

TECHNICAL DATA SHEET

Sodium Hydroxide 50% Membrane Grade (Caustic Soda, Lye)

Membrane Grade · 50%

CAS NUMBER	ALLIANCE CODE	GENERATED
1310-73-2	sodium-hydroxide-50-membrane-grade-caustic-soda-lye	2026-08-31
REVISION	REVIEWED	
1.2	2026-07-06 · Andre Taki	

IDENTITY & COMPOSITION

PRODUCT NAME	ALLIANCE CODE
Sodium Hydroxide 50% Membrane Grade (Caustic Soda, Lye)	sodium-hydroxide-50-membrane-grade-caustic-soda-lye
GRADE	CONCENTRATION
Membrane Grade	50%
CAS NUMBER	FORMULA
1310-73-2 PubChem	HNaO PubChem
MOLECULAR WEIGHT	PRODUCT TYPE
39.997 PubChem	solution

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Assay, sodium hydroxide (NaOH)	49.5 – 51.5 WT. %	50.0 WT. %	Titrimetry	Supplier specification
Sodium Chloride (NaCl)	100 PPM max.	25 PPM	Turbidimetry	Supplier specification

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Iron (Fe)	3 PPM max.	0.5 PPM	Colormitry	Supplier specification
Sodium Carbonate (Na ₂ CO ₃)	0.1 WT. % max.	0.03 WT. %	Titrimetry	Supplier specification
Sodium chlorate (NaClO ₃)	40 PPM	12 PPM	Ion Chromatography	Supplier specification
Sodium hydroxide (NaOH)	49.5 – 51.5 WT. %	50.0 WT. %	Titrimetry	Supplier specification
Sodium oxide (Na ₂ O)	38.3 – 40.0 WT. %	39.15 WT. %	Calculated	Supplier specification
Sodium sulfate (Na ₂ SO ₄)	40 PPM	5 PPM	Ion Chromatography	Supplier specification
Nickel (Ni)	1.0 PPM Max	0.2 PPM	ICP-OES	Interpreted
Mercury (Hg)	0.05 PPM Max	0.001 PPM	Cold vapor AAS	Interpreted
total alkalinity	38.35 – 39.9 %	38.74 %	—	Supplier specification
excess sodium hydroxide	49.5 – 51 wt.%	50.0 wt.%	—	Supplier specification
na ₂ o	37.97 – 39.9 %	38.935 %	—	Supplier specification

Specification values are guaranteed limits. Typical values are representative of production lots and are not guaranteed. Lot-specific certificates of analysis ship with every order.

AVAILABLE GRADES SAME CAS, ALTERNATE GRADES AND CONCENTRATIONS

GRADE	CONCENTRATION	TYPICAL ASSAY	SKU
THIS GRADE Membrane Grade	50%	—	current
ACS Grade	50%	—	sodium-hydroxide-50-solution-acs-grade
ACS	30%	—	sodium-hydroxide-30-acs-grade
Technical	30%	—	sodium-hydroxide-30-technical-grade
—	25%	—	sodium-hydroxide-25
ACS Grade	25%	—	sodium-hydroxide-25-acs-grade
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
ACS	5%	—	sodium-hydroxide-5-acs-grade

Typical assay shown is the rolling-window mean from the sibling product's most recent lots. Grade selection drives downstream end-use — verify the sibling grade matches your specification before substitution.

PHYSICAL & CHEMICAL PROPERTIES

One or more physical-property values are temporarily suppressed pending verification against vendor COA data. For complete properties refer to the Safety Data Sheet (SDS) or contact sales@alliancechemical.com.

PROPERTY	VALUE	SOURCE
Form	Liquid solution	Published reference
Color	Max 20	Interpreted
Odor	... Odorless ...	Published reference
Specific Gravity (20 °C)	1.520 – 1.540	Interpreted
Density	1.53 (50% w/w aqueous solution, 20 °C)	Published reference
Boiling Point	Not characterized for the 50% solution	Published reference
Melting Point	Not characterized for the 50% solution	Published reference
Flash Point	N/A	Published reference
Vapor Pressure	0 mmHg (approx) (NIOSH, 2024)	Published reference

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

MATERIALS OF CONSTRUCTION

MATERIAL	RATING	CONDITIONS	SOURCE
HDPE / polyethylene (bottle, drum)	Compatible	50–52% (w/w) sodium hydroxide solution as packaged for sale by the supplier; no temperature stated	media.vwr.com

Compatibility is drawn from published manufacturer and supplier documentation for this product; each rating is sourced. Confirm against your specific duty cycle before equipment selection.

REGULATORY & TRANSPORT

DOT / 49 CFR

UN NUMBER	HAZARD CLASS
UN1824 Adjudicated	8 Adjudicated
PACKING GROUP	PROPER SHIPPING NAME
II Adjudicated	Sodium hydroxide solution Adjudicated

GHS / OSHA HAZCOM 2012

SIGNAL WORD	H-CODES (HAZARD STATEMENTS)
Danger Adjudicated	H290, H314 ECHA CLP Annex VI
P-CODES (PRECAUTIONARY STATEMENTS)	
P234, P260, P264, P280, P301+P330+P331, P303+P361+P353, P304+P340, P305+P351+P338, P310, P321, P363, P405, P501	
ECHA CLP Annex VI	

OCCUPATIONAL EXPOSURE LIMITS

OSHA PEL (29 CFR 1910.1000)	ACGIH TLV
2 mg/m³ TWA OSHA 29 CFR 1910.1000	— no canonical
NIOSH REL	NIOSH IDLH
2 mg/m³ ceiling NIOSH Pocket Guide	10 mg/m³ NIOSH Pocket Guide

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

CATALOG EQUIVALENTS CROSS-REFERENCE VS MAJOR CHEMICAL SUPPLIERS

SIGMA-ALDRICH

SKU	GRADE	CONC.	MATCH	NOTES
S5881	ACS Reagent	≥97%	Exact	Reagent grade, anhydrous pellets

Cross-references are informational. Confirm against the manufacturer's current specification before substitution. Competitor trademarks are property of their respective owners.

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

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

Cool, dry, well-ventilated area in compatible containers (HDPE, lined steel — not aluminium). Tightly sealed; protect from atmospheric moisture and CO₂. Segregate from acids and oxidizers.

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

INCOMPATIBILITIES

Acids (violent neutralization), aluminium, zinc, tin (generates hydrogen gas), halogens, organic nitro compounds.

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

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.

SHELF LIFE

36 months media.vwr.com

Source states a 3 year shelf-life for a 50% (w/w) sodium hydroxide solution (BDH reagent grade catalog listing); no storage conditions are stated and the source does not name membrane grade.

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)

UN1824, Sodium hydroxide solution, 8, PG II

Sourced from 49 CFR 172.101. Confirm against shipping documents and carrier requirements before tender.

NMFC CLASS
60

PLACARD
Corrosive

PACKING GROUP
PG II

REVISION HISTORY

Last reviewed 2026-07-06 by Andre Taki, DOT Hazmat Specialist.

VERSION	DATE	CHANGE	TRIGGER
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.