Protection

- Where there is potential for skin contact, have available and wear as appropriate, impervious gloves, apron, pants jacket, hood and boots.

Engineering Controls:

Use separate, corrosion-resistant ventilation system to capture mist or fume. Do not use wood or other combustibles to construct vent system. Prevent entry into bearings or gear boxes, which could cause an explosion.

9. Physical And Chemical Properties

State: Liquid

Odour: Faint bleach-like odour

Odour Threshold: Not applicable

Boiling Point: Depends on concentration

102°C for 20 wt% Sol.

105°C for 25 wt% Sol.

109°C for 37 wt% Sol.

110°C for 39 wt% Sol.

112°C for 41 wt% Sol.

Melting Point: Not applicable

Freezing Point: Depends on concentration

-7°C for 15 wt% Sol.

-15°C for 20 wt% Sol.

-19°C for 25 wt% Sol.

+18°C for 37 wt% Sol.

+22°C for 39 wt% Sol.

+26°C for 41 wt% Sol

pH: 12.5 to 13

Coefficient Of Water/Oil Distribution: Not available

Appearance: Clear Solution, pale green clear

Specific Gravity: Depends on concentration

1.12 @ 20°C for 15 wt% Sol.

1.16 @ 20°C for 20 wt% Sol.

1.21 @ 20°C for 25 wt% Sol.

1.34 @ 20°C for 37 wt% Sol.

1.36 @ 22°C for 39 wt% Sol. (at Freezing Point)

1.39 @ 26°C for 41 wt% Sol. (at Freezing Point)

Vapour Pressure: Not available

Vapour Density: Not applicable

Evaporation Rate: Not available

Solubility In Water: Product is water solution and can be diluted at any proportion

Bulk Density: Not applicable

10. Stability And Reactivity

Chemical Stability:

Solution is stable in itself, but reactive as detailed below. Absorption of atmospheric carbon dioxide may lower the pH of the solution, which will cause it to slowly decompose.

Reactivity Conditions:

Reacts on mixing with acids to give toxic chlorine dioxide and chlorine gases. Mixtures with combustibles, if allowed to dry out, are easily ignited by heat or friction and burn vigorously or may explode.

Incompatible Substances:

Incompatible with all combustibles and reducing agents, especially phosphorus, sulfur-containing materials, powdered metals, ammonium compounds. Incompatible with acids.

Hazardous Decomposition Products:

Residues of sodium chlorite, from dried-out solution, will give off oxygen on being heated strongly.

11. Toxicological Information

Skin Contact: Irritating to the skin if not washed off promptly. Dermatitis is likely to occur from repeated or prolonged contact.

Skin Absorption: Not available

Eye Contact: Causes severe eye irritation. May cause permanent damage because of its corrosive properties.

Inhalation: Spray or mist is irritating to the nose and throat.

Ingestion: Will irritate and may cause corrosion of the gastrointestinal tract.

May cause vomiting, nausea, diarrhea, cramps and pain. May damage blood cells, liver or kidney.

LD₅₀: 660 mg/kg (rat) for 25 wt% Soln.

Can be estimated from above for other concentrations

LC₅₀:

Exposure Limits: Not available

Irritancy: Severe (corrosive)

Sensitization: Not reported as a human sensitizer.

Carcinogenicity: Does not appear in reference lists.

Teratogenicity & Mutagenicity: Not teratogenic even at maternally toxic doses. Mutagenicity has been demonstrated in bacteria and mammalian cell cultures, but not in experiments involving whole animals.

Reproductive Toxicology: Shown to be toxic to mammalian fetuses only at doses toxic to the mother. In one study, sodium chlorite given in drinking water showed a small but statistically significant increase in the percentage of abnormal sperm; another study was negative.

Toxicological Synergism: Not available.

12. Ecological Information

Ecological Information:

This product is toxic to aquatic life. Do not discharge into lakes, streams, ponds, sewers or other waters unless in accordance with the permitting authority.

Biodegradability:

In soil, will degrade to sodium chloride but may form chlorine dioxide in contact with acidic soils. Chlorate is an intermediate product of decomposition; it will slowly degrade to chloride.

Aquatic Toxicity:

In water, sodium chlorite will eventually degrade to sodium chloride.

Ecotoxicity Values (for pure sodium chlorite):

LC50 *Anas platyrhynchos* (Mallard duck, age 9 days) diet >5000 ppm/ 8 days
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50 *Anas platyrhynchos* (Mallard duck, juvenile) diet 18686 ppm (8186-109184 ppm)/ 8 days
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50 *Anas platyrhynchos* (Mallard duck, adult) oral 1000 mg/kg (690-1450 mg/kg)/ 14 days
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50 *Colinus virginianus* (Northern bobwhite, age 13 days) diet >5000 ppm/ 8 days
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50 *Colinus virginianus* (Northern bobwhite, juvenile) diet 2031 ppm (1226-3903 ppm)/ 8 days
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50 *Colinus virginianus* (Northern bobwhite, age 20 weeks) oral 382 mg/kg (300-520 mg/kg)/ 14 days
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50 *Colinus virginianus* (Northern bobwhite) oral 660 mg/kg (540-810 mg/kg)/ >80 hr
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50 *Colinus virginianus* (Northern bobwhite) oral 797 mg/kg (420-2594 mg/kg)/ 14 days
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

EC50; Species: *Pseudokirchneriella subcapitata* (Green algae); Conditions: freshwater, static; Concentration: 1320 ug/L for 4 days (95% confidence interval: 1180-1470 ug/L); Effect: population abundance /80% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

EC50; Species: *Daphnia magna* (Water flea, age <24 hr); Conditions: freshwater, flow through; Concentration: 290 ug/L for 48 hr (95% confidence interval: 250-330 ug/L); Effect: intoxication, immobilization /79% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

EC50; Species: *Daphnia magna* (Water flea, age <24 hr); Conditions: freshwater, static; Concentration: 14.6 ug/L for 48 hr (95% confidence interval: 12-18 ug/L); Effect: intoxication, immobilization /80% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

EC50; Species: *Daphnia magna* (Water flea); Conditions: freshwater, static; Concentration: 1400 ug/L for 48 hr (95% confidence interval: 1000-1900 ug/L); Effect: intoxication, immobilization /25% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50; Species: *Americamysis bahia* (Opossum shrimp, age <24 hr); Conditions: saltwater, flow through; Concentration: 576 ug/L for 96 hr (95% confidence interval: 440-750 ug/L) /79% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50; Species: *Cyprinodon variegatus* (Sheepshead minnow); Conditions: saltwater, flow through; Concentration: 75000 ug/L for 96 hr (95% confidence interval: 62000-90000 ug/L) /79% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50; Species: *Lepomis macrochirus* (Bluegill); Conditions: freshwater, flow through; Concentration: 208000 ug/L for 240 hr (95% confidence interval: 165000-262000 ug/L) /79% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50; Species: *Lepomis macrochirus* (Bluegill); Conditions: freshwater, static; Concentration: 222000 ug/L for 72 hr (95% confidence interval: 207000-237000 ug/L) /25% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50; Species: *Lepomis macrochirus* (Bluegill); Conditions: freshwater, static; Concentration: 244000 ug/L for 96 hr (95% confidence interval: 196000-304000 ug/L) /80% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50; Species: *Lepomis macrochirus* (Bluegill); Conditions: freshwater, static; Concentration: 265000 ug/L for 96 hr (95% confidence interval: 231000-309000 ug/L) /80.2% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50; Species: *Lepomis macrochirus* (Bluegill); Conditions: freshwater, static; Concentration: 310000 ug/L for 96 hr (95% confidence interval: 270000-350000 ug/L) /81.5% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50; Species: *Oncorhynchus mykiss* (Rainbow trout); Conditions: freshwater, flow through; Concentration: 50600 ug/L for 312 hr (95% confidence interval: 38000-65800 ug/L) /79% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50; Species: *Oncorhynchus mykiss* (Rainbow trout); Conditions: freshwater, static; Concentration: >100000 ug/L for 96 hr /80% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50; Species: *Oncorhynchus mykiss* (Rainbow trout); Conditions: freshwater, static; Concentration: 203000 ug/L for 96 hr (95% confidence interval: 175000-236000 ug/L) /25% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50; Species: *Oncorhynchus mykiss* (Rainbow trout); Conditions: freshwater, static; Concentration: 290000 ug/L for 96 hr (95% confidence interval: 250000-340000 ug/L) /80.2% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

LC50; Species: *Oncorhynchus mykiss* (Rainbow trout); Conditions: freshwater, static; Concentration: 340000 ug/L for 96 hr (95% confidence interval: 220000-600000 ug/L) /80% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

EC50; Species: *Crassostrea virginica* (American oyster, spat); Conditions: saltwater, flow through; Concentration: 21400 ug/L for 96 hr (95% confidence interval: 14300-27100 ug/L); Effect: intoxication, immobilization /79% purity/
[USEPA, Office of Pesticide Programs; Pesticide Ecotoxicity Database (2000) on Sodium chlorite (7758-19-2). Available from, as of July 25, 2008: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED**

13. Disposal Considerations

Disposal Considerations :

Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.

14. Transportation Information

Shipping Name (TDGR)	UN Number	Hazard Class	Packing Group
Chlorite Solution	1908	8	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:

U.S. Regulatory Rules

OSHA Hazard Communication Evaluation :

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

Canada

WHMIS Hazardous Class :

D1B TOXIC MATERIALS
C OXIDIZING MATERIAL
E CORROSIVE MATERIAL

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.
ERG Number 154

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 :

Updated PPE Requirements.

Sections " 5. Fire-Fighting Measures", "10. Stability And Reactivity", "11. Toxicological Information" and "12 Ecological Information" were updated.

Information on this form is furnished in compliance with the Regulations Respecting Controlled Products under the Hazardous Products Act and is not to be used for any other purpose, nor is it to be reproduced or published.

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