Safety Data Sheet · OSHA HCS 2024

Potassium Hydroxide 45% Solution ACS Grade

ACS Reagent · 45% w/w

Standard	Revised	Emergency
OSHA HCS 2024 · GHS Rev. 7	2026-11-12	Chemtel 1-800-255-3924 (24/7)

1 Identification

Product Identifier	Potassium Hydroxide 45% Solution ACS Grade
Grade	ACS Reagent
Concentration	45% w/w
CAS Number	1310-58-3
Chemical Formula	HKO
Molecular Weight	56.106 g/mol
Manufacturer	Alliance Chemical 204 South Edmond Street, Taylor, TX 76574
Emergency Phone	Chemtel 1-800-255-3924 (24/7)
Synonyms	Caustic potash; potash lye; potassium hydrate
Recommended Use	Laboratory and analytical reagent (ACS grade): titrations and pH adjustment.
Restrictions on Use	For industrial and professional use. Always add caustic slowly to water, never water to caustic. Never use on aluminum.

2 Hazard Identification



Corrosive



Irritant / harmful

Classification

Corrosive to metals, Category 1

Acute toxicity (oral), Category 4

Skin corrosion/irritation, Category 1

Serious eye damage/eye irritation, Category 1

Signal Word

Danger

Hazard Statements

H290 May be corrosive to metals

H302 Harmful if swallowed

H314 Causes severe skin burns and eye damage

Precautionary Statements

P234 Keep only in original packaging.

P260 Do not breathe dust, fume, gas, mist, vapors or spray.

P264 Wash hands and face thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves, protective clothing, and eye/face protection.

P301+P312+P330 IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER or doctor.

P321 Specific treatment (see first-aid information on this label).

P363 Wash contaminated clothing before reuse.

P390 Absorb spillage to prevent material damage.

P405 Store locked up.

P406 Store in a corrosion resistant container with a resistant inner liner.

P501 Dispose of contents and container in accordance with local, regional, national, and international regulations.

Classification, hazard (H) and precautionary (P) statements and pictograms per OSHA HCS 2024 (29 CFR 1910.1200, Appendices A–C), aligned with GHS Rev. 7.

3 Composition / Information on Ingredients

Component	CAS No.	Formula	Concentration
Potassium hydroxide	1310-58-3	KOH	44-46% (w/w)
Water	7732-18-5	H2O	Balance (w/w)

Concentrations are nominal; lot-specific values appear on the Certificate of Analysis. Components not contributing to classification are omitted.

4 First-Aid Measures

Eyes

Rinse with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention immediately.

Skin

Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing. Wash with soap. Get medical attention immediately.

Inhalation

Move person to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.

Ingestion

Do Not Induce Vomiting! Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention immediately.

Most Important Symptoms and Effects

Causes burns to the skin, eyes and mucous membranes; eye contact may cause permanent damage including blindness; ingestion burns the mouth, throat and stomach.

Ingestion may cause nausea, vomiting and abdominal pain; larger amounts may cause systemic poisoning.

Immediate Medical Attention and Special Treatment

Immediate medical attention is required after eye or skin contact or ingestion; tissue damage may continue after exposure ends.

5 Fire-Fighting Measures

Suitable Extinguishing Media

Dry chemical, CO2, water spray. Use water spray to cool containers.

Unsuitable Extinguishing Media	Do not use a solid water stream as it may scatter and spread fire.
Specific Hazards Arising from the Chemical	Fire may release corrosive and toxic gases. Containers may rupture when heated.
Protective Equipment	Wear self-contained breathing apparatus and full protective clothing.
Hazardous Combustion Products	Potassium oxide fumes on strong heating. Contact with aluminum, zinc or tin releases flammable hydrogen gas.

6 Accidental Release Measures

Personal Precautions	Use PPE as described in Section 8. Ensure adequate ventilation. Evacuate personnel to safe areas.
Hazard-Specific Precautions	Do not touch spilled material without protective equipment. Neutralize residue only with a method suitable for the material, then collect.
Environmental Precautions	Prevent leakage or spillage from entering drains, sewers, or waterways.
Containment & Cleanup	Absorb with inert material. Collect in appropriate waste container. Dispose per applicable regulations.

7 Handling and Storage

Safe Handling	Use with adequate ventilation. Avoid contact with skin, eyes, and clothing. Wash thoroughly after handling. Keep container closed when not in use.
Safe Storage	Store in a cool, dry, well-ventilated area. Use corrosion-resistant containers. Keep away from incompatible materials (see Section 10). Keep containers tightly closed.
Specific Storage Precautions	Store closed in steel, polyethylene or polypropylene, never aluminum or galvanized. Protect from freezing. Keep away from acids.

8 Exposure Controls / Personal Protection

Occupational Exposure Limits

Limit	Value
ACGIH TLV	2 mg/m^3 Ceiling
NIOSH REL	2 mg/m^3 Ceiling

Engineering Controls	Use adequate ventilation. Provide eyewash stations and quick-drench showers accessible to areas of use.
Eye/Face Protection	Wear chemical safety goggles or face shield.
Skin Protection	Wear chemical-resistant gloves and protective clothing.
Respiratory Protection	Where mist, spray or dust is generated (e.g., spraying, atomization, pressure washing), use a NIOSH-approved half-face air-purifying respirator with combination acid gas / P100 cartridges. Ensure local exhaust ventilation.

Exposure limits sourced from NIOSH Pocket Guide, OSHA 29 CFR 1910.1000 and ACGIH TLVs.

9 Physical & Chemical Properties

Appearance	Clear, colorless liquid

Odor	Odorless
Odor Threshold	No data available
pH	14
Melting Point / Freezing Point	-33 to -29 °C (-27 to -20 °F), freezing point
Boiling Point	About 132–133 °C (270–271 °F)
Flash Point	Not applicable
Evaporation Rate	No data available
Flammability (solid, gas)	No data available
Upper/Lower Flammability or Explosive Limits	No data available
Vapor Pressure	6.4 mmHg at 25 °C
Vapor Density	No data available
Relative Density	1.452–1.462 at 20 °C (water = 1)
Solubility	Completely miscible with water (dilution releases heat)
Partition Coefficient (n-octanol/water)	No data available
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Particle Characteristics	Not applicable

Values shown reflect product-specific canonical data. Lot-specific ranges may vary; see the Certificate of Analysis for the shipped lot.

10 Stability and Reactivity

Reactivity	May be corrosive to metals.
Chemical Stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	None under normal processing conditions.
Conditions to Avoid	Freezing; contact with incompatible materials; adding water to concentrated caustic.
Incompatible Materials	Acids (violent reaction); aluminum, zinc, tin, copper, magnesium and their alloys, including galvanized metal (release flammable hydrogen); nitro compounds; organic materials; halogenated compounds.
Hazardous Decomposition Products	Potassium oxide fumes on strong heating. Contact with aluminum, zinc or tin releases flammable hydrogen gas.

11 Toxicological Information

See below for route-specific acute toxicity data.

Likely Routes of Exposure	Inhalation, skin contact, eye contact, ingestion.
Symptoms	Causes burns to the skin, eyes and mucous membranes; eye contact may cause permanent damage including blindness; ingestion burns the mouth, throat and stomach. Ingestion may cause nausea, vomiting and abdominal pain; larger amounts may cause systemic poisoning.
Delayed and Chronic Effects	No delayed or chronic effects identified beyond the classification in Section 2.

Route	Value
LD50 Oral	214–333 mg/kg (potassium hydroxide, rat); estimated ATE of the 45% solution about 475–740 mg/kg (Acute Tox. 4, H302)

Carcinogen Classification

Agency	Status
IARC	Not listed as carcinogen.
NTP	Not listed as carcinogen.
OSHA	Not listed as carcinogen.

12 Ecological Information

Ecotoxicity	Fish LC50: 80 mg/L (96 h, Gambusia affinis — pH/alkalinity-driven, not specific chemical toxicity)
Persistence & Degradability	Not applicable (inorganic); toxicity driven by pH/alkalinity, neutralized in receiving water — Not applicable (inorganic)
Bioaccumulative Potential	Not Available
Mobility in Soil	Not Available

13 Disposal Considerations

Dispose of contents/container in accordance with applicable federal, state, and local regulations. Do not dispose of into drains or waterways.

EPA RCRA Waste Codes	D002 (corrosive; solutions pH ≥ 12.5, 40 CFR 261.22). Not a P- or U-listed waste.

If discarded, this material may be a corrosive hazardous waste (EPA RCRA D002, 40 CFR 261.22): aqueous with pH ≤ 2 or ≥ 12.5, or a liquid that corrodes steel at more than 6.35 mm per year. The waste generator must make the final hazardous-waste determination.

14 Transport Information

US DOT (49 CFR)

UN Number	UN1814
Proper Shipping Name	Potassium hydroxide solution
Hazard Class	8
Packing Group	II
Additional US DOT Requirements	A package containing 1,000 lb or more of potassium hydroxide (about 178 gal of 45% solution, so 275- and 330-gal totes; a 55-gal drum holds about 310 lb) is a hazardous substance: add RQ to the shipping description. Not a marine pollutant.

IMDG / IATA classifications may differ from US DOT. Verify current regulations before international shipment.

15 Regulatory Information

Inventory / List	Status
California Proposition 65	Not listed
US EPA TSCA Active Inventory	Listed
EPCRA SARA 313 (TRI)	Not listed
CERCLA Reportable Quantity (RQ)	Potassium hydroxide (CAS 1310-58-3) 1,000 lb (454 kg), about 2,170 lb or 178 US gal of 45% solution; 275- and 330-gal totes reach it (see Section 14).

SARA 311/312 hazard categories correspond to the GHS classification in Section 2. Data retrieved as of: California Proposition 65 2026-11-02; US EPA TSCA Active Inventory 2026-11-02; EPCRA SARA 313 (TRI) 2026-11-02.

16 Other Information

Revision Date	2026-11-12
Format	16-section format per OSHA HCS 2024 (29 CFR 1910.1200, Appendix D), aligned with GHS Rev. 7.

Disclaimer: The information provided in this Safety Data Sheet is correct to the best of our knowledge at the date of publication. It relates only to the specific product identified and does not relate to its use in combination with other materials. ALLIANCE CHEMICAL MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALLIANCE CHEMICAL DOES NOT ASSUME LIABILITY FOR LOSS, INJURY, DAMAGE, OR EXPENSE ARISING FROM THE HANDLING, STORAGE, USE, OR DISPOSAL OF THIS PRODUCT.

Alliance Chemical, 204 South Edmond Street, Taylor, TX 76574. Published by Alliance Chemical from first-party canonical product data. Our authority is hands-on chemical handling, DOT/GHS-compliant shipping, and government-registered distribution — not bench chemistry. This Safety Data Sheet is prepared from the regulatory data on file for this product.