

Reference Number :SDS22; Revision Date: 25/10/2012; Rev No: 01

**CAUSTIC SODA 0.1% =< CONC. <5.0%****1. PRODUCT AND COMPANY IDENTIFICATION****1.1. Product Identifiers**

-Product Name : **CAUSTIC SODA 0.1% =< CONC. <5.0%**  
 -Chemical Name : Sodium hydroxide  
 -Synonyms : Lye soda, Sodium hydrate, Caustic lye  
 -Molecular Formula : NaOH  
 -REACH Registration Number : 01-2119457892-27-0086  
 -Type of Product : Mixture

**1.2. Identified uses / Uses advised against**

**-Identified uses** :

- Reagent
- pH-regulating agent
- Ion exchange resins regenerating agent
- Catalyst
- Etching agent
- Cleaning agent

**-Uses advised against** :

- None

**1.3. Manufacturer or supplier's details**

-Company : MICRO-BIO (IRELAND) LTD.  
 -Address : Industrial Estate, Fermoy, Co Cork, Ireland  
 -Telephone : +3532531388  
 -Fax : +3532532458  
 -E-mail address : [dobrien@micro-bio.ie](mailto:dobrien@micro-bio.ie)

**1.4. Emergency telephone number**

-Emergency telephone number : +3532531388 (Available 24/7)

**2. HAZARDS IDENTIFICATION****2.1. GHS Classification****2.1.1. European regulation (EC) 1272/2008, as amended**

*Classified as hazardous according to the European regulation (EC) 1272/2008, as amended*

Hazard class	Hazard category	Route of exposure	H Phrases
Skin Corrosion	Category 1A		H314
Corrosive to metals	Category 1		H290

**2.1.2. European Directive 67/548/EEC or 1999/45/EC, as amended**

*Classified as hazardous according to European Directive 67/548/EEC or 1999/45/EC, as amended*

Hazard class / Hazard category	R-phrases(s)
C	R35

**2.2. EC Label – According to Regulation (EC) 1272/2008, as amended****2.2.1. Name(s) on label**

Hazardous components : Sodium hydroxide (>=5-<51%)

**2.2.2. Signal word**

Danger

**2.2.3. Hazard symbols**

2.2.4. Hazard statements

- H314 - Causes severe skin burns and eye damage.
- H290 - May be corrosive to metals.

2.2.5. Precautionary statements

- |                   |                    |   |  |
|-------------------|--------------------|---|--|
| <b>Prevention</b> | P260               | - | Do not breathe dust/fume/gas/mist/vapours/spray.   |
|                   | P280               | - | Wear protective gloves/protective clothing/eye protection/face protection.   |
| <b>Response</b>   | P303 + P361 + P353 | - | 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. |
|                   | P301 + P330 + P331 | - | IF SWALLOWED: rinse mouth. Do NOT induce vomiting.   |
|                   | P310               | - | Immediately call a POISON CENTRE or doctor/physician.  |

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1. Concentration**

Substance name:	Concentration
<b>Sodium hydroxide</b>	
CAS-No.: 1310-73-2 / EC-No.: 215-185-5 / Index-No.: 011-002-00-6	>0.1 - < 5%

**3.2. Hazardous components – According to Regulation (EC) 1272/2008, as amended**

Substance name	Hazard class	Hazard category	Route of exposure	H Phrases
<b>Sodium hydroxide</b>	Skin corrosion	Category 1A		H314
	Corrosive to metals	Category 1		H290

**3.3. Hazardous components – European Directive 67/548/EEC or 1999/45/EC, as amended**

Substance name	Classification	Hazard category	R-phrase(s)
<b>Sodium hydroxide</b>	C	Corrosive	R35

**4. FIRST AID MEASURES**

**SPEED IS ESSENTIAL**

**4.1 Description of necessary first-aid measures**

4.1.1. If inhaled

- Move to fresh air.
- Oxygen or artificial respiration if needed.
- Victim to lie down in the recovery position, cover and keep him warm.
- Call a physician immediately.

4.1.2. In case of eye contact

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).
- Call a physician or poison control centre immediately.
- Take victim immediately to hospital.

4.1.3. In case of skin contact

- Take off contaminated clothing and shoes immediately.
- Wash off immediately with plenty of water.
- Keep warm and in a quiet place.
- Call a physician or poison control centre immediately.
- Wash contaminated clothing before re-use.

4.1.4. If swallowed

- Call a physician or poison control centre immediately.
- Take victim immediately to hospital.
- If swallowed, rinse mouth with water (only if the person is conscious).
- Do NOT induce vomiting.
- Artificial respiration and/or oxygen may be necessary.

**4.2. Most important symptoms/effects, acute and delayed**

4.2.1. Inhalation

- Corrosive to respiratory system
- Symptoms: Breathing difficulties, cough, chemical pneumonitis, pulmonary oedema
- Repeated or prolonged exposure: Risk of sore throat, nose bleeds, chronic bronchitis.



4.2.2. Skin contact

- Causes severe burns.
- Symptoms: Redness, Swelling of tissue, Burn

4.2.3. Eye contact

- Causes severe burns.
- Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
- Symptoms: Redness, Lachrymation, Swelling of tissue, Burns.

4.2.4. Ingestion

- If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.
- Symptoms: Nausea, Abdominal pain, Bloody vomiting, Diarrhoea, Suffocation, Cough, Severe shortness of breath.

## 5. FIRE-FIGHTING MEASURES

### 5.1. Extinguishing media

5.1.1. Suitable extinguishing media

- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.1.2. Unsuitable extinguishing media

- None.

### 5.2. Specific hazards arising from the chemical

- The product is not flammable.
- Not combustible.
- Hazardous decomposition products formed under fire conditions.
- Gives off hydrogen by reaction with metals.

### 5.3. Special protective actions for fire-fighters

- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.
- Wear chemical resistant oversuit.
- Cool containers / tanks with water spray.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. Advice for non-emergency personnel

- Prevent further leakage or spillage if safe to do so.
- Keep away from Incompatible products.

6.1.2. Advice for emergency responders

- Evacuate personnel to safe areas.
- Keep people away from and upwind of spill/leak.
- Ventilate the area.
- Wear suitable protective clothing.

### 6.2. Environmental precautions

- Should not be released into the environment.
- Do not flush into surface water or sanitary sewer system.
- If the product contaminates rivers and lakes or drains, inform respective authorities.

### 6.3. Methods and materials for containment and cleaning up

- Dam up.
- Soak up with inert absorbent material.
- Prevent product from entering drains.
- Keep in properly labelled containers.
- Keep in suitable, closed containers for disposal.

### 6.4. Reference to other sections

- Refer to protective measures listed in sections 7 and 8

## 7. HANDLING AND STORAGE

### 7.1. Precautions for safe handling

- Used in closed system
- Use only in well-ventilated areas.
- Keep away from incompatible products.

## 7.2. Conditions for storage, including incompatibilities

### 7.2.1. Storage

- Store in original container.
- Keep in a well-ventilated place.
- Keep in properly labelled containers.
- Keep container closed.
- Keep in a banded area.
- Keep away from incompatible products.
- Regularly check the condition and temperature of the containers.
- Minimum storage temperature: 25°C for 50% solution; 5°C for 30% Solution

The material can be stored at ambient or slightly elevated temperatures (these are needed in the case of concentrated solutions) in mild steel tanks of welded construction. Where the liquor temperature is above 40°C for concentrations of 30 % or more or above 60°C for lower concentrations, tanks must be stress relieved.

### 7.2.2. Packaging material

#### 7.2.2.1. Suitable material

- Stainless steel

#### 7.2.2.2. Unsuitable material

- No data available

## 7.3. Specific use(s)

- For further information, please contact: Supplier

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### 8.1.1. Exposure Limit Values

##### **Sodium hydroxide**

- Ireland: Code of Practice for the Safety Health & Welfare at Work (Chemical Agents) Regulations 2011 (SI No. 619 of 2001)  
Occupational Exposure Limit Value(15 minute reference period) = 2 mg/m<sup>3</sup>
- US. ACGIH Threshold Limit Values 2009  
Ceiling Limit Value = 2 mg/m<sup>3</sup>

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

- Ensure adequate ventilation.
- Apply technical measures to comply with the occupational exposure limits.

#### 8.2.2. Individual protection measures

##### 8.2.2.1. Respiratory protection

- In the case of dust or aerosol formation, use respirator with an approved filter.
- Recommended Filter type: P2

##### 8.2.2.2. Hand protection

- Impervious gloves in compliance with EN374:2003.
- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). The following list may be used for guidance but is not exhaustive:
- Nitrile rubber- NBR: thickness  $\geq$  0,35mm; breakthrough time $\geq$ 480min.
- Polyvinyl chloride- PVC: thickness  $\geq$ 0,5mm; breakthrough time $\geq$ 480min.
- Butyl rubber: thickness $\geq$  0,5mm; breakthrough time $\geq$ 480min.
- Dispose of contaminated gloves appropriately.
- Unsuitable material: Leather

##### 8.2.2.3. Eye protection

- Chemical resistant goggles or full-face shield must be worn.
- If splashes are likely to occur, wear: Tightly fitting safety goggles and Full-Face shield

##### 8.2.2.4. Skin and body protection

- Wear suitable protective clothing.
- If splashes are likely to occur, wear:
- Rubber or plastic boots
- Rubber apron.

##### 8.2.2.5. Hygiene measures

- Ensure that eyewash stations and safety showers are close to the workstation location.
- Take off contaminated clothing and shoes immediately.
- Handle in accordance with good industrial hygiene and safety practice.

#### 8.2.3. Environmental Exposure controls

- Dispose of rinse water in accordance with local and national regulations.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Physical and chemical properties (0.1 – 5%)

#### 9.1.1. General Information

▪ <b>Appearance</b>	Clear liquid
▪ <b>Colour</b>	Colourless
▪ <b>Odour</b>	Odourless

#### 9.1.2. Important health safety and environmental information

▪ <b>pH</b>	> 11
▪ <b>pKa</b>	No data
▪ <b>Melting point/freezing point</b>	0°C (0.1%); -4°C (5%)
▪ <b>Boiling point/boiling range</b>	approx 100°C
▪ <b>Flash point</b>	The product is not flammable.
▪ <b>Evaporation rate</b>	No data
▪ <b>Flammability (solid, gas)</b>	not applicable
▪ <b>Flammability</b>	The product is not flammable
▪ <b>Explosive properties</b>	Not explosive, See section 10.
▪ <b>Vapour pressure</b>	< 13.3 hPa, at 20°C
▪ <b>Vapour density</b>	No data
▪ <b>Relative density</b>	1.01 (0.1%); 1.06 (5%)
▪ <b>Bulk density</b>	No data
▪ <b>Solubility(ies)</b>	Completely soluble in water
▪ <b>Solubility/qualitative</b>	Completely miscible, Alcohol (Glycerol)
▪ <b>Partition coefficient: n-octanol/water</b>	No data
▪ <b>Autoignition temperature</b>	No data
▪ <b>Decomposition temperature</b>	No data
▪ <b>Viscosity</b>	1-2 CPS, at 20°C
▪ <b>Oxidizing properties</b>	Non oxidizer

## 10. STABILITY AND REACTIVITY

### 10.1. Reactivity

- Potential for exothermic hazard
- May be corrosive to metals.

### 10.2. Chemical stability

- Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

- Exothermic reaction with water (slight for dilutions from 40% down)
- Gives off hydrogen by reaction with metals.
- Exothermic reaction with strong acids.

### 10.4. Conditions to avoid

- Keep away from direct sunlight
- To avoid thermal decomposition, do not overheat.
- Exposure to moisture
- Freezing
- If electric arc welding or cutting, particular attention must be paid to the way the electrical circuit is completed to eliminate the possibility of producing Hydrogen through electrolysis of the liquor.
- A potential exists for the formation of carbon monoxide gas in closed equipment during cleaning with caustic soda solutions by reaction with certain sugars including fructose, galactose, arabinose, lovalose, lactose, maltose and dry whey powder.

### 10.5. Materials to avoid

- Metals, Oxidizing agents, Acids, Aluminium, other light metals and their alloys

### 10.6. Hazardous decomposition products

- Hydrogen

## 11. TOXICOLOGICAL INFORMATION

### 11.1. Acute toxicity

#### 11.1.1. Acute oral toxicity

- no data available. Will immediately cause corrosion of and damage to gastrointestinal tract.

#### 11.1.2. Acute inhalation toxicity

- no data available. Mist is severe irritant to the respiratory tract.

#### 11.1.3. Acute dermal toxicity

- no data available. Corrosive.

**11.2. Skin corrosion/irritation**

- Corrosive

**11.3. Serious eye damage/eye irritation**

- Corrosive

**11.4. Respiratory or skin sensitization**

- no observed effect

**11.5. Mutagenicity**

- Animal testing did not show any mutagenic effects. In vitro tests did not show mutagenic effects.

**11.6. Carcinogenicity**

- no data available

**11.7. Toxicity for reproduction**

- Effect on fertility, foetotoxic effect, no observed effect

**11.8. Repeated dose toxicity**

- not applicable

## 12. ECOLOGICAL INFORMATION

**12.1. Toxicity**

Large discharges may contribute to the alkalisation of water and may be fatal to fish and other aquatic life. Can cause severe damage to aquatic plants.

- Fishes, various species, LC50, 96 h, 35 – 189 mg/l (Sodium hydroxide)
- Crustaceans, Ceriodaphnia sp., EC50, 48 h, 40.4 mg/l (Sodium hydroxide)

**12.2. Persistence and degradability**

**12.2.1. Abiotic degradation**

- Air Result: neutralization by natural alkalinity
- Water Result: ionization/neutralization  
Conditions: pH
- Soil Result: ionization/neutralization

**12.3. Bioaccumulative potential**

- Not relevant

**12.4. Mobility**

- Water, Soil/sediments: Considerable solubility and mobility
- Soil/sediments: Mobile, soluble, ionization/neutralization
- Air: Chemical degradation

**12.5. Other adverse effects**

- No data available

## 13. DISPOSAL CONSIDERATIONS

**13.1. Waste disposal methods**

- Dilute with plenty of water.
- Solutions with high pH-value must be neutralized before discharge.
- Neutralise with acid.
- In accordance with local and national regulations.

**13.2. Contaminated packaging**

- Where possible recycling is preferred to disposal or incineration.
- Clean container with water.
- Dispose of as unused product.
- In accordance with local and national regulations.

## 14. TRANSPORT INFORMATION

### 14.1. International transport regulations

#### - IATA-DGR

UN number	UN 1824
Class	8
Packing group	II
ICAO-Labels	8 - Corrosive
Proper shipping name	SODIUM HYDROXIDE SOLUTION

#### - IMDG

UN number	UN 1824
Class	8
Packing group	II
IMDG-Labels	8 - Corrosive
HI/UN No.	1824
EmS	F-A S-B
Proper shipping name	SODIUM HYDROXIDE SOLUTION

#### - ADR

UN number	UN 1824
Class	8
Packing group	II
ADR/RID-Labels	8 – Corrosive
HI/UN No.	80 / 1824
Proper shipping name	SODIUM HYDROXIDE SOLUTION

#### - RID

UN number	UN 1824
Class	8
Packing group	II
ADR/RID-Labels	8 – Corrosive
HI/UN No.	80 / 1824
Proper shipping name	SODIUM HYDROXIDE SOLUTION

#### - ADN

UN number	UN 1824
Class	8
Packing group	II
ADR/RID-Labels	8 – Corrosive
Proper shipping name	SODIUM HYDROXIDE SOLUTION

## 15. REGULATORY INFORMATION

### 15.1. Applicable Laws or Regulations

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), as amended.
- Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations, as amended.
- Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, as amended.
- Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended.
- Commission Directive 2000/39/EC of 8 June 2000 establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work, as amended.
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste.
- The List of Wastes (Wales) Regulations 2005. 2005 Welsh Statutory Instrument (WSI), number W.148 (1820), 14 July 2005.
- The List of Wastes (England) Regulations 2005. 2005 Statutory Instrument (SI), number 895, 6 April 2005, as amended
- EH40/2005. Workplace Exposure Limits, as amended through 1,10,2007 (WELs). Published by the Health and Safety Executive (HSE). Issued under the Control of Substances Hazardous to Health Regulations – as amended.

**15.2. Notification status**

Inventory Information	Status
Toxic Substance Control Act list (TSCA)	- In compliance with inventory
Australian Inventory of Chemical Substances (AICS)	- In compliance with inventory
Canadian Domestic Substances List (DSL)	- In compliance with inventory
Korean Existing Chemicals List (ECL)	- In compliance with inventory
EU list of existing chemical substances (EINECS)	- In compliance with inventory
Japanese Existing and New Chemical Substances (MITI List) (ENCS)	- In compliance with inventory
Inventory of Existing Chemical Substances (China) (IECS)	- In compliance with inventory
Philippine Inventory of Chemicals and Chemical Substances (PICCS)	- In compliance with inventory
New Zealand Inventory of Chemicals (NZIOC)	- In compliance with inventory

**16. OTHER INFORMATION****16.1. Full text of H-Statements referred to under section 3**

- H290 - May be corrosive to metals.  
H314 - Causes severe skin burns and eye damage.

**16.2. Full text of R-phrases referred to under sections 2 and 3**

- 16.2.1. Full text of R-phrases referred to under section 2  
R35 - Causes severe burns.  
16.2.2. Full text of R-phrases referred to under section 3  
R35 - Causes severe burns.

**16.3. Other information**

Section	Revisions to Previous issue
8	Inclusion of OELV's from Irish Code of Practice-Chemical Agents. Update of information on hand protection.
All	General reformatting without content change.

- Distribute new edition to clients

This SDS is only intended for the indicated country to which it is applicable. The European SDS format compliant with the applicable European legislation is not intended for use nor distribution in countries outside the European Union with the exception of Norway and Switzerland. Safety datasheets applicable in other countries/regions are available upon request. The information given corresponds to the current state of our knowledge and experience of the product, and is not exhaustive. This applies to product which conforms to the specification, unless otherwise stated. In this case of combinations and mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and protection of human welfare and the environment.