Safety Data Sheet
SODIUM HYPOCHLORITE

I. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Sodium Hypochlorite, 7.10% min.
Recommended use of the chemical and restrictions on use	Chemical intermediate, disinfectant, bleaching agent, chlorination of water, waste water treatment
Manufacturer	**Mabuhay Vinyl Corporation**
Head Office	22F The Salcedo Towers, 169 H.V. Dela Costa St., Salcedo Village, Makati City For Assistance Call : (02) 8817-8971 to 76; Fax Number (02) 8816-4785
Iligan Plant	Assumption Heights, Buru-un, Iligan City Tel: (063) 221-3180, 221-1190; Fax: (063) 221-1753
Premium Bleach Plant	Laguna Technopark, Biñan, Laguna
Batangas Depot	BBTI Compound, Bauan, Batangas Tel: (043) 980-5869, (043) 980-5349
Cebu Depot	J.M. Ceniza St., Looc, Mandaue City Tel: (032) 344-5259, (032) 345-0639
Davao Depot	Bunawan, Davao City Tel: (082) 236-0015

II. HAZARDS IDENTIFICATION

Hazard Classification
Skin corrosion: Category 1B - H314
Serious eye damage: Category 1 - H314
Acute toxicity (oral): Category 4 – H302
Specific target organ toxicity (single exposure, Respiratory tract irritation): Category 3 - H335
Hazardous to the aquatic environment (acute toxicity): Category 1 - H400
Corrosive to metals: Category 1 - H290

Symbols

Signal Word: DANGER

Hazard statements:
H314: Causes severe skin burns and eye damage.
H335: May cause respiratory irritation.
H290: May be corrosive to metals.
H302: Harmful if swallowed.
H400: Very toxic to aquatic life.

Precautionary statements:

Prevention
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P273: Avoid release to the environment.
P264: Wash hand thoroughly after handling.
P280: Wear protective gloves/protective clothing/eye protection /face protection.

Response:
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P301+ P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical advice/attention.
P303+P361+P353: IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water/shower.
P363: Wash contaminated clothing before reuse.
P310: Immediately call a POISON CENTER or doctor/physician.
P390: Absorb spillage to prevent material damage.

Storage:
P403: Store in a well ventilated place.
P410: Protect from sunlight.
P233: Keep container tightly closed.
P405: Store locked up.

Disposal:
P501: Dispose of contents/container in accordance with local/regional /national regulations

Additional labeling requirements:
EUH031: Contact with acids liberates toxic gas. (Specific concentration limit >= 5%)

III. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Identity	Sodium Hypochlorite, 7.10% min.
Trade Names/ Synonyms	Household bleach, soda bleach, hypochlorous acid, sodium oxychloride

Component Name	CAS Number	Concentration,%
Sodium hypochlorite	7681-52-9	7.10, min
Sodium hydroxide	1310-73-2	0.40-1.0
Water	7732-18-5	92.0, max.

IV. FIRST AID MEASURES

Description of first-aid measures: In all instances, seek immediate medical attention.

Inhalation: Move to fresh air. In case of shortness of breath, give oxygen. Apply artificial respiration only if patient is not breathing. Avoid mouth-to-mouth contact

Ingestion: Rinse mouth. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Do not induce vomiting. Keep patient warm. In case of shortness of breath, give oxygen.

Skin contact: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally.

Most important symptoms/effects, both acute and delayed
Causes burns in the mouth and throat and vomiting; irritation of eyes and nose, sore throat, cough, chest tightness, headache, ataxia and confusion; immediate pain, irritation, lacrimation, burning sensation or transient corneal injury of the eyes; and irritation and contact dermatitis in skin. Pulmonary edema may occur up to 36 hours after exposure.

Indication of any immediate medical attention and special treatment needed: Do not use emesis, lavage or acidic antidotes. Avoid sodium bicarbonate. Sodium thiosulfate solution may be used to reduce unreacted material. Endotracheal intubation could be needed if glottic edema compromises the airway. For individuals with significant inhalation exposure, monitor arterial blood gases and chest x-ray.

V. FIRE FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Regular dry chemical, carbon dioxide, fine water spray, regular foam

Unsuitable extinguishing media: High volume water jet.

Special hazards arising from the substance or mixture: Nonflammable but is decomposed by heat and light, causing a pressure build-up resulting to explosion. When heated, it may release chlorine gas or hydrochloric acid. Reaction with oxidizable or organic materials may result in fire.

Special protective actions for firefighters: Fight fire from safe location. Do not breathe fumes. Firefighters should wear proper protective equipment and self contained breathing apparatus with full face-piece operated in positive pressure mode. Containers close to fire should be removed immediately or cooled with water. DO NOT use dry chemical fire extinguishing agents containing ammonium compounds (such as A:B:C agents) since an explosive compound can be formed.

VI. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Slippery when spilt. Put on protective equipment (see Section 8). Avoid direct contact with skin, eyes and clothing. Do not breathe vapor or fumes. Work up wind or increase ventilation. Ensure adequate ventilation.

Environmental precautions: Avoid entry of product into drains, sewers, surface/ground water system or soil.

Methods and material for containment and cleaning up: Shut off the source of the leak if conditions are safe. Absorb in dry sand or earth and place into containers for proper disposal. Neutralize with sodium sulphite, bisulfite or thiosulfate, and then flush with plenty of water. Do not use combustible materials, such as saw dust. Do not use sulphates or bisulphates for spill neutralizing.

VII. HANDLING AND STORAGE

Precautions for safe handling:
Use protective equipment (see Section 8). Provide adequate ventilation. Do not breathe mist, or gas. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Store dry and well-ventilated place below 29°C. Protect from light and heat. Contents may develop pressure upon prolonged storage. Keep storage temperatures.

Suitable packaging material: polyethylene, polypropylene, polystyrene, PVC, CPVC, glass fiber- reinforced plastics, rubber-lined steel (¾" thickness)

Non suitable packaging material: carbon steel, stainless steel, copper and its alloys, aluminum, unprotected metals, epoxy, elastomers

Keep away from light, heat, acids, alkalis, ammonia, urea, reducing and oxidizing agents, combustibles, metals

VIII. EXPOSURE CONTROLS AND PROTECTION

Control parameters
Exposure limits
AIHA (WEEL) - Sodium Hypochlorite: 2 mg/m^3 (STEL)
OSHA Permissible Exposure Limit (PEL) -
Sodium Hydroxide: 2 mg/m^3 Ceiling
Chlorine (from Sodium Hypochlorite): 0.5 ppm (TWA), 1 ppm (STEL)
ACGIH Threshold Limit Value (TLV) –
Sodium Hydroxide: 2 mg/m^3 Ceiling
Chlorine (from Sodium Hypochlorite): 0.5 ppm (TWA), 1 ppm (STEL), A4

Appropriate engineering controls: Ensure adequate ventilation.

Individual protection measures/personal protective equipment: Final choice of appropriate protection will vary according to methods of handling or engineering controls and according to risk assessments undertaken.

Respiratory protection: NIOSH-approved full- or half-facepiece respiratory equipment with cartridge(s) providing protection against the compound of concern. For emergency or planned entry into unknown concentrations or IDLH conditions, use any self-contained breathing apparatus with a full facepiece or any supplied air respirator with a full facepiece.

Hand protection: rubber, nitrile, neoprene or PVC gloves

Eye / face protection: safety glasses with side shields

Skin protection: suitable protective workwear, including boots, lab coat, apron or coveralls as appropriate, to prevent skin contact.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear, yellow green liquid
Odor	Pungent, chlorine-like odor
Odor threshold	0.9 ppm
pH	> 12
Freezing point	< -10 °C
Boiling point /range	105 °C , approx.
Flash point	Not applicable
Evaporation rate	Not available
Flammability	Not applicable
Flammability/explosive limits	Not applicable
Vapor pressure	20 mmHg @ 20 °C
Vapor density	1.2 (air=1)
Specific gravity (30°C), min.	1.108
Solubility	Completely soluble (water)
Partition coefficient: n-octanol/water	Log K_{ow} = -3.42
Auto-ignition temperature	Not applicable
Decomposition temperature	40 °C
Viscosity	2.6 mPas at 20°C

X. STABILITY AND REACTIVITY

Reactivity: Reacts violently with acids with chlorine releasing.

Chemical stability: Stable under normal ambient and anticipated storage and handling conditions. Stability decreases with concentration, heat, light exposure, decrease in pH and contamination with heavy metals. Unstable and decomposes at pH<11 or upon heating, with chlorine releasing.

Possibility of hazardous reactions Hazardous polymerisation will not occur. Reacts exothermically with acids . Reacts with ammonia, amines and ammonium salts to produce chloramines. Extremely corrosive for aluminium, brass. Reacts with metals (nickel, cobalt, copper, iron, tin) with oxygen release.

Conditions to avoid: Light, heat and incompatibles.

Incompatible materials: Acids, metals and metal salts, amines, ammonia and ammonium salts, urea, ethylene glycol, formic acid, methanol, reducing and oxidizing agents, cellulose, organics and combustible material, peroxides, EDTA.

Hazardous decomposition products: Chlorine gas, hydrochloric acid, hypochlorous acid

XI. TOXICOLOGICAL INFORMATION

Routes of exposure: inhalation, ingestion, skin and eye contact

Potential acute effects

Inhalation: Irritant to respiratory tract. May cause irritation of eyes and nose, sore throat, cough, chest tightness, headache, ataxia and confusion. Pulmonary edema may occur up to 36 hours after exposure.

Ingestion: Can result in nausea, vomiting, diarrhea, abdominal pain and chemical burns to the gastrointestinal tract.

Skin contact: May cause irritation and contact dermatitis, but any effects on intact skin are highly unlikely.

Eye contact: May cause immediate pain, irritation, lacrimation, burning sensation, and transient corneal injury.

Chronic effects: Prolonged or repeated eye contact may cause conjunctivitis. Prolonged or repeated inhalation may cause allergic respiratory reaction (asthma).

Numerical measures of toxicity

LD_{50}: 8910 mg/kg (undiluted) (Rat, oral)
5800 mg/kg (Mouse, oral)
>20 g/kg (Rabbit male/female, dermal)

LC_{50}: Greater than 10,000 mg/m^3 for 1 hour exposure (Inhalation, rat)

Primary Skin Irritation: (rabbit) > 2 mg/kg

XII. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life.

96-hour LC50 : fathead minnows: 0.090-5.9 mg/L
Bluegill sunfish: 0.10-2.48 mg/L
shore crab: 1.418 mg/L
grass shrimp: 52.0 mg/L,
scud: 0.145-4.0 mg/L
water flea: 2.1 mg/L.

Persistence and degradability:

Biodegradation (In water): Reacts rapidly with organic matter, e.g. sewage, soil, leading to ultimate reduction to chloride.

Photodegradation (In air): In water, under photolysis, sodium hypochlorite with concentration of13-18 mg/L, has a half-life of 12 min. at pH =8. This increases up to 60 min. with pH decreasing.

Bioaccumulative potential : An accumulation in organisms is not to be expected.

Mobility in the soil. Soluble in water. Readily absorbed into soil

Other adverse effects. Because of the high pH of this product, it would be expected to produce significant ecotoxicity to aquatic or terrestrial organisms systems.

XIII. DISPOSAL CONSIDERATIONS

Empty containers must be decontaminated. Dispose of in accordance with all Government and Local regulations.

XIV. TRANSPORT INFORMATION

UN Number 1791
UN Proper Shipping Name HYPOCHLORITE SOLUTION
Transport hazard class 8(Corrosive)
Packing group III

Label
Environmental Hazards
Marine Pollutant : Yes
Environmentally Hazardous : No

IMDG
ADR(Road), AND(Water), IATA (Air)

XV. REGULATORY INFORMATION

U.S. Regulations :

TSCA: Listed

OSHA CLASSIFICATION, 29 CFR §1900-1910:

Physical Hazards: Reactivity
Health Hazards: Acute - Skin Sensitizer, Corrosive

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

Reportable Quantity = 100 lb.
CERCLA Hazardous Material: Yes
Title III Hazard Classifications:

Acute – yes
Chronic – no
Fire – yes
Reactivity - yes
Sudden Release of Pressure - No

This product may be reportable under the requirements of 40 CFR §370.

SARA Extremely Hazardous Substance: No **SARA Toxic Chemical:** No
CA Prop 65: No
FDA 21 CFR 178.1010: Yes, Approved as Sanitizer

EPA "CLEAN AIR ACT": This product does not contain nor is it manufactured with ozone depleting substances. It is not defined as a Hazardous Air Pollutant per 40 CFR 112.

Canadian Regulations

DSL : Listed
WHMIS Classification: E

European Regulations

Danger/Hazard Symbol: C Corrosive

EC Risk and Safety Phrases:

R 31 Contact with acids liberates toxic gas.
R 34 Causes burns.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 50 Do not mix with acid

Global Inventories

On the inventory, or in compliance with the inventory

Australian Chemical Inventory(AICS)
China Chemical Inventory(IECSC)
European Union Inventory(EINECS)
Japan Chemical Inventory(ENCS)
Korean Chemical Inventory(KECI)
New Zealand Chemical Inventory(NZIOC)
Philippines - Priority Chemical List(PICCS)

XVI. OTHER INFORMATION

The information herein is presented in good faith and believed to be correct as of the date of issue. However, no warranty, expressed or implied, is made by Mabuhay Vinyl Corporation regarding the product's merchantability, fitness for a particular purpose, performance, safety or stability. This information is not intended to be all-inclusive as to the manner and conditions of use, handling, storage, disposal and other factors that may involve other or additional legal, environmental, safety or performance considerations, and Mabuhay Vinyl Corporation assumes no liability whatsoever for the use of or reliance upon this information. No suggestions for use are intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patents or to violate any existing laws or regulations.

End of Safety Data Sheet