



FOR ANY EMERGENCY, 24 HOURS / 7 DAYS, CALL:	1-800-654-6911 (OUTSIDE USA: 1-423-780-2970)
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC®:	1-800-424-9300 (OUTSIDE USA: 1-703-527-3887)
FOR ALL MSDS QUESTIONS & REQUESTS, CALL:	1-800-511-MSDS (OUTSIDE USA: 1-423-780-2347)

PRODUCT NAME: HTH® LIQUID CHLORINATOR
EPA Registration Number: 1258-1094

1. PRODUCT AND COMPANY IDENTIFICATION

Arch Chemicals, Inc. 501 Merritt 7 PO Box 5204 Norwalk, CT 06856-5204	REVISION DATE:	11/04/2009
	SUPERCEDES:	06/28/2009
	MSDS Number:	000000003301
	SYNONYMS:	Liquid bleach
	CHEMICAL FAMILY:	Hypochlorite
DESCRIPTION / USE:	swimming pool sanitizer	
FORMULA:	NaOCl In Water	

2. HAZARDS IDENTIFICATION

OSHA Hazard Classification:	Corrosive to eyes, skin and mucous membranes, Corrosive to respiratory tract.
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Routes of Entry:	Inhalation, skin, eyes, ingestion
Chemical Interactions:	No known or reported interactions.
Medical Conditions Aggravated:	Respiratory diseases including asthma and bronchitis

Human Threshold Response Data

Odor Threshold Not established for product.

SODIUM HYPOCHLORITE	Approximately 0.295 ppm (based on odor threshold of chlorine)
Irritation Threshold	Not established for product.

Hazardous Materials Identification System / National Fire Protection Association Classifications

<u>Hazard Ratings :</u>	<u>Health</u>	<u>Flammability</u>	<u>Physical / Instability</u>	<u>PPI / Special hazard.</u>
HMIS	3	0	1	
NFPA	3	0	1	



Immediate (Acute) Health Effects

Inhalation Toxicity:	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.
Skin Toxicity:	Dermal exposure can cause severe irritation and/or burns characterized by redness, swelling, and scab formation. Prolonged skin exposure may cause permanent damage.
Eye Toxicity:	Severe irritation and/or burns can occur following exposure. Direct contact may cause impairment of vision and corneal damage. Rinsing of the eye should take place immediately.
Ingestion Toxicity:	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.
Acute Target Organ Toxicity:	This product is corrosive to all tissues contacted and upon inhalation, may cause irritation to mucous membranes and respiratory tract.

Prolonged (Chronic) Health Effects

Carcinogenicity:	IARC (International Agency for Research on Cancer) reviewed studies conducted with several hypochlorite salts. IARC has classified hypochlorite salts as having inadequate evidence for carcinogenicity to humans and animals. IARC therefore considers hypochlorite salts to be not classifiable as to their carcinogenicity to humans.
Reproductive and Developmental Toxicity:	No reproductive or developmental risk to humans is expected from exposure to this product.
Inhalation:	Prolonged or repeated exposure will cause more severe irritation and possibly lung damage.
Skin Contact:	Repeated dermal exposure may cause tissue destruction due to the corrosive nature of this product.
Ingestion:	There are no known or reported effects from chronic ingestion except for effects similar to those experienced from single exposure. The acute corrosivity of this product, makes chronic ingestion of significant amounts unlikely.
Eye Contact:	Corneal involvement or visual impairment is expected. Prolonged contact may result in permanent damage.
Sensitization:	This material tested negative for skin sensitization in animals.
Chronic Target Organ Toxicity:	There are no known or reported effects from repeated exposure except those secondary to burns.
Supplemental Health Hazard Information :	No additional health information available.



3. COMPOSITION / INFORMATION ON INGREDIENTS

<u>CAS OR CHEMICAL NAME</u>	<u>CAS #</u>	<u>% RANGE</u>
SODIUM HYPOCHLORITE	7681-52-9	7.0 - 15.0
Water	7732-18-5	73.0 - 87.0
Sodium hydroxide	1310-73-2	0.5 - 2.5
SODIUM CHLORIDE	7647-14-5	5.0 - 11.0

4. FIRST AID MEASURES

General Advice:	Call a poison control center or doctor for treatment advice. For 24-hour emergency medical assistance, call Arch Chemical Emergency Action Network at 1-800-654-6911. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
Inhalation:	IF INHALED: Move person 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.
Skin Contact:	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.
Eye Contact:	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 rinsing eye. Call a poison control center or doctor for treatment advice.
Ingestion:	IF SWALLOWED: Call a poison control center or doctor immediately 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.

5. FIRE FIGHTING MEASURES

Flammability Summary (OSHA): Product is not known to be flammable, combustible, pyrophoric or explosive.

Flammable Properties

Flash Point: Not applicable
Autoignition Temperature: Not applicable



Fire / Explosion Hazards:	Material will not ignite or burn. Will release oxygen when heated, intensifying a fire
Extinguishing Media:	Choose extinguishing media suitable for surrounding materials.
Fire Fighting Instructions:	In case of fire, use normal fire-fighting equipment and the personal protective equipment recommended in Section 8 to include a NIOSH approved self-contained breathing apparatus.
Hazardous Combustion Products:	During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
Upper Flammable / Explosive Limit, % in air:	Not applicable
Lower Flammable / Explosive Limit, % in air:	Not applicable

6. ACCIDENTAL RELEASE MEASURES

Personal Protection for Emergency Situations: Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to boots, impervious gloves, hard hat, splash-proof goggles, impervious clothing, i.e., chemically impermeable suit, self-contained breathing apparatus.

Spill Mitigation Procedures

Air Release: Hazardous concentrations in air may be found in local spill area and immediately downwind. Vapors may be suppressed by the use of water fog.

Water Release: This material is soluble in water. Notify all downstream users of possible contamination. Divert water flow around spill if possible and safe to do so. Retain all contaminated water for removal and treatment.

Land Release: Create a dike or trench to contain materials. Absorb spill with inert material (e.g., dry sand, clay), then place in a chemical waste container. Avoid runoff into storm sewers and ditches which lead to waterways. Contain all liquids for treatment or disposal.

Additional Spill Information : Remove all sources of ignition. Stop source of spill as soon as possible and notify appropriate personnel. Utilize emergency response personal protection equipment prior to the start of any response. Evacuate all non-essential personnel. Dispose of spill residues per guidelines under Section 13, Disposal Consideration.

7. HANDLING AND STORAGE

Handling: Do not take internally. Avoid contact with skin, eyes and clothing. Upon contact with skin or eyes, wash off with water. Avoid breathing mist or vapor.

Storage: Store this product in a cool, dry area, away from sunlight and heat to avoid deterioration. Keep from freezing.

Incompatible Materials for Storage: Refer to Section 10, "Incompatible Materials."

Empty Container Warning: Empty containers retain hazardous residue, dispose of accordingly.



8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation: Local exhaust ventilation or other engineering controls are normally required when handling or using this product to keep airborne exposures below the TLV, PEL or other recommended exposure limit.

Protective Equipment for Routine Use of Product

Respiratory Protection : Wear a NIOSH approved respirator if levels above the exposure limits are possible.
Respirator Type : A NIOSH approved full-face air purifying respirator equipped with combination chlorine/P100 cartridges. Air purifying respirators should not be used in oxygen deficient or IDLH atmospheres or if exposure concentrations exceed ten (10) times the published limit.
Skin Protection : Wear impervious gloves to avoid skin contact. A full impervious suit is recommended if exposure is possible to a large portion of the body. A safety shower should be provided in the immediate work area.
Eye Protection: Use chemical goggles and a faceshield. Emergency eyewash should be provided in the immediate work area.
Protective Clothing Type: Neoprene, Nitrile, Natural rubber

Exposure Limit Data

<u>CHEMICAL NAME</u>	<u>CAS #</u>	<u>Name of Limit</u>	<u>Exposure</u>
SODIUM HYPOCHLORITE	7681-52-9	WEEL	2 mg/m3 STEL
Sodium hydroxide	1310-73-2	ZUS_ACGIH	2 mg/m3 CEIL
Sodium hydroxide	1310-73-2	ZUS_OSHAP1	2 mg/m3 TWA
Sodium hydroxide	1310-73-2	ZUS_ACGIH	2 mg/m3 C
Sodium hydroxide	1310-73-2	NIOSH-IDLH	10 mg/m3

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: liquid
Form: liquid
Color: yellowish-green
Odor: Chlorine-like
Molecular Weight: 74.50
Specific Gravity : 1.0800 - 1.2600
pH : 12.0 - 14.0
Boiling Point: Decomposes
Freezing Point: No data
Melting Point: No data



Density:	Not applicable
Vapor Pressure:	No data (@ 25 Deg. C)
Vapor Density:	No data
Viscosity:	No data
Fat Solubility:	No data
Solubility in Water:	soluble
Partition coefficient n-octanol/water:	No data
Evaporation Rate:	No data
Oxidizing:	No data
Volatiles, % by vol.:	87.500 - 94.500%
VOC Content	No data
HAP Content	No data

10. STABILITY AND REACTIVITY

Stability and Reactivity Summary:	Stable under normal conditions. Not sensitive to mechanical shock. Not sensitive to static discharge. Product will not undergo hazardous polymerization.
Conditions to Avoid:	Sparks, open flame, other ignition sources, and elevated temperatures., Avoid direct exposure to sunlight or ultraviolet (UV) light sources., Avoid freezing.
Chemical Incompatibility:	iron, copper, acids, ammonium compounds, organic materials, oxidizers
Hazardous Decomposition Products:	Chlorine containing gases
Decomposition Temperature:	No data

11. TOXICOLOGICAL INFORMATION

Component Animal Toxicology

Oral LD50 value:

SODIUM HYPOCHLORITE	LD50 = 8,910 mg/kg	Rat	
Sodium hydroxide	LD50	Believed to be 300 - 500 mg/kg	Rat
SODIUM CHLORIDE	LD50 = 3,000 mg/kg	Rat	

Dermal LD50 value:

SODIUM HYPOCHLORITE	LD50 > 2,000 mg/kg	Rabbit
Sodium hydroxide	no data available	
SODIUM CHLORIDE	LD50 > 10,000 mg/kg	Rabbit

Inhalation LC50 value:

SODIUM HYPOCHLORITE	Inhalation LC50 1 h > 10.5 MG/L	Rat
Sodium hydroxide	No data	
SODIUM CHLORIDE	Inhalation LC50 1 h > 42 MG/L	Rat



Product Animal Toxicity

Oral LD50 value: LD50 > 5,000 mg/kg Rat

Dermal LD50 value: LD50 > 2,000 mg/kg Rabbit

Inhalation LC50 value: Inhalation LC50 1 h > 10.5 MG/L Rat

Skin Irritation: This material is expected to be corrosive.

Eye Irritation: This material is expected to cause irreversible effects to the cornea with impairment of vision or corrosion to the eyes.

Skin Sensitization: This material tested negative for skin sensitization in animals.

Acute Toxicity: This product is corrosive to all tissues contacted and upon inhalation, may cause irritation to mucous membranes and respiratory tract.

Subchronic / Chronic Toxicity: Not known or reported to cause subchronic or chronic toxicity.

Reproductive and Developmental Toxicity: This product did not cause developmental effects in a study with laboratory animals.

Mutagenicity: This product has been tested for mutagenicity. Tests revealed both positive and negative results. Based on the weight of evidence, we judge this product NOT to be a mutagenic hazard.

SODIUM HYPOCHLORITE This product has been tested for mutagenicity. Tests revealed both positive and negative results. Based on the weight of evidence, we judge this product NOT to be a mutagenic hazard.

Sodium hydroxide This chemical has been shown to be non-mutagenic based on a battery of assays.

Carcinogenicity: IARC (International Agency for Research on Cancer) reviewed studies conducted with several hypochlorite salts. IARC has classified hypochlorite salts as having inadequate evidence for carcinogenicity to humans and animals. IARC therefore considers hypochlorite salts to be not classifiable as to their carcinogenicity to humans.

SODIUM HYPOCHLORITE This material did not cause cancer in long-term animal studies.

Sodium hydroxide This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP or EPA.

12. ECOLOGICAL INFORMATION

Overview: Moderately toxic to fish and other aquatic organisms.

Ecological Toxicity Values for: SODIUM HYPOCHLORITE

Bluegill	-	(measured, flow-through) 96 h LC50 = 2.13 mg/l
Fathead minnow (Pimephales promelas),	-	(measured, flow-through) 96 h LC50 = 1.37 mg/l
Daphnia magna,	-	(static). 24 h LC50= 0.18 mg/l



Ecological Toxicity Values for: Sodium hydroxide

Bluegill Mosquito fish - 96 h LC50 = 125 mg/l
- 48 h LC50 = 99 mg/l

13. DISPOSAL CONSIDERATIONS

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THE MATERIAL. THE USER OF THE 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.

Waste Disposal Summary : If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D002.

Disposal Methods : As a hazardous solid waste it should be disposed of in accordance with local, state and federal regulations.

Potential US EPA Waste Codes : D002

14. TRANSPORT INFORMATION

Land (US DOT): UN1791 HYPOCHLORITE SOLUTIONS 8 III
Water (IMDG): UN1791 HYPOCHLORITE SOLUTIONS, 8 III MARINE POLLUTANT

Flash Point: Not applicable
Air (IATA): UN1791 HYPOCHLORITE SOLUTIONS, 8 III
Emergency Response Guide Number: ERG # 154

Transportation Notes: Under specific circumstances, this product can ship under two transport exceptions, Limited Quantity or Consumer Commodity. See Bill of Lading for proper shipping description. Material is not regulated as a marine pollutant for ground transportation within the US if shipped in non-bulk packages.

EMS: F-A, S-B

15. REGULATORY INFORMATION

UNITED STATES:

Toxic Substances Control Act (TSCA): This is an EPA registered pesticide.
EPA Pesticide Registration Number: 1258-1094



FIFRA Listing of Pesticide Chemicals
(40 CFR 180):

This product is regulated under the Federal Insecticide,
Fungicide and Rodenticide Act. It must be used for purposes
consistent with its labeling.

Superfund Amendments and Reauthorization Act (SARA) Title III:

Hazard Categories Sections 311 / 312 (40 CFR 370.2):

Health Immediate (Acute) Health Hazard
Physical None

Emergency Planning & Community Right to Know (40 CFR 355, App. A):

Extremely Hazardous Substance Section 302 - Threshold Planning Quantity:

ZUS_SAR302 TPQ (threshold planning quantity) None established

Reportable Quantity (49 CFR 172.101, Appendix):

ZUS_CERCLA Reportable quantity Sodium hydroxide
Value: 1,000lbs
SODIUM HYPOCHLORITE
Value: 100lbs

ZUS_SAR302 Reportable quantity None established

Supplier Notification Requirements (40 CFR 372.45), 313 Reportable Components

ZUS_SAR313 De minimis concentration None established

Clean Air Act Toxic ARP Section 112r:

CAA 112R None established

Clean Air Act Socmi:

HON SOC None established

Clean Air Act VOC Section 111:

CAA 111 None established

Clean Air Act Haz. Air Pollutants Section 112:

ZUS_CAAHAP None established

ZUS_CAAHRP None established

CAA AP None established

State Right-to-Know Regulations Status of Ingredients

Pennsylvania:

CAS #	COMPONENT NAME
1310-73-2	SODIUM HYDROXIDE



7681-52-9 ZUSPA_RTK	SODIUM HYPOCHLORITE
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Pennsylvania: Hazardous substance list
1989-08-11
SODIUM HYDROXIDE
Environmental hazard

Pennsylvania: Hazardous substance list
1989-08-11
HYPOCHLOROUS ACID, SODIUM SALT
Environmental hazard

New Jersey:

CAS #	COMPONENT NAME
1310-73-2	SODIUM HYDROXIDE
7681-52-9	SODIUM HYPOCHLORITE

ZUSNJ_RTK

New Jersey Right to Know Hazardous Substance List (RTK-HSL)
2007-03-01
SODIUM HYDROXIDE SODIUM HYDROXIDE (Na(OH)) CAUSTIC SODA SODIUM
HYDRATE
Special Health Hazard - Corrosive

New Jersey Right to Know Hazardous Substance List (RTK-HSL)
2007-03-01
SODIUM HYPOCHLORITE HYPOCHLOROUS ACID, SODIUM SALT
Special Health Hazard - Corrosive

Massachusetts:

CAS #	COMPONENT NAME
1310-73-2	SODIUM HYDROXIDE
7681-52-9	SODIUM HYPOCHLORITE

ZUSMA_RTK

Massachusetts Right to Know List of Chemicals and Hazard Classifications
1993-04-24
SODIUM HYDROXIDE

Massachusetts Right to Know List of Chemicals and Hazard Classifications
1993-04-24
SODIUM HYPOCHLORITE HOUSEHOLD BLEACH

California Proposition 65:

CAS #	COMPONENT NAME
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ZUSCA_P65

None established

WHMIS Hazard Classification:

Ingredient Disclosure List (WHMIS)

2007-08-24

Threshold limits: 1 Weight percent

998

Sodium hydroxide

Ingredient Disclosure List (WHMIS)

2007-08-24

Threshold limits: 1 Weight percent

1013

Sodium hypochlorite

16. OTHER INFORMATION

MSDS REVISION STATUS : Revised to meet the ANSI standard of 16 sections

SECTIONS REVISED: 14

Major References : Available upon request.

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. ARCH CHEMICALS BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION BUT, MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MSDS IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT ARCH CHEMICALS MSDS CONTROL AT THE PHONE NUMBER ON THE FRONT PAGE TO MAKE CERTAIN THAT THIS DOCUMENT IS CURRENT. .