

## Material Safety Data Sheet (MSDS)

Section 1: Chemical Product and Company Identification			
Product Name		Caustic Soda 98% / Sodium Hydroxide 98% (Flakes)	
CAS Number		1310-73-2	
Chemical Formula		NaOH in H2O Solution	
Company Name		CAMACHEM (Part of CAMAL Group) 3F Jinlong East Beijing Station Road Chaoyang District, Beijing, China	
Contact		<a href="mailto:sales@camachem.com">sales@camachem.com</a>	
Company Website		<a href="http://www.camachem.com">www.camachem.com</a>	
Section 2: Hazards Identification			
Emergency Overview:	Health	Environmental	Physical
	Acute Toxicity - Category 3 Eye Corrosion - Category 1A Skin Corrosion - Category 1A Skin Sensitization -Category 1 Mutagenicity - Category 1A Carcinogenicity - Category 1B Reproductive/Developmental - Category 1A Target Organ Toxicity (Repeated) - Category 1	Aquatic Toxicity  · Acute 1  · Chronic 1	Substance which in contact with water emit flammable gasses - Category 1
Potential Acute Health Effects		Ingestion causes immediate, severe pain in the mouth, throat, and stomach as well as diarrhea and vomiting, from which collapse may result.	
Target organs:			
Skin contact:		Skin contact may result in irritation, which may not be immediately painful. Greater exposure results in severe burns with scarring.	
Eye contact:		Eye contact with Caustic Soda solid, dust, mist or solution usually results in immediate pain and can cause permanent eye damage including blindness	

<b>Inhalation:</b>	Inhalation causes respiratory irritation, which may develop into serious lung injury depending upon the degree of exposure. Serious pneumonitis may develop
<b>Ingestion:</b>	Ingestion causes immediate, severe pain in the mouth, throat, and stomach as well as diarrhea and vomiting, from which collapse may result. Vomitus 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.
<b>Chronic Exposure:</b>	Prolonged exposures may result in upper respiratory irritation and ulceration of the nasal passage. High levels may cause permanent lung injury.
<b>Explanation of carcinogenicity:</b>	Caustic Soda is not considered carcinogenic by OSHA, NIOSH, NTP, IARC or EPA.
<b>Medical conditions aggravated by exposure:</b>	Persons with skin or lung diseases may be at an increased risk due to the toxic effects of this chemical on these organs.

### Section 3: Composition and Information on Ingredients

INGREDIENT	CAS No.	CONTENT
Sodium Hydroxide	1310-73-2	Approx. 98%

### Section 4: First Aid Measures

<b>Inhalation:</b>	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
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	facility without delay.
<b>Ingestion:</b>	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 immediately
<b>Skin:</b>	If this chemical contacts the skin, immediately flush the contaminated skin thoroughly with water for at least 15 minutes. If this chemical penetrates the clothing, immediately remove the clothing and flush the skin thoroughly with water. Get medical attention promptly.
<b>Eye:</b>	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 minutes to prevent permanent injury. Get medical attention immediately. Ophthalmology consultation is a must.
<b>Section 5: Fire and Explosion Data</b>	
<b>Flash Point:</b>	Not Applicable
<b>Combustion Products:</b>	Not Applicable
<b>Extinguishing Media:</b>	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 extinguish fire. Use carbon dioxide or suitable dry chemical extinguisher.
<b>Protective Equipment:</b>	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.

<b>HAZCHEM Code:</b>	
<b>Section 6: Accidental Release Measures</b>	
<b>Spills and Disposal:</b>	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.
<b>Protective Clothing:</b>	
<b>Environmental:</b>	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.
<b>Section 7: Handling and Storage</b>	
<b>Handling:</b>	<p>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).</p> <p>Product can react violently with water and acids. Caustic solutions 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.</p> <p>Store away from incompatible materials.</p> <p>Hazardous carbon monoxide gas can form upon contact 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.</p>
<b>Storage:</b>	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.		
Other Information:			
Section 8: Exposure Controls/Personal Protection			
Exposure Limits:	OSHA ACGIH	PEL 8 hour TWA TLV - Ceiling	2 mg/m3 2 mg/m3
Protective Equipment:	<p>Respiratory Protection</p> <p>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.</p> <p>Eye Protection</p> <p>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.</p> <p>Skin Protection</p> <p>Chemical protective clothing and gloves must be used in accordance with 29 CFR 1910.132 and 29 CFR 1910.138.</p> <p>Ventilation</p> <p>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.</p>		
Section 9: Physical and Chemical Properties			
APPEARANCEPHYSICAL STATE: Solid or Flake			
COLOR: white or Grayish			
CHANGE IN APPEARANCE: hygroscopic ODOR: odorless			
ODOR THRESHOLD: Not available MOLECULAR FORMULA: Na-O-H MOLECULAR WEIGHT: 40.00			
PH: 14 (5% solution)			



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MELTING POINT: 604 F (318 C)

BOILING POINT: 2534 F (1390 C)

FLASH POINT: Not available EVAPORATION RATE: Not applicable FLAMMABILITY (solid, gas): Not available VAPOR PRESSURE: 100 mmHg @ 1111 C

VAPOR DENSITY: Not applicable RELATIVE GRAVITY (water=1): 2.130

SOLUBILITY IN WATER: VERY soluble (111 g/100 mL at 20 o C(68 F))

SOLVENT SOLUBILITY:

Soluble: alcohol, glycerol

Insoluble: acetone, ether

### Section 10: Stability and Reactivity Data

<b>Stability:</b>	Stable under normal conditions. Product absorbs water and carbon dioxide from the air.
<b>Hazardous Decomposition Products:</b>	None known.
<b>Conditions to Avoid:</b>	Heat is generated when mixed with water. Spattering and boiling can occur.
<b>Materials to Avoid:</b>	Flammable hydrogen may be generated from contact with metals such as: aluminum, 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, galactose, maltose, dry whey solids) to produce carbon monoxide.

### Section 11: Toxicological Information

<b>Ingestion:</b>	Oral: Rabbit, LDLO 500 mg/kg
<b>Inhalation:</b>	ACUTE EXPOSURE: Effects due to inhalation of dusts or mist may vary from mild irritation of the nose at 2 mg/m <sup>3</sup> to severe pneumonitis depending on the severity of exposure. Low concentrations may cause mucous membrane irritation with sore throat, coughing, and dyspnea. Intense exposures may result in destruction of mucous membranes and delayed pulmonary edema

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	or pneumonitis. Shock may occur.
<b>Skin:</b>	<p><b>ACUTE EXPOSURE:</b> Upon contact with the skin, damage including redness, cutaneous burns, skin fissures and white eschars may occur without immediate pain. Exposure to solutions as weak as 0.03 N (0.12%) for 1 hour has caused injury to healthy skin. With solutions of 0.4-4%, irritation does not occur until after several hours. Solutions of 25-50% caused no sensation of irritation within 3 minutes in human subjects. Skin biopsies from human subjects having 1 N sodium hydroxide applied to their arms for 15 to 180 minutes showed progressive changes beginning with dissolution of the cells in the horny layer and progressing through edema to total destruction of the epidermis in 60 minutes. A 5% aqueous solution caused severe necrosis to the skin of rabbits when applied for 4 hours. Alkalies penetrate the skin slowly. The extent of injury depends on the duration of contact. If sodium hydroxide is not removed from the skin, severe burn with deep ulceration may occur. Exposure to the dust or mist may cause multiple small burns and temporary loss of hair. Pathologic findings due to alkalies may include gelatinous, necrotic areas at the site of contact.</p> <p><b>CHRONIC EXPOSURE:</b> Effects are dependent upon concentration and duration of exposure. Dermatitis or effects similar to those for acute exposure may occur.</p>
<b>Eye:</b>	<p><b>ACUTE EXPOSURE:</b> Contact may cause disintegration and sloughing of conjunctival and corneal epithelium, corneal opacification, marked edema and ulceration. After 7 to 13 days either gradual recovery begins or there is progression of ulceration and corneal opacification.</p> <p>Complications of severe eye burns are symblepharon with overgrowth of the cornea by a vascularized membrane, progressive or recurrent corneal ulceration and permanent corneal opacification. Blindness may occur.</p>
<b>Chronic Effects:</b>	<p><b>CHRONIC EXPOSURE:</b> Effects are dependent upon concentration and duration of exposure. Conjunctivitis or effects similar to those for acute exposure may occur.</p>

## Section 12: Ecological Information

<b>Ecotoxicity:</b>	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 5-10 standard units; this change may be toxic to aquatic organisms.
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## Section 13: Disposal Considerations

<b>Product Disposal::</b>	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 (contact local or state environmental agency for specific rules). Waste characterization and compliance with applicable laws are the responsibility of the waste generator.
<b>Container Disposal:</b>	Review federal, state and local government requirements prior to disposal. Do not dispose of waste with normal garbage, or to sewer systems. Whatever cannot be saved for recovery or recycling, including containers, should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options.

## Section 14: Transport Information

U.S. DOT 49 CFR 172.101:

PROPER SHIPPING NAME: Sodium hydroxide, solid ID NUMBER: UN1823

HAZARD CLASS OR DIVISION: 8 PACKING GROUP: II

CANADIAN TRANSPORTATION OF DANGEROUS GOODS: No classification assigned.

### LAND TRANSPORT ADR/RID:

PROPER SHIPPING NAME: Sodium hydroxide, solid UN NUMBER: UN1823

ADR/RID CLASS: 8 CLASSIFICATION CODE: C6 PACKING GROUP: II

### AIR TRANSPORT IATA/ICAO:

PROPER SHIPPING NAME: Sodium hydroxide, solid UN/ID NUMBER: UN1823

IATA/ICAO CLASS: 8 PACKING GROUP: II

### MARITIME TRANSPORT IMDG:

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IMDG CLASS: 8 PACKING GROUP: II

## Section 15: Other Regulatory Information

### U. S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): 1000 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21): ACUTE: Yes  
CHRONIC: No FIRE: No REACTIVE: Yes SUDDEN RELEASE: No SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29CFR1910.119): Not regulated.

CANADIAN REGULATIONS: WHMIS CLASSIFICATION: Not determined. EUROPEAN REGULATIONS:  
EC CLASSIFICATION (ASSIGNED):

C Corrosive

EC Classification may be inconsistent with independently-researched data. DANGER/HAZARD SYMBOL:  
C Corrosive

### EC RISK AND SAFETY PHRASES:

R 35: Causes severe burns.

S 1/2: Keep locked-up and out of reach of children.

S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 37/39: Wear suitable gloves and eye/face protection.

S 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

CONCENTRATION LIMITS: C<sub>≥</sub>5% C : R 35

2% ≤ C < 5% C : R 34

0.5% ≤ C < 2% Xi: R 36/38 GERMAN REGULATIONS:

WATER HAZARD CLASS (WGK):

STATE OF CLASSIFICATION: VwVwS CLASSIFICATION UNDER HAZARD TO WATER: 1 NATIONAL  
INVENTORY STATUS:

U.S. INVENTORY (TSCA): Listed on inventory. TSCA 12(b) EXPORT NOTIFICATION: Not listed.

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<b>Section 16: Other Information</b>	

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall we m be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if we have been advised of the possibility of such damages.*

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