1. Identification

Product identifier Sodium Hydroxide Solution

Other means of identification

SDS number GENLP-TDC-002

Recommended use Product is a unique alkaline material, playing a vital role in many industrial processes.

Recommended restrictions Use in accordance with supplier's recommendations.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer TDC, L.L.C.

Address 1916 Farmerville Hwy
Ruston, LA 71270

Telephone Customer Service (800) 422-6274

Email TDCcustomerservice@genlp.com

24 Hour Emergency Telephone CHEMTREC 800-424-9300

2. Hazard(s) identification

Physical hazards Corrosive to metals Category 1

Health hazards Skin corrosion/irritation Category 1A

Serious eye damage/eye irritation Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement May be corrosive to metals. Causes severe skin burns and eye damage.

Precautionary statement

Prevention Keep only in original container. Do not breathe mist or vapor. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Rinse mouth. Do NOT induce vomiting. Immediately call a poison center/doctor. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Absorb spillage to prevent material damage.

Storage Store locked up. Store in corrosive resistant container with a resistant inner liner.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>49 - 51</td>
</tr>
</tbody>
</table>

Composition comments Components not listed are either non-hazardous or are below reportable limits. All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
4. First-aid measures

Inhalation
Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact
Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes. Provide eyewash station. 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. If vomiting occurs, keep head low so that stomach content doesn’t get into the lungs.

Most important symptoms/effects, acute and delayed
Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Causes digestive tract burns.

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

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

5. Fire-fighting measures

Suitable extinguishing media
Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media
No restrictions known.

Specific hazards arising from the chemical
During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions
Cool containers exposed to heat with water spray and remove container, if no risk is involved.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up
Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Neutralize with dilute acids.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Environmental precautions
Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling
Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities
Store locked up. Store in a cool, dry place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Keep only in the original container. Unsuitable containers: copper, zinc, aluminum, copper alloy, zinc alloy, aluminum alloy. Store away from incompatible materials (see Section 10 of the SDS). Store at temperature below 150°F. Provide appropriate secondary containment.
8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide (CAS 1310-73-2)</td>
<td>PEL</td>
<td>2 mg/m3</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

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<th>Components</th>
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<th>Value</th>
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<tbody>
<tr>
<td>Sodium hydroxide (CAS 1310-73-2)</td>
<td>Ceiling</td>
<td>2 mg/m3</td>
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US. NIOSH: Pocket Guide to Chemical Hazards

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Biological limit values
No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls
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.

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear chemical splash goggles/face shield.

Skin protection
Hand protection
Wear appropriate chemical resistant gloves. Neoprene, PVC, nitrile, or natural rubber gloves are recommended.

Skin protection
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.

General hygiene considerations
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.

9. Physical and chemical properties

Appearance

Physical state
Liquid.

Form
Liquid.

Color
Colorless, clear to slightly hazy.

Odor
No distinct odor.

Odor threshold
Not available.

pH
14

Melting point/freezing point
Not available.

Initial boiling point and boiling range
293 °F (145 °C)

Flash point
Not available.

Evaporation rate
Not available.

Flammability (solid, gas)
Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)
Not available.
Flammability limit - upper (%): Not available.
Explosive limit - lower (%): Not available.
Explosive limit - upper (%): Not available.
Vapor pressure: 17 - 18 mmHg (20 °C)
Vapor density: Not available.
Relative density: 1.52 (20 °C) (Water = 1)
Solubility (water): Completely soluble in water.
Partition coefficient (n-octanol/water): Not available.
Auto-ignition temperature: Not available.
Decomposition temperature: Not available.
Viscosity: Not available.
Other information:
Explosive properties: Not explosive.
Oxidizing properties: Not oxidizing.
Pounds per gallon: 12.7 lbs/gal

10. Stability and reactivity
Reactivity: Reacts violently with strong acids. This product may react with oxidizing agents. May be corrosive to metals.
Chemical stability: Material is stable under normal conditions.
Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.
Conditions to avoid: Contact with incompatible materials. Do not mix with other chemicals.
Hazardous decomposition products: Contact with water produces heat, as well as toxic and corrosive fumes. Contact with metals may evolve flammable hydrogen gas. Thermal decomposition or combustion may produce: Sodium oxides. Carbonates. Peroxides.

11. Toxicological information
Information on likely routes of exposure:
Inhalation: May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact: Causes severe skin burns.
Eye contact: Causes serious eye damage.
Ingestion: Causes digestive tract burns.
Symptoms related to the physical, chemical and toxicological characteristics: Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Causes digestive tract burns.

Information on toxicological effects:
Acute toxicity: Not expected to be acutely toxic.
Skin corrosion/irritation: Causes severe skin burns.
Serious eye damage/eye irritation: Causes serious eye damage.
Respiratory or skin sensitization:
- Respiratory sensitization: Not a respiratory sensitizer.
- Skin sensitization: This product is not expected to cause skin sensitization.
Germ cell mutagenicity: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity: This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity:
Not listed.
NTP Report on Carcinogens
Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not regulated.

Reproductive toxicity
This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure
Not classified.

Specific target organ toxicity - repeated exposure
Not classified.

Aspiration hazard
Not an aspiration hazard.

Chronic effects
Prolonged inhalation may be harmful.

Further information
No other specific acute or chronic health impact noted.

12. Ecological information

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide (CAS 1310-73-2)</td>
<td>Aquatic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Crustacea</td>
<td>EC50 Ceriodaphnia dubia 40.4 mg/l, 48 Hours</td>
</tr>
</tbody>
</table>

Persistence and degradability
No data is available on the degradability of this product.

Bioaccumulative potential
No data available.

Mobility in soil
This product is water soluble and may disperse in soil.

Other adverse effects
The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

13. Disposal considerations

Disposal instructions
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations
Dispose in accordance with all applicable regulations.

Hazardous waste code
D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT
UN number
UN1824
UN proper shipping name
Sodium hydroxide solution

Class
8
Subsidiary risk
-
Label(s)
8
Packing group
II
Special precautions for user
Read safety instructions, SDS and emergency procedures before handling.
Special provisions
B2, IB2, N34, T7, TP2
Packaging exceptions
154
Packaging non bulk
202
Packaging bulk
242

IATA
UN number
UN1824
UN proper shipping name
Sodium hydroxide solution
Transport hazard class(es)
- Class: 8
- Subsidiary risk: -
- Label(s): 8

Packing group: II

Environmental hazards: No.

ERG Code: 8L

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

IMDG
- UN number: UN1824
- UN proper shipping name: SODIUM HYDROXIDE SOLUTION

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
- Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.
- Not applicable.

15. Regulatory information

US federal regulations
- This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
- All components are on the U.S. EPA TSCA Inventory List.

- TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
  - Not regulated.
  - Not regulated.
- CERCLA Hazardous Substance List (40 CFR 302.4)
  - Sodium hydroxide (CAS 1310-73-2) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)
- Hazard categories
  - Immediate Hazard - Yes
  - Delayed Hazard - No
  - Fire Hazard - No
  - Pressure Hazard - No
  - Reactivity Hazard - No

- SARA 302 Extremely hazardous substance
  - Not listed.

- SARA 311/312 Hazardous chemical
  - Yes

- SARA 313 (TRI reporting)
  - Not regulated.

Other federal regulations
- Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
  - Not regulated.
- Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
  - Not regulated.
- Safe Drinking Water Act (SDWA)
  - Not regulated.

US state regulations
- US. Massachusetts RTK - Substance List
  - Sodium hydroxide (CAS 1310-73-2)
US. New Jersey Worker and Community Right-to-Know Act
Sodium hydroxide (CAS 1310-73-2)

US. Pennsylvania Worker and Community Right-to-Know Law
Sodium hydroxide (CAS 1310-73-2)

US. Rhode Island RTK
Sodium hydroxide (CAS 1310-73-2)

US. California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 16-August-2016
Revision date -
Version # 01

NFPA ratings

List of abbreviations
EC50: Effective Concentration, 50%.
IC50: Inhibitory concentration, 50%.
TWA: Time weighted average.
STEL: Short term exposure limit.

Disclaimer
TDC, L.L.C. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.