SIEMENS

Siemens Industry, Inc.
Water Technologies Business Unit

Material Safety Data Sheet

SECTION 1 – CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: Sodium Hypochlorite **Chemical Family:** Hypochlorites

Manufacturer's Name: Siemens Industry, Inc. -Water Technologies Business Unit
Address: 2650 Tallevast Road, Sarasota, FL 34243
Product/Technical Information Phone Number: 941.355.2971
Medical/Handling Emergency Phone Number: CHEMTREC 1.800.424.9300
24 hours a day
Transportation Emergency Phone Number: CHEMTREC 1.800.424.9300
24 hours a day

Issue Date: March 2000
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SECTION 2 – COMPOSITION INFORMATION

Chemical Name	Percent by Weight	CAS#
Sodium Hypochlorite, NaOCl	10-12%	7681-52-9
Water	88-90%	7732-18-5

SECTION 3 – HAZARDS IDENTIFICATION

Appearance & Odor: Colorless to light yellow-green liquid with chlorine-like odor.

Emergency Overview: This material will cause severe irritation to the skin, eyes, respiratory tract, and digestive system. Use self-contained breathing apparatus and full protective equipment if needed. Acid contamination will produce irritating chlorine-like fumes.

Fire & Explosion Hazards: Sodium hypochlorite decomposes when heated; decomposition products may cause containers to rupture/explode. Vigorous reaction possible with organic materials or oxidizing agents; may result in fire.

Primary Route(s) of Exposure: Skin and eye contact, ingestion, inhalation.

Inhalation – Acute Effects: Inhalation of fumes causes coughing and choking, burning sensation, labored breathing, shortness of breath, severe respiratory tract irritation, and pulmonary edema.

Skin Contact – Acute Effects: Skin contact may cause pronounced irritation, redness, blisters, vesicular eruptions, and eczematoid dermatitis.

Eye Contact – Acute Effects: Eye contact causes severe irritation with redness and pain.

Ingestion – Acute Effects: Ingestion may cause pain and inflammation of the mouth, pharynx, esophagus, and stomach, erosion of mucous membranes, vomiting, hemorrhage, circulatory collapse, cold and clammy skin, cyanosis and shallow respiration, confusion, delirium, coma, edema of pharynx, glottis and larynx with stridor and obstruction, and perforation of esophagus or stomach with mediastinitis. **OBTAIN MEDICAL ASSISTANCE IMMEDIATELY.**

SECTION 4 – FIRST AID MEASURES

Inhalation First Aid: Remove affected person from area to fresh air and provide oxygen if breathing is difficult. Give artificial respiration ONLY if breathing has stopped. Keep affected person warm and at rest. **OBTAIN MEDICAL ATTENTION IMMEDIATELY.**

Skin Contact First Aid: Immediately remove clothing from affected area and wash skin for 15-20 minutes with flowing water. Clothing should be discarded or washed before reuse. Obtain medical attention if irritation occurs.

Eye Contact First Aid: Immediately irrigate eyes with flowing water continuously for 15-20 minutes while holding eyes open. Contacts should be removed before or during flushing. **OBTAIN MEDICAL ATTENTION IMMEDIATELY.**

Ingestion First Aid: If victim is alert and not convulsing rinse mouth with water and give large amounts water to drink. **DO NOT induce vomiting.** If spontaneous vomiting occurs, have affected person lean forward with head down to avoid breathing in of vomitus. Rinse mouth again and give more water to drink. **OBTAIN MEDICAL ATTENTION IMMEDIATELY.**

Medical Conditions Aggravated: None known.

Note to Physician: Sodium hypochlorite is an alkaline corrosive. For exposure by ingestion do not use emesis, lavage or acid antidotes. Dilute immediately by giving milk, melted ice cream, beaten egg white, starch paste or antacids such as milk of magnesia, aluminum hydroxide gel, or magnesium trisilicate gel. Avoid sodium bicarbonate because of carbon dioxide release. Sodium thiosulfate solution may prove beneficial by reducing unreacted material.

SECTION 5 – FIRE FIGHTING MEASURES

Flash Point/Method: Not applicable.

Auto Ignition Temperature: Not applicable.

Upper/Lower Explosion Limits: Not applicable.

Extinguishing Media: Use water spray, fog, foam, dry chemicals, or CO_2.

Fire Fighting Procedures: Use self-contained breathing apparatus and full protective equipment if needed. Acid contamination will produce irritating chlorine-like fumes.

Fire & Explosion Hazards: Sodium hypochlorite decomposes when heated. Decomposition products may cause containers to rupture/explode. Vigorous reaction possible with organic materials or oxidizing agents; may result in fire.

Hazardous Products of Decomposition and/or Combustion: Oxygen and chlorine are hazardous products of decomposition of sodium hypochlorite.

NFPA Ratings: HEALTH - 2 FLAMMABILITY - 0 REACTIVITY - 2

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Spills of 100 pounds of sodium hypochlorite (≈ 80 gallons of solution) or more must be reported. Do not allow hypochlorite to enter streams, lakes, etc. Do not use combustible materials such as sawdust to absorb spills. Reduce with agents such as bisulfites or ferrous salt solutions. Some heat will be produced. Keep product on alkaline side of pH and dilute with copious amounts of water. Main end product is salt water. DO NOT DUMP ON THE GROUND OR INTO ANY BODY OF WATER. All disposal methods must be in compliance with all Federal, State, Local and Provincial laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.

SECTION 7 – HANDLING AND STORAGE

Handling: Wear personal protective equipment. Avoid contact with corrosable materials.

Storage: Store sodium hypochlorite in vented closed containers that provide protection from direct sunlight. Do not store near acids, heat, oxidizers, or organics.

General Comments: This substance decomposes on heating, on contact with acids, and under influence of light producing toxic and corrosive gases including chlorine. This substance is a strong oxidant and reacts violently with combustible and reducing materials causing a fire and explosion hazard.

SECTION 8 – PERSONAL PROTECTION/ EXPOSURE CONTROL

Respiratory Protection: None required under normal use conditions. Use NIOSH/MSHA approved organic vapor-acid-gas respirator with filter (qualified to wear respirator) during spill clean-up or other conditions that might produce irritating chlorine-like fumes.

Skin Protection: Wear neoprene or rubber gloves and other protective clothing such as a rain suit or rubber apron as appropriate to prevent skin contact.

Eye Protection: Wear safety glasses with side shields and face shield or goggles and face shield.

Ventilation Protection: Use local exhaust at points of vapor emission.

Other Protection: Safety showers, with quick opening valves which stay open, and eye wash fountains, or other means of washing the eyes with a gentle flow of cool to tepid tap water should be readily available in all areas where this material is handled or stored. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.

Exposure Limits: No TLV has been established for sodium hypochlorite. [(Pentahydrate; 45% conc.) acute oral toxicity (rat): LD_{50}88910 mg/kg, acute dermal toxicity (rabbit): LD_{50} 10,000 mg/kg.]

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odor: Colorless to light yellow-green liquid with chlorine-like odor

Boiling Point: Decomposes above 230°F

Specific Gravity: 1.15 - 1.2 g/cm3

Solubility in Water: Complete

pH: 11 - 13

SECTION 10 – STABILITY AND REACTIVITY

Stability: Stable at normal temperatures and pressure. Stability decreases with concentration, heat, light, decreased pH, and contamination with heavy metals.

Incompatibilities: This material is incompatible with acids, heavy metals, amines, combustible materials, reducing agents, organics, ether, and ammonia.

Polymerization: Hazardous polymerization is not expected.

Decomposition: Hazardous decomposition products are oxygen and chlorine.

Conditions to Avoid: Do not use combustible materials such as sawdust to absorb hypochlorite spills. Avoid excessive heat, flame, sparks and other sources of ignition, light exposure, and contact with incompatible materials/chemicals.

SECTION 11 – TOXICOLOGICAL INFORMATION

Inhalation – Acute: Inhalation of fumes may cause coughing and choking, burning sensation, labored breathing, shortness of breath, severe respiratory tract irritation and pulmonary edema.

Inhalation – Chronic: No chronic inhalation effects of the product are known.

Skin Contact – Acute: Skin contact may cause pronounced irritation, redness, blisters, vesicular eruptions, and eczematoid dermatitis.

Skin Contact – Chronic: Repeated or prolonged skin contact may cause skin sensitization.

Eye Contact – Acute: Eye contact causes severe irritation with redness and pain.

Ingestion – Acute: Ingestion may cause pain and inflammation of the mouth, pharynx, esophagus, and stomach, erosion of mucous membranes, vomiting, hemorrhage, circulatory collapse, cold and clammy skin, cyanosis and shallow respiration, confusion, delirium, coma, edema of pharynx, glottis and larynx with stridor and obstruction, and perforation of esophagus or stomach with mediastinitis. **OBTAIN MEDICAL ASSISTANCE IMMEDIATELY.**

Ingestion – Chronic: No chronic ingestion effects of this product are known.

Carcinogenicity/Mutagenicity: Sodium hypochlorite administered in drinking water did not increase the proportion of rats or mice with tumors. Sodium hypochlorite applied to the skin of mice did not produce skin tumors. Sodium hypochlorite induced genotoxic effects in bacteria. In single studies, chromatid exchange aberrations were observed in cultured mammalian cells, whereas sister chromatid exchange but no chromosomal aberration was seen in cultured human cells. In a single study, micronuclei were induced in newt larvae. In mice, no indication

of micronuclei, aneuploidy or chromosomal aberrations was observed in bone marrow, but abnormal sperm morphology was seen after administration of sodium hypochlorite. Hypochlorite salts are not classifiable as to the carcinogenicity to humans (Group 3).

Reproductive Effects: No reproductive effects for this product are known.

Neurotoxicity: No neurotoxic effects for this product are known.

Other Effects: No other toxic effects of the product are known.

Target Organs: Include the skin, eyes, respiratory tract, and digestive system.

SECTION 12 – ECOLOGICAL INFORMATION

This product is toxic to aquatic organisms. Do not allow hypochlorite to enter streams, lakes, etc.

SECTION 13 – DISPOSAL CONSIDERATIONS

Spills of 100 pounds (≈ 80 gallons of solution) or more must be reported. Do not allow sodium hypochlorite to enter streams, lakes, etc. Do not use combustible materials such as sawdust to absorb spills. Reduce with agents such as bisulfites or ferrous salt solutions. Some heat will be produced. Keep product on alkaline side of pH and dilute with copious amounts of water. Main end product is salt water. DO NOT DUMP ON THE GROUND OR INTO ANY BODY OF WATER. Product containers should be thoroughly emptied before disposal. All disposal methods must be in compliance with all Federal, State, Local and Provincial laws and regulations. Generators of waste material are required to evaluate all waste for compliance with RCRA and any local disposal procedures and regulations.

NOTE: State and local regulations may be more stringent than federal regulations.

SECTION 14 – TRANSPORTATION INFORMATION

DOT Shipping Name: Hypochlorite Solution

Hazard Class: 8

UN Number: 1791

Packing Group: II

SECTION 15 – REGULATORY INFORMATION

CERCLA SECTION 103 (40CFR302.4): Yes RQ: 100 LBS (≈ 80 gallons of solution).
SARA SECTION 302 (40CFR355.30): No
SARA SECTION 304 (40CFR355.40): No
SARA SECTION 313 (40CFR372.65): No
OSHA PROCESS SAFETY (29CFR1910.119): No
CALIFORNIA PROPOSITION 65: No
TSCA Inventory: Yes

SECTION 16 – OTHER INFORMATION

Disclaimer: The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the user thereof. It is the buyer's responsibility to ensure that its activities comply with federal, state, provincial, and local laws.

Revision Indicator: Legal Entity name change 04/01/11