

# MATERIAL SAFETY DATA SHEET

GENIUM PUBLISHING CORPORATION

1145 CATALYN ST., SCHENECTADY, NY 12303 USA (518) 377-8854



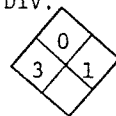
MSDS # 3  
 SODIUM HYDROXIDE  
 Revision B  
 Issued: September, 1977  
 Revised: August, 1985

From Genium's MSDS Collection, to be used as a reference.

## SECTION 1. MATERIAL IDENTIFICATION 17

**MATERIAL NAME:** SODIUM HYDROXIDE  
**OTHER DESIGNATIONS:** Caustic Soda, Soda Lye, NaOH, CAS #1310-73-2  
**MANUFACTURER:** Available from many suppliers including:  
 Dow Chemical USA, Inorganic Chemicals Dept.  
 2020 Dow Center  
 Midland, MI 48640  
 (517) 630-1000

Diamond Shamrock Co., Chlor-Alkali Div.  
 351 Phelps Court, Box 152300  
 Irving, TX 75015-2300  
 (800) 241-3134



SECTION 2. INGREDIENTS AND HAZARDS	%	HAZARD DATA
<u>Typical content:</u> Sodium Hydroxide (NaOH)	>96	Ceiling limit: 2 mg/m <sup>3</sup> *
<u>IMPURITIES:</u> Sodium Carbonate (Na <sub>2</sub> CO <sub>3</sub> ) Sodium Chloride (NaCl) Sodium Sulfate (Na <sub>2</sub> SO <sub>4</sub> ) Potassium, Calcium, Magnesium Silicon Dioxide (SiO <sub>2</sub> ) Other metals (Total)	0.5-2.5 0.01-2.1 0.02-0.1 0.1 0.03 0.01	Skin, Rabbit: 50 mg/24H - Severe irritation ----- Eye, Rabbit: 0.05 mg/24H - Severe irritation
* Current (1985-86) ACGIH TLV. The current OSHA PEL is 2.0 mg/m <sup>3</sup> averaged over 8 hours.		

### SECTION 3. PHYSICAL DATA

Boiling Point, 1 atm ..... 1388°C	Volatiles ... non volatile @ room temperature
Melting point ..... 318°C	Water solubility, g/100cc:
Specific gravity (20/4°C) ..... 2.13	@ 0°C ..... 42
Vapor pressure, mmHg @ 739°C ... 1	@ 100°C ..... 347
	Molecular weight ..... 40

**APPEARANCE & ODOR:** White or off-white hygroscopic solid. No odor.

**DESCRIPTION:** Anhydrous alkaline solid (flake, pellet, etc.)

SECTION 4. FIRE AND EXPLOSION DATA			Lower	Upper
Flash Point and Method	Autoignition Temp.	Flammability Limits in Air		
None - non combustible	N/A	N/A	N/A	N/A

Although this material is not combustible, it can be hazardous if present in a fire area. It can melt and flow when heated (m.p. 318°C). The hot or molten material can react violently with water (splattering) and can cause ignition of combustible materials. It can also react with certain metals, such as aluminum, to generate flammable hydrogen gas. (Also see Section 5).

Firefighters should wear self-contained breathing apparatus and full protective gear when fighting fires involving this material.

### SECTION 5. REACTIVITY DATA

This material is stable under normal conditions of storage and handling. It does not undergo hazardous polymerization nor does it evolve any hazardous decomposition products. It slowly absorbs moisture from the air and reacts with carbon dioxide from the air to form sodium carbonate.

Sodium hydroxide reacts violently with water, strong acids and with many organic chemicals, especially with nitrocarbons and chlorocarbons. It will react with trichloroethylene to form spontaneously flammable dichloroacetylene. Considerable heat is generated when it dissolves in water.

Avoid contact with leather and wool. Contact with aluminum, tin, zinc, and alloys that contain these metals causes the formation of hydrogen gas (flammable).

<b>SECTION 6. HEALTH HAZARD INFORMATION</b>	TLV (Ceiling limit) 2mg/m <sup>3</sup>
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Sodium Hydroxide is a strong alkali and is dangerous when improperly handled. It can be destructive to all human tissue it contacts, producing severe burns. Eye contact causes severe, permanent injury. Skin contact causes irritation and, if not removed immediately, severe burns with scarring. The effects of inhalation of the dust or mist vary from mild irritation to destructive burns. Pneumonitis may occur. Ingestion causes severe burns of the mouth, throat and stomach and may be fatal.

**FIRST AID:** EYE CONTACT: Wash eyes immediately with plenty of running water for no less than 15 minutes, including under the eyelids and all surfaces. Speed in rinsing out the eyes with water after contact is extremely important if permanent injury is to be avoided. Get medical attention promptly. SKIN CONTACT: Wash contaminated area promptly with large quantities of water. Remove contaminated clothing while washing. Prolong washing in serious cases until medical help arrives - even for an hour or longer. Physician should see all cases other than minor exposures to small areas of the skin. INHALATION: Remove from exposure to mist or dust and get prompt medical help. INGESTION: Immediately give person large quantities of water or milk to drink (never give anything by mouth to an unconscious person). DO NOT induce vomiting. Obtain medical assistance immediately.

**SECTION 7. SPILL, LEAK AND DISPOSAL PROCEDURES**

Clean-up personnel should wear protective equipment to prevent skin and eye contact. Promptly shovel up spilled solid sodium hydroxide into suitable containers for reclaim. Avoid dust generation! Clean-up spills promptly as moisture absorption from air may make clean-up difficult. Flush contaminated surfaces with water and neutralize with dilute acid, preferably acetic acid, to remove final traces. Finally, rinse with water.

DISPOSAL: Waste caustic should never be discharged directly into drains, sewers or surface waters. Dilute well with water and carefully neutralize with acid. Follow all applicable Federal, State and local regulations.

EPA HAZARDOUS WASTE NUMBER: D002, corrosive (solns  $\bar{c}$  pH  $\geq$  12.5 - 40CFR261.22).  
 REPORTABLE SPILL QUANTITY: 1000 lbs (40CFR117).

**SECTION 8. SPECIAL PROTECTION INFORMATION**

Provide adequate general and/or local exhaust ventilation to meet TLV requirements, especially where dusting or misting conditions can exist. Use a NIOSH approved respirator for dust/mist where needed. Use chemical safety goggles, A plastic face shield in addition to safety goggles is also desirable where misting/splashing may occur. Use rubber gloves, rubber apron or protective suit, and rubber boots where needed to prevent contact with sodium hydroxide, especially when preparing solutions. Eye wash stations and safety showers must be immediately available.

This is a special hazard to contact lenses wearers; soft lenses may absorb and all lenses concentrate irritants. Contact between caustic and contact lenses will severely hamper contact lens removal due to the slippery nature of this caustic.

**SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS**

Store in well-sealed containers in a dry location. Protect containers from physical damage. Avoid handling conditions that may lead to spills or leaks or the formation of mist or dust. Wherever this material is stored, unloaded, handled or used, abundant water (preferably running water) should be available for emergency use.

Drains servicing areas where this material is stored or used should have retention basins for pH adjustment and dilution of spills and flushings before discharge. Workers handling this material should be trained in proper handling and emergency procedures.

DOT HAZARD CLASSIFICATION: Corrosive Material  
 DOT LABEL: CORROSIVE  
 DOT ID NUMBER: UN1823  
 DATA SOURCE(S) CODE (See Glossary) 2, 4, 9, 11, 12, 27, 55, 58, MSDS 3 (rev. A), V.

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