

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

### Product Identifier

**Product Form:** Mixture

**Product Name:** Ammonium Hydroxide, Solution (NH<sub>4</sub>OH)

**Synonyms:** Aqua Ammonia

### Intended Use of the Product

### Name, Address, and Telephone of the Responsible Party

#### Company

Dimmitt Sulfur Products, Ltd.  
100 N. 1<sup>st</sup> Street  
P.O. Box 10  
Texline, TX 79087  
T 806-362-4261

#### Manufacturer

Dimmitt Sulfur Products, Ltd.  
1600 Hwy 194 SE  
P.O. Box 1008  
Dimmitt, TX 79027  
T 806-647-2121

### Emergency Telephone Number

1-800-424-9300 (CHEMTREC)

## SECTION 2: HAZARDS IDENTIFICATION

### Classification of the Substance or Mixture

#### Classification (GHS-US)

Acute Tox. 4 (Oral) H302  
Skin Corr. 1B H314  
Eye Dam. 1 H318  
STOT SE 3 H335  
Aquatic Acute 1 H400

### Label Elements

#### GHS-US Labeling

#### Hazard Pictograms (GHS-US)



#### Signal Word (GHS-US)

: Danger

#### Hazard Statements (GHS-US)

: H302 - Harmful if swallowed  
H314 - Causes severe skin burns and eye damage  
H318 - Causes serious eye damage  
H335 - May cause respiratory irritation  
H400 - Very toxic to aquatic life

#### Precautionary Statements (GHS-US)

: P260 - Do not breathe vapors, mist, spray.  
P264 - Wash hands, forearms, and other exposed areas 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, respiratory protection.  
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 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.

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P310 - Immediately call a POISON CENTER or doctor.  
P312 - Call a POISON CENTER or doctor if you feel unwell.  
P321 - Specific treatment (see section 4).  
P330 - If swallowed, rinse mouth  
P363 - Wash contaminated clothing before reuse  
P391 - Collect spillage  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed  
P405 - Store locked up  
P501 - Dispose of contents/container to local, regional, national, territorial, provincial, and international regulations

### Other Hazards

**Other Hazards Not Contributing to the Classification:** Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. Ammonium hydroxide is very volatile and may release anhydrous ammonia as a gas. Anhydrous ammonia is flammable, toxic by inhalation and corrosive. Take all appropriate precautions.

**Unknown Acute Toxicity (GHS-US)** Not available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### Substances

#### Mixture

Name	Product identifier	% (w/w)	Classification (GHS-US)
Water	(CAS No) 7732-18-5	30 - 55	Not classified
Ammonium hydroxide	(CAS No) 1336-21-6	10 - 30	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 1, H400

Full text of H-phrases: see section 16

## SECTION 4: FIRST AID MEASURES

### Description of First Aid Measures

**General:** Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.

**Inhalation:** When symptoms occur: go into open air and ventilate suspected area. Remove to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

**Skin Contact:** Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.

**Eye Contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

**Ingestion:** Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

### Most Important Symptoms and Effects Both Acute and Delayed

**General:** Harmful if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation. Causes serious eye damage.

**Inhalation:** May cause respiratory irritation. Inhalation may cause immediate severe irritation progressing quickly to chemical burns. May cause drowsiness or dizziness. May release ammonia gas which can be fatal in high enough concentrations.

**Skin Contact:** Causes severe irritation which will progress to chemical burns.

**Eye Contact:** Causes serious eye damage. Causes severe irritation which will progress to chemical burns.

**Ingestion:** Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

**Chronic Symptoms:** Not available

### Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

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### SECTION 5: FIREFIGHTING MEASURES

#### Extinguishing Media

**Suitable Extinguishing Media:** Water spray, fog, carbon dioxide, foam, dry chemical.

**Unsuitable Extinguishing Media:** Do not use a heavy water stream. Use of heavy stream of water may spread fire.

#### Special Hazards Arising From the Substance or Mixture

**Fire Hazard:** Not considered flammable but escaping ammonia gas can burn in the range of 16-25% in air.

**Explosion Hazard:** Can form explosive compounds with many heavy metals (Silver, lead, zinc, etc.) and their salts.

**Reactivity:** Thermal decomposition generates : Corrosive vapors. Toxic Gas. Ammonium hydroxide reacts with many heavy metals and their salts forming explosive compounds. It attacks many metals forming flammable/explosive gas. The solution in water is a strong base, it reacts violently with acids.

#### Advice for Firefighters

**Precautionary Measures Fire:** Exercise caution when fighting any chemical fire.

**Firefighting Instructions:** Use water spray or fog for cooling exposed containers.

**Protection During Firefighting:** Do not enter fire area without proper protective equipment, including respiratory protection.

**Hazardous Combustion Products:** Ammonia. Nitrogen oxides.

**Other information:** Do not allow the product to be released into the environment. Do not allow run-off from fire fighting to enter drains or water courses.

#### Reference to Other Sections

Refer to section 9 for flammability properties.

### SECTION 6: ACCIDENTAL RELEASE MEASURES

#### Personal Precautions, Protective Equipment and Emergency Procedures

**General Measures:** Do not allow product to spread into the environment. Do NOT breathe (vapors, mist, spray). Avoid all contact with skin, eyes, or clothing.

#### For Non-Emergency Personnel

**Protective Equipment:** Use appropriate personal protection equipment (PPE).

**Emergency Procedures:** Evacuate unnecessary personnel.

#### For Emergency Personnel

**Protective Equipment:** Equip cleanup crew with proper protection.

**Emergency Procedures:** Ventilate area.

#### Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

#### Methods and Material for Containment and Cleaning Up

**For Containment:** Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Use only non-sparking tools. As an immediate precautionary measure, isolate spill or leak area in all directions.

**Methods for Cleaning Up:** Clear up spills immediately and dispose of waste safely. Collect spillage. Absorb and/or contain spill with inert material, then place in suitable container. Contact competent authorities after a spill.

#### Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

### SECTION 7: HANDLING AND STORAGE

#### Precautions for Safe Handling

**Additional Hazards When Processed:** Ammonium hydroxide is very volatile and may release anhydrous ammonia as a gas.

Anhydrous ammonia is flammable, toxic by inhalation and corrosive. Take all appropriate precautions. Ammonium hydroxide reacts with many heavy metals and their salts forming explosive compounds. It attacks many metals forming flammable/explosive gas. The solution in water is a strong base, it reacts violently with acids. Use only non-sparking tools. Pressure may build in closed containers and flammable vapors may accumulate, open containers with care. Easily corrodes some metals (i.e. copper, copper alloys, zinc, brass).

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. Always wash your hands immediately after handling this product, and once again before leaving the workplace.

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### Conditions for Safe Storage, Including Any Incompatibilities

**Technical Measures:** Comply with applicable regulations.

**Storage Conditions:** Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from extremely high or low temperatures, heat, direct sunlight, ignition sources, incompatible materials. Store locked up.

**Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers. Heavy metals.

**Specific End Use(s)** Not available

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

No Occupational Exposure Limits (OELs) have been established for this product or its chemical components.

### Exposure Controls

**Appropriate Engineering Controls:** Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Use explosion-proof equipment. Gas detectors should be used when flammable gases/vapours may be released.

**Personal Protective Equipment:** Gloves. Protective clothing. Insufficient ventilation: wear respiratory protection. Protective goggles.



**Materials for Protective Clothing:** Chemically resistant materials and fabrics. Corrosionproof clothing.

**Hand Protection:** Wear chemically resistant protective gloves.

**Eye Protection:** Chemical goggles or face shield.

**Skin and Body Protection:** Wear suitable protective clothing.

**Respiratory Protection:** Use a NIOSH-approved respirator or self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

**Other Information:** When using, do not eat, drink or smoke.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on Basic Physical and Chemical Properties

Physical State	: Liquid
Appearance	: Colorless liquid
Odor	: Not available
Odor Threshold	: Not available
pH	: ~ 11.6
Relative Evaporation Rate (butylacetate=1)	: Not available
Melting Point	: Not available
Freezing Point	: Not available
Boiling Point	: Not available
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20 °C	: Not available
Relative Density	: Not available
Specific Gravity	: Not available
Solubility	: Not available
Log Pow	: Not available

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<b>Log Kow</b>	: Not available
<b>Viscosity, Kinematic</b>	: Not available
<b>Viscosity, Dynamic</b>	: Not available
<b>Explosion Data – Sensitivity to Mechanical Impact</b>	: Not available
<b>Explosion Data – Sensitivity to Static Discharge</b>	: Not available

### SECTION 10: STABILITY AND REACTIVITY

**Reactivity:** Thermal decomposition generates : Corrosive vapors. Toxic Gas. Ammonium hydroxide reacts with many heavy metals and their salts forming explosive compounds. It attacks many metals forming flammable/explosive gas. The solution in water is a strong base, it reacts violently with acids.

**Chemical Stability:** Stable at normal temperatures and pressure, above ambient temperature ammonia gas may be released.

**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.

**Conditions to Avoid:** Direct sunlight. Extremely high or low temperatures. Heat. Ignition sources. Incompatible materials.

**Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers. Halogens. Heavy metals. Bleaching agents. Copper. zinc.

**Hazardous Decomposition Products:** Thermal decomposition generates : Corrosive vapors. Toxic gases. Ammonia. Nitrogen oxides.

### SECTION 11: TOXICOLOGICAL INFORMATION

#### Information on Toxicological Effects - Product

**Acute Toxicity** : Harmful if swallowed.

**LD50 and LC50 Data** Not available

**Skin Corrosion/Irritation:** Causes severe skin burns and eye damage.

**pH:** ~ 11.6

**Serious Eye Damage/Irritation:** Causes serious eye damage.

**pH:** ~ 11.6

**Respiratory or Skin Sensitization:** Not classified

**Germ Cell Mutagenicity:** Not classified

**Teratogenicity:** Not available

**Carcinogenicity:** Not classified

**Specific Target Organ Toxicity (Repeated Exposure):** Not classified

**Reproductive Toxicity:** Not classified

**Specific Target Organ Toxicity (Single Exposure):** May cause respiratory irritation.

**Aspiration Hazard:** Not classified

**Potential Adverse Human Health Effects and Symptoms:** Harmful if swallowed.

**Symptoms/Injuries After Inhalation:** May cause respiratory irritation. Inhalation may cause immediate severe irritation progressing quickly to chemical burns. May cause drowsiness or dizziness. May release ammonia gas which can be fatal in high enough concentrations.

**Symptoms/Injuries After Skin Contact:** Causes severe irritation which will progress to chemical burns.

**Symptoms/Injuries After Eye Contact:** Causes serious eye damage. Causes severe irritation which will progress to chemical burns.

**Symptoms/Injuries After Ingestion:** Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

#### Information on Toxicological Effects - Ingredient(s)

##### **LD50 and LC50 Data**

<b>Water (7732-18-5)</b>	
LD50 Oral Rat	> 90000 mg/kg
ATE (dust, mist)	100000.000 mg/l/4h
<b>Ammonium hydroxide (1336-21-6)</b>	
LD50 Oral Rat	350 mg/kg

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### SECTION 12: ECOLOGICAL INFORMATION

#### Toxicity

**Ecology - General:** Very toxic to aquatic life with long lasting effects.

Ammonium hydroxide (1336-21-6)	
LC50 Fish 1	8.2 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
EC50 Daphnia 1	0.66 mg/l (Exposure time: 48 h - Species: water flea)
EC50 Daphnia 2	0.66 mg/l (Exposure time: 48 h - Species: Daphnia pulex)

#### Persistence and Degradability

Ammonium Hydroxide, Solution (NH <sub>4</sub> OH)	
Persistence and Degradability	May cause long-term adverse effects in the environment.

#### Bioaccumulative Potential

Ammonium Hydroxide, Solution (NH <sub>4</sub> OH)	
Bioaccumulative Potential	Not established.

**Mobility in Soil** Not available

#### Other Adverse Effects

**Other Information:** Avoid release to the environment.

### SECTION 13: DISPOSAL CONSIDERATIONS

**Waste Disposal Recommendations:** Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

**Additional Information:** Flammable vapors may accumulate in the container.

**Ecology – Waste Materials:** This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

### SECTION 14: TRANSPORT INFORMATION

In Accordance With ICAO/IATA/DOT/TDG

#### UN Number

UN-No.(DOT): 2672

DOT NA no.: UN2672

#### UN Proper Shipping Name

DOT Proper Shipping Name

Transport Document Description

Department of Transportation (DOT) Hazard Classes

Hazard Labels (DOT)

- : Ammonia solutions (with 10-30% ammonia)
- : UN2672 Ammonia solutions (with 10-30% ammonia), 8, III
- : 8 - Class 8 - Corrosive material 49 CFR 173.136
- : 8 - Corrosive substances



Packing Group (DOT)

DOT Special Provisions (49 CFR 172.102)

- : III - Minor Danger
- : IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).
- IP8 - Ammonia solutions may be transported in rigid or composite plastic IBCs (31H1, 31H2 and 31HZ1) that have successfully passed, without leakage or permanent deformation, the hydrostatic test specified in 178.814 of this subchapter at a test pressure that is not less than 1.5 times the vapor pressure of the contents at 55 C (131 F).
- T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3)
- TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / (1 + a (tr - tf)) Where:

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tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.

DOT Packaging Exceptions (49 CFR 173.xxx)	: 154
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 203
DOT Packaging Bulk (49 CFR 173.xxx)	: 241

### Additional Information

Emergency Response Guide (ERG) Number	: 154
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### Transport by sea

DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters",52 - Stow "separated from" acids,85 - Under deck stowage must be in mechanically ventilated space

### Air transport

DOT Quantity Limitations Passenger Aircraft/Rail (49 CFR 173.27)	: 5 L
DOT Quantity Limitations Cargo Aircraft Only (49 CFR 175.75)	: 60 L

## SECTION 15: REGULATORY INFORMATION

### US Federal Regulations

#### Ammonium Hydroxide, Solution (NH<sub>4</sub>OH)

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
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#### Water (7732-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### Ammonium hydroxide (1336-21-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

### US State Regulations

#### Ammonium hydroxide (1336-21-6)

U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities  
U.S. - Louisiana - Reportable Quantity List for Pollutants  
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1  
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2  
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity  
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1  
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2  
U.S. - Massachusetts - Right To Know List  
U.S. - Massachusetts - Toxics Use Reduction Act  
U.S. - Michigan - Polluting Materials List  
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances  
U.S. - New Jersey - Right to Know Hazardous Substance List  
U.S. - New Jersey - Special Health Hazards Substances List  
U.S. - New Jersey - TCPA - Extraordinarily Hazardous Substances (EHS)  
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances  
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List  
U.S. - Pennsylvania - RTK (Right to Know) List  
U.S. - Texas - Effects Screening Levels - Long Term  
U.S. - Texas - Effects Screening Levels - Short Term

### Canadian Regulations

#### Ammonium Hydroxide, Solution (NH<sub>4</sub>OH)

WHMIS Classification	Class D Division 2 Subdivision B - Toxic material causing other toxic effects Class E - Corrosive Material
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