Formosa Plastics Corporation

Safety Data Sheet

1 Identification

Product name	Caustic soda micropearls
Synonyms	Caustic soda, Sodium Hydrate, white caustic, Hydroxyde de sodium(solide), sodium hydroxide
Chemical formula	NaOH
CAS number	01310-73-2
Manufacturer's name & address	Formosa Plastics Coroporation 100 Shui-Guan RD, Jen-wu Shiang, Kaohsiung County, Taiwan, 814R.O.C
Emergency Telephone number	886-7-3711411 ext 5406

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	Wt. %
Sodium Hydroxide	1310-73-2	Approx.99

3. HAZARDS IDENTIFICATION

PRECAUTIONARY INFORMATION

Corrosive. Can cause eye, skin and respiratory tract burns. Highly toxic by ingestion. Ingestion will cause severe burns of the mouth, throat and stomach. Avoid any skin or eye contact. Avoid breathing dusts or mist

Labelling

POTENTIAL HEALTH EFFECTS

Primary Routes of Entry

Inhalation, ingestion, skin, and eye contact.

Acute Effects

Ingestion Causes Immediate, severe pain in the mouth, throat, and stomach as well as diarrhea and vomiting, from which collapse may result. Vomit usually contains blood and possibly tissue. All tissues which come in contact with this chemical may be damaged. Death may result from ingestion. If the patient survives, permanent damage to the gastrointestinal tract may occur and the person may have permanent difficulty in swallowing. Inhalation causes respiratory irritation which may develop into serious lung injury depending upon the degree of exposure. Serious pneumonia may develop. Eye contact with Caustic Soda solid, dust, mist or solution usually results in immediate pain and can cause permanent eye damage including blindness. Skin contact may result in irritation which may not be immediately painful. Greater exposure results in severe burns with scarring.

Chronic Effects

Prolonged exposures may result in upper respiratory irritation and ulceration of the nasal passage. High levels may cause permanent lung injury.

3. HAZARDS IDENTIFICATION CONTINUED

Potential Adverse Chemical Interactions

Persons with skin or lung diseases may be at an increased risk due to the toxic effects of this chemical on these organs.

Carcinogen Status

Caustic Soda is not considered carcinogenic by OSHA, NIOSH, NTP, IARC or EPA.

4. FIRST AID MEASURES

Inhalation

If a person breathes a large amount of this chemical, move the exposed person to fresh air at once. Provide emergency airway support. Give 100% humidified supplemental oxygen with artificial respiration, if needed. Transport to emergency medical facility without delay.

Skin Contact

If this chemical contacts the skin, immediately flush the contaminated skin thoroughly with water for at least 15minutes. If this chemical penetrates the clothing, immediately remove the clothing and flush the skin thoroughly with water. Get medical attention promptly.

Eye Contact

If this chemical contacts the eyes, immediately flush the eyes with large amounts of room temperature water. Hold the eyelids apart during the flushing operation. Washing must be started **within 10 seconds of contact** and continued for 30 minute to prevent permanent injury. Get medical attention immediately. Ophthalmology consultation is a must.

Ingestion

If this chemical has been swallowed and the person is conscious, give water and/or milk immediately to dilute the Caustic Soda; **no more than 8 ounces in adults and 4 ounces in children** is recommended to minimize the risk of vomiting. **Do not attempt to make the person vomit.** Get emergency medical attention attention immediately.

5. FIRE FIGHTING MEASURES

Flash Point Not Applicable

Flammable Limits (% By Vol.)

Lower Explosive Limit (LEL) Not Applicable

Upper Explosive Limit (UEL) Not Applicable

Autoignition Temperature Not Applicable

Fire Fighting Procedures/Fire Extinguishing Media

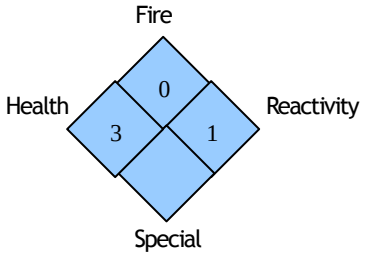
Caustic Soda is not combustible. Avoid direct contact of Caustic Soda with water, as this can produce a violent exothermic reaction. Use fighting agent suitable for surrounding fire to exitinguish fire. Use carbon dioxide or suitable dry chemical extinguisher. Structural fire fighter's protective clothing is recommended for fire situations only; it is not effective in spills. Wear full protective clothing and NIOSH approved self-contained respirator, with a full face piece, in the positive pressure mode.

Unusual Fire And Explosion Hazards

Caustic Soda will react with metals such as aluminum, tin, and zinc to generate flammable and explosive hydrogen gas. Caustic solutions generate heat when further diluted with water. With concentrations of 40% or greater, the heat generated can result in dangerous eruptions of the solution.

National Fire Protection Association Hazard Rating

4 = Extreme
3 = High
2 = Moderate
1 = slight
0 = Insignificant



NFPA HAZARD RATING

6. ACCIDENTAL RELEASE MEASURES

Protect People

Evacuate area. Clear non-emergency personnel from the area. Ventilate area of spill or leak. Allow only trained personnel wearing appropriate protective gear to be in the spill response.

Protect the Environment

Contain material to prevent contamination of the soil, surface water or ground water. Dike spills immediately. Dilute acid (preferably acetic acid may be used to neutralize residual traces of caustic soda) after flushing. Small spills should be carefully flushed with water.

Clean Up

(See MSDS Section 15 for Regulatory Information)

7. HANDLING AND STORAGE

Handling and Storage

Do not get into eyes, on skin, or on clothing. Avoid breathing mists or spray. All personal protective equipment should be selected in accordance with the hazard assessment required by 29 CFR 1910.132 (d).

Product can react violently with water and acids. Caustic solution generate heat when further diluted with water. With concentrations greater than 40%, the heat generated can raise temperatures above the boiling point resulting in sporadic, violent eruptions or spattering. Store away from incompatible materials.

Store away from incompatible materials. (See Section10, Stability and Reactivity of this MSDS)

Hazardous carbon monoxide gas can from upon with food and beverage products and various sugars in enclosed vessels. Precautions, including atmospheric monitoring for carbon monoxide, should be taken to ensure safety of personnel entering vessels.

Do not store in containers made from tin, aluminum, brass, zinc, and alloys containing these metals. Follow all federal, state, and local regulations as well as all insurance codes when storing and handling caustic soda.

8.EXPOSURE CONTROLS/PERSONAL PROTECTION

All personal protective equipment should be selected in accordance with the hazard assessment required by 29 CFR 1910.132 (d).

Respiratory Protection

Use appropriate NIOSH approved respirator in accordance with 29 CFR 1910.132 and 1910.134, to prevent overexposure. Respirators must be selected based on the airborne levels found in the workplace and must not exceed the working limits of the respirator.

Eye Protection

Use splash proof chemical safety goggles and/or appropriate full-face shield. Follow the eye and face protection guidelines of 29 CFR 1910.132 and 1910.133. An eye wash fountain (in accordance with 29 CFR 1910.151) should be within the immediate work area for emergency use.

Skin Protection

Chemical protective clothing and gloves must be used in accordance with 29 CFR 1910.132 and 29 CFR 1910.138.

Ventilation

Provide general and/or local ventilation to control airborne levels below exposure guidelines. Local exhaust ventilation should comply with OSHA regulations and the American Conference of Industrial Hygienists, Industrial Ventilation – A Manual of Recommended Practice.

Exposure Guidelines

OSHA	**PEL 8hour TWA**	**2mg/m^3**
ACGIH	**TLV – Ceiling**	**2mg/m^3**

Other

Where there is any possibility of exposure of an individual's body to Caustic soda solutions, facilities for quick drenching of the body should be provided (in accordance with 29 CFR 1910.151) within the immediate work area for emergency use. Such individuals should be provided with and required to use impervious clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White solid (Micropearls)
Odor	No distinct odor
Boiling Point	1390 ℃
Melting Point	
Solubility	111g/10ml at 20 ℃
Specific Gravity (Water = 1.0)	2.130
Vapor Density (Air = 1.0)	Not Applicable
Vapor Pressure	0 mm Hg at 20 ℃
pH	> 14.0 at 20 ℃

10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions.

Polymerization
Hazardous polymerization does not occur.

Hazardous Decomposition Products
None known.

Incompatible Materials
Heat is generated when mixed with water. Spattering and boiling can occur. Flammable hydrogen may be generated from contact with metals such as: aluminun, brass, tin, zinc and alloys of these metals. Avoid contact with acids, halogenated organics, organic nitro compounds and glycols. Caustic soda solution reacts readily with various reducing sugars (i.e., fructose, glactose, maltose, dry whey solids) to produce carbon monoxide. Precautions should be taken including atmospheric monitoring of the tank to ensure of personnel.

11. TOXICOLOGICAL INFORMATION

Animal Toxicity

Oral: Rabbit, LD_{Lo} 500mg/kg

Skin: Rabbit, Adult 500mg/24 H – Severe irritation

Eye: Rabbit, Adult 50mg/24 H – Severe irritation

Intra peritoneal: Mouse, LD_{50} 40 mg/kg

LD_{Lo} = Lowest lethal does in a given species by a given route exposure.

LD_{50} = Does that is lethal to 50% of a given species by a given route exposure.

12. ECOLOGICAL INFORMATION

Caution: Caustic soda micropearls may react violently with acids and water. Do not allow drainage into sewers, streams or storm conduits. Spills on areas other than pavement, dirt or sand may be handled by removing the affected soils and placing in approved containers.

Environmental Fate: The following information on sodium hydroxide is extracted from the TOXNET database maintained by the National Library of Medicine.

Aquatic: In the case of a solid, anhydrous sodium spill on soil, ground water pollution will occur if precipitation occurs prior to cleanup. Precipitation will dissolve some of the solid (with much heat given off) and create an aqueous solution of sodium hydroxide which then would be able to infiltrate the soil. However, prediction of the concentration and properties of the solution produced would be difficult.

Biodegradation: Not Applicable

Ecotoxicity: material is slightly toxic to aquatic organisms on an acute basis (LC50 between 10 and 100 mg/L in most sensitive species). May cause pH shifts outside the range of 5 – 10standard units; this change may be toxic to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

Waste Management Information: Do not dump into any sewers, on the ground, or into any body of water. Any disposal practice must be in compliance with local, state and federal laws and regulations (contract local or state environmental agency for specific rules). Waste characterization and compliance with applicable laws are the responsibility of the waste generator.

14. TRANSPORTATION INFORMATION

Proper Shipping Name: Caustic soda micropearls
DOT Hazard Class: 8, (Corrosive)
DOT Shipping I.D. No. : UN 1823
PG II
Labeling: Corrosive

15. REGULATORY INFORMATION

Regulatory information is not meant to be all inclusive. It is the user's responsibility to ensure compliance with federal, state or provincial and local laws.

SARA Title III

Section 302and 304 of the Act; Extremely Hazardous substances (40 CFR 355)

COMPONENT	CAS No.	TPQ (lbs)	RQ (lbs)
None	Not Applicable	Not Applicable	Not Applicable

Note: TPQ – Threshold Planning Quantity RQ – Reportable Quantity

Section 311 Hazard Categorization (40 CFR 370)

ACUTE	CHRONIC	FIRE	PRESSURE	REACTIVE
X				X

15. REGULATORY INFORMATION CONTINUE

Section 313 Toxic Chemicals (40 CFR 372.65)

COMPONENT	CAS No.	WT.%
None	Not Applicable	Not Applicable

CERCLA

Section 102(a) Hazardous substance (40 CFR 302.4)

COMPONENT	CAS No.	WT.%	RQ(lbs)
Sodium hydroxide	1310-73-2	Approx.99	1,000

RCRA

40 CFR 261.22 Hazardous waste number:

Sodium hydroxide waste is regulated as a characteristic corrosive hazardous waste the hazardous waste number D002.

TSCA

Sodium hydroxide is listed on the TSCA inventory.

16. OTHER INFORMATION

IMPORTANT:

The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. Buyer assumes all risk of use, storage and handling of the product in compliance with applicable federal, state, and local laws and regulations.

17. Tabulation date

2017/09/30