ESSENTIAL CHEMISTRY. INNOVATIVE SOLUTIONS.

SAFETY DATA SHEET

Print Date: *August 22, 2018*

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)
In accordance with OSHA Hazard Communication Standard 29 CFR 1910.1200 (HazCom 2012).

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.

P304 + P340: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER or doctor/physician.
P321: Specific treatment (see supplemental first aid instructions on this label).
P330: Rinse mouth.
P363: Wash contaminated clothing before reuse.
P390: Absorb spillage to prevent material damage.

Storage

P405: Store locked up.
P406: Store in corrosive resistant container with a resistant inner liner.

Disposal

P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC)

None known.

Section 3: Composition/Information on Ingredients

Substance

Chemical Identity[2]	Common Name/Synonym(s)	CAS #[3]	Weight %	Impurity or Stabilizing Additive
Sodium Hydroxide	*Caustic Soda, Caustic, Alkali, Lye, Caustic Lye, Caustic Soda 50%, Soda Lye, Liquid Caustic, Sodium Hydrate*	*1310-73-2*	*49 – 51%*	*No*
Sodium Chloride		*7647-14-5*	*0-2 %*	*No*

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

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

Hazards

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

Water fog. Foam. Dry chemical powder. Carbon dioxide. Use extinguishing agent suitable for type of surrounding fire.

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

Isolate materials that are not involved in the fire and protect personnel. Remove containers from fire zone whenever possible.

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.

Methods 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 damming/ 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

Occupational Exposure Limits

Chemical Identity	Type	Value	Source
Sodium Hydroxide	*PEL*	*2 mg/m³*	*US OSHA Table Z-1*
Sodium Hydroxide	*Ceiling*	*2 mg/m³*	*US. ACGIH Threshold Limit Values*

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.

Skin Protection

Hand Protection

Gloves should be made from butyl rubber, neoprene, natural rubber, nitrile rubber or PVC should be impervious under conditions of use. Discard contaminated gloves. Prior to use, user should confirm impermeability.

Other

Wear appropriate chemical resistant clothing. Clothing should be made from butyl rubber, neoprene, natural rubber, nitrile rubber or PVC should be impervious under conditions of use. Discard contaminated gloves. Prior to use, user should confirm impermeability. Wear impermeable apron and boots. A chemical splash suit should be used when necessary to prevent skin contact with highly corrosive liquids. Locate safety shower and eyewash station close to chemical handling area. Take all precautions to avoid personal contact.

Respiratory Protection

No specific guidelines available. A NIOSH/MSHA -approved full face respirator equipped with dust, mist, fume cartridges for concentrations up to 10 mg/m3. An air supplied respirator if concentrations are higher or unknown. Immediately dangerous to life and death level: 10 mg/m3. The purpose of establishing an IDLH value is to ensure that the worker can escape from a given contaminated environment in the event of failure of the most protective respiratory equipment. In the event of failure of respiratory protective equipment, every effort should be made to exit immediately.

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:	*(5-12°C) (50% solution)*
Initial Boiling Point and Boiling Range:	*(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)***:**	*1.525 (50% solution) at 68 °F (20 °C)*
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

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

Oxidizing agents. Acids. Phosphorus. Aluminum. Zinc. Tin. Initiates or catalyzes violent polymerization of acetaldehyde, acrolein or acrylonitrile.

Hazardous Decomposition Products

Contact with metals (aluminum, zinc, tin) and sodium tetra hydroborate 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 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:	*-*
Hazard Class:	*8*
Subsidiary Hazard Risk:	*-*
Packing Group:	*II*
DOT Label/Placard Exemptions:	*Not determined*
Special Provisions:	*B2, IB2, 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.

EPCRA 311/312 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.

Important Note: Due to the changing nature of regulatory requirements, the information in this document should NOT be considered all-inclusive or authoritative. Users should make their own investigations to determine the suitability of the information for their particular purposes. International, Federal, State and Local regulations should be consulted to determine compliance with all required reporting requirements.

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: September 11, 2015
Revision Date: August 21, 2018
Revisions: 01

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
l – Liter
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.