MATERIAL SAFETY DATA SHEET
(SODIUM HYPOCHLORITE)

I.   PRODUCT IDENTIFICATION

Chemical Name : Sodium Hypochlorite
Trade Name   : Industrial bleach, 7.0%
Synonyms   : Household bleach, Soda bleach, Chlorox

II.   COMPOSITION / INGREDIENTS

Sodium Hypochlorite, % : 7.0 – 9.0 % NaOCl by weight
Excess Caustic Soda   : 0.3-1.0% NaOH
    Chemical Formula : NaOCl
    Molecular Weight : 74.45 g/mole
    CAS Registry No. : NA

III.   HAZARDS IDENTIFICATION

THIS PRODUCT MAY BE : corrosive, toxic and a potential
    hazard upon contact to skin and eyes.
TOXICITY ROUTES OF EXPOSURE : Ingestion, inhalation, skin
    absorption and contact to eyes.
CANCER INFORMATION : Not applicable
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
    Constant irritant to eyes and throat. Concentration of 3-6
    ppm can cause irritation of the nose and mucous
    membrane of the upper respiratory tract followed by
    headache and coughing.

IV.   FIRST AID MEASURES

SKIN : Remove contaminated clothing and immediately wash
    skin for a minimum of 15 minutes.
EYES : Immediately flush eyes with water for a minimum of 15
    minutes. Seek medical attention immediately.
INHALATION : Remove to fresh air. If breathing stops,
    administer artificial respiration. See a physician.
INGESTION : DO NOT induce vomiting. If person is conscious,
    give 2 or more glasses of water. If unconscious, never give
    anything by mouth. DO NOT use baking soda or acidic
    antidotes. See a physician immediately.

V.   FIRE FIGHTING MEASURES

Flash Point: Non-flammable
Autoignition Point : Not Applicable
Flammability/Explosive limits : Not Applicable
Fire/Explosion Hazards: Decomposes when heated.
Fire Prevention/Extinguishing Agents: Not Applicable

VI.   ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR RELEASE: Do not allow spilled material
    to enter sewers or streams. Completely contain spilled
    material with dikes, sandbags, etc., and prevent run off
    into the ground or surface waters or sewers. Flush spills
    with water to dilute bleach as much as possible.
    Flush residual neutralized waste to the drain with large
    amount of water. Avoid heat and contamination with
    acid. Do not use combustible materials such as sawdust
    to absorb hypochlorite.

VII.   HANDLING AND STORAGE

Storage Requirements: Store in vented, closed, clean, non-
    corrosive containers in a cool dry location, away from
    direct sunlight and not adjacent to chemicals which may
    react with the bleach if spillage occurs. If closed
    containers become heated, the containers should be
    vented to release decomposition products (mainly
    oxygen under normal conditions.
FOR SMALL VOLUMES: Store in plastic bottles or jugs.
    Maybe stored in amber glass bottles.
FOR LARGE VOLUMES: Store in HDPE plastic storage tanks.

VIII. EXPOSURE CONTROLS AND PROTECTION

No special ventilation required unless bleach is exposed to
decomposition condition; i.e., spills or acidic conditions.
Protective Equipment for the eyes, hand and skin :
    Goggles, disposable latex/ rubber apron, PVC or rubber
    gloves, rubber boots with pant legs over boots.

Precautionary Hygiene/control measures :
    Avoid contact with skin, eyes, and clothing.
    Do not breathe mist or vapor. Wash thoroughly after
    handling. Safety showers and eye wash fountains
    should be available in storage and handling area.

IX.   PHYSICAL AND CHEMICAL PROPERTIES

STATE   :   liquid
APPEARANCE   : clear yellow solution
ODOR   :   pungent like chlorine
pH   : basic >12; strong alkali
BOILING POINT   :   decomposes
FLASH POINT   ; Not determined
SPECIFIC GRAVITY : 1.120-1.140
VAPOR PRESSURE :   Not determined
SOLUBILITY IN : WATER: miscible, ACID : decomposes

MATERIAL SAFETY DATA SHEET
(SODIUM HYPOCHLORITE**)**

X. STABILITY AND REACTIVITY

Stability: Unstable. Stability decreases with concentration, heat, light exposure, and decrease in pH and contamination with heavy metals.

Materials and conditions to avoid (incompatibility) are: Avoid contamination with heavy metals, such as nickel, copper, cobalt, and iron; reducing agents, ether, ammonia and acids, as these materials would hasten decomposition. Avoid heat.

Hazardous decomposition products: Hypochlorous acid (HOCl), chlorine, hydrochloric acid. Other decomposition products, which depend upon pH, temperature and time, are sodium chloride, sodium chlorate and oxygen.

Hazardous polymerization will not occur.

XI. TOXICOLOGICAL INFORMATION

TOXICITY EFFECTS:

Skin Absorption: Irritating effects increase with strength of solution and time exposure. Liquid contact can cause local irritation and burns. Sodium hypochlorite vapors can cause irritation, burning and blisters.

Inhalation: Exposure to humans to 0.5 ppm for 8 hours and 1ppm for 4 hours caused transient decrease in pulmonary capacity , as measured by pulmonary function tests.

Eyes: Contact can cause local irritation. High concentration may cause blindness.

Ingestion: Swallowing of sodium hypochlorite can cause burning and pain in lips, mouth, tongue, throat and stomach. Severe scarring of the throat can occur after swallowing.

XII. ECOLOGICAL INFORMATION

ECOTOXICITY DATA: May pose potential hazard to plant and marine or aquatic life at high concentration. If not diluted, it may seriously affect aquatic life.

XIII. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Reduce with chemicals listed as neutralizing chemicals. Keep on alkaline side and dilute with large quantities of water. Main end product is salt water (NaCl).

Neutralizing Chemicals: Reducing agents such as bisulfites or ferrous salt solutions or urea for low bleach concentration. Heat will be produced.

Dispose of in accordance with all Government and Local regulations.

XIV. TRANSPORT INFORMATION

Transportation of Dangerous Goods
TDG Classification: Do not ship by air.
DOT Hazard Classification: Class 8 : Corrosive
DOT Shipping Name : Sodium Hypochlorite ID: NA
Label as required by OSHA Hazard Communication Standard and any applicable state and local regulations.

XV. REGULATORY INFORMATION

No data available

XVI OTHER INFORMATION

This MSDS contains information under the sixteen (16) section headings written in accordance with the International Standard ISO 11014 "*Safety Data Sheet for Chemical Products*".