

AMMONIA SOLUTION 25% Safety Data Sheet

Date of issue: 01/01/2021

Revision No.:0

Next Revision date: 01/01/2023

1.1 Identification

SECTION 1: Identification

Product Name	: Ammonia Solution 25%
Chemical Name	: Aqueous Ammonia
CAS-No	: 1336-21-6
Synonym Name	: Ammonia water, Aqueous ammonia, Ammonium Hydrate, Ammonium Hydroxide
Chemical Formula	: NH ₄ OH

1.2. Uses

Uses Of the substance / Mixture	: Fertilizer
Uses Advised Against	: Consumer use

1.3. Manufacturer

Manufacturer Name	: National company for sulphur products
	Address: National Company For Sulphur Products, Head Office: P.O Box 2951, Riyadh 11461 Email: ncsp@ncsp.com.sa Tel :011 4647711 Fax: 2170866
	Factory: 3 rd Industrial Area - Dammam

1.4. Emergency telephone number

Emergency number	: Tel: 011 4647711 Fax: 2170866
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SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification (GHS-US)	
Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Inhalation:gas)	H332
Skin Corr. 1A	H314
Eye Dam. 1	H318
STOT SE 3	H335
Aquatic Acute 1	H400
Aquatic Chronic 3	H412
Full text of H-phrases: see section 16	

2.2 Label Element

GHS-US Labeling

Hazard Pictograms (GHS-US) :



Word (GHS-US) Danger
Hazard Statements (GHS-US)

: H302+H332 - Harmful if swallowed or if inhaled.
H314 - Causes severe skin burns and eye damage.
H318 - Causes serious eye damage.
H335 - May cause respiratory irritation.
H400 - Very toxic to aquatic life.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary Statements (GHS-US)

: P260 - Do not breathe mist, spray, vapors, gas.
P261 - Avoid breathing vapors, mist, or spray.
P264 - Wash hands, forearms, and 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 eye protection, protective clothing, protective gloves, face protection.
P301+P330+P331+P310 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor.
P303+P361+P353+P310 - IF ON SKIN (OR HAIR): Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center or doctor.
P304+P340+P310 - IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor.
P305+P351+P338+P310 - IF IN EYES: 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.
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 in accordance with local, regional, provincial, territorial, national, and international regulations.

2.3 Other Hazards

Ammonium hydroxide is very volatile and may release ammonia as a gas. Ammonia vapor, in concentrations of 16-25% volume by weight in air, is flammable, toxic by inhalation and corrosive. Take all appropriate precautions

SECTION 3: Composition/Information on ingredients

3.1. Substances

Mixture:

Name	CAS No	% (w/w)	Classification (GHS-US)
Ammonium hydroxide	336-21-6	100	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400
Contains	CAS No	% (w/w)	Classification (GHS-US)
Water	7732-18-5	73-77	Not Classified
Ammonia	7664-41-7	23-27	Flam. Gas 2, H221 Compressed gas, H280 Acute Tox. 3 (Inhalation:gas), H331 Skin Corr. 1B, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 2, H411

Full text of H-phrases: see section 16



SECTION 4: First-aid measures

4.1. Description of first aid measures

General: Never give anything by mouth to an unconscious person. Seek medical attention immediately. Show label if possible.

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Immediately call a POISON CENTER or doctor/physician.

Skin Contact: Immediately flush skin with plenty of water for at least 60 minutes. Remove/Take off immediately all contaminated clothing. Immediately call a POISON CENTER or doctor/physician. Wash contaminated clothing before reuse.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 60 minutes. Immediately call a POISON CENTER or doctor/physician.

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

4.2 Most important symptoms and effects, both acute and delayed

Harmful if swallowed. Corrosive to eyes, respiratory system and skin. Harmful if inhaled.

Inhalation: Symptoms may include: Sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing. Damage to lungs. Harmful if inhaled.

Skin Contact: Corrosive. Causes burns. Symptoms may include: Redness. Pain. Serious skin burns. Blisters.

Eye Contact: Causes serious eye damage. Symptoms may include: Redness. Pain. Blurred vision. Severe burns. Causes permanent damage to the cornea, iris, or conjunctiva.

Ingestion: Harmful if swallowed. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: None known.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

5.1.1 Suitable extinguishing media : Water spray, fog.

5.1.2 Unsuitable extinguishing media : Do not use a heavy water stream. Use of heavy stream of water may spread fire. On

5.2. Special hazards arising from the substance or mixture:

Fire Hazard: Ammonia vapor concentrations in the range of 16-25% by volume in air can be ignited if heated to the auto-ignition temperature. Oil or other combustible materials increases the fire hazard. Emits toxic fumes under fire conditions.

Explosion Hazard: Forms explosive compounds with calcium hypochlorite, bleaches, gold, mercury, silver, chlorine and other halogens. Contact with strong oxidizers can result in fires and explosions.

Reactivity: Corrosive to copper, brass, silver, zinc and galvanized steel.

5.3. Advice for firefighters:

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

Gas-tight suit. Corrosion-proof suit. Compressed air/oxygen apparatus.

Firefighting Instructions: Stop leak if safe to do so. Use water spray or fog for cooling exposed containers. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Protection During Firefighting: Firefighters must use full bunker gear including NIOSH-approved positive-pressure self-contained breathing apparatus to protect against potential hazardous combustion and decomposition products.

Hazardous Combustion Products: Nitrogen oxides. Ammonia.

Reference to Other Sections

Refer to section 9 for flammability properties

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Keep away from open flames, hot surfaces and sources of ignition. No smoking. Avoid all contact with skin, eyes, or clothing. Do NOT breathe vapor, mist, spray.

6.1.1 Protective equipment for non-emergency personnel

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

Emergency Procedures: Evacuate unnecessary personnel. Eliminate ignition sources.

6.1.2 Protective equipment for emergency responders

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Stop leak if safe to do so. Ventilate area.



6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For Containment: Stop the flow of material, if this is without risk. Ventilate area. Contain any spills with dikes or absorbents

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Never neutralize spill with acid. Absorb and/or contain spill with inert material, then place in suitable container. Use only non-sparking tools. After cleaning, flush traces away with water.

6.4. Reference to other sections

See heading 8, Exposure Controls and Personal Protection. See Section 13, Disposal Considerations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Do NOT enter (storage areas, confined spaces) unless adequately ventilated. Emits ammonia vapors. Flammable gas. Ammonium hydroxide reacts with many heavy metals and their salts forming explosive compounds. It may attack metals forming flammable/explosive gas. The solution in water is a strong base, it reacts violently with acids.

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.

7.2. Conditions for safe storage, including any incompatibilities

Technical Measures: Any proposed use of this product in elevated-temperature processes should be thoroughly evaluated to assure that safe operating conditions are established and maintained. Ensure adequate ventilation. Comply with applicable regulations.

Storage Conditions: Store in a dry, cool and well-ventilated place. Detached outside storage is preferable. Keep in fireproof place. Store away from oxidizers, combustible materials, and all ignition sources. Store in corrosive resistant container with a resistant inner liner. Storage containers should have safety relief valves. Store locked up.

Incompatible Materials: Forms explosive compounds with calcium hypochlorite, bleaches, gold, mercury, silver, chlorine and other halogens. Contact with strong oxidizers can result in fires and explosions. Corrosive to copper, brass, silver, zinc and galvanized steel.

Storage Area: Post readily visible warning signs in the storage area listing emergency measures. Water hoses should be readily available to disperse vapors in case of a spill.

7.3. Specific end Use(s):

Fertilizer

SECTION 8: Exposure controls/Personal Protection

8.1. Control Parameters:

Exposure Limits for Ammonia: Vapor			
OSHA	50 ppm	35 mg / m ³ PEL	8 hour TWA
NIOSH	35 ppm	27 mg / m ³ STEL	15 minutes
	25 ppm	18 mg / m ³ REL	10 hour TWA
	300 ppm	IDLH	
ACGIH	25 ppm	18 mg / m ³ TLV	8 hour TWA
	35 ppm	27 mg / m ³ STEL	15 minutes
Toxicity: LD 50, (Oral / Rat), 350 mg / kg			

8.2. Exposure controls

8.2.1 Appropriate engineering controls

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Gas detectors should be used when toxic gases may be released. Use explosion-proof equipment.

8.2.2 Individual protection measures, such as personal protective equipment

Gloves. Protective goggles. Insufficient ventilation: wear respiratory protection. Protective clothing. Face shield.

Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves

Eye Protection: Chemical safety goggles and face shield.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

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

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical form	: Liquid
Odour	: Irritating/pungent odour
Odour threshold	: 1 - 50 ppm
Colour	: Colourless
PH	: 10.5 – 13.5
Evaporation	: Not Available
Melting point	: - 77 °C (-106 °F) (< 44% NH3)
Boiling point	: 37.4 °C (99.3°F) (25% NH3)
Freezing Point	: -38 °C (-36 °F)
Flash point	: Not applicable
Relative vapour density	: 0.6 (for ammonia vapor over aqua ammonia at 0°C and 760 mm Hg)
Vapour pressure	: 49642.2 Pa at 68°F (20°C)
Decomposition temperature	: Not Available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: 16 % (ammonia vapor)
Upper Flammable Limit	: 25 % (ammonia vapor)
Specific Gravity	: 0.89 - 0.91 @20deg C
Solubility	: Soluble in Water
Partition Coefficient: N-Octanol/Water	: -1.14 at 25° C
Viscosity	: Not available

Explosion Data – Sensitivity to Mechanical Impact: Not expected to present an explosion hazard due to mechanical impact.

Explosion Data – Sensitivity to Static Discharge : Not expected to present an explosion hazard due to static discharge.

9.2. Other Information

Minimum ignition energy	: 680 mJ
Specific conductivity	: 19 µS/m
Critical temperature	: 132 °C
Critical pressure	: 112770 hPa
Surface tension	: Not applicable (gas)
Dissociation constant	: 9.25 ; 25 °C
Absolute density	: 710 kg/m ³

SECTION 10: Stability and reactivity

10.1. Reactivity

Forms explosive compounds with calcium hypochlorite, bleaches, gold, mercury, silver, chlorine and other halogens. Contact with strong oxidizers can result in fires and explosions. Corrosive to copper, brass, silver, zinc and galvanized steel.

10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7.)

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Condition to Avoid

Direct sunlight. Extremely high or low temperatures. Heat. Sources of ignition.

10.5. Incompatible materials

Strong acids. Strong bases. Strong oxidizers. Hypochlorites

10.6. Hazardous decomposition products

Thermal decomposition generates: Carbon oxides (CO, CO₂). Nitrogen oxides. Emits ammonia vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects - Product

Acute Toxicity: Oral: Harmful if swallowed. Inhalation:gas: Harmful if inhaled.

LD50 and LC50 Data: Ammonium hydroxide 1336-21-6

ATE US (oral) 350.00 mg/kg body weight

ATE US (gases) 10,256.41 ppmV/4h

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

pH: 10.5 - 13.5 (0.02-1.7% aqueous ammonia solution)

Serious Eye Damage/Irritation: Causes serious eye damage.

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

Symptoms/Injuries After Inhalation: Symptoms may include: Sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing. Damage to lungs. Harmful if inhaled.

Symptoms/Injuries After Skin Contact: Corrosive. Causes burns. Symptoms may include: Redness. Pain. Serious skin burns. Blisters.

Symptoms/Injuries After Eye Contact: Causes serious eye damage. Symptoms may include: Redness. Pain. Blurred vision. Severe burns. Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: Harmful if swallowed. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: None known.

11.2. Information on toxicological effects – Ingredient

LD50 and LC50 Data: Ammonia (7664-41-7)

LC50 Inhalation Rat 5.1 mg/l (Exposure time: 1 h)

LC50 Inhalation Rat 2000 ppm/4h (Exposure time: 4 h)

Water (7732-18-5)

LD50 Oral Rat > 90000 mg/kg

Ammonium hydroxide (1336-21-6)

LD50 Oral Rat 350 mg/kg

SECTION 12: Ecological information

12.1. Toxicity

Product/ingredient name	Result	Species	Exposure
Ammonia	Acute EC50 29.2 mg/l Marine water Acute LC50 2080 µg/l Fresh water Acute LC50 0.53 ppm Fresh water Acute LC50 300 µg/l Fresh water Chronic NOEC 0.204 mg/l Marine water	Algae - Ulva fasciata – Zoea Crustaceans - Gammarus pulex Daphnia - Daphnia magna Fish - Hypophthalmichthys nobilis Fish - Dicentrarchus labrax	96 hours 48 hours 48 hours 96 hours 62 days
Ammonium hydroxide (1336-21-6)	LC50 Fish 1 EC50 Daphnia 1 EC50 Daphnia 2	8.2 mg/l (Exposure time: 96 h - Species: Pimephales promelas) 0.66 mg/l (Exposure time: 48 h - Species: water flea) 0.66 mg/l (Exposure time: 48 h - Species: Daphnia pulex)	96 hours 48 hours 48 hours

12.2 Persistence and degradability:

Ammonium Hydroxide : Biodegradation of ammonia occurs in water under aerobic conditions.

12.3 Bioaccumulative potential:

Ammonium Hydroxide

Log Pow -1.14
Bioaccumulative Potential Not established.

Ammonia

Log Pow -1.14 (at 25 °C)

12.4 Mobility in soil:

Not Available

12.5 Results of PBT and vPvB assessment:

The criteria of PBT and vPvB as listed in Annex XIII of Regulation (EC) No 1907/2006 do not apply to inorganic substances.

12.5. Other Adverse Effects Other Information: Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Sewage Disposal Recommendations: Do not empty into drains; dispose of this material and its container in a safe way

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

Additional Information: Prevent runoff from entering drains, sewers or waterways

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

SECTION 14: Transport Information

Proper Shipping Name AMMONIA SOLUTIONS 25%
Hazard Class 8
Identification Number UN2672
Label Codes 8
Packing Group III
ERG Number 154
Additional Information Marine Pollutant



SECTION 15: Regulatory information

Ammonium hydroxide (1336-21-6)

SARA Section 311/312 Hazard Classes : Immediate (acute) health hazard

Ammonia (7664-41-7)

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

Listed on the United States SARA Section 302

Listed on United States SARA Section 313

SARA Section 302 Threshold Planning Quantity (TPQ) 500

SARA Section 311/312 Hazard Classes Fire hazard Immediate (acute) health hazard , Sudden release of pressure hazard

SARA Section 313 - Emission Reporting

1.0 % (includes anhydrous Ammonia and aqueous Ammonia from water dissociable Ammonium salts and other sources, 10% of total aqueous Ammonia is reportable under this listing)

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

SECTION 16: Other information

Preparation Date : 01/01/2021

Revision Date : 01/01/2023

Prepared by : National Company For Sulphur products

GHS Full Text Phrases:

Acute Tox. 3 (Inhalation:gas)

Acute toxicity (inhalation:gas) Category 3

Acute Tox. 4 (Inhalation:gas)

Acute toxicity (inhalation:gas) Category 4

Acute Tox. 4 (Oral)

Acute toxicity (oral) Category 4

Aquatic Acute 1

Hazardous to the aquatic environment - Acute Hazard Category 1

Classified according to the UN-GHS as adopted in the US Hazard Communication Standard (HCS 2012), the Canada Hazardous Products Regulations (WHMIS 2015) and Mexico NOM-018-STPS-2000
10 June 2016 EN (English US) 12/12

Aquatic Chronic 2

Hazardous to the aquatic environment - Chronic Hazard Category 2

Aquatic Chronic 3

Hazardous to the aquatic environment - Chronic Hazard Category 3

Compressed gas

Gases under pressure compressed gas

Eye Dam. 1

Serious eye damage/eye irritation Category 1

Flam. Gas 2

Flammable gases Category 2

Skin Corr. 1A

Skin corrosion/irritation Category 1A

Skin Corr. 1B

Skin corrosion/irritation Category 1B

STOT SE 3

Specific target organ toxicity (single exposure) Category 3

H221

Flammable gas

H280

Contains gas under pressure; may explode if heated

H302

Harmful if swallowed

H314

Causes severe skin burns and eye damage

H318

Causes serious eye damage

H331

Toxic if inhaled

H332

Harmful if inhaled

H335

May cause respiratory irritation

H400

Very toxic to aquatic life

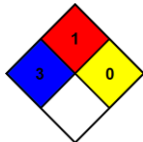
H411

Toxic to aquatic life with long lasting effects

H412

Harmful to aquatic life with long lasting effects

NFPA Rating



Health Hazard

: 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

Fire Hazard

: 1 - Must be moderately heated or exposed to relatively high temperature before ignition can occur.

Reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health	: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability	: 1 Slight Hazard
Physical	: 0 Minimal Hazards

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.