

Product Name: Sodium Hypochlorite - 12.5%, Sodium Hypochlorite - 11, Sodium Hypochlorite - 10, Sodium Hypochlorite - 9

Revision Date: 1/31/07 Revision No.: 26

OCEAN NETWORK EMERGENCY PHONE 1-888-289-1911

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THIS PRODUCT MAY BE CONSIDERED TO BE A HAZARDOUS CHEMICAL UNDER THAT STANDARD. (REFER TO THE OSHA CLASSIFICATION IN SEC.I.) THIS INFORMATION IS REQUIRED TO BE DISCLOSED FOR SAFETY IN THE WORKPLACE. THE EXPOSURE TO THE COMMUNITY, IF ANY, IS QUITE DIFFERENT.

I - PRODUCT IDENTIFICATION

Product Name:	Sodium Hypochlorite - 12.5 Sodium Hypochlorite - 11 Sodium Hypochlorite - 10 Sodium Hypochlorite - 9
Synonyms:	Liquid chlorine solution, Liquid bleach, Hypochlorite, Bleach, Hypo
Chemical Family:	Hypochlorite
Formula:	NaOCl in water
Use Description:	Swimming pool chlorinator, micro biocide, textile/laundry bleaching agent, hard surface cleaner, mildecide, water treatment
Hazard Classification:	Oxidizer, unstable (reactive), corrosive, skin and eye hazard, lung toxin
Product Code:	105004, 105010, 105498, 105588, 105609, 105610
File No.:	MSDS0500

II - COMPONENT DATA

This Product Composition information presented here describes the major components and their concentrations found in this product and other information as required by OSHA. This is not, and should not be interpreted, or used as, a Product Specification or a detailed chemical analysis.

Established Federal OSHA PEL is provided. OSHA Agreement State PEL may be different.

Product Composition

CAS or Chemical Name:	Sodium hypochlorite
CAS Number:	7681-52-9
Percentage Range:	7-16
Hazardous Per 29 CFR 1910.1200:	Yes
Exposure Standards:	None Established for Sodium Hypochlorite see

Product Name: Sodium Hypochlorite - 12.5%, Sodium Hypochlorite - 11, Sodium Hypochlorite - 10, Sodium Hypochlorite - 9
Revision Date: 1/31/07 Revision No.: 26

	Hazardous Decomposition, Section VII.
--	---------------------------------------

CAS or Chemical Name:	Water
CAS Number:	7732-18-5
Percentage Range:	70.5-87.5
Hazardous Per 29 CFR 1910.1200:	No
Exposure Standards:	None Established

CAS or Chemical Name:	Sodium hydroxide			
CAS Number:	1310-73-2			
Percentage Range:	0.5 - 2.5			
Hazardous Per 29 CFR 1910.1200:	Yes			
Exposure Standards:	OSHA (PEL) *		ACGIH (TLV)	
		ppm	mg/m ³	
	TWA:	N/A	2	N/A
	CEILING:	N/A	None	N/A
	STEL:	N/A	None	N/A

* Federal OSHA PEL. An Agreement State OSHA PEL may be different.

CAS or Chemical Name:	Sodium carbonate
CAS Number:	497-19-8
Percentage Range:	5.0 - 12.0
Hazardous Per 29 CFR 1910.1200:	No
Exposure Standards:	None Established

CAS or Chemical Name:	Sodium chloride
CAS Number:	7647-14-5
Percentage Range:	0 - 15
Hazardous Per 29 CFR 1910.1200:	Yes
Exposure Standards:	None Established

III - PRECAUTIONS FOR SAFE HANDLING AND STORAGE

DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN OR EYES, UPON CONTACT WITH SKIN OR EYES WASH OFF WITH WATER. . AVOID BREATHING MIST OR VAPOR.

STORAGE CONDITIONS:

Store in a cool, dry, and well ventilated area. Avoid high temperatures and exposure to and direct sunlight.
DO NOT STORE AT TEMPERATURES ABOVE: 15-21 Deg. C (60-70 Deg.F) Rate at which product loses strength increases as temperature increases.
OTHER: Store in the dark at the lowest possible temperature, but keep from freezing.

Product Name: Sodium Hypochlorite - 12.5%, Sodium Hypochlorite - 11, Sodium Hypochlorite - 10, Sodium Hypochlorite - 9
Revision Date: 1/31/07 Revision No.: 26

PRODUCT STABILITY AND COMPATIBILITY:

SHELF LIFE LIMITATIONS:	Up to 6 months at 60 Deg.F. or lower
INCOMPATIBLE MATERIALS FOR PACKAGING:	Metal containers.
INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT:	Oxidizers, acids, nitrogen containing materials such as quaternary ammonium salts, metals such as copper, nickel or cobalt.

IV - PHYSICAL DATA

Appearance:	Greenish-yellow liquid
Freezing Point:	-20 °C @ 7% NaOCl
Boiling Point:	Decomposes on heating
Decomposition Temperature:	Decomposition rate increases as heated
Specific Gravity:	1.08 - 1.26
Bulk Density:	Not Applicable
pH @ 25° C:	12-14
Vapor Pressure @ 20° C:	12 mm Hg for a 12.5% NaOCl
Solubility in Water:	Miscible
Volatiles, Percent by Volume:	70 - 87.2
Evaporation Rate:	No Data
Vapor Density:	No Data
Molecular Weight:	74.5 (active ingredient-NaOCl)
Odor:	Chlorine-like
Coefficient of Oil/Water Distribution:	No Data

V - PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

Personal Protection for Routine Use of Product:

Respiratory Protection:	<u>Routine:</u> If vapors, mists, or aerosols are not controlled with ventilation to below the TLV wear a NIOSH approved respirator. <u>Line breaking/hose connections/samples, etc.:</u> Wear a NIOSH approved workplace respirator as air concentrations above the TLV for chlorine may occur unexpectedly.
Ventilation:	<u>Routine:</u> Local exhaust ventilation is recommended if vapors, mists or aerosols are generated. Otherwise, use general exhaust ventilation. <u>Line breaking/hose connections/samples, etc.:</u> Use local exhaust ventilation

Product Name: Sodium Hypochlorite - 12.5%, Sodium Hypochlorite - 11, Sodium Hypochlorite - 10, Sodium Hypochlorite - 9
Revision Date: 1/31/07 Revision No.: 26

Skin and Eye Protection:	Routine: Use chemical safety goggles and impermeable gloves. Line breaking/hose connections/samples, etc.: Wear chemical safety goggles and face shield, impermeable gloves, boots and protective suit.
Other:	Emergency eye wash and safety showers must be provided in the immediate work area.

Equipment Specifications (When Applicable):

Respirator Type:	NIOSH approved respirator equipped with chemical cartridges for protection against chlorine gas and dust mist pre-filters.
Protective Clothing Type: (This includes: gloves, boots, apron, protective suit.)	See Section XI for Personal Protection

VI - FIRE AND EXPLOSION HAZARD INFORMATION

Flammability Data:

Explosive:	N/A
Flammable:	No
Combustible:	No
Pyrophoric:	No
Flash Point:	Not Applicable
Autoignition Temperature:	Not Applicable
Flammable Limits at Normal Atmospheric Temperature and Pressure (Percent Volume in Air):	LEL - Not Applicable UEL - Not Applicable

NFPA Ratings:

Health:	Not Established
Flammability:	Not Established
Reactivity:	Not Established

HMIS Ratings:

Health:	3
Flammability:	0
Reactivity:	2

Extinguishing Media:

Not applicable

Product Name: Sodium Hypochlorite - 12.5%, Sodium Hypochlorite - 11, Sodium Hypochlorite - 10, Sodium Hypochlorite - 9
Revision Date: 1/31/07 Revision No.: 26

Fire Fighting Techniques and Comments:

Use water to cool containers exposed to fire. On small fire, use dry chemical, carbon dioxide or water spray. On large fires, use water in flooding quantities as fog. In case of fire, hazardous concentrations of chlorine may be emitted. See Section XI for personal protective equipment.

VII - REACTIVITY INFORMATION

Conditions Under Which This Product May Be Unstable:

Temperatures Above:	Decomposition rate increases as it is heated
Mechanical Shock or Impact:	No
Electrical (Static) Discharge:	No
Other:	Decomposition will result in the formation of oxygen from contact with copper, nickel, cobalt and iron solids such as rust.
Hazardous Polymerization:	Will not occur
Incompatible Materials:	Iron, copper, nickel, cobalt, acids, ammonium or other nitrogen containing compounds, organics, other oxidizers
Hazardous Decomposition:	Chlorine gas can be generated if pH decreases
Other conditions to avoid:	High heat, sunlight and ultra-violet light

Summary of Reactivity:

Explosive:	N/A
Oxidizer:	Yes
Pyrophoric:	No
Organic Peroxide:	No
Water Reactive:	No
Corrosive:	Yes

VIII - FIRST AID

Eyes

- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.

Skin

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

Product Name: Sodium Hypochlorite - 12.5%, Sodium Hypochlorite - 11, Sodium Hypochlorite - 10, Sodium Hypochlorite - 9
Revision Date: 1/31/07 Revision No.: 26

Ingestion

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by the poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

Inhalation

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.
- Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
NOTE TO PHYSICIAN - Probable mucosal damage may contraindicate the use of gastric lavage.

IX - TOXICOLOGY AND HEALTH INFORMATION

Routes of Absorption

Inhalation, skin, eye, ingestion

Warning Statements and Warning Properties

CAUSES RESPIRATORY TRACT IRRITATION. . CAUSES EYE AND SKIN BURNS. CAN CAUSE LUNG DAMAGE.

Human Threshold Response Data

Odor Threshold:	Approximately 0.9 mg/M ³ (0.3 ppm) based on odor of chlorine.
Irritation Threshold:	No data for Sodium hypochlorite. However, decomposition products may be irritating.
Immediately Dangerous to Life or Health:	No Data. However, Sodium hypochlorite has the potential to be immediately dangerous to life or health.

Signs, Symptoms and Effects of Exposure

Inhalation

Acute:	Inhalation of this material is irritating to the nose, mouth, throat and lungs. It may also cause burns to the respiratory tract with the production of lung edema, which can result in shortness of breath, wheezing, choking, chest pain, and impairment of lung function. Inhalation of high concentrations can result in permanent lung damage.
Chronic:	Repeated inhalation exposure may cause impairment of lung function and permanent lung damage.

Product Name: Sodium Hypochlorite - 12.5%, Sodium Hypochlorite - 11, Sodium Hypochlorite - 10, Sodium Hypochlorite - 9
Revision Date: 1/31/07 Revision No.: 26

Skin

Acute:	Dermal exposure can cause severe irritation and/or burns characterized by redness, swelling and scab formation. Prolonged skin exposure may cause destruction of the dermis with impairment of the skin at site of contact to regenerate.
Chronic:	Effects from chronic skin exposure would be similar to those from single exposure except for effects secondary to tissue destruction.

Eye

Severe irritation and/or burns can occur following eye exposure. Contact may cause impairment of vision and corneal damage.

Ingestion

Acute:	Irritation and/or burns can occur to the entire gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding, and/or tissue ulceration.
Chronic:	There are no known or reported effects from chronic exposure.

Medical Conditions Aggravated by Exposure

Asthma and respiratory and cardiovascular disease

Interactions with Other Chemicals Which Enhance Toxicity

None known or reported

Animal Toxicology

Acute Target Organ Toxicity

INHALATION LC50: No available data
ORAL LD50: Approximately 3-5 g/kg (rat)
DERMAL LD50: > 2 g/kg (rabbit)
Causes burns to eyes and skin.

Chronic Target Organ Toxicity

There are no known or reported effects from repeated exposure.

Reproductive and Developmental Toxicity

There are no known or reported effects on reproductive function or fetal development.

Carcinogenicity

Sodium hypochlorite has been shown not to be carcinogenic in laboratory animals. It is not included as a carcinogen by IARC, OSHA, NTP, or EPA. IARC has concluded that there is inadequate evidence for the carcinogenicity of hypochlorite salts in laboratory animals and there is no data available from studies in humans.

Product Name: Sodium Hypochlorite - 12.5%, Sodium Hypochlorite - 11, Sodium Hypochlorite - 10, Sodium Hypochlorite - 9
 Revision Date: 1/31/07 Revision No.: 26

Therefore, IARC considers hypochlorite salts to be not classifiable as to their carcinogenicity to humans.

Mutagenicity

Sodium hypochlorite has been shown to produce damage to genetic material when tested in vitro. Studies in vivo have shown no evidence of mutagenic potential for this material. Chemicals with potent biocidal activity, typical of hypochlorite compounds, may compromise the integrity of many of the treated cells, which remain viable during an in vitro assay. This result would likely produce cellular changes giving rise to a response indicative of mutation. It is judged that the risk of genetic damage is insignificant for sodium hypochlorite because of its biocidal activity, lack of mutagenicity in vivo, and failure to produce a carcinogenic response.

Aquatic Toxicity

Aquatic LC50 - approximately 0.6 mg/l (bluegill) and approximately 1 mg/l (daphnia, 48 hours)

X - TRANSPORTATION INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT Description from the Hazardous Materials Table 49 CFR 172.101:

Land (U.S. DOT):	HYPOCHLORITE SOLUTIONS, 8, UN1791, PG III
Water (IMO):	Same as above
Air (IATA/ICAO):	Same as above
Hazard Label/Placard:	CORROSIVE
Reportable Quantity:	100 lbs. (Per 49 CFR 172.101, Appendix)
Emergency Guide:	154

XI - SPILL AND LEAKAGE PROCEDURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-424-9300

Reportable Quantity: 100 LBS. (Per 40 CFR 302.4)

Spill Mitigation Procedures:

Hazardous concentrations in air may be found in local spill area and immediately downwind.

Air Release:	Vapors may be suppressed by the use of a water fog. Capture all run-off water for treatment and disposal.
Water Release:	This material is soluble in water. Dike or contain material via use of compatible absorbents. Remove material with use of vacuum or pump operation and treat before disposition. This material is harmful to aquatic life.
Land Spill:	Compatible absorbents: Sand, clay soil, commercial absorbents.

Product Name: Sodium Hypochlorite - 12.5%, Sodium Hypochlorite - 11, Sodium Hypochlorite - 10, Sodium Hypochlorite - 9
Revision Date: 1/31/07 Revision No.: 26

Spill Residues:

Dispose of per guidelines under Section XII, WASTE DISPOSAL.

This material may be neutralized for disposal; you are requested to contact OCEAN at 888-289-1911 before beginning any such operation.

Personal Protection for Emergency Spill and Firefighting Situations:

Response to this material requires the use of a positive pressure supplied air respirator. If chlorine gas is known or suspected to be present, a fully encapsulated suite is also required.

Additional protective clothing must be worn to prevent personal contact with this material. These items include but are not limited to splash proof goggles and face shield, boots, gloves, hard hat, impervious clothing, i.e. chemically impermeable suit or encapsulating suit as necessary.

Compatible materials for response to this material are neoprene, polyvinyl chloride, butyl rubber, Viton, Saranex chlorinated polyethylene, and polyvinyl alcohol. Note: polyvinyl alcohol is water soluble.

XII - WASTE DISPOSAL

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 number: D002.

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 by treatment.

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

XIII - ADDITIONAL REGULATORY STATUS INFORMATION

TOXIC SUBSTANCES CONTROL ACT: This substance is listed on the Toxic Substances Control Act inventory.

NSF ANSI 60 LIMITS: For all bleach products 15.6% wt/wt or less NaOCl, products are certified for the NSF/ANSI 60 at a Maximum Use Level (MUL) of 10 mg/l chlorine equivalent. For example, a 12.5% wt/wt NaOCl solution has a NSF Maximum Drinking Water Usage Concentration of 84 mg/l as sodium hypochlorite. For 11% wt/wt NaOCl solution has a NSF Maximum Drinking Water Usage Concentration of 95 mg/l as sodium hypochlorite.

Product Name: Sodium Hypochlorite - 12.5%, Sodium Hypochlorite - 11, Sodium Hypochlorite - 10, Sodium Hypochlorite - 9
Revision Date: 1/31/07 Revision No.: 26

FEDERAL INSECTICIDE FUNGICIDE RODENTICIDE ACT (FIFRA): This substance is registered for use as a disinfectant or sanitizer. Anyone using this product for their own sanitizing or disinfecting applications at different concentrations or with any other component added must obtain their own registration from the Environmental Protection Agency. EPA Registration Numbers: 72315-4, 72315-5, 72315-6 and 72315-14.

HEALTH CANADA: At concentrations greater than 10.8 wt% sodium hypochlorite, this product is registered for manufacturing purposes, PCP No. 25619

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT TITLE III: None Established

HAZARD CATEGORIES, PER 40 CFR 370.2:

HEALTH: Immediate (Acute)
Delayed (Chronic)

PHYSICAL:

Fire (Oxidizer Only)
Reactivity

EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW, PER 40 CFR 355, APP.A:

EXTREMELY HAZARDOUS SUBSTANCE - THRESHOLD PLANNING QUANTITY:

None Established

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372-45: None Established

XIV - ADDITIONAL INFORMATION

Revised Section XIII February 2006. Revised Section I, II, III, IV, VII, XI, XIII, XV - April 2006. Revised Product Names - January 2007.

XV - MAJOR REFERENCES

Will be furnished upon request

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. OLIN BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION, BUT MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MATERIAL SAFETY DATA SHEET IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT OLIN AT THE PHONE NUMBER LISTED BELOW TO MAKE CERTAIN THAT THIS SHEET IS CURRENT.

ORC MSDS CONTROL GROUP
Olin Chlor Alkali
1186 Lower River Road
P.O. Box 248
Charleston, TN 37310
Phone Number: (888)-658-MSDS (6737)