

CORCO CHEMICAL CORPORATION

Manufacturers of ACS Reagents and Semiconductor Grade Chemicals

SAFETY DATA SHEET

SODIUM HYDROXIDE, 50% SOLUTION

1. IDENTIFICATION

Product identifier: Sodium Hydroxide, 50% Solution

Product Code Number: S77

Company Identification:

Corco Chemical Corporation
299 Cedar Lane
Fairless Hills, PA 19030
Phone: 215-295-5006
Fax: 215-295-0781

**24 Hour Emergency Telephone
Number:**

CHEMTREC (U.S.): 1-800-424-9300
CHEMTREC (Outside U.S. 1-703-527-3887

**Trade Name:
Synonyms:**

Sodium Hydroxide, 50% Solution
Caustic Soda Solution, Lye
Solution, Sodium Hydroxide
Liquid; Sodium Hydrate Solution,
Sodium Hydroxide

**Chemical Formula:
Product Use:**

NaOH in H₂O
Process chemical, Laboratory and
scientific research and development

2. HAZARD(S) IDENTIFICATION

Classification of the Substance or Mixture:

Skin corrosion	Category 1A
Serious eye damage	Category 1
Acute aquatic toxicity	Category 3

Label Elements:



Signal Word: **Danger**

Hazard Statements: : Causes severe skin burns and eye damage. Harmful to aquatic life. Prolonged exposure may have chronic effects.

Precautionary Statements: Wear protective gloves / protective clothing / eye protection/ face protection. **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a **POISON CENTER** or doctor / physician. Do not eat, drink or smoke when using this product.

3. Composition/information on ingredients

CAS Number: 1310-73-2
EC Number: 215-185-5
Index Number: 011-002-00-6
Molecular Weight: 40 g/mol

<u>Ingredient</u>	<u>CAS Number</u>	<u>EC Number</u>	<u>Percent</u>	<u>Hazardous</u>	<u>Chemical Characterization</u>
Sodium Hydroxide	1310-73-2	215-185-5	50%	Yes	Substance
Water	7732-18-5	231-791-2 40	50%	No	Mixture

4. First-aid measures

Immediate first aid treatment reduces the health effects of this substance. In all cases, immediately call a POISON CENTER or doctor / physician.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give Oxygen. Call a physician.

Ingestion: DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. 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 while removing contaminated clothing and shoes. Wash clothing before reuse. Call a physician.

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

General information: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Fire: Not considered to be a fire hazard. Hot or molten material can react violently with water. Can react with certain metals, such as aluminum, to generate flammable Hydrogen gas.

Explosion: May cause fire and explosions when in contact with incompatible materials.

Fire Extinguishing Media: Use any means suitable for extinguishing surrounding fire. CAUTION: Adding water to caustic solution 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

Personal Precautions, Protective Equipment and Emergency Procedures: Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Environmental Precautions and Methods and Materials for Containment and Cleaning Up:

Contain and recover liquid when possible. Do not let product enter drains. Residues from spills can be diluted with water, neutralized with dilute acid such as acetic, hydrochloric or sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and storage

Precautions for Safe Handling and Conditions for Safe Storage, Including Any Incompatibilities: Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Store above 16C (60F) to prevent freezing. Always add the caustic to water while stirring; never the reverse. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid.) Observe all warnings and precautions listed for the product. Do not store with aluminum or magnesium. Do not mix with acids or organic materials. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not get this material on clothing. Avoid prolonged exposure. Wash hands thoroughly after handling. Avoid release to the environment. Store locked up.

8. Exposure controls/personal protection

Airborne 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 exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators (NIOSH Approved): If the exposure limit is exceeded and engineering controls are not feasible, a half face piece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full face piece particulate respirator (NIOSH type N100 filter) may be worn up to 50

times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, Glycerine, etc.) are present, use a NIOSH type R or P filter. 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 impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection: Use chemical safety goggles and / or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

General hygiene considerations: When using, do not eat, drink or smoke. Avoid contact with eyes. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance:	Clear, colorless solution
Odor:	Odorless
Odor Threshold:	Not determined
pH:	14.0 (10%, 30% and 50% solutions)
% Volatiles by volume @ 21C (70F):	No information found
Melting Point:	For 10% solution = -10C (14 F); for 30% solution = 1C (34F); for 50% solution = 12C (53.6F)
Boiling Point / Boiling Range:	For 10% solution = 105C (221F); for 30% solution = 115C (239F); for 50% solution = 140C (284F)
Flash Point:	Not applicable
Evaporation Rate (BuAC=1):	Not determined
Flammability:	Not applicable
Upper / Lower Flammability or Explosive Limits:	Not applicable
Vapor Pressure (mm Hg):	13 @ 60C (140F) (50% solution)
Vapor Density (Air=1):	1.38 (50% solution)
Relative Density:	10% solution - 1.11, 30% solution - 1.33, 50% solution - 1.53
Solubility:	Completely miscible with water
Partition Coefficient:	n-octanol / water: No data available
Auto-ignition Temperature:	No data available
Decomposition Temperature:	No data available
Viscosity:	No data available

10. Stability and reactivity

Reactivity and / or Chemical Stability: Stable under ordinary conditions of use and storage.

Possibility of Hazardous Reactions and Conditions to Avoid: Heat, moisture, incompatibles.

Incompatible Materials: Sodium Hydroxide in contact with acids and organic halogen compounds, especially Trichloroethylene, may causes violent reactions. Contact with Nitromethane and other similar nitro compounds causes formation of shock-sensitive salts. Contact with metals such as Aluminum, Magnesium, Tin, and Zinc cause formation of flammable Hydrogen gas. Sodium Hydroxide, even in fairly dilute solution, reacts readily with various sugars to produce Carbon Monoxide. Precautions should be taken including monitoring the tank atmosphere for Carbon Monoxide to ensure safety of personnel before vessel entry.

Hazardous Decomposition Products: Sodium Oxide. Decomposition by reaction with certain metals releases flammable and explosive Hydrogen gas.

11. Toxicological information

Emergency Overview: POISON! DANGER! CORROSIVE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. CAUSES BURNS TO ANY AREA OF CONTACT. REACTS WITH WATER, ACIDS AND OTHER MATERIALS.

Potential Health Effects:

Inhalation: Severe irritant. Effects from inhalation of 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 stomach. Severe scarring of tissue and death may result. Symptoms may include bleeding, vomiting, diarrhea, fall in blood pressure. Damage may appears days after exposure.

Skin Contact: Corrosive! Contact with skin can cause irritation or severe burns and scarring with greater exposures.

Eye Contact: Corrosive! Causes irritation of eyes, and with greater exposures it can cause burns that may result in permanent impairment of vision, even blindness.

Chronic Exposure: Prolonged contact with dilute solutions or dust has a destructive effect upon tissue.

Aggravation of Pre-existing Conditions: Persons with pre-existing skin disorders or eye disease may be more susceptible to the effects of this substance.

Specific Target Organ Toxicity - Single Exposure (Globally Harmonized System)
No data available.

Specific Target Organ Toxicity - Repeated Exposure (Globally Harmonized System:) No data available.

Numerical Measures of Toxicity: Cancer Lists: NTP Carcinogen

<u>Ingredient</u>	<u>Known</u>	<u>Anticipated</u>	<u>IARC Category</u>
Sodium Hydroxide (1310-73-2)	No	No	None
Water (7732-18-5)	No	No	None

Acute Toxicity: Sodium Hydroxide: irritation data: skin, rabbit: 500 mg/24H severe; eye rabbit: 50 ug/24H severe Investigated as a mutagen.

12. Ecological information

Ecotoxicity: Harmful to aquatic life. The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms. EC50 Water flea (*Ceriodaphnia dubia*): 34.59 mg/l 48 hours LC50 Western mosquitofish (*Gambusia affinis*): 125 mg/l 96 hours.

Persistence and Degradability: Expected to readily biodegrade.

Bioaccumulative Potential: No further relevant information available.

Mobility in Soil: During movement through soil some ion exchange will occur. Also, some of the Hydroxide may remain in the aqueous phase and will move downward through soil in the direction of groundwater flow.

Other adverse effects:

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

13. Disposal considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. 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. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transportation Information

UN Number: UN1824

UN Proper Shipping Name: SODIUM HYDROXIDE SOLUTION

Packing Group: II

DOT / IMDG / IATA



Land Transport ADR/RID and GGVS/GGVE (Cross Border / Domestic)

Transport Hazard Class(es): 8

Maritime Transport IMDG/GGVSea

Transport Hazard Class(es): 8

Marine Pollutant: No

Air Transport ICAO-TI and IATA-DGR

Transport Hazard Class(es): 8

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Special Precautions for User: Warning: Corrosive Substances

15. Regulatory information

US federal regulations:

TSCA Inventory Status:	All ingredients are listed on the TSCA inventory.
DSCL (EEC)	All ingredients are listed on the DSCL inventory.
California Proposition 65:	Not Listed
SARA 302:	Not Listed
SARA 304:	Not Listed
SARA 311:	Sodium Hydroxide
AS SARA 312:	Sodium Hydroxide
SARA 313:	Not Listed
WHMIS Canada Class E:	Corrosive material.

16. Other information

Disclaimer - The information in the sheet was written based on the best knowledge and experience currently available. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Created: 8/1/14