

Caustic Soda Lye

Safety data sheet in the 16-section GHS format · CAS 1310-73-2

Velora Chemicals Private Limited
Ahmedabad, Gujarat, India
+91 99255 22674 · info@velorachemicals.com

1. Identification of the substance and of the supplier

Product name	Caustic Soda Lye
Synonyms	sodium hydroxide lye, NaOH lye, lye 48%, liquid caustic
C.A.S. number	1310-73-2
Molecular formula	NaOH (aqueous solution)
Grade supplied	48% membrane grade
Product group	Alkalis & Bases
Identified uses	Textiles & dyeing, Soap & detergent, Pulp & paper, Effluent & water treatment, Alumina & metals, Chemicals & pharma
Supplier	Velora Chemicals Private Limited
Emergency contact	Medical, fire or spill emergency — call the emergency services first: 112 (all-India), 101 fire, 108 ambulance. Velora Chemicals Private Limited does not at present operate a 24-hour chemical emergency advice line, and this sheet does not pretend otherwise. Every consignment despatched by road carries an emergency information panel under rule 134 of the Central Motor Vehicles Rules 1989 bearing a number from which expert advice on this material can be obtained, and the producer's safety data sheet issued with the consignment carries the producer's own 24-hour number where one is operated. For product, grade and documentation queries in business hours: +91 99255 22674.

2. Hazards identification

GHS signal word	Danger
Hazard classification	Skin Corr. 1A — H314 (EU harmonised, CLP Annex VI index 011-002-00-6; the Annex VI specific concentration limit puts NaOH at or above 5% into Skin Corr. 1A, so 48% lye is 1A); Met. Corr. 1 — H290 (supplier self-classification, not in Annex VI); Acute Tox. 4 oral — H302 appears on some non-EU sheets (Olin, ILO ICSC 0360) as self-classification and is NOT part of the EU harmonised entry

3. Composition / information on ingredients

Substance	Caustic Soda Lye
C.A.S. number	1310-73-2
Molecular weight	40.00 g/mol (NaOH solute; not the molar mass of the 48% solution)
Composition	48% membrane grade

4. First-aid measures

Eye contact	Immediately flush the eye with gently flowing water or saline for at least 20 minutes, holding the eyelids wide apart; remove contact lenses if present and easy to do, and continue rinsing. Washing with water or saline is the only acceptable method — do not use any neutralising agent. Olin's SDS warns you may have 10 seconds or less to begin irrigation to avoid serious permanent injury. Obtain immediate ophthalmological attention and continue irrigation en route.
Skin contact	Immediate, continued and thorough washing in flowing water for at least 20 minutes is imperative, while removing contaminated clothing, shoes and jewellery under the running water (Olin SDS). Do not apply neutralising agents, acids or creams. Caustic burns are deceptive: the skin feels soapy and pain may be delayed, so keep irrigating for the full period. Get medical attention; launder or discard contaminated clothing before reuse.
Inhalation	Move the casualty to fresh air at once and keep at rest in a half-upright position. Give oxygen if breathing is laboured; if breathing has stopped give artificial respiration (do not use mouth-to-mouth if the mouth is contaminated). Caustic mist can cause delayed airway swelling and pulmonary oedema, so refer immediately for medical attention and observation even if the person appears to recover.
Ingestion	Do NOT induce vomiting — re-exposure of the oesophagus to caustic causes further injury and there is a perforation risk. Do NOT attempt to neutralise with acids, vinegar or fruit juice (some older Indian MSDS wrongly advise this; it generates heat in an already burned oesophagus). Rinse the mouth with water. If the casualty is fully conscious and able to swallow, give about 240 mL (one cup) of water or milk to dilute. Give nothing by mouth to an unconscious or convulsing person. Transport to a medical facility immediately.

5. Fire-fighting measures

Flash point	Not flammable (no flash point). Caution: contact with aluminium, zinc, tin or galvanised steel liberates flammable hydrogen gas
Suitable extinguishing media	Water fog, foam, dry chemical powder or carbon dioxide, chosen to suit the surrounding fire. The substance itself does not contribute fuel.
Unsuitable extinguishing media	Do not use a high-pressure water jet: it will spread the material and the fire.
Special hazards arising from the substance	Hazardous gases and decomposition products may be formed in a fire, from this substance or from its packaging and the materials stored with it. Packaging and pallets are themselves a substantial fire load. That is true even though the contents do not contribute fuel.
Advice for fire-fighters	Fire-fighters must wear self-contained breathing apparatus and full protective clothing. Keep unnecessary personnel away and upwind. Prevent firefighting run-off from entering drains, surface water or groundwater.

6. Accidental release measures

Keep unnecessary personnel away and upwind, and ventilate. Wear the protective equipment in section 8 before approaching. Stop the leak if it is safe to do so, then bund or dike the spill and prevent entry to drains, surface water and groundwater. Absorb with an inert absorbent and collect into labelled, closable containers for disposal under section 13. Do not return spilled material to the original container.

7. Handling and storage

- Lye at 48% strength crystallises at around 4 °C (50% material at around 12 °C), so winter movements into northern India normally need traced or insulated lines and a heated storage tank. If your site has neither, a lower-strength dilution is usually the cheaper answer than heating — tell us the ambient range and we will quote the strength that will actually unload.
- Carbon steel is standard for 48% lye **at ambient temperature**. If you heat or trace the tank to stop winter crystallisation, hold it below about 45–50 °C. Hot caustic in as-welded carbon steel causes stress-corrosion cracking, and that fails as a through-wall crack rather than as gradual thinning. Above that temperature you need stress-relieved (post-weld heat treated) steel, 304L or a nickel alloy. If you are planning a heated tank, tell us before you build it.

- Aluminium, zinc, tin and galvanised fittings are never suitable — caustic attacks them and generates hydrogen.
- If you dilute lye on site, always add the lye into the water with agitation, never water into concentrated lye. Both dilution and the neutralisation of acidic effluent are strongly exothermic, and adding water into a drum or small tank of 48% lye can bring it close to boiling and eject hot caustic. Control the rate and provide cooling.
- It is a Class 8 corrosive. Tankers travel with a TREM card and the driver briefed; your unloading crew needs face shield, apron and gauntlets, and an eyewash within reach.

Storage: Store above the crystallisation point (Olin specifies above 16 C / 61 F) in closed, vented tanks of carbon steel, 304/316L stainless steel, or lined steel/HDPE/FRP rated for 50% caustic. Never store or handle in aluminium, zinc, tin, galvanised or brass equipment. Keep in a bunded, caustic-resistant, well-ventilated area segregated from all acids and from food and feedstuffs. Keep containers tightly closed to prevent CO₂ absorption and dilution. Provide an eyewash station and safety shower at the point of use. Always add caustic soda solution to water with constant agitation — never add water to the caustic.

8. Exposure controls / personal protection

Engineering controls. Enclose every transfer, tipping, bag-slitting and sampling point and fit local exhaust extraction at each, and keep airborne concentrations below the limit in force at the place of use. Provide an eyewash within reach of the working position, and a safety shower wherever the material is classified corrosive or irritant or is handled in quantity. Do not eat, drink or smoke in the handling area; wash before breaks. Where no limit is stated above, occupational exposure limits vary by jurisdiction: check the limit in force at the place of use and the producer's sheet for the grade supplied, and record which value your assessment adopted. Select eye, skin and respiratory protection on the strength of a measured or modelled exposure assessment, not on this sheet alone.

9. Physical and chemical properties

Appearance	Clear, colourless, odourless liquid; commercial lye may appear slightly turbid or off-white
Physical state	Liquid (aqueous solution, 48% w/w NaOH)
Melting / freezing point	Crystallisation point approx. 12 C for 45-50% lye (Aditya Birla SDS). Exact value is strength-dependent; a precise figure for 48.0% is Not available — confirm against producer data
Boiling point	Approx. 140 C (45-50% lye; Aditya Birla and Braskem SDS). Olin states it varies with concentration
Relative density	1.4-1.6 at 25 C for 45-50% lye (Aditya Birla SDS); relative density 1.353-1.528 at 20 C across the 30-54% range (Olin SDS)
Solubility in water	Completely miscible with water in all proportions; dilution is strongly exothermic
pH	14 (as supplied, undiluted — Olin SDS); 14 at 0.5% dilution (Braskem SDS). A 1% NaOH solution is approximately pH 13
Flash point	Not flammable (no flash point). Caution: contact with aluminium, zinc, tin or galvanised steel liberates flammable hydrogen gas
Auto-ignition / ignition temperature	Not available
Explosive / dust-explosion properties	Not available
Vapour pressure	Not available
Vapour density	Not available
Partition coefficient (log Pow)	Not available
Particle characteristics	Not available

Molecular weight	40.00 g/mol (NaOH solute; not the molar mass of the 48% solution)
-------------------------	---

10. Stability and reactivity

Incompatible materials	Acids of all kinds (violent exothermic neutralisation); water added to concentrated lye (violent heat release and spattering — always add lye to water); aluminium, zinc, tin, lead, galvanised steel, brass and bronze (liberates flammable hydrogen); ammonium salts (liberates ammonia); halogenated organics; nitro compounds and nitromethane; glycols; aldehydes; organic peroxides; phenols; acrylonitrile; leather and wool; carbon dioxide from air (carbonation of the lye)
-------------------------------	---

Conditions to avoid	Store above the crystallisation point (Olin specifies above 16 C / 61 F) in closed, vented tanks of carbon steel, 304/316L stainless steel, or lined steel/HDPE/FRP rated for 50% caustic. Never store or handle in aluminium, zinc, tin, galvanised or brass equipment. Keep in a bunded, caustic-resistant, well-ventilated area segregated from all acids and from food and feedstuffs. Keep containers tightly closed to prevent CO ₂ absorption and dilution. Provide an eyewash station and safety shower at the point of use. Always add caustic soda solution to water with constant agitation — never add water to the caustic.
----------------------------	---

11. Toxicological information

The health hazards classified for this substance are listed in section 2, and the corresponding first-aid measures in section 4. Numerical toxicological endpoints are not reproduced here: refer to the producer's safety data sheet for the grade supplied, and to the ECHA and PubChem entries for the substance.

12. Ecological information

Where section 2 or section 14 classifies this substance as hazardous to the aquatic environment, prevent any release to drains, surface water or groundwater and treat aqueous effluent before discharge. Otherwise, refer to the producer's sheet.

13. Disposal considerations

Dispose of the substance and its container through an authorised facility under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 where the waste is scheduled under those Rules, and otherwise as non-hazardous industrial waste, in each case under the conditions of the State Pollution Control Board consent in force at the site. Whether a particular waste stream is scheduled depends on the substance and on what it has been mixed with, so classify the waste before consigning it. Do not reuse empty containers for any other purpose.

14. Transport information

UN number	UN 1824
Class	8 (Corrosive)
Packing group	II
Proper shipping name	SODIUM HYDROXIDE SOLUTION

15. Regulatory information

Supply in India is subject to the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 where the substance is scheduled, and to any product-specific licensing named on the product page. Classification and labelling follow the GHS as adopted in the jurisdiction of use.

Note: The UN entry is driven by physical state, not by strength: 48% solution is UN 1824 SODIUM HYDROXIDE SOLUTION, whereas the solid flakes/pearls of the same CAS number are UN 1823 SODIUM HYDROXIDE, SOLID. Mislabelling one as the other is a common and serious error. The molar mass of 40.00 g/mol is for NaOH, not the solution — do not use it in strength calculations without accounting for the 48% basis. 'Membrane grade' refers to low chloride, sulphate, iron and mercury content from membrane-cell electrolysis; it is a purity descriptor and does not change any hazard, GHS or transport classification. Dilution and neutralisation are highly exothermic and can flash-boil water. 48% lye solidifies at temperatures reachable in Indian winters in some regions and in air-conditioned stores — heated/traced lines are normal practice. Strength is quoted on a 100% NaOH basis; check whether a customer specification is on a 100% or an as-supplied basis.

16. Other information

Version	1.0
Date of issue	07 October 2026
Supersedes	No previous version
Regulatory basis as at the date of issue	EU CLP Regulation 1272/2008 as amended, including Annex VI harmonised classifications; UN Model Regulations and the IMDG Code Amendment 42-24, mandatory from 1 January 2026; ADR 2025; and, in India, the Manufacture, Storage and Import of Hazardous Chemical Rules 1989 and the Central Motor Vehicles Rules 1989.

How this sheet was compiled and what governs. This sheet was prepared by Velora Chemicals Private Limited as the supplier, from PubChem, the ECHA CLP inventory including Annex VI harmonised classifications, ILO International Chemical Safety Cards and published producer safety data sheets. Values that could not be confirmed from those sources are shown as "Not available" rather than estimated. **The producer's safety data sheet for the specific grade and lot supplied is the governing document** and is issued with the consignment; where the two differ, the producer's sheet prevails. This sheet carries no warranty of the properties of any particular batch. Velora Chemicals Private Limited is a bulk supplier and trader, not a manufacturer.

Sources consulted: https://chemicalsafety.ilo.org/dyn/icsc/showcard.display?p_card_id=0360&p_version=2&p_lang=en;
<https://olinchloralkali.com/wp-content/uploads/sites/5/2025/08/10000001221-Sodium-Hydroxide-30-54-US-EN.pdf>;
<https://www.adityabirlachemicals.com/pdf/CAUSTIC-SODA-LYE.pdf>; https://assets.ctfassets.net/21bfs0ur5idm/4GADa97PED7wU2nWQPI1e0/2db60734e17dc464576fdcab8e621b84/FISPQ_-_soda_c__ustica_49_50__rev_07_2018_GHS_ingles.pdf;
<https://deca.upc.edu/en/laboratories/latem/security/reactius-quimics/sodium-hydroxide-panreac.pdf>