Name:	**Sodium hydroxide solid Material Safety Data Sheet**
Synonym:	Caustic soda; Soda lye; Sodium hydrate; Lye
CAS:	1310-73-2

Section 1 - Chemical Product

MSDS Name: Sodium hydroxide solid

Synonym: Caustic soda; Soda lye; Sodium hydrate; Lye.

Section 2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS#	Chemical Name	content	EINECS#
497-19-8	Sodium carbonate anhydrous	<3	207-838-8
1310-73-2	Sodium hydroxide	95-100	215-185-5

Text for R-phrases: see Section 16

Hazard Symbols: C

Risk Phrases: 35

Section 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Causes severe burns.Hygroscopic (absorbs moisture from the air).

Potential Health Effects

Eye:

Causes eye burns. May cause blindness. May cause chemical conjunctivitis and corneal damage.

Skin:

Causes skin burns. May cause deep, penetrating ulcers of the skin.

Ingestion:

May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. Causes severe pain, nausea, vomiting, diarrhea, and shock.

Inhalation:

Irritation may lead to chemical pneumonitis and pulmonary edema.

Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma. Causes chemical burns to the respiratory tract.

Chronic:

Prolonged or repeated skin contact may cause dermatitis. Effects may be delayed.

Section 4 - FIRST AID MEASURES

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid immediately.
Skin:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical aid immediately. Wash clothing before reuse.
Ingestion:
If swallowed, do NOT induce vomiting. Get medical aid immediately.
If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.
Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician:
Treat symptomatically and supportively.

Section 5 - FIRE FIGHTING MEASURES

General Information:
As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool. Use water with caution and in flooding amounts. Contact with moisture or water may generate sufficient heat to ignite nearby combustible materials. Contact with metals may evolve flammable hydrogen gas.
Extinguishing Media:
Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. Do NOT get water inside containers.

Section 6 - ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:
Vacuum or sweep up material and place into a suitable disposal container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation. Do not get water on spilled substances or inside containers.

Section 7 - HANDLING and STORAGE

Handling:
Wash thoroughly after handling. Do not allow water to get into the container because of violent reaction. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Avoid ingestion and inhalation. Discard contaminated shoes. Use only with adequate ventilation.
Storage:
Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from metals. Corrosives area. Keep away from acids. Store protected from moisture. Containers must be tightly closed to prevent the conversion of NaOH to sodium carbonate by the CO2 in air.

Section 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Exposure Limits CAS# 497-19-8: Russia: 5 mg/m3 TWA CAS# 1310-73-2: United Kingdom, WEL - STEL: 2 mg/m3 STEL United States OSHA: 2 mg/m3 TWA Belgium - TWA: 2 mg/m3 VLE France - VME: 2 mg/m3 VME Germany: 2 mg/m3 TWA (inhalable fraction) Japan: 2 mg/m3 Ceiling Malaysia: 2 mg/m3 Ceiling Spain: 2 mg/m3 VLA-EC Personal Protective Equipment Eyes: Wear chemical splash goggles and face shield.
Skin:
Wear appropriate protective gloves to prevent skin exposure.
Clothing:
Wear appropriate protective clothing to prevent skin exposure.
Respirators:
A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid
Color: white
Odor: Odorless
pH: 14 (5% aq soln)

Vapor Pressure: 1 mm Hg @739 deg C
Viscosity: Not available.
Boiling Point: 1390 deg C @ 760 mm Hg
Freezing/Melting Point: 318 deg C
Autoignition Temperature: Not applicable.
Flash Point: Not applicable.
Explosion Limits, lower: Not available.
Explosion Limits, upper: Not available.
Decomposition Temperature:
Solubility in water: Soluble.
Specific Gravity/Density: 2.13 g/cm3
Molecular Formula: NaOH
Molecular Weight: 40.00

Section 10 - STABILITY AND REACTIVITY

Chemical Stability:
Stable at room temperature in closed containers under normal storage and handling conditions.
Conditions to Avoid:
Moisture, contact with water, exposure to moist air or water, prolonged exposure to air.
Incompatibilities with Other Materials:
Water, metals, acids, aluminum, zinc, tin, nitromethane, leather, flammable liquids, organic halogens, wool.
Hazardous Decomposition Products:
Toxic fumes of sodium oxide.
Hazardous Polymerization: Will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

RTECS#:
CAS# 497-19-8: VZ4050000 CAS# 1310-73-2: WB4900000 LD50/LC50:
CAS# 497-19-8: Draize test, rabbit, eye: 100 mg/24H Moderate; Draize test, rabbit, eye: 50 mg Severe; Draize test, rabbit, skin: 500 mg/24H Mild; Inhalation, mouse: LC50 = 1200 mg/m3/2H; Inhalation, rat: LC50 = 2300 mg/m3/2H; Oral, mouse: LD50 = 6600 mg/kg; Oral, mouse: LD50 = 6600 mg/kg; Oral, rat: LD50 = 4090 mg/kg.
CAS# 1310-73-2: Draize test, rabbit, eye: 400 ug Mild; Draize test, rabbit, eye: 1% Severe; Draize test, rabbit, eye: 50 ug/24H Severe; Draize test, rabbit, eye: 1 mg/24H Severe; Draize test, rabbit, skin: 500 mg/24H Severe.
Carcinogenicity:
Sodium carbonate anhydrous - Not listed by ACGIH, IARC, or NTP.

Sodium hydroxide - Not listed by ACGIH, IARC, or NTP.
Other:
See actual entry in RTECS for complete information.

Section 12 - ECOLOGICAL INFORMATION

Section 13 - DISPOSAL CONSIDERATIONS

Products which are considered hazardous for supply are classified as Special Waste and the disposal of such chemicals is covered by regulations which may vary according to location. Contact a specialist disposal company or the local waste regulator for advice. Empty containers must be decontaminated before returning for recycling.

Section 14 - TRANSPORT INFORMATION

IATA
Shipping Name: SODIUM HYDROXIDE, SOLID
Hazard Class: 8
UN Number: 1823
Packing Group: II
IMO
Shipping Name: SODIUM HYDROXIDE, SOLID
Hazard Class: 8
UN Number: 1823
Packing Group: II
RID/ADR
Shipping Name: SODIUM HYDROXIDE, SOLID
Hazard Class: 8
UN Number: 1823
Packing group: II
USA RQ: CAS# 1310-73-2: 1000 lb final RQ; 454 kg final RQ

Section 15 - REGULATORY INFORMATION

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: C

Risk Phrases:

R 35 Causes severe burns.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 37/39 Wear suitable gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 497-19-8: 1

CAS# 1310-73-2: 1

Canada

CAS# 497-19-8 is listed on Canada's DSL List.

CAS# 1310-73-2 is listed on Canada's DSL List.

CAS# 497-19-8 is listed on Canada's Ingredient Disclosure List.

CAS# 1310-73-2 is listed on Canada's Ingredient Disclosure List.

US FEDERAL

TSCA

CAS# 497-19-8 is listed on the TSCA inventory.

CAS# 1310-73-2 is listed on the TSCA inventory.