

Doc. # NaOH-MSDS-01Rev. # 01Effective Date: 01.01.2022

Title: **MATERIAL SAFETY DATA SHEET (MSDS)**  
**SODIUM HYDROXIDE**

**Section 1: Chemical Product and Company Identification**

**Product Name:** Sodium Hydroxide      **Contact Information:** ITTEHAD CHEMICALS LIMITED  
G.T.ROAD, KALA SHAH KAKU

**Chemical Name:** Sodium Hydroxide      **Web:** www.ittehadchemicals.com/  
**E-mail:** info@ittehadchemicals.com

**Synonyms:** Caustic alkali, soda lye, anhydrous caustic soda,      **Phone No.** 0423-7950222-25  
Caustic flake, Caustic soda solid, Caustic white,  
Hydroxide of soda, Sodium hydroxide pellets

**Chemical Formula:** NaOH

**Recommended Use and Restrictions on Use:**

**Recommended use:** Industrial use

**Restrictions on use:** Not for food, drug or household use

**Section 2 : Composition and Information on Ingredients****Caustic Soda Liquid**

Name	CAS No.	Composition
Sodium hydroxide	1310-73-2	NaOH: 30 - 32 % NaOH: 50 ± 0.2 % H <sub>2</sub> O: makeup

**Caustic Soda Solid (Flakes)**

Name	CAS No.	Composition
Sodium hydroxide	1310-73-2	NaOH: 98.0 %

**Section 3: Hazards Identification****Potential Acute Health Effects:**

Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, of inhalation. The amount of tissue damage depends on length of contact. Eye

contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

**Potential Chronic Health Effects:**

**CARCINOGENIC EFFECTS:** Not available

**MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells.

**TERATOGENIC EFFECTS:** Not available

**DEVELOPMENTAL TOXICITY:** Not available

The substance may be toxic to mucous membranes, upper respiratory tract, skin, eyes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

**Section 4 : First Aid Measures**

**Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while remove contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

**Ingestion:**

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

**Serious Ingestion:** Not available

**Section 5: Fire and Explosion Data**

**Flammability of the Product:** Non-flammable

**Auto-Ignition Temperature:** Not applicable

**Flash Points:** Not applicable

**Products of Combustion:** Not available

**Fire Hazards in Presence of Various Substances:** of metals

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available.

Risks of explosion of the product in presence of static discharge: Not available.

Slightly explosive in presence of heat.

**Fire Fighting Media and Instructions:** Not applicable.

**Special Remarks on Fire Hazards:**

Sodium hydroxide + zinc metal dust causes ignition of the latter.

Under proper conditions of temperature, pressure and state of division, it can ignite or react violently with acetaldehyde, allyl alcohol, allyl chloride, benzene-1,4-diol, chlorine trifluoride, 1,2-dichloroethylene, nitro-ethane, nitromethane, nitroparaffins, nitro-propane, cinnamaldehyde, 2,2-dichloro-3,3-dimethylbutane. Sodium hydroxide in contact with water may generate enough heat to ignite adjacent combustible materials. Phosphorous boiled with NaOH yields mixed phosphines which may ignite spontaneously in air. Reaction with certain metals releases flammable and explosive hydrogen gas.

**Special Remarks on Explosion Hazards:**

Sodium hydroxide reacts to form explosive products with ammonia + silver nitrate.

Benzene extract of allyl benzenesulfonate prepared from allyl alcohol and benzene sulfonyl chloride in presence of aqueous sodium hydroxide, under vacuum distillation, residue darkened and exploded.

Sodium Hydroxide + impure tetrahydrofuran, which can contain peroxides, can cause serious explosions.

Dry mixtures of sodium hydroxide and sodium tetra-hydro borate liberate hydrogen explosively at 230-270 deg. C.

Sodium Hydroxide reacts with sodium salt of trichlorophenol + methyl alcohol + trichlorobenzene + heat to cause an explosion.

## Section 6: Accidental Release Measures

### Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

### Large Spill:

Corrosive solid.

Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities

## Section 7: Handling and Storage

### Precautions:

Keep container dry. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, metals acids, sodium oxide, and moisture.

### Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area. Hygroscopic. Deliquescent.

## Section 8: Exposure Controls/Personal Protection

### Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### Personal Protection:

Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist before handling this product.

### Section 9: Physical and Chemical Properties

<b>Appearance:</b>	Liquid.
<b>Color:</b>	Colorless
<b>Odor:</b>	Odorless
<b>Taste:</b>	Not available
<b>pH:</b>	>13.5 (Basic)
<b>Boiling Point:</b>	120.0°C
<b>Melting Point:</b>	Crystallizes at 2°C at 101.3 KPa
<b>Critical Temperature:</b>	Not available
<b>Specific Gravity:</b>	30% = 1.328 g/ml, 50% = 1.525 g/ml, solid = 2.13 g/ml (at 20°C)
<b>Vapor Pressure:</b>	Not available
<b>Vapor Density:</b>	Not available
<b>Volatility:</b>	Not available
<b>Odor Threshold:</b>	Not available
<b>Water/Oil Dist. Coeff.:</b>	Not available
<b>Ionicity (in Water):</b>	Not available
<b>Dispersion Properties:</b>	See solubility in water.
<b>Solubility:</b>	Easily soluble in cold water.

### Section 10: Stability and Reactivity Data

<b>Stability:</b>	The product is stable.
<b>Instability Temperature:</b>	Not available.
<b>Conditions of Instability:</b>	Incompatible materials, moisture, moist air.
<b>Incompatibility with various substances:</b>	
	Highly reactive with metals. Reactive with reducing agents, acids, alkalis, moisture.
<b>Corrosivity:</b>	Not available
<b>Special Remarks on Reactivity:</b>	
	Hygroscopic. Much heat is evolved when diluted in water. Therefore cold water and aeration must be used for this process. Sodium hydroxide solution and octanol + diborane during a work-up of a

reaction mixture of oxime and diborane in tetrahydrofuran is very exothermic, a mild explosion being noted on one occasion. Reactive with water, acids (mineral, non-oxidizing, e.g. hydrochloric, hydrofluoric acid, muriatic acid, phosphoric), acids (mineral, oxidizing e.g. chromic acid, hypochlorous acid, nitric acid, sulfuric acid), acids (organic e.g. acetic acid, benzoic acid, formic acid, methanoic acid, oxalic acid), aldehydes (e.g. acetaldehyde, acrolein, chloral hydrate, formaldehyde), carbamates (e.g. carbanolate, carbofuran), esters (e.g. butyl acetate, ethyl acetate, propylformate), halogenated organics (dibromoethane, hexachlorobenzene, methyl chloride, trichloroethylene), isocyanates (e.g. methyl isocyanate), ketones (acetone, acetophenone, MEK, MIBK), acid chlorides, strong bases, strong oxidizing agents, strong reducing agents, flammable liquids, powdered metals and metals (i.e. aluminum, tin, zinc, hafnium, raney nickel), metals (alkali and alkaline e.g. cesium, potassium, sodium), metal compounds (toxic e.g. beryllium, lead acetate, nickel carbonyl, tetraethyl lead), nitrides (e.g. potassium nitride, sodium nitride), nitriles (e.g. acetonitrile, methyl cyanide), nitro compounds (organic e.g. nitrobenzene, nitromethane), acetic anhydride, chlorohydrins, chlorosulfonic acid, ethylene cyanohydrins, glyoxal, hydro sulfuric acid, oleum, propiolactone, acylonitrile, phosphorous pentoxide, chloroethanol, chloroform-methanol, tetra- hydro borate, cyanogen azide, 1,2,4,5 tetrachlorobenzene, cinnamaldehyde. Reacts with formaldehyde hydroxide to yield formic acid, and hydrogen.s

**Special Remarks on Corrosivity:**

Very caustic to aluminum and other metals in presence of moisture.

**Polymerization:** Will not occur.

**Section 11: Toxicological Information**

**Routes of Entry:**

Absorbed through skin. Dermal contact. Eye contact. Inhalation.

**Chronic Effects on Humans:**

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. May cause damage to the following organs: mucous membranes, upper respiratory tract, skin, eyes

**Other Toxic Effects on Humans:**

Extremely hazardous in case of inhalation (lung corrosive). Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (corrosive), of ingestion.

**Special Remarks on Toxicity to Animals:**

**Lowest Published Lethal Dose:**

**LDL (Rabbit) – Route:** Oral; Dose; 500 mg/kg

Special Remarks on Chronic Effects on Humans: May affect genetic material. Investigation as a mutagen (cytogenetic analysis)

**Special Remarks on other Toxic Effects on Humans:** Not available.

**Section 12: Ecological Information**

**Toxicity of the Products of Biodegradation:**

The product itself and its products of degradation are not toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

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The product itself and its products of degradation are not toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

**Section 13: Disposal Considerations**

**Waste Disposal:** Waste must be disposed of in accordance with federal, state and local environmental control regulations.

**Section 14: Transport Information**

**DOT Classification:** Class 8: Corrosive material.

**Identification :** Sodium hydroxide, solid UN: 1823, Sodium hydroxide, solution UN: 1824

**Special Provisions for Transport:** Not available.

**Section 15: Other Regulatory Information**

**Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Protective Equipment:**

Gloves.

Synthetic apron.

Vapor and dust respirator. Be sure to use an approved/ certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Splash goggles.

**Section 16: Other Information**

**References:**

Not available

**Other Special Considerations:** Not available

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