

# Material Safety Data Sheet


## 1. Identification of the Product & Company

Product Name : <b>Sodium Hypochlorite</b>
Other Name : —
Suggested Use and Restriction :
Company Name, Address, and Telephone No. : Yee Fong Chemical & Industrial Co., Ltd. Taoyuan Plant/No. 377, Haihu E. Rd., Lujhu Township, Taoyuan County, Taiwan
Emergency Telephone No./Fax No. : TEL : (03) 3541944 ; FAX : (03) 3541957

## 2. Hazard Identification

GHS Classification :
<ol style="list-style-type: none"><li>1. Acute Toxicity Category 3 (Inbreathe)</li><li>2. Metal Corroded Substance Category 1</li><li>3. Corrosive/Skin Irritated Substance Category 1</li><li>4. Serious Damage/Eyes Irritated Substance Category 1</li><li>5. Water Environmental Damaged Substance Category 2</li></ol>

Label Element :

- Symbol : 
- Signal Word : **Warning**
- Hazard Statement :
  1. Poisoned if breathe in.
  2. Causes metal erosion.
  3. Causes skin burning and eyes damage.
  4. Causes serious eyes damage.
  5. Poison for aquatic animals.
- Precautionary Statements :
  1. Wear protective equipment when operating.
  2. If in eyes, rinse with water and seek for medical advice.
  3. Keep away from heat, sunlight, and acidic substances.
  4. If leaking, rinse with water to pour into waste water processing station. Do not neutralize with acid to avoid leaking chlorine.

Other Hazard : -

### 3. Composition, Information on Ingredients

English Name : Sodium Hypochlorite
Synonym : NaOCl, Bleach, Hypochlorous Acid, Sodium Salt, Liquid Bleach, Sodium Oxychloride
CAS No. : 07681-52-9
Hazardous Ingredients(%) : 12%(Effective Chlorine), NaOH(<3)

### 4. First Aid Measures

First Aid Procedures Under Different Exposure :

- In Breathe :
  1. Medical personnel should wear suitable protective equipment.
  2. Remove contaminants or move patient to air-freshing area.
  3. If patient is not breathing, do artificial respiration.
  4. If patient' s heart is not beating, do cardiopulmonary resuscitation

<p>immediately.</p> <ul style="list-style-type: none"> <li>• Skin Contact : <ol style="list-style-type: none"> <li>1. Wear gloves to avoid direct contacting the chemicals.</li> <li>2. Flush with plenty of warm water immediately for over 20 minutes.</li> <li>3. Take off contaminated clothes and shoes while in flushing.</li> <li>4. Seek for medical advice immediately.</li> </ol> </li> <li>• Eye Contact : <ol style="list-style-type: none"> <li>1. Rinse with warm water immediately for over 20 minutes.</li> <li>2. Be cautious of contaminated water flow into another eye.</li> <li>3. Keep rinsing with warm water if irritation is persisting.</li> <li>4. Seek for medical treatment immediately.</li> </ol> </li> </ul>
<p>The Most Dangerous Symptoms &amp; Hazardous Effects : High corrosive will cause irritation and ablepsia; even pulmonary edema.</p>
<p>Protection for Medical Personnel : Personnel are not allowed to enter contaminated area to remove patient if not wearing level A protective clothes. Personnel should wear level C protective equipment to do first-aid in safe area.</p>
<p>Doctor' s Advices : If in breathe, give patient oxygen, avoid doing gastric lavage or vomiting.</p>

## 5. Fire Fighting Measures

<p>Suitable Extinguishing : Chemical loose powder, carbon dioxide, Water mist, Foam</p>
<p>Specific hazard that may be encountered when extinguishing :</p> <ol style="list-style-type: none"> <li>1. Sodium hypochlorite will not burn itself, but it is an oxidizer and combustible.</li> <li>2. Containers can be cooled by water, but stay in safe distance to avoid the explosion of containers.</li> <li>3. Sodium Hypochlorite will leaks chlorine gas after decomposing.</li> </ol>
<p>Specific Extinguishing Procedures :</p> <ol style="list-style-type: none"> <li>1. Put out fire in safe and protective range.</li> <li>2. NaOCL may produce chlorine gas in high temperature on fire, stay in upwind place to avoid dangerous vapor or toxic decomposer.</li> <li>3. Quarantine the unfired substances and protect personnel' s safe.</li> <li>4. Withdraw the containers from the fire place in safety.</li> </ol>

5. Cool the containers and storage tanks which are exposed in fire place.
6. Remove all the inflammable and flammable substances, especially olein or lubricant.
7. Fire in large-scale area should use auto water-spray controller or auto fire-fighting equipment.
8. Personnel who doesn' t wear protective equipment are not allowed to enter in.

Specific Protection and Equipment for Fire-fighters : Fire-fighters should wear A class airtight chemical protective cloth and air-respirator.

## 6. Accidental Release Measure

Personal Precautions :

1. Restrict to enter contaminated area before cleaning complete.
2. Confirm the cleaning work is responsible for by well-trained personnel.
3. Wear personal protective equipment.

Environmental Consideration :

1. Keep the leaking area dry and cool.
2. Put out or remove all the fire-burning substances.
3. Remove all the substances which can react to leaking substance.
4. Report to the security or environmental organization.

Cleaning Method :

1. Block the leaking substance and scoop it up in safety.
2. Avoid the leaking substance flow into sewer, ditch, or other airtight area.
3. Neutralize the substance which is remained and wash the leaking area.
4. Use sand, soil, or other insert materials to block the leaking substance,
5. If the substance is leaking too much, call the supplier, fire-fighter, or emergency department for helping.

## 7. Handling & Storage

Handling :

1. The material is corrosive and needs for engineering control and

<p>protection equipment. Personnel should be well-trained and be told the dangerous of the substance and the safe of operate methods.</p> <ol style="list-style-type: none"> <li>2. Personnel without any protection should avoid operating any equipment which contaminated by material.</li> <li>3. If material is leaked, wear mask protection and leave the contaminated area.</li> <li>4. Report immediately if the material is leaked or the air is airtight.</li> <li>5. Examine whether leaking or not before operate.</li> <li>6. Use container that manufacturer suggest.</li> <li>7. Operating area and store area should be separated.</li> <li>8. Do not reuse the contaminated material.</li> </ol>
<p>Storage :</p> <ol style="list-style-type: none"> <li>1. Keep away from heat or sunlight and stored in cool and dry area.</li> <li>2. Containers should be labeled and tightly closed.</li> <li>3. Keep away from different materials and different working area.</li> <li>4. Using incorrupt lighting and air system.</li> <li>5. Examine whether leak or damage in regular and avoid storing overdue.</li> <li>6. Restrict unrelated workers enter storage area.</li> <li>7. Keep away from heat, spark, and fire.</li> </ol>

## 8. Exposure Controls

<p>Engineering Controls : 1. Use anti-corrosiveness air-system and separated from other air-system. 2. Use partial exhaust duct. 3. The ventilator should be connected to outside. 4. Supply enough fresh air to the system which exhausts too much air.</p>			
Control Parameters			
Average Allowable Concentration of Eight Hours Time Weighted	Average Allowable Concentration of Short Period	Maximum Allowable Concentration	Biological Indicators:
—	—	—	—
<p>Personal Protection :</p>			

- Respiratory Protection : Chemical Protective Respirator
- Eye Protection : Chemical Goggles, whole-face mask, eye-washing machine.
- Hand Protection : Rubber Gloves
- Skin & Body Protection: Wear imperious clothing such as boots or body suits.  
Body and eye flushing equipment is required in working place.

Hygienic Measures :

1. Take off contaminated clothes immediately after work and clean thoroughly before wearing or abandoning. Be sure to tell the danger of contaminants to cloth-washing personnel.
3. Do not smoke, eat, and drink.
4. Wash hands thoroughly after processing.
5. Maintain the working place cleaned.

## 9. Physical and Chemical Properties

Appearance : Light Yellow Liquid	Odor : Irritated Smell of Chlorine and Blanding Water.
Odor Threshold : 0.08ppm	Melting Point : -
PH : >13	Boiling Point/Boiling Range : 96~120°C
Inflammability (solid/ liquid) : -	Flash Point: -
Decomposition : >40°C Decomposed	Test Method : -
Ignition Temperature : -	Explosion Limits : -
Vapor Pressure : 6.64ppm@20°C	Vapor Density : -
Density : 1.21@20°C (water=1)	Solubility : Can be solved with water
Octanol/Water Partition Coefficient (log Kow) : -	Evaporation Rate : -

## 10. Stability & Reactivity

Stability : Stable under ordinary conditions of use and storage.

Hazardous Reaction under Specific Conditions : -

Conditions to Avoid :

1. Decomposed slowly and accelerate in heat and sunburn.
2. No Polymerization.
3. Flammable and inflammable substance: increase the danger of fire and explosion.
4. Nitride: Composed to toxicity substance.
5. Ammonium: If in acidity, it will compose to explosive nitrogen trichloride.
6. Acid(especially Hydrochloric Acid): Produce Chlorine.
7. Methanol: Composed to explosive methyl hypochlorite
8. Metal: Accelerating the decomposed of sodium hypochlorite.
9. The solution can corrode majority of metal.

Substances to be Avoided : Nitride, Sunlight, Ammonium, Hydrochloric Acid, Methanol. Metal: Magnesium, Zinc, Copper, Nickel, Iron.

Hazardous Decomposition : Chlorine

## 11. Toxicological Information

Routes of Exposure : Breathe in, Skin contact, Eye contact, Swallow

Symptoms : Coughing, Hard Breathing, disgusting, Vomiting, Rotten and Discolor Teeth.

Acute Toxicity :

**Inbreathe:**

1. Droplet causes nose, pharynx, and the upper respiratory tract serious irritate.
2. Composed with acid or heat to over 40°C will produce chlorine gas.
3. Chlorine will irritate nose and throat, if in high consistency will damage lung seriously.
4. Combine with nitride will produce irritating chloramine vapor.

**Skin Contact:**

1. Droplet and solution will causes serious skin irritation, burning, even chemical burning.

**Eye Contact:**

1. Droplet and solution will causes serious eyes irritation, if consistency is high may damage eyes seriously.
2. Chlorine and chloramine vapor are also irritate for people.

**Ingest:**

Causes irritation and corrosion for gullet; it also may causes nausea, vomit, diarrhea, convulsions, and pain.

LC50(Animal Test, Exposure Way): —

LC50(Animal Test, Exposure Way): 8.9lgr/kg(Big Rat, Ingest)

Chronic Toxicity and Long-term Toxicity : 1. Allergic Contact Dermatitis  
2. Affection for Respiratory System

## 12. Ecological Information

Eco-toxicity : LC50(Fish): 5.9mg/l/96H

Persistence and Degradability : —

Bioaccumulation : —

The Liquidity of the Soil : —

Other Adverse effects : —

## 13. Disposal Considerations

Refer to Toxic Chemical Substances Control Act, the industrial waste storage, clearance and processing methods and related laws, prohibit indiscriminate dumping.

## 14. Transport Information

UN NO. : 1791

International Shipping Name : Chlorine

Hazard Classification of Transportation: Corrosive Substance Category 8.

Packing Group : III



Marine Pollutant (Yes/No) : <a href="#">Yes</a>
Specific Delivery Methods and Precautions : <a href="#">Refer to traffic safety code-rule 84.</a>

## 15. Regulatory Information

Applicable Laws & Regulation :
1. <a href="#">Labor Safety and Sanitation rules</a>
2. <a href="#">Organic solvent poisoning prevention rules</a>
3. <a href="#">The rules of the traffic safety</a>
4. <a href="#">General rules of the dangerous and harmful materials</a>
5. <a href="#">Standards of permissible concentration of harmful substances in the working environment</a>
6. <a href="#">Storage of industrial waste clean-up processing methods and facilities standards</a>

## 16. Other Information

Reference	<a href="#">1. CHEMINFO Archives, CCINFO Disk, 99-2</a> <a href="#">2. RTECS Archives, TOMES PLUS Disk, Vol.41, 1999</a> <a href="#">3. HSDB Archives, TOMES PLUS Disk, Vol.41, 1999</a>	
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	Add./No. : <a href="#">Yee Fong Chemical &amp; Industrial Co., Ltd. Taoyuan Plant/No.377, Haihu E. Rd., Lujhu Township, Taoyuan County, Taiwan. /(03)354-2161</a>	
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