

## **AMMONIA SOLUTION 25%**

### **SECTION 1: PRODUCT IDENTIFICATION**

**Product Name:** AMMONIA SOLUTION 25%

**Product Code:** 049

**CAS#:** 1336-21-6

**Synonym:** Aqueous Ammonia; Strong Ammonia Solution; Stronger Ammonia Water; Ammonium hydroxide solution.

**Chemical Name:** Ammonium hydroxide

**Chemical Formula:**  $\text{NH}_3$

**Molecular Weight:** 17.03

### **SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS**

**Composition:**

AMMONIA SOLUTION 25%

**Toxicological Data on Ingredients:** This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

H314: Causes severe skin burns and eye damage.

H400: Very toxic to aquatic life

H410: Very toxic to aquatic life with long lasting effects

### **SECTION 3: HAZARDS IDENTIFICATION**

**Potential Acute Health Effects:** Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant), of ingestion, Non-corrosive to the eyes. Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

**Potential Chronic Health Effects:** Hazardous in case of skin contact (irritant), of ingestion, of inhalation

**CARCINOGENIC EFFECTS:** Not available

**MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells Mutagenic for bacteria and/or yeast

**TERATOGENIC EFFECTS:** Not available

**DEVELOPMENTAL TOXICITY:** Not available

The substance is to upper respiratory tract, skin, eyes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

### **SECTION 4: FIRST AID MEASURES**

**Eye Contact:** Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. WARM water MUST be used. Get medical attention if irritation occurs.

**Skin Contact:** In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

**Serious Skin Contact:** Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.



**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Serious Inhalation:** Not available

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

**Serious Ingestion:** Not available

## SECTION 5: FIRE FIGHTING MEASURES

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not available

**Flash Points:** Not available

**Flammable Limits:** Not available

**Products of Combustion:** Hazardous decomposition includes Nitric oxide, and ammonia fumes.

**Fire Hazards in Presence of Various Substances:** Not applicable

**Explosion Hazards in Presence of Various Substances:** Non-explosive in presence of open flames and sparks, of shocks.

**Fire Fighting Media and Instructions:** Not applicable

**Special Remarks on Fire Hazards:** Not available

**Special Remarks on Explosion Hazards:** Forms explosive compounds with many heavy metals such as silver, lead, zinc and their halide salts. It can form shock sensitive compounds with halogens, mercury oxide, and silver oxide.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Small Spill:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal

container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

**Large Spill:** Corrosive liquid. Poisonous liquid, Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities

## SECTION 7: HANDLING AND STORAGE

**Precautions:** Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as metals, acids.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 25°C (77°F).

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls:** Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Personal Protection:** Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

**Personal Protection in Case of a Large Spill:** Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:** TWA: 25 (ppm) from ACGIH (TLV) [United States]; TWA: 50 STEL: 35 (ppm) from OSHA (PEL) [United States]; TWA: 25 STEL: 35 from NIOSH.

Consult local authorities for acceptable exposure limits

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance Form	: Liquid.
Odour	: Ammonia-like (Strong.)
Taste	: Acrid
Molecular Weight	: 17.03
Colour	: Colourless
pH	: Basic (11.6 in 1N solution).
Boiling Point	: Not available
Melting Point	: -69.2°C (-92.6°F)
Critical Temperature	: Not available
Specific Density	: 0.91 (Water = 1)
Vapor Pressure	: 287 kPa (@ 20°C).
Vapor Density	: Not available
Volatility	: Not Available
Odor Threshold	: 5 - 50 ppm as ammonia
Water/Oil Dist. Coeff.	: The product is more soluble in water; log(oil/water) = 0.2
Ionicity (in Water)	: Not Available
Dispersion Properties	: Not Available
Solubility	: Miscible in cold water

## SECTION 10: STABILITY AND REACTIVITY DATA

**Stability:** The product is stable.

**Instability Temperature:** Not available

**Conditions of Instability:** Incompatible materials, high temperatures

**Incompatibility with various substances:** Highly reactive with metals. Reactive with acids. Slightly reactive to reactive with oxidizing agents

**Corrosivity:** Extremely corrosive in presence of zinc, of copper. Corrosive in presence of aluminum. Non-corrosive in presence of glass, of stainless steel(304), of stainless steel(316).

**Special Remarks on Reactivity:** Incompatible with the following: Organic acids, amides, organic anhydrides, isocyanates, vinyl acetate, epichlorhydrin, aldehydes, Acrolein, Acrylic acid, chlorosulfonic acid, dimethyl sulfate, fluorine, gold + aqua regia, hydrochloric acid, hydrofluoric acid, hydrogen peroxide, iodine, nitric acid, oleum, propiolactone, propylene oxide, silver nitrate, silver oxide, silver oxide + ethyl alcohol, nitromethane, silver permanganate, sulfuric acid, halogens. Forms explosive compounds with many heavy metals (silver, lead, zinc) and halide salts.

**Special Remarks on Corrosivity:** Dissolves copper and zinc. Corrosive to aluminum and its alloys. Corrosive to galvanized surfaces. Severe corrosive effect on brass and bronze.

**Polymerization:** Will not occur

## SECTION 11: TOXICOLOGICAL INFORMATION

**Routes of Entry:** Skin. Inhalation. Ingestion. Eyes

**Toxicity to Animals:**

**LD50:** Acute toxicity - Oral - Rat - 350 mg/kg

**LC50:** Not available.

**Chronic Effects on Humans:** MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. [Ammonium hydroxide]. May cause damage to the following organs: mucous membranes, skin, eyes.



**Other Toxic Effects on Humans:** Very hazardous in case of skin contact (corrosive, irritant, permeator), of ingestion, Hazardous in case of eye contact (corrosive), of inhalation (lung corrosive)

**Special Remarks on Toxicity to Animals:** Highly toxic to aquatic organisms

**Special Remarks on Chronic Effects on Humans:** May affect genetic material based on tests with microorganisms and animals

May cause cancer (tumorigenic) based on animal data. No human data found at this time. (Ammonia, anhydrous)

**Special Remarks on other Toxic Effects on Humans:** Acute Potential Health Effects: Skin: Causes severe irritation.

Causes skin burns. May cause deep, penetrating ulcers of the skin. Contact with skin may cause staining, inflammation, and thickening of the skin. Eye: Contact with liquid or vapor causes severe burns and possible irreversible eye damage including corneal injury and cataracts. Inhalation: Causes severe irritation of the upper respiratory tract with coughing, burns, breathing difficulty. May cause acute pulmonary edema, pneumoconiosis, fibrosis, and even coma. It is a respiratory stimulant when inhaled at lower concentrations. It may also affect behavior/ central nervous system (convulsions, seizures, ataxia, tremor), cardiovascular system (increase in blood pressure and pulse rate). Ingestion: Harmful if swallowed. Affects the Gastrointestinal tract (burns, swelling of the lips, mouth, and larynx, throat constriction, nausea, vomiting, convulsions, shock, and may cause severe and permanent damage), liver, and urinary system (kidneys) May affect behavior (convulsions, seizures, ataxia, excitement). Chronic Potential Health Effects: Ingestion: May cause effects similar to those of acute ingestion. Inhalation: Repeated exposure to low concentrations may cause bronchitis with cough, phlegm, and/or shortness of breath. May also cause liver and kidney damage, and affect the brain, and blood. Eye: May cause corneal damage and the development of cataracts and glaucoma. Skin: Repeated skin contact to low concentrations may cause dryness, itching, and redness (dermatitis)

## SECTION 12: ECOLOGICAL INFORMATION

**Ecotoxicity:** Not available

**LC50:** 0.1 ppm 24 hours [Rainbow trout]

8.2mg/l 96 hours [Fathead minnow]

0.1 ppm 48 hours [Bluegill]

**BOD5 and COD:** Not available

**Products of Biodegradation:** Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation:** Not available

## SECTION 13: DISPOSAL CONSIDERATIONS

**Waste Disposal:** Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## SECTION 14: TRANSPORT INFORMATION

**DOT Classification:** Class 8: Corrosive material

**Identification:** Ammonia Solution UNNA: 2672 PG: III

**Special Provisions for Transport:** Not applicable

## SECTION 15: OTHER REGULATORY INFORMATION

**Federal and State Regulations:** TSCA 8(b) inventory: Ammonium hydroxide.

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

**WHMIS (Canada):** CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS E: Corrosive liquid.

**DSCL (EEC):** R34/ R50

**HMIS (U.S.A.):**

**Health Hazard:** 3

**Fire Hazard:** 0

**Reactivity:** 0

**Personal Protection:** H

**National Fire Protection Association (U.S.A.):**

**Health:** 3

**Flammability:** 0

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:** Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses

#### SECTION 16: OTHER INFORMATION

**References: Full text of H AND R-Statements**

H314: Causes severe skin burns and eye damage.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

**Other Special Considerations:** Not available

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