Section 1 - Product and Company Identification

Product name：Sodium Hydroxide
Other names：NaOH
Product use：Chemical manufacture, Rayon and cellophane, Neutralizer of the fine fuel; Pulp and paper; aluminum; detergent; soap; fabric treating; plant oil manufacture; regenerated rubber; regenerated ion exchange resin organic melt; peeling of the vegetable and fruits in the food industry; experimental tester; etching and coating; food additives.
Supplier's name：San Fu Chemical Co., Ltd.,
Supplier's address：1,Sec.1,Huanyuan E..Rd.,Liuying Dist.,Tainan, Taiwan 736.
Supplier's phone：886-6-6231821 Emergency phone：886-6-6231821
FAX.：886-6-6231822

Section 2 - Hazards Identification

Classification：

1. Acute Toxicity Category 4 (skin)
2. Corrosive to Metal Category 1
3. Skin Corrosion/ irritation Category 1
4. Serious eye damage/ irritation Category 1

The Most Important Hazards and effect

Label element：

- Hazard symbol：Corrosive, Exclamation mark

- Signal word：Danger

Hazard warning message:

1. Harmful with contact
2. May corrosive to metal
3. Cause serious skin burn and eye damage
4. Cause serious eye damage

Precautionary statement：

1. If contact with eyes, flush with large amount of water immediately seek medical attention.
2. In case of accident or if you feel unwell, seek medical attention immediately.

Others Hazard：--

Section 3 - Composition/Information On Ingredients

Pure Substance：

Chemical name：Sodium Hydroxide
Synonyms：Caustic soda、Caustic flake、LYE、Soda lye、Sodium hydrate、White caustic、Hydroxydede sodium (solide)、Sodium hydroxide
CAS No.：1310-73-2
Ingredient contributing to the hazard(%)：45%

Section 4 - First Aid Measures

The First-aid Information：

■ Inhalation：

1. Before rescue, required proper and safety protective equipments to ensure the self safety.
2. Remove the contaminated origin or move the patient to an air-circulated place.
3. If patient is difficult in breathing, provide the oxygen by train personnel with the prescription of the Doctor.
4. Avoid unnecessary moving of the patient.
5. Pulmonary edema syndrome may be delay appear.
6. Seek medical attention immediately.

■ Skin Contact：

1. Avoid direct contact with chemicals, required impervious gloves if necessary.
2. Gently suck or brush off the extra chemicals immediately.
3. Gently wash the contaminated place for 60 minutes.
4. Do not interrupting during washing.
5. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing, shoes, and leather product.
6. Seek medical attention immediately.
7. The contaminated clothing, shoes, and leather product must be washed before reuse or dispose.

■ Eye Contact：

1. Avoid direct contact with chemicals, required impervious gloves if necessary.
2. Gently suck or brush off the extra chemicals immediately.
3. In case of contact, immediately flush eyes with gentle water for 60 minutes. Keep eyelid apart and away from eyeballs during irrigation.
4. In the possible condition use normal saline to wash and do not interrupt.
5. Avoid washed water to attach to the unaffected eye.
6. If the irritation remains, repeat flushing.
7. Seek medical attention immediately.

■ Ingestion：

1. If the patient lost of consciousness or cramp, don’t give any food.
2. Rinse the mouth with water
3. Don’t induce vomit
4. Give 240~300ml water to the patient for the patient to dilute the substance in the stomach.
5. If there’s milk, provide the milk after the water.
6. If the patient vomits spontaneity, lean forward the patient to prevent inhalation of the vomit. Give repeatedly the water.
7. Seek medical attention immediately.

The Most Important Symptoms and Hazardous Effects：Severe burn, ulcer and permanent redness. Cause permanent blind.

Protection of First-aiders：

1. Personnel are not allowed to enter the disaster area to move the patient without chemical protective clothing and respirator.
2. Wear proper protective equipments to practice the first aid in the safety area.

Notes to a Physician：

1. Consider providing the oxygen if patient inhaled the substance. 2. Avoid Gastric lavage and induce vomit.

Section 5 - Fire Fighting Measures

Extinguishing Media：Choose the proper fire-extinguishing chemicals in accordance with the burning substance.
Specific Hazards when Fire-fight： 1. Do not burn but may react with some material (like water). It will generate heat enough to ignite the flammable material nearby. 2. React with some metal like aluminum, tin, zinc, and release the flammable hydrogen.
Specific Fire-fighting Procedure： 1. Evacuate to the safety distance or protective area for fire fighting. Separate the non-burning substance and protect the staffs. 2. May generate the smoke from high temperature and release corrosive gases. Wear no special protective equipments personnel are not allowed to enter.
Specific Protection of Firefighters：Wear full face piece protective goggles with positive pressure mode, dust free and anti splash chemical protective goggles, protective gloves.

Section 6 - Accidental Release Measures

Personal Precautions： 1. Restrict access the area until completion of clean up. 2. Ensure clean up is conducted by trained personnel only. 3. Wear proper personal protective equipments.
Environmental Precautions： 1. Process aeration in the area. 2. Extinguish or eliminate all the source of ignition. 3. Refer to the government safety and environmental protection unit.
Methods for Cleaning up： 1. Use the soil, dry sand or other inert material to embank the leakage. Shovel the leakage for recycling or treating. 2. Avoid empty into the sewer and drainage. 3. After neutralization treatment, use large amount of water to wash or dilute the leaking area. 4. Liquid could be recycle or dilute with water carefully and neutralize with acid (like acetate or Hydrochloric acid). 5. Large Spill: Contact the fire fighting, emergency control unit and supplier for help.

Section 7 - Handling and Storage

Handling： 1. This substance is corrosive and poisonous, and should be under engineering control and personal protective equipments; The personnel should undergo the proper training and be announced the danger of the substance and the safety using methods. 2. Avoid contact this chemical include the contaminated equipments without wearing the protective equipment. 3. If the substance is released, the staffs should wear the protective breathing apparatus

immediately and leave the danger area.
4. If there's leakage or bad ventilation, report will do immediately.
5. Check the leakage of the container before operation
6. Use the supplier suggested storage container.
7. Operate with the minimum quantity. Separate the operation zone and the storage zone.
8. Avoid producing dust and prevent the dust enter the airborne of the working area.
9. Use the anti-corrosive tool or equipments to pack separately in the container with the compatible processing
10. Do not use with incompatible material.
11. While mixing with water, ensure that the corrosive liquid is added into the water not the reverse procedure. The corrosive liquid should be poured slowly while the stirring the water. Use the cold water to avoid generating of the heat.
12. The container should be labeled. Keep tight without using and avoid damage.
13. Don't pour the contaminated liquid to the original storage tank.
14. Do not contact with water. Post the symbol of "Do no use water" in the area to avoid contact accidentally with water.
15. Keep a fire extinguisher and cleaning equipment nearby the operating zone and storage zone.

Storage：

1. Store in a cool, dry, well ventilated place. Away from incompatibles.
2. Control the storage in a limited amount.
3. Clearly labeled in the entrance of the storage place, no obstacle. Only allowed trained personnel to access.
4. Post the warning symbols in the proper place.
5. Checking the damage or spill of the container regularly.
6. All containers should be regularly checked and maintained for the label and damage.
7. Container should be properly label. None use or empty container should be closed tightly and avoid damage.
8. Store in the original storage tank or the container suggested by the supplier. Keep the label in the well seen place.
9. Separate the storage area and the operation area.
10. The flooring where the product is stored should be impermeable and without crack.
11. Make a threshold at the door and build a slope or a groove in front of the door to enable the fluid leakage to be emitted to a safe place.
12. Use the Nickel alloy made of container the best. If the temperature is low (40℃ below), the material of the container could be made of stainless.
13. Separate the empty tanks and the storage area.
14. Keep a fire extinguisher and cleaning equipment nearby.
15. Always clean to avoid accumulation of the dust.
16. The building material, lightening and ventilation system in the storage area should be anti-corrosion.
17. The storing basin shall be based on the ground with its base completely sealed from leakage, and shall be surrounded by a fluid-protective dike capable of carrying the entire volume of storage.

Section 8 - Exposure Controls & Personal Protection

Engineering measures：

1. Use anti-corrosive ventilation system and separate with the other exhaust system.

2. Provide locally exhausted device. Venting holes direct to outdoor.
3. Provide the adequate fresh air to supply amount the gas exhausted.

Control parameters			
TWA	STEL	Ceiling	Biological standards
2mg/m³	4 mg/m³	--	--

Personal protective equipment：

- Respiratory Protection：
  1. 1.10 mg/m3 Below：Wear continuous-flow mode respirator with oxygen contained breathing apparatus, a full-face organic vapor respirator or chemical cartridge respirator. Wear a NIOSH approved full-face piece self-contained breathing apparatus.
  2. Unknown concentration：Wear a NIOSH approved full-face piece self-contained breathing apparatus and positive pressure, full-face piece with oxygen contained breathing apparatus and positive pressure mode.
  3. Escape：Wear a full-face organic vapor respirator or NIOSH approved full-face piece self-contained breathing apparatus.
- Hand Protection：Impervious gloves
- Eye Protection：Chemical protective goggles, face shield, eye washing equipments
- Skin and Body Protection：Overall protective clothing, working boots.

Hygiene measures：

1. Immediately take out of contaminated cloth after work. Either disposes these clothes or clean it before wears them again. It is a must to let the laundry know the dangerous of these contaminated clothes.
2. Must wash thoroughly after processing this material.
3. Keep hygiene in the working area.

Section 9 - Physical & Chemical Properties

Appearance：colorless, sticky liquid	Odor：odorless
Color：Transparent	Melting Point: --
pH value：strong base	Boiling point/boiling range： 134 ℃(45%)
Flammability: --	Flash point： --
Decomposition temp：--	Test method：--
Auto ignition temp：	Explosion properties：--
Vapor pressure：--	Vapor density：111g/100ml @20℃(H_2O)
Density：1.478(45%) @ 20℃	Solubility：--
log Kow：--	Evaporation Rate：--

Section 10 - Stability & Reactivity Data

Stability：Stable in the normal condition
Possible hazardous reactions under specific conditions： 1. Strong acid, aromatic nitro compounds, organic halogen compounds, Ethylene glycol,

Organic peroxides- cause violent, explosive reaction.
2. Water- cause violent reaction, release large amount of heat.
3. Acetaldehyde, Acrolein, propylene-cause violent polymerization
4. Metal (like aluminum, tin, zinc-generate the flammable and explosive hydrogen.
5. 1.2- dichloroethylene, trichloroethene, PCE-generate into an self ignited chemicals.
6. Sugar such as Fructose, Lactose and Maltose- generate the CO

Conditions to avoid：water, water vapor, air

Materials to avoid：Strong acids, water, metal, organic halogen, nitrogen, Organic chlorine compounds, aluminum, tin, zinc, steel, aromatic nitro compounds, Nitro class, Ethylene glycol, Organic peroxides, Acetaldehyde, Acrolein, propylene, sugar

Hazardous decomposition products：--

Section 11 - Toxicological Information

Route of exposure：Skin, inhalation, ingestion, eyes

Symptoms： Irritation feeling, pulmonary edema, edema, ulcer, severe redness, bruise, vomit, diarrhea, prostration

Immediate Toxicity：

■ Skin：
1. Severe burn, ulcer and permanent redness. The burn won't feel pain immediately, but delay for several hours.
2. Apply 4% water solution within 15 minutes could damage the rigid cell in the outer layer of the skin. After 60 minutes, the skin layer will be totally damaged. If the pH 13.5 liquid drops on head, the hair will be dissolved and burn the scalp then becomes bald. But the injury will heal.
3. Apply 0.12% liquid on the health skin will be injured within an hour.

■ Inhalation：
1. Corrosive chemical. Inhale with dust and droplets will cause irritation of the nose, throat and lungs.
2. While water pours into this particle, the generated smoke will severely injure the lungs as reported.
3. Inhalation with smoke will cause pulmonary edema and life-threatening.

■ Eye：
1. The injury condition will depend on exposure time, concentration of the chemical and the degree of infiltration. From the severe irritation, middle redness to edema, severe redness, bruises
2. The effect of the vision such like Glaucoma with symptom may be appeared lately.
3. Severe injury on eye cause ulceration and bruise of the eye tissue, finally may become permanent blindness.

■ Ingestion： May cause severe pain and burn the mouth, throat and esophagus. Then vomit, diarrhea, prostration and death may happen.
- LD_{50}: 40 mg/kg (rat，intra-abdominal injection)
- LC_{50}: --

Specific effects：
1. May cause skin dryness and cracks (Dermatitis) with long-term or frequently contacting.
2. If ever swallowed, to have the Esophageal cancer from 12 to 42 years after is related with this condition. Severe heat burn will cause the similar cancer because of the tissue damage. The

scar may generate into cancer not the chemical it self.

Section 12 - Ecological Information

Ecotoxicology： ■ L_{C50}(fish)：43mg/l/96H ■ E_{C50}(Aquatic Invertebrates)：-- ■ Bioconcentration factor (BCF)：--
Persistence and degradability： -- ■ Half-Life (Air)：-- ■ Half-Life (Water surface)：-- ■ Half-Life (Groundwater)：-- ■ Half-Life (Soil)：--
Bioaccumulative potential：--
Mobility in soil：If the sodium hydroxide released into the soil, it will absorb the moisture and infiltrate slowly into the soil.
Other adverse effects：--

Section 13 - Disposal Considerations

Methods of disposal： 1. Follow the government related regulations. 2. Neutralize and dilute the chemical then empty into the sewer 3. Dispose in the certified landfill and incineration furnace.

Section 14 - SDS Transport Information

UN classification number：1823
Proper D.O.T Shipping Name：Corrosive materials Category 8
Hazard Class：
Packing Group：--
Marine pollution：--
Specific precautionary transport measures and conditions：--

Section 15 - Regulatory Information

Regulations： 1. Occupational Safety and Health Act 2. Regulations for the Labelling and Hazard Communication of Hazardous Chemicals 3. Road Traffic Safety Regulations 4. Industrial Waste Storage and Disposal Regulations 5. Assessment and Classification Administration of Hazardous Chemicals 6. Permissible Exposure Limits of Hazardous Substances in the Work Environment

Section 16 - Other Information

Literature references	1.CHEMINFO Database，CCINFO Disc，2005-3 2.RTECS Database，TOMES PLUS Disc，Vol.65，2005 3.HSDB Database，TOMES PLUS Disc，Vol.65，2005 4.ChemWatch Database，2005-1	
Prepared by	Suppler：San Fu Chemical Co., Ltd.	
	Address：1,Sec.1,Huanyuan E..Rd.,Liuying Dist.,Tainan, Taiwan 736.	
	TEL：886-6-6231821	FAX：886-6-6231822
	Name：X.Z.Lin	
Issue date	Apr-15th 2025	Revision：7
Re-revision date	Apr-14th 2028	
Remarks	Symbols Explanations: “--” No information is available at this time. “/” Not applicable to this substance.	

■ This information above has consulted national or international papers and manufacturer or supplier’s provided information. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Users should make their own determination of the suitability of the information for their particular purposes.