Klenzoid, Inc. Industrial Water Specialists
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MATERIAL SAFETY DATA SHEET

PRODUCT: ALGAECIDE C
LIQUICHLOR
SODIUM HYPOCHLORITE 7 – 15%

APPLICATION: Potable Water Additive
Cooling Tower Treatment
System Cleanings

I. PRODUCT IDENTIFICATION
PRODUCT NAME: ALGAECIDE C / LIQUICHLOR / SODIUM HYPOCHLORITE 7-15%
SYNONYMS: Liquid chlorine, liquid bleach, Liquichlor, top chlor
CHEMICAL FAMILY: Hypochlorite
FORMULA: NaOCl in water
DESCRIPTION: Swimming pool chlorinator, Microbiocide
OSHA HAZARD CLASSIFICATION: Oxidizer, unstable (reactive), corrosive to skin and eyes, lung toxin
II. COMPONENT DATA
PRODUCT COMPOSITION
CAS or CHEMICAL NAME: Sodium hypochlorite
CAS NUMBER: 7681-52-9
PERCENTAGE RANGE: 7-15
HAZARDOUS PER 29 CFR 1910.1200: Yes
EXPOSURE STANDARDS: None Established
CAS or CHEMICAL NAME: Water
CAS NUMBER: 7732-18-5
PERCENTAGE RANGE: 73-87
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/cubic-meter ppm mg/cubic-meter
TWA: None Established None Established
CEILING: 2 2
STEL: None Established None Established
CAS or CHEMICAL NAME: Sodium chloride
CAS NUMBER: 7647-14-5
PERCENTAGE RANGE: 5.0-11.0
HAZARDOUS PER 29 CFR 1910.1200: No
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
STORAGE CONDITIONS: Store in a cool, dry, 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)

OTHER: Store in the dark at the lowest possible temperature, but keep from freezing.
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.
IV. PHYSICAL DATA
APPEARANCE: Greenish-yellow liquid
FREEZING POINT: No Data
BOILING POINT: Decomposes on heating
DECOMPOSITION TEMPERATURE: Decomposes as heated
SPECIFIC GRAVITY: 1.08-1.26
BULK DENSITY: Not Applicable
pH @ 25 DEG.C: > 11
VAPOR PRESSURE @25 DEG.C: No Data
SOLUBILITY IN WATER: Miscible
VOLATILES, PERCENT BY VOLUME: 87.5-94.5
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: Respirator protection not normally needed since the volatility and toxicity are low. If vapors, mists, or aerosols are generated, wear a NIOSH/ MSHA approved respirator.
VENTILATION: Local exhaust ventilation is recommended if vapors, mists or aerosols are generated. Otherwise, use general exhaust ventilation.
SKIN PROTECTIVE EQUIPMENT: Use chemical safety goggles and impermeable gloves.
EQUIPMENT SPECIFICATIONS:
RESPIRATOR TYPE: NIOSK/MSHA approved respirator equipped with chemical cartridges for protection against chlorine gas and dust mist pre-filters.
GLOVE TYPE: Neoprene
BOOT TYPE: Not normally needed
APRON TYPE: Not normally needed
PROTECTIVE SUIT: Not normally needed

VI. FIRE AND EXPLOSION HAZARD INFORMATION
FLAMMABILITY DATA:
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: Not Established
HMIS RATINGS:
Health: 3
Flammability: 0
Reactivity: 2
EXTINGUISHING MEDIA: Not applicable
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 formed. See Section XI for personal protective equipment for fire fighting.
VII. REACTIVITY INFORMATION
CONDITIONS UNDER WHICH THIS PRODUCT MAY BE UNSTABLE
TEMPERATURES ABOVE: Decomposes as it is heated
MECHANICAL SHOCK OR IMPACT: No
ELECTRICAL (STATIC) DISCHARGE: No
OTHER: Decomposition will result from contact with iron or copper
HAZARDOUS POLYMERIZATION: Will not occur
INCOMPATIBLE MATERIALS: Iron, copper, acids, ammonium compounds, organics, other oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS: Chlorine gas
OTHER CONDITIONS TO AVOID: High heat, sunlight and ultra-violet light
SUMMARY OF REACTIVITY:
OXIDIZER: Yes
PYROPHORIC: No
ORGANIC PEROXIDE: No
WATER REACTIVE: No

VIII. FIRST AID
EYES: Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Call a physician at once.
SKIN: Immediately flush with water for at least 15 minutes. Call a physician. If clothing comes in contact with the product, the clothing should be removed immediately and should be laundered before re-use.
INGESTION: Immediately drink large quantities of water. DO NOT induce vomiting. Call a physician at once. DO NOT give anything by mouth if the person is unconscious or if having convulsions.

INHALATION: If person experiences nausea, headache or dizziness, person should stop work immediately and move to fresh air until these symptoms disappear. If breathing is difficult, administer oxygen, keep the person warm and at rest. Call a physician. In the event that an individual inhales enough vapor to lose consciousness, person should be moved to fresh air at once and a physician should be called immediately. If breathing has stopped, artificial respiration should be given immediately. In all cases, ensure adequate ventilation and provide respiratory protection before the person returns to work.

IX. TOXICOLOGY AND HEALTH INFORMATION

ROUTES OF ABSORPTION

Inhalation, skin, eye, ingestion

WARNING STATEMENTS AND WARNING PROPERTIES

HARMFUL IN INHALED OR INGESTED. HARMFUL IF EXPOSED TO SKIN OR EYES.

HUMAN THRESHOLD RESPONSE DATA

ODOR THRESHOLD: Approximately 0.9 mg/m3 (0.3 ppm) based on odor of chlorine.

IRRITATION THRESHOLD: There is no data for irritation threshold. 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.

EYE

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

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.

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 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
AQUATIC TOXICITY:
Aquatic LC50 - approximately 0.6 mg/1 (bluegill)
approximately 1 mg/1 (daphnia, 48 hours)
CHRONIC TOXICITY:
There are no known or reported effects from repeated exposure.
REPRODUCTIVE TOXICITY:
There are no known or reported effects on reproductive function or fetal development

CARCINOGENICITY:
This product has been shown not to be carcinogenic. It is not included as a carcinogen by IARC, OSHA, NTP, or EPA.
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.
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 NO: 60

XI. SPILL AND LEAKAGE PROCEDURES
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-4 24-9300
REPORTABLE QUANTITY(POUNDS): 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
SPILL RESIDUES:
Dispose of per guidelines under Section XII, WASTE DISPOSAL.
PERSONAL PROTECTION FOR EMERGENCY SPILL AND FIRE-FIGHTING SITUATIONS:
Response to this material requires the use of self contained breathing apparatus (SCBA).
Additional protective clothing must be worn to prevent personal contact with this material, these items include but are not limited to boots, gloves, hard hat, impervious clothing, i.e. chemically impermeable suit. Compatible materials for response to this material are neoprene, butyl rubber, viton and saranex.
XII. WASTE DISPOSAL
If this product becomes a waste, it DOES NOT meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D.
As a nonhazardous liquid waste, it should be disposed of in accordance with local, state and federal regulations by treatment in a wastewater treatment system.
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.
SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT TITLE III: None Established
HAZARD CATEGORIES, PER 40 CFR 370.2:
HEALTH:
Immediate (Acute)

Delayed (Chronic)
PHYSICAL:
Fire
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

For Additional Information:
Contact: MSDS Coordinator - Omega chemistries.
During business hours, Pacific Time - 623-842-9304
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