

MATERIAL SAFETY DATA SHEET

AMONIAC SOLUTION

VIETCHEM[®]

You need, We meet

CAS: 7664-41-7

UN: 1005

EC: 215-647-6

PART I - CHEMICAL IDENTIFICATION

- **Common name of the substance:** Ammonia solution

- **Tradenames:** Ammonia water

- **Othername:** Ammonia water, aqueous ammonia, Ammonia Aqua.

Supplier name, address:

Company name: KIM NGUAN CHEMICALS AND EQUIPMENT IMPORT-EXPORT JSC

Transaction Office 1: No. 85 Duc Giang, Long Bien District, Hanoi.

Representative Office 2: Số 215 Nguyen Khoai, Hai Ba Trung District, Hanoi.

Phone number: + 84.4.39842258

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Email address: sales@vietchem.com.vn

Website: www.vietchem.com.vn and www.hoachat.com.vn

Emergency contacts:

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- **Manufacturer name and address:**

- **Purpose of use:** Used as a solvent only used in industrial production processes.

PART II - INFORMATION ABOUT CHEMICAL COMPOSITION

Name of hazardous ingredients	CAS	Chemical formula	Content (% by weight)
Ammonium hydroxide	7664-41-7	NH ₄ OH	<i>Not required to record correctly, see note</i>

PART III - IDENTIFICATION OF HAZARDOUS CHARACTERISTICS

1. Dangerous rating level

- Acute toxicity - respiratory tract.
- Toxic to reproduction.
- Toxicity to special organs of the body (repeated exposure)

Components marked according to the global homogeneous system (GHS)



Signal words: Dangerous

2. Warning

Physical hazards

Health hazards

- Depending on the severity of the poisoning and prompt treatment, the victim may recover completely or be permanently blind, vision disorders and / or nervous system concussions.
- Skin contact, moderate skin irritation, can penetrate the skin and cause dangerous lesions (lesions similar to those in the respiratory tract).
- Swallowing even a small amount of substance can cause blindness
- Repeated exposure through inhalation or absorption may cause poisoning, brain disorders, vision damage and blindness. Breathing in air can worsen health conditions such as emphysema and bronchitis.

Prevent

- Do not store in high temperature / near open flame / near spark / on hot surfaces.
- No smoking.
- Keep container tightly closed.
- Grounding the containers and receiving equipment.
- Use only electrical appliances / ventilation equipment / lighting devices that do not spark.
- Only use non-sparking tools.
- Apply measures to prevent electrostatic discharge.
- Avoid getting into the environment with dust or chemical vapor.
- Wash your hands thoroughly after use, handling and handling chemicals.
- Use only outdoors or ventilated place.
- Use gloves, clothing, glasses, veil that is suitable for handling chemicals.

Storage

- Store in cool and airy environment.
- Close the container tightly.

- Lock the warehouse carefully

Disposal

- Waste products and containers must be stored in an appropriate place or recovered / recycled in accordance with local / national regulations.

Aggravated health condition

- The underlying pathology of the following organ (system) organs may be aggravated by exposure to this material: emphysema and bronchitis.

3. Exposure routes and symptoms

Eye lines

- *Causes mild to moderate irritation. High vapor concentrations or liquid contact with eyes will cause irritation, tearing, and burning. Concentrations in the air exceeding 1000 ppm may irritate the mucosa*

Respiratory

- *Inhaling high concentrations of gas can irritate the mucosa, causing headaches, drowsiness, nausea, confusion, unconsciousness, digestive and visual disorders, even leading to death.*

Skin

- *Signs of dermatitis and symptoms may include a burning sensation and / or dry / cracked skin.*

Gastrointestinal

- *Causes abdominal pain, vomiting and visual disturbances ranging from blurred vision to mild allergy.*

PART IV - FIRST AID MEASURES ON HEALTH

1. In case of accidental eye contact (splashed, wires in the eyes)

- Caution wash eyes immediately with clean water. Remove contact lenses, if present and easy to do. Then continue to wash your eyes with clean water for at least 15 minutes while keeping your eyelids open. Move victim to the nearest medical facility for follow-up care.

2. In case of accidental contact on skin (stringed into skin)

- Immediately remove any clothes contaminated with the product. Soak your skin in clean water for at least 15 minutes, then wash with soap if possible. If the skin becomes red, swollen, sore and / or blistered, take the patient to the nearest medical facility for further treatment.

3. In case of accident of inhalation exposure (breathing)

- Immediately remove victim to fresh air. If the patient does not recover quickly, transfer victim to the nearest medical facility for further treatment. Hold victim's chest in a position comfortable for breathing.

4. In case of accident from gastrointestinal tract (ingestion, ingestion or ingestion)

- Ingestion may be dangerous to life. Clear symptoms may not appear for 18 to 24 hours after swallowing. If unconscious and no immediate medical attention, do not induce vomiting. In cases of suspected ingestion, seek medical attention immediately.

PART V - HANDLING MEASURES WHEN THE FIRE IS CAUSED

1. Flammability class: The product is not flammable

2. Specific hazards arising from chemicals: Smoke generated by fire cannot be seen with the naked eye. gases can accumulate in enclosed spaces causing poisoning and fire risk. Closed containers may crack and release large quantities when burning or at high temperatures for a long period of time. Vapors are heavier than air, spreading on the ground to sources of ignition.

3. Product created when burnt: not available

4. Factors causing fire or explosion: None

5. Appropriate fire extinguishing agents and instructions for fire-fighting measures and other combined measures

- Fireproofing foam, water spray or mist. Use only dry chemical powders, carbon dioxide, sand or earth for small fires. Do not use pressurized water jet to put out the fire. Evacuate unauthorized people from the area where the fire is located.

6. Equipment and protective equipment necessary for fire fighting

- Wear full protective clothing and self contained breathing apparatus. When fighting in enclosed spaces, appropriate protective equipment, including respirators, must be used.

7. Special notes about fire and explosion

- All storage areas must be equipped with appropriate fire protection equipment. Cool nearby containers by spraying with water.

SECTION VI - PREVENTIVE MEASURES AND RESPONSE WHEN AN ACCIDENT

Comply with all relevant local and international regulations. Avoid contact with spilled or leaked material. Immediately dispose of contaminated equipment. Isolate dangerous areas and do not allow unauthorized or unprotected people to enter them. Stand at the top of the wind and avoid low areas. Prevent leakage if possible and do not cause danger. Remove all sources of ignition in the surrounding area. Use absorbent materials (product absorption or fire extinguishing level) to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, soil or other suitable barriers. Try to disperse the vapor or direct its flow to a safe location, for example using mist. Use recommended methods against static charge. Ensure continuity of current by covering and grounding all devices. Monitor the area with flammable gas alarm. Notify the local authorities if it is impossible to control the spillage of the product. Vapors may form an explosive mixture with air.

1. When spilled, leakage is small

- For small quantities of chemicals spilled, transported by mechanical means to a labeled, sealed container for product recall or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Take contaminated soil and safely remove it.

2. When spilled, large leakage in a large area

- For large chemical spills, transport by mechanical means such as tank trucks to tanks for safe recovery or disposal. Do not wash residue with water. Retain pollutant waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Collect contaminated soil and safely remove it.

PART VII - REQUIREMENTS FOR STORAGE

Avoid inhalation or contact with this material. Use only in well ventilated areas. Rinse thoroughly after handling. For guidance on the selection of personal protective equipment, see Section VIII of this Chemical Safety Data Sheet. Use the information in this data sheet as a risk assessment in specific circumstances to determine appropriate controls for safe storage, storage and disposal of this product.

1. Measures and conditions to be applied when using and handling dangerous chemicals

- Avoid breathing gas and / or mist. Avoid contact with skin, eyes and clothing. Extinguish all open flames. No smoking. Eliminate ignition sources. Avoid sparks. Electrostatic accumulation may arise during pumping. Electrostatic discharge may cause fire. Ensure continuity of current by connecting and grounding all devices. Limit the speed of the route during the pump to avoid generating discharge ($\leq 10\text{m} / \text{s}$). Avoid splashing when pumping (pumping). Do not use compressed air for (pumping), suction, or handling operations. Keep the pump device's temperature at ambient temperature.

2. Measures and conditions to apply when storing

- Exhaust gas during storage must be controlled by an appropriate exhaust gas treatment system. Must be stored in a well-ventilated area, ignition sources and other heat sources. Keep container tightly closed when not in use. Do not use compressed air to refill, disassemble or dispose. Keep the temperature of the chemical container at ambient temperature.

3. Advice on containers

- Anhydrous does not corrode most metals at room temperature except for lead, nickel, cast iron, and high silicon iron. The outer coating of copper, zinc or aluminum is not suitable for containing this material. Containers, even those that have been emptied, can contain explosive gases. Do not cut, drill, sharpen, weld, or perform similar operations near containers.

PART VIII- IMPACT ON PEOPLE AND REQUIREMENTS FOR PERSONAL PROTECTIVE EQUIPMENT

1. Occupational Exposure Limits

Additional information - Wash your hands before eating, drinking, smoking and using the toilet.

2. Required contact restrictions

- The level of protection and methods of control needed will vary according to potential exposure conditions. Select control methods based on risk assessment of local circumstances. Appropriate measures include: Creating adequate ventilation in storage areas. Use fully fitted systems as possible. Explosion-proof ventilation is suitable for controlling condensation in the air below exposure guidelines / limits. Ventilation is recommended for local exhaust.

3. Personal protective equipment at work: Personal protective equipment (PPE) must meet national standards.

- **Eye protection:** Chemical splash protection goggles (single goggles).
- **Body protection:** Use protective clothing that is chemical resistant to this material.
- **Hand protection:** Suitability and durability of a glove depends on usage, such as frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity . Always consult glove suppliers. Replace contaminated gloves. When handling the product by hand, use gloves that meet the relevant standards (such as Europe: EN374, USA: F739) made from the following materials that may provide appropriate chemical protection: High nitrile and PVC viton. Personal hygiene is a key element of effective hand protection. Only when clean hands are gloves worn.
- **Foot protection:** Safety shoes and boots also need to be chemical resistant.
- **Respiratory protection:** If technical controls do not maintain airborne concentrations to an adequate level to protect worker health, select protective equipment appropriate to the conditions of instrument use. be able to and meet the respective laws. Check with respiratory protection suppliers. Where air-filtering respirators are suitable, select an appropriate mask and filter. Select a filter suitable for organic gases and vapors meeting EN141. When air-filtering respirators are unsuitable (for example, high air concentrations, risk of oxygen deficiency, confined space) use pressure breathing apparatus.

4. Protective equipment in case of handling incidents: Gloves, chemical resistant boots, gas masks, eye protection glasses, protective clothing with chemical resistance.

5. Hygiene measures: After using, wash hands and wipe dry. Use a non-perfumed moisturizer to wash your hands.

6. Monitoring method: The concentration of product should be monitored in the workers' breathing area or in the general work area to comply with OEL and to control exposure. For some products, appropriate biological monitoring is also required. Examples of recommended methods for monitoring air are given below or contact the supplier. National measures may be available. American National Academy of Occupational Safety and Health (NIOSH): Analytical Methods Manual <http://www.cdc.gov/niosh/nmam/nmammenu.html> Bureau of Tuberculosis Safety and Hygiene US Action (OSHA): Methods of sampling and analysis <http://www.osha-slc.gov/dts/sltc/methods/toc.html>. UK Agency for Hygiene and Safety (HSE): Methods for identifying hazardous elements <http://hls.gov.uk/search.html>

PART IX - PHYSICAL AND CHEMICAL PROPERTIES OF CHEMICALS

Physical state: liquid form	Boiling point (°C): 100 ° C
Color: colorless liquid	Melting point (°C): 0° C
Odor: strong ammonia odor	Flash point (°C) according to the identification method:
Vapor pressure (mmHg) at temperature, standard pressure:	Ignition temperature (°C):
Relative vapor density (Air = 1) at standard pressure, pressure:	Upper limit of concentration of fire and explosion (% mixed with air):
Solubility in water:	Lower flammable or explosive concentration limit (% of mixture with air):
PH:	Evaporation rate:
Specific weight (kg/m³): 18.02g/mol	Molecular weight:

PART X - STABILITY AND OPERATION OF CHEMICALS

- 1. Stability:** Stable under normal conditions of use.
- 2. Reactivity:** Reacts with strong oxidizing agents and strong acids.
- 3. Conditions to avoid:** Avoid heat, sparks, open flames and other sources of ignition.
- 4. Incompatible materials:** Strong oxidizing agents, strong acids.
- 5. Hazardous decomposition products:** Thermal decomposition is highly dependent on conditions. A complex of airborne solids, liquids and gases, including carbon oxides and other organic compounds, will evolve as the material undergoes decomposition due to compression or heat or oxidation.

PART XI - TOXICOLOGICAL INFORMATION

Ingredient name	Kind of threshold	Result	Exposure line	Biological test
Ammonium hydroxide	LC, LD, PEL, Maximum concentration allowed ..	0,5ppm- 1,5 mg/m ³	Skin, respiratory ...	Mouse, rabbit ...

1. The chronic effects on humans

Carcinogenicity: Not classified as a carcinogen by IARC, NTP, ACGIH and OSHA

2. Other toxic effects

Skin corrosion / irritation: Moderate skin irritation

Eye irritation: Moderately irritating to eyes

Respiratory irritation: Inhalation of vapors or mists may cause irritation of the respiratory system.

Causes headache, drowsiness, nausea, confusion, unconsciousness, digestive and visual disturbances, even leading to death

Sensitization: Not expected to be a skin sensitiser.

Repeated dose toxicity: May cause liver damage if repeated or prolonged exposure. May dry the skin.

PART XII - ECOLOGICAL INFORMATION

1. Toxicity to organisms: (will be added when information is available)

2. Impact in the environment: pure or in salt water can seriously affect the aquatic environment.

Biodegradability level: Readily biodegradable in water and rock.

BOD and COD: (will be added when information is available)

Products of biodegradation process:

Toxicity level of biodegradable products: (will be added when information is available)

Mobility: High flexibility in rock.

Risk of bioaccumulation: (will be added when information is available)

PART XIII - REQUIREMENTS FOR DISPOSAL

1. Information about destruction: (will be added when there is information)

2. Hazard classification: (will be added when information is available)

3. Destruction methods: (will be added when information is available)

4. Products of the destruction process, handling measures: (will be added when information is available)

5. Disposal considerations

- **Disposal of material:** Reclaim or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of waste in order to determine its waste type and disposal method in accordance with applicable regulations. Do not dispose into the environment, in drains or in water courses. Waste products must not contaminate soil or water.
- **Remove the container:** Drain the entire container. After withdrawing the solution, dry in a safe place away from sparks and open flames. Residues may present an explosion hazard. Do not chisel, cut or weld unclean containers. Take to drum or metal drums for storage.
- **Local laws:** Local regulations may be more stringent than regional or national requirements and must be enforced.

PART XIV - REQUIREMENTS FOR SHIPPING

Name specified	UN	Name of sea shipping	Types and groups of dangerous goods	Packing	Shipping label	Additional information
<p>Regulations on transporting dangerous goods of Vietnam:</p> <ul style="list-style-type: none"> - Decree No. 104/2009 / ND-CP dated November 9, 2005 of the Government stipulating the List of dangerous goods and transporting dangerous goods by motorized road vehicles; - Decree No. 29/2005 / ND-CP of March 10, 2005, of the Government stipulating the list of dangerous goods and the transport of dangerous goods on inland waterways. 	1005		Type: 6.1+ 8 Danger number: 268			

PART XV - TECHNICAL REGULATIONS AND LEGAL REGULATIONS MUST COMPLY

1. Status of declaration and registration in regional countries around the world (according to European Commission)

2. Dangerous classification according to the country of declaration and registration

- Acute toxicity - respiratory tract.
- Toxic to reproduction.
- Toxicity to the special organs of the body (repeated exposure).

3. Compliant technical regulations:

- Vietnamese standard: TCVN 5507: 2002
- Decree No. 104/2009 / ND-CP of November 9, 2009, defining the list of dangerous goods and transporting dangerous goods by motorized road vehicles;
- Circular 28/2010 / TT-BTC dated June 28, 2010 of the Ministry of Industry and Trade specifying a number of articles of the Law on Chemicals and Decree 108/2008 / ND-CP.
- Circular 04/2012 / TT-BCT dated 13 February 2012 of the Ministry of Industry and Trade providing for classification and labeling of chemicals.
- Chemical Law No. 06/2007 / QH12 dated November 21, 2007;
- Decree 113/2017 / ND-CP dated October 9, 2017 detailing and guiding the implementation of a number of articles of the Law on Chemicals.
- Circular 32/2017 / TT-BCT dated December 28, 2017 detailing and guiding the implementation of a number of articles of
- Chemical Law No. 06/2007 / QH12
- Circular No. 09/2016 / TT-BKHCHN dated June 9, 2016 of the Ministry of Science and Technology

PART XVI - OTHER NECESSARY INFORMATION

Date of compilation: March 5, 2014

Date of latest modification or addition:

Name of organization or individual drafting: **KIM NGUU CHEMICALS AND EQUIPMENT
IMPORT-EXPORT JSC**

Note the reader:

The information in this Chemical Safety Data Sheet is compiled based on current and valid knowledge about hazardous chemicals and must be used to take measures to prevent risks and accidents.

The hazardous chemicals on this Coupon may have other hazardous properties depending on the circumstances of use and exposure.