Safety Data Sheet · OSHA HCS 2024

Ammonium Hydroxide 29% ACS Grade

ACS Grade · 29%

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

1 Identification

Product Identifier	Ammonium Hydroxide 29% ACS Grade
Grade	ACS Grade
Concentration	29% w/w as NH3
CAS Number	1336-21-6
Chemical Formula	NH4OH
Manufacturer	Alliance Chemical 204 South Edmond Street, Taylor, TX 76574
Emergency Phone	Chemtel 1-800-255-3924 (24/7)
Synonyms	Aqua ammonia; aqueous ammonia; ammonia water; ammonium hydrate; 26 °Bé ammonia
Recommended Use	Laboratory and analytical reagent (ACS grade); pH adjustment; buffer and reagent preparation.
Restrictions on Use	Never mix with bleach (sodium hypochlorite) or other chlorine products: this forms toxic chloramine gas and can form explosive nitrogen trichloride. For industrial, professional and laboratory use.

2 Hazard Identification



Corrosive



Irritant / harmful



Environmental hazard

Classification

Corrosive to metals, Category 1

Acute toxicity (oral), Category 4

Skin corrosion/irritation, Category 1

Serious eye damage/eye irritation, Category 1

Specific target organ toxicity, single exposure, Category 3 (respiratory tract irritation)

Hazardous to the aquatic environment, acute hazard, Category 1 †

† GHS environmental hazard class; not adopted under OSHA HCS (29 CFR 1910.1200).

Signal Word

Danger

Hazard Statements

H290 May be corrosive to metals
H302 Harmful if swallowed
H314 Causes severe skin burns and eye damage
H335 May cause respiratory irritation
H400 Very toxic to aquatic life

Precautionary Statements

P234 Keep only in original packaging.
P260 Do not breathe dust, fume, gas, mist, vapors or spray.
P261 Avoid breathing 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.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, and eye/face protection.
P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
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.
P391 Collect spillage.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
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
Ammonium hydroxide (as NH3)	1336-21-6	NH4OH	28-30% (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. Inhalation may irritate the nose, throat and respiratory tract (coughing, sore throat). 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	Ammonia gas when heated; above about 315 °C (600 °F) ammonia dissociates to hydrogen and nitrogen; nitrogen oxides in a fire.

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 tightly closed in a cool, well-ventilated area out of sunlight; open containers slowly, as pressure may build up. Use steel or polyethylene, never copper, brass, bronze, zinc or galvanized fittings. Keep away from bleach, acids and halogens.

8 Exposure Controls / Personal Protection

Occupational Exposure Limits

Limit	Value
OSHA PEL	50 ppm TWA
ACGIH TLV	25 ppm TWA / 35 ppm STEL (as ammonia)
NIOSH REL	25 ppm TWA / 35 ppm STEL
IDLH	300 ppm
Other Limits	NIOSH IDLH 300 ppm (ammonia)

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, volatile alkaline liquid
Odor	Intense, pungent, suffocating ammonia odor
Odor Threshold	2–50 ppm (as ammonia)
pH	> 12 (about 13)
Melting Point / Freezing Point	-79 to -72 °C (-110 to -98 °F), freezing point (aqueous solution)
Boiling Point	27 to 36 °C (81 to 97 °F) (aqueous solution)
Flash Point	Not applicable
Evaporation Rate	No data available
Flammability (solid, gas)	No data available
Upper/Lower Flammability or Explosive Limits	Ammonia vapor: LEL 15% / UEL 28% (v/v in air); hard to ignite
Vapor Pressure	9.1 psia (627 hPa, 470 mmHg) at 15.6 °C (60 °F)
Vapor Density	No data available
Relative Density	0.897 at 20/20 °C (water = 1)
Solubility	Completely miscible with water
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
Form	Liquid
Color	Clear, Colorless
Density	0.8950 g/cm^3 at 20 °C

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	Heat and direct sunlight: ammonia gas is released and pressure builds in closed containers. Contact with incompatible materials.
Incompatible Materials	Bleach and other hypochlorites, chlorine, bromine and iodine (toxic chloramines and explosive compounds); mercury, silver and silver oxide, gold (explosive compounds); strong acids (violent, heat); strong oxidizers. Corrodes copper, brass, bronze, zinc, galvanized surfaces and aluminum alloys.
Hazardous Decomposition Products	Ammonia gas when heated; above about 315 °C (600 °F) ammonia dissociates to hydrogen and nitrogen; nitrogen oxides in a fire.

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. Inhalation may irritate the nose, throat and respiratory tract (coughing, sore throat). 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 (rat)	350 mg/kg
LC50 Inhalation (rat, 4h)	2,000 ppm (ammonia gas)

Carcinogen Classification

Agency	Status
IARC	Not listed as carcinogen.

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

12 Ecological Information

Aquatic Hazard
H400 Very toxic to aquatic life

Ecotoxicity
Fish LC50: ~ 0.024 mg/L (48 h, Lepomis macrochirus — driven by un-ionized NH_3 (pH/temp dependent); range 0.024–0.093 mg/L)

Persistence & Degradability
Not applicable (inorganic; $NH_3 \rightleftharpoons NH_4^+$ equilibrium). Toxicity from un-ionized ammonia, rising with pH and temperature.

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, 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
UN2672

Proper Shipping Name
Ammonia solution, relative density between 0.880 and 0.957 at 15 degrees C in water, with more than 10 percent but not more than 35 percent ammonia

Hazard Class
8

Packing Group
III

Additional US DOT Requirements
Bulk packaging over 119 gal (for example a 275-gal tote): Marine Pollutant (ammonia solution, 10–35% ammonia, 49 CFR 172.101 Appendix B). Non-bulk packages by highway or rail are excepted from the marine-pollutant requirements (49 CFR 171.4(c)).

Environmental Hazards
Meets GHS aquatic-hazard criteria; may be a marine pollutant under the IMDG Code (vessel transport).

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

Inventory / List	Status
EPCRA SARA 313 (TRI)	Not listed
CERCLA Reportable Quantity (RQ)	Ammonium hydroxide (CAS 1336-21-6) 1,000 lb (454 kg). EPCRA: ammonia (CAS 7664-41-7) is a section 302 extremely hazardous substance (TPQ 500 lb) and a section 313 (TRI) chemical; 10% of aqueous ammonia counts toward TRI thresholds.

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.

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