



SAFETY DATA SHEET

Caustic Soda 50%

SECTION 1: Identification of the substance / mixture and of the company / undertaking

1.1. Product identifier

Product name	CAUSTIC SODA 50% (Sodium Hydroxide Solution)
Product number	Caustic Soda, Sodium hydroxide CAS 1310-73-2
Chemical Formula	NaOH

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

Identified uses	Used to reduce SOx emissions
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1.3. Details of the supplier of the safety data sheet

Supplier	Fluechem The Steading, Holtby Manor Stamford Bridge Road, Dunnington York, YO19 5LL Tel: + 44 (0) 20 800 35 982
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Manufacturer

I POTANE HEAVY CHEMICALS

Gibraltar

Tel: + 44 (0) 20 800 35 982

1.4. Emergency telephone number

Emergency telephone

+ 44 (0) 20 800 35 982

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

According to Regulation (EC) No. 1272/2008 (CLP)

Met. Corr. 1 :May be corrosive to metals

Skin Corr. 1A :Causes severe skin burns and eye damage.

Product Name

CAUSTIC SODA 50%

2.2. Label elements

Hazard Pictogram(s)



GHS05

Hazard statements

According to Regulation (EC) No. 1272/2008 (CLP)

H290: May be corrosive to metals.

H314: Causes severe skin burns and eye damage.

Precautionary statements

P101: If medical advice is needed, have product container or label at hand.

P260: Do not breathe vapour.

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

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

P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

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/doctor.

Additional label requirements None.

2.3. Other hazards

None known.

SECTION 3: Composition / information on ingredients

3.1. Mixtures

HAZARDOUS INGREDIENT(S)	CAS No.	%W/W	Hazard Statement(s) *	Hazard Pictogram(s)
Sodium Hydroxide	1310-73-2	10 – 75	Met. Corr. 1 H290 Skin Corr. 1A H314	GHS05

SECTION : First Aid Measures

4.1. Description of first aid measures

Inhalation Remove patient from exposure, keep warm and at rest. If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Ingestion	Provided the patient is conscious, wash out mouth with water. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor.
Skin contact	Take off immediately all contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Seek medical treatment. If burned surface > 10%: take victim to hospital.
Eye contact	Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 10 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Continue irrigation until medical attention can be obtained. Immediately call a POISON CENTER/doctor..

4.2. Most important symptoms and effects, both acute and delayed

General information	May cause pulmonary oedema. Chemical pneumonitis.
Inhalation	Sore throat. High concentrations: Corrosive to the respiratory tract.
Ingestion	Will immediately cause corrosion of and damage to the gastrointestinal tract. Symptoms may include: Abdominal pain, Nausea, Diarrhoea, Coughing, Bloodstained vomiting. Causes shortness of breath.
Skin contact	Causes burns.
Eye contact	May cause severe damage with formation of corneal ulcers and permanent impairment of vision. Blindness.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor	Immediately call a POISON CENTER/doctor. Treat symptomatically.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	As appropriate for surrounding fire.
Unsuitable extinguishing media	Water jet.

5.2. Special hazards arising from the substance or mixture

Generates heat on addition to water (exothermic). Contact with some metals e.g. aluminium, zinc can produce flammable hydrogen gas. Contact with some organic chemicals can produce violent or explosive reactions. Not classified as flammable.

5.3. Advice for firefighters

Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Provide adequate ventilation. Wear appropriate personal protective equipment, avoid direct contact. Do not use metal containers for spilled liquid.
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6.2. Environmental precautions

Environmental precautions	Prevent leaks and prevent soil / water pollution caused by leaks. Prevent entry into drains.
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6.3. Methods and material for containment and cleaning up

Adsorb spillages onto sand, earth or any suitable adsorbent material. Use vacuum equipment for collecting spilt materials, where practicable. Transfer to a lidded container for disposal. Small spillages: Neutralise wherever possible. Recommended: NaHCO₃ (Solid). Soak up with inert absorbent. Flush spill area with copious amounts of water.

6.4. Reference to other sections

Reference to other sections See Also Section 8, 13.

6.5 Additional Information

Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Never dilute by pouring water to the product. Always add the product to the water. General hygiene measures for the handling of chemicals are applicable. Use corrosion-proof equipment. Remove contaminated clothing immediately. Wash hands and exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions For small quantities - Store in a corrosion-resistant container with a resistant inner liner. Keep in a cool, dry, well ventilated place.

Appropriate packaging : Steel, stainless steel, carbon steel, iron, nickel, synthetic material, polyethylene, glass, stoneware/porcelain.

Inappropriate packaging : Lead, aluminium, copper, tin, zinc, bronze.

For large quantities - Can be stored at normal or slightly elevated temperatures in mild steel tanks. Where temperature is above 40 Deg C for solutions containing 30% or more of caustic or above 60 Deg C for lower concentrations tanks must be stressed relieved.

Storage temperature 25 °C
 Storage life Stable under normal conditions.
 Incompatible materials None known.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2

SECTION 8: Exposure Controls / personal protection

8.1. Control parameters

Occupational exposure limits United Kingdom Workplace Exposure Limits (WEL)

Occupational Exposure Limits						
SUBSTANCE.	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m3)	STEL (15 mins ppm)	STEL (15 mins mg/m3)	Note
Sodium hydroxide	1310-73-2				2	
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			

Sodium hydroxide	
Environment	PNEC
Aquatic Compartment (including sediment)	Not applicable.
Terrestrial Compartment	Not applicable.

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation, including appropriate local extraction. A washing facility/water for eye and skin cleaning purposes should be present.

Eye/face protection	Wear close fitting goggles or full face shield.
Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible.
Other skin and body protection	Wear protective clothing and gloves: Impervious gloves (EN 374). The following materials are suitable for protective gloves (permeation time \geq 8 hours): Natural rubber (0.5mm), Nitrile rubber (0.35mm), Fluorocarbon rubber (0.4 mm), Polychloroprene CR (0.5 mm), Polyvinyl Chloride PVC (0.5mm), Butyl rubber (0.5mm). Unsuitable gloves materials : Leather
Thermal hazards	None known. appropriate skin cream to prevent drying of skin. When using do not eat, drink or smoke.
Respiratory protection	Normally no personal respiratory protection is necessary. Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely. Filter type: P2

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Clear liquid.
Colour	Colourless.
Odour	No characteristic odour.
Odour threshold	Not determined.
pH	>13

Melting point	-6°C (10%); -27°C (20%); 17°C (40%); 6.2°C (47%); 12°C (50%); 52°C (60%)
Initial boiling point and range	104.6°C (10%); 107.8°C (20%); 128.5°C (40%); 140.2°C (47%); 145.8°C (50%); 168.6°C (60%)
Flash point	Not determined.
Evaporation rate	Not determined.
Evaporation factor	Not determined.
Upper/lower flammability or explosive limits	Not determined.
Vapour pressure	@25°C: 3000 (10%); 2270 (20%); 640 (40%); 270 (47%); 170 (50%) @60°C: 270 (60%)
Vapour density	Not determined.
Relative density	@25°C: 1.11 (10%); 1.21 (20%); 1.42 (40%); 1.49 (47%); 1.51 (50%); 1.58 (60%)
Solubility(ies)	Solubility (Water) : Soluble. (100g NaOH/100g H ₂ O @25°C) Solubility (Other) : Ethanol
Partition coefficient	Not determined.
Auto-ignition temperature	Not determined.
Decomposition Temperature	Not determined.
Viscosity	@25°C: 1.7 (10%); 4.04 (20%); 27.8 (40%); 45.3 (47%); 58.1 (50%) @60°C: 14.8 (60%)
Oxidising properties	Not oxidising.

9.2. Other information

Other information	Molecular weight 40.0g/mol
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SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	May be corrosive to metals. 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.
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10.2. Chemical stability

Stability	Stable under normal conditions. This product is hygroscopic. Absorbs the atmospheric CO ₂ .
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10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Generates heat on addition to water (exothermic). May react violently with: Halogens, Acids, organic materials
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10.4. Conditions to avoid

Conditions to avoid	Avoid contact with moisture. Avoid contact with combustible material.
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10.5. Incompatible materials

Materials to avoid	Strong oxidising agents, Acids, Aluminium, Lead, Light metals, chlorinated hydrocarbons, ammonia solution
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10.6. Hazardous decomposition products

Hazardous decomposition products	Hydrogen.
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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological effects	No information available.
Inhalation	No specific health hazards known.
Ingestion	Not classified. Will cause corrosion of and damage to the gastrointestinal tract. Lethal dose for man is approximately 5g
Skin contact	Not classified. Corrosive.
Eye contact	May cause temporary eye irritation.
Acute and chronic health hazards	Not classified. Mist is severely irritant to the respiratory tract.
Skin corrosion/irritation	Causes severe skin burns and eye damage. Repeated or prolonged contact to dilute solutions may cause dermatitis.
Serious eye damage/irritation	Causes severe skin burns and eye damage. May cause severe damage with formation of corneal ulcers and permanent impairment of vision.
Skin sensitization data	Not classified. There is no evidence of skin sensitisation in humans.
Respiratory sensitization data	Not classified.
Germ cell mutagenicity	Not classified. There is no evidence of mutagenic potential.
Carcinogenicity	Not classified.

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	Not classified. 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.
Lactation	Not classified
STOT - single exposure	Not classified.
STOT - repeated exposure	Not classified.
Aspiration hazard	Not an aspiration hazard.

SECTION 12: Ecological Information

Ecotoxicity	Concentrations greater than 10ppm, especially in freshwater, or a pH value equal to or greater than 10.5 may be fatal to fish and other aquatic organisms.
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12.1. Toxicity

Acute toxicity - fish	Low toxicity to fish. No reliable data available. LC50 (96 hour): 35 – 189 mg/l (Various species)
Acute toxicity - aquatic invertebrates	Low toxicity to invertebrates. No reliable data available. EC50 (48 hour): 40.4 mg/l (Ceriodaphnia dubia)
Toxicity - Algae	Low toxicity to algae.

Toxicity – Sediment Compartment	Not classified.
Toxicity – Terrestrial Compartment	Not classified.
Ecotoxicity – Product Components	Not classified as environmentally hazardous

12.2. Persistence and degradability

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.
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12.3. Bioaccumulative potential

Bioaccumulative potential	The substance has no potential for bioaccumulation.
Partition coefficient	Not determined.

12.4. Mobility in soil

Sodium hydroxide becomes increasingly more mobile in soil with dilution.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
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12.6. Other adverse effects

Other adverse effects	Concentrations sufficient to render effluent alkaline may cause damage to effluent treatment organisms.
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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	Dispose of contents in accordance with local, state or national legislation. Send to a licensed recycler, reclaimer or incinerator. Dispose of this material and its container to hazardous or special waste collection point. Reuse or recycle.
Additional information	Disposal should be in accordance with local, state or national legislation.

SECTION 14: Transport information

General	The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).
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14.1. UN number

1824

14.2. UN proper shipping name

SODIUM HYDROXIDE SOLUTION

14.3. Transport hazard class(es)

ADR/RID Class	8
IMDG Class	8
IMDG EMS	F-A, S-B

ICAO/IATA Excepted Quantities	E2
Passenger and Cargo Aircraft Limited Quantities Packing Instructions	Y840
Passenger and Cargo Aircraft Limited Quantities Max net Qty	0.5L
Passenger and Cargo Aircraft Packing Instructions	851
Passenger and Cargo Aircraft Max net Qty	1L
Cargo Aircraft Packing Instructions	855
Cargo Aircraft Max net Qty	30L
Special Provisions	A3
Emergency Response Guidebook (ERG) Code	8L
ADR Classification Code	C5
ADR HIN	80
ADR Transport Category	2
Tunnel Restriction Code	E
Emergency Action Code	2R
APP Advice on Additional Personal Protection (APP)	Not applicable

14.4. Packing group

Packing group	II
Labels	8



Special Provisions	Not applicable
Limited Quantities	1 L
Excepted Quantities	E2
Mixed Packing Instructions for Packages Quantities Max net Qty	P001 IBC02
Special Packing Provisions for Packages	Not applicable
Mixed Packing Instructions for Packages	MP15

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant	Not classified as a Marine Pollutant.
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14.6. Special precautions for user

Special precautions for user	Not known.
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14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Product Name	Caustic Soda Liquor
Ship Type	3
Pollution Category	Y
Packing Instructions for Portable Tanks	T7
Special Provisions for Portable Tanks	TP2
Tank Code for Tanks	L4BN
Special Packing Provisions for Packages	Not applicable

Vehicle for Tank Carriage	AT
Special Provisions for Carriage - Packages	Not applicable
Special Provisions for Carriage - Bulk	Not applicable
Special Provisions for Carriage - Loading, Unloading and Handling	Not applicable
Special Provisions for Carriage - Operation	Not applicable
European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)	ADN Danger: 8 + N3 (Environmentally hazardous substance)

SECTION 15: Regulatory information

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

Candidate List of Substances of Very High Concern for Authorisation	Not listed
REACH: ANNEX XIV list of substances subject to authorisation	Not listed
REACH: Annex XVII Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	Not listed
Community Rolling Action Plan (CoRAP)	Not listed
Regulation (EC) N° 850/2004 of the European Parliament and of the Council	Not listed

on persistent organic pollutants	
Regulation (EC) N° 2037/2000 on substances that deplete the ozone layer	Not listed
Regulation (EU) N° 649/2012 of the European Parliament and of the Council concerning the export and import of hazardous chemicals	Not listed
National regulations Germany	Wassergefährdungsklasse (WGK) :1 (low hazard to waters)(No. 142)

15.2. Chemical safety assessment

A REACH chemical safety assessment has been carried out.

SECTION 16: Other information

Revision Date 11.05.2024

Version 1.3