# SAFETY DATA SHEET

**Creation Date** 11-February-2010 **Revision Date** 17-January-2018 **Revision Number** 3

## 1. Identification

**Product Name** **Sodium hydroxide**

**Cat No. :** **S318-1; S318-3; S318-3LC; S318-5; S318-10; S318-10LC; S318-50; S318-50LC; S318-100; S318-500;**

**CAS-No** 1310-73-2
**Synonyms** Caustic soda; Lye

**Recommended Use** Laboratory chemicals.
**Uses advised against** Not for food, drug, pesticide or biocidal product use

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

**Company**
**Importer/Distributor**
Fisher Scientific
112 Colonnade Road,
Ottawa, ON K2E 7L6,
Canada
Tel: 1-800-234-7437

**Manufacturer**
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**

**WHMIS 2015 Classification** Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

| | |
|---|---|
| **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**
Keep only in original container
Do not breathe dust/fumes/gas/mist/vapours/spray
Wash face, hands and any exposed skin thoroughly after handling
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
**Response**
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
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
Immediately call a POISON CENTER/doctor
Wash contaminated clothing before reuse
Absorb spillage to prevent material damage
**Storage**
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in corrosive resistant polypropylene container with a resistant inliner
Store in a dry place
**Disposal**
Dispose of contents/container to an approved waste disposal plant

## 3. Composition/Information on Ingredients

| Component | CAS-No | Weight % |
|---|---|---|
| Sodium hydroxide | 1310-73-2 | > 95 |
| Sodium carbonate | 497-19-8 | < 3 |

## 4. First-aid measures

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

**Inhalation** Move to fresh air. If breathing is difficult, give oxygen. 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. Immediate medical attention is required.

**Ingestion** Do not induce vomiting. Call a physician or Poison Control Center immediately.

**Most important symptoms/effects** Causes burns by all exposure routes. 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** Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

**Unsuitable Extinguishing Media** Carbon dioxide (CO2)

**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. Water reactive. Corrosive Material. Causes severe burns by all exposure routes.

**Hazardous Combustion Products**
Carbon monoxide (CO) Carbon dioxide ($CO_2$) 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.

**NFPA**

| Health | Flammability | Instability | Physical hazards |
|---|---|---|---|
| 3 | 0 | 1 | N/A |

## 6. Accidental release measures

**Personal Precautions** Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

**Environmental Precautions** Should not be released into the environment. See Section 12 for additional ecological information.

**Methods for Containment and Clean Up** Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal.

## 7. Handling and storage

**Handling** Use only under a chemical fume hood. Wear personal protective equipment. Avoid dust formation. Do not breathe dust. Do not get in eyes, on skin, or on clothing.

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

## 8. Exposure controls / personal protection

**Exposure Guidelines**

| Component | Alberta | British Columbia | Ontario TWAEV | Quebec | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|---|---|---|---|---|---|---|
| Sodium hydroxide | Ceiling: 2 mg/m³ | Ceiling: 2 mg/m³ | CEV: 2 mg/m³ | Ceiling: 2 mg/m³ | Ceiling: 2 mg/m³ | (Vacated) Ceiling: 2 mg/m³ TWA: 2 mg/m³ | IDLH: 10 mg/m³ Ceiling: 2 mg/m³ |

**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 that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

**Personal protective equipment**

**Eye Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Hand Protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

| Glove material | Breakthrough time | Glove thickness | Glove comments |
|---|---|---|---|
| Nitrile rubber | See manufacturers recommendations | - | Splash protection only |

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

**Respiratory Protection**
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. 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.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

When RPE is used a face piece Fit Test should be conducted

**Environmental exposure controls**
No information available.

**Hygiene Measures**
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

## 9. Physical and chemical properties

| | |
|---|---|
| **Physical State** | Solid |
| **Appearance** | White |
| **Odor** | Odorless |
| **Odor Threshold** | No information available |
| **pH** | 14 (5 %) |
| **Melting Point/Range** | 318 °C / 604.4 °F |
| **Boiling Point/Range** | 1390 °C / 2534 °F @ 760 mmHg |
| **Flash Point** | Not applicable |
| **Evaporation Rate** | No information available |
| **Flammability (solid,gas)** | No information available |
| **Flammability or explosive limits** | |
| **Upper** | No data available |
| **Lower** | No data available |
| **Vapor Pressure** | 1 mmHg @ 739 °C |
| **Vapor Density** | No information available |
| **Specific Gravity** | 2.13 |
| **Solubility** | Soluble in water |
| **Partition coefficient; n-octanol/water** | No data available |
| **Autoignition Temperature** | No information available |
| **Decomposition Temperature** | No information available |

| | |
|---|---|
| **Viscosity** | No information available |
| **Molecular Formula** | NaOH |
| **Molecular Weight** | 40 |

## 10. Stability and reactivity

**Reactive Hazard** None known, based on information available

**Stability** Water reactive. Hygroscopic.

**Conditions to Avoid** Avoid dust formation. Incompatible products. Excess heat. Exposure to moist air or water.

**Incompatible Materials** Water, Metals, Acids

**Hazardous Decomposition Products** Carbon monoxide (CO), Carbon dioxide ($CO_2$), Sodium oxides

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions** None under normal processing.

## 11. Toxicological information

**Acute Toxicity**

**Component Information**

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| Sodium hydroxide | Not listed | LD50 = 1350 mg/kg ( Rabbit ) | Not listed |
| Sodium carbonate | 2800 mg/kg ( Rat ) | > 2000 mg/kg (rabbit) | 2.3 mg/l 2h (Rat) |

**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 |
|---|---|---|---|---|---|---|
| Sodium hydroxide | 1310-73-2 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Sodium carbonate | 497-19-8 | 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** Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** See actual entry in RTECS for complete information.

## 12. Ecological information

**Ecotoxicity**

Do not empty into drains.

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|---|---|---|---|---|
| Sodium hydroxide | - | LC50: = 45.4 mg/L, 96h static (Oncorhynchus mykiss) | - | - |
| Sodium carbonate | EC50: = 242 mg/L, 120h (Nitzschia) | Lepomis macrochirus: LC50: 300 mg/L/96h Gambusia affinis: LC50: 740 mg/L/96h | - | EC50: = 265 mg/L, 48h (Daphnia magna) |

**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** UN1823
- **Proper Shipping Name** Sodium hydroxide, solid
- **Hazard Class** 8
- **Packing Group** II

**TDG**

- **UN-No** UN1823
- **Proper Shipping Name** SODIUM HYDROXIDE, SOLID
- **Hazard Class** 8
- **Packing Group** II

**IATA**

- **UN-No** UN1823
- **Proper Shipping Name** SODIUM HYDROXIDE, SOLID
- **Hazard Class** 8
- **Packing Group** II

**IMDG/IMO**

- **UN-No** UN1823
- **Proper Shipping Name** SODIUM HYDROXIDE, SOLID
- **Hazard Class** 8
- **Packing Group** II

## 15. Regulatory information

**International Inventories**

| Component | DSL | NDSL | TSCA | EINECS | ELINCS | NLP | PICCS | ENCS | AICS | IECSC | KECL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sodium hydroxide | X | - | X | 215-185-5 | - | | X | X | X | X | X |
| Sodium carbonate | X | - | X | 207-838-8 | - | | X | X | X | X | X |

**Canada**

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

## 16. Other information

| | |
|---|---|
| **Prepared By** | Regulatory Affairs<br>Thermo Fisher Scientific<br>Email: EMSDS.RA@thermofisher.com |
| **Creation Date** | 11-February-2010 |
| **Revision Date** | 17-January-2018 |
| **Print Date** | 17-January-2018 |
| **Revision Summary** | This document has been updated to comply with the requirements of WHMIS 2015 to align with the Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals. |

**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**