

ALLIED UNIVERSAL CORPORATION

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MATERIAL SAFETY DATA SHEET

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR § 1910.1200.

TODAY'S DATE: 3/1/98

MSDS NUMBER: 0001

24 HOUR EMERGENCY CHEMICAL SPILL OR RELEASE PHONE NUMBERS:

Allied Universal Corp. at 1-305-483-7732 (Digital Beeper) and/or CHEMTREC at 1-800-424-9300

SECTION 1 CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Sodium Hypochlorite

Product Names: Aqua Guard Chlorinating Solution, Pool Guard Chlorinating Solution, Aqua Guard Sodium Hypochlorite, Aqua Guard Bleach, Aqua Guard Sanitizer and Chlorine Bleach.

Listed Strengths: 10%, 10.5% and 12.5%

CAS Number: 7681-52-9

Date MSDS Issued: March 1998 (Original 2/95, Revision 10/95)

Product Use: Pesticide, disinfectant, sanitizer, bleach, water treatment, swimming pool, cooling towers, laundry, drinking water disinfectant, (see label for all approved uses and use instructions).

NSF Approval: Yes. Certified to ANSI/NSF Standard 60. Maximum use in Potable Water 250 mg/L.

SECTION 2 HAZARD INGREDIENTS/IDENTITY INFORMATION

Hazardous Ingredient(s): Sodium Hypochlorite

% (w/w) as Cl₂: 10-30

PEL (OSHA): 1 ppm as Cl₂

TLV (ACGIH): 0.5 ppm as Cl₂

WEEL (AIHA): 2 mg/m³, 15 minute TWA

STEL (OSHA): 3 ppm as Cl₂

TWA (ACGIH): 0.5 ppm as Cl₂

STEL (ACGIH): 1 ppm as Cl₂

Emergency Overview: Corrosive! Possible risk of irreversible harmful effects through inhalation, digestion and skin and eye contact. An irritant which may cause severe burns and sensitization by skin contact.

SECTION 3 PHYSICAL/CHEMICAL CHARACTERISTICS

Alternate Name(s):	Bleach
Chemical Name:	Sodium Hypochlorite
Chemical Family:	Oxidizing Agent
Molecular Formula:	Na-O-Cl
Form:	Liquid
Appearance:	Clear, Greenish-Yellow, Aqueous Solution
Odor:	Chlorine Odor
pH:	12-13
Vapor Pressure:	17.5 (mm Hg @ 20°C)
Vapor Density (Air=1):	Not Applicable
Boiling Point:	~100-110 C (212-230 F) @ 760 mm Hg, Decomposes Slowly @ 40°C
Freezing Point:	14 F (8% w/w Cl ₂ solution), 7 F (10% w/w Cl ₂ solution), -3 F (12% w/w Cl ₂ solution)
Solubility (Water):	Completely Soluble
Solubility (Other):	Reacts with Many Organic Solvents
Density:	1.10 - 1.30
Evaporation Rate:	Not Applicable
Specific Gravity:	1.128 (8% w/w Cl ₂ solution), 1.163 (10% w/w Cl ₂ solution), 1.202 (12% w/w Cl ₂ solution)
Molecular Weight:	74.4

SECTION 4 STABILITY & REACTIVITY DATA

Chemical Stability	Stable <u>X</u> @ room temperature	Unstable _____
Incompatibility (Conditions to Avoid): Stability decreases with heat and light exposure.		
Incompatibility (Materials to Avoid): May react violently with strong acids. Other incompatibles include strong caustics, ammonia, urea and oxidizable materials. Reaction with metals (nickel, iron, cobalt and		

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copper) may produce oxygen gas, which supports combustion. May react with organohalogen compounds to form spontaneously combustible compounds. May react explosively with nitro- and chloro-organic compounds as well as acids and reducing agents. Acidification liberates chlorine gas.

Hazardous Decomposition or Byproducts: Decomposes with heat and reacts with acids. Hazardous gases/vapors produced are hypochlorous acid, chlorine and hydrochloric acid. Composition depends upon temperature and decrease in pH. Additional decomposition products, which depend on pH, temperature and time, are sodium chloride and chlorate, and oxygen.

Hazardous Polymerization

May Occur

Will Not Occur X

Note: Sodium Hypochlorite reacts violently with amines and ammonium salts. Solutions are reactive with common cleaning products such as toilet bowl cleaners, rust removers, vinegar, acids, organics and ammonia products to produce hazardous gases such as chlorine and other chlorinated species.

SECTION 5 POTENTIAL HEALTH EFFECTS AND FIRST AID INFORMATION

GENERAL: May cause immediate pain. Exposure to the skin may cause sensitization or other allergic responses. If the eye is not irrigated immediately after it has been exposed permanent eye damage may occur. Strict adherence to first aid measures following any exposure is essential. **SPEED IS ESSENTIAL!**

ROUTE(S) OF ENTRY AND POTENTIAL HEALTH EFFECTS

EMERGENCY & FIRST AIDE PROCEDURES

INHALATION: Corrosive! Product may cause severe irritation of the nose, throat and respiratory tract. Repeated and/or prolonged exposures may cause productive cough, running nose, bronchopneumonia, pulmonary edema (fluid build-up in lungs), and reduction of pulmonary function.

Move victim to fresh air. Give artificial respiration **ONLY** if breathing has stopped. Give cardiopulmonary resuscitation (CPR) if there is no breathing and no pulse. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT: Corrosive! Concentrated solutions may cause pain and deep and severe burns to the skin. Prolonged and repeated exposure to dilute solutions often causes irritation, redness, pain and drying and cracking of the skin. Human evidence has indicated that an ingredient in this product can cause skin sensitization.

In case of contact, flush skin with plenty of running water for a minimum of 20 minutes or up to 30 minutes, while removing any contaminated clothing and shoes. If irritation persists, repeat flushing. Do not transport victim unless the recommended flushing period is completed unless flushing can be continued during transport. Call a physician immediately.

EYE CONTACT: Extremely corrosive! This product causes corneal scarring and clouding. Glaucoma, cataracts and permanent blindness may occur.

Immediately flush eyes with running water for a minimum of 20 minutes, preferably up to 30 minutes. Hold eyelids open during flushing. If irritation persists, repeat flushing. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

INGESTION: Corrosive! Will immediately cause severe corrosion of and damage to the gastrointestinal tract.

If victim is alert and not convulsing, rinse mouth out and give 200-300 mL (1 cup) of water to dilute material. **DO NOT INDUCE VOMITING.** If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. Obtain medical attention **IMMEDIATELY.**

NOTE TO PHYSICIAN(S): Symptomatic. Treatment and supportive therapy as indicated. This product contains materials that may cause severe pneumonitis is 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.

Pulmonary edema due to chlorine inhalation is likely and may be delayed. Steroid therapy, if given early, may be effective in preventing or alleviating edema. Medical conditions that may be aggravated by exposure include asthma, bronchitis, emphysema, and other lung diseases and chronic nose, sinus or throat conditions. In the event of skin or eye contact, rapid and thorough flushing is essential.

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SECTION 6 TOXICOLOGICAL DATA

ANIMAL DATA
 Inhalation 0.25-hour LC50 - >10.5 mg/L in rats
 Skin Absorption LD50 - >10,000 mg/kg in rabbits
 Oral LD50 - 8,910 mg/kg in rats

SUMMARY: The concentrated solution is corrosive to skin, and a 5% solution is a severe eye irritant. Solutions containing more than 5% available chlorine are classified by DOT corrosive. Toxicity data from single exposures by ingestion include muscular weakness, and hypoactivity. Repeated ingestion exposure in animals caused an increase in the relative weight of adrenal glands in one study, but no pathological changes were observed in two other studies. Long-term administration of compound in drinking water of rats caused depression of the immune system. No adverse changes were observed in an eight week dermal study of a 1% solution in guinea pigs. Tests in animals demonstrate no carcinogenic activity by either the oral or dermal routes. Tests in bacterial and mammalian cell cultures demonstrate mutagenic activity.

CARCINOGENICITY: None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as carcinogen.

SECTION 7 FIRE AND EXPLOSION HAZARD DATA

Flash Point: This product does not flash	Flammable Limits (Lower): Not Applicable	
Flammable Limits (Upper): Not Applicable	Auto Ignition Temperature: Not Applicable	
Decomposition Temperature: 40°C (into NaCl & NaClO ₂)	Rate of Burning: Not Available	
Explosive Power: Not Available	Sensitivity to Mechanical Impact: Not expected to be sensitive to mechanical impact	Sensitivity to Static Discharge: Not expected to be sensitive to static discharge
Fire and Explosion Hazards: 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.	Extinguishing Media: For large fires use an all purpose type AFFF foam 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.	
Fire Fighting Procedures: Water spray should be used to cool containers and may be used to knock down escaping vapor. Remove storage vessels from the fire zone.	Fire Fighting Protective Equipment: Full protective clothing, including a self-contained breathing apparatus, must be worn in a fire involving this material. Toxic gas vapors are produced upon decomposition.	

SECTION 8 ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Toxic to aquatic life. Toxicity is primarily associated with the pH. Harmful to aquatic life at low concentrations. (96-hour LC50, fathead minnows: 5.9 mg/L0)
ENVIRONMENTAL EFFECTS: Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds, or rivers. May be an aesthetic nuisance due to color.

SECTION 9 DISPOSAL CONSIDERATIONS

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State, and Local regulations. Do not burn. Do not flush to surface water or sanitary sewer system.

SECTION 10 TRANSPORT INFORMATION

TDG/DOT Name: Hypochlorite Solution	TDG Class/Division: 8 (9.2)
Product Identification Number (PIN): UN1791	Packing Group: III
DOT Class: 8 - Corrosive	UN No.: 1791
Transportation Emergency Phone Numbers:	
24HR Transportation Emergency Digital Beeper	1-800-921-7522
ALLIED UNIVERSAL CORP. 24HR Digital Beeper	1-305-483-7732
CHEMTREC	1-800-424-9300

SECTION 11: PRECAUTIONS FOR SAFE HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Take all precautions to avoid personal contact. Locate safety shower and eyewash station close to chemical handling area. Use normal good industrial hygiene and housekeeping practices.

Store in a cool, dry, well-ventilated area, away from incompatibles and direct light. Vented containers must be used and must be kept closed when not being used. Long-term storage is impossible without decomposition. Only use containers made from tinted glass, polyethylene and FRP.

PROCESS HAZARDS: Not Available

STORAGE TEMPERATURE: Store containers below 29°C and above freezing point. Do not expose sealed containers above 40°C.

SECTION 12: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Full handling precautions should be taken at all times. Local exhaust ventilation required. Suitable respiratory equipment should be used in cases of insufficient ventilation or where operational procedures demand it.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Use full face-shield and chemical safety goggles when there is potential for contact.

Skin Protection: Gloves and protective clothing (apron, boots, and bodysuits) made from rubber should be impervious under conditions of use.

Respiratory Protection (Specify Type): A NIOSH/MSHA approved air purifying respirator with an acid gas cartridge or canister may be permissible under circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is potential for uncontrolled releases, exposure levels are not known, or other circumstances where air purifying respirators may not provide adequate protection.

SECTION 13: ACCIDENTAL RELEASE MEASURES

Ventilate enclosed area. Collect product for recovery or disposal. For release to land, contain discharge by constructing dikes or applying inert absorbent; for release to water, utilize damming and/or water diversion to reduce the spread of contamination. Collect contaminated soil and water, and absorbent for disposal. Notify applicable government authority if release is reportable or could adversely affect the environment.

Deactivating Chemicals: Sodium Sulfite and Sodium Bisulfite

SECTION 14: REGULATORY INFORMATION

OSHA CLASSIFICATION, 29 CFR §1900-1910:

Physical: Corrosive

Health: Skin Sensitizer. Corrosive.

Target Organ: Skin

TSCA REGULATIONS, 40 CFR §710: All ingredients are on TSCA Section 8(b) inventory.

CERCLA AND SARA REGULATIONS, 40 CFR §300-373:

Superfund Reportable Discharge = 100 lb.

CERCLA Hazardous Material: Yes

Title III Hazard Classifications: Acute - yes, Chronic - yes, Fire - no, Reactivity - yes & Pressure - No.

SARA Extremely Hazardous Substance: No

SARA Toxic Chemical: No

EPA "CLEAN AIR ACT": This product does not contain nor is it manufactured with ozone depleting substances.

NFPA RATING:	HEALTH: 2	NPCA-HMIS RATING:	HEALTH: 3
	FLAMMABILITY: 0		FLAMMABILITY: 0
	REACTIVITY: 2		REACTIVITY: 2
	SPECIAL HAZARDS: OXY		

OTHER REGULATIONS/LEGISLATION WHICH APPLY TO THIS PRODUCT: Massachusetts, Pennsylvania, and New Jersey Right-to-Know Laws.

SECTION 15: REFERENCES

The Merck Index, 11th ed., Merck and Co., Inc., Rahway, New Jersey, 1989.

Suppliers' Material Safety Data Sheets

Olin and OxyChem Sodium Hypochlorite Handbook

Chlorine Institute Sodium Hypochlorite Pamphlet #96

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