Section 1: Product & Company Information

Product Identifier: Sodium Hydroxide, 50% 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: 4320 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
Corrosions/Irritation, Skin – 1A
(Corrosion)Irritation, Eye - 1

Environmental Hazard(s)
Aquatic, Acute - 3

Label Elements
Signal Word
DANGER

 Hazard Symbol(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/vapourspray.
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 + P333: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

Page 1 of 7
Section 3: Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Substance</th>
<th>Chemical Identity</th>
<th>Common Name/Synonym(s)</th>
<th>CAS # 3</th>
<th>Weight %</th>
<th>Impurity or Stabilizing Additive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td></td>
<td>Caustic Soda, Caustic, Alkali,</td>
<td>1310-73-2</td>
<td>49 – 51%</td>
<td>No</td>
</tr>
<tr>
<td>Sodium Chloride</td>
<td></td>
<td>Caustic Soda 50%, Soda Lye,</td>
<td>7647-14-5</td>
<td>0-2%</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Liquid Caustic, Sodium Hydrate</td>
<td></td>
<td></td>
<td></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 at Local State/Provincial or Federal Authority.

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

3. 3-“ Indicates ingredient is a mixture and contains multiple ingredients armay have no identifying CAS number.

Section 4: First-Aid Measures

General Information
Corrosive! Harmful if inhaled, absorbed thru skin or swallowed. Causes severe skin and eye burns. Prolonged or repeated exposure may cause discoloration and erosion of the teeth. Vapors are extremely irritating to the eyes and respiratory tract. This product is often transported and handled hot. Contact with heated material may cause thermal burns. Can decompose at high temperatures forming toxic gases. Contents may develop pressure on prolonged exposure to heat.

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
Due to the severely irritating or corrosive nature of the material, swallowing may lead to ulceration and inflammation of the upper alimentary tract with the hemorrhage and fluid loss. Also, perforation of the esophagus or stomach may occur, leading to mediastinitis or peritonitis and the resultant complications. Mucosal injury following ingestion of this corrosive material may contraindicate the induction of vomiting in the treatment of possible intoxication. Similarly, if gastric lavage is performed, intubation should be done with great care. If oral burns are present or corrosive ingestion is suspected by the patient's history, perform esophagoscopy as soon as possible. Scope should not be passed beyond the first burn because of the risk of perforation. This product contains materials that may cause severe pneumonitis if aspirate. If ingestion has occurred less than 2 hours earlier, carry out careful gastric lavage; use endotracheal cuff if available, to prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Give artificial resuscitation and appropriate chemotherapy if respiration is depressed. Medical conditions that may be aggravated by exposure to this product include diseases of the skin, eyes, or respiratory tract.
Section 5: Fire-Fighting Measures

General Fire Hazards
Not normally a fire hazard. Water content of product prevents ignition. Reacts with most metals to produce hydrogen gas which can make an explosive mixture with air. Closed containers exposed to heat may burst. Spilled material may cause floors and contact surfaces to become slippery.

Suitable (and Unsuitable) Extinguishing Media
Suitable Extinguishing Media

Unsuitable Extinguishing Media
Do not use 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 the fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.

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.

Method and Materials for Containment and Clean-Up
Collect product for recovery or disposal. For release to land, or storm water runoff, contain discharge by constructing dikes or applying inert absorbent. For release to water utilize damsing and/or water diversion to minimize the spread of contamination. Ventilate enclosed spaces. Notify applicable government authority if release is reportable or could adversely affect the environment. Spilled material may cause floors and contact surfaces to become slippery. Wear a respirator, protective clothing, and gloves. A chemical splash suit should be used when necessary to prevent skin contact with highly corrosive liquids. Replace damaged containers immediately to avoid loss of material and contamination of the surrounding atmosphere.

Notification Procedures
Notify applicable government authority if release is reportable or could adversely affect the environment.

Environmental Precautions
Avoid discharge into drains, water courses 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)

General Information
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.

Eye/Face Protection
Wear chemical goggles and face shield.
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: (-5 to -12°C) (50% solution)
- Initial Boiling Point and Boiling Range: (130 to 140°C) (50% solution)
- Flash Point: Not applicable.
- Evaporation Rate (butylacetate = 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): 1.525 (50% solution) at 68 °F (20 °C)
Solubility:
- 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
- High temperatures, sparks, open flames and all other sources of ignition. Avoid moisture contamination. Avoid direct contact of this product with water as this can cause a violent exothermic reaction. Keep tightly closed to protect quality.

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.

**Repetitive 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.


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 Affinis), 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 Degradability
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)
No data available.

Mobility in Soil
No data available.

Other Adverse Effects
None known.

Section 13: Disposal Considerations

Disposal Instructions
Collect and reclaim or dispose in 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. Dispose of waste material at an approved hazardous waste treatment/disposal facility in accordance with applicable local, provincial and federal regulations. Do not dispose of waste with normal garbage, or to sewer systems.

Contaminated Packaging
Empty containers retain product residue and can be dangerous. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. Treat package in the same manner as the product.

Section 14: Transportation Information

US Department of Transportation (DOT)
UN Number: UN1824
UN Proper Shipping Name: Sodium hydroxide solution
Technical Name: -
Subsidiary Hazard Risk: -
Packing Group: II
DOT Label/Placard Exemptions: Not determined
Special Provisions: B2, N34, T7, TP2
Packaging Exclusions: 49CFR 173.154
Packaging Non-Bulk: 49CFR 173.202
Packaging Bulk: 49CFR 173.242
Reportable Quantity (RQ): 1,000 lb (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.
### Hazardous Materials Identification System (HMIS®) Classification

<table>
<thead>
<tr>
<th>Health Hazard:</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Health Hazard:</td>
<td>/</td>
</tr>
<tr>
<td>Flammability:</td>
<td>0</td>
</tr>
<tr>
<td>Physical Hazard:</td>
<td>1</td>
</tr>
</tbody>
</table>

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

### National Fire Protection Association (NFPA 704) Rating

<table>
<thead>
<tr>
<th>Fire Hazard:</th>
<th>0</th>
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</thead>
<tbody>
<tr>
<td>Reactivity Hazard:</td>
<td>1</td>
</tr>
</tbody>
</table>

**Special:** N/A

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

Prepared by: Regulatory Manager  
Version #: 001  
Issue Date: September 11, 2015  
Revision Date: August 21, 2018  
Revisions: 01

### Key to Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE</td>
<td>Acute Toxicity Estimate</td>
</tr>
<tr>
<td>BCF</td>
<td>Bioconcentration Factor</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective concentration, 50%</td>
</tr>
<tr>
<td>IDLH</td>
<td>Immediately Dangerous to Life and Health</td>
</tr>
<tr>
<td>Kg</td>
<td>Kilogram</td>
</tr>
<tr>
<td>I</td>
<td>Liter</td>
</tr>
<tr>
<td>lb</td>
<td>Pound</td>
</tr>
<tr>
<td>LC50</td>
<td>Lethal Concentration, 50%</td>
</tr>
<tr>
<td>LD50</td>
<td>Lethal Dose, 50%</td>
</tr>
<tr>
<td>mg</td>
<td>Milligram</td>
</tr>
<tr>
<td>ml</td>
<td>Milliliter</td>
</tr>
<tr>
<td>N/A</td>
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<tr>
<td>N/D</td>
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<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
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<tr>
<td>REL</td>
<td>Recommended Exposure Limit</td>
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<tr>
<td>STEL</td>
<td>Short-term Exposure Limit</td>
</tr>
<tr>
<td>TWA</td>
<td>Time weighted average</td>
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<tr>
<td>ACGIH</td>
<td>American Conference of Industrial Hygienists</td>
</tr>
<tr>
<td>AIHA</td>
<td>American Industrial Hygiene Association</td>
</tr>
<tr>
<td>BEI</td>
<td>Biological Exposure Indices</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service</td>
</tr>
<tr>
<td>DOT</td>
<td>US Department of Transportation</td>
</tr>
<tr>
<td>EPA</td>
<td>US Environmental Protection Agency</td>
</tr>
<tr>
<td>GHS</td>
<td>Globally Harmonized System of Classification and Labelling of Chemicals</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IBC</td>
<td>Intermediate Bulk Container</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods</td>
</tr>
<tr>
<td>NIOSH</td>
<td>National Institute for Occupational Safety and Health</td>
</tr>
<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
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<tr>
<td>OSHA</td>
<td>US Occupational Health and Safety Administration</td>
</tr>
<tr>
<td>SARA</td>
<td>US EPA Superfund Amendments and Reauthorization Act</td>
</tr>
<tr>
<td>TSCA</td>
<td>US EPA Toxic Substances Control Act</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
</tbody>
</table>

### References

- HSDB® - Hazardous Substances Data Bank

### Disclaimer

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