# 1. Identification

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Sodium Hydroxide Solutions, 40 to 50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat No. :</td>
<td>SS254-1; SS254-1LC; SS254-4; SS254-20; SS254-200; SS254-500; XXSS254ET200LI; NC1746891</td>
</tr>
<tr>
<td>Synonyms</td>
<td>Caustic soda solution; Lye solution</td>
</tr>
<tr>
<td>Recommended Use</td>
<td>Laboratory chemicals.</td>
</tr>
<tr>
<td>Uses advised against</td>
<td>Food, drug, pesticide or biocidal product use.</td>
</tr>
</tbody>
</table>

## Details of the supplier of the safety data sheet

**Company**

Fisher Scientific Company  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

**Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

# 2. Hazard(s) identification

**Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrosive to metals</td>
<td>Category 1</td>
</tr>
<tr>
<td>Skin Corrosion/Irritation</td>
<td>Category 1 A</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
<tr>
<td>Target Organs - Respiratory system.</td>
<td></td>
</tr>
</tbody>
</table>

## Label Elements

**Signal Word**

Danger

**Hazard Statements**

May be corrosive to metals  
Causes severe skin burns and eye damage  
May cause respiratory irritation
Precautionary Statements

Prevention
- Do not breathe dust/fume/gas/mist/vapors/spray
- Wash face, hands and any exposed skin thoroughly after handling
- Wear protective gloves/protective clothing/eye protection/face protection
- Use only outdoors or in a well-ventilated area

Response
- Immediately call a POISON CENTER or doctor/physician

Inhalation
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin
- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
- Wash contaminated clothing before reuse

Eyes
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Ingestion
- IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Storage
- Store locked up
- Store in a well-ventilated place. Keep container tightly closed

Disposal
- Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
- None identified

3. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>50 - 60</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>40 - 50</td>
</tr>
</tbody>
</table>

4. First-aid measures

General Advice
- Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye Contact
- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.

Skin Contact
- Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

Inhalation
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Remove from exposure, lie down. Call a physician immediately. If not breathing, give artificial respiration.

Ingestion
- Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Clean
mouth with water. Call a physician immediately.

**Most important symptoms and effects**

Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

**Notes to Physician**

Treat symptomatically

---

### 5. Fire-fighting measures

**Suitable Extinguishing Media**

CO₂, dry chemical, dry sand, alcohol-resistant foam.

**Unsuitable Extinguishing Media**

Carbon dioxide (CO₂)

**Flash Point**  
Not applicable

**Autoignition Temperature**  
No information available

**Explosion Limits**

Upper: No data available  
Lower: No data available

**Sensitivity to Mechanical Impact**  
No information available

**Sensitivity to Static Discharge**  
No information available

**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

**Hazardous Combustion Products**

Sodium oxides.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

### 6. Accidental release measures

**Personal Precautions**

Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation.

**Environmental Precautions**

Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional Ecological Information.

**Methods for Containment and Clean Up**

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

### 7. Handling and storage

**Handling**

Use only under a chemical fume hood. Wear personal protective equipment/facemask. Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance.

**Storage.**


### 8. Exposure controls / personal protection

**Exposure Guidelines**
Sodium Hydroxide Solutions, 40 to 50%

Revision Date: 24-Dec-2021

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
<th>Mexico OEL (TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>Ceiling: 2 mg/m³</td>
<td>(Vacated) Ceiling: 2 mg/m³</td>
<td>IDLH: 10 mg/m³</td>
<td>Ceiling: 2 mg/m³</td>
</tr>
</tbody>
</table>

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

- **Eye/face Protection**: Tight sealing safety goggles. Face protection shield.
- **Skin and body protection**: Wear appropriate protective gloves and clothing to prevent skin exposure.
- **Respiratory Protection**: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

10. Stability and reactivity

Reactive Hazard

None known, based on information available

Stability

Stable under normal conditions.

Conditions to Avoid

Incompatible products. Excess heat.
11. Toxicological information

Acute Toxicity

Product Information
Oral LD50
Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50
Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Vapor LC50
Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>LD50 = 325 mg/kg (Rat)</td>
<td>LD50 = 1350 mg/kg (Rabbit)</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Toxicologically Synergistic Products
No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation
Causes severe burns by all exposure routes

Sensitization
No information available

Carcinogenicity
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects
No information available

Reproductive Effects
No information available.

Developmental Effects
No information available.

Teratogenicity
No information available.

STOT - single exposure
Respiratory system

STOT - repeated exposure
None known

Aspiration hazard
No information available

Symptoms / effects, both acute and delayed
Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information
No information available

Other Adverse Effects
The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains. The product contains following substances which are hazardous for the environment. Contains a substance which is: Harmful to aquatic organisms.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
</table>

Sodium Hydroxide Solutions, 40 to 50%

Sodium hydroxide

LC50: = 45.4 mg/L, 96h static (Oncorhynchus mykiss)

Persistence and Degradability
No information available

Bioaccumulation/ Accumulation
No information available.

Mobility
No information available.

13. Disposal considerations

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
UN-No UN1824
Proper Shipping Name SODIUM HYDROXIDE SOLUTION
Hazard Class 8
Packing Group II

TDG
UN-No UN1824
Proper Shipping Name SODIUM HYDROXIDE SOLUTION
Hazard Class 8
Packing Group II

IATA
UN-No UN1824
Proper Shipping Name SODIUM HYDROXIDE SOLUTION
Hazard Class 8
Packing Group II

IMDG/IMO
UN-No UN1824
Proper Shipping Name SODIUM HYDROXIDE SOLUTION
Hazard Class 8
Packing Group II

15. Regulatory information

United States of America Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>TSCA</th>
<th>TSCA Inventory notification - Active-Inactive</th>
<th>TSCA - EPA Regulatory Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>X</td>
<td>ACTIVE</td>
<td></td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>X</td>
<td>ACTIVE</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export
Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>PICCS</th>
<th>ENCS</th>
<th>ISHL</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>X</td>
<td>-</td>
<td>231-791-2</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>KE-35400</td>
</tr>
</tbody>
</table>
Sodium Hydroxide Solutions, 40 to 50%

Sodium hydroxide 1310-73-2 X - 215-185-5 X X X X X KE-31487

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Hazardous Substances</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>X</td>
<td>1000 lb</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

<table>
<thead>
<tr>
<th>Component</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA EHS RQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>1000 lb</td>
<td>-</td>
</tr>
</tbody>
</table>

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation

Reportable Quantity (RQ): Y

DOT Marine Pollutant N

DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>-</td>
<td>Use restricted. See item 75. (see link for restriction details)</td>
<td></td>
</tr>
</tbody>
</table>


Safety, health and environmental regulations/legislation specific for the substance or mixture

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>OECD HPV</th>
<th>Persistent Organic</th>
<th>Ozone Depletion</th>
<th>Restriction of</th>
</tr>
</thead>
</table>

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Sodium Hydroxide Solutions, 40 to 50%

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>Pollutant</th>
<th>Potential</th>
<th>Hazardous Substances (RoHS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Listed</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>Listed</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Annex I - Y35</td>
<td></td>
</tr>
</tbody>
</table>

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date       11-Feb-2010
Revision Date       24-Dec-2021
Print Date          24-Dec-2021
Revision Summary    This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of SDS