

Section 1: Product & Company Information

Product Identifier: Ammonium Hydroxide 10-35%

Other Means of Identification

Product Number: 140002
101000

Recommended Use and Restrictions on Use

Recommended Use: For use only under strictly controlled conditions and only by qualified personnel.
Restrictions on Use: No data available.

Manufacturer / Importer / Supplier / Distributor Information

Company Name: CORECHEM Inc.
Address: 4320 Greenway Drive
Knoxville, TN 37918
USA

Information Telephone Number: 1-865-524-4239

Fax Number: 1-865-524-3375

Website: www.corecheminc.com

Contact Person: Regulatory Manager

E-mail: regulatory@corecheminc.com

Emergency Phone Number: Chemtrec® 1-800-424-9300 / Outside USA 1-703-527-3887 (monitored 24 hours/day)

Section 2: Hazards Identification

GHS Hazard Classification(s)

In accordance with OSHA Hazard Communication Standard 29 CFR 1910.1200 (HazCom 2012).

Physical Hazard(s)

Not classified.

Health Hazard(s)

Corrosion/Irritation, Skin – 1A
(Corrosion) Damage/Irritation, Eye - 1
Specific Target Organ Toxicity (STOT) - Respiratory Irritation, Single exposure - 3

Environmental Hazard(s)

No data available.

Label Elements

Signal Word

DANGER!

Hazard Symbol(s)



Hazard Statement(s)

H314: Causes severe skin burns and eye damage.
H335: May cause respiratory Irritation.

Precautionary Statements

General

Not applicable.

Prevention

P260: Do not breathe dust/fume/gas/mist/vapors/spray.
P264: Wash face, hands and any exposed skin 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/eye protection/face protection.

Response

P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P301 + P330 + P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340: IF INHALED: Remove to fresh air and keep at rest in a position 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/physician.
P321: Specific treatment (see supplemental first aid instructions on this label).
P330: Rinse mouth.
P363: Wash contaminated clothing before reuse.
P391: Collect spillage.

Storage

P403: Store in a well-ventilated place.
P405: Store locked up.

Disposal

P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNO C)

None known.

Section 3: Composition/Information on Ingredients

MIXTURE

Chemical Identity ²	Common Name/Synonym(s)	CAS # ³	Weight %	Impurity or Stabilizing Additive
Ammonium hydroxide	Ammonium Hydroxide Solutions, Ammonia Aqueous, Ammonia Solution	1336-21-6	10-35%	No

- Information regarding the composition and the percent ranges of the mixtures ingredients are not presented as it Confidential Business Information (CBI). Where a medical emergency exists (as determined by medical professional), timely disclosure of CBI is assured. The information omitted pertains to only the names of the substances and the concentration in the mixture (product) and can only be requested by a doctor/physician or Local/State/Provincial or Federal Authority.
- Non-hazardous ingredients are not presented as to protect the proprietary formula of the product.
- "—"Indicates ingredient is a mixture and contains multiple ingredients or may have no identifying CAS number.

Section 4: First-Aid Measures

General Information

Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wash contaminated clothing before reuse.

Inhalation

Immediately remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing has stopped, administer artificial respiration. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.

Skin Contact

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Eye Contact

IMMEDIATE ACTION IS ESSENTIAL FOR EYE EXPOSURES. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held apart and away from eyeball for thorough rinsing.

Ingestion

DO NOT INDUCE VOMITING! Give large quantities of water. Never give anything by mouth to an unconscious person. May give orange juice, citrus juice, or diluted vinegar to counteract ammonia.

Most important symptoms/effects, acute and delayed

Symptoms

Corrosive effects. May cause severe eye, skin, respiratory tract irritation and burns. May cause temporary blindness and severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Indication of immediate medical attention and special treatment needed

Hazards

No data available.

Treatment

No data available.

Section 5: Fire-Fighting Measures

General Fire Hazards

Not considered to be a fire hazard. At fire temperatures, Fire may produce irritating, corrosive and / or toxic gases.

Suitable (and Unsuitable) Extinguishing Media

Suitable Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media

No Data available

Specific Hazards Arising from the Chemical

Not considered to be a fire hazard. Irritating, corrosive and/or toxic gases or fumes will be released during a fire. Flammable vapors may accumulate in confined spaces.

Special Protective Equipment and Precautions for Firefighters

Special Fire-Fighting Equipment Procedures

No data available

Special Protective Equipment for Fire-Fighters

As in any fire, wear self-contained breathing apparatus pressure-demand (OSHA/NIOSH approved or equivalent) and full protective gear.

Section 6: Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Methods and Materials for Containment and Clean-Up

Contain and recover liquid when possible. Do not let product enter drains. Do not flush caustic residues into the sewer. Residues from spills can be diluted with water, neutralized with dilute acid such as Acetic, Hydrochloric or Sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal.

Notification Procedures

US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll-free number for the US Coast Guard National Response Center is (800) 424-8802.

Environmental Precautions

Do not let product enter drains. Do not flush caustic residues to the sewer.

Section 7: Handling and Storage

Precautions for Safe Handling

Observe all warnings and precautions listed for the product. Keep out of direct sunlight and away from heat sources. Closed storage tanks should be provided with safety relief valves and vacuum breakers as necessary.

Conditions for Safe Storage, including any Incompatibilities

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Separate from incompatibilities. Store below 25C. Protect from direct sunlight. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid.)

Section 8: Exposure Controls/Personal Protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Value	Source
Ammonium Hydroxide 10-35%	ACGIH TWA	25 ppm	US. ACGIH
Ammonium Hydroxide 10-35%	ACGIH STEL	35 ppm	US. ACGIH
Ammonium Hydroxide 10-35%	USA OSHA	50 ppm	OSHA PEL (TWA)

Biological Limit Values

The product does not contain any relevant quantities of hazardous materials with assigned biological limit values.

Appropriate Engineering Controls

Provide sufficient ventilation to keep ammonia vapors below the permissible exposure limit. Emergency eye wash fountains and safety showers should be available in the vicinity of any potential exposure.

Individual protection measures, such as personal protective equipment (PPE)

General Information

A system of local and / or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Eye/Face Protection

Wear Chemical glasses with side shields (or goggles) and a face shield. Wear a full-face respirator, if needed. Maintain eye wash fountain and quick-drench facilities in work area.

Skin Protection

Hand Protection

Wear appropriate chemical resistant gloves.

Other

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Neoprene and nitrile rubber are recommended materials. Polyvinyl alcohol is not recommended.

Respiratory Protection

If the exposure limit is exceeded and engineering controls are not feasible, a full-face piece respirator with an ammonia/methylamine cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in Oxygen-deficient atmospheres.

Hygiene Measures

When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated footwear that cannot be cleaned. Wash hands before breaks and immediately after handling the product. Wash contaminated clothing before reuse. Avoid contact with eyes, skin, and clothing.

Section 9: Physical and Chemical Properties

Appearance:

Physical State: Liquid
Color: Clear, Colorless

Odor: Pungent, Ammonia odor

Odor Threshold: 2 - 5 ppm

pH: 13+

Melting Point/Freezing Point: -72°C (-98 °F)

Initial Boiling Point and Boiling Range: ca. 36C (ca. 97F)

Flash Point: Not applicable.

Evaporation Rate (butyl acetate=1): No data available.

Flammability (solid, gas): No data available.

Upper/Lower Limit on Flammability or Explosive Limits

Flammability Limit – Upper: 25%

Flammability Limit – Lower: 16%

Explosive Limit – Upper: No data available.

Explosive Limit – Lower: No data available.

Vapor Pressure: 115 @ 20C (68F) for 10% solution; 580 @ 20C (68F) for 28% solution

Vapor Density (air =1): 0.60 NH₃

Relative Density (water=1): 0.9 g/mL at 25C (77F)

Solubility(ies):

Solubility in water: Infinitely soluble

Solubility (other): No data available.

Partition coefficient (n-octanol/water): No data available.

Auto-Ignition Temperature: 1,204 °F (If catalyzed). 1,570 °F (If un-catalyzed)

Decomposition Temperature: No data available

Viscosity: 1.7 40 °F (26% solution)

Other Information:

Molecular Weight: 5.05
Formula: NH₄OH

Section 10: Stability and Reactivity

Reactivity

Stable under ordinary conditions of use and storage. Avoid ammonium hydroxide contact with chemicals such as mercury, chlorine, iodine, bromine, silver oxide or hypochlorites; they can form explosive compounds. Ammonia reacts with strong oxidizers, acids, halogens, and salts of silver, zinc, copper, and other heavy metals.

Chemical Stability

Stable under ordinary conditions of use and storage. Will not polymerize.

Possibility of Hazardous Reactions

Ammonium hydroxide will react exothermically with acids. Ammonia vapors are released when heated.

Conditions to Avoid

Heat, sunlight, incompatibles, copper, brass, bronze, aluminum alloys, mercury, gold, silver, and sources of ignition.

Incompatible Materials

Acids, Acrolein, Dimethyl Sulfate, halogens, Silver Nitrate, Propylene Oxide, Nitromethane, Silver Oxide, Silver Permanganate, Oleum, Beta-propiolactone. Most common metals.

Hazardous Decomposition Products

Burning may produce Ammonia, Nitrogen Oxides.

Section 11: Toxicological Information

Information on routes of exposure

Ingestion: May cause corrosion to the mouth, throat, esophagus and stomach. Extreme exposure may result in death from spasm, inflammation or edema.

Inhalation: Causes severe respiratory irritation. May cause dyspnea (breathing difficulty), chest pain, pulmonary edema, and bronchospasm.

Skin Contact: Causes severe skin burns, irritation, corrosive burns, or blister formation.

Eye Contact: Cause serious eye damage.

Information on Toxicological Effects

Acute Toxicity (List all possible routes of exposure)

Oral

Oral rat LD50: 350 mg/kg; eye, rabbit, standard Draize, 250 ug; severe. Investigated as a mutagen.

Dermal

No data available

Inhalation

Inhalation LC50, rat, 5131 mg/m³ (7338 ppm) to 11,592 mg/m³ (16,600 ppm), 1 hr exposure.

Repeated Dose Toxicity

No data available

Skin Corrosion/Irritation

Causes severe skin burns and eye damage

Serious Eye Damage/Eye Irritation

Vapors cause irritation. Splashes cause severe pain, eye damage, and permanent blindness

Respiratory/Skin Sensitization

Inhalation- Vapors and mists cause irritation to the respiratory tract. Higher concentrations can cause burns, pulmonary edema and death. Brief exposure to 5000 ppm can be fatal.

Ingestion- Toxic! May cause corrosion to the esophagus and stomach with perforation and peritonitis. Symptoms may include pain in the mouth, chest, and abdomen, with coughing, vomiting and collapse. Ingestion of as little as 3-4 mL may be fatal

Carcinogenicity

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

US. National Toxicology Program (NTP) Report on Carcinogens

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Germ Cell Mutagenicity

In Vitro

No mutagenic components identified.

In Vivo

No mutagenic components identified.

Reproductive Toxicity

Not classified

Specific Target Organ Toxicity – Single Exposure

May cause respiratory irritation

Specific Target Organ Toxicity – Repeated Exposure

Not classified

Aspiration Hazard

Not classified

Other Effects

None known.

Section 12: Ecological Information

Ecotoxicity

Acute Hazards to the Aquatic Environment

Fish

24 Hr. LC50 rainbow trout: 0.008 mg/L

96 hr. LC50 fathead minnow: 8.2 mg/L

48 hr. LC50 bluegill: 0.024 mg/L

Aquatic Invertebrates

48 hr. EC50 water flea: 0.66 mg/L

Toxicity to Aquatic Plants

No data available.

Chronic Hazards to the Aquatic Environment

Fish

No data available.

Aquatic Invertebrates

No data available.

Toxicity to Aquatic Plants

No data available.

Persistence and Degradability

Biodegradation

Expected to be readily biodegradable.

BOD/COD Ratio

No data available.

Bioaccumulative Potential

Bioconcentration Factor (BCF)

This material is not expected to significantly bioaccumulate.

Partition Coefficient n-octanol / water (log Kow)

This material is not expected to significantly bioaccumulate.

Mobility in Soil

The product is water soluble and may spread in water systems.

Other Adverse Effects

US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll-free number for the US Coast Guard National Response Center is (800) 424-8802.

Section 13: Disposal Considerations

Disposal Instructions

Very toxic to aquatic organisms. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations.

Contaminated Packaging

Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14: Transportation Information

US Department of Transportation (DOT)

UN Number: UN 2672

UN Proper Shipping Name: Ammonia Solutions (with more than 10% but not more than 34% ammonia)

Technical Name: -
Hazard Class: 8
Subsidiary Hazard Risk: -
Packing Group: III
DOT Label/Placard Exemptions: Not determined
Special Provisions: 336, IB3, IP8, T7, TP2
Packaging Exceptions: 49CFR 173.154
Packaging Non-Bulk: 49CFR 173.203.301
Packaging Bulk: 49CFR 173.241.302
Reportable Quantity (RQ): 1,000lb (454kg)
Marine Pollutant: YES
Poison Inhalation Hazard: No
Special precautions for user: Warning: Corrosive Substances
Emergency Response Guidebook (ERG) #: 154

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

Section 15: Regulatory Information

US Federal Regulations

Toxic Substance Control Act (TSCA), Chemical Substance Inventory, Section 8(b)

This product or ingredient(s) are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substance List (40 CFR 302.4)

Ammonium Hydroxide (1336-21-6)- 1000

Clean Air Act (CAA), Section 112(r)

No chemical(s) in this material are subject to the reporting requirements of CAA.

Emergency Planning and Community Right-To-Know Act (EPCRA)

EPCRA 302 Extremely Hazardous Substance

The following chemical(s) in this material are subject to reporting levels established by SARA Title III, Section 302:

EPCRA 304 Emergency Response Notification

The following chemical(s) in this material are subject to reporting levels established by SARA Title III, Section 304:

EPCRA 311/312 Emergency and Hazardous Materials Reporting

Fire Hazard: No
Sudden Release of Pressure: No
Reactive: No
Acute (Immediate) Health Hazard: Yes
Chronic (Delayed) Health Hazard: No

EPCRA 313 Toxic Chemical Release Inventory (TRI) Reporting

The following chemical(s) in this material are subject to reporting levels established by SARA Title III, Section 313:
Ammonia 7664-41-7; 10-35%

US State Regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Important Note: Due to the changing nature of regulatory requirements, the information in this document should NOT be considered all-inclusive or authoritative. Users should make their own investigations to determine the suitability of the information for their particular purposes. International, Federal, State and Local regulations should be consulted to determine compliance with all required reporting requirements.

Section 16: Other Information

Hazardous Materials Identification System (HMIS®) Classification

Health Hazard: 3
Chronic Health Hazard: /
Flammability: 1
Physical Hazard: 0
Personal Protection: H

(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

National Fire Protection Association (NFPA 704) Rating

Health Hazard: 3
Fire Hazard: 1
Reactivity Hazard: 0

Special: N/A

(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

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Sections Revised: -

Key to Abbreviations and Acronyms

ATE - Acute Toxicity Estimate

BCF - Bioconcentration Factor

EC50 - Effective concentration, 50%

IDHL - Immediately Dangerous to Life and Health

Kg - Kilogram

l - Liter

lb - Pound

LC50 - Lethal Concentration, 50%

LD50 - Lethal Dose, 50%

mg - milligram

ml - milliliter

N/A - Not Applicable

N/D - Not Determined

PEL - Permissible Exposure Limit

REL - Recommended Exposure Limit

STEL - Short-term Exposure Limit

TWA - Time weighted average

ACGIH - American Conference of Industrial Hygienists

AIHA - American Industrial Hygiene Association

BEI - Biological Exposure Indices

CAS - Chemical Abstracts Service

DOT - US Department of Transportation

EPA - US Environmental Protection Agency

GHS - Globally Harmonized System of Classification and Labelling of Chemicals

IARC - International Agency for Research on Cancer

IATA - International Air Transport Association

IBC - Intermediate Bulk Container

IMDG - International Maritime Dangerous Goods

NIOSH - National Institute for Occupational Safety and Health

NTP - National Toxicology Program

OSHA - US Occupational Health and Safety Administration

SARA - US EPA Superfund Amendments and Reauthorization Act

TSCA - US EPA Toxic Substances Control Act

UN - United Nations

References

HSDB® - Hazardous Substances Data Bank

Disclaimer

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