

PRODUCT SPECIFICATION			
Product Name	Caustic Soda Liquor		
Alternative Name	Sodium Hydroxide Solution 32%		
Specification Reference	CSL32/1 (23/04/IH)		
SALES SPECIFICATION			
PROPERTY	UNITS	SPECIFICATION RANGE	TYPICAL ANALYSIS
Sodium Hydroxide	% w/w NaOH	31 - 33	32
Sodium Carbonate	% w/w Na ₂ CO ₃	<0.1	0.03
Sodium Chloride	ppm NaCl	<100	<30
Sodium Sulphate	ppm Na ₂ SO ₄	<20	<5
Sodium Chlorate	ppm NaClO ₃	≤60	<20
Iron	ppm Fe	<5	1
Mercury	ppm Hg	<0.5	0.05

PLEASE NOTE FLUID SCIENCE LTD CAUSTIC SODA MEETS TYPE 2 REQUIREMENTS OF BS EN 896: 2012

NOTES
<p>Exclusion of Liability</p> <p>Information contained in this publication is accurate to the best of the knowledge and belief of Fluid Science Ltd.</p> <p>Any information or advice obtained from Fluid Science Ltd otherwise than by means of this publication and whether relating to Fluid Science Ltd materials or other materials, is also given in good faith. However, it remains at all times the responsibility of the customer to ensure that Fluid Science Ltd materials are suitable for the particular purpose intended.</p> <p>Fluid Science Ltd accepts no liability whatsoever (except as otherwise provided by law) arising out of the use of information supplied, the application, adaptation or processing of the products described herein, the use of other materials in lieu of Fluid Science Ltd materials or the use of Fluid Science Ltd materials in conjunction with such other materials.</p> <p>Health and Safety</p> <p>A Material Safety Data Sheet has been issued describing the health, safety and environmental properties of this product, identifying the potential hazards and giving advice on the handling precautions and emergency procedures. This must be consulted fully before handling, storage and use.</p>

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/ UNDERTAKING

1.1 Product Identifier

GHS Product Identifier	Caustic Soda Liquor
EC Index Number	011-002-00-6
Alternative Name	Sodium Hydroxide Solution
HMRC Commodity Code	28151200
REACH Registration Number	01-2119457892-27-XXXX

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture

Chemical manufacture and processing. pH control.

Recommended restrictions on use

None anticipated

1.3 Details of the supplier of the safety data sheet

Fluid Science Limited
 Unit 3b Arbour Ct, Arbour Lane,
 Knowsley Industrial Park
 Kirkby
 L33 7XE
 +44 (0) 1244 506 860
 sales@fluidscienceltd.com

1.4 Emergency telephone number

Tel: 0870 190 6777 (National Chemical Emergency Centre) +44 (0)1270 502891

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Skin Corr. 1A Met. Corr. 1

For the full text of the H-Statements mention in this Section, see Section 16.

2.2. Label Elements

Hazard Statements

H314: Causes severe skin burns and eye damage.

H290: May be corrosive to metal

Signal word(s) DANGER

Hazard Pictogram



Precautionary statement(s)

P260: Do not breathe dust/fume/gas/mist/vapours/spray.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

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.

P310: Immediately call a POISON CENTER or doctor/physician.

2.3 Other hazards

This data sheet covers solutions containing greater than 5% caustic soda (sodium hydroxide), rayon and membrane

grades.
Rayon grades contain typically less than 0.1mg/kg mercury.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Hazardous ingredient(s)	%(w/w)	CAS No.	EC No.	H - Codes	GHS Classification
Sodium Hydroxide	10 - 75	001310-73-2	215-185-5	H314, H290	Skin Corr. 1A Met. Corr. 1

This data sheet covers solutions containing greater than 5% caustic soda (sodium hydroxide), rayon and membrane grades.

Rayon grades contain typically less than 0.1mg/kg mercury.

4. FIRST AID MEASURES

4.1 Description of first aid measures

If inhaled

Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary

In case of skin contact

Remove contaminated clothing. Drench with large quantities of water. Continue to wash the affected area for at least 10 minutes

In case of eye contact

Immediately irrigate with eyewash solution nor clean water, holding the eyelids apart, for at least 15 minutes.

Continue irrigation until medical attention can be obtained

If swallowed

Do not induce vomiting. Provided the patient is conscious, wash out mouth with water and give 200 – 300 ml (half a pint) of water to drink

4.2 Most important symptoms and effects, both acute and delayed

Causes severe damage to eyes and skin. May cause severe damage with formation of corneal ulcers and permanent impairment of vision. Mist is severely irritant to the respiratory tract. Effect may vary from irritation of the nasal mucous membrane to severe lung irritation. Will immediately cause corrosion of and damage to the gastrointestinal tract.

4.3 Indication of any immediate medical attention and special treatment needed

SPEED IS ESSENTIAL. OBTAIN IMMEDIATE MEDICAL ATTENTION.

Showers and eye washing equipment must be provided at handling points.

Remove contaminated clothing and wash all affected areas with plenty of water.

Symptomatic treatment and supportive therapy as indicated.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Foam, CO₂ or dry powder. As appropriate for surrounding fire.

Unsuitable extinguishing media

No further information

5.2 Special hazards arising from the substance or mixture

Non-combustible. Exothermic reaction with water. Contact with some metals e.g. aluminium, zinc can produce flammable hydrogen gas. Contact with some organic chemicals can produce violent or explosive reactions.

5.3 Advice for fire-fighters

Special protective equipment for fire-fighters

A self-contained breathing apparatus and suitable protective clothing must be worn in fire conditions.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions

Ensure suitable personal protection during removal of spillages.

6.2 Environmental precautions

Environmental precautions

Stop leak if safe to do so. Contain spillages.

Small spillages: Neutralise wherever possible. Wash the spillage area with water.

Large spillages: Contain spillages with sand, earth or any suitable adsorbent material. Remove and dispose of

residues. Wash the spillage area with water. Water washing to drain of large amounts of caustic soda should only be carried out with the prior consent of the Environment Agency or other appropriate regulatory body. Contaminated adsorbent must be removed in sealed, plastic lined drums and disposed of via an authorised waste disposal contractor.

6.3 Methods and materials for containment and cleaning up

Methods and material for containment and cleaning up

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders). Keep in suitable, closed containers for disposal.

Further information

Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environment Agency or other appropriate regulatory body.

6.4 Reference to other sections

See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

6.5 Additional Information

Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environment Agency or other appropriate regulatory body.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling

Avoid contact with skin and eyes. Keep away from acids and chlorinated hydrocarbons.
Care should be taken when diluting solutions. Do not spray. Avoid generation of aerosols or mist.
Rayon grades only: For operations involving black sludge containing mercury, atmospheric levels of mercury must be controlled in compliance with the occupational exposure limit (see 7.2).

Hygiene measures

Keep away from food, drink and animal feeding stuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

For small quantities - Keep container tightly closed.
For large quantities - Can be stored at normal or slightly elevated temperatures in mild steel tanks. Where temperature is above 40 Deg C for liquors containing 30% or more of caustic or above 60 Deg C for lower concentrations tanks must be stressed relieved.
Following prolonged storage in mild steel tanks, a black sludge will collect at the bottom of the tank. The sludge will contain iron, sodium carbonate and when Rayon grades are stored, mercury. In the latter case the mercury is likely to be present in a finely divided form, spread throughout the particulate matter in the sludge. Provision should be made for testing the tank atmosphere for oxygen and mercury prior to entry.

7.3 Specific end uses

Specific use(s)

No information available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

HAZARDOUS INGREDIENT(S)	CAS No.	LTEL 8 hr TWA ppm	LTEL 8 hr TWA mg/m3	STEL ppm	STEL mg/m3	Note:
Sodium Hydroxide	001310-73-2	-	-	-	2	WEL
Mercury & its inorganic divalent compounds		-	0.02	-	-	IOELV, Sk

DNEL/DMEL	Oral	Inhalation	Dermal
Industry - Long Term - Local effects	-	1.0 mg/m ³	-
Industry - Long Term - Systemic effects	-	-	-
Industry - Short term - Local effects	-	-	2%
Industry - Short term - Systemic effects	-	-	-
Consumer. - Long Term - Local effects	-	1.0 mg/m ³	-
Consumer. - Long Term - Systemic effects	-	-	-
Consumer. - Short term - Local effects	-	-	2%

Consumer. - Short term - Systemic effects		-	-	-
Environment	PNEC			
Aquatic Compartment (including sediment)	Not relevant for this material.			
Terrestrial Compartment	Not relevant for this material.			
Atmospheric Compartment	Not relevant for this material.			
<p>8.2 Exposure Controls</p> <p>Appropriate Engineering Controls Provide adequate ventilation, including appropriate local extraction, if fumes or vapours are likely to be evolved.</p> <p>Personal Protection Eye/face protection Wear close fitting goggles or full face shield.</p> <p>Skin protection Wear suitable protective clothing and gloves. Suitable Materials: PVC, Neoprene, natural rubber Unsuitable gloves materials: Leather Leather footwear is not suitable. Check with protective equipment manufacturer's data.</p> <p>Respiratory protection Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely. Use a respirator/filter with at least: Filter type P2 Rayon grades only: For operations involving black sludge containing mercury, air line fed breathing apparatus must be worn (see 7.2). Check with protective equipment manufacturer's data.</p>				
9. PHYSICAL AND CHEMICAL PROPERTIES				
9.1 Information on basic physical and chemical properties				
Molecular weight:	40			
Form	Clear or slightly turbid liquid.			
Colour	colourless			
Solubility (Water)	soluble (100g NaOH/100g H ₂ O at 25°C)			
Solubility (Other)	ethanol			
9.2 Other information				
No further information available.				
10 STABILITY AND REACTIVITY				
10.1 Reactivity				
Highly reactive with aluminium, zinc, tin and alloys of these metals producing flammable hydrogen gas. Contact with some organic chemicals can produce violent or explosive reactions.				
10.2 Chemical stability				
Stable under normal conditions.				
10.3 Possibility of hazardous reactions				
Can react violently if in contact with acids and chlorinated hydrocarbons. Exothermic reaction with water. Can react with sugar residues to form carbon monoxide.				
10.4 Conditions to avoid				
If electric arc welding or cutting, particular attention must be paid to the way the circuit is completed to eliminate the possibility of electrolysis of liquor producing hydrogen.				
10.5 Incompatible materials				
Keep away from: Acids, ammonia solution, chlorinated hydrocarbons				
10.6 Hazardous decomposition products				
hydrogen				
11. TOXICOLOGICAL INFORMATION				
11.1 Information on toxicological effects				
Acute toxicity				
Acute Oral Toxicity				
Will immediately cause corrosion of and damage to the gastrointestinal tract. Lethal dose for man is approximately 5g.				

Acute Inhalation Toxicity

Mist is severely irritant to the respiratory tract. Effect may vary from irritation of the nasal mucous membrane to severe lung irritation.

Acute Dermal Toxicity

Corrosive. May cause severe burns with permanent skin damage which are slow to heal. Repeated or prolonged contact to dilute solutions may cause dermatitis

Irritation Skin

Causes severe skin burns.

Serious Eye Damage/Irritation

Causes serious eye damage. May cause severe damage with formation of corneal ulcers and permanent impairment of vision.

Respiratory Irritation

Mist is severely irritant to the respiratory tract. Effect may vary from irritation of the nasal mucous membrane to severe lung irritation

Sensitisation

Respiratory system: No data.

There is no evidence of skin sensitisation in humans.

Repeated Dose Toxicity

No reliable data available.

Germ Cell Mutagenicity

There is no evidence of mutagenic potential. The material did not induce mutagenicity in in-vitro or in-vivo studies.

Carcinogenicity

Sodium hydroxide is corrosive to the skin and respiratory tract and will not be systemically available in the body under normal conditions of handling and use. As a consequence it is not expected to cause cancer in any organ

Reproductive Toxicity

Sodium hydroxide will not be systemically available in the body under normal conditions of handling and use and will not be toxic to the reproductive system or the developing foetus.

Specific target organ toxicity — single exposure (STOT SE): Not classified

Specific target organ toxicity — repeated exposure (STOT RE): Not classified

Aspiration Hazard

Not an aspiration hazard

Further information

None

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No reliable data available. Concentrations greater than 10ppm, especially in fresh water, or a pH value equal to or greater than 10.5 may be fatal to fish and other aquatic organisms. Can cause damage to aquatic plants. Can cause damage to vegetation.

12.2 Persistence and degradability

Sodium hydroxide is highly soluble in water and has a low vapour pressure. It will be found predominantly in the aquatic environment. It degrades readily by reaction with the natural carbon dioxide in the air.

12.3 Bioaccumulative potential

Sodium hydroxide does not bioaccumulate.

12.4 Mobility in soil

Sodium hydroxide becomes increasingly more mobile in soil with dilution.

12.5 Results of PBT and vPvB assessment

Sodium hydroxide does not meet the criteria for persistency, bioaccumulation and toxicity. (EU RAR 2007)

12.6 Other adverse effects

Concentrations sufficient to render effluent alkaline may cause damage to effluent treatment organisms.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Disposal should be in accordance with local, state or national legislation.

Do not empty into drains; dispose of this material and its container in a safe way.

Contaminated adsorbent must be removed in sealed, plastic lined drums and disposed of via an authorised waste disposal contractor.

Additional Information

Sludge waste containing mercury (see Storage) will require to be disposed of in an authorised treatment facility licenced under the Environmental Protection Act (EPA).

14. TRANSPORT INFORMATION

14.1 Road/Rail

UN No.	1824
Proper Shipping Name	SODIUM HYDROXIDE SOLUTION
ADR/RID Class	8
Packing Group	II
Label.	8
Tunnel Restriction Code	(E)

14.2 Sea

UN No.	1824
Proper Shipping Name	SODIUM HYDROXIDE SOLUTION
IMDG Class	8
Packing Group	II
Label.	8
Marine Pollutant	Not classified as a Marine Pollutant

14.3 Air (ICAO/IATA)

UN No.	1824
Proper Shipping Name	SODIUM HYDROXIDE SOLUTION
ICAO-TI Class	8
Packing Group	II
Label.	8

14.4 Additional Information

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
 Product Name: Sodium hydroxide solution.
 Ship Type: 3
 Pollution Category: Y

15. REGULATORY INFORMATION

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

Control of Substances Hazardous to Health Regulations (COSHH) 2002 SI 2002/2677 and COSHH Essentials: Easy steps to control chemicals - Control of Substances Hazardous to Health Regulations HSG193. Wassergefährdungsklasse (Germany) WGK class 1 (official).

Inventory Status

Listed in: Australia (AICS), Canada (DSL/NDSL), China (IECSC), European Union (EINECS/ELINCS), South Korea (KECI), Philippines (PICCS), New Zealand Inventory (NZIoC), Switzerland United States (TSCA).

15.2 Chemical Safety Assessment

A Chemical Safety Assessment (CSA) has been completed for this substance.

16. OTHER INFORMATION

LEGEND

WEL : Workplace Exposure Limit (UK HSE EH40)
 COM : The company aims to control exposure in its workplace to this limit
 TLV : The company aims to control exposure in its workplace to the ACGIH limit
 TLV-C: The company aims to control exposure in its workplace to the ACGIH Ceiling limit
 MAK : The company aims to control exposure in its workplace to the German limit
 Sk : Can be absorbed through skin
 Sen : Capable of causing respiratory sensitisation
 Bmgv : Biological monitoring guidance value (UK HSE EH40)
 ILV : Indicative Limit Value (UK HSE EH40)
 IOELV: Indicative Occupational Exposure Limit Value
 PBT Persistent, Bioaccumulative and Toxic
 vPvB very Persistent very Bioaccumulative
 Key literature references
 EU RAR NaOH (2007), European Union Risk Assessment Report sodium hydroxide. Office for Official Publications of the European Union. Luxembourg.

GESTIS - database on hazardous substances

Chemical Safety Report, Sodium Hydroxide (21 July 2010)

Full text of H-Statements referred to under sections 2 and 3.

H314 Causes severe skin burns and eye damage.

Modification since last revision

First Issue

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