

Safety Data Sheet (SDS)

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:**
 - 10% solution = 1.11
 - 25% solution = 1.27
 - 30% solution = 1.33
 - 40% solution = 1.43
 - 50% solution = 1.53
 - 3N Vol Solution = 1.1
 - 4N Vol Solution = 1.15
 - 5N Vol Solution = 1.17
 - 6N Vol Solution = 1.20
 - 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:**
 - 10% solution - 105°C (221°F)
 - 30% solution = 115°C (239°F)
 - 50% solution = 140°C (284°F)

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9. Physical and Chemical Properties (continued)

- **Melting Point:**
 - 10% solution = -10°C (14°F)
 - 30% solution = 1°C (34°F)
 - 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

Ingredient	NTP Carcinogen		IARC Category
	Known	Anticipated	
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:** 8
- **UN/NA:** UN1824
- **Packing Group:** II
- **Information reported for product/size:** 360lb

- **International (Water, I.M.O.)**
- **Proper Shipping Name:** Sodium Hydroxide
- **Hazard Class:** 8
- **UN/NA:** UN1824
- **Packing 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 - DSL	Canada - NDSL	Philippines
Sodium Hydroxide (1310-73-2)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

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

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

- **Chemical Weapons Convention:** No
- **TSCA 12(b):** No
- **CDTA:** 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

Sodium Hydroxide	
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

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