SECTION 1: Identification

1.1. Identification
Product form: Mixtures
Product name: Sodium Hydroxide, 50% w/w
CAS No: 1310-73-2
Product code: LC24150
Formula: NaOH
Synonyms: caustic soda 50% W/W / soda lye, 50%, aqueous solution / white caustic, 50%, aqueous solution

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture: Industrial use
Recommended use: Laboratory chemicals
Restrictions on use: Not for food, drug or household use

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: Hazard(s) identification

2.1. Classification of the substance or mixture
GHS-US classification
Skin corrosion/irritation, Category 1B H314
Serious eye damage/eye irritation, Category 1 H318
Hazardous to the aquatic environment — Acute Hazard, Category 3 H402
Full text of H statements: see section 16

2.2. Label elements
GHS-US labelling
Hazard pictograms (GHS-US):

Signal word (GHS-US): Danger
Hazard statements (GHS-US): H314 - Causes severe skin burns and eye damage
H402 - Harmful to aquatic life
Precautionary statements (GHS-US): P260 - Do not breathe mist, vapours, spray
P264 - Wash exposed skin thoroughly after handling
P273 - Avoid release to the environment
P280 - Wear protective gloves, protective clothing, eye protection, face protection
P303+P361+P335 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
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
If inhaled: Remove person to fresh air and keep comfortable for breathing
Sodium Hydroxide, 50% w/w
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according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

2.3. Other hazards
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<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>50</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 3, H402</td>
</tr>
<tr>
<td>Water</td>
<td>(CAS No) 7732-18-5</td>
<td>50</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements : see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures


First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service. Remove victim 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 : Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%; take victim to hospital. Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor/physician.

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.


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

Symptoms/injuries : Causes severe skin burns and eye damage.


Symptoms/injuries after skin contact : Caustic burns/corrosion of the skin. Slow-healing wounds.

Symptoms/injuries after eye contact : Corrosion of the eye tissue. Permanent eye damage. Causes serious eye damage.


Chronic symptoms : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Dry skin. Skin rash/inflammation. Possible inflammation of the respiratory tract.

4.3. Indication of any immediate medical attention and special treatment needed
No additional information available
SECTION 5: Fire-fighting measures

5.1. Extinguishing media


Unsuitable extinguishing media: Solid water jet ineffective as extinguishing medium.

5.2. Special hazards arising from the substance or mixture

Fire hazard: DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. Reactions involving a fire hazard: see "Reactivity Hazard".

Explosion hazard: INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".

Reactivity: Violent exothermic reaction with water (moisture): (increased) risk of fire. On heating: release of corrosive gases/vapours. Absorbs the atmospheric CO2. Violent exothermic reaction with (some) acids. May be corrosive to metals. Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen).

5.3. Advice for firefighters

Precautionary measures fire: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions: Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.


SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel


6.1.2. For emergency responders

Protective equipment: Equip cleanup crew with proper protection.

Emergency procedures: Ventilate area.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up


Methods for cleaning up: Take up liquid spill into absorbent material, e.g.: sand, saw dust, kieselguhr. Scoop absorbed substance into closing containers. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Small quantities of liquid spill: neutralize with acid solution. Wash away neutralized product with plentiful water. Damaged/cooled tanks must be emptied. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

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

- **Precautions for safe handling**: Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Handle and open the container with care. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep away from naked flames/heat. Observe very strict hygiene - avoid contact. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

- **Hygiene measures**: Wash exposed skin thoroughly after handling.

### 7.2. Conditions for safe storage, including any incompatibilities

- **Technical measures**: Comply with applicable regulations.
- **Storage conditions**: Keep only in the original container in a cool, well ventilated place away from incompatible materials. Keep container closed when not in use.
- **Incompatible products**: Strong bases. Strong acids.
- **Incompatible materials**: Sources of ignition. Direct sunlight.
- **Storage temperature**: > 15 °C
- **Heat and ignition sources**: KEEP SUBSTANCE AWAY FROM: heat sources.
- **Prohibitions on mixed storage**: KEEP SUBSTANCE AWAY FROM: combustible materials. (strong) acids. metals.
- **Storage area**: Store in a dry area. Keep container in a well-ventilated place. Keep locked up. Protect against frost. Provide for a tub to collect spills. Unauthorized persons are not admitted. Meet the legal requirements.
- **Special rules on packaging**: SPECIAL REQUIREMENTS: hermetical. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
- **Packaging materials**: SUITABLE MATERIAL: stainless steel. nickel. polyethylene. polypropylene. glass. stoneware/porcelain. MATERIAL TO AVOID: lead. aluminium. copper. tin. zinc. bronze.

**SECTION 8: Exposure controls/personal protection**

### 8.1. Control parameters

<table>
<thead>
<tr>
<th>Sodium Hydroxide, 50% w/w (1310-73-2)</th>
<th>OSHA PEL (TWA) (mg/m³)</th>
<th>2 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>US IDLH (mg/m³)</td>
<td>10 mg/m³</td>
<td></td>
</tr>
<tr>
<td>NIOSH REL (ceiling) (mg/m³)</td>
<td>2 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sodium Hydroxide (1310-73-2)</th>
<th>ACGIH Ceiling (mg/m³)</th>
<th>2 mg/m³ (Sodium hydroxide; USA; Momentary value; TLV - Adopted Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>ACGIH Ceiling (mg/m³)</td>
<td>2 mg/m³</td>
</tr>
<tr>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>US IDLH (mg/m³)</td>
<td>10 mg/m³</td>
<td></td>
</tr>
<tr>
<td>NIOSH REL (ceiling) (mg/m³)</td>
<td>2 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

**Water (7732-18-5)**

Not applicable

### 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. Provide adequate general and local exhaust ventilation.
- **Personal protective equipment**: Protective goggles. Gloves. Protective clothing. Face shield.
- **Materials for protective clothing**: GIVE EXCELLENT RESISTANCE: nitrile rubber. GIVE GOOD RESISTANCE: No data available. GIVE LESS RESISTANCE: chlorinated polyethylene. styrene-butadiene rubber. nitrile rubber/PVC. GIVE POOR RESISTANCE: PVA. natural fibres.
- **Hand protection**: Wear protective gloves.
Sodium Hydroxide, 50% w/w
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Eye protection: Chemical goggles or face shield. Face shield.
Skin and body protection: Corrosion-proof clothing.
Respiratory protection: Wear gas mask with filter type B if conc. in air > exposure limit.
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

Physical state: Liquid
Appearance: Liquid.
Colour: Colourless
Odour: Odourless
Odour threshold: No data available
pH: 14 (8 %)
pH solution: 8 %
Melting point: 12 °C
Freezing point: No data available
Boiling point: 143 °C
Flash point: Not applicable
Relative evaporation rate (butylacetate=1): No data available
Flammability (solid, gas): Non flammable.
Vapour pressure: 1.2 hPa (20 °C)
Relative vapour density at 20 °C: No data available
Relative density: 1.5
Density: 1525 kg/m³
Molecular mass: 40 g/mol
Water: Complete
Log Pow: No data available
Auto-ignition temperature: Not applicable
Decomposition temperature: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: 79 mPa.s (20 °C)
Explosive limits: No data available
Explosive properties: Not applicable.
Oxidising properties: None.

9.2. Other information

Minimum ignition energy: Not applicable
VOC content: Not applicable (inorganic)
Other properties: Clear. Hygroscopic. Slightly volatile. Substance has basic reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

Violent exothermic reaction with water (moisture): (increased) risk of fire. On heating: release of corrosive gases/vapours. Absorbs the atmospheric CO2. Violent exothermic reaction with (some) acids. May be corrosive to metals. Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen).

10.2. Chemical stability


10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids, metals.
### Sodium Hydroxide, 50% w/w

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#### 10.6. Hazardous decomposition products

Sodium oxide. Thermal decomposition generates: Corrosive vapours.

#### SECTION 11: Toxicological information

**11.1. Information on toxicological effects**

Likely routes of exposure: Skin and eyes contact

Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>Sodium Hydroxide (1310-73-2)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE US (dermal)</td>
<td>1350.000 mg/kg bodyweight</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water (7732-18-5)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>≥ 90000 mg/kg</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>90000.000 mg/kg bodyweight</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Causes severe skin burns and eye damage.

- pH: 14 (8%)

Serious eye damage/irritation: Causes serious eye damage.

- pH: 14 (8%)

Respiratory or skin sensitisation: Not classified

Germ cell mutagenicity: Not classified

Based on available data, the classification criteria are not met

Carcinogenicity: Not classified

Reproductive toxicity: Not classified

Based on available data, the classification criteria are not met

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: **EXPOSURE TO HIGH CONCENTRATIONS:** Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. **FOLLOWING SYMPTOMS MAY APPEAR LATER:** Possible laryngeal spasm/oedema. Risk of lung oedema. Respiratory difficulties.

- Symptoms/injuries after skin contact: Caustic burns/corrosion of the skin. Slow-healing wounds.

- Symptoms/injuries after eye contact: Corrosion of the eye tissue. Permanent eye damage. Causes serious eye damage.


Chronic symptoms: **ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:** Dry skin. Skin rash/inflammation. Possible inflammation of the respiratory tract.

#### SECTION 12: Ecological information

**12.1. Toxicity**

Ecology - general: Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.

Ecology - air: Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). None of the known components is included in the list of fluorinated greenhouse gases (Regulation (EC) No 842/2006).


<table>
<thead>
<tr>
<th>Sodium Hydroxide (1310-73-2)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>45.4 mg/l (LC50; Other; 96 h; Salmo gairdneri; Static system; Fresh water; Experimental value)</td>
</tr>
</tbody>
</table>
12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Substance</th>
<th>Persistence and degradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide (1310-73-2)</td>
<td>Biodegradability: not applicable. No (test) data on mobility of the components available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
<th>Biochemical oxygen demand (BOD)</th>
<th>Chemical oxygen demand (COD)</th>
<th>ThOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide (1310-73-2)</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
<th>Water (7732-18-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioaccumulative potential</td>
<td>Not established.</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Substance</th>
<th>Bioaccumulative potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Hydroxide (1310-73-2)</td>
<td>Does not contain bioaccumulative component(s).</td>
</tr>
<tr>
<td>Water (7732-18-5)</td>
<td>No bioaccumulation data available.</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the global warming : No known effects from this product.
GWPmix comment : No known effects from this product.
Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Remove for physico-chemical/biological treatment. Do not discharge into drains or the environment.

Additional information : LWCA (the Netherlands): KGA category 05. Hazardous waste according to Directive 2008/98/EC.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1824 Sodium hydroxide solution, 8, II

UN-No.(DOT) : UN1824
Proper Shipping Name (DOT) : Sodium hydroxide solution
Transport hazard class(es) (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group (DOT) : II - Medium Danger
Hazard labels (DOT) : 8 - Corrosive
Sodium Hydroxide, 50% w/w
Safety Data Sheet

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202
DOT Packaging Bulk (49 CFR 173.xxx) : 242
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: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a 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: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 ºC (59 ºF) and 50 ºC (122 ºF), respectively.
DOT Packaging Exceptions (49 CFR 173.xxx) : 154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 30 L
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
Other information : No supplementary information available.

SECTION 15: Regulatory information

15.1. US Federal regulations

Sodium Hydroxide, 50% w/w (1310-73-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory
Not subject to reporting requirements of the United States SARA Section 313
RQ (Reportable quantity, section 304 of EPA’s List of Lists) : 1000 lb
SARA Section 311/312 Hazard Classes : Immediate (acute) health hazard

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Sodium Hydroxide (1310-73-2)

RQ (Reportable quantity, section 304 of EPA’s List of Lists) : 1000 lb
SARA Section 311/312 Hazard Classes : Immediate (acute) health hazard

15.2. International regulations

CANADA

Sodium Hydroxide, 50% w/w (1310-73-2)

WHMIS Classification : Class E - Corrosive Material

Sodium Hydroxide (1310-73-2)

Listed on the Canadian DSL (Domestic Substances List)
WHMIS Classification : Class E - Corrosive Material

Water (7732-18-5)

WHMIS Classification : Uncontrolled product according to WHMIS classification criteria

EU-Regulations

No additional information available
Sodium Hydroxide, 50% w/w
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National regulations
No additional information available

15.3. US State regulations
California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Revision date : 02/07/2017
Other information : None.

Full text of H-statements: see section 16:

<table>
<thead>
<tr>
<th>H312</th>
<th>Harmful in contact with skin</th>
</tr>
</thead>
<tbody>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H402</td>
<td>Harmful to aquatic life</td>
</tr>
</tbody>
</table>

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 0 - Materials that will not burn under typical dire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.

NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.

HMIS III Rating

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

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal protection : H - Splash goggles, Gloves, Synthetic apron, Vapor respirator

SDS US LabChem

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