



# Fisher Scientific

Part of Thermo Fisher Scientific

## SAFETY DATA SHEET

Creation Date 11-Feb-2010

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Revision Number 2

### 1. Identification

**Product Name** Sodium Hydroxide Solutions, 40 to 50%

**Cat No. :** SS254-1; SS254-1LC; SS254-4; SS254-20; SS254-200; SS254-500

**Synonyms** Caustic soda solution; Lye solution

**Recommended Use** Laboratory chemicals.

**Uses advised against** No Information available

**Details of the supplier of the safety data sheet**

**Company**

Fisher Scientific  
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)

|  |              |
|--|--------------|
| Corrosive to metals                              | Category 1   |
| Skin Corrosion/irritation                        | Category 1 A |
| Serious Eye Damage/Eye Irritation                | Category 1   |
| Specific target organ toxicity (single exposure) | Category 3   |
| Target Organs - Respiratory system.              |              |

**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

**Unknown Acute Toxicity**

.? % of the mixture consists of ingredients of unknown toxicity.

### 3. Composition / information on ingredients

| Component        | CAS-No    | Weight % |
|------------------|-----------|----------|
| Water            | 7732-18-5 | 50 - 60  |
| Sodium hydroxide | 1310-73-2 | 40 - 50  |

### 4. First-aid measures

|  |   |
|--|---|
| <b>General Advice</b>                  | Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.   |
| <b>Eye Contact</b>                     | 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.   |
| <b>Skin Contact</b>                    | Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Call a physician immediately.   |
| <b>Inhalation</b>                      | If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Remove from exposure, lie down. Call a physician immediately.                                       |
| <b>Ingestion</b>                       | Do not induce vomiting. Never give anything by mouth to an unconscious person. Clean mouth with water. Call a physician immediately.  |
| <b>Most important symptoms/effects</b> | 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 |
| <b>Notes to Physician</b>              | Treat symptomatically   |

## 5. Fire-fighting measures

**Suitable Extinguishing Media** CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam.

**Unsuitable Extinguishing Media** Carbon dioxide (CO<sub>2</sub>)

**Flash Point** Not applicable  
**Method -** No information available

**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**

Carbon monoxide (CO) Carbon dioxide (CO<sub>2</sub>) 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.

**NFPA**

**Health**  
3

**Flammability**  
0

**Instability**  
1

**Physical hazards**  
N/A

## 6. Accidental release measures

**Personal Precautions** Use personal protective equipment. 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. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Do not ingest.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

## 8. Exposure controls / personal protection

**Exposure Guidelines**

| Component        | ACGIH TLV                    | OSHA PEL   | NIOSH IDLH   |
|------------------|------------------------------|--|--|
| Sodium hydroxide | Ceiling: 2 mg/m <sup>3</sup> | (Vacated) Ceiling: 2 mg/m <sup>3</sup><br>TWA: 2 mg/m <sup>3</sup> | IDLH: 10 mg/m <sup>3</sup><br>Ceiling: 2 mg/m <sup>3</sup> |

| Component        | Quebec                       | Mexico OEL (TWA)             | Ontario TWA EV           |
|------------------|------------------------------|------------------------------|--------------------------|
| Sodium hydroxide | Ceiling: 2 mg/m <sup>3</sup> | Ceiling: 2 mg/m <sup>3</sup> | CEV: 2 mg/m <sup>3</sup> |

**Legend**

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: *The National Institute for Occupational Safety and Health Immediately Dangerous to Life or 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** Tightly fitting safety goggles. Face-shield.

**Skin and body protection** Long sleeved clothing.

**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.

## 9. Physical and chemical properties

|   |                            |
|---|----------------------------|
| <b>Physical State</b>                         | Liquid                     |
| <b>Appearance</b>                             | Clear                      |
| <b>Odor</b>                                   | Odorless                   |
| <b>Odor Threshold</b>                         | No information available   |
| <b>pH</b>                                     | 12.0 Alkaline              |
| <b>Melting Point/Range</b>                    | 5 - 10.6 °C / 41 - 51.1 °F |
| <b>Boiling Point/Range</b>                    | 141.7 °C / 287.1 °F        |
| <b>Flash Point</b>                            | Not applicable             |
| <b>Evaporation Rate</b>                       | No information available   |
| <b>Flammability (solid,gas)</b>               | Not applicable             |
| <b>Flammability or explosive limits</b>       |                            |
| <b>Upper</b>                                  | No data available          |
| <b>Lower</b>                                  | No data available          |
| <b>Vapor Pressure</b>                         | 3 mmHg @ 37 °C             |
| <b>Vapor Density</b>                          | > 1.0                      |
| <b>Specific Gravity</b>                       | 1.530 @ 15.6°C             |
| <b>Solubility</b>                             | Soluble in water           |
| <b>Partition coefficient; n-octanol/water</b> | No data available          |
| <b>Autoignition Temperature</b>               | No information available   |
| <b>Decomposition Temperature</b>              | No information available   |
| <b>Viscosity</b>                              | No information available   |

## 10. Stability and reactivity

|   |  |
|---|--|
| <b>Reactive Hazard</b>                  | Yes  |
| <b>Stability</b>                        | Stable under normal conditions.  |
| <b>Conditions to Avoid</b>              | Incompatible products. Excess heat.                                    |
| <b>Incompatible Materials</b>           | Acids, Metals  |
| <b>Hazardous Decomposition Products</b> | Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Sodium oxides |
| <b>Hazardous Polymerization</b>         | Hazardous polymerization does not occur.                               |
| <b>Hazardous Reactions</b>              | None under normal processing.  |

## 11. Toxicological information

**Acute Toxicity****Product Information****Oral LD50**

Based on ATE data, the classification criteria are not met. ATE &gt; 2000 mg/kg.

**Dermal LD50**

Based on ATE data, the classification criteria are not met. ATE &gt; 2000 mg/kg.

**Vapor LC50**

Based on ATE data, the classification criteria are not met. ATE &gt; 20 mg/l.

**Component Information**

| Component        | LD50 Oral  | LD50 Dermal           | LC50 Inhalation |
|------------------|------------|-----------------------|-----------------|
| Sodium hydroxide | Not listed | 1350 mg/kg ( Rabbit ) | Not listed      |

**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.

| Component        | CAS-No    | IARC       | NTP        | ACGIH      | OSHA       | Mexico     |
|------------------|-----------|------------|------------|------------|------------|------------|
| Water            | 7732-18-5 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Sodium hydroxide | 1310-73-2 | Not listed | Not listed | Not listed | Not listed | Not listed |

**Mutagenic Effects**

Mutagenic effects have occurred in experimental animals.

**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. Contains a substance which is: Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment.

| Component        | Freshwater Algae | Freshwater Fish     | Microtox | Water Flea |
|------------------|------------------|---------------------|----------|------------|
| Sodium hydroxide | -                | 45.4 mg/L LC50 96 h | -        | -          |

**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

All of the components in the product are on the following Inventory lists: X = listed

**International Inventories**

| Component        | TSCA | DSL | NDSL | EINECS    | ELINCS | NLP | PICCS | ENCS | AICS | IECSC | KECL |
|------------------|------|-----|------|-----------|--------|-----|-------|------|------|-------|------|
| Water            | X    | X   | -    | 231-791-2 | -      |     | X     | -    | X    | X     | X    |
| Sodium hydroxide | X    | X   | -    | 215-185-5 | -      |     | X     | X    | X    | X     | X    |

**Legend:**

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations**

TSCA 12(b) Not applicable

SARA 313 Not applicable

**SARA 311/312 Hazardous Categorization**

Acute Health Hazard Yes  
 Chronic Health Hazard Yes  
 Fire Hazard No  
 Sudden Release of Pressure Hazard No  
 Reactive Hazard Yes

**Clean Water Act**

| Component | CWA - Hazardous | CWA - Reportable | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|-----------|-----------------|------------------|------------------------|---------------------------|
|-----------|-----------------|------------------|------------------------|---------------------------|

|                  | Substances | Quantities |   |   |
|------------------|------------|------------|---|---|
| Sodium hydroxide | X          | 1000 lb    | - | - |

**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)

| Component        | Hazardous Substances RQs | CERCLA EHS RQs |
|------------------|--------------------------|----------------|
| Sodium hydroxide | 1000 lb                  | -              |

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

**State Right-to-Know**

| Component        | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|------------------|---------------|------------|--------------|----------|--------------|
| Water            | -             | -          | X            | -        | -            |
| Sodium hydroxide | X             | X          | X            | -        | X            |

**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.

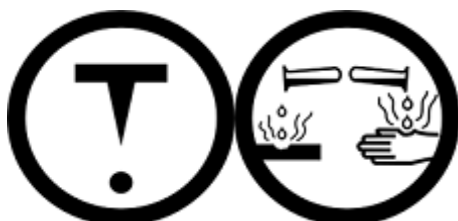
**Other International Regulations**

**Mexico - Grade** No information available

**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

**WHMIS Hazard Class** E Corrosive material  
D2B Toxic materials



## 16. Other information

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

**Creation Date** 11-Feb-2010  
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**Print Date** 10-Aug-2015  
**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 on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

**End of SDS**