

Dimmitt Sulfur Products, LTD

PO Box 10, Texline, TX 79087
Telephone (806) 362-4261 Fax (806) 362-4906

MATERIAL SAFETY DATA SHEET AMMONIUM HYDROXIDE, 10-30 WT. % SOLUTION (AQUA AMMONIA)

SECTION I****CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****

(Issue Date 08/01/03)

PRODUCT NAME: AMMONIUM HYDROXIDE, SOLUTION
CHEMICAL FORMULA: NH₄OH
CHEMICAL SYNONYMS / COMMON NAMES: AQUA AMMONIA
CHEMICAL FAMILY: Inorganic Salt
MANUFACTURER'S Name and Address: Dimmitt Sulfur Products, LTD
PO Box 10
Texline, TX 79087
Telephone: 1-800-692-1393 or 1-806-362-4261
Emergency Number: 1-806-647-2121
CHEMTREC: 1-800-229-5252

SECTION II****COMPOSITION, INFORMATION ON INGREDIENTS****

CAS#	CHEMICAL NAME	%	Toxicity Data
1336-21-6	Ammonium Hydroxide (NH ₄ OH)	10-30	Information available
7732-18-5	Water	70-90	No information available

LIST LEGEND:

00 TSCA INVENTORY
19 PA REQUIREMENT - 3% or Greater
22 CANADIAN DOMESTIC SUB LIST
23 NJ REQUIREMENT - 1% or Greater
50 PHILIPPINES INVENTORY (PICCS)

SECTION III****HAZARDS IDENTIFICATION****

EMERGENCY OVERVIEW

LIQUID, VAPORS OR MIST MAY BE IRRITATING TO EYES, SKIN AND RESPIRATORY TRACT. STRONG REDUCING AGENT. MAY CAUSE PERMANENT EYE DAMAGE. PALE, CLEAR LIQUID; STRONG AMMONIA ODOR

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: Absorption, Inhalation, and Ingestion.

TARGET ORGANS: Eyes, Skin, Respiratory Tract, Gastrointestinal Tract, & Lungs.

IRRITANCY: Extremely irritating to skin, eyes and mucous membranes. Permanent eye damage or blindness may result from eye contact.

SENSITIZING CAPABILITY: None Known.

REPRODUCTIVE EFFECTS: None Known.

CANCER INFORMATION: None Known.

SHORT TERM EXPOSURE (ACUTE)

INHALATION: Exposure to vapor, mist, or liquid can irritate the respiratory tract. Higher concentrations can cause burns, pulmonary edema and death. Brief exposure to 5000 ppm can be fatal.

EYES: Strongly irritating to eyes. Exposure to vapor can cause tearing, conjunctivitis and burning of the eyes. Splashes cause severe pain, eye damage, and permanent blindness.

SKIN: Contact may cause burns and tissue destruction.

INGESTION: Strongly irritating to mucous membranes. 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.

REPEATED EXPOSURE (CHRONIC): May cause damage to the tissues of the mucous membranes, upper respiratory tract, eyes and skin.

SYNERGISTIC MATERIALS: None Known.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with pre-existing eye disorders or impaired respiratory function may be more susceptible to the effects of this material.

SECTION IV ** FIRST AID MEASURES******

EYES: IMMEDIATELY flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. CALL A PHYSICIAN IMMEDIATELY. Immediate action is critical to minimize possibility of blindness.

SKIN: Wash thoroughly with soap and water for at least 15 minutes, while removing contaminated clothing and shoes. CALL A PHYSICIAN IMMEDIATELY. Wash clothing before reuse.

INHALATION: Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If respiration stops, give mouth - to - mouth resuscitation. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION: If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. GET IMMEDIATE MEDICAL ATTENTION.

SECTION V****FIRE FIGHTING MEASURES****

Flash Point: Non - Flammable
Method: Not Applicable
Auto-Ignition: Temperature of 651°C (1204°F)

FLAMMABLE LIMITS IN AIR, BY % VOLUME:

Upper: UEL of 25
Lower: LEL of 16

EXTINGUISHING MEDIA: Use agents appropriate for surrounding fire. Use water spray to blanket fire, cool fire-exposed containers, and to flush non-ignited spills or vapors away from fire.

FIRE FIGHTING PROCEDURES: Wear full protective clothing and NIOSH / MSHA approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

FIRE AND EXPLOSION HAZARD: This product is non-flammable and non-explosive under normal conditions of use. Flammable vapors may accumulate in confined spaces. At high temperatures this product can decompose to give off toxic fumes.

SENSITIVITY TO MECHANICAL IMPACT: Not sensitive

SENSITIVITY TO STATIC DISCHARGE: Not sensitive

SECTION VI****ACCIDENTAL RELEASE MEASURES****

PERSONAL PRECAUTIONS: Ventilate area of leak or spill. People performing the clean-up should have full protective equipment including NIOSH / MSHA approved positive pressure self-contained breathing apparatus. Follow protective measures provided under Personal Protection in Section VIII.

ENVIRONMENTAL PRECAUTIONS: Contain spill with dike to prevent entry into sewers or waterways. Spills or releases should be reported, if required, to the appropriate local, state and federal agencies

WASTE DISPOSAL: Consult **Dimmitt Sulfur Products, LTD**, for assistance in disposing of excess material.

METHODS OF CLEANING UP: Large spills should be removed by vacuum truck. Smaller spills can be diluted with water and neutralized with soda ash, and then placed in closed containers, labeled and stored in a safe place outdoors to await proper disposal. Spills on areas other than pavement, e.g., dirt or sand, may be handled by removing the affected soils and placing in approved containers.

SECTION VII****HANDLING AND STORAGE****

HANDLING: Do not get in eyes, on skin or clothing. Do not take internally. Wear personal protective equipment as described in Exposure Controls/Personal Protection (Section VIII) of the MSDS. Avoid breathing airborne particulate; wear respiratory protection when exposure is possible.
Use with adequate ventilation.
Keep container tightly closed and properly labeled.
Wash contaminated clothing before reuse.
Wash thoroughly after handling.
Wear goggles or face shield and rubber gloves when handling.

SPECIAL MIXING AND HANDLING INSTRUCTIONS: Not Applicable.

STORAGE: Keep container tightly closed and properly labeled. Store in a cool, dry, ventilated area away from incompatible materials (see Section X). Store below 25°C. Protect from direct sunlight.

SECTION VIII****EXPOSURE CONTROLS / PERSONAL PROTECTION****

ENGINEERING CONTROLS: OSHA Permissible Exposure Limit (PEL): 50 ppm (NH₃)(STEL)
ACGIH Threshold Limit Value (TLV): 25 ppm (NH₃)(TWA) 35ppm (STEL)

PERSONAL PROTECTION

RESPIRATORY: If the exposure limit is exceeded, a full facepiece 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-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

EYE / FACE: Wear chemical safety goggles plus full-face shield to protect against splashing when appropriate (ANSI Z87.1).

SKIN: Wear chemical resistant arm length or gauntlet gloves. Wear protective clothing to minimize skin contact. Neoprene and nitrile rubber are recommended materials. Polyvinyl alcohol is not recommended.

OTHER: Emergency shower and eyewash facility should be in close proximity (ANSI Z358.1).

SECTION IX****PHYSICAL AND CHEMICAL PROPERTIES****

APPEARANCE AND ODOR: Clear, colorless solution with a strong ammonia odor.

ODOR THRESHOLD: Not Available

BOILING POINT: ca. 36°C (ca 97°F)

MELTING POINT: -72°C (-98°F)

VAPOR PRESSURE: 115 @ 20°C (68°F)

SPECIFIC GRAVITY: 0.9 (28% NH₄OH)

% VOLATILE BY VOLUME @ 21°C (70°F): No information found

VAPOR DENSITY (Air=1): 0.60 NH₃

EVAPORATION RATE (BuAc=1): No information found

pH: 11.6 (1.0N)

SOLUBILITY: Infinitely soluble

SECTION X****STABILITY AND REACTIVITY****

CHEMICAL STABILITY: Stable under ordinary conditions of use and storage.

REACTS WITH: Acids, acrolein, dimethyl sulfate, halogens, silver nitrate, propylene oxide, nitromethane, silver oxide, silver permanganate, oleum, beta-propiolactone. Most common metals.

HAZARDOUS POLYMERIZATION: Will not occur

COMMENTS: Avoid heat, sunlight, incompatibles, sources of ignition.

HAZARDOUS DECOMPOSITION PRODUCTS: Burning may produce ammonia, nitrogen oxides.

SECTION XI**TOXICOLOGICAL INFORMATION******

1336-21-6 Ammonium Hydroxide

For Ammonium Hydroxide: Oral ratio LD50: 350 mg/kg; eye, rabbit, standard Draize, 250 ug; severe, investigated as a mutagen.
For Ammonia: Inhalation ratio LC50: 2000 ppm/4-hr; investigated as a tumorigen, mutagen.

SECTION XII**ECOLOGICAL INFORMATION******

1336-21-6 Ammonium Hydroxide

ENVIRONMENTAL FATE: This material is not expected to significantly bioaccumulate.

ENVIRONMENTAL TOXICITY: This material is expected to be very toxic to aquatic life. The LC50/96-hour values for fish are less than 1 mg/l. The EC50/48-hour values for daphnia are less than 1 mg/l.

SECTION XIII**DISPOSAL CONSIDERATIONS******

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

SECTION XIV**TRANSPORT INFORMATION******

DOT ID NUMBER: UN 2672
DOT CLASSIFICATION: Corrosive
DOT SHIPPING NAME: Ammonia Solutions (with 10-30% ammonia)

SECTION XV**REGULATORY INFORMATION******

U.S. FEDERAL REGULATIONS: OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, material safety data sheets, training and access to written records. We request that you and it is your legal duty to make all information in the Material Safety Data Sheet available to your employees.

To aid our customers in complying with regulatory requirements, SARA Title III Hazard Categories for this product are indicated below. If the word "YES" appears next to any category, this product may be reportable by you under the requirements of 40.CFR.370. Please consult those regulations for details.

TSCA: All components of this product that are required to be on the TSCA inventory are listed on the inventory.

SARA / TITLE III HAZARD CATEGORIES:

Immediate (Acute) Health: YES
Delayed (Chronic) Health: YES
Fire Hazard: NO
Reactive Hazard: NO
Sudden Release of Pressure: NO

HMIS HAZARD RATINGS:

Least = 0 Slight = 1 Moderate = 2 High = 3 Extreme = 4

Health Hazard = 3
Fire Hazard = 1

Reactivity = 0

STATE REGULATIONS: See Section II, COMPOSITION / INFORMATION ON INGREDIENTS list legend for applicable state regulations.

INTERNATIONAL REGULATIONS: Consult the regulations of the importing country.

CANADA, WHMIS Hazard Class: Not Classifiable

MSDS LEGEND:

ACGIH = American Conference of Governmental Industrial Hygienists

CAS = Chemical Abstracts Service Registry Number

CEILING = Ceiling Limit (15 minutes)

CEL = Corporate Exposure Limit

OSHA = Occupational Safety Health Administration

PEL = Permissible Exposure Limit (OSHA)

STEL = Short Term Exposure Limit (15 minutes)

TDG = Transportation of Dangerous Goods (Canada)

TLV = Threshold Limit Value

TWA = Time Weighted Average (8 hours)

WHMIS = Worker Hazardous Materials Information System (Canada)

SECTION XVI**WARNING LABEL INFORMATION******

SIGNAL WORDS: CAUTION! DANGER! CORROSIVE!

HAZARD WARNINGS: MAY BE FATAL IF SWALLOWED OR INHALED. MIST AND VAPOR CAUSE BURNS TO EVERY AREA OF CONTACT

PRECAUTIONS: Use with adequate ventilation and wear respiratory protection when exposure to mist or spray is possible.
Avoid breathing vapors or mist.
Wear safety goggles with side shields or chemical splash goggles, protective clothing & chemical resistant gloves.
Avoid contact with eyes, skin and clothing.
Keep container closed.
Do Not Swallow. Wash thoroughly after handling.

FIRST AID:

EYES: IMMEDIATELY flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissue. IMMEDIATE ACTION IS ESSENTIAL FOR EYE EXPOSURES.

SKIN: Wash thoroughly with soap and water. Immediately remove contaminated clothing & shoes, washing clothing before reuse. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.

INHALATION: Remove to fresh air. If breathing is difficult, have trained person administer oxygen. If respiration stops, give mouth - to mouth resuscitation. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION: If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person.

IN CASE OF SPILL OR LEAK:

Contain liquids and prevent discharges to streams or sewer systems.

For large spills, dike and pump into properly labeled containers for reclamation or disposal.

For small spills, soak up with absorbent material and place in properly labeled containers for disposal.

Wear full protective equipment and clothing.

FIRE: Fire will liberate toxic gases.

Use extinguishing medium as appropriate for surrounding fire.

Use NIOSH / MSHA self - contained breathing apparatus and full protective equipment.

HANDLING AND STORAGE: Keep container tightly closed and properly labeled.
Protect from direct sunlight.
Store in a cool, dry, well ventilated area away from incompatible materials (Section X)
Wear personal protective equipment as described in Exposure Controls / Personal Protection (Section VIII) of the MSDS.

DISPOSAL: Material that cannot be reused or chemically reprocessed should be disposed of in a manner meeting government regulations.
Always package, store, transport and dispose of all waste and contaminated equipment in accordance with all applicable Local, State and Federal regulations.

INFORMATION REQUIRED BY LOCAL, STATE AND FEDERAL REGULATIONS:

This product contains:

CAS #	NAME
1336-21-6	AMMONIUM HYDROXIDE
7732-18-5	WATER

HMIS RATING: HEALTH = 3 FLAMMABILITY = 1 REACTIVITY = 0

IMPORTANT: The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge. NO WARRANTY OF MERCHANTABILITY IS MADE REGARDING PERFORMANCE, STABILITY OR OTHERWISE. This information is not intended to be all - inclusive as to the manner and conditions of use, handling and storage. Other factors may involve other or additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended as, and nothing herein shall be construed as a recommendation to infringe any existing patents or violate any local, state or federal laws, rules, regulations or ordinances.

For additional non - emergency health, safety or environmental information, please call (806) 362-4261 or write to:

**Dimmitt Sulfur Products, LTD
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Not for use as a direct food or drug additive, unless labeled "FOOD and/or DRUG" GRADE.