MATERIAL SAFETY DATA SHEET – ANHYDROUS AMMONIA

SECTION – 1 :- IDENTIFICATION OF MATERIAL

Name:- **Anhydrous Ammonia**.
Other Names:- **Liquid Ammonia, NH3, Liquefied Ammonia, Ammonia Gas & Ammonia.**

SECTION – 2 :- HAZARD IDENTIFICATION

Compressed Gas - Liquefied Gas - Contains Gas under pressure, may explode if heated. **Skin Corrosion** -: Causes severe skin burns and eye damage - (Sub Cataegory-1B). **Acute toxicity**: -Toxic if inhaled - (Cataegory-04). **Toxic if Inhaled**- May Cause respirational irritation**. Very toxic to aquatic life** - Toxic aquatic line with long lasting effect (Catgory-1) **Safety Phrases** – Keep locked out of reach of children. Keep container in a well-ventilated place. No Smoking. In case of contact with eyes, rinse immediately with plenty of water & seek medical advice. If you feel unwell, seek medical advice immediately (show label wherever possible).

SECTION – 3 :- COMPOSITION / INFORMATION OF INGREDIENTS

Name	Product Identifier	% (w/w)
Ammonia	(CAS No.) 7664-41-7	> 99.5 %
Traces of water	(CAS No.)7732-18-5	< 0.5 %

SECTION – 4 :- FIRST AID MEASURES

G**eneral**: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice. If frostbite or freezing occurs, immediately flush with plenty of lukewarm water to GENTLY warm the affected area. Do not use hot water. Do not rub affected area. Get immediate medical attention. **Inhalation**: When symptoms occur: go into open air and ventilate suspected area. Immediately call a Doctor/Physician. **Skin Contact**: Immediately flush skin with plenty of water for at least 10 minutes. Remove contaminated clothing. Immediately call a doctor or doctor/physician. Wash contaminated clothing before reuse. **Eye Contact**: Rinse cautiously with water for at least 10 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. **Ingestion**: Rinse mouth. Do NOT induce vomiting.

SECTION – 5 :- DESCRIPTION OF FIRE FIGHTING MEASURES

Firefighting Instructions: **Ammonia** Concentration in between 16% to 25 % by volume in air, can be ignited if heated to auto ignition temperature. **Suitable**: -Water Spray, Fog. **Unsuitable**: -Do Not Spray Heavy Water Spray. **Explosion**: -Forms Explosive compounds with calcium Hypochlorite and Mercury. **Use fire hose with fog nozzle Use SCBA while extinguishing fire**. Stop leak if safe to do so. For a serious leak, use fire hose with fog nozzle and plenty of water to absorb ammonia vapours. Isolate immediate hazard area. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area. Cool down the Equipment exposed to fire with water. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. **Protection during Firefighting**: Do not enter fire area without proper protective equipment, including respiratory protection. Firefighters must use full bunker gear including NIOSH-approved positive-pressure self-contained breathing.

SECTION – 6: - ACCIDENTAL RELEASE MEASURES

GENERAL: Only properly trained and equipped persons should respond to an ammonium hydroxide release. Wear eye, hand and respiratory protection and protective clothing; see Section 8, Exposure Controls / Personal Protection Stop source of leak, if possible, provided it can be done in a safe manner. Leave the area of a spill by moving laterally and upwind. Isolate the affected area. Non-responders should evacuate the area, or shelter in place.

SPECIFIC STEPS TO BE TAKEN: For a hazardous material release response, Level A and/or Level B ensemble including positive-pressure SCBA should be used. A Positive pressure SCBA is required for entry into ammonia atmospheres at or above 30 ppm (IDLH). Stay upwind and use water spray downwind. Contain spill and runoff from entering drains, sewers, streams, lakes and water systems by utilizing methods such as diking, containment, and absorption.

SECTION – 7:- HANDLING & STORAGE

Advice on safe handling: Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols. **Advice on protection against fire and explosion**: Keep away from open flames, hot surfaces and sources of ignition. **Hygiene measures**: Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. **Storage conditions**: Keep cylinder/Tonner in well-ventilated and cool area. Cylinder should be tightly closed. Keep locked up or in an area accessible only to qualified or authorized persons. Keep away from combustible materials and sources of ignition.

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SECTION – 8:- EXPOSURE CONTROL / PERSONAL PROTECTION

Appropriate Engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use/handling. Provide exhaust ventilation or other engineering controls. Use under a fume hood. Respiratory protection: Use suitable respiratory protective device when high concentrations are present. Use suitable respiratory protective device when aerosol or mist is formed. For spills, respiratory protection may be advisable. Protection of skin: The glove material has to be impermeable and resistant to the product/the substance/ the preparation being used/handled. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation. Eye protection: Safety glasses with side shields or goggles.

SECTION – 9 :- PHYSICAL AND CHEMICAL PROPERTIES

Physical State, color:	Clear, Colorless Liquid.	**Explosion Limit Range**	Not Determined
Odor:	Ammonia-like	**Vapor pressure:**	857.3 kPa
Odor threshold:	Not Determined	**Vapor density:**	0.60 (air = 1)
pH-value:	10 to 12	**Density:**	0.86 kg/ m3
Melting/Freezing point:	- 77 C	**Solubilities:**	Infinite solubility in water.
Boiling Range:	-33 C	**Partition coefficient (octanol/water):**	Not Determined
Flash point (closed cup):	Not Determined	**Auto Ignition temp:**	651 Degree Celsius
Evaporation rate:	Not Determined	**Decomposition temp:**	Not Determined

SECTION – 10 :- STABILITY & REACTIVITY

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. **Chemical Stability**: Flammable gas. Contains gas under pressure; may explode if heated. Can form explosive mixture with air. **Possibility of Hazardous Reactions**: Hazardous polymerization will not occur. **Conditions to Avoid**: Extremely high or low temperatures. Open flame. Overheating. Heat. Sparks. **Incompatible Materials**: Strong acids. Strong bases. Strong oxidizers. Hypo chlorites. **Hazardous Decomposition** Products: Nitrogen oxides.

SECTION – 11 :- TOXICOLOGICAL INFORMATION

Potential health effects: Ammonia is an irritant and corrosive to the skin, eyes, respiratory tract and mucous membranes. Exposure to liquid or rapidly expanding gases may cause severe chemical burns and frostbite to the eyes, lungs and skin. of the liquid, gas or vapor and the depth of inhalation**. Exposure Routes: Inhalation, Skin, Eyes, Mouth**. Kindly read section number Four. **LD Oral Rat –300 mg/KG LC 50 Inhalation Rat -5.1 mg/lit. Exposure time 1 hour**.

SECTION – 12 :- ECOLOGICAL INFORMATION

Ecology - General: Toxic to aquatic life with long lasting effects. Very toxic to aquatic life - **LC50 Fish 1**- 0.44 mg/l (Exposure time: 96 h - Species: Cyprinus Carpio) - **EC50 Daphnia 1** - 25.4 mg/l (Exposure time: 48 h - Species: Daphnia Magna) Product/Containers must not be disposed together with household garbage. Do not allow product to reach sewage system or open water. It is the responsibility of the waste handler to properly characterize all waste materials.

SECTION – 13 :- DISPOSAL CONSIDERATION

Waste disposal recommendations: Product/Containers must not be disposed together with household garbage. Do not allow product to reach sewage system or open water. It is the responsibility of the waste handler to properly characterize all waste materials. According to applicable regulatory entities. Consult State/Local regulations regarding the proper disposal of waste material.

SECTION – 14 :- TRANSPORTATION INFORMATION

Transport hazard class (es):- Class – **2.3 (UN-1005)** Corrosive substances & Packing group: III - Environmental hazard: Transport in bulk.

SECTION – 15 :- REGULATORY INFORMATION

1. Static and Mobile Pressure Vessels (Unfired) Rules 2016. **2.** The Gas Cylinder Rule - 2016

SECTION – 16 :- OTHER INFORMATION –

First sheet of Material Safety Data Sheet had been prepared by the company on **01.01.2012**
Revision -1 of the Material Safety Data Sheet has been prepared on the Date **30.07.2025**
For Any query, please contact the address given in **Footer**.

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