

Sodium Hydroxide

Issue date 04/21/2008

Reviewed on 10/08/2018

1. Identification

- Product Identifier
- Name of the product: Sodium Hydroxide
- **CAS No:** 1310-73-2
- Synonyms: Caustic Soda and Lye
- Details of the Supplier of the Safety Data Sheet:
- Manufacturer/Supplier:

Ramsay Browne Chemical & Company PO Box 6425

Moraga, CA 94570

General Number: (925) 280-1661

• Emergency telephone number: (925) 280-1661

2. Hazard(s) Identification (continued)

- Emergency Overview:
- Poison! Danger! Corrosive!
- May be fatal if swallowed.
- Harmful if inhaled.
- Causes burns to any area of contact.
- Reacts with water, acids and other materials.
- Health Rating: 3 Severe (Poison)
- **Flammability Rating:** 0 None
- **Reactivity Rating:** 2 Moderate
- **Contact Rating:** 4 Extreme (Corrosive)
- Lab Protective Equip: Goggles & Shield; Lab coat & Apron, vent hood, proper gloves.
- **Storage Color Code:** White Stripe (Store separately)
- Potential Health Effects:
- **Inhalation:** Severe irritant. Effects from inhalation of mist vary from mild irritation to serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may include sneezing, sore throat or runny nose. Severe pneumonitis may occur.
- **Ingestion:** Corrosive! Swallowing may cause severe burns of mouth, throat and stomach. Severe scarring of tissue and death may result. Symptoms may include bleeding, vomiting, diarrhea, fall in blood pressure. Damage may appear days after exposure.
- **Skin Contact:** Corrosive! Contact with skin can cause irritation or severe burns and scarring with greater exposures.



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2. Hazard(s) Identification (continued)

- **Eye Contact:** Corrosive! Causes irritation of eyes and with greater exposures it can cause burns that may result in permanent impairment of vision, even blindness.
- **Chronic Exposure:** Prolonged contact with dilute solutions or dust has a destructive effect upon tissue.
- **Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

3. Composition / Information on ingredients

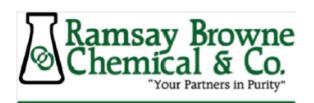
CAS # Percentage		Chemical Name
1310-73-2	10-60%	Sodium Hydroxide
7732-18-5	40-90%	Water

4. First-aid measures

- **Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- **Ingestion:** DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- **Skin Contact:** Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician, immediately. Wash clothing before reuse.
- **Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
- **Note to Physician:** Perform endoscopy in all cases of suspected sodium hydroxide ingestion. In cases of severe esophageal corrosion, the use of therapeutic doses of steroids should be considered. General supportive measures with continual monitoring of gas exchange, acid-base balance, electrolytes, and fluid intake are also required.

5. Emergency response procedures

- **Fire:** Not considered to be a fire hazard. Hot or molten material can react violently with water. Can react with certain metals, such as aluminum to generate flammable hydrogen gas.
- **Explosion:** May cause fire and explosions when in contact with incompatible materials.
- **Fire Extinguishing Media:** Use any means suitable for extinguishing surrounding fire. Adding water to caustic solution generates large amounts of heat.



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5. Emergency response procedures (continued)

• **Special Information:** In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Handling and storage

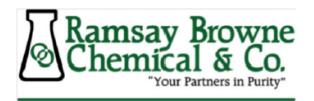
- Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. Do not flush caustic residues to the sewer. Residues from spills can be diluted with water, neutralized with dilute acid such as acetic, hydrochloric or sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal.
- US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is 800-424-8802.

7. Physical and chemical properties

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Store above 16°C (60°F) to prevent freezing. Always add the caustic to water while stirring; never the reverse. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product. Do not store with aluminum or magnesium. Do not mix with acids or organic materials.

8. Exposure Controls / Personal Protection

- Airborne Exposure Limits:
- OSHA Permissible Exposure Limit (PEL): 2 mg/m3 Ceiling
- ACGIH Threshold Limit Value (TLV): 2 mg/m3 Ceiling
- Ventilation System: A system of local and/or general exhaust is recommended to keep
 employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is
 generally preferred because it can control the emissions of the containment at its source,
 preventing dispersion of it into the general work area. Please refer to the ACGIH document,
 Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.
- Personal Respirators (NIOSH Approved): If the exposure limit is exceeded and
 engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type



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8. Exposure Controls / Personal Protection (continued)

N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

- **Skin Protection:** Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
- **Eye Protection:** Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

- **Appearance:** Clear, colorless solution
- Odor: Odorless
- Solubility: Completely miscible with water
- Density:
 - o 10% solution = 1.11
 - 25% solution = 1.27
 - 30% solution = 1.33
 - 40% solution = 1.43
 - \circ 50% solution = 1.53
 - 3N Vol Solution = 1.1
 - o 4N Vol Solution = 1.15
 - \circ 5N Vol Solution = 1.17
 - \circ 6N Vol Solution = 1.20
 - \circ 10N Vol Solution = 1.32
- **pH**: 14.0 (10%, 30% and 50% solutions)
- % Volatiles by volume @ 21°C (70°F): No information found
- Boiling Point:
 - o 10% solution 105°C (221°F)
 - \circ 30% solution = 115°C (239°F)
 - \circ 50% solution = 140°C (284°F)



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9. Physical and Chemical Properties (continued)

- Melting Point:
 - \circ 10% solution = -10°C (14°F)
 - \circ 30% solution = 1°C (34°F)
 - \circ 50% solution = 12°C (53.6°F)
- Vapor Density (Air = 1): No information found
- **Vapor Pressure (mm Hg):** 13 @ 60°C (140°F) (50% solution)
- Evaporation Rate (BuAc=1): No information found

10. Stability and Reactivity

- Stability: Stable under ordinary conditions of use and storage.
- **Hazardous Decomposition Products:** Sodium oxide. Decomposition by reaction with certain metals releases flammable and explosive hydrogen gas.
- Hazardous Polymerization: Will not occur.
- Incompatibilities: Sodium hydroxide in contact with acids and organic halogen compounds, especially trichloroethylene, may cause violent reactions. Contact with nitromethane and other similar nitro compounds causes formation of shock-sensitive salts. Contact with metals such as aluminum, magnesium, tin and zinc cause formation of flammable hydrogen gas. Sodium hydroxide, even in fairly dilute solution, reacts readily with various sugars to produce carbon monoxide. Precautions should be taken including monitoring the tank atmosphere for carbon monoxide to ensure safety of personnel before vessel entry.
- Conditions to Avoid: **Heat, moisture, incompatibles.**

11. Toxicological Information

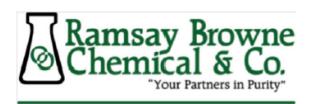
• Sodium hydroxide: irritation data

• **Skin, rabbit:** 500 mg/24 h severe

• **Eye, rabbit:** 50 ug/24 h severe

Investigated as a mutagen

	NTP Cai	rcinogen	
Ingredient	Known	Anticipated	IARC Category
Sodium Hydroxide (1310-73-2)	No	No	None
Water (732-18-5)	No	No	None



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12. Ecological Information

Environmental Fate: No information found
 Environmental Toxicity: No information found

13. Disposal Considerations

• Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

• **Proper Shipping Name:** Sodium Hydroxide

Hazard Class: 8UN/NA: UN1824Packing Group: II

• **Information reported for product/size:** 360lb

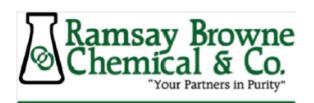
International (Water, I.M.O.)

• **Proper Shipping Name:** Sodium Hydroxide

Hazard Class: 8UN/NA: UN1824Packing Group: II

• **Information reported for product/size:** 360lb

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.



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15. Regulatory Information

Chemical Inventory Status – Part 1					
Ingredient	TSCA	EC	Japan	Australia	
Sodium Hydroxide (1310-73-2)	Yes	Yes	Yes	Yes	
Water (7732-18-5)	Yes	Yes	Yes	Yes	

Chemical Inventory Status – Part 2					
Ingredient	Korea	Canada –	Canada –	Philippines	
		DSL	NDSL		
Sodium Hydroxide	Yes	Yes	No	Yes	
(1310-73-2)					
Water (7732-18-5)	Yes	Yes	No	Yes	

Federal, State & International Regulations - Part 1					
Ingredient	SARA 302	SARA 302 -	SARA 313	SARA 313	
	– RQ TPQ		- List	- Chemical	
		-		Catg.	
Sodium Hydroxide	No	No	No	No	
(1310-73-2)					
Water (7732-18-5)	No	No	No	No	

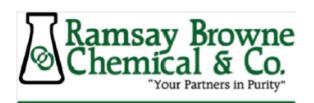
Federal, State & International Regulations – Part 2					
Ingredient	RCRA –	TSCA –	TSCA – 8(d)		
	CERCLA	261.33			
Sodium Hydroxide	1000	No	No		
(1310-73-2)					
Water (7732-18-15)	No	No	No		

Chemical Weapons Convention: No

TSCA 12(b): NoCDTA: No

SARA 311/312:

Acute: Yes
Chronic: Yes
Fire: No
Pressure: No



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15. Regulatory Information

- Reactivity: Yes (Mixture/Liquid)Australian Hazchem Code: 2R
- Poison Schedule: S6
- **WHMIS:** This SDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by the CPR.

16. Other Information

<u>Sodium Hydroxide</u>				
HEALTH	3			
FIRE	0			
REACTIVITY	1			

HMIS Hazard Rating Legend:

0 = Minimal, 1 = Slight, 2 = Moderate, 3 = Serious, 4 = Severe, * = Chronic Health Hazard

Label Hazard Warning:

POISON! DANGER! Corrosive. May be fatal if swallowed. Harmful if inhaled. Causes burns to any area of contact. Reacts with water, acids and other materials.

Label Precautions:

Do not get in eyes, on skin or on clothing. Do not breathe mist.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.

Label First Aid:

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately.



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16. Other Information (continued)

Disclaimer of Responsibility

The information on this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume damage or expense arising out of or in any way responsibility and expressly disclaim liability for loss, connected with handling, storage, use or disposal of this product. If the product is used as a component in another product, this SDS information may not be applicable.