



SIGMA-ALDRICH

Material Safety Data Sheet

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Version 1.100

Section 1 - Product and Company Information

Product Name: Sodium hydroxide, SigmaUltra, minimum 98%
Product Number: S8045
Brand: Sigma Chemical
Company: Sigma-Aldrich
Street Address: 3050 Spruce Street
City, State, Zip, Country: SAINT LOUIS, MO 63103 US
Technical Phone: 314 771 5765
Fax: 800 325 5052
Emergency Phone: 414 273 3850 Ext. 5996

Section 2 - Composition/Information on Ingredient

Table with 5 columns: Substance Name, CAS #, SARA 313, EC no, Annex I Index Number. Row: SODIUM HYDROXIDE, 1310-73-2, No, 215-185-5, 011-002-00-6

Formula: NaOH
Synonyms: Caustic soda, Hydroxyde de sodium (French), Lewis-red devil lye, Natriumhydroxid (German), Natriumhydroxyde (Dutch), Soda lye, Sodio(idrossido di) (Italian), Sodium hydrate, Sodium hydroxide (ACGIH:OSHA), Sodium(hydroxyde de) (French), White caustic

Section 3 - Hazards Identification

Emergency Overview
Corrosive.
Causes severe burns.
Exothermic in contact with water

HMIS Rating
Health: 3 Flammability: 0 Reactivity: 2 Special Hazard(s) : Water reactive

NFPA Rating
Health: 3 Flammability: 0 Reactivity: 2 Special Hazard(s) : Water reactive

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure
If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately. Do not induce vomiting.

Inhalation Exposure
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Eye Exposure
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Explosion Data
Sensitivity to Mechanical Impact
Contact with aluminum, tin and zinc liberates hydrogen gas. Contact with nitromethane and other similar nitro compounds causes formation of shock-sensitive salts.

Autoignition Temp: N/A

Extinguishing Media
Suitable
Use extinguishing media appropriate to surrounding fire conditions.
Unsuitable
Do not use water.

Firefighting
Protective Equipment
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s)
Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure to be Followed In Case of Leak or Spill
Evacuate area.

Procedure(s) of Personal Precaution(s)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up
Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling
User Exposure
Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

Storage
Suitable
Keep tightly closed. Store in a cool dry place.
Incompatible Materials
Do not allow contact with water.

Section 8 - Exposure Controls / PPE

Engineering Controls
Safety shower and eye bath. Use only in a chemical fume hood.

Personal Protective Equipment
Respiratory
Government approved respirator.
Hand
Compatible chemical-resistant gloves.

Eye
Chemical safety goggles.

General Hygiene Measures

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

Exposure Limits

Country	Type	Value
Poland	NDS	0.5 MG/M3
USA	OSHA PEL	2 mg/m3
Poland	NDSch	1 MG/M3
USA	TLV	2 mg/m3
Poland	NDSP	-

Exposure Limits, RTECS

Country	Source	Type	Value
USA	ACGIH	Ceiling concentration	2 MG/M3
USA	MSHA Standard	Ceiling concentration	2 MG/M3
USA	OSHA	PEL	8H TWA 2 MG/M3
New Zealand	OEL		
Remarks: check ACGIH TLV			
USA	NIOSH	Ceiling concentration	2 MG/M3/15M

Section 9 - Physical/Chemical Properties

Appearance	Physical State	Color	Form
	Solid	White	Pellets

Molecular Weight: 40 AMU

pH	13 - 14	
BP/BP Range	1,390 °C	
MP/MP Range	318 °C	
Freezing Point	N/A	
Vapor Pressure	< 18 mmHg	20 °C
Vapor Density	> 1 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	2.13 g/cm ³	
Bulk Density	2.13 kg/l	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point °F	N/A	
Flash Point °C	N/A	
Explosion Limits	N/A	

Flammability N/A
Autoignition Temp N/A

Solubility N/A

N/A = not available

Section 10 - Stability and Reactivity

Stability

Stable

Stable.

Conditions of Instability

Absorbs carbon dioxide from air. Never add water to this material, always add this material to water

Conditions to Avoid

Do not allow water to enter container because of violent reaction.

Materials to Avoid

Strong oxidizing agents, Strong acids, Organic materials.

Hazardous Decomposition Products

Hazardous Decomposition Products

Sodium/sodium oxides.

Hazardous Polymerization

Hazardous Polymerization

Will not occur.

Section 11 - Toxicological Information

Route of Exposure

Skin Contact

Causes burns.

Skin Absorption

May be harmful if absorbed through the skin.

Eye Contact

Causes burns.

Inhalation

Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion

May be harmful if swallowed.

Signs and Symptoms of Exposure

Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

RTECS Number: WB4900000

Toxicity Data

Intraperitoneal - Mouse: 40 MG/KG (LD50)

Irritation Data

Skin - Rabbit: 500 mg 24 HR
Remarks: Severe irritation effect

Eyes - Rabbit: 0.50 mg 24 HR
Remarks: Severe irritation effect

Eyes - Monkey: 1 % 24H
Remarks: Severe irritation effect

Skin - Rabbit: 500 mg 24H
Remarks: Severe irritation effect

Eyes - Rabbit: 0.4 mg
Remarks: Mild irritation effect

Eyes - Rabbit: 1 %
Remarks: Severe irritation effect

Eyes - Rabbit: 0.05 mg 24H
Remarks: Severe irritation effect

Eyes - Rabbit: 1 mg 24H
Remarks: Severe irritation effect

Eyes - Rabbit: 1 mg 30S
Remarks: Rinsed

Chronic Exposure - Mutagen

<u>Species</u>	<u>Dose</u>	<u>Cell Type</u>	<u>Mutation test</u>
Hamster	10 MMOL/L	lung	Cytogenetic analysis
Hamster	16 MMOL/L	ovary	Cytogenetic analysis

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation

Contact a licensed professional waste disposal service to dispose of this material.
Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Sodium hydroxide, solid
UN#: 1823
Class: 8
Packing Group: Packing Group II
Hazard Label: Corrosive
PIH: Not PIH

IATA

Proper Shipping Name: Sodium hydroxide, solid
IATA UN Number: 1823
Hazard Class: 8
Packing Group: II

Section 15 - Regulatory Information

EU Directives Classification

Symbol of Danger: C

Indication of Danger

Corrosive.

Risk Statements R: 35

Causes severe burns.

Safety Statements S: 26 37/39 45

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Classification and Label Text

Indication of Danger

Corrosive.

Risk Statements

Causes severe burns.

Safety Statements

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Statements

Exothermic in contact with water

United States Regulatory Information

SARA Listed: No

TSCA Inventory Item: Yes

Canada Regulatory Information

WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

Disclaimer

For R&D use only. Not for drug, household or other uses.

Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.