

This product safety summary is intended to provide a general overview of the chemical substance in the context of ICCA global product strategy. It is not intended to provide emergency response, medical or treatment information nor to provide an overview of all safety and health information. This summary is not intended to replace the Safety Data Sheet. For detailed guidance on the use or regulatory status of this substance, please consult the Safety Data Sheet.

A. CHEMICAL PRODUCT IDENTIFICATION:

Product Name	Sodium Hydroxide
Synonyms	Caustic soda
IUPAC Name	Sodium Hydroxide
CAS NO	1310-73-2
E C No	215-185-5
Molecular Formula	NaOH

B. USES AND APPLICATIONS:

- ✓ Caustic soda has many different functions and uses. Within industry it can be used to adjust the pH, to produce biodiesel from vegetable oils, to clean food processing equipment and bottles, in paper industry, to dry air, to absorb CO₂ from gases, in aluminum industry, to remove grease and paint from metal, in textile industry, leather, vegetables, to manufacture chemicals (inter mediate use), to regenerate resins. Consumer uses include paint stripping or drain cleaning.

C. PHYSICAL / CHEMICAL PROPERTIES:

Properties	Value
Physical state and appearance	Colorless crystalline solid
Odor	Odorless
Molecular Weigh	39.997 g/mol
Color:	Colorless
Boiling Point	1388 ⁰ C / 2530.4 °F
Melting Point / Range	323 ⁰ C / 613.4°F
Flash Point	Not information available

Specific Gravity	2.13 g/cm ³
Critical Temperature	No information available
Relative Density	2.13 g/cm ³
Vapor Pressure	No information available
Vapor Density	No information available
Volatility	No information available
Odor Threshold	No information available
Partition Coefficient	No information available
Water Solubility	Soluble in water
Explosive/oxidising properties	No information available

D. HEALTH EFFECTS:

Effect	Value
Acute Toxicity Oral / inhalation / dermal	ORAL LD50: Not classified DERMAL LD50: Not classified INHALATION LC50: Not classified Based on available information, According to GHS product is not classified as Acutely Toxic.
Irritation / corrosion Skin / eye/ respiratory tract	Causes severe burns and serious eye damage.
Sensitisation	Based on available information, the classification criteria are not met.
Toxicity after repeated exposure Oral / inhalation / dermal	Based on available information, the classification criteria are not met.
Genotoxicity / Mutagenicity	Based on available information, the classification criteria are not met.
Carcinogenicity	Based on available information, the classification criteria are not met.
Toxicity for reproduction	Based on available information, the classification criteria are not met.

E. ENVIRONMENTAL EFFECTS:

The hazard of caustic soda for the environment is caused by the hydroxide ion (pH effect). A high concentration in water will result in toxic effects for aquatic organisms e.g. fish. However, a low concentration in water will not result in effects on aquatic organisms because the caustic soda will be neutralized by other substances present in water (for example dissolved carbon dioxide, organic acids) and thus the pH will not increase. Because caustic soda is neutralized in the environment, the substance is not persistent and it will not accumulate in organisms or in the food chain. The table below gives an over view of the environmental assessment results for caustic soda.

Effect Assessment	Value
Aquatic Toxicity	Toxicity to Fish LC50: 36 - 189 mg/L Toxicity to aquatic Invertebrate EC50: Not classified Toxicity to Algae EC10: Not classified Based on available information, According to GHS product is not classified for Aquatic Toxicity.

Fate and behavior	Value
Degradation/Persistence	No data available.
Bio-accumulation	No data available.
PBT/vPvB conclusion	Neither considered to be PBT nor vPvB.

*: Persistent, Bio accumulative and Toxic (PBT)

**: very Persistent and very Bio accumulative (vPvB)

F. EXPOSURE :

Human health	
Consumers	Many different consumer products containing caustic soda may be available. Direct skin contact with products or solutions containing a low concentration of caustic soda (< 0.5% in water) is not a concern for human health. No other adverse effects on human health are expected to occur. Direct contact with products or solutions containing high concentrations of sodium hydroxide (>2% in water) should be prevented, because of the corrosive effects.
Workers	Caustic soda is extensively used in the industry and also by other

	<p>professionals. Skin contact with solutions containing a low concentration in caustic soda (<0.5% in water) is not a concern for human health because, in this case, the substance is not irritating or corrosive.</p> <p>The caustic soda which is manufactured and used in industry applications is usually corrosive and therefore automated and closed systems are used in order to prevent direct contact. If exposure could occur, appropriate personal protective equipment should be used. Consult the extended Safety Data Sheet to obtain specific advice.</p>
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Environment

Compliance with relevant legislation for the pH control of waste water and surface water ensures that a significant pH increase of the aquatic environment (e.g. a river or a sea) is not expected due to the manufacture or use of caustic soda. Furthermore it is relatively easy to adapt the pH of waste water (to neutralize caustic soda in the water) and therefore significant effects Of caustic soda to the aquatic environment are note expected. Emissions to air are also not a concern because the substance is rapidly neutralizing din air due the presence of carbon Dioxide in air.

G. RISK MANAGEMENT MEASURES

Effect	Value
Eyes	IF IN EYES: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine). Call a physician or poison control centre immediately. Get immediate medical attention.
Skin protection	Take off contaminated clothing and shoes immediately. Wash off immediately with soap and plenty of water. Seek immediate medical attention/advice.
Ingestion	If swallowed, rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Artificial respiration and/or oxygen may be necessary.
Inhalation	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Seek immediate medical attention.

H. PERSONAL PROTECTIVE EQUIPMENT AND EMERGENCY MEASURES

Effect		Value
Engineering controls		Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to work station. If applicable, use process enclosure, local exhaust ventilation, or other engineering controls to maintain airborne level below recommended exposure limits. If exposure limits have not been established maintain airborne levels to acceptable level.
Special risks , Specific hazards		Non-combustible. Reacts violently with water. Gives off hydrogen by reactions with metals. Thermal decomposition can lead to release of irritating gases and vapours.
Personnel Protective equipment	Eye/Face protection	Use tightly sealed safety glasses. Chemical resistant goggles must be worn.
	Skin protection	Impervious long-sleeved clothing. Preventative skin protection is recommended.
	Hand protection	Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/ impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.
	Respiratory protection	Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

I. ACCIDENTAL RELEASE MEASURES

- ✓ Use proper personal protective equipment (pl refer MSDS)
- ✓ Person Precautions: Prevent further leakage or spillage if safe to do so. Keep away from Incompatible products. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ventilate the area. Wear suitable protective clothing. Wear respiratory protection.
- ✓ Environmental Precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
- ✓ Spill cleanup measures: Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Keep in properly labeled containers. Keep in suitable, closed containers for disposal. Treat recovered material as described in the section "Disposale considerations"


J. FIRE FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing agents appropriate to local circumstances and the surrounding environment.

K. CLASSIFICATION AND LABELLING

Under GHS substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the eSDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use. Substances registered for REACH are classified according CLP (EC) 1272/2008, implementation of the GHS in the European Union.

Classification H290 H314 H318	Corrosive to metals Skin corrosion: Category 1A Serious eye damage: Category 1
Pictogram	
Signal Word	Danger
Hazard statements H290 H314	May be corrosive to metals. Causes severe skin burns and eye damage.
Precautionary statements P260	Do not breathe dusts or mists.

P264	Wash hands, skin and face thoroughly after handling.
P234	Keep only in original container protection.
P290	Absorb spillage to prevent material-damage.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301+P330+P353	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 [or shower]
P363	Wash contaminated clothing before reuse.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
P310	Immediately call a POISON CENTRE/doctor or physician.
P405	Store locked up.
P406	Store in a corrosive resistant container with a resistant inner liner.
P501	Dispose of contents/container to an approved waste disposal plant.

L. BASIC TRANSPORT INFORMATION

DOT / TDG/ IATA/ IMDG/IMO	
UN No.	UN1823
Proper shipping Name	Sodium hydroxide, solid
Technical name	Sodium hydroxide
Hazard Class	8
Packaging Group	II
Marine Pollutant	No

M. REGULATORY INFORMATION

✓ International Inventories

TSCA	Complies
EINECS/ ELINCS	Complies
DSL/NDSL	Complies
PICCS	Complies
ENCS	Complies
IECSC	Complies
AICS	Complies
KECL	Complies

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

AICS - Australian Inventory of Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

N. CONCLUSIONS

- ✓ In industry, Caustic soda can be used to adjust the pH, to produce biodiesel from vegetable oils, to clean food processing equipment and bottles, in paper industry, to dry air, to absorb CO₂ from gases, in aluminum industry, to remove grease and paint from metal, in textile industry, leather, vegetables, to manufacture chemicals (inter mediate use),to regenerate resins.
- ✓ By applying the appropriate Risk Management measures the concentrations to be expected at workplaces and to the general public are below recommended exposure limits

O. CONTACT INFORMATION

Company Name	GUJARAT FLUOROCHEMICALS LIMITED
Address	12/A, GIDC Dahej Industrial Estate, Taluka: Vagra, Bharuch 392 130, Gujarat, India
Business Phone	+91 – 2641 – 618031, 248152



GUJARAT FLUORO CHEMICALS LIMITED
GLOBAL PRODUCT STRATEGY SAFETY SUMMARY
CUASTIC SODA

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Business Fax	+91 – 2641 – 618012
Web Site	www.gfl.co.in

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