

### PRODUCT IDENTIFICATION



**Product Name:** Sodium Hydroxide 50% Membrane Grade (Caustic Soda, Lye)

**CAS Number:** 1310-73-2

**Molecular Formula:** HNaO

**Molecular Weight:** 39.997 g/mol

**Grade:** Technical Grade

**Purity / Concentration:** 50%

**Synonyms:** Caustic Soda, Lye

### PRODUCT OVERVIEW

Alliance Chemical's Sodium Hydroxide 50% Membrane Grade, also known as Caustic Soda or Lye, is a technical grade solution with a NaOH concentration of 50.3%. This clear, caustic liquid is commonly used to adjust the pH of water in various treatment processes. Its high purity and consistent concentration make it suitable for a wide range of industrial applications.

**Grade Significance:** Technical Grade Sodium Hydroxide 50% Membrane Grade is suitable for industrial applications where high purity is required, as shown by the low levels of Iron (1.2 ppm) and Chlorides (5 ppm). While not meeting the stringent requirements of pharmaceutical or food-grade applications, it offers a cost-effective solution for many chemical processes.

### CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	50.3	49	51	Titration with HCl
Color (APHA)	APHA	10	—	25	Visual Comparison
Specific Gravity (20°C)	g/mL	1.525	1.515	1.545	Hydrometer
Iron (Fe)	ppm	1.2	—	5	ICP-OES
Sodium Carbonate Na <sub>2</sub> CO <sub>3</sub>	%	0.08	—	0.5	Titration
Chloride (Cl <sup>-</sup> )	ppm	5	—	30	Ion Chromatography

ND = Not Detected. Values are typical and may vary by lot.

### PHYSICAL & CHEMICAL PROPERTIES

<b>Appearance</b>	Clear, caustic liquid	<b>Odor</b>	Odorless
<b>Form</b>	Liquid solution	<b>Boiling Point</b>	1388°C (2530°F)
<b>Melting / Freezing Point</b>	323°C (613°F)	<b>Solubility</b>	Complete water solubility, moderate organic solvent
<b>Molecular Formula</b>	HNaO	<b>Molecular Weight</b>	39.997 g/mol
<b>Vapor Pressure (20°C)</b>	Negligible	<b>Viscosity (25°C)</b>	1.0 cP
<b>Refractive Index (20°C)</b>	1.333	<b>Density (25°C)</b>	1.20 g/mL

## APPLICATIONS

- 1. Water Treatment** — Sodium Hydroxide is used to increase the pH of water, neutralizing acidity and ensuring optimal conditions for various water treatment processes. It helps control corrosion and facilitates the precipitation of certain contaminants.
- 2. Chemical Manufacturing** — As a strong base, Sodium Hydroxide serves as a crucial reactant in numerous chemical syntheses and reactions. It facilitates the production of various organic and inorganic compounds.
- 3. Soap and Detergent Production** — Sodium Hydroxide is a key ingredient in the saponification process, where it reacts with fats and oils to produce soap. The quality and concentration of the NaOH directly impact the soap's properties.
- 4. Food Processing** — In the food industry, Sodium Hydroxide is used for pH adjustment, peeling fruits and vegetables, and cleaning equipment. It ensures food safety and process efficiency.
- 5. Textile Industry** — Sodium Hydroxide is used in textile processing for mercerization, which improves the strength, luster, and dye affinity of fabrics. It also aids in scouring and bleaching processes.
- 6. Pulp and Paper Industry** — In the pulp and paper industry, Sodium Hydroxide is used in the pulping process to delignify wood and separate cellulose fibers. It is also used for bleaching and pH adjustment.

## STORAGE & HANDLING

Proper storage of Sodium Hydroxide 50% Membrane Grade is crucial to maintain its purity and prevent accidents. Due to its corrosive nature (H314), it should be stored in tightly sealed, chemically resistant containers in a cool, dry, and well-ventilated area, away from incompatible materials. This minimizes the risk of spills, leaks, and hazardous reactions.

- Store in a cool, dry place away from incompatible materials.
- Use corrosion-resistant containers (e.g., HDPE, stainless steel).
- Avoid contact with acids and organic materials.
- Ensure proper personal protective equipment (PPE) is worn during handling.
- Provide adequate ventilation in storage areas.

## AVAILABLE PACKAGING

- 1 Quart
- 1 Gallon
- 5 Gallon
- 15 Gallon
- 55 Gallon
- 275 Gallon
- 330 Gallon

## SAFETY SUMMARY (CROSS-REFERENCE TO SDS)

**Signal Word: Danger**



**Hazard Statements:**

- H314: Causes severe skin burns and eye damage [Danger Skin corrosion/irritation]

**Emergency Contact:** CHEMTEL - 800-255-3924 (24 Hours/Day, 7 Days/Week)

*For complete safety information, refer to the Safety Data Sheet (SDS) for this product.*

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