Formosa Plastics

Safety Data Sheet

1: Identification

Product Name	Sodium Hydroxide 50%
Synonyms	Liquid Caustic Soda 50%
Recommended use and Recommended restrictions	Strong chemical base in the manufacture of pulp and paper, textiles, drinking water, soaps and detergents ; Bleaching,pH neutralizer.
Manufacturer/Importer /Supplier/Distributor information	Formosa Plastics Corporation, Taiwan No.1 Formosa Industrial complex, Mailiao Village,Yunlin county,Taiwan
Emergency Telephone Number	886-5-6811075
Fax	886-5-6812095

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral Skin corrosion/irritation Serious eye damage/eye irritation	Category 4 Category 1 Category 1
Label elements		
Signal word	Danger	
Hazard statement	Harmful if swallowed. May be corrosive to metals. Causes severe skin burns and eye damage.Harmful to aquatic life.	
Precautionary statement		
Prevention	Keep only in original container. Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product. Do not breathe mist or vapor. Wash thoroughly after handling. Avoid release to the environment.	
Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If inhaled: Remove person to fresh air and keep comfortable for breathing. If on skin (or hair): Take off immediately all contaminated clothing.Rinse skin with water/shower. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor/. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage	

Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise	None known.

3. Composition/information on ingredients

Mixtures

Chemical name	Sodium hydroxide
CAS number	1310-73-2
%	50

4. First-aid measures

Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.
Skin contact	Take off immediately all contaminated clothing. Wash off IMMEDIATELY with plenty of water for at least 15-20 minutes. Get medical attention immediately! Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. Immediately rinse mouth and drink plenty of water. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Never give anything by mouth to an unconscious person. Do not use mouth-to-mouth method if victim ingested the substance.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Shortness of breath. Symptoms may be delayed.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Symptoms may be delayed. Keep victim under observation.
General information	In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of

	the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Use extinguishing agent suitable for type of surrounding fire.
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire. Do not use halogenated extinguishing agents.
Specific hazards arising from the chemical	The product itself does not burn. May decompose upon heating to produce corrosive and/or toxic fumes. Contact with metal may release flammable hydrogen gas.
Special protective equipment and precautions for firefighters	Fire fighters should enter the area only if they are protected from all contact with the material. Full protective clothing, including self-contained breathing apparatus, coat, pants, gloves, boots and bands around legs, arms, and waist, should be worn. No skin surface should be exposed.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.
Specific methods	Use water spray to cool unopened containers.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Following product recovery, flush area with water. Small Spills: Absorb spill with vermiculite or other inert material. Clean surface thoroughly to remove residual contamination.
Environmental precautions	Never return spills in original containers for re-use. For waste disposal, see Section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Use caution when combining with water; DO NOT add water to caustic; ALWAYS add caustic to water while stirring to minimize heat generation. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not

	breathe mist or vapor. Use only with adequate ventilation. Wear appropriate personal protective equipment. Transfer and storage systems should be compatible and corrosion resistant. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Keep container tightly closed. Store in a cool, dry, well-ventilated place. Store in corrosive resistant container with a resistant inner liner. Store away from incompatible materials (See Section 10). Store at temperatures not exceeding 40°C/104°F. Compatible storage materials may include, but not be limited to, the following: nickel and nickel alloys, steel, plastics, plastic or rubber-lined steel, FRP, or Derakane vinyl ester resin. Do not allow material to freeze.

8. Exposure controls/personal protection

Occupational exposure limits	**TWA** ：2 mg/m3
	STEL ：4 mg/m3
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Wear chemical goggles and face shield. PPE requirements should match type and amount used as determined by the end users PPE hazard assessment.
Hand protection	Wear appropriate chemical resistant gloves.
Skin protection	Wear appropriate chemical resistant clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Chemical respirator with particulate cartridge and full facepiece.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	Physical state：Liquid. Form：Viscous liquid. Color：Clear.
Odor	Odorless.
Odor threshold	Not available.
pH	14
Melting point/freezing point	Not available.
Initial boiling point and boiling range	150 °C
Flash point	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Evaporation rate	Not available.
Flammability	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapor pressure	20.5 mm Hg (approximately) (40 °C)
Vapor density	Not available.
Relative density	1.53 at 30 °C
Solubility	Completely miscible with water.
Partition coefficient (n-octanol/water)	Not available.
Viscosity	Not available.

10. Stability and reactivity

Reactivity	Contact with metal may release flammable hydrogen gas.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Reacts violently with strong acids. This product may react with oxidizing agents. Do not mix with other chemicals. Corrosive to aluminum, tin, zinc, copper and most alloys in which they are present including brass and bronze. Corrosive to steels at elevated temperatures above 40°C (104°F).
Incompatible materials	Oxidizing agents. Acids. Phosphorus. Aluminum. Zinc. Tin. Initiates or catalyzes violent polymerization of acetaldehyde, acrolein or acrylonitrile.
Hazardous decomposition products	Contact with metals (aluminum, zinc, tin) and sodium tetrahydroborate liberates hydrogen gas.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns.
Eye contact	Causes severe eye burns. Causes serious eye damage.
Ingestion	Causes digestive tract burns. Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute Toxicity：

Relevant LD/LC50 Values：

1310-73-2 sodium hydroxide

Oral LD50 1350 mg/kg (rabbit)

Skin corrosion	Causes severe skin burns and eye damage.
Serious eye damage	Causes severe eye burns. Causes serious eye damage.
Respiratory Irritation	Corrosive to the respiratory tract.
Sensitization/Allergic Reaction	No data available.
Additional Toxicological Information	Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Aspiration hazard	Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Chronic effects	Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity：Harmful to aquatic life.

Relevant LD/LC50 Values：

1310-73-2 sodium hydroxide

Oral LC50 43 mg/l, 96 hours (Fish)

Persistence and degradability	Expected to degrade rapidly in air.
Bioaccumulative potential	The product is not expected to bioaccumulate.

Mobility in soil	Not available.
Other adverse effects	No other adverse environmental effects (e.g. oz one depletion, photochemical ozone creationpotential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Keep spilled material out of sewage/drainage systems and waterways. Maximize product recovery for reuse or recycling. Waste materials may be hazardous due to the pH/corrosivity. Dispose of waste in accordance with applicable laws and regulations.
Additional Information	It is the responsiblity of the product user to determine at the time of disposal whether a material containing or derived from this product should be classified as hazardous waste.

14. Transport information

UN number	UN1824
UN shipping name	Sodium hydroxide solution
Transport hazard class	8 Corrosive substances
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling. Read safety instructions, SDS and emergency procedures before handling.

15. Regulatory information

US federal regulations	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List. CERCLA Hazardous Substance: Sodium Hydroxide, CAS # 1310-73-2, RQ = 1000 lbs.
US state regulations	US. Massachusetts RTK - Substance List Sodium hydroxide (CAS 1310-73-2) US. New Jersey Worker and Community Right-to-Know Act Sodium hydroxide (CAS 1310-73-2) US. Pennsylvania Worker and Community Right-to-Know Law Sodium hydroxide (CAS 1310-73-2) US. Rhode Island RTK Sodium hydroxide (CAS 1310-73-2) US. California Proposition 65 This product is not listed, but it may contain elements known to the State of

	California to cause cancer or reproductive toxicity as listed under Proposition 65 Safe Drinking Water and Toxic Enforcement Act. For additional information, contact Olin Technical Services (800-299-6546).
International Inventories	Australia：Australian Inventory of Chemical Substances (AICS) Canada：Domestic Substances List (DSL) Canada：Non-Domestic Substances List (NDSL) China：Inventory of Existing Chemical Substances in China (IECSC) Europe：European Inventory of Existing Commercial Chemical Substances (EINECS) Europe：European List of Notified Chemical Substances (ELINCS) Japan：Inventory of Existing and New Chemical Substances (ENCS) Korea：Existing Chemicals List (ECL) New Zealand：New Zealand Inventory United States：Toxic Substances Control Act (TSCA) Inventory

16. Other information

Issue date	25-July-2016
Revision date	25-July-2016
Version #	01
References	EPA: AQUIRE database HSDB® - Hazardous Substances Data Bank US. IARC Monographs on Occupational Exposures to Chemical Agents IARC Monographs. Overall Evaluation of Carcinogenicity ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices