

MATERIAL SAFETY DATA SHEET

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FOR PRODUCT AND SALES INFORMATION

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PRODUCT IDENTIFICATION

PRODUCT NAME: **Sodium Hydroxide**

CAS NUMBER: 1310-73-2

SYNONYMS: Caustic soda, Sodium hydrate, Lye, AC-8370. AC-8371,
AC-8373T

CHEMICAL FORMULA: NaOH

FORMULA WEIGHT: 40

INGREDIENTS

COMPONENT: Sodium hydroxide
PERCENT: 95-100
TLV: Ceiling 2 mg/m³ ACGIH

TOXICITY VALUES OF THE HAZARDOUS INGREDIENTS- SODIUM HYDROXIDE:

ORAL (LD50): ACUTE: 140-340 mg/kg (Rat)
DERMAL (LD50): ACUTE: 1350 mg/kg (Rabbit)
INTRAPERITONEAL (LD50): ACUTE: 40 mg/m³ (Mouse)

PHYSICAL DATA

PHYSICAL STATE/APPEARANCE-ODOR: White crystal, flake or solid.
Odorless. Deliquescent.

pH(1% SOLN/WATER): 12 (0.01M solution)
ODOR THRESHOLD: Not available.
PERCENT VOLATILE: Not applicable.
FREEZING POINT: 318°C
BOILING POINT: 1390°C
SPECIFIC GRAVITY: 2.13 (Water=1)
VAPOR DENSITY: Not applicable
VAPOR PRESSURE: 42 mm of Hg (@ 1000°C)
WATER/OIL DIST. COEFF.: Not available.
EVAPORATION RATE: Not applicable.
SOLUBILITY: 111 g/100 g H₂O

FIRE AND EXPLOSION DATA

FLASH POINT: Not applicable.
FLAMMABLE LIMITS: Not applicable.
AUTO-IGNITION TEMPERATURE: Not available.
FIRE DEGRADATION PRODUCTS: Sodium oxide.

FIRE EXTINGUISHING PROCEDURES:

Use extinguishing media appropriate to surrounding fire conditions. Keep water away from sodium hydroxide if possible. Wear adequate personal protection to prevent contact with material or its combustion products. Self contained breathing apparatus with a full facepiece operated in a pressure demand or other positive pressure mode.

FIRE AND EXPLOSION HAZARDS:

Avoid soaking sodium hydroxide with water due to violent reaction which will generate sufficient heat to ignite combustible materials.

Reacts with most common metals to produce hydrogen (explosive and flammable gas). Emits toxic fumes under fire conditions.

TOXICOLOGICAL PROPERTIES

ROUTES OF ENTRY: Inhalation and ingestion. Eye and skin contact.
Skin absorption.

EFFECTS OF ACUTE EXPOSURE:

Harmful by ingestion, inhalation or skin absorption. Very corrosive. Acute effects may be delayed.

EYE: Extremely corrosive. Causes severe burns and loss of vision. Causes corneal scarring and clouding. Glaucoma, cataracts and permanent blindness may occur. IRRITATION- EYE-RABBIT 50 ug/24H SEVERE.

SKIN: Very corrosive! Causes deep and severe burns, ulceration and scarring. Causes burns which may be delayed.
IRRITATION: SKIN-RABBIT 500 MG/24H SEVERE.

INHALATION:

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract inhalation may be fatal as a result of spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, laryngitis, dyspnea, headache, nausea, and vomiting. May cause severe pneumonitis.

INGESTION: Corrosive! Burns in mouth, pharynx and gastrointestinal tract. May cause pain, vomiting, diarrhea, abdominal pain, inflammation of the larynx, extensive damage or perforation of the esophagus, collapse. May be fatal.

TOXICOLOGICAL PROPERTIES

EFFECTS OF CHRONIC OVEREXPOSURE:

Sodium hydroxide has been implicated as a cause of cancer of the esophagus in individuals who have ingested it. The cancer may develop 12 to 42 years after the ingestion incident. Similar cancers have been observed at the sites of severe thermal burns. These cancers may be due to tissue destruction and scar formation rather than the sodium hydroxide. To the best of our knowledge the chronic toxicity of this substance has not been fully investigated.

FIRST-AID MEASURES

EYE CONTACT: Immediately flush eyes with copious quantities of water for at least 30 minutes holding lids apart to ensure flushing of the entire surface. If irritation persists, repeat flushing. Seek immediate medical attention. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

SKIN CONTACT: Immediately flush skin with plenty of water for at least 30 minutes while removing contaminated clothing and shoes. If irritation persists, repeat flushing. Seek immediate medical attention. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

INHALATION: Remove patient to fresh air. Administer approved oxygen supply if breathing is difficult. Administer artificial respiration or CPR if breathing has ceased. Seek immediate medical attention.

INGESTION:

DO NOT induce vomiting. If conscious, wash out mouth with water. Have conscious person drink several glasses of water to dilute. Seek immediate medical attention. Vomiting should only be induced under the direction of a physician or a poison control centre. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water.

REACTIVITY DATA

STABILITY: Unstable. Absorbs carbon dioxide and moisture from air.

HAZARDOUS DECOMP. PRODUCTS: Not available.

INCOMPATIBILITY:

Acids, acid anhydrides, acid chlorides, water, flammable/combustible materials, organic materials, peroxides, organohalogen compounds (may react to form spontaneously combustible materials), nitro and chloro organic compounds (may react explosively), chlorohydrin, maleic anhydride, nitromethane, nitropropane, nitroparaffins, phosphorus, oxides, 1,2-dichloroethylene, chlorosulfonic acid, trichloroethylene, chloroform, tetrachlorobenzene, chlorine trifluoride, chloranitrotoluenes, tetrahydrofuran, Acroleine, acrylonitrile, acetaldehyde (Violent polymerization). Reacts with most common metals to produce hydrogen (aluminum, zinc, lead, tin, brass, bronze, etc.).

REACTION PRODUCTS: Will corrode a wide variety of metals. Contact with nitro organic compounds may form shock sensitive materials.
Hazardous polymerization will not occur.

PREVENTIVE MEASURES

PROTECTIVE CLOTHING IN CASE OF SPILL AND LEAK:

Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. Full suit.

SPILL AND LEAK:

Evacuate the area. Eliminate all sources of ignition. Use a shovel to put the product into a convenient waste disposal container. Avoid raising dust. Ventilate area and wash spill site after material pick up is complete. DO NOT empty into drains. DO NOT touch spilled material.

WASTE DISPOSAL: Neutralize carefully with weak acid to pH 6 to 8. Dispose of waste material at an approved (hazardous) waste treatment/disposal facility in accordance with applicable local, provincial and Federal regulations.

STORAGE AND HANDLING:

Store in a cool place away from heated areas, sparks, and flame. Store in a well ventilated area. Store away from incompatible materials. Do not add any other material to the container. Do not wash down the drain. Do not breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment. Keep container tightly closed and dry. Manipulate in a well ventilated area or under an adequate fume hood. Avoid raising dust. Empty containers may contain a hazardous residue. Handle and open container with care. Avoid contact with a combustible material (wood, paper, oil, clothing..).

Product is highly hygroscopic. Keep away from humidity as this will promote corrosion. Do not allow water to get inside container because of violent reaction. This product must be manipulated by qualified personnel. Minimize dust generation and exposure, use dust mask or appropriate protection. Take off immediately all contaminated clothing. Do not get in eyes, on skin, or on clothing. Wash well after use in accordance with good storage and handling practices. Do not allow smoking and food consumption while handling. After handling always wash hands thoroughly with soap and water.

PROTECTIVE MEASURES

PROTECTIVE CLOTHING:

Face shield and splash goggles. Impervious gloves (rubber), apron, coveralls, and/or other resistant protective clothing. Sufficient to protect skin. A OSHA/MSHA jointly approved respirator is advised in the absence of proper environmental

controls. If more than TLV, do not breath vapor. Wear self-contained breathing apparatus. Have available and use as appropriate: rubber suits, aprons, and boots. Do not wear contact lenses. Make eye bath and emergency shower available.

ENGINEERING CONTROLS:

Use only in a chemical fume hood to keep airborne levels below recommended exposure limits.

OTHER INFORMATION

SPECIAL PRECAUTIONS OR COMMENTS:

Extremely Corrosive! Toxic! Causes severe burns! Corrosive effects on the skin and eyes may be delayed, and damage may occur without the sensation or onset of pain. Strict adherence to first aid measures

following any exposure is essential. Do not breathe vapor. Avoid all contact with the product. Avoid prolonged or repeated exposure. Manipulate in a well ventilated area or under an adequate fume hood.

Handle and open container with care Absorbs CO₂ from air. When diluting, add this product to water in small amounts to avoid spattering. Never add water to this product. The water should be lukewarm. Never start with hot or cold water.