MATERIAL SAFETY DATA SHEET

AMMONIA SOLUTION 25%

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

1.1 Product Identifiers

Product Name: Ammonia solution 25%

1.2 Identified Uses: Reagent for analysis

1.3 Details of the Supplier of the Safety Data Sheet

Cosmo Chemistry India Pvt. Ltd., Office No. 713, 7th Floor, Millennium Business Hub, Sarthana Jakatnaka, Varachha Main Road, Surat, Gujarat, India - 395006. Email: info@cosmochemistryindia.com

1.4 Emergency Phone: +91 7984584838

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture (acc. to Regulation (EC) No. 1272/2008)

Skin corrosion (Sub-category 1B), H314

Serious eye damage (Category 1), H318

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

Short-term (acute) aquatic hazard (Category 1), H400

Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-statements mentioned in this section, see Section 16.

2.2 Label Elements

Signal Word: Danger

Hazard Statement(s):

H314 - Causes severe skin burns and eye damage.

H335 - May cause respiratory irritation.

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

Precautionary Statement(s):

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.

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/hearing protection.

P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard Statements: None.

Reduced Labeling (≤125 ml):

Signal Word: Danger

Hazard Statement(s): H314 - Causes severe skin burns and eye damage.

Precautionary Statement(s): P280, P303+P361+P353, P305+P351+P338 (as above).

2.3 Other Hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB), at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Component	Identifiers	Classification	Concentration
Ammonia solution	CAS-No.: 1336-21-6 EC-No.: 215-647-6 Index-No.: 007-001-01-2 Registration No.: 01-2119488876-14-XXXX	Skin Corr. 1B; Eye Dam. 1; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 2; H314, H318, H335, H400, H411. Concentration limits: ≥5%: STOT SE 3, H335. M-Factor - Aquatic Acute: 10	≥25 - <30%

For the full text of the H-statements mentioned in this section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 Description of First-Aid Measures

General Advice: First aider needs to protect himself.

If Inhaled: Fresh air. Call in a physician.

In Case of Skin Contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

In Case of Eye Contact: Rinse out with plenty of water. Immediately call in an ophthalmologist. Remove contact lenses.

If Swallowed: Make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed: The most important known symptoms and effects are described in the labelling (see Section 2.2) and/or in Section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed: No data available.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing Media

Suitable Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media: For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special Hazards Arising from the Substance or Mixture

Not combustible. Ammonia solution itself is not flammable, but can form an ignitable ammonia/air mixture by outgassing. Ambient fire may liberate hazardous vapours. Fire may cause evolution of nitrogen oxides.

5.3 Advice for Firefighters: Keep a safe distance or wear suitable protective clothing.

5.4 Further Information: Cool closed containers exposed to fire with water spray. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection, see Section 8.

6.2 Environmental Precautions: Do not empty into drains.

6.3 Methods and Materials for Containment and Cleaning Up: Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see Sections 7 and 10). Take up with liquid-absorbent and neutralising material. Dispose of properly. Clean up affected area.

6.4 Reference to Other Sections: For disposal, see Section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Advice on Safe Handling: Observe label precautions.

Hygiene Measures: Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with the substance. For precautions, see Section 2.2.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: No metal or lightweight-metal containers. Tightly closed. Store at +15°C to +25°C.

7.3 Specific End Use(s): Apart from the uses mentioned in Section 1.2, no other specific uses are stipulated.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters: Ingredients with workplace control parameters.

8.2 Exposure Controls - Personal Protective Equipment

Eye/Face Protection: Tightly fitting safety goggles.

Skin Protection: Full contact - Material: butyl-rubber, minimum layer thickness 0.7 mm, breakthrough time 480 min, tested with Butoject® (KCL 898). Splash contact - Material: nitrile rubber, minimum layer thickness 0.40 mm, breakthrough time 240 min, tested with Camatril® (KCL 730/Aldrich Z677442, Size M). These recommendations apply only to the product stated in this safety data sheet, supplied by Cosmo Chemistry India, for the designated use. For deviating conditions, contact the supplier of CE-approved gloves.

Body Protection: Protective clothing.

Respiratory Protection: Recommended filter type: Filter type K. Maintenance, cleaning and testing of respiratory protective devices must be carried out according to the manufacturer's instructions and properly documented.

Control of Environmental Exposure: Do not empty into drains.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Parameter	Value
Appearance	Liquid, colourless
Odour	Stinging
Odour Threshold	0.02-70.7 ppm (ammonia)
pH	Strongly alkaline (at 20°C)
Melting Point/Freezing Point	-57.5°C
Initial Boiling Point and Range	37.7°C at 1013 hPa
Flash Point	No data available
Evaporation Rate	No data available
Flammability (Solid, Gas)	No data available
Upper Explosion Limit	33.6% (V)
Lower Explosion Limit	15.4% (V)
Vapour Pressure	483 hPa at 20°C
Vapour Density	No data available
Relative Density	0.903 g/cm3 at 20°C
Water Solubility	Soluble at 20°C
Partition Coefficient (n-octanol/water)	No data available
Auto-Ignition Temperature	No data available
Decomposition Temperature	No data available

Viscosity, Kinematic	No data available
Viscosity, Dynamic	No data available
Explosive Properties	No data available
Oxidizing Properties	No data available

9.2 Other Safety Information: No data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: No data available.

10.2 Chemical Stability: Ammonia solution itself is not flammable, but can form an ignitable ammonia/air mixture by outgassing.

10.3 Possibility of Hazardous Reactions: A risk of explosion and/or toxic gas formation exists with: oxidizing agents, mercury, oxygen, silver compounds, nitrogen trichloride, hydrogen peroxide, silver, antimony hydride, halogens, acids, calcium, chlorine, chlorites, auric salts, perchlorates, sodium hypochlorite, mercury compounds, halogen oxides, heavy metals, heavy metal salts, acid chlorides and acid anhydrides. Risk of ignition or formation of inflammable gases or vapours with: boranes, boron, oxides of phosphorus, nitric acid, silicon compounds, chromium(VI) oxide and chromyl chloride. Exothermic reaction with: acetaldehyde, acrolein, barium, boron compounds, bromine, halogen-halogen compounds, hydrogen bromide, silane, hydrogen chloride gas, halogen compounds, dimethylsulfate, nitrogen oxides, fluorine, hydrogen fluoride, chlorates, carbon dioxide, and polymerisable ethylene oxide.

10.4 Conditions to Avoid: Heating.

10.5 Incompatible Materials: Aluminum, lead, nickel, silver, zinc, copper, metal alloys, various metals.

10.6 Hazardous Decomposition Products: In the event of fire: see Section 5.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects - Mixture

Acute Toxicity: No data available. Symptoms: mucosal irritations, cough, shortness of breath, bronchitis. Possible damages: damage to respiratory tract.

Skin Corrosion/Irritation: Skin - Rabbit. Result: severe irritations (29% solution). Dermatitis, necrosis.

Serious Eye Damage/Eye Irritation: Eyes - Rabbit. Result: severe irritations (29% solution). Mixture causes serious eye damage. Risk of blindness.

Respiratory or Skin Sensitization: Data not available.

Germ Cell Mutagenicity: No data available.

Carcinogenicity: No ingredient of this product present at levels ≥0.1% is identified as a probable, possible or confirmed human carcinogen by IARC.

Reproductive Toxicity: No data available.

STOT - Single Exposure: Mixture may cause respiratory irritation (respiratory system). Acute inhalation toxicity: mucosal irritations, cough, shortness of breath, bronchitis, damage to respiratory tract.

STOT - Repeated Exposure: No data available.

Aspiration Hazard: No data available.

11.2 Additional Information

Cough, shortness of breath, bronchitis, gastric pain, bloody vomiting, nausea, collapse, shock, unconsciousness. Other dangerous properties cannot be excluded. Handle in accordance with good industrial hygiene and safety practice.

Component: Ammonia Solution

Acute Toxicity: No data available. Inhalation: material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin Corrosion/Irritation: Causes skin burns.

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

STOT - Single Exposure: May cause respiratory irritation.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity: No data available.

12.2 Persistence and Degradability: No data available.

12.3 Bioaccumulative Potential: No data available.

12.4 Mobility in Soil: No data available.

12.5 Results of PBT and vPvB Assessment: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB), at levels of 0.1% or higher.

12.6 Other Adverse Effects: Harmful effect due to pH shift. Forms toxic and corrosive mixtures with water even if diluted. Discharge into the environment must be avoided.

Component: Ammonia Solution

Toxicity to Fish: Flow-through test LC50 - Pimephales promelas (fathead minnow) - 0.068 mg/l - 96h (in analogy to ammonium sulphate).

Static test LC50 - Daphnia magna (water flea) - 101 mg/l - 48h (anhydrous).

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods: For processes regarding the return of chemicals and containers, or further questions, contact Cosmo Chemistry India Pvt. Ltd.

SECTION 14: TRANSPORT INFORMATION

Parameter	ADR/RID	IMDG	IATA

UN Number	2672	2672	2672
UN Proper Shipping Name	Ammonia solution	Ammonia solution	Ammonia solution
Transport Hazard Class(es)	8	8	8
Packaging Group	III	III	III
Environmental Hazards	Yes	Marine pollutant: Yes	No

14.6 Special Precautions for User: No data available.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, Health and Environmental Regulations/Legislation: This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006 (REACH), including restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII).

National Legislation: Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances - E1 (Environmental Hazards).

15.2 Chemical Safety Assessment: For this product, a chemical safety assessment was not carried out.

SECTION 16: OTHER INFORMATION

Full Text of H-Statements Referred to Under Sections 2 and 3:

H314 - Causes severe skin burns and eye damage.

H318 - Causes serious eye damage.

H335 - May cause respiratory irritation.

H400 - Very toxic to aquatic life.

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

H411 - Toxic to aquatic life with long lasting effects.

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