Sodium Hydroxide, 2.5N (2.5M)
Safety Data Sheet

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
- Product form: Mixture
- Product name: Sodium Hydroxide, 2.5N (2.5M)
- Product code: LC24400

1.2. Relevant identified uses of the substance or mixture and uses advised against
- Use of the substance/mixture: For laboratory and manufacturing use only.

1.3. Details of the supplier of the safety data sheet
- LabChem Inc
- Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
- Zelienople, PA 16063 - USA
- T 412-826-5230 - F 724-473-0647
- info@labchem.com - www.labchem.com

1.4. Emergency telephone number
- Emergency number: CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
- GHS-US classification
  - Skin Corr. 1B H314
  - Eye Dam. 1 H318

2.2. Label elements
- Hazard pictograms (GHS-US):
  - GHS05
- Signal word (GHS-US): Danger
- Hazard statements (GHS-US): H314 - Causes severe skin burns and eye damage
- Precautionary statements (GHS-US):
  - P260 - Do not breathe mist, spray, vapours
  - P264 - Wash exposed skin thoroughly after handling
  - P280 - Wear eye protection, face protection, protective clothing, protective gloves
  - 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 victim 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
  - P363 - Wash contaminated clothing before reuse
  - P405 - Store locked up
  - P501 - Dispose of contents/container to comply with local, state and federal regulations

2.3. Other hazards
- Other hazards not contributing to the classification: None.

2.4. Unknown acute toxicity (GHS-US)
- No data available

SECTION 3: Composition/information on ingredients

3.1. Substance
- Not applicable
- Full text of H-phrases: see section 16

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier (CAS No)</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>90.9</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
### Sodium Hydroxide, 2.5N (2.5M)

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<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide</td>
<td>(CAS No) 1310-73-2</td>
<td>9.1</td>
<td>Acute Tox. 4 (Dermal), H312</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Corr. 1A, H314</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1, H318</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aquatic Acute 5, H402</td>
</tr>
</tbody>
</table>

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

**First-aid measures general**

Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

**First-aid measures after inhalation**

Remove to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

**First-aid measures after skin contact**

Immediately call a POISON CENTER or doctor/physician. Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

**First-aid measures after eye contact**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

**First-aid measures after ingestion**

Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician. Rinse mouth.

#### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms/injuries**

Causes severe skin burns and eye damage.

**Symptoms/injuries after inhalation**

Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes.

**Symptoms/injuries after skin contact**

Caustic burns/corrosion of the skin.

**Symptoms/injuries after eye contact**

Causes serious eye damage.

**Symptoms/injuries after ingestion**


**Symptoms/injuries upon intravenous administration**

Not available.

**Chronic symptoms**

Not available.

#### 4.3. Indication of any immediate medical attention and special treatment needed

Obtain medical assistance.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

**Suitable extinguishing media**


**Unsuitable extinguishing media**

Not available. Do not use a heavy water stream.

#### 5.2. Special hazards arising from the substance or mixture

**Fire hazard**

Not flammable.

**Explosion hazard**

Not available.

**Reactivity**

Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen). Thermal decomposition generates: Corrosive vapours.

#### 5.3. Advice for firefighters

**Firefighting instructions**

Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. In case of fire: stop leak if safe to do so. When cooling/extinguishing: no water in the substance. Avoid (reject) fire-fighting water to enter environment.

**Protection during firefighting**

Do not enter fire area without proper protective equipment, including respiratory protection.

**Other information**

Not available.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

**General measures**

Eliminate ignition sources. Ensure adequate ventilation. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

**For non-emergency personnel**

Protective equipment

Wear chemically protective gloves, lab coat or apron to prevent prolonged or repeated skin contact.

Emergency procedures


**For emergency responders**

Protective equipment

Equip cleanup crew with proper protection.

Emergency procedures

Stop leak if safe to do so. Ventilate area.

#### 6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

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6.3. Methods and material for containment and cleaning up

For containment: Take up liquid spill into inert absorbent material.

Methods for cleaning up: Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling. Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed: May be corrosive to metals.

Precautions for safe handling: Do not get in eyes, on skin, or on clothing. Remove contaminated clothing immediately. Use corrosion-proof equipment. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Do not breathe spray, vapours, mist.

Hygiene measures: Wash exposed skin thoroughly after handling. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Comply with applicable regulations.

Storage conditions: Keep container closed when not in use. Keep only in the original container in a cool, well-ventilated place away from incompatible materials.

Incompatible products: Strong acids, metals.

Incompatible materials: Sources of ignition, Direct sunlight.

Storage temperature: 5 - 30 °C

Prohibitions on mixed storage: KEEP SUBSTANCE AWAY FROM: (strong) acids, metals, metal powders.

Storage area: Keep locked up. Store in a well-ventilated place. Keep only in the original container.

Special rules on packaging: SPECIAL REQUIREMENTS: corrosion-proof.

Packaging materials: Do not store in corrodable metal.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Sodium Hydroxide (1310-73-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH ACGIH Ceiling (mg/m³)</td>
</tr>
<tr>
<td>USA OSHA OSHA PEL (TWA) (mg/m³)</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.


Hand protection: Wear chemically resistant protective gloves. Wear protective gloves.

Eye protection: Chemical goggles or face shield.

Skin and body protection: Wear suitable protective clothing.

Respiratory protection: In case of inadequate ventilation wear respiratory protection. Wear appropriate mask.

Thermal hazard protection: None necessary.

Other information: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear, colorless liquid.</td>
</tr>
<tr>
<td>Colour</td>
<td>Colourless.</td>
</tr>
<tr>
<td>Odour</td>
<td>Odorless.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
</tbody>
</table>
**Sodium Hydroxide, 2.5N (2.5M)**

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<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>$\geq 14$</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Self ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>1.1 g/ml</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>1.59 cSt</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available,</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

**SECTION 10: Stability and reactivity**

10.1. Reactivity

Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen). Thermal decomposition generates: Corrosive vapours.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Incompatible materials. Extremely high or low temperatures.

10.5. Incompatible materials

Metals. Strong acids.

10.6. Hazardous decomposition products

Sodium oxide. Thermal decomposition generates: Corrosive vapours.

**SECTION 11: Toxicological information**

11.1. Information on toxicological effects

Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>Substance</th>
<th>LD50 dermal rabbit</th>
<th>LD50 oral rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide, 2.5N (2.5M)</td>
<td>14835 mg/kg</td>
<td>$\geq 90000$ mg/kg</td>
</tr>
<tr>
<td>Water (7732-18-5)</td>
<td></td>
<td>$\geq 90000$ mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Causes severe skin burns and eye damage. pH: $\geq 14$

Serious eye damage/irritation: Causes serious eye damage. pH: $\geq 14$

Respiratory or skin sensitisation: Not classified

Germ cell mutagenicity: Not classified

Based on available data, the classification criteria are not met.

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Carcinogenicity: Not classified
Reproductive toxicity: Not classified
Specific target organ toxicity (single exposure): Not classified
Specific target organ toxicity (repeated exposure): Not classified
Aspiration hazard: Not classified
Potential Adverse human health effects and symptoms: Based on available data, the classification criteria are not met.
Symptoms/injuries after inhalation: Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes.
Symptoms/injuries after skin contact: Caustic burns/corrosion of the skin.
Symptoms/injuries after eye contact: Causes serious eye damage.
Symptoms/injuries upon intravenous administration: Not available.
Chronic symptoms: Not available.

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Ecology - water: Toxic to aquatic life.

<table>
<thead>
<tr>
<th>Sodium Hydroxide, 2.5N (2.5M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fishes 1</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sodium Hydroxide (1310-73-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fishes 1</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
</tr>
<tr>
<td>LC50 fish 2</td>
</tr>
<tr>
<td>TLM fish 1</td>
</tr>
<tr>
<td>TLM fish 2</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Sodium Hydroxide, 2.5N (2.5M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sodium Hydroxide (1310-73-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
</tr>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
</tr>
<tr>
<td>ThOD</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Sodium Hydroxide, 2.5N (2.5M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioaccumulative potential</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sodium Hydroxide (1310-73-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioaccumulative potential</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects

Other adverse effects: May cause pH changes in aqueous ecological systems.
Other information: Avoid release to the environment.
**SECTION 13: Disposal considerations**

| Waste disposal recommendations | Dispose of contents/container to Comply with applicable regulations. Dispose in a safe manner in accordance with local/national regulations. |
| Ecology - waste materials       | Avoid release to the environment. |

**SECTION 14: Transport information**

**In accordance with DOT**

14.1. UN number

| UN-No.(DOT) | 1824 |
| DOT NA no.  | UN1824 |

14.2. UN proper shipping name

| DOT Proper Shipping Name | Sodium hydroxide solution |
| Department of Transportation (DOT) Hazard Classes | 8 - Class 8 - Corrosive material 49 CFR 173.136 |
| Hazard labels (DOT) | 8 - Corrosive substances |

| Packing group (DOT) | II - Medium Danger |
IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.  
N34 - Aluminum construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material.  
T7 - 4 178.274(d)(2) Normal............. 178.275(d)(3)  
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 95 / (1 + a (tr - tf)) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius.  
b. For liquids transported under ambient conditions may be calculated using the formula: a = (d15 - d50) / 35*d50 Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively. |
| DOT Packaging Exceptions (49 CFR 173.xxx) | 154 |
| DOT Packaging Non Bulk (49 CFR 173.xxx) | 202 |
| DOT Packaging Bulk (49 CFR 173.xxx) | 242 |

| Marine pollutant | No |

14.3. Additional information

| Other information | No supplementary information available. |
| State during transport (ADR-RID) | as liquid. |

**Overland transport**

No additional information available

**Transport by sea**

| DOT Vessel Stowage Location | A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel. |
| DOT Vessel Stowage Other | 52 - Stow “separated from” acids |

**Air transport**

| DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) | 1 L |
| DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) | 30 L |

**SECTION 15: Regulatory information**

15.1. US Federal regulations

| Sodium Hydroxide, 2.5N (2.5M) | Immediate (acute) health hazard |
| SARA Section 311/312 Hazard Classes |  |

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Listed on the United States TSCA (Toxic Substances Control Act) inventory

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15.2. International regulations

CANADA

Sodium Hydroxide, 2.5N (2.5M)

WHMIS Classification

Class E - Corrosive Material

15.3. US State regulations

Sodium Hydroxide (1310-73-2)

Listed on the Canadian Ingredient Disclosure List

15.2.2. National regulations

Sodium Hydroxide (1310-73-2)

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification

Class E - Corrosive Material

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Classification according to Directive 67/548/EEC or 1999/45/EC

Not classified

15.2.2. National regulations

Sodium Hydroxide (1310-73-2)

Listed on the Canadian Ingredient Disclosure List

SECTION 16: Other information

Indication of changes: Revision - See "*"

Other information: None.

Full text of H-phrases: see section 16:

Acute Tox. 4 (Dermal) Acute toxicity (dermal), Category 4

Aquatic Acute 3 Hazardous to the aquatic environment — Acute Hazard, Category 3

Eye Dam. 1 Serious eye damage/eye irritation, Category 1

Skin Corr. 1A Skin corrosion/irritation, Category 1A

Skin Corr. 1B Skin corrosion/irritation, Category 1B

H312 Harmful in contact with skin

H314 Causes severe skin burns and eye damage

H318 Causes serious eye damage

H402 Harmful to aquatic life

NFPA health hazard

3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

NFPA fire hazard

0 - Materials that will not burn.

NFPA reactivity

1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

HMIS III Rating

Health

3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

NFPA health hazard

0

1

3

0

1
## Sodium Hydroxide, 2.5N (2.5M)

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<table>
<thead>
<tr>
<th>Category</th>
<th>Hazard Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>0 Minimal Hazard</td>
</tr>
<tr>
<td>Physical</td>
<td>1 Slight Hazard</td>
</tr>
<tr>
<td>Personal Protection</td>
<td>D</td>
</tr>
</tbody>
</table>

SDS US (GHS HazCom 2012)

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