ADITYA BIRLA CHEMICALS (INDIA) LIMITED

(RENUKOOT CHEMICAL WORKS DIVISION)
P.O. RENUKOOT - 231217, SONEBHADRA, (U.P)

MATERIAL SAFETY DATA SHEET

CAUSTIC SODA LYE

SODIUM HYDROXIDE, SOLUTION

---

1. IDENTIFICATION

Trade Marks and Synonyms (if any)	Caustic Soda Lye, Sodium Hydroxide solution
Chemical Names and Synonyms	Sodium Hydroxide solution 45-50% , Caustic Soda solution , Lye solution, Sodium Hydrate solution , White caustic solution
Physical Form	Clear, colourless liquid, odourless
Molecular Formula	NaOH
Molecular Weight	40.00
Manufacturer Name & Address	Aditya Birla Chemicals (India) Ltd, Dist. Sonebhadra, Renukoot (UP) 231217, INDIA Telephone: 91-5446-252088 e-mail: abcil.renukoot@adityabirla.com
Responsible Person	Safety Officer; Aditya Birla Chemicals (India) Ltd, Renukoot Dist Sonebhadra (UP) 231217, INDIA

2. INFORMATION OF MAJOR INGREDIENTS

Chemical Name	Sodium hydroxide, solution
CAS No	1310-73-2
Formula	NaOH
Percentage	45 - 50

3. HAZARD IDENTIFICATION

Main Risk Contact with skin	Causes burns
Contact with eyes	Severe damage
Safety Phrases	Keep out of reach of children. In case of contact with eye, wash immediately with plenty of water for 15-20 minutes. Seek medical aid. Remove contaminated clothes & shoes. Wash affected area with plenty of water. If inhaled, remove the victim to fresh air area & support respiration. Seek Medical Aid immediately for all types of exposure.

4. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odour	Clear, colourless and odourless liquid
pH	Approx 14
Specific Gravity	1.4 – 1.6 at 25 $^{\circ}$C
Melting Point	12 °C
Boiling Point	140 $^{\circ}$C
Flash Point	Not applicable
Auto ignition	Not applicable
Flammable Limit	Not applicable
Vapour Pressure (mm Hg)	Not applicable
Solubility in Water	Infinite
Solubility in Organic Solvents	Soluble in alcohol, Methanol and Glycerol
Oxidizing /Explosive Properties	No

5. STABILITY AND REACTIVITY

Stability	As supplied it is stable at normal temperature & pressure. Found to be slightly reactive
Conditions to avoid	Avoid contact with acid, flammable liquids, organic halogen compounds, nitro compounds and amphoteric metals such as aluminum, magnesium, and zinc. .
Material to avoid	Acids, organic halogen compounds, contact with aluminium, magnesium, zinc & other amphoteric metals, nitro compounds and flammable liquids

Reactivity

Air	Reactive
Water	Not applicable
Acids	Reacts violently with acids
Alkalis	Reacts with ammonium salts liberating ammonia gas
Hazardous Decomposition Products	Oxides of carbon and nitrogen, smoke & other toxic fumes

6. TOXICITY DATA

Short term effects when:

In contact with skin	Severe Irritation, burns
In contact with eyes	Severe Irritation, burns, eye damage, blindness
Inhalation	Severe Irritation, burns, pulmonary edema
Ingestion	Severe Irritation, burns, nausea, vomiting

Long term effects when:

In contact with skin	Dermatitis
In contact with eyes	Visual disturbances
Inhalation	May cause lung disorders. Lesions of the nasal septum, pulmonary edema, pneumonitis and emphysema.
Ingestion	Swallowing can result in nausea, vomiting, diarrhea, abdominal pain, swelling of the larynx and subsequent suffocation, perforation of the gastrointestinal tract , cardiovascular collapse and coma.

Exposure Limits	2 mg / m^3 OSHA TWA 2 mg / m^3 OSHA PEL ceiling 2 mg / m^3 ACGIH ceiling
Acute Toxicity	LD_{50} (50% solution Oral – Rat) 220 mg/ kg SKIN (rabbit) severe irritation 500 mg / 24 H EYES (rabbit) severe irritation 1 mg/30 sec rinse
Chronic Toxicity	Chronic effects are due to long – term irritation. Dermatitis on the skin or recurrent corneal ulceration and visual disturbances. In rare cases reports have noted long-term inhalation causes bronchial inflammatory reaction or obstructive airway dysfunction
Carcinogenic Toxicity	Not listed
Mutagenic Toxicity	Not listed
Reproductive Toxicity	No information is available

7. FIRST AID MEASURES

Skin Contact	Wash the affected area with plenty of water.
Eye Contact	Wash with plenty of water for 15-20 minutes.
Inhalation	Remove the victim from exposure. Support respiration, gives oxygen if necessary
Ingestion	Give water or milk followed by dilute vinegar or fruit juice. Do not induce vomiting.
Further Medical Advice	Seek medical aid immediately for all exposures.

8. FIRE / EXPLOSION HAZARD DATA

Fire Extinguishing Data	Non-combustible material. On combustion emit fumes of sodium oxide .Do not use water. Use extinguishing agents appropriate for surrounding fire. Move containers from fire area if it can be done without risk.
Would any material saturated with this product be subject to spontaneous combustion?	No
Fire Fighting Protective equipments	Wear full protective clothing, goggles, masks
Unusual Fire and Explosive Hazards	During a fire in which this material is involved, Na_2O may be liberated. Shovel dry material into suitable container. Keep out of water supplies and sewers. This material is alkaline and may raise the pH of surface water with low buffering capacity.

9. PERSONAL PROTECTION

General Precaution	Provide local exhaust ventilation where dust or mist may be generated. Ensure applicable exposure limits.
Ventilation Requirements	Provide local exhaust ventilation where dust or mist may be generated. Ensure applicable exposure limits.
Respiratory Protection	A NIOSH approved respirator with N95 (dust, fume, mist) filters may be permissible under certain circumstances where air borne concentrations are expected to exceed exposure limits , or when symptoms have been observed that are indicative of over-exposure. A half face piece air-purifying respirator may be used in concentrations up to 10X the acceptable exposure level and a full face piece air-purifying respirator may be used in concentrations upto 50X the acceptable exposure level. Supplied air should be used when the level is expected to be above 50X the acceptable level , or when there is a potential for uncontrolled release. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.
Protective Clothing	Wear protective clothing to minimize skin contact. When potential for contact with wet material exists, wear Tychem (R) SL or a similar chemical protective suit . When potential for contact with dry material exists, wear disposable overalls such as Tyvek (R)
Eye Protection	Wear chemical resistant safety goggles if eye contact is likely. When wet mixing, wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench.
Gloves	Wear suitable gloves, Discard contaminated leather goods. When wet mixing, wear chemical resistant gloves such as butyl rubber, natural rubber, neoprene or nitrile.
Protective Material Types	Butyl rubber, canvas, leather, natural rubber, neoprene, nitrile, Tychem (R) and Tyvek (R)

10. HANDLING AND STORAGE

Handling	Store in a cool, dry and well-ventilated place. Keep containers closed. Keep away from heat, sparks and flames. Use only with adequate ventilation. Avoid contact with eyes, skin or clothing.

Storage	Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Do not store in aluminium container or use aluminium fittings or transfer lines , as flammable hydrogen gas may be generated. Keep separated from incompatible substances. The filled container is kept on wooden pellets.

11. SPILLAGE/ACCIDENTAL RELEASE

Spillage	Do not touch spilled material. Prevent it entering sewers. Dry manual lifting of the spilled material is suggested without making dust Wash the surface with plenty of water and soap.
Personal Precautions	Avoid generation of dust. Avoid eyes & skin contact. Avoid inhalation. Avoid ingestion. Wear appropriate personal protective equipments.
Environmental Precautions	Prevent contamination of soil and water.

12 WASTE DISPOSAL

Waste Disposal	Seal all waste in airtight plastic bags for eventual disposal as per the guidelines of National/Regional Regulations. Packing materials gets contaminated. Before disposal wash thoroughly with water and then dispose off by appropriate methods in accordance with National / Regional requirement.

13. ENVIRONMENTAL INFORMATION

Bio - Accumulation	No bio-accumulation
Biodegradability	This material is inorganic and not subject to biodegradation.
Persistence	This material will exist in the dissociated state
Toxicity	This material has exhibited slight toxicity to terrestrial organisms and moderate toxicity to aquatic flora & fauna.
Mobility	If released in water the product is highly soluble and contaminates the water resources.

14. REGULATORY INFORMATION

Danger Symbol

- C Corrosive
- R Reactive
- N Dangerous for the environment

Risk Phrases	**R20/R21/R22:** Harmful by inhalation, in contact with skin and if swallowed. **R34:** Causes burns **R36/37/38:** Irritating to eyes ,respiratory system & skin.. **R50/53:** Very toxic to aquatic organisms, may cause long term adverse effects **R41:** Risk of serious damage to eyes. **R54/R55/R56:** Toxic to flora, fauna & soil organisms **R66**: Repeated exposure may cause skin dryness or cracking
Safety Phrases	**S2:** Keep out of the reach of children. **S14/15:** Keep away from 1,2,4,5-tetrachlorobenzene and acetic acid and its derivatives & heat. **S22/23:** Do not breathe dust, do not breathe gas /fumes/vapor/spray **S24/S25**:Avoid contact with skin, eyes. **S26:**In case of contact with eyes ,rinse immediately with plenty o water and seek medical advice. **S27:** Take off immediately all contaminated clothing. **S28:** After contact with skin ,wash immediately with plenty of water and soap. **S36/37/39:** Wear suitable protective clothing, gloves and eye/face protection. **S45:** In case of accident or if you feel unwell, seek medical advice immediately and show the label where possible **S46:**If swallowed, seek medical advice immediately and show this label or container**.** **S61:** Avoid release to the environment **S62:** If swallowed, do not induce vomiting; seek medical advice immediately and show the label.

15. TRANSPORT INFORMATION

UN No. & Symbols	1824, " Corrosive Substance"
Proper Shipping Name	Sodium hydroxide solution
Hazard Class or Division	8
Packing Group	II
Labeling Requirements	SODIUM HYDROXIDE SOLUTION

16. OTHER INFORMATION

Disclaimer:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.

The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release, and neither it is to be considered a warranty or quality specification, nor as a binding statement on contractually agreed product qualities. Aditya Birla Chemicals (India) Ltd does not take any guarantee or legal liability expressed or implied under any circumstances in respect of the adequacy of this document for any particular purpose.