

### PRODUCT IDENTIFICATION



**Product Name:** Sodium Hydroxide 50% Solution ACS Grade

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

**Molecular Formula:** HNaO

**Molecular Weight:** 39.997 g/mol

**Grade:** ACS Grade

**Purity / Concentration:** 50%

**Synonyms:** Caustic Soda, Lye

### PRODUCT OVERVIEW

Sodium Hydroxide 50% Solution, ACS Grade, from Alliance Chemical is a high-purity solution, typically featuring an assay of 50.3% NaOH. This clear, colorless liquid is primarily used to raise the pH of acidic water in various treatment processes and as a key reactant in chemical production.

**Grade Significance:** ACS Grade Sodium Hydroxide 50% Solution meets the stringent purity standards set by the American Chemical Society, ensuring its suitability for demanding applications, including laboratory analysis and critical chemical processes, where impurities could compromise results.

**CERTIFICATE OF ANALYSIS — TYPICAL VALUES**

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	50.3	49	51	Titration
Color (APHA)	APHA	5	—	10	ASTM D1209
Specific Gravity (20°C)	g/mL	1.525	—	—	USP <841>
Residue After Ignition	%	0.0080	—	0.01	Gravimetric
Aluminum (Al)	ppm	0.05	—	0.2	ICP-OES
Arsenic (As)	ppm	ND	—	0.5	ICP-OES
Calcium (Ca)	ppm	0.2	—	5	ICP-OES
Copper (Cu)	ppm	0.01	—	0.2	ICP-OES
Iron (Fe)	ppm	0.05	—	1	ICP-OES
Lead (Pb)	ppm	0.01	—	0.2	ICP-OES
Magnesium (Mg)	ppm	0.02	—	0.5	ICP-OES
Nickel (Ni)	ppm	0.01	—	0.2	ICP-OES
Potassium (K)	ppm	0.1	—	5	ICP-OES
Chloride (Cl <sup>-</sup> )	ppm	1	—	5	ISE
Phosphate (PO <sub>4</sub> <sup>3-</sup> )	ppm	0.1	—	1	Spectrophotometry
Sulfate (SO <sub>4</sub> <sup>2-</sup> )	ppm	1	—	5	Turbidimetry
Carbonate Na <sub>2</sub> CO <sub>3</sub>	%	0.04	—	0.05	Titration
Mercury Hg	ppm	ND	—	0.01	ICP-OES
Nitrogen Compounds As N	ppm	0.1	—	5	ISE

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

**PHYSICAL & CHEMICAL PROPERTIES**

<b>Appearance</b>	Clear, colorless liquid	<b>Odor</b>	Odorless
<b>Form</b>	Liquid	<b>Boiling Point</b>	1390°C (2534°F)
<b>Melting / Freezing Point</b>	318°C (604°F)	<b>Specific Gravity</b>	1.53
<b>Solubility</b>	Highly soluble in water and alcohol	<b>Molecular Formula</b>	HNaO
<b>Molecular Weight</b>	39.997 g/mol	<b>Viscosity (25°C)</b>	1.0
<b>Refractive Index (20°C)</b>	1.390	<b>Density (25°C)</b>	1.52 g/mL
<b>Decomposition Temp.</b>	Not applicable under normal conditions		

## APPLICATIONS

1. **Water Treatment** — Used to increase the pH of acidic water, ensuring optimal conditions for various treatment processes and preventing corrosion of pipes and equipment. Maintaining the correct pH is critical for effective water purification.
2. **Chemical Manufacturing** — Serves as a crucial reactant in the synthesis of a wide array of chemicals, contributing to the production of pharmaceuticals, plastics, and other essential materials. Its high purity ensures consistent and reliable reaction outcomes.
3. **Soap and Detergent Production** — Utilized in the saponification process to convert fats and oils into soap. The sodium hydroxide reacts with triglycerides to form glycerol and soap molecules.
4. **Laboratory Analysis** — Commonly used in titrations and other analytical procedures due to its strong alkalinity and well-defined stoichiometry. The ACS Grade ensures minimal interference from impurities, leading to accurate results.
5. **Textile Industry** — Used in the processing of cotton and other fibers, including scouring, bleaching, and mercerizing. These processes enhance the quality and properties of the textiles.
6. **Pulp and Paper Industry** — Used in the pulping process to separate lignin from cellulose fibers. It also plays a role in bleaching the pulp to produce white paper products.

## STORAGE & HANDLING

Proper storage of Sodium Hydroxide 50% Solution is crucial to maintain its purity and prevent hazardous situations. Due to its corrosive nature (H314: Causes severe skin burns and eye damage), it should be stored in tightly sealed, compatible containers in a cool, dry, and well-ventilated area, away from incompatible materials to avoid dangerous reactions and degradation of the container.

- Store in a cool, dry place away from incompatible materials.
- Use HDPE or glass containers for storage.
- Avoid contact with acids and organic materials.
- Ensure proper ventilation when handling to avoid inhalation of vapors.
- Wear appropriate personal protective equipment (PPE) including gloves and goggles.

## 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.*

Alliance Chemical | 204 South Edmond St, Taylor, Texas 76574 | 512-365-6838 | [www.alliancechemical.com](http://www.alliancechemical.com)

**Disclaimer:** The information contained herein is believed to be accurate and represents the best information currently available to us. However, Alliance Chemical makes no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.