

Potassium Hydroxide

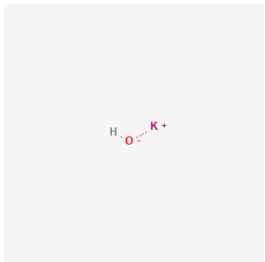
45% Solution ACS Grade

ACS Reagent · 45%

Alliance Code
potassium-hydroxide-45-solution-
acs-grade

Reviewed
2026-10-07

Revision
1.4

CAS number 1310-58-3	UN number UN1814	Hazard class · packing group 8 · PG II
 Structure · PubChem	Grade ACS Reagent · 45%	Signal word Danger
Hazards Corrosive Irritant / harmful H290 H302 H314		
Proper shipping name Potassium hydroxide solution		

IDENTITY & COMPOSITION

PRODUCT NAME	ALLIANCE CODE
Potassium Hydroxide 45% Solution ACS Grade	potassium-hydroxide-45-solution-acs-grade
GRADE	CONCENTRATION
ACS Reagent	45%
CAS NUMBER	FORMULA
1310-58-3 Adjudicated	HKO Adjudicated
MOLECULAR WEIGHT	PRODUCT TYPE
56.106 Adjudicated	Solution

SPECIFICATIONS

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Assay (KOH)	44.0% -46.0 % (w/w)	45.2 %	—	Interpret ed
Chloride (Cl)	Max 0.005%	0.00110 %	—	Interpret ed
Other Heavy Metals (as Ag)	Max 0.0005%	0.00006 2%	—	Interpret ed
Iron (Fe)	Max 0.0002%	0.00001 4%	—	Interpret ed
Phosphate (PO4)	Max 0.0002%	0.00001 6%	—	Interpret ed
Potassium Carbonate (K2CO3)	Max 0.2%	0.068 %	—	Interpret ed
Sodium (Na)	Max 0.25%	0.068 %	—	Interpret ed
Sulfate (SO4)	Max 0.001%	0.00014 %	—	Interpret ed

TEST	SPECIFICATION	TYPICAL	METHOD	SOURCE
Nitrogen compounds (as N)	Max 0.0005%	0.00007 0%	Nessler colorimetric after Devarda reduction	Interpreted
Calcium (Ca)	Max 0.002%	0.00020 %	ICP-OES	Interpreted
Magnesium (Mg)	Max 0.001%	0.00005 7%	ICP-OES	Interpreted
Nickel (Ni)	Max 0.0005%	0.00000 9%	ICP-OES / AAS	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 Reagent	45%	—	current
Technical	45%	—	potassium-hydroxide-45-solution-technical-grade-caustic-potash-liquid-koh
Technical	30%	—	potassium-hydroxide-30-solution-technical-grade
Technical	25%	—	potassium-hydroxide-25-solution-technical-grade-caustic-potash-liquid-koh

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

PROPERTY	VALUE	SOURCE
Appearance	Clear, colorless liquid	Adjudicated
Specific Gravity (20 °C)	1.452 -1.462	Interpreted
Boiling Point	132 to 133 °C (270 to 271 °F) (aqueous solution)	Adjudicated
Melting Point	-33 to -28.9 °C (-27 to -20 °F), freezing point (aqueous solution)	Adjudicated

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

MATERIALS OF CONSTRUCTION

MATERIAL	RATING	CONDITIONS	SOURCE
HDPE	Compatible	45% (w/w) KOH aqueous solution, ambient catalog storage; basis is the supplier packaging the 45% solution in an HDPE bottle	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

UN1814 [Adjudicated](#)

PACKING GROUP

II [Adjudicated](#)

HAZARD CLASS

8 [Adjudicated](#)

PROPER SHIPPING NAME

Potassium hydroxide solution [Adjudicated](#)

GHS / OSHA HAZCOM 2012

SIGNAL WORD

Danger [Adjudicated](#)

H-CODES (HAZARD STATEMENTS)

H290, H302, H314 [Adjudicated](#)

P-CODES (PRECAUTIONARY STATEMENTS)

P234, P260, P264, P270, P280,
P301+P312+P330, 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)

— [no canonical](#)

ACGIH TLV

— [no canonical](#)

NIOSH REL

2 mg/m³ ceiling [NIOSH Pocket Guide](#)

NIOSH IDLH

— [no canonical](#)

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.

APPLICATIONS

Industrial uses of potassium hydroxide: detergents/soaps, dyeing and bleaching, paint and varnish removers, electroplating, photo engraving, lithography, alkaline batteries, analytical chemistry, fuel and gas, thickening agent, organic synthesis, stabilizer

[corecheminc.com](#)

Used in a large number of manufacturing processes [store.astm.org](#)

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.

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.

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

Consult Technical Services for product-specific shelf life

PACKAGING & LOGISTICS

SHIPPING DESCRIPTION (US DOT)

UN1814, Potassium 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
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REVISION HISTORY

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

VERSION	DATE	CHANGE	TRIGGER
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	2026-08-27	Canonical data updated: 1 field changed via the provenance/adjudication pipeline. oel_niosh_rel · canonical change (coa.data_provenance / adjudication)	canonical_change
1.1	2026-08-11	Canonical data updated: 12 fields changed via the provenance/adjudication pipeline. - casNumber · canonical change (coa.data_provenance / adjudication) - formula · canonical change (coa.data_provenance / adjudication) - molecularWeight · canonical change (coa.data_provenance / adjudication) - unNumber · canonical change (coa.data_provenance / adjudication) - hazardClass · canonical change (coa.data_provenance / adjudication) - packingGroup · canonical change (coa.data_provenance / adjudication) - dotProperShippingName · canonical change (coa.data_provenance / adjudication) - signalWord · canonical change (coa.data_provenance / adjudication) - 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) - dotSubsidiaryHazardClass · canonical change (coa.data_provenance / adjudication)	canonical_change

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.