



The Science Company™

MSDS Sheet Supplied by:



Material Safety Data Sheet

1. PRODUCT and COMPANY IDENTIFICATION

Product: Sodium Hydroxide Solid

Product Code(s): NC-0874, NC-2091, NC-

0873 **Synonyms:** Caustic soda; lye; sodium

hydrate **Manufacturer:** The Science Company

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IN CASE OF EMERGENCY
24 HOUR CONTACT TELEPHONE
CHEM-TEL: (800)255-3924

All non-emergency questions may be directed to customer service (303)777-3777

2. COMPOSITION and INFORMATION on INGREDIENTS

<u>Ingredients</u>	<u>CAS#</u>	<u>Chemical Formula</u>	<u>Formula Weight</u>	<u>Hazardous</u>	<u>% by Weight</u>
Sodium Hydroxide	1310-73-2	NaOH	40.0	Yes	>97

3. HAZARDS IDENTIFICATION

Emergency Overview:

POISON! DANGER! EXTREMELY CORROSIVE! CAUSES SEVERE BURNS TO EYES, SKIN AND MUCUS MEMBRANES! HARMFUL OR MAY BE FATAL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN. MAY CAUSE PERMANENT EYE DAMAGE! INHALATION OF DUST, MIST OR SPRAY CAN CAUSE SEVERE DAMAGE TO LUNGS.

CAUTION: REACTS VIOLENTLY WHEN MIXED WITH WATER, ACIDS AND OTHER SUBSTANCES, SUCH AS TIN, ZINC, ALUMINUM, AND ALLOYS CONTAINING THESE METALS!

SAFETY RATINGS: Health: 4, Extreme (Poison) Reactivity: 2, Moderate
Flammability: 0, None Contact: 4, Extreme (Corrosive)

Protective Equipment: Chemical Safety Glasses/Goggles, Shield, Lab Coat/Apron, Gloves, Local/General Ventilation.

Storage Code: White: Corrosive.

Potential Health Effects:

INHALATION:

Severe irritant. Effects from inhalation of dust or 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/or 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 exposure.

EYE CONTACT:

Corrosive! Causes irritation of eyes and with greater exposures it can cause burns that may result in permanent corneal damage, even blindness.

POTENTIAL CHRONIC HEALTH EFFECTS:

Prolonged contact with even dilute solutions or dust has a destructive effect on tissue.

MEDICAL CONDITIONS GENERALLY AGGRAVATED by EXPOSURE:

Persons with pre-existing skin disorders or eye problems, or impaired kidney or respiratory function may be more susceptible to the effects of the substance.

4. FIRST AID MEASURES

INHALATION:

Remove to fresh air. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. **GET MEDICAL ATTENTION IMMEDIATELY.**

INGESTION:

DO NOT INDUCE VOMITING. Give large quantities of water or milk to drink. Never give anything by mouth to an unconscious person. **GET MEDICAL ATTENTION IMMEDIATELY.**

SKIN CONTACT:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. If irritation develops, get medical attention.

EYE CONTACT:

Check for and remove contact lenses. Immediately flush eyes with gentle but large stream 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. FIRE FIGHTING MEASURES

NFPA RATINGS: Health: 4 Flammability: 0 Reactivity: 2

FIRE:

Not considered to be a fire hazard. Material can react violently with water. Can react with certain metals, such as aluminum, to generate flammable hydrogen gas.

EXPLOSION:

Not considered to be an explosion hazard.

FIRE EXTINGUISHING MEDIA:

Use any means suitable for extinguishing surrounding fire. Adding water to caustic solid/liquid generates large amounts of heat.

SPECIAL INFORMATION:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

Remove all sources of ignition. Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Wear appropriate personal protective equipment as specified in the Exposure Control and Personal Protection Section 8. Use non sparking tools and equipment. Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. Do not flush to sewer. Residues from spills can be diluted with water and neutralized with a dilute acid such as hydrochloric or acetic. Absorb neutralized material with clay, vermiculite or other inert substance and package in a suitable container for disposal.

7. HANDLING and STORAGE

Store in a cool, dry, ventilated area, away from flame, sources of ignition and heat. Keep containers tightly closed and upright. Protect from physical damage. Keep out of direct sunlight and separate from incompatible materials. Always separate Acids and Alkalis. Do not store with aluminum and magnesium. Do not mix with acids or organic materials. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product. Storage and use areas should be non-smoking. Wash thoroughly after handling.

SPECIAL PRECAUTIONS FOR DISSOLVING SODIUM HYDOXIDE SOLID:

ALWAYS add sodium hydroxide to water, **NEVER THE REVERSE**. **ALWAYS** add product slowly to the surface of water, with constant stirring, to assure product is being completely dissolved as added. If product is added too rapidly, or without stirring, and becomes concentrated at the bottom of mixing vessel, excess heat may be generated, resulting in **DANGEROUS** boiling and spattering and a possible **IMMEDIATE AND VIOLENT ERUPTION** of highly caustic solution. Caustic soda can react **EXPOSIVELY** with acids, aldehydes and many other organic chemicals. Avoid contact with leather, wool, organic halogen and organic nitro compounds. Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed spaces and cause death.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION**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 ventilation is recommended to keep employee exposure below airborne limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion into the general work area.

PERSONAL RESPIRATORS (NIOSH) APPROVED:

If the exposure limit is exceeded and engineering controls are not feasible, wear an appropriate respirator with cartridge for the hazardous material being handled. All respirators should be approved and certified. For emergencies or instances where the exposure levels are not known, use a full face piece positive pressure, air supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen deficient atmospheres.

SKIN PROTECTION:

Wear protective clothing, gloves, lab coat or apron, as appropriate, to prevent skin contact.

EYE PROTECTION:

Use chemical safety glasses/goggles and/or a full face shield where dusting is possible. Maintain approved eye wash station and quick drench facilities in work area.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE:	White deliquescent pellet or bead.
ODOR:	Odorless.
SOLUBILITY:	111g/100g water.
SPECIFIC GRAVITY:	2.13
pH:	13-14 (0.5% Solution)
% VOLATILES by VOLUME:	No information found
BOILING POINT:	1390°C (2534°F)
MELTING POINT:	318°C (604°F)
VAPOR DENSITY (Air =1):	>1.0
VAPOR PRESSURE (mm Hg):	Negligible
EVAPORATION RATE (BuAc=1):	No information found.

10. STABILITY and REACTIVITY

STABILITY:

Stable under ordinary conditions of use and storage. Very hygroscopic. Can slowly pick up moisture from air and react with carbon dioxide from air to form sodium carbonate.

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 solvents, especially Trichloroethylene, may cause violent reaction. Contact with nitromethane and other similar nitro compounds causes a formation of shock sensitive salts. Contact with metals such as aluminum, magnesium, tin, and zinc causes formation of flammable hydrogen gas. Sodium hydroxide, even in dilute solution, reacts readily with various sugars to produce carbon monoxide.

CONDITIONS to AVOID:

Moisture, dusting, heat, and incompatibilities.

11. TOXICOLOGICAL INFORMATION

TOXICOLOGICAL DATA:

Sodium hydroxide: Oral rabbit LDLo: 500 mg/kg.

Irritation data: skin rabbit: 500 mg/24H severe; eye rabbit: 50 ug/24H severe. Investigated as a mutagen.

Cancer Lists	-----NTP Carcinogen-----		
Ingredient	Known	Anticipated	IARC Category
Sodium hydroxide (1310-73-2)	No	No	None

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:

This material is inorganic and not subject to biodegradation.

ENVIRONMENTAL TOXICITY:

Sodium Hydroxide: TLM: 80 ppm/ Mosquito fish/ 24 hr/ fresh water

13. DISPOSAL INFORMATION

Whatever cannot be saved for recovery or recycling should be handled as potentially hazardous waste and disposed of or incinerated at an approved waste disposal facility. 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

TRANSPORT (Land, DOT):

UN1823, Sodium hydroxide solid, 8, II

15. REGULATORY INFORMATION

Chemical Inventory Status – Part 1

Ingredient	TSCA	EC	Japan	Australia
Sodium Hydroxide (1310-73-2)	Yes	Yes	Yes	Yes

Chemical Inventory Status – Part 2

Ingredient	Korea	DSL	Canada NDSL	Phil
Sodium Hydroxide (1310-73-2)	Yes	Yes	No	Yes

Federal, State & International Regulations – Part 1

Ingredient	--SARA 302-- RQ	TPQ	-----SARA 313----- List	Chemical Catg
Sodium Hydroxide (1310-73-2)	No	No	No	No

Federal, State & International Regulations – Part 2

Ingredient	CERCLA	RCRA 261.33	TSCA 8 (d)
Sodium Hydroxide (1310-73-2)	1000	No	No

Chemical Weapons Convention: No TSCA 12 (b): No CDTA: No SARA 311/312 Acute: Yes Chronic: Yes
 Fire: No Pressure: No Reactivity: Yes Physical State: Pure/Solid

Australian Hazchem: Code: 2R

Poison Schedule: S6

16. OTHER INFORMATION

PRODUCT USE:

For manufacturing, industrial and laboratory use only; not for household use.

The Science Company provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

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