


SAFETY DATA SHEET (SDS)

Name of chemical : Sodium Hydroxide

1. PRODUCT IDENTIFICATION / COMPANY ADDRESS


Trade Name	Sodium Hydroxide	Common Name	Sodium Hydroxide	Synonyms	Caustic Soda, Soda Lye, Lye
Chemical Name	Sodium Hydroxide (Liquid)				

2. HAZARD IDENTIFICATION

Hazard Classification	Skin corrosion / irritation, Category 1A	H314	Causes severe skin burns and eye damage.
	Serious eye damage / eye irritation, Category 1	H318	Causes serious eye damage.
	Hazardous to the aquatic environment — Acute Hazard, Category 3	H402	Harmful to aquatic life
LABEL ELEMENTS	<u>HAZARD PICTOGRAMS.</u>  GHS05		
Signal word	Danger		
Hazard statement	H314 - Causes severe skin burns and eye damage. H402 - Harmful to aquatic life		

Precautionary statement	<p>P260 - Do not breathe dust, vapors.</p> <p>P264 - Wash exposed skin thoroughly after handling. P273 - Avoid release to the environment.</p> <p>P280 - Wear eye protection, face protection, protective clothing, protective gloves.</p> <p>P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting.</p> <p>P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.</p> <p>P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P310 - Immediately call a POISON CENTER/doctor</p> <p>P363 - Wash contaminated clothing before reuse. P405 - Store locked up.</p> <p>P501 - Dispose of contents/container to Comply with applicable regulations</p>
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3. COMPOSITION / INFORMATION AND INGREDIENTS

Structural Formula		Chemical Family	
		Molecular weight	40.01
CAS No	1310-73-2 (NaOH) 7732-18-5(H ₂ O)	Molecular Formula	NaOH
Name	Product identifier	%	Classification
Sodium Hydroxide	1310-73-2	100%	Skin Corr. 1A, H314 Eye Dam. 1, H318 Aquatic Acute 3, H402

Ingestion	<ul style="list-style-type: none"> • Do not give anything by mouth to an unconscious person. • Do not induce vomiting unless told to do so by doctor.
Inhalation	<ul style="list-style-type: none"> • PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. • Quick removal from the contaminated area is most important. • Unconscious persons should be moved to an uncontaminated area, given mouth-to-mouth resuscitation and supplemental oxygen. • Keep the person warm and quiet. Assure that mucus or vomited material does not obstruct the airway by positional drainage. • Keep the patient under medical observation for at least 24 hours.

Eyes	<ul style="list-style-type: none"> • Immediately flush eyes with lukewarm water for at least 20 minutes, Hold eyelids open during flushing. If irritation persists, repeat flushing. • Obtain medical attention IMMEDIATELY. • Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.
Skin	<ul style="list-style-type: none"> • Immediately flush skin with water for at least 20 minutes, • remove contaminated clothing, jewelry, and shoes. • If irritation persists, repeat flushing. • Obtain medical attention immediately. • Discard contaminated clothing and shoes in a manner which limits further exposure.
Antidote	
Most important symptoms/ effects, acute and or delayed	<p>Eye Contact-Causes serious eye damage. Contact with rapidly expanding gas may cause burns or frostbite.</p> <p>Inhalation- Fatal if inhaled. May cause respiratory irritation.</p> <p>Skin contact- Causes severe burns. Contact with rapidly expanding gas may cause burns or frostbite.</p> <p>Frostbite- Try to warm up the frozen tissues and seek medical attention.</p>
Indication of immediate medical attention and special treatment needed	<p>ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Dry skin. Skin rash/inflammation. Possible inflammation of the respiratory tract. Gastrointestinal complaints.</p>

5. FIRE FIGHTING MEASURES

Fire extinguishing media	<ul style="list-style-type: none"> • Use extinguishing media suitable for the surrounding fire. • If water is used, care should be taken, since it can generate heat and cause spattering if applied directly to sodium hydroxide.
Hazardous decomposition products	<ul style="list-style-type: none"> • Sodium hydroxide will not burn or support combustion. • The reaction of sodium hydroxide with water can generate sufficient heat to ignite nearby combustible materials. • Sodium hydroxide can react with metals, such as aluminum, tin and zinc, to form flammable hydrogen gas.

Special fire fighting procedure	<p>Cool tanks/drums with water spray/remove them into safety. When cooling/extinguishing: no water in the substance. Take account of toxic fire fighting water. Use water moderately and if possible, collect or contain it.</p>
Precaution to Fire Fighters	<p>Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighborhood close doors and windows.</p>

6. ACCIDENTAL RELEASE MEASURES

Personal precaution	<ul style="list-style-type: none">• Restrict access to affected area.• Use personal protective equipment.• Use approved cartridge type respiratory protection.• Keep people away from and upwind of spill/leak.
Precautions for the environment	Prevent soil and water pollution. Prevent spreading in sewers.
Clean up method	<ul style="list-style-type: none">• Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material.• Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors.• Prevent entry into sewers, basements or confined areas; dike if needed.• Neutralize the residue with a dilute solution of acetic acid.

7. HANDLING AND STORAGE

General precaution	<ul style="list-style-type: none">• People working with this chemical should be properly trained regarding its hazards and its safe use.• Use smallest possible amounts in designated areas with adequate ventilation.• Keep containers closed when not in use.• Empty containers may contain hazardous residues. Avoid generating mists.• Transfer solutions using equipment, which is corrosion-resistant. Cautiously, transfer into sturdy containers made of compatible materials. Never return contaminated material to its original container.• Considerable heat is generated when diluted with water. Proper handling procedures must be followed to prevent vigorous boiling, splattering or violent eruption of the diluted solution.• Never add water to a sodium hydroxide solution. ALWAYS ADD SODIUM HYDROXIDE TO WATER and provide agitation. When mixing with water, stir small amounts in slowly. Use cold water to prevent excessive heat generation.
Personal protection	Refer Section-8
Storage	<ul style="list-style-type: none">• EXTREMELY CORROSIVE!• Have emergency equipment (for fires, spills, leaks, etc.) readily available.• Store in a cool, dry, well-ventilated area.• Keep containers tightly closed when not in use and when empty• Protect from damage. Store away from incompatible materials such as strong acids, nitro aromatic, nitro paraffinic or organ halogen compounds.
Incompatibilities	Acids, alkalies, reducing agents and combustibles.

PROTECTION

Personal protection



Skin	<ul style="list-style-type: none"> • Chemical resistant Suit gloves (e.g. butyl rubber, neoprene, polyethylene and safety shoes are recommended when dealing with emergency. 	Eyes	Wear full face-shield or chemical safety goggles when there is potential for contact.
Respiration	<ul style="list-style-type: none"> • Use cartridge type gas mask to evacuate from area. • To attend emergency wear self contained breathing apparatus or supplied airline. 	Other	
Exposure limits			
TLV-TWA	2 mg/m3	TLV-STEL	Not Listed
Appropriate Engineering Control	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.		

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear to slightly turbid liquid	Molecular Weight	40.01	Specific gravity	No data available
Odour/Od or threshold	Odorless	Flash Point °C	Not Pertinent	pH/ Acidity	14
Auto Ignition Temp. °C	Not Pertinent	Boiling Point °C @ 760 mm Hg	1388 °C (1013.25 hPa)	Melting Point °C	323 °C
Vapor Press. Mm Hg @ 20 °C	< 0.1 hPa (20 °C)	Vapour Density	2.5 (Air = 1)	Water Solubility @ 20 °C	Easily soluble in cold water.
LEL %	Not Pertinent	UEL %	Not Pertinent	% Volatile	
Evaporati on rate		Viscosity @ 25 °C		PH	
Octanol / Water Partition Coefficient	No data Available				

Chemical Stability	Hygroscopic. Unstable on exposure to air.	Possibility of Hazardous reaction	Reacts violently with acids. Reacts violently with water. Product: Sodium Oxide
Hazardous Reactions/ Decomposition products	Does not decompose	Incompatible Materials	Water, Strong oxidizers, strong acids, metals, combustible materials.
Condition to avoid	<ul style="list-style-type: none"> • Avoid contact of Excess heat, incompatible materials, water/moisture to be • Reactive with oxidizing agents, reducing agents, metals, acids, alkalis. Slightly reactive with water • Extremely corrosive in presence of aluminium, brass. Corrosive in presence of copper, of stainless steel (304), of stainless steel (316). Non-corrosive in presence of glass. 		

11. TOXICOLOGICAL INFORMATION

Routes of exposure	Ingestion, Eyes, Inhalation, Skin Absorption				
LD50 (oral / rats) mg/kg	40 mg/kg	LD50 (dermal/ rats) mg/kg		LC50 (inhalation / rats) - 4 hrs. mg/l	
Target Organ Effects	Eyes, skin and respiratory tract.				
Symptoms related to physical, chemical & toxicological characteristics	Causes severe skin burns. Causes serious eye damage. Corrosion of the eye tissue. Permanent eye damage.				

12. ECOLOGICAL INFORMATION

Mobility in Soil	No (test)data on mobility of the substance available.
Persistence & degradability	Biodegradability: not applicable.
Bio accumulative Potential	Not bio accumulative
Effects on fish	<ul style="list-style-type: none"> • Sodium hydroxide (50 % solution) is slightly toxic to aquatic organisms on an acute basis. The harmful effect may be due to pH shifts outside of 5 – 10.

Effects on birds	No data available
Effects on bees	No data available

13. DISPOSAL CONSIDERATIONS

- 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.

14. TRANSPORT INFORMATION

UN No.	1823/24	IMDG No.	
Shipping Name	SODIUM HYDROXIDE	Hazard class	
Packing group		Hazard Sub class	
Marine Pollutant	Yes (Slightly)	Labels required	Corrosive, Class - 8
Warning Statement			
Packaging / Precaution			
Shipping Marking			

15. REGULATORY INFORMATION

LABELING:**PHRASES R:**

R22 Harmful if swallowed.

R35 Causes severe burns.

R41 Risk of serious damage to eyes.

PHRASES S:

S1/2 Keep locked up, out of the reach of children.

S24/25 Avoid contact with skin and eyes.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S27 Take off immediately all contaminated clothing.

S28 After contact with skin, wash immediately with plenty of water.

S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S45 In case of accident or if you feel unwell seek medical attention immediately

16. OTHER INFORMATION

NFPA Rating :



The information provided in this Material Safety data sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with other materials