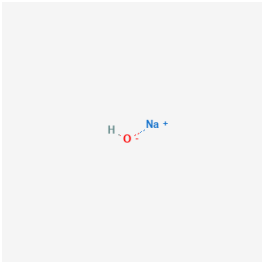
Technical Data Sheet

Sodium Hydroxide 25% ACS Grade

ACS Grade · 25%

Alliance Code	Revised	Revision
sodium-hydroxide-25-acs-grade	2026-10-20	1.6

CAS number 1310-73-2	UN number UN1824	Hazard class · packing group 8 · PG II
 Structure · PubChem	Grade ACS Grade · 25%	Signal word **Danger**
Hazards Corrosive H290 H314		
Proper shipping name Sodium hydroxide solution		

IDENTITY & COMPOSITION

PRODUCT NAME
Sodium Hydroxide 25% ACS Grade

ALLIANCE CODE
sodium-hydroxide-25-acs-grade

GRADE
ACS Grade

CONCENTRATION
25% w/w

CAS NUMBER
1310-73-2 PubChem

FORMULA
NaOH PubChem

PRODUCT TYPE
Solution

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Assay (NaOH)	24.5 - 25.5 % w/w	—	—	Interpreted

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Ammonium hydroxide precipitate	0.005% max	—	—	Interpreted
Calcium (Ca)	0.0013% max	—	—	Interpreted
Chloride (Cl)	0.001% max	—	—	Interpreted
Heavy metals (as Ag)	0.0005% max	—	—	Interpreted
Iron (Fe)	2.5 ppm max	—	—	Interpreted
Magnesium (Mg)	0.00051% max	—	—	Interpreted
Mercury (Hg)	0.025 ppm max	—	—	Interpreted
Nickel (Ni)	2.5 ppm max	—	—	Interpreted
Nitrogen compounds (as N)	2.5 ppm max	—	—	Interpreted
Phosphate (PO4)	3 ppm max	—	—	Interpreted
Potassium (K)	0.005% max	—	—	Interpreted
Sodium carbonate	0.12 % max	—	—	Interpreted
Sulfate (SO4)	0.00055% max	—	—	Interpreted

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Color (APHA)	Max 20	—	—	Interpreted
Composition	25 % sodium hydroxide in deionized water, by weight	—	By formulation; batch weights (scale ticket)	Interpreted

Values are reproduced from the current product reference. Source labels do not by themselves establish a supplier guarantee or a test result for your lot. Confirm applicable acceptance limits and request lot-specific documentation.

AVAILABLE GRADES SAME CAS, ALTERNATE GRADES AND CONCENTRATIONS

GRADE	CONCENTRATION	TYPICAL ASSAY	SKU
THIS GRADE ACS Grade	25%	—	current
ACS Grade	50%	—	sodium-hydroxide-50-solution-acs-grade
Membrane Grade	50%	—	sodium-hydroxide-50-membrane-grade-caustic-soda-lye
ACS	30%	—	sodium-hydroxide-30-acs-grade
Technical	30%	—	sodium-hydroxide-30-technical-grade
Technical	25%	—	sodium-hydroxide-25
ACS	20%	—	sodium-hydroxide-20-acs-grade
Technical	20%	—	sodium-hydroxide-20-technical-grade
ACS	15%	—	sodium-hydroxide-15-acs-grade
Technical	15%	—	sodium-hydroxide-15-technical-grade
ACS	10%	—	sodium-hydroxide-10-acs-grade
Technical	10%	—	sodium-hydroxide-10-technical-grade

GRADE	CONCENTRATION	TYPICAL ASSAY	SKU
Technical	5%	—	sodium-hydroxide-5-technical-grade

Typical assay for each grade is the average of its recent lots. Confirm a grade meets your specification before substituting it.

PHYSICAL & CHEMICAL PROPERTIES

PROPERTY	VALUE	SOURCE
Appearance	Clear, colorless viscous liquid solution	Adjudicated
Form	Liquid	Published reference
Odor	Odorless	Adjudicated
pH	14	Adjudicated
Specific Gravity	1.276 at 20/20 °C (water = 1)	Adjudicated
Density	1.2738 g/cm^3 at 20 °C	Adjudicated
Boiling Point	110 to 122 °C (230 to 252 °F) (aqueous solution)	Adjudicated
Melting Point	-20 to -16 °C (-4 to 3 °F), freezing point (aqueous solution)	Adjudicated
Flash Point	Not applicable	Adjudicated
Vapor Pressure	About 14–24 mmHg at 20–25 °C (water vapor)	Adjudicated
Solubility (water)	Completely miscible with water (dilution releases heat)	Adjudicated

Strong base — hygroscopic; values may drift in opened containers. See storage guidance.

MATERIALS OF CONSTRUCTION SERVICE ENVELOPE ≈ 25%

MATERIAL	RATING	MAX T (°C)	NOTES	SOURCE
Buna-N (NBR) Elastomer	Fair	40	Limited service life	Cole-Parmer Chemical Compatibility

MATERIAL	RATING	MAX T (°C)	NOTES	SOURCE
EPDM Elastomer	Excellent	100	Standard for caustic gaskets.	Parker O-ring Chemical Compatibility
Viton (FKM) Elastomer	Poor	—	Hydrolyzes in caustic; do not use.	Parker O-ring Chemical Compatibility
PTFE Fluoropolymer	Excellent	200	Universal compatibility.	Cole-Parmer Chemical Compatibility
Borosilicate Glass Glass Ceramic	Fair	25	Attacked above 30 % or elevated temp; avoid long-term service.	Cole-Parmer Chemical Compatibility
304 stainless steel Metal	Good	80	Acceptable for dilute caustic	Cole-Parmer Chemical Compatibility
316L Stainless Steel Metal	Excellent	80	Preferred metal for caustic service.	NACE TM0177
Aluminium Metal	Not recommended	—	Rapid attack; generates hydrogen	Cole-Parmer Chemical Compatibility
Carbon Steel Metal	Good	60	Acceptable below 70 °C; caustic embrittlement risk above.	NACE Caustic Service Limits
Nickel Metal	Excellent	100	Preferred for high-temperature caustic	Cole-Parmer Chemical Compatibility
Zinc / galvanized steel Metal	Not recommended	—	Rapid corrosion	Cole-Parmer Chemical Compatibility
HDPE Thermoplastic	Excellent	60	Standard tote/drum material.	Cole-Parmer Chemical Compatibility
Polypropylene Thermoplastic	Excellent	80	Excellent caustic service to 50 %.	Cole-Parmer Chemical Compatibility

MATERIAL	RATING	MAX T (°C)	NOTES	SOURCE
PP Thermoplastic	Excellent	80	Preferred for elevated temperature	Cole-Parmer Chemical Compatibility
PVC Thermoplastic	Good	40	Acceptable for ambient service	Cole-Parmer Chemical Compatibility

Ratings reflect the service envelope (concentration × temperature) shown. Always confirm against your specific duty cycle and contact-time before equipment selection. The most cautious rating across overlapping references is shown.

REGULATORY & TRANSPORT

DOT / 49 CFR

UN NUMBER

UN1824 Adjudicated

HAZARD CLASS

8 Adjudicated

PACKING GROUP

II Adjudicated

PROPER SHIPPING NAME

Sodium hydroxide solution Adjudicated

GHS / OSHA HCS 2024

SIGNAL WORD

Danger Adjudicated

H-CODES (HAZARD STATEMENTS)

H290, H314 Adjudicated

P-CODES (PRECAUTIONARY STATEMENTS)

P234, P260, P264, P280, P301+P330+P331, P303+P361+P353, P304+P340, P305+P351+P338, P310, P321, P363, P390, P405, P406, P501

Adjudicated

OCCUPATIONAL EXPOSURE LIMITS

OSHA PEL (29 CFR 1910.1000)

2 mg/m^3 TWA OSHA 29 CFR 1910.1000

ACGIH TLV

2 mg/m^3 Ceiling Adjudicated

NIOSH REL

2 mg/m^3 ceiling NIOSH Pocket Guide

NIOSH IDLH

10 mg/m^3 NIOSH Pocket Guide

Transport descriptions reflect 49 CFR 172.101 lookup at time of publication. Sourced data: NIOSH Pocket Guide for REL/IDLH, OSHA Z-Tables for PEL. Always verify against the latest regulatory text before shipment-critical decisions.

HEALTH & FIRE HAZARD

ACUTE TOXICOLOGY

LD_{50} DERMAL (RABBIT)

1,350 mg/kg (sodium hydroxide)

Adjudicated

Acute toxicology values from SDS Section 11 or NIOSH RTECS.

APPLICATIONS

pH adjustment in water treatment; pulp and paper; textile scouring and dyeing; soap and detergent manufacturing; petroleum refining and oil drilling; aluminum processing; chemical synthesis

basekim.com

Pulping, bleaching, pH neutralization, detergents and soaps (stated for a 25% sodium hydroxide solution)

corecheminc.com

Applications are drawn from published manufacturer and supplier documentation; each is sourced. Suitability for a specific use is the buyer's to confirm.

STORAGE & HANDLING

RECOMMENDED STORAGE

Store closed in steel, polyethylene or polypropylene, never aluminum or galvanized. Protect from freezing. Keep away from acids.

Adjudicated

HANDLING PRECAUTIONS

Use full PPE including chemical splash goggles and alkali-resistant gloves. Add base to water slowly with stirring. Highly exothermic dilution.

Class-level guidance — not product-specific; the SDS controls.

INCOMPATIBILITIES

Acids (violent reaction); aluminum, zinc, tin, magnesium and their alloys, including galvanized metal (release flammable hydrogen); organic halogen compounds; nitro compounds; sugars (can release carbon monoxide in closed vessels).

Adjudicated

SHELF LIFE

Consult Technical Services for product-specific shelf life

For full hazard, PPE, and emergency response guidance, refer to the Safety Data Sheet (SDS) for this product. The SDS controls in all cases where guidance differs.

PACKAGING & LOGISTICS

SHIPPING DESCRIPTION (US DOT)

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UN1824, Sodium hydroxide solution, 8, PG II
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Sourced from 49 CFR 172.101. Confirm against shipping documents and carrier requirements before tender.

NMFC CLASS	PLACARD	PACKING GROUP
60	Corrosive	PG II

REVISION HISTORY

Last reviewed 2026-10-20 by Andre Taki, Chief Commercial Officer, DOT Hazmat–certified (49 CFR 172.704).

VERSION	DATE	CHANGE	TRIGGER
1.6	2026-10-20	Canonical data updated: 2 fields changed via the provenance/adjudication pipeline. • density · canonical change (coa.data_provenance / adjudication) • specificGravity · canonical change (coa.data_provenance / adjudication)	canonical_change
1.5	2026-10-08	Canonical data updated: 16 fields changed via the provenance/adjudication pipeline. • synonyms · canonical change (coa.data_provenance / adjudication) • restrictions_on_use · canonical change (coa.data_provenance / adjudication) • odor · canonical change (coa.data_provenance / adjudication) • pH · canonical change (coa.data_provenance / adjudication) • solubility · canonical change (coa.data_provenance / adjudication) • vaporPressure · canonical change (coa.data_provenance / adjudication) • oel_acgih_tlv · canonical change (coa.data_provenance / adjudication) • rcra_waste_codes · canonical change (coa.data_provenance / adjudication) • incompatible_materials · canonical change (coa.data_provenance / adjudication) • hazardous_decomposition_products · canonical change (coa.data_provenance / adjudication) • storage_precautions · canonical change (coa.data_provenance / adjudication) • flashPoint · canonical change (coa.data_provenance / adjudication) • recommended_use · canonical change (coa.data_provenance / adjudication) • specificGravity · canonical change (coa.data_provenance / adjudication) • conditions_to_avoid · canonical change (coa.data_provenance / adjudication) • cercla_rq · canonical change (coa.data_provenance / adjudication)	canonical_change

VERSION	DATE	CHANGE	TRIGGER
1.4	2026-10-07	Canonical data updated: 3 fields changed via the provenance/adjudication pipeline. • ghsClassification · canonical change (coa.data_provenance / adjudication) • hazard_h_codes · canonical change (coa.data_provenance / adjudication) • hazard_p_codes · canonical change (coa.data_provenance / adjudication)	canonical_change
1.3	2026-09-30	Canonical data updated: 3 fields changed via the provenance/adjudication pipeline. • boilingPoint · canonical change (coa.data_provenance / adjudication) • meltingPoint · canonical change (coa.data_provenance / adjudication) • appearance · canonical change (coa.data_provenance / adjudication)	canonical_change
1.2	2026-07-22	Canonical data updated: 2 fields changed via the provenance/adjudication pipeline. • dotSubsidiaryHazardClass · canonical change (coa.data_provenance / adjudication) • dotProperShippingName · canonical change (coa.data_provenance / adjudication)	canonical_change
1.1	2026-07-06	Canonical data re-verified: 4 fields updated against independent vendor SDSs, CLP Annex VI, 49 CFR, and OSHA HazCom 2024 (GHS classification, hazard/precautionary codes, signal word, physical properties as applicable). • countryOfOrigin · canonical adjudication / reground (coa.data_provenance) • ghsClassification · canonical adjudication / reground (coa.data_provenance) • hsCode · canonical adjudication / reground (coa.data_provenance) • physicalProperties · canonical adjudication / reground (coa.data_provenance)	canonical_change
1.0	2026-05-20	Initial URL-first TDS published from canonical chemistry registry.	initial

This Technical Data Sheet is provided for technical reference. The Safety Data Sheet (SDS) controls in all cases where guidance differs. Values reflect Alliance Chemical canonical data at time of generation; subsequent revisions are recorded in the Revision History above.