



MATERIAL SAFETY DATA SHEET

(This MSDS follows the ANSI Z400.1-1993 format)

# SODIUM HYPOCHLORITE

(15% by volume – 12.5% by weight)

MSDS NUMBER: KCC – HYPO - 001

MSDS DATE: July 01, 2011

24 HOUR EMERGENCY PHONE NUMBER: **(973) 589-0700**  
Alt. (551) 200-2751  
CHEMTREC – (800) 424-9300

## SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Hypochlorite Solution  
**Chemical Name:** Sodium Hypochlorite  
**CAS Number:** 7681-52-9  
**Common Names:** Chlorine Bleach, Soda Bleach  
**Chemical Formula:** NaOCl  
**Manufacturer:** Kuehne Chemical Company, Inc.  
86 North Hackensack Avenue  
South Kearny, New Jersey 07032-4673  
(973) 589-0700 Fax: (973) 589-4866

## SECTION 2 – COMPOSITION, INFORMATION OR INGREDIENTS

<u>CAS Number</u> 7732-18-5	<u>Name</u> Water	<u>Common Names</u> Water
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<u>Percentage</u>
VOL. 85.75 – 81.25
WT. 84.37 – 88.13

<u>Exposure Limits</u>
PEL: Not Established
TLV: Not Established
STEL: Not Established
IDLH: Not Established



<u>CAS Number</u>	<u>Name</u>	<u>Common Names</u>
7681-52-9	Hypochlorous Acid, Sodium Salt	Sodium Hypochlorite

<u>Percentage</u>	<u>Exposure Limits</u>
VOL. 14.25 – 18.75	PEL: 1 ppm ceiling (as Cl <sub>2</sub> )
WT. 11.87 – 15.63	TLV: 1 ppm TWA (as Cl <sub>2</sub> )
	STEL: 1 ppm ceiling (as Cl <sub>2</sub> )
	IDLH: Not Established

**Listed on:**

- The EINECS inventory, or in compliance with the inventory.
- The TSCA inventory.
- The AICS inventory, or in compliance with the inventory.
- The DSL list.
- The ENCS inventory, or in compliance with the inventory.
- The KECI inventory, or in compliance with the inventory.
- The PICCS inventory, or in compliance with the inventory.
- The IECSC inventory, or in compliance with the inventory.
- The NZIoC inventory, or in compliance with the inventory.

<u>CAS Number</u>	<u>Name</u>	<u>Common Names</u>
1310-73-2	Sodium Hydroxide (NaOH)	Caustic Soda, Lye

<u>Percentage</u>	<u>Exposure Limits</u>
VOL. 1	PEL: 2 ppm ceiling
WT. 1	TLV: 2 ppm ceiling
	STEL: Not Established
	IDLH: 10 ppm

**Listed on:**

- The TSCA Inventory, or in compliance with the inventory.
- PA Requirement - 3% or greater.
- NJ Requirement - 1% or greater

<u>CAS Number</u>	<u>Name</u>	<u>Common Names</u>
7647-14-5	Sodium Chloride (NaCl)	Salt

<u>Percentage</u>	<u>Exposure Limits</u>
VOL. >1	PEL: Not Established
WT. >1	TLV: Not Established
	STEL: Not Established
	IDLH: Not Established



**CAS Number**

497-19-8

**Name**

Carbonic Acid Disodium Salt    Carbonic Acid Sodium Salt

**Common Names****Percentage**

VOL. &gt;1

WT. &gt;1

**Exposure Limits**

PEL: Not Established

TLV: Not Established

STEL: Not Established

IDLH: Not Established

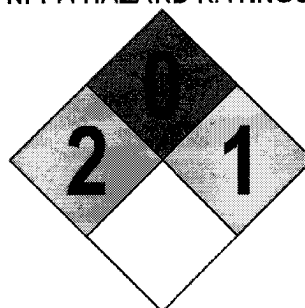
## SECTION 3 – HAZARD IDENTIFICATION

## HMIS HAZARD RATINGS

HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARD	2
PERSONAL PROTECTION	

Based on Nat'l Paint &amp; Coatings Association HMIS system

## NFPA HAZARD RATINGS



Chemical not listed. Ratings based on NFPA guidelines

**Effects of Overexposure**

**Acute:** Inhalation – Inhalation of vapors is irritating to the respiratory system, may cause throat pain and cough, severe respiratory tract irritation and pulmonary edema.

Eyes – May cause severe irritation, burns, and/or corrosion. May cause vision impairment, corneal damage and blurred vision.

Skin – May cause severe irritation and burns or dermatitis. Prolonged skin exposure may cause destruction of the dermis with impairment of the skin to regenerate at site of contact.

Ingestion – Ingestion of high concentrations may cause injuries to, liver, kidneys, central nervous system and gastrointestinal tract pain and inflammation, burns and perforation of the esophagus or stomach. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea, circulatory collapse, confusion, delirium and coma.

**Chronic:** Repeated inhalation exposure may cause impairment of lung function and permanent lung damage. Effects from chronic skin exposure would be similar to those from single exposure except for effects secondary to tissue destruction.

**Note:** Corrosive and strongly irritating to the eyes, skin, and respiratory tract. Inhalation of fumes may cause pulmonary edema. Ingestion may cause burns to the mouth and digestive tract, and abdominal distress.

**Appearance:** Colorless to light yellow-green liquid

**Routes of Entry:** Inhalation, Eye Contact, Skin, Ingestion

**Target Organs:** Eyes, Skin, Respiratory Tract, and Gastrointestinal Tract.

**Cancer Information:** This product has not been listed as carcinogenic by the following agencies: IARC, NTP, and OSHA

**Mutagenicity:** Sodium hypochlorite has tested positive in in-vitro test systems and negative in in-vivo test systems. These results are consistent with other germicides.

**Medical Conditions Aggravated by Exposure:** Asthma, Heart disease, Respiratory disorder

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#### SECTION 4 – FIRST AID MEASURES

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**Inhalation:** Remove to fresh air. If breathing is difficult, have qualified person administer oxygen. If respiration stops, give mouth-to-mouth resuscitation. **SEEK MEDICAL ATTENTION IMMEDIATELY.**

**Eyes:** OBJECT IS TO FLUSH MATERIAL OUT IMMEDIATELY AND THEN SEEK MEDICAL ATTENTION. IMMEDIATELY flush eyes with a directed stream of water for at least 15 minutes while forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. Washing eyes within one (1) minute is essential to achieve maximum effectiveness. **SEEK MEDICAL ATTENTION IMMEDIATELY.**

**Skin:** Flush thoroughly with cool water under shower while removing contaminated clothing and shoes. Discard non-rubber shoes. Wash clothing before reuse. Continue to flush until medical attention arrives. **SEEK MEDICAL ATTENTION IMMEDIATELY.**



**Ingestion:** NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. If swallowed. DO NOT INDUCE VOMITING. Give large quantities of milk. If this is not available, give large quantities of water. If vomiting occurs spontaneously, keep airway clear and give more milk or water. **SEEK MEDICAL ATTENTION IMMEDIATELY.** Avoid vomiting, lavage or acidic antidotes.

**Note to Physician**

Sodium Hypochlorite is an alkaline corrosive. For exposure by ingestion do not use emesis, lavage or acidic 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**

<b>Flash Point:</b>	N/A
<b>Auto-ignition Temperature:</b>	N/A
<b>Flammable Limits in Air - % by Volume - Upper:</b>	N/A
<b>Lower:</b>	N/A
<b>Sensitivity to Mechanical Impact:</b>	Not Sensitive
<b>Sensitivity to Static Discharge:</b>	Not Sensitive

**Extinguishing Media**

Use water spray, fog, foam, dry chemical, or carbon dioxide or agents suitable for materials in surrounding fire. Do not use Mono Ammonium Phosphate (MAP) type extinguishers directly on this product.

**Fire Fighting Procedures**

Use self-contained breathing apparatus and full protective equipment. Acid contamination will produce very irritating fumes similar to chlorine.

**Fire and Explosion Hazard**

Sodium Hypochlorite or its solutions decompose when heated. Decomposition products may cause containers to rupture or explode. Vigorous reaction is possible with organic materials or oxidizing agents and may result in fire, may release toxic gases.



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## SECTION 6 – ACCIDENTAL RELEASE MEASURES

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### **Steps to be Taken if Material is Released or Spilled**

Contain the spilled material in the smallest possible area. Do not allow spilled material to enter sewers, streams or unpaved land. Flush with water to dilute as much as possible and pump into polyethylene containers for disposal. Avoid heat and contamination with acid materials. Do not use combustible materials such as sawdust to absorb Sodium Hypochlorite Solution.

### **Ventilation Requirements**

Provide good general room ventilation plus local exhaust at points of emission.

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## SECTION 7 – HANDLING AND STORAGE

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### **Handling Precautions**

Do not store adjacent to chemicals that may react if spillage occurs. Comply with DOT regulations when shipped. If closed containers become heated, vent to release decomposition products (mainly oxygen under normal decomposition). Do not mix or contaminate with ammonia, hydrocarbons, acids, alcohols or ethers.

**Do Not Reuse Containers:** Product residues may remain in containers. All labeled precautions must be observed. Dispose of container in a manner meeting government regulations.

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## SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

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### **Specific Personal Protective Equipment**

**Respiratory:** NIOSH/MSHA approved respirator with N95 (dust, fume, mist) cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Acid gas cartridges may be required if decomposition products are present. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

**Eye:** Wear chemical safety goggles plus full face shield to protect against splashing when appropriate.

**Gloves:** Wear impervious gloves such as rubber, neoprene or vinyl.

**Other:** Wear impervious protective clothing including rubber safety shoes. Eye wash facility and emergency shower should be in close proximity.



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**SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES**

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**Appearance:** Colorless to light yellow-green

**Odor:** Pungent chlorine like odor

**Physical State:** Liquid

**pH:** 12 @ 100 g/L

<b>Vapor Pressure:</b>	<u>Temperature</u>	<u>mm Hg</u>	<u>PSIA</u>
	48.2 °F (9 °C)	3.7	0.071
	60.8 °F (16 °C)	8.0	0.15
	68.0 °F (20 °C)	12.1	0.23
	89.6 °F (32 °C)	31.1	0.60
	118.4 °F (48 °C)	100.0	1.93

**Boiling Point:** Decomposes above 230 °F (110 °C)  
(@760 mm Hg)

<b>Freezing/Melting Point:</b>	<u>Weight %</u>	<u>Temperature</u>
	10	7 °F -13.9 °C
	12	- 3 °F -19.4 °C
	14	-14 °F -25.6 °C

**Solubility in Water:** 100%  
(by weight)

**Specific Gravity:** 1.190 - 1.215  
(H<sub>2</sub>O = 1)

**Odor Threshold (ppm):** 0.9 ppm approximate

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**SECTION 10 – STABILITY AND REACTIVITY**

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**Conditions Contributing to Instability**

Strong Oxidizer, stability decreases with concentration, heat, light, decrease in pH and contamination by metals.

**Incompatibility**

Avoid contamination with heavy metals, reducing agents, organics, ether, ammonia, and acids.



**Reacts With:**

Acids – A serious chlorine release can result.

Ammonia Compounds – Both toxic and hazardous gases can be formed.

Organic Compounds – May react violently with many organic compounds including greases, oils, fuels, etc. Care must be taken to avoid contact with these types of compounds unless you are certain they are compatible or adequate engineering controls and personal protective equipment (PPE) are employed.

Other Chlorinating Compounds – Care must be taken when storing or using with other chlorinating compounds. In swimming pool applications, never attempt to pre-blend with concentrated forms of any chemicals including other chlorinating compounds. Concentrated forms of these compounds may react violently.

**Hazardous Decomposition Products:** Acid fumes, Hydrogen chloride and Chlorine.

**Hazardous Polymerization:** Material is not known to polymerize.

**SECTION 11 – TOXICOLOGICAL INFORMATION**

<u>CAS Number</u>	<u>Name</u>	<u>Common Names</u>
7681-52-9	Sodium Hypochlorite	Bleach
	<b>Acute Oral LD<sub>50</sub>:</b>	(rat) 3-5 mg/kg
	<b>Primary Skin Irritation:</b>	(rabbit) > 2 mg/kg

The toxicity and corrosivity of Sodium Hypochlorite is a function of concentration. Industrial grades of higher concentrations than household bleach are more toxic and corrosive.

**SECTION 12 – ECOLOGICAL INFORMATION****Aquatic Ecotox Data**

<u>Fish:</u>	<u>LC<sub>50</sub></u>	<u>(hr.)</u>	<u>(Species)</u>	<u>Concentration</u>
	LC <sub>50</sub>	(96 hr.)	(Bluegill sunfish)	2.90 mg/L
	LC <sub>50</sub>	(96 hr.)	(Fathead minnow)	1.40 mg/L
	LC <sub>50</sub>	(0.5 hr.)	(Rainbow trout)	0.90 mg/L

**Biodegradation:** This material is inorganic and not subject to biodegradation.





**Persistence:** This material is believed not to persist in the environment.

**Bioconcentration:** This material is not expected to bioconcentrate in organisms.

**NOTE:** This material is harmful to fish, invertebrates, amphibians, and plants.

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**SECTION 13 – DISPOSAL CONSIDERATIONS**

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**Waste Disposal Method**

Reduce with agents such as bisulfites or ferrous salt solutions. Some heat will be produced. Keep on alkaline side and dilute with copious amounts of water. Main end product is salt water. Comply with all applicable governmental regulations.

**Product Disposal**

Product should be completely removed from containers. Material that cannot be used or chemically reprocessed should be disposed of in a manner meeting government regulations.

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**SECTION 14 – TRANSPORT INFORMATION**

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<b>DOT Proper Shipping Name:</b>	Hypochlorite Solutions
<b>DOT Hazard Class:</b>	8
<b>DOT ID Number:</b>	UN1791
<b>DOT Packing Group:</b>	II
<b>DOT Hazardous Substance:</b>	RQ 100# (Sodium Hypochlorite)
<b>DOT Marine Pollutant:</b>	N/A
<b>Additional Description:</b>	N/A



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## SECTION 15 – REGULATORY INFORMATION

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### U.S. Federal Regulations

Section 311 of The Clean Water Act lists this product as a hazardous substance, which if discharged to water, may require immediate response to mitigate danger to public health and welfare. Spills of 100 pounds or more must be reported to the National Response Center at the following number:

**1-800-424-8802**

Material is contained on a composite list as required under 101 (14) of CERCLA.

Sodium Hypochlorite Solution is regulated by the USEPA under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) as a pesticide product.

12.5% by weight Sodium Hypochlorite Solution produced by Kuehne Chemical Company, Inc. is registered with the USEPA under Registration Number 35317-20001.

**OSHA:** This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) (US).

**TSCA (Toxic Substances Control Act):** This product is not subject to export notification.

### Other Standards

**NSF Certification:** This product has been classified as an approved drinking water treatment chemical under ANSI/NSF Standard 60 by Underwriters Laboratories (reference number: MH17612).

**USDA Approvals:** B-1, D-2, L-1, Q-4 & Fruit and Vegetable washing compounds.

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## SECTION 16 – OTHER INFORMATION

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**Prepared By:** Kuehne Company's Environmental, Safety & Security Department  
Revision C – 01 July 2011

For additional non-emergency health, safety or environmental information, telephone:  
(973) 589 - 0700 or write to:

Kuehne Chemical Company, Inc.  
86 N. Hackensack Avenue  
South Kearny, New Jersey 07032-4673



**MSDS Legend:**

ACGIH	American Conference of Governmental Industrial Hygienists
CAS	Chemical Abstracts Service Registry Number
CEILING	Ceiling Limit (15 Minutes)
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit (OSHA)
STEL	Short Term Exposure Limit (15 Minutes)
TLV	Threshold Limit Value (ACGIH)
TWA	Time Weighted Average (8 Hours)

**IMPORTANT:** The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations.

The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge.

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No warranty of any kind is given or implied and Kuehne Chemical Company, Inc. will not be liable for any damages, losses, injuries or consequential damages that may result from the use of or reliance on any information contained herein.

This Material Safety Data Sheet (MSDS) covers the following materials:

Sodium Hypochlorite - Liquid: 15% by volume – 12.5% by weight

**REFERENCES:**

- American National Standard, Z400.1-1993
- Chlorine Institute Pamphlet 96 (Sodium Hypochlorite Manual), Edition 3, Revision 1, November, 2008.
- National Institute for Occupational Safety and Health, US Dept. of Health & Human Services, Cincinnati, June, 1994.
- Supplier's Material Safety Data Sheets.
- Windholz, Martha, Ed, The Merck Index, 11<sup>th</sup> ed., Merck and Co, Inc., Rahway, New Jersey, 1989.



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## WARNING LABEL INFORMATION

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**Active Ingredient:** Sodium Hypochlorite (NaOCl)..... 11.87 – 15.63 % (by weight)  
Other Ingredients..... 84.37 – 84.37 %

Total..... 100.0 %

**KEEP OUT OF REACH OF CHILDREN**

**DANGER**

### FIRST AID

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

**IF IN 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 to rinse eye. Call a poison control center or doctor for treatment advice.

**IF ON SKIN OR CLOTHING:** 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.

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

**NOTE TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage.

**HOT LINE NUMBER:** 1-800-POISON-1

Have product container or label with you when calling a poison control center or doctor, or going for treatment.



**PRECAUTIONARY STATEMENTS  
HAZARDOUS TO HUMANS AND DOMESTIC ANIMALS**

**DANGER:** Corrosive may cause severe skin and eye irritation or chemical burns to broken skin. Causes eye damage. Wear safety glasses or goggles and rubber gloves when handling this product. Wash after handling. Avoid breathing vapors. Vacate poorly ventilated areas as soon as possible. Do not return until strong odors have dissipated.

**Environmental Hazards:** This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

**Physical and Chemical Hazards:** STRONG OXIDIZING AGENT. Mix only with water according to label directions. Mixing this product with chemicals (e.g. ammonia, acids, detergents, etc.) or organic matter (e.g. urine, feces, etc.) will release chlorine gas, which is irritating to eyes, lungs and mucous membranes.

**DIRECTION FOR USE**

IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING.

Re-formulators and Re-packagers of this product must obtain their own registrations from the United States Environmental Protection Agency (USEPA).

**For manufacturing use in the formation of end-use Products**

**NOTE:** This product degrades with age. Use a Chlorine test kit and increase dosage as necessary, to obtain the required level of available Chlorine.

For specific use directions, see KUEHNE Circular for each particular application.

**CIRCULAR NUMBER K586A:** sanitizers of surfaces (wooden butcher blocks, stainless steel tops, concrete floors, tile walls)

**CIRCULAR NUMBER K586B:** COMMERCIAL LAUNDRY SANITIZERS

**CIRCULAR NUMBER K586C:** AGRICULTURAL USES

**CIRCULAR NUMBER K586D:** DISINFECTION OF DRINKING WATER  
(EMERGENCY/PUBLIC/INDIVIDUAL SYSTEMS)



**CIRCULAR NUMBER K586E: DISINFECTION OF NONPOROUS NON-FOOD CONTACT SURFACES**

**CIRCULAR NUMBER K586F: SEWAGE & WASTEWATER EFFLUENT TREATMENT**

**CIRCULAR NUMBER K586G: COOLING TOWER & EVAPORATIVE CONDENSER WATER**

**STORAGE AND DISPOSAL**

Store this product in a cool dry area away from direct sunlight and heat to prevent deterioration. In case of a spill, flood areas with large quantities of water. Product or rinsates that cannot be used should be diluted with water before disposal in a sanitary sewer. Do not contaminate food or feed by storage, disposal or cleaning of equipment.

Large storage containers should be rinsed thoroughly with water and returned to manufacturer for reconditioning. Large storage containers should be thoroughly rinsed with water before reuse.

**IN CASE OF**

**FIRE:** Use self-contained breathing apparatus and full protective equipment. Use water spray, foam, dry chemical or CO2. Fire may liberate toxic gases.

**SPILL OR LEAKAGE:** Get protective equipment. Contain spill and pump into marked container for reclamation for disposal. Avoid discharges to sewers and streams. Spills of 100 pounds or more must be reported to the National Response Center at the following number:

**1-800-424-8802**

State and local regulations may have additional reporting requirements, check with the proper state and local authorities. Wear neoprene or rubber gloves.

**IN CASE OF CHEMICAL EMERGENCIES CALL:  
24 HOUR EMERGENCY PHONE (973) 589-0700  
Alt. (551) 200-2751**

