

MATERIAL SAFETY DATA SHEET

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SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Los Angeles Chemical Company
4545 Ardine Street
South Gate, CA 90280
323-832-5000

Product Name: Sodium Hypochlorite Solution (10-16%)
Synonyms: Sodium Hypochlorite Solution -Trade % (11 - 19), Bleach, Javel Water, Clorox, Bacticide
Major, Update: 05/01/00 **Product Use:** Bleach, disinfectant **CAS#:** 7681-52-9
Reviewed: 11/11/03

Emergency Contacts (24 hr.)

FOR EMERGENCIES INVOLVING CHEMICAL SPILL OR RELEASE, CALL
1-800-424-9300.

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredient(s)	% (w/w)	ACGIH AIHA	CAS NO.
Sodium Hypochlorite	10 - 16	0.5 ppm (STEL) 2 mg/m ³ (as chlorine)	7681-52-9

SECTION 3 - HAZARD IDENTIFICATION

Emergency Overview: CORROSIVE! Contact with acid liberates toxic chlorine gas. Causes burns to skin, eyes, respiratory tract and mucous membranes. Harmful or fatal if swallowed. May cause sensitization by skin contact. Toxic to aquatic organisms. Read the entire MSDS for a more thorough evaluation of the hazards.

Potential Health Effects:

Inhalation: Mist can irritate the nose and throat. If mixed with acids, hypochlorite solutions release large amounts of chlorine gas. This gas can cause severe irritation of the nose and throat. Exposure to high levels of chlorine gas may result in severe lung damage.

Skin Contact: Sodium hypochlorite mist and solutions can cause skin irritation. In severe cases, chemical burns may result.

Eye Contact: Can cause severe burns and corneal damage, which may result in permanent blindness.

Ingestion: Hypochlorite solutions release hypochlorous acid on contact with gastric juices, and ingestion causes irritation and corrosion of mucous membranes, pain, vomiting, and oedema of the pharynx and larynx; reduced blood pressure, delirium and coma may occur.

Subchronic Effects: SKIN: Prolonged or repeated skin contact with solutions containing as little as 4-6% sodium hypochlorite can cause allergic contact dermatitis. Symptoms include chronic, itchy eczema. Sensitized people can react to very dilute (0.04-0.06% NaOCl) solutions that touch their skin

Existing Medical Conditions Possibly Aggravated By Exposure : Skin irritation may be aggravated in individuals with existing skin lesions. Breathing of vapors or mists may aggravate acute or chronic asthma and chronic pulmonary disease such as emphysema and bronchitis.

Carcinogenicity: Sodium hypochlorite is not classified as carcinogenic by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency for Research on Cancer), not regulated as carcinogens by OSHA (Occupational Safety and Health Administration), and not listed as carcinogens by NTP (National Toxicology Program).

SECTION 4 - FIRST AID MEASURES

General: If you feel unwell seek medical advice (show the label where possible).

Inhalation: Move victim to fresh air. Give artificial respiration ONLY if breathing has stopped. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Give Cardiopulmonary Resuscitation (CPR) only if there is no pulse AND no breathing. Obtain medical attention IMMEDIATELY.

Skin Contact: Immediately flush skin with running water for at least 15 - 20 minutes. Under running water remove contaminated clothing, jewelry, and shoes. If irritation persists, repeat flushing. For burns, obtain medical attention. Discard heavily contaminated clothing and shoes in a manner, which limits further exposure. Otherwise, wash clothing separately before reuse.

Eye Contact: Immediately flush eyes with running water for a **minimum** of 15 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

Ingestion: DO NOT INDUCE VOMITING. If victim is alert and not convulsing, rinse mouth and give as much water as possible to dilute material. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. IMMEDIATELY transport victim to an emergency facility.

Note to Physicians: Symptomatic. Treatment and supportive therapy as indicated. Do NOT give acidic antidotes such as juice, soft drink, vinegar, etc. This product contains materials that may cause severe pneumonitis if aspirated. If ingestion has occurred less than 2 hours earlier, carry out careful gastric lavage; use endotracheal cuff if available, to prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Give artificial resuscitation and appropriate chemotherapy if respiration is depressed. Following exposure the patient should be kept under medical review for at least 48 hours as delayed pneumonitis may occur. Pulmonary edema is likely and may be delayed. Steroid therapy, if given early, may be effective in preventing or alleviating edema.

SECTION 5 - FIRE FIGHTING MEASURES

Flash Point	Not applicable. Not combustible
Flammable Limits (Lower)	Not applicable
Flammable Limits (Upper)	Not applicable
Auto Ignition Temperature	Not applicable
Combustion and Thermal Decomposition Products	Chlorine, sodium oxide, oxygen
Rate of Burning	Not applicable
Explosive Power	Not applicable
Sensitivity to Mechanical Impact	Not applicable

Fire and Explosion Hazards: Sodium hypochlorite is a strong chemical oxidant, but solutions do not support combustion. Reaction with nitrogen compounds, chloroorganic compounds, or easily oxidizable compounds (reducing agents) may be explosive. This material is non-flammable but is decomposed by heat and light, causing a pressure build-up, which could result in an explosion. When heated, it may

release chlorine gas. Vigorous reaction with oxidizable or organic materials may result in fire. See Section 10.

Extinguishing Media : For large fires use an all purpose type AFFF alcohol foam resistant medium expansion according to foam manufacturer's recommended techniques. The foam supplier should be consulted for recommendations regarding foam types and delivery rates for specific applications. Use carbon dioxide or dry chemical media for small fires. If only water is available, use it in the form of a fog.

Special Information: Water may be used to cool containers of Hypochlorite solution exposed to heat from a fire. This should be done from a safe distance since containers may rupture.

Firefighters should wear protective equipment and self-contained breathing apparatus with full facepiece operated in positive pressure mode. Move containers from fire area if you can do it without risk. Dike fire control water for later disposal; do not scatter the material. Fire involving tanks or trailer loads: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from the ends of tanks.

Evacuation: If tank or tank truck involved in a fire, ISOLATE and consider evacuation of one-half (1/2) mile radius.

Fire Fighting Protective Equipment: Full protective clothing, including a self-contained breathing apparatus, must be worn in a fire involving this material. Toxic gas and vapors are produced upon decomposition.

NOTE: Also see "Section 10 - Stability and Reactivity"

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spills, Leaks, or Releases:

- Restrict access to area until completion of clean up. Ensure trained personnel conduct clean up.
- Remove all ignition sources (no smoking, flares, sparks or flames). All equipment should be grounded and non-sparking. Ventilate area.
- Wear adequate personal protective equipment. Do not touch spilled material.
- Stop leak if possible without personal risk.

Small spills: Cover with DRY earth, sand or other non-combustible material. Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal. Rinse area with water.

Large spills: Prevent entry into sewers and confined areas. Dike with inert material (sand, earth, etc.). Contact fire and emergency services and supplier for advice. Collect product for recovery or disposal by pumping it into polyethylene containers. Consider in-situ neutralization and disposal. Ensure adequate decontamination of tools and equipment following clean up. Collect contaminated soil and water, and absorbent for proper disposal. Comply with Federal, Provincial/State and local regulations on reporting releases.

Deactivation For Small Spills: Hypochlorite can be broken down by covering it with a reducing agent such as sodium sulfite or sodium thiosulfate.

Deactivating Chemicals: Use sodium sulfite or diluted hydrogen peroxide to reduce the material. Ensure there is no chlorine residue before neutralizing with a weak solution of hydrochloric or sulfuric acid.

Waste Disposal Methods: Dispose of waste material at an approved waste treatment/disposal facility, in accordance with applicable regulations. Do not dispose of waste with normal garbage or to sewer systems.

Note - Clean-up material may be a RCRA Hazardous Waste on disposal.

- Spills are subject to CERCLA reporting requirements: RQ = 100 lbs.

SECTION 7 – HANDLING AND STORAGE

Precautions: Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled. Wear appropriate Personal Protection Equipment. People working with this chemical should be properly trained regarding its hazards and its safe use.

Handling Procedures and Equipment: Avoid generating mist. Use smallest possible amounts in designated areas with adequate ventilation. Keep containers closed when not in use. Empty containers may contain hazardous residues. Use corrosion-resistant transfer equipment when dispensing.

Storage Requirements: Store in a cool, dry, well-ventilated area, out of direct sunlight. Store containers at 15 – 29 °C (59-84 °F). Do not store above 30 °C (86°F) or below freezing point. Keep containers tightly closed when not in use and when empty. Protect from damage. Vent caps should be checked with full personal protection. Store away from incompatible materials such as reducing materials, strong acids, nitrogen compounds, copper, nickel and cobalt. Use corrosion-resistant structural materials and lighting and ventilation systems in the storage area. This product has a shelf life of up to six months at 60°F or lower.

Outdoor storage tanks should be suitably diked or otherwise provided with an adequate means of secondary containment. Appropriate secondary containment measures should be taken to prevent spills or leaks from indoor storage tanks and tank-truck unloading stations from entering sewers or other channels that discharge directly to a water body or a municipal sewage system.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

PREVENTIVE MEASURES

Recommendations listed in this section indicate the type of equipment, which will provide protection against over exposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

Engineering Controls: Local exhaust ventilation should be applied wherever there is an incidence of point source emissions or dispersion of regulated contaminants in the work area. Ventilation control of the contaminant as close to its point of generation is both the most economical and safest method to minimize personnel exposure to airborne contaminants. The most effective measures are the total enclosure of processes and the mechanization of handling procedures to prevent all personal contact. Smoking should be prohibited in areas in which sodium hypochlorite solution is stored or handled.

PERSONAL PROTECTIVE EQUIPMENT

Eye Protection: Wear splash resistant chemical goggles and full-face shield. Maintain eye wash fountain and quick-drench facilities in work area.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron, rain jacket, pants or coveralls, as appropriate, to prevent skin contact.

RECOMMENDED (resistance to breakthrough longer than 8 hours): butyl rubber, natural rubber, neoprene, nitrile rubber, polyethylene, Viton(TM), Saranex(TM), Responder(TM).

Recommendations are valid for permeation rates reaching 0.1 ug/cm²/min or 1 mg/m²/min and over. Resistance of specific materials can vary from product to product. Breakthrough times are obtained under conditions of continuous contact, generally at room temperature. Evaluate resistance under conditions of use and maintain clothing carefully.

Respiratory Protection: A NIOSH/MSHA approved air-purifying respirator equipped with acid mist cartridges for concentrations up to 10 times the TLV. Use a supplied air respirator if concentrations are higher or unknown.

EXPOSURE GUIDELINES

PRODUCT:

Sodium hypochlorite: Workplace environmental exposure level guides (WEELS) /American Industrial Hygiene Association (AIHA) / 1996 short-term time weighted average ; 2 mg/m³: 15 minute

Chlorine:

ACGIH TWA	0.5 ppm as Cl ₂	ACGIH STEL	1 ppm as Cl ₂
OSHA PEL	0.5 ppm as Cl ₂	OSHA STEL	1 ppm as Cl ₂
NIOSH IDLH	10 ppm as Cl ₂	NIOSH (15 min. ceiling)	0.5 ppm

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Alternate Name(s)	Hypochlorous acid , Clorox, Javelle water
Chemical Name	Sodium hypochlorite
Chemical Family	Hypochlorous acid salt
Molecular Formula	Na-O-Cl
Molecular Weight	74.4
Appearance	Green to yellow, watery liquid
Odor	Pungent chlorine-like odor
pH	11-13
Vapor Pressure (mm Hg at 21 °C(69.8°F))	12 mmHg
Vapor Density (Air = 1)	No data
Boiling Point	Decomposes above 40 °C (104 ° F)
Freezing Point	7.5°F (-13.6°C)
Solubility (Water)	Completely
Specific Gravity	About 1.198 (12.5%w/w solution) @ 20°C (68 ° F)
Evaporation Rate	Not available
% Volatile by Volume	Not available

SECTION 10 – STABILITY AND REACTIVITY

Chemical Stability: Stable at room temperature.

Hazardous Decomposition Products: Thermal decomposition: Chlorine, sodium oxide, oxygen, oxides of chlorine, sodium chlorate, and hydrogen.

Conditions to Avoid: Keep away from high heat, and sunlight or ultra-violet light. Do not store above 30°C (86°F). Do not allow solutions to evaporate dry. Keep away from incompatibles.

Incompatibility with other Substances: May react violently with strong acids producing chlorine gas, which is toxic. Other incompatibles include organic material, cellulose, oxidizable materials, ammonia, urea, ammonium salts, ethyleneimine, cyanides, nitrogen compounds, alcohols, metals, and metal oxides. Reacts with metals to produce flammable hydrogen gas. Metal and metal oxide catalysts decompose hypochlorites, evolving oxygen and often causing explosions. May react explosively with nitrogen containing compounds or form chloroamines, which are explosive. Alkaline hypochlorite solutions may react explosively with some chloroorganic compounds.

Corrosivity to Metals: Solutions can be corrosive to many metals.

Hazardous Polymerization: Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION**TOXICOLOGICAL DATA:**

Toxicological Data: Sodium Hypochlorite: Irritation Data: 10 mg eyes-rabbit moderate

Toxicity Data: 1 gm/kg oral-woman TDLo (Lowest published toxic dose);

45 mg/kg intravenous-man TDLo; LD50 oral rat- 8910 mg/kg

Sodium hydroxide: Irritation data: 500 mg/24 hour(s) skin-rabbit severe; 400 µg eyes-rabbit mild; 1 percent eyes-rabbit severe;

Toxicity data: 1350 mg/kg skin-rabbit LD₅₀; 104-340 mg/kg oral-rat LD₅₀

Mutagenicity: Sodium hypochlorite caused mutations in several short-term studies using bacteria and cultured mammalian cells. The significance of these tests is unclear. It was not mutagenic in tests (chromosome aberration and micronucleus) on live animals.

Reproductive Effects: No data available

Teratogenicity and Fetotoxicity: No data available

Synergistic Materials: None known

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicological Information: Fish Toxicity: LC50 (48 hr) rainbow trout 0.07 mg/l.

LC50 (96 hr) fathead minnow 5.9 mg/l.

Invertebrate and Microbial Toxicity: LOEC *Oncorhynchus kisutch* 0.02 mg/l.

Persistence and Degradation: No data available.

SECTION 13 - DISPOSAL CONSIDERATIONS

Review federal, state and local government requirements prior to disposal.

Do not dispose of waste with normal garbage, or to sewer systems.

Whatever cannot be saved for recovery or recycling, including containers should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options.

RCRA: Test waste material for corrosivity, D002, prior to disposal.

SECTION 14 - TRANSPORT INFORMATION

	TDG	DOT
Shipping Name	Hypochlorite solutions- <i>with more than 5 percent but less than 16 percent available chlorine</i>	Hypochlorite solutions- <i>with more than 5 percent but less than 16 percent available chlorine</i>
Hazard Class/Division	8: Corrosive 9.2	8: Corrosive
Identification No. Packing Group:	UN1791 III	UN1791 III

IATA/ICAO Class: 8

Transportation Emergency Telephone Number: 1-800-424-9300

SECTION 15 - REGULATORY INFORMATION

OSHA Classification: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

SARA Regulations sections 313 and 40 CFR 372: N

SARA Hazard Categories, SARA SECTIONS 311/312 (40CFR370.21):

ACUTE: Y

CHRONIC: N

FIRE: N

REACTIVE: N

SUDDEN RELEASE: N

OSHA PROCESS SAFETY (29CFR1910.119): N

CERCLA SECTION 103 (40CFR302.4): Y

Reportable Quantity (RQ) under CERCLA: 100 lb. (45.4 kg)

TSCA Inventory Status: Y

Other Regulations/Legislation which apply to this product:

Right-to-Know/Disclosure Lists: Illinois, Massachusetts, New Jersey, Pennsylvania,
California Proposition 65: N

This product does not contain nor is it manufactured with ozone depleting substances.

Canadian Classification

This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS (Material Safety Data Sheet) contains all the information required by the CPR.

Controlled Products Regulations (WHMIS) Classification: D2B: Toxic E: Corrosive

CEPA / Canadian Domestic Substances List (DSL): Y

WHMIS Ingredient Disclosure List: Meets criteria for disclosure at 1% or greater.

EINECS Number: 231-668-3

SECTION 16 - OTHER INFORMATION

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate Los Angeles Chemical Company makes no representation as to its accuracy or sufficiency. Conditions of use are beyond Los Angeles Chemical Company's control and therefore users are responsible to verify this data under their own operating conditions to determine whether this product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process.

**National Fire Protection Association (NFPA) Rating
Hazardous Materials Identification System (HMIS) Rating**

	NFPA	HMIS
HEALTH	2	2
FIRE	0	0
REACTIVITY	1	1

4= Extreme/Severe
3 = High/Serious
2 = Moderate
1 = Slight
0 = Minimum
W =Water Reactive