Caustic Soda (Sodium Hydroxide · NaOH)

Solid Flakes 99% Min (UN 1823) · Solid Pearls 99% Min (UN 1823) · 50% Aqueous Solution (UN 1824)

Effective Date: 23 Nov 2026
CAS: 1310-73-2 · **EC:** 215-185-5
Supplier Tel: +44 744 913 9023

SIGNAL WORD	HAZARD STATEMENTS	INDEX NO. (CLP)	SOLID (FLAKES/PEARLS)	50% LIQUID
DANGER	H290 · H314 · H318	011-002-00-6	UN 1823 · Class 8	UN 1824 · Class 8



DANGER **Corrosive to Metals (Cat. 1 · H290) · Skin Corrosion (Cat. 1A · H314) · Eye Damage (Cat. 1 · H318)**

H314: Causes severe skin burns and eye damage (permanent blindness risk). | **H290:** May be corrosive to metals — reacts with **Aluminum, Zinc, Tin & Brass** generating explosive **Hydrogen (H_2) gas**! Vigorous exothermic heat on dilution with water.



NFPA 704
Health: 3 (Corrosive)
Flamm.: 0 (Non-Flamm.)
Reactivity: 1 (Water heat)

SECTION 1 Identification of the Substance & of the Supplier

1.1 & 1.2 SUBSTANCE IDENTIFIER & RELEVANT USES

Product Name: Caustic Soda Flakes 99%, Pearls 99%, & 50% Aqueous Solution

Synonyms: Sodium Hydroxide, Lye, Soda Lye, NaOH

Identified Uses: Alumina digestion, soap & detergent saponification, pulp & paper pulping/bleaching, textile mercerization, petroleum desulfurization, chemical synthesis & water treatment.

Uses Advised Against: Direct pouring of water onto solid caustic; contact with light metals (Al/Zn) or unvented acids.

1.3 & 1.4 SUPPLIER DETAILS & EMERGENCY CONTACT

Supplier Role: Global Commodity Supplier / Distributor (Commercial Desk)

Supplier Name: Beroil Energy Group

Office Address: 4-6 Middlesex St., E1 7JH, London, United Kingdom

Email / Phone: info@beroilenergy.com · +44 744 913 9023

Emergency Line: +44 744 913 9023 (Commercial) · Dial emergency services (999 / 112 / 911) or Poison Center IMMEDIATELY for any eye/skin splash or ingestion.

SECTION 2 Hazards Identification

2.1 GHS / CLP Classification: Corrosive to Metals Cat. 1 (**H290**); Skin Corrosion Cat. 1A (**H314**: causes severe burns & eye damage, ≥ 5% w/w); Serious Eye Damage Cat. 1 (**H318**).

2.3 Other Hazards: Rapid exothermic heat evolution when dissolved in water — can cause boiling/splattering of corrosive solution. Corrodes Al/Zn/Sn releasing flammable H_2 gas. Not PBT/vPvB.

2.2 Label Elements (GHS05 Corrosion · DANGER):

P260 / P280: Do not breathe dust/mist; wear chemical goggles, full face shield, alkali-resistant gauntlets & protective clothing.

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

P303+P361+P353 / P305+P351+P338 / P310: Strip contaminated clothing & rinse skin/eyes with water for 30+ min; **immediately call POISON CENTER/doctor!**

SECTION 3 Composition / Information on Ingredients

PRODUCT GRADE VARIANT	CAS NO.	EC NO.	CLP INDEX NO.	CONC. (% W/W)	HAZARD CLASSIFICATION (CLP/GHS)
Sodium Hydroxide Solid (Flakes / Pearls)	1310-73-2	215-185-5	011-002-00-6	≥ 99.0% NaOH	Met. Corr. 1 (H290); Skin Corr. 1A (H314); Eye Dam. 1 (H318)
Sodium Hydroxide 50% Aqueous Solution	1310-73-2	215-185-5	011-002-00-6	49.5 – 50.5% NaOH	Met. Corr. 1 (H290); Skin Corr. 1A (H314); Eye Dam. 1 (H318)

SECTION 4 First-Aid Measures (URGENT CORROSIVE PROTOCOL)

EYE CONTACT (EVERY SECOND COUNTS)

Flush IMMEDIATELY with gentle lukewarm running water for at least **30 minutes** holding eyelids wide apart. Remove contact lenses after first 5 min. Call ambulance / emergency ophthalmologist immediately!

SKIN CONTACT

Step immediately under safety deluge shower while removing all contaminated shoes and clothes. Flush continuously with water for at least 30 minutes until soapy slickness completely stops. Obtain urgent burn care.

INHALATION

Move victim immediately to fresh air and keep upright at rest. If breathing is labored or caustic mist/dust was inhaled, give oxygen if trained and seek emergency medical attention (watch for delayed pulmonary edema).

INGESTION

DO NOT induce vomiting (causes secondary esophageal burns!). Rinse mouth thoroughly; give small sips (150–250 ml) of water ONLY if completely conscious and able to swallow. Rush immediately to emergency hospital care.

4.2 & 4.3 Clinical Warning: Alkali burns cause deep liquefactive necrosis even without immediate pain — flush vigorously for 30+ minutes; never attempt neutralizing skin/eyes with acidic vinegar or chemicals!

SECTION 5 Fire-Fighting Measures

5.1 Suitable Extinguishing Media: Non-combustible solid/solution; use dry chemical, CO_2, alcohol-resistant foam, or fine water spray on surrounding fires.

Safety Precaution: Avoid heavy direct water jets into bulk solid Flakes/Pearls (rapid exothermic dissolution creates corrosive boiling splatter). Prevent contact with Al/Zn/Galvanized metal (liberates **explosive H_2 gas**).

5.2–5.3 Firefighter PPE: Full alkali-resistant chemical suit + positive-pressure SCBA + face shield. Dike strongly alkaline runoff water away from sewers/streams.

SECTION 6 Accidental Release Measures

6.1 Personal Precautions: Evacuate unprotected staff; stay upwind of dust/mist. Wear full chemical suit, butyl/neoprene gauntlets, rubber boots, goggles, and face shield. **50% liquid spills are extremely slippery!**

6.2 Environmental Precautions: Dike liquid spills with dry sand/vermiculite; prevent entry into storm drains, soil, or waterways.

6.3 Clean-Up Methods: Shovel/sweep dry solid into sealed UN HDPE/steel drums (do NOT add water to dry piles). Absorb liquid with inert clay/vermiculite, neutralize small traces cautiously with dilute citric/acetic acid under pH monitoring.

SECTION 7 Handling and Storage

7.1 SAFE HANDLING & DILUTION RULE

Always wear full eye/face & skin PPE. **DILUTION RULE:** Always add NaOH slowly into excess cool agitated water — NEVER pour water onto solid caustic or into concentrated tanks (violent boiling eruption!). Ground/vent process vessels where hydrogen could form on metal traces.

7.2 STORAGE CONDITIONS & INCOMPATIBILITIES

Keep solid Flakes/Pearls in airtight double-lined UN bags away from moisture & CO_2. Store 50% liquid in insulated/heated tanks (≥ 15–20 °C; freezes ~12 °C) made of SS 316L, Nickel, Carbon Steel (< 60 °C), or HDPE. **Segregate strictly from:** strong acids, **Aluminum, Zinc, Tin, Brass, Galvanized steel**, ammonium salts (NH_3), and chlorinated hydrocarbons.

SECTION 8 Exposure Controls / Personal Protection

8.1 OCCUPATIONAL EXPOSURE LIMITS (OELS)

Sodium Hydroxide (Dust / Mist):

· **ACGIH TLV-C (Ceiling):** 2.0 mg/m³ (never exceed during any part of shift)

· **OSHA PEL:** 2.0 mg/m³ (8h TWA) · **UK WEL (15-min STEL):** 2.0 mg/m³

8.2 ENGINEERING CONTROLS & EMERGENCY STATIONS

Enclose dosing pumps, dissolving tanks, and bag-slitting stations with local exhaust scrubbers. Mandatory ANSI Z358.1 emergency eyewash + deluge safety shower within 10 seconds unobstructed reach.

EYE / FACE PROTECTION	HAND PROTECTION	RESPIRATORY PROTECTION	BODY & FOOT PROTECTION
Indirect-vent chemical splash goggles (EN 166) worn underneath a full polycarbonate face shield.	Heavy neoprene, butyl rubber, or nitrile gauntlets (EN ISO 374-1, Class 6 > 480 min breakthrough).	Dust/mist respirator (EN P3 / NIOSH N95-P100) for airborne aerosol > 2 mg/m³; SCBA for spill response.	Chemical-resistant Tychem/PVC apron/suit (EN 14605) & knee-high rubber boots outside trouser cuffs.

SECTION 9 Physical and Chemical Properties

PROPERTY	VALUE / DESCRIPTION	PROPERTY	VALUE / DESCRIPTION
Appearance & Odor	White deliquescent flakes/pearls or clear viscous 50% liquid; odorless	**Formula / Molar Mass**	NaOH / 39.997 g/mol
pH (Aqueous Solution)	13.0 – 14.0 (1% solution · Strongly corrosive alkali)	**Melting / Boiling Pt. (100%)**	318 °C / 1,388 °C (50% Liq. BP ~143 °C)
50% Liq. Freezing / Cryst.	~12 °C (maintain bulk tanks ≥ 15–20 °C)	**Specific Gravity (@ 20 °C)**	2.13 g/cm³ (Solid) · 1.52–1.53 g/cm³ (50% Liq.)
Water Solubility (@ 20 °C)	~1,090 g/L (highly exothermic heat of solution)	**Flash Point / Flammability**	Not applicable — Non-combustible (H_2 risk on metals)

Sections 10 – 16: Stability, Toxicology, Ecology, Transport & Regulatory

SECTION 10 Stability and Reactivity

10.1–10.3 Stability: Chemically stable in sealed storage; rapidly absorbs H_2O and CO_2 from open air forming sodium carbonate crust.

10.4 Conditions to Avoid: Atmospheric moisture, uncooled dilution mixing, freezing (< 12 °C for 50% liquid).

10.5 Incompatible Materials: Strong acids (violent neutralization heat), **Aluminum, Zinc, Tin, Brass, Lead** (evolves explosive **Hydrogen gas**), organic halogens (trichloroethylene), nitroalkanes, and ammonium salts (NH_3 gas).

10.6 Decomposition: Non-decomposing below 1,388 °C; hydrogen liberated on reactive metals.

SECTION 11 Toxicological Information

11.1 Corrosive Hazard Profile: Toxicity is governed entirely by extreme alkaline tissue destruction (saponification of lipids & liquefactive necrosis) rather than systemic toxicity — standard acute oral/dermal LD_{50} testing is scientifically waived under OECD guidelines due to Cat. 1A corrosivity.

Inhalation / Mucosa: Dust/mist > 2 mg/m³ severely irritates or burns upper airways; heavy exposure may trigger delayed pulmonary edema.

CMR / Carcinogenicity: Not mutagenic, not carcinogenic (IARC, NTP, OSHA: Not listed), not a skin sensitizer.

SECTION 12 Ecological Information

12.1 Ecotoxicity (Acute pH Toxicity): Fish (*Gambusia affinis*) 96h **LC_{50} = 125 mg/L**; Rainbow Trout 96h **LC_{50} = 45.4 mg/L**; Water Flea (*Ceriodaphnia sp.*) 48h **EC_{50} = 40.4 mg/L**.

12.2–12.5 Fate & Neutralization: Inorganic base; rapidly neutralized in environmental waters via atmospheric CO_2 and natural alkalinity to sodium carbonate/bicarbonate. Does not bioaccumulate; not PBT/vPvB. Prevent undiluted releases into rivers/sewers.

SECTION 13 Disposal Considerations

13.1 Waste Treatment: Use spent/off-spec caustic in approved industrial neutralization scrubbers whenever possible. Otherwise, dilute safely in excess cool water, neutralize gradually with dilute acid to pH 6.5–8.0, and dispose at licensed chemical waste treatment facility.

Contaminated UN Bags / IBCs: Triple-rinse liquid IBCs cleanly or send UN bags to licensed hazardous-packaging contractors; never reuse UN bags for food/feed.

SECTION 14 Transport Information (IMDG / ADR / RID / IATA-ICAO)

PRODUCT FORM	UN NO.	PROPER SHIPPING NAME	CLASS / PG	MARINE POLLUTANT & DANGEROUS GOODS COMPLIANCE
Caustic Soda Flakes 99% & Pearls 99%	UN 1823	SODIUM HYDROXIDE, SOLID	Class 8 · PG II	Corrosive (Class 8) label req. · UN-certified bags/FIBCs · Marine Pollutant: No
Caustic Soda 50% Aqueous Liquid	UN 1824	SODIUM HYDROXIDE SOLUTION	Class 8 · PG II	Corrosive (Class 8) label req. · UN IBC / ISO tanks · Segregate from acids & Al/Zn

SECTION 15 Regulatory Information

15.1 International Inventories: Listed on EU EINECS/REACH (EC 215-185-5, Index 011-002-00-6), US TSCA (CAS 1310-73-2), UK REACH, Canada DSL, China IECSC, and Australia AIIC.

Safety Frameworks: Regulated as hazardous Class 8 corrosive under EU CLP (EC) 1272/2008, UK GB-CLP, OSHA HazCom 2012, and IMDG / ADR / IATA Dangerous Goods Codes.

SECTION 16 Other Information

Full H-Statements: H290 May be corrosive to metals · **H314** Causes severe skin burns and eye damage · **H318** Causes serious eye damage.

Key Abbreviations: ANSI: American National Standards Inst. · DGD: Dangerous Goods Declaration · IBC: Intermediate Bulk Container · PG II: Packing Group II (Medium Danger) · TLV-C: Threshold Limit Value Ceiling.

Revision History: Rev. 2.0 (23 Nov 2026) — Full 16-section GHS/REACH supplier SDS edition.

Supplier Notice & Disclaimer (Beroil Energy Group): Beroil Energy Group supplies Caustic Soda Flakes, Pearls, and 50% Liquid strictly as global commodity supplier and commercial distributor (not primary chlor-alkali producer). Data compiles verified ECHA/OECD and IMDG Class 8 safety controls for CAS 1310-73-2. Refer to BEG-TDS-CAUSTIC and shipment SGS/Intertek COA for grade guarantees.