Section 1: Product & Company Information

Product Identifier: Sodium Hydroxide, 25% Solution

Other Means of Identification
Product Number: No data available.

Recommended Use and Restrictions on Use
Recommended Use: Pulping and Bleaching, pH Neutralizer, Detergent, Soaps.
Restrictions on Use: None known.

Manufacturer/Importer/Supplier/Distributor Information
Company Name: CORECHEM Inc.
Address: 4520 Greenway Drive
Knoxville, TN 37918
USA

Information Telephone Number: 1-865-524-4239
Fax Number: 1-865-524-3375
Website: www.corecheminc.com
Contact Person: Regulatory Manager
E-mail: regulatory@corecheminc.com

Emergency Phone Number: Chemtrec 1-800-424-9300/Outside USA 1-703-527-3887 (monitored 24 hours/day)

Section 2: Hazards Identification

GHS Hazard Classification(s)

Physical Hazard(s)
Corrosive to Metals - 1

Health Hazard(s)
Acute Toxicity, Oral - 4
Corrosion/Irritation, Skin – 1A
(Corrosion)Damage/Irritation, Eye - 1

Environmental Hazard(s)
Aquatic, Acute - 3

Label Elements
Signal Word
DANGER

Hazard Symbol(s)

Hazard Statement(s)
H290: May be corrosive to metals.
H302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.
H402: Harmful to aquatic life.

Precautionary Statements
General
Not applicable.

Prevention
P234: Keep only in original container.
P260: Do not breathe dust/fume/gas/mist/vapors/spray.
P264: Wash face, hands and any exposed skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response
P301 + P312: IF SWALLOWED: Call a poison center or doctor/physician if you feel unwell.
P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
Section 3: Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Substance</th>
<th>Common Name/Synonym(s)</th>
<th>CAS #</th>
<th>Weight %</th>
<th>Impurity or Stabilizing Additive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>Caustic Soda, Caustic, Alkali, Lye, Caustic Lye, Caustic Soda, Soda Lye, Liquid Caustic, Sodium Hydrate</td>
<td>1310-73-2</td>
<td>24 – 26%</td>
<td>No</td>
</tr>
</tbody>
</table>

1. Information regarding the composition and the percent ranges of the mixtures ingredients are not presented as it Confidential Business Information (CBI). Where a medical emergency exists (as determined by medical professional), timely disclosure of CBI is assured. The information omitted pertains to only the names of the substances and the concentration in the mixture (product) and can only be requested by a doctor/physician or Local/State/Provincial or Federal Authority.

2. Non-hazardous ingredients are not presented as to protect the proprietary formula of the product.

3."— Indicates ingredient is a mixture and contains multiple ingredients or may have no identifying CAS number.

Section 4: First-Aid Measures

General Information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wash contaminated clothing before reuse.

Inhalation
Move to fresh air. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.

Skin Contact
Take off immediately all contaminated clothing. Wash off IMMEDIATELY with plenty of water for at least 15-20 minutes. Get medical attention immediately! Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes.

Eye Contact
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Do not induce vomiting. Immediately rinse mouth and drink plenty of water. If vomiting occurs, keep head low so that stomach content doesn’t get into the lungs. Never give anything by mouth to an unconscious person. Do not use mouth-to-mouth method if victim ingested the substance.

Most important symptoms/effects, acute and delayed
Symptoms
Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Shortness of breath.

Indication of immediate medical attention and special treatment needed
Hazard
No data available.

Treatment
Provide general supportive measures and treat symptomatically. Symptoms may be delayed. Keep victim under observation.

Section 5: Fire-Fighting Measures

General Fire Hazards
No unusual fire or explosion hazards noted.

Suitable (and Unsuitable) Extinguishing Media
Suitable Extinguishing Media
Unsuitable Extinguishing Media
Do not use a solid water stream as it may scatter and spread fire. Do not use halogenated extinguishing agents.

Specific Hazards Arising from the Chemical
The product itself does not burn. May decompose upon heating to produce corrosive and/or toxic fumes. Contact with metal may release flammable hydrogen gas.

Special Protective Equipment and Precautions for Firefighters
Special Fire-Fighting Equipment Procedures
In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.

Special Protective Equipment for Fire-Fighters
As in any fire, wear self-contained breathing apparatus: pressure-demand (OSHA/NIOSH approved or equivalent) and full protective gear.

Section 6: Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures
Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained.

Methodsand Materials for Containment and Clean-Up
Large Spills: Stop the flow of material, if this is impossible. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Following product recovery, flush area with water.
Small Spills: Absorb spill with vermiculite or other inert material. Clean surface thoroughly to remove residual contamination. Never return spills in original containers for re-use. For waste disposal, see Section 13 of the SDS.

Notification Proceudres
In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Environmental Precautions
Avoid discharge into drains, watercourses or onto the ground.

Section 7: Handling and Storage

Precautions for Safe Handling
Use caution when combining with water; DO NOT add water to caustic; ALWAYS add caustic to water while stirring to minimize heat generation. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe mist or vapor. Use only with adequate ventilation. Wear appropriate personal protective equipment. Transfer and storage systems should be compatible and corrosion resistant. Observe good industrial hygiene practices.

Conditions for Safe Storage, including any Incompatibilities
Keep container tightly closed. Store in a cool, dry, well-ventilated place. Store in corrosive resistant container with a resistant inner liner. Store away from incompatible materials (see Section 10). Store at temperatures not exceeding 40°C/104°F. Compatible storage materials may include, but not be limited to, the following: nickel and nickel alloys, steel, plastics, plastic or rubber-lined steel, FRP, or Derakane vinyl ester resin. Do not allow material to freeze.

Section 8: Exposure Controls/Personal Protection

Control Parameters

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Type</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>PEL</td>
<td>2 mg/m³</td>
<td>US OSHA Table Z-1</td>
</tr>
<tr>
<td>Sodium Hydroxide</td>
<td>Ceiling</td>
<td>2 mg/m³</td>
<td>US. ACGIH Threshold Limit Values</td>
</tr>
</tbody>
</table>

Biological Limit Values
The product does not contain any relevant quantities of hazardous materials with assigned biological limit values.

Appropriate Engineering Controls
No data available.

Individual protection measures, such as personal protective equipment (PPE)

<table>
<thead>
<tr>
<th>General Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.</td>
</tr>
</tbody>
</table>

Eye/Face Protection
Wear chemical goggles and face shield.

Skin Protection

Hand Protection
Wear appropriate chemical resistant gloves.

Other
Wear appropriate chemical resistant clothing.

Respiratory Protection
If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.
Hygiene Measures
When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated footwear that cannot be cleaned. Wash hands before breaks and immediately after handling the product. Wash contaminated clothing before reuse. Avoid contact with eyes, skin, and clothing.

Section 9: Physical and Chemical Properties

Appearance:
- Physical State: Liquid
- Color: Clear to Hazy White
- Odor: Odorless
- Odor Threshold: No data available.
- pH: 14
- Melting Point/Freezing Point: 50 - 53 °F (10 - 11.67 °C) (59% solution)
- Initial Boiling Point and Boiling Range: 266 - 284 °F (130 - 140 °C) (50% solution)
- Flash Point: Not applicable.
- Evaporation Rate (butyl acetate = 1): No data available.
- Flammability (solid, gas): No data available.
- Upper/Lower Limit on Flammability or Explosive Limits:
  - Flammability Limit – Upper: No data available.
  - Flammability Limit – Lower: No data available.
  - Explosive Limit – Upper: No data available.
  - Explosive Limit – Lower: No data available.
- Vapor Pressure: 23.76 mm Hg (approximately) (77 °F (25 °C))
- Vapor Density (air = 1): No data available.
- Relative Density (water = 1): 1.2781 – 1.3317 @ 68 °F
- Solubility(ies):
  - Solubility in water: Completely miscible with water.
  - Solubility (other): No data available.
- Partition coefficient (n-octanol/water): No data available.
- Auto-Ignition Temperature: No data available.
- Decomposition Temperature: No data available.
- Viscosity: No data available.

Other Information:
- Molecular Weight: 40.1 g/mol
- Formula: NaOH

Section 10: Stability and Reactivity

Reactivity
- Contact with metal may release flammable hydrogen gas.

Chemical Stability
- Material is stable under normal conditions.

Possibility of Hazardous Reactions
- Hazardous polymerization does not occur.

Conditions to Avoid
- Reacts violently with strong acids. This product may react with oxidizing agents. Do not mix with other chemicals. Corrosive to aluminum, tin, zinc, copper and most alloys in which they are present including brass and bronze. Corrosive to steels at elevated temperatures above 40°C (104°F).

Incompatible Materials

Hazardous Decomposition Products
- Contact with metals (aluminum, zinc, tin) and sodium tetrahydroborate liberates hydrogen gas.

Section 11: Toxicological Information

Information on routes of exposure
- Ingestion: Causes digestive tract burns. Harmful if swallowed.
- Inhalation: May cause irritation to the respiratory system.
- Skin Contact: Causes severe skin burns.
- Eye Contact: Causes severe eye burns and damage.

Information on Toxicological Effects
- Acute Toxicity (List all possible routes of exposure)
  - Oral: Sodium Hydroxide: LD50 (Rat): 300 – 500 mg/kg
  - Dermal: Sodium Hydroxide: LD50 (Rabbit): > 2 g/kg
Inhalation
No data available.

Repeated Dose Toxicity
Sodium Hydroxide: (Mouse): 40 mg/kg, intraperitoneal

Skin Corrosion/Irritation
Causes severe skin burns.

Serious Eye Damage/Eye Irritation
Causes severe eye burns and damage.

Respiratory/Skin Sensitization
No data available.

Carcinogenicity
IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

US. National Toxicology Program (NTP) Report on Carcinogens
No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)
No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Germ Cell Mutagenicity
In Vitro
No mutagenic components identified.

In Vivo
No mutagenic components identified.

Reproductive Toxicity
None known.

Specific Target Organ Toxicity – Single Exposure
None known.

Specific Target Organ Toxicity – Repeated Exposure
None known.

Aspiration Hazard
Droplets of the product aspirated into the lungs through ingestion or vomiting may cause serious chemical pneumonia.

Other Effects
None known.

Section 12: Ecological Information

Ecotoxicity

Acute Hazards to the Aquatic Environment
Fish
Sodium Hydroxide: LC50 (Bluegill (Lepomis Macrochirus), 48 h): 99 mg/l
Sodium Hydroxide: LC50 (Mosquitofish (Gambusia Affinis Afinis), 96 h): 125 mg/l

Aquatic Invertebrates
No data available.

Toxicity to Aquatic Plants
No data available.

Chronic Hazards to the Aquatic Environment
Fish
No data available.

Aquatic Invertebrates
No data available.

Toxicity to Aquatic Plants
No data available.

Persistence and Degradaibility

Biodegradation
Expected to degrade rapidly in air.

BOD/COD Ratio
No data available.

Bioaccumulative Potential

Bioconcentration Factor (BCF)
No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)
Section 13: Disposal Considerations

Disposal Instructions
Collect and reclaimordisposein sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/ regional/national/international regulations.

Contaminated Packaging
Handle contaminated packages in the same way as the substance itself. Emptyed containers may retain hazardous residue and explosive vapors. Keep away from heat, sparks, and flames. Do not cut, puncture, or weld on or near this container. Follow label warnings until container is thoroughly cleaned or destroyed.

Section 14: Transportation Information

US Department of Transportation (DOT)
UN Number: UN1824
UN Proper Shipping Name: Sodium Hydroxide Solution
Technical Name: -
Hazard Class: 8
Subsidiary Hazard Risk: -
Packing Group: II
DOT Label/Placard Exemptions: Not determined
Special Provisions: B2, I/B2, N34, T7, TP2
Packaging Exceptions: 49CFR 173.154
Packaging Non-Bulk: 49CFR 173.202
Packaging Bulk: 49CFR 173.242
Reportable Quantity (RQ): 1,000lb (454kg)
Marine Pollutant: No
Poison Inhalation Hazard: No
Special precautions for user: Transport within user's premises; always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
Emergency Response Guidebook (ERG) #: 154

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

Section 15: Regulatory Information

US Federal Regulations
Toxic Substance Control Act (TSCA), Chemical Substance Inventory, Section 8(b)
This product or ingredient(s) are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substance List (40 CFR 302.4)
The following chemical(s) in this material are subject to reporting levels established by CERCLA:
Sodium Hydroxide (CAS# 1310-73-2)

Clean Air Act (CAA), Section 112(r)
No chemical(s) in this material are subject to the reporting requirements of CAA.

Emergency Planning and Community Right-To-Know Act (EPCRA)
EPCRA 302 Extremely Hazardous Substance
No chemical(s) in this material are subject to the reporting requirements of SARA Title III, Section 302.

EPCRA 304 Emergency Response Notification
No chemical(s) in this material are subject to the reporting requirements of SARA Title III, Section 304.

EPCRA311/312 Emergency and Hazardous Materials Reporting
Fire Hazard: No
Sudden Release of Pressure: No
Reactive: Yes
Acute (Immediate) Health Hazard: Yes
Chronic (Delayed) Health Hazard: No

EPCRA 313 Toxic Chemical Release Inventory (TRI) Reporting
This material does not contain any chemical(s) with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
Section 16: Other Information

Hazardous Materials Identification System (HMIS®) Classification

- **Health Hazard:** 3
- **Chronic Health Hazard:** /  
- **Flammability:** 0
- **Physical Hazard:** 1

#Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe

National Fire Protection Association (NFPA 704) Rating

- **Health Hazard:** 3
- **Fire Hazard:** 0
- **Reactivity Hazard:** 1
- **Special:** N/A

#Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe

Prepared By: Regulatory Manager  
Version #: 001  
Issue Date: July 31, 2015  
Revision Date: -  
Revisions: -

Key to Abbreviations and Acronyms

- **ATE:** Acute Toxicity Estimate  
- **BCF:** Bioconcentration Factor  
- **EC50:** Effective concentration, 50%  
- **IDHL:** Immediately Dangerous to Life and Health  
- **Kg:** Kilogram  
- **lb:** Pound  
- **LC50:** Lethal Concentration, 50%  
- **LD50:** Lethal Dose, 50%  
- **mg:** Milligram  
- **ml:** Milliliter  
- **N/A:** Not Applicable  
- **N/D:** Not Determined  
- **PEL:** Permissible Exposure Limit  
- **REL:** Recommended Exposure Limit  
- **STEL:** Short-term Exposure Limit  
- **TWA:** Time weighted average  

**ACGIH:** American Conference of Industrial Hygienists  
**AIHA:** American Industrial Hygiene Association  
**BEI:** Biological Exposure Indices  
**CAS:** Chemical Abstracts Service  
**DOT:** US Department of Transportation  
**EPA:** US Environmental Protection Agency  
**GHS:** Globally Harmonized System of Classification and Labelling of Chemicals  
**IARC:** International Agency for Research on Cancer  
**IATA:** International Air Transport Association  
**IBC:** Intermediate Bulk Container  
**IMDG:** International Maritime Dangerous Goods  
**NIOSH:** National Institute for Occupational Safety and Health  
**NTP:** National Toxicology Program  
**OSHA:** US Occupational Health and Safety Administration  
**SARA:** US EPA Superfund Amendments and Reauthorization Act  
**TSCA:** US EPA Toxic Substances Control Act  
**UN:** United Nations

References

- **HSDB:** Hazardous Substances Data Bank

Disclaimer

The information in this SDS was obtained from sources which we believe are reliable. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, REGARDING ITS CORRECTNESS. The conditions or methods of handling, storage, use, and disposal of the product are beyond our control and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.