

# Standard Operating Procedure

## Sodium Hydroxide (Pellets)

### Purpose

Sodium hydroxide is a corrosive, strong base. It reacts with strong acids, during which time heat is liberated due to exothermic reaction. It is the primary strong base used in chemical industry. Among hundreds of uses it can be utilized to increase alkalinity or to neutralize acidic solutions.

### Physical & Chemical Properties/Definition of Chemical Group

CAS#: 1310-73-2

Class: **Corrosive**

Molecular Formula: NaOH

Form (physical state): Pellets

Color: White

Melting point: 318 °C (604 °F)

pH: 13.0 – 14

Synonym: Caustic soda

### Potential Hazards/Toxicity

**OSHA Hazards** - Corrosive

Pictogram



### Potential Health Effects

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

**Skin** May be harmful if absorbed through skin. Causes skin burns.

**Eyes** Causes eye burns. Causes severe eye burns.

**Ingestion** May be harmful if swallowed.

### Signs and Symptoms of Exposure

Spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea & vomiting. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

## Personal Protective Equipment (PPE)

### Hand Protection

Handle with nitrile gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**NOTE:** Consult with your preferred glove manufacturer to ensure that the gloves you plan on using are compatible with hydrochloric acid.

Refer to glove selection chart from the links below:

[http://www.ansellpro.com/download/Ansell\\_8thEditionChemicalResistanceGuide.pdf](http://www.ansellpro.com/download/Ansell_8thEditionChemicalResistanceGuide.pdf)

OR

<http://www.allsafetyproducts.biz/page/74172>

OR

<http://www.showabestglove.com/site/default.aspx>

OR

<http://www.mapaglove.com/>

### Eye Protection

ANSI approved safety glasses or goggles. Face shield is also recommended

### Skin and Body Protection

Lab personnel working with the chemical need to wear full-length pants or its equivalent, closed-toe footwear with no skin being exposed, and a lab coat.

### Hygiene Measures

Avoid contact with skin, eyes and clothing.

Wash hands before breaks and immediately after handling Sodium Hydroxide.

## Engineering Controls

N/A

## First Aid Procedures

### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

### In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water (under safety shower). Consult a physician.

### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes (using emergency eyewash) and consult a physician. Continue rinsing eyes during transport to hospital.

### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

## Special Handling and Storage Requirements

### Precautions for safe handling

Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. **Materials to avoid:** Segregate from; Strong oxidizing agents, Strong acids, Organic materials

## Spill and Accident Procedure

### Chemical Spill Dial 9-911 and 228-7864

**Spill** – Assess the extent of danger. Help contaminated or injured persons. Evacuate the spill area. Avoid breathing vapors. If possible, confine the spill to a small area using a spill kit or absorbent material. Keep others from entering contaminated area (e.g., use caution tape, barriers, etc.).

**Small (<1 L)** – If you have training, you may assist in the clean-up effort. Use appropriate personal protective equipment and clean-up material for chemical spilled. Double bag spill waste in clear plastic bags, label and take to the next chemical waste pick-up.

**Large (>1 L)** – Dial 9-911 and EH&S at 228-7864 for assistance.

**Chemical Spill on Body or Clothes** – Remove clothing and rinse body thoroughly in emergency shower for at least 15 minutes. Seek medical attention. *Notify supervisor and EH&S at 228-7864 immediately.*

**Chemical Splash Into Eyes** – Immediately rinse eyeball and inner surface of eyelid with water from the emergency eyewash station for 15 minutes by forcibly holding the eye open. Seek medical attention. *Notify supervisor and EH&S at 228-7864 immediately.*

### Medical Emergency Dial 9-911 or 228-7864

**Life Threatening Emergency, After Hours, Weekends And Holidays** – Dial 9-911 *Note: All serious injuries must be reported to EH&S at 228-7864 within 8 hours.*

**Non-Life Threatening Emergency** – Go to the Olivewood Meadows Occupational Health 374 Olive during regular business hours. All other times report to Mercy Medical Center 315 Mercy Ave. *Note: All serious injuries must be reported to EH&S at 228-7864 within 8 hours.*

**Needle stick/puncture exposure** (as applicable to chemical handling procedure) – Wash the affected area with antiseptic soap and warm water for 15 minutes. For mucous membrane exposure, flush the affected area for 15 minutes using an eyewash station. Go to the Olivewood Meadows Occupational Health 374 Olive during regular business hours. All other times report to Mercy Medical Center 315 Mercy Ave. *Note: All needle stick/puncture exposures must be reported to EH&S at 228-7864 within 8 hours.*

## Decontamination/Waste Disposal Procedure

*General hazardous waste disposal guidelines:***Label Waste**

- Affix an on-line hazardous waste tag on all waste containers using the Online Tag Program <http://otp.ucop.edu/> as soon as the first drop of waste is added to the container

**Store Waste**

- Store hazardous waste in closed containers, in secondary containment and in a designated location
- Double-bag dry waste using transparent bags
- Waste must be under the control of the person generating & disposing of it

**Dispose of Waste**

- Dispose of regularly generated chemical waste within 90 days
- Call EH&S at 228-7864 for questions
- Empty Containers
  - Dispose as hazardous waste if it once held extremely hazardous waste (irrespective of the container size) A list can be found at <http://ehs.ucla.edu/Pub/ExtremelyHazardousWaste.pdf>

Prepare for transport to pick-up location

- Check on-line waste tag
- Use secondary containment

**Safety Data Sheet (SDS) Location**

Online SDS can be accessed at <http://ehs.ucmerced.edu/material-safety-data-sheets>.

**Protocol/Procedure**

Add small amounts (i.e. dropwise) to raise pH of electrodeposition solution.

**NOTE**

Any deviation from this SOP requires approval from PI.

**Documentation of Training** (signature of all users is required)

- Prior to conducting any work with hydrochloric acid, designated personnel must provide training to his/her laboratory personnel specific to the hazards involved in working with this substance, work area decontamination, and emergency procedures.
- The Principal Investigator must provide his/her laboratory personnel with a copy of this SOP and a copy of the SDS provided by the manufacturer.
- The Principal Investigator must ensure that his/her laboratory personnel have attended appropriate laboratory safety training or refresher training within the last one year.

I have read and understand the content, requirements, and responsibilities of this SOP:

Name	Signature	Date

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