Vulcan CHEMICALS
A Business Unit of Vulcan Materials Co

MATERIAL SAFETY DATA SHEET

24 Hour Emergency Phone 316/524-5751

SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Technical Sodium Chlorite Solution 31.25, 31% Active Sodium Chlorite, Textone® L, Textone® XL, Textone® 20

CHEMICAL NAME
Sodium Chlorite Solution

SYNONYMS
25% Active Sodium Chlorite

MANUFACTURER
Vulcan Chemicals, P O Box 385015, Birmingham, AL 35238-5015

NOTE: This Material Safety Data Sheet is also valid for sodium chlorite solutions weaker than 25%. Physical data, such as specific gravity will be different from the values listed.

SECTION 2 COMPOSITION INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS NUMBER	% RANGE	OSHA PEL
Sodium chlorite	7758-19-2	25-34%	None Established
Sodium chloride	7647-14-5	1-6%	None Established
Sodium sulfate	7757-82-6	0-2%	None Established
Sodium chlorate	7775-09-9	0-3%	None Established
Water	7732-18-5	59-74%	None Established

* Denotes chemical subject to reporting requirements of Section 313 of Title III of the 1986 Superfund Amendments and Reauthorization Act (SARA) and 40 CFR Part 372

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Clear, water white to slightly yellow liquid, slight chlorine odor
DANGER! Causes skin and eye irritation or burns. Harmful if swallowed.

POTENTIAL HEALTH EFFECTS

INHALATION
Inhalation of vapors or mists may cause irritation of the mucous membranes and respiratory tract. Symptoms may include coughing, bloody nose, and sneezing. Severe overexposures may cause lung damage.

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

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

INGESTION
Ingestion may cause gastroenteritis with any or all of the following symptoms: nausea, vomiting, lethargy, diarrhea, bleeding or ulceration. Acute ingestion of large quantities may also cause anemia due to the oxidizing effects of the chemical.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Deficiency in G6PD enzyme and other red blood cell diseases

INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY
None known or reported

SECTION 4 FIRST AID MEASURES

INHALATION
Move patient to fresh air and monitor for respiratory distress. If cough or difficulty in breathing develops, administer oxygen, and consult a physician immediately. In the event that breathing stops, administer artificial respiration and obtain emergency medical assistance immediately.

SKIN
Remove contaminated clothing. Immediately flush exposed skin areas with large amounts of water for at least 15 minutes. Consult a physician if burning or irritation of the skin persists. Contaminated clothing must be laundered before re-use.

EYES
Immediately flush eyes with large amounts of water for at least 15 minutes while frequently lifting the upper and lower eyelids. Consult a physician immediately.

INGESTION
DO NOT induce vomiting. Drink large quantities of water. Consult a physician immediately. DO NOT give anything by mouth if the person is unconscious or having seizures.

NOTES TO PHYSICIAN
Chlorine dioxide vapors are emitted when this product contacts acids or chlorine. If these vapors are inhaled, monitor patient closely for delayed development of pulmonary edema which may occur up to 48-72 hours post-inhalation.

See Section 11 for Toxicological Information

SECTION 5 FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT
Not Applicable

AUTOIGNITION TEMPERATURE
Not Applicable

FLAMMABLE LIMITS IN AIR (PERCENT BY VOLUME)
Not Applicable

EXTINGUISHING MEDIA
Not Applicable-Choose extinguishing media suitable for surrounding materials.

FIRE FIGHTING INSTRUCTIONS
Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Use flooding quantities of water as fog or spray. This product becomes a fire or explosion hazard if allowed to dry, so use water spray to keep fire-exposed containers cool. Extinguish fire using agent suitable for surrounding fire.

Firefighters should wear full protective clothing (chemically impermeable, full encapsulated suit) and positive pressure self-contained breathing apparatus. This product becomes a fire or explosive hazard if allowed to dry; see Section 10.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Isolate spill area and deny entry to unnecessary or unprotected personnel. Remove all sources of ignition, such as flames, hot glowing surfaces or electric arcs. Stop source of spill as soon as possible and notify appropriate personnel. Cleanup personnel must wear proper protective equipment (refer to Section 8). Notify all downstream water users of possible contamination.

Create a dike or trench to contain all liquid material. Spill materials may be absorbed using clay, soil or non-flammable commercial absorbents. Continue to keep damp. If allowed to dry, dried material can ignite in contact with combustible materials.

This product may represent an explosion hazard if it contacts acids or chlorine. If such contact is possible, evacuation procedures must be placed into effect. Evacuate all non-essential personnel. Hazardous concentrations in air may be found in local spill area and immediately downwind.

Do not place spill materials back in their original container. Containerize and label all spill materials properly. Decontaminate all clothing and, if permitted, the spill area using strong detergent and flush with large amounts of water.

SECTION 7 HANDLING AND STORAGE

HANDLING

Do not get in eyes, or on skin, or clothing. Do not taste or swallow. Do not handle with bare hands. Use only thoroughly clean, dry utensils when handling. Avoid breathing mists or fumes. This product becomes a fire hazard if allowed to dry. Remove and wash contaminated clothing to avoid fire.

Follow protective controls set forth in Section 8 when handling this product. Do not eat, drink, or smoke in work area. Wash hands prior to eating, drinking, or using restroom.

This solution contains sodium chlorite. Dry sodium chlorite is a strong oxidizing agent. Mix only into water. Contamination may start a chemical reaction with generation of heat, liberation of hazardous gases (chlorine dioxide a poisonous, explosive gas), and possible fire and explosion. Do not contaminate with garbage, dirt, organic matter, household products, chemicals, soap products, paint products, solvents, acids, vinegar, beverages, oils, pine oil, dirty rags, or any other foreign matter.

STORAGE

STORAGE CONDITIONS

Store in closed, properly labeled tanks or containers. Do not store at temperatures above 100°C (212°F). Do not remove or deface labels or tags. Do not expose to direct sunlight or ultraviolet light.

Avoid contact with combustible or readily oxidizable materials; sulfur-containing rubber

INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT

Acids, reducing agents, combustible material, oxidizers (such as hypochlorites), paints, sulfur, solvents.

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

ENGINEERING CONTROLS

VENTILATION

Local exhaust ventilation is recommended if vapors, mists or aerosols are generated. Otherwise, use general exhaust ventilation.

PERSONAL PROTECTIVE EQUIPMENT

EYE AND FACE PROTECTION
Wear chemical goggles. A face shield should be worn in addition to goggles where splashing or spraying is a possibility.

SKIN PROTECTION
Wear Neoprene gloves, boots and apron.

RESPIRATORY PROTECTION
Wear a NIOSH/MSHA approved acid gas respirator plus dust/mist pre-filters if any exposure to dust or mist is possible.

GENERAL
Emergency eye wash and safety showers must be provided in the immediate work area. Thoroughly wash all contaminated clothing.

EXPOSURE GUIDELINES
None Established

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

CHEMICAL FORMULA
$NaClO_2$

APPEARANCE AND ODOR
Clear, water white to slightly yellow liquid, slight chlorine odor

VAPOR PRESSURE
No Available Data

pH @ 25°C
>12

CRYSTALLIZATION POINT
-7°C for 25% Solution
5°C for 31% Solution

MOLECULAR WEIGHT
90.45

SPECIFIC GRAVITY
1.23-1.30 at 25/25°C

DENSITY
10.1-10.6 lbs./gal @25°C

VOLATILES, PERCENT BY VOLUME
59-74%

SOLUBILITY IN WATER
Complete

SECTION 10 STABILITY AND REACTIVITY

CHEMICAL STABILITY
Stable

CONDITIONS TO AVOID
Temperatures above 175°C (347°F) (dry material)
Evaporation to dryness; dried material can ignite upon contact with combustibles.
Exposure to sunlight or ultraviolet light can reduce product strength.

INCOMPATIBILITY WITH OTHER MATERIALS
Acids, reducing agents, combustible materials, oxidizers (such as hypochlorites), sulfur-containing rubber, dirt, soap, solvents, paints.
Contamination with acids, chlorine or organic materials. Avoid contact with heat or flame source.

HAZARDOUS DECOMPOSITION PRODUCTS
Explosive and toxic chlorine dioxide gas will be generated on contact with acids or chlorine.

HAZARDOUS POLYMERIZATION
Will not occur

SECTION 11 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

INHALATION
Inhalation may cause irritation of the mucous membranes and respiratory tract. Symptoms may include coughing, bloody nose, and sneezing. Severe overexposures may cause lung damage.

ANIMAL TOXICOLOGY

Inhalation LC_{50}:	No available data
Dermal LD_{50}:	> 2 g/kg (rabbit)
Oral LD_{50}:	165 mg/kg (rat)

CHRONIC TOXICITY

INHALATION
There is no available data on the chronic effects of inhaling sodium chlorite.

SKIN
There are no studies or reports on the repeated effects of dermal exposure to sodium chlorite. Because of the acute effects, repeated direct contact may be unlikely.

INGESTION
The chronic ingestion of low concentrations of this product has been studied in laboratory animals. Concentrations in the drinking water of 100 ppm and higher have been shown to cause mild anemia and a minor suppression of thyroid functions in laboratory animals. All effects were reversible after cessation of treatment.

Clinical studies of communities using sodium chlorite as a disinfectant found no adverse effects in the human population studied. However, other studies have suggested that those individuals deficient in an enzyme (G6PD) utilized in hemoglobin synthesis might be susceptible to the development of anemia if exposed repeatedly.

Repeated exposures to solutions of chlorine dioxide at concentrations of 10-100 ppm have produced slight effects upon the thyroid in younger animals and the hematologic system. Exposures to these concentration can reduce the cellular and blood levels of glutathione, an agent which is protective against the oxidizing effect of this chemical. Exposure of laboratory animals above 100 ppm in the drinking water have shown a decrease in blood cell glutathione, red blood cell count and hemoglobin. In some studies these levels also caused a slight decrease in thyroid hormones, especially in younger animals.

CARCINOGENICITY
Sodium chlorite is not listed by NTP, IARC, OSHA, EPA, or any other authority as a carcinogen. Carcinogenicity studies conducted in mice and rats did not show an increase in tumors in animals exposed to sodium chlorite in their drinking water.

MUTAGENICITY
Sodium chlorite has been evaluated for possible mutagenic effects in several laboratory tests. Sodium chlorite tested positive in the Ames Salmonella reverse mutation assay without metabolic activators and caused chromosomal aberrations in an in vitro Chinese hamster fibroblast cell line without metabolic activators. Sodium chlorite also tested positive in the mouse micronucleus assay when administered intraperitoneally (directly into the body cavity), but was not mutagenic when administered orally. The significance of these test results for human health is unclear because the oxidizing effects of the chlorite or salting effects of sodium may significantly affect the ability of the tests to accurately detect mutagens.

REPRODUCTIVE TOXICITY

Sodium chlorite has not been found to be teratogenic in studies in which animals have been exposed up to 100 ppm in the drinking water. Male rats repeatedly exposed to concentrations of 100 ppm or greater in the drinking water have shown slight effects on sperm motility. No effects were observed at 10 ppm and no effects were observed on fertility rate, histology of the male reproductive system or conception rate of animals exposed at 10 ppm or higher.

The CMA conducted a two-generation reproductive rat study with developmental neurotoxicity to evaluate the effects of sodium chlorite on reproduction and pre- and post-natal development when administered orally via drinking water for two successive generations. Sodium chlorite was administered at 0, 35, 70, and 300 ppm in drinking water to male and female Sprague Dawley rats for ten weeks prior to mating. Dosing continued during the mating period, pregnancy and lactation. The final report concluded that there were no meaningful treatment related effects at any dose level for systemic, reproductive/ developmental, and developmental neurological end points. Hematological effects and reduced body weight gains were observed in some treatment groups.

SECTION 12 ECOLOGICAL INFORMATION

This product is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to the discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority.

ENVIRONMENTAL FATE

Water:
Sodium chlorite in water will eventually degrade to sodium chloride.

Soil:
Sodium chlorite in contact with acidic soil could generate chlorine dioxide.

ECOTOXICITY

Acute TL_{50} for Rainbow Trout: 50.6 mg/l (as 80% $NaClO_2$)
Acute LC_{50} (96 Hours) for Rainbow Trout: 290 mg/l (as 80% $NaClO_2$)

Acute TL_{50} for Bluegill: 208 mg/l (as 80% $NaClO_2$)
Acute LC_{50} (96 Hours) for Bluegill: 265-310 mg/l (as 80% $NaClO_2$)

Acute LD_{50} Mallard Ducks: 0.49-1.00 g/kg (gavage) (as 80% $NaClO_2$)
Acute LD_{50} Bobwhite Quail: 0.66 g/kg (gavage) (as 80% $NaClO_2$)

Acute LC_{50} (48 Hours) for Daphnia Magna: 0.29 mg/l (as 80% $NaClO_2$)

Sodium chlorite in the diet of birds was not acutely toxic. Eight-day dietary LC_{50}'s in mallard ducks and bobwhite quail were both greater than 10,000 ppm in the diet.

SECTION 13 DISPOSAL CONSIDERATIONS

All disposals of this material must be done in accordance with local, state and Federal regulations. Waste characterization and compliance with disposal regulations are the responsibilities of the waste generator.

SPILL RESIDUES

If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste designation: D002. Also, it will be subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly.

As a hazardous liquid waste, it must be disposed of in accordance with local, state and federal regulations in a permitted hazardous waste treatment, storage and disposal facility.

SECTION 14 TRANSPORT INFORMATION

DOT IDENTIFICATION NO.
UN 1908

DOT SHIPPING DESCRIPTION (49 CFR 172.101)
Chlorite solution, 8, UN 1908, II

PLACARD REQUIRED
Corrosive, 1908, Class 8

LABEL REQUIRED
Corrosive, Class 8
Label as required by EPA and by OSHA Hazard Communication Standard, and any applicable state and local regulations.

IMO REQUIREMENTS
EmS No.: 806 MFAG Table No.: 741

SECTION 15 REGULATORY INFORMATION

U S FEDERAL REGULATIONS

REPORTABLE QUANTITY (RQ)
Not Applicable

TOXIC SUBSTANCES CONTROL ACT
Listed on TSCA Inventory

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) TITLE III
Components identified with an asterisk (*) in Section 2 are subject to the reporting requirements of Section 313 of Title III of the 1986 Superfund Amendments and Reauthorization Act (SARA) and 40 CFR Part 372.

SARA HAZARD CATEGORIES (40 CFR 370.2)
HEALTH: Immediate (Acute), Delayed (Chronic) PHYSICAL: Fire

INTERNATIONAL REGULATIONS

CANADA

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) CLASSIFICATION
WHMIS Classifications applicable to this product:
E (Corrosive Material) based on assignment to TDG Class 8

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)
All components of this product are on the Domestic Substances List (DSL).

HAZARDOUS PRODUCTS ACT
This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR).

EUROPE
EINECS No.: 231-836-6

STATE REGULATIONS

CALIFORNIA PROPOSITION 65
Sodium Chlorite does not appear on the California Proposition 65 list.

SECTION 16 OTHER INFORMATION

NFPA RATINGS
Health 3, Flammability 0, Reactivity 1

Medical Emergencies:
Call toll-free 24 hours a day
for emergency toxicological
information 888/211-9412

Other Emergency information:
Call 316/524-5751 (24 Hours)

For any other information contact:
Vulcan Chemicals
Technical Service Department
P O Box 385015
Birmingham, AL 35238-5015
800/873-4898
8 AM - 5 PM, Central Time
Monday through Friday

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