

## SAFETY DATA SHEET

Creation Date 11-Feb-2010

Revision Date 17-Jan-2018

Revision Number 3

### 1. Identification

**Product Name** Sodium hydroxide

**Cat No. :** S613-3; S613-10; S613-50; S613-500LB

**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

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  
 Keep only in original container

**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

**Spills**

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

**Hazards not otherwise classified (HNOC)****Other hazards**

Water reactive.

### 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 and 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 (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. Water reactive. Corrosive Material. Causes severe burns by all exposure routes.

**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.

**NFPA**

**Health**  
3

**Flammability**  
0

**Instability**  
1

**Physical hazards**  
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        | ACGIH TLV                    | OSHA PEL   | NIOSH IDLH   | Mexico OEL (TWA)             |
|------------------|------------------------------|--|--|------------------------------|
| 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> | Ceiling: 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 that eyewash stations and safety showers are close to the workstation location.

**Personal Protective Equipment**

**Eye/face 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.

**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.

## 9. Physical and chemical properties

|   |                              |
|---|------------------------------|
| <b>Physical State</b>                         | Solid                        |
| <b>Appearance</b>                             | White                        |
| <b>Odor</b>                                   | Odorless                     |
| <b>Odor Threshold</b>                         | No information available     |
| <b>pH</b>                                     | 14 (5 %)                     |
| <b>Melting Point/Range</b>                    | 318 °C / 604.4 °F            |
| <b>Boiling Point/Range</b>                    | 1390 °C / 2534 °F @ 760 mmHg |
| <b>Flash Point</b>                            | Not applicable               |
| <b>Evaporation Rate</b>                       | No information available     |
| <b>Flammability (solid,gas)</b>               | No information available     |
| <b>Flammability or explosive limits</b>       |                              |
| <b>Upper</b>                                  | No data available            |
| <b>Lower</b>                                  | No data available            |
| <b>Vapor Pressure</b>                         | 1 mmHg @ 739 °C              |
| <b>Vapor Density</b>                          | No information available     |
| <b>Specific Gravity</b>                       | 2.13                         |
| <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     |
| <b>Molecular Formula</b>                      | NaOH                         |
| <b>Molecular Weight</b>                       | 40                           |

## 10. Stability and reactivity

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

**Stability** Water reactive. Hygroscopic.

|   |   |
|---|---|
| <b>Conditions to Avoid</b>              | Avoid dust formation. Incompatible products. Excess heat. Exposure to moist air or water. |
| <b>Incompatible Materials</b>           | Water, Metals, Acids  |
| <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

#### 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

|                        |  |
|------------------------|--|
| <b>Irritation</b>      | Causes severe burns by all exposure routes   |
| <b>Sensitization</b>   | No information available   |
| <b>Carcinogenicity</b> | 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<br>(Nitzschia) | Lepomis macrochirus: LC50:<br>300 mg/L/96h<br>Gambusia affinis: LC50: 740<br>mg/L/96h | - | EC50: = 265 mg/L, 48h<br>(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        | TSCA | DSL | NDSL | 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    |

#### 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 Hazard Categories** See section 2 for more information

**CWA (Clean Water Act)**

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

**U.S. State Right-to-Know Regulations**

| Component        | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|------------------|---------------|------------|--------------|----------|--------------|
| 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

## 16. Other information

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

**Creation Date** 11-Feb-2010  
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**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**