

MATERIAL SAFETY DATA SHEET

AMMONIA



CAS: 1336-21-6
UN: 2672
EC: 215-647-6

PART I - CHEMICAL IDENTIFICATION

- Common name of the substance: Amoniac

- Tradenames:

- Othername:

Supplier name, address:

Company name: KIM NGUU CHEMICALS AND EQUIPMENT IMPORT-EXPORT JSC
Transaction Office 1: No. 85 Duc Giang, Long Bien District, Hanoi.
Representative Office 2: Số 215 Nguyễn Khoái, Hai Bà Trưng District, Hà Nội.
Phone number: + 84.4.39842258 Fax: + 84.4.39842256
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:** Widely used in many industries such as detergent, paint, paper production, oil refining technology, textile dyeing technology, food, water treatment, production of chemicals from caustic soda such as Sodium Silicate, Al(OH)₃, PAC auxiliaries, Sodium hydroxide are also used in laboratories ...

PART II - INFORMATION ABOUT CHEMICAL COMPOSITION

Name of hazardous ingredients	CAS	Chemical formula	Content (% by weight)
Ammonia	1336-21-6	NH ₃	99%

PART III - IDENTIFICATION OF HAZARDOUS CHARACTERISTICS

1. Dangerous classification level (according to valid data available from testing countries, for example: EU, US, OSHA ...)

- According to HMIS (USA)
- Health: 3
- Flammable: 0
- Reaction: 0 Bảo vệ cá nhân:

Further information on other dangerous ratings: According to WHMIS (Canada)

Substance causing immediate and serious toxic effects group D-1B (Toxic) Liquid corrosive class E

According to J.T. Baker SAF-T-DATA (tm) (for reference):

Exposure: 4 - very high. Health: 3 - High (toxic). Flammable: 0 - Non flammable. Reaction: 1 - Mild

Components marked according to the global homogeneous system (GHS)



2. Warning

• Overview: is toxic, dangerous, strongly corrosive - Note when exposed, stored and used: Store in an airtight container. Store in a cool, dry, separate and well-ventilated place, away from places likely to cause fire. Avoid heat, moisture, and avoid incompatibles. Protection to avoid physical harm. Use non-sparking equipment and tools. Do not disinfect, use containers for other purposes. When opening metal containers do not use ignition tools. Empty containers may still cause harm. Follow product warnings and instructions. Correct use of personal protective equipment. Use appropriate protective equipment according to exposure limits

Prevent

- Do not store in high temperature / near open sources of fire / near sparks / 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, clothes, glasses, veil suitable for contact with chemicals.

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 symptom

- **Eye contact:** causes allergy and may cause burns, blindness.
- **Airway:** causes allergy depending on level of inhalation. Symptoms include: sneezing, runny nose, sore throat. High concentrations can cause pulmonary edema and death. The lethal dose is 5000ppm
- **Skin:** cause allergy or burns
- **Digestive tract:** swallowing may cause burning of the esophagus, stomach and peritonitis.
- **Symptoms include:** chest pain, mouth, vomiting ., Dose causing death 3-4 ml. Exposure routes and symptoms

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

- Wash the eyes with a large amount of water for at least 15 minutes while repeatedly pushing the upper and lower eyelids. See a physician immediately.

2. In case of skin contact accident:

- Immediately remove all clothes, shoes ... shot by chemicals, must clean them before putting them back into use. Wash thoroughly with large amounts of water for at least 15 minutes. Then have to call a doctor immediately.

3. In case of accident of inhalation exposure:

- Move victim out of dangerous area to a cool place. If breathing is difficult, give oxygen. Give artificial respiration immediately if the victim stops breathing. Keep comfortable and transfer immediately to the nearest hospital.

4. In case of accident by gastrointestinal tract:

- If swallowed, keep it comfortable. Do not induce vomiting then drink plenty of water or lemonade. Note do not put into the victim's mouth anything. And immediately have to move immediately to the nearest hospital and have the treatment of a doctor

PART V - HANDLING MEASURES WHEN THE FIRE IS CAUSED

- 1. Classification of flammability: (flammable, very flammable or extremely flammable, non-flammable, hard-to-burn ...)**
 - Not expected to be a flammable substance.
- 2. Product created when burnt:** nitrogen oxide
- 3. Factors causing fire and explosion (spark, static electricity, high temperature, impact, friction, etc.):** Common storage of other chemicals when burning will affect the substance.
- 4. Suitable extinguishing media and instructions for fire-fighting measures, other combination measures:** Use any extinguishing media.
- 5. Necessary protective equipment and costumes when fighting fire:**
 - If burnt, wear NIOSH protective clothing, closed face mask with standard pressure. Can spray water to cool containers.
- 6. Special notes about fire and explosion (if any)**

PART 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, leak small

Limit air exposure:

- Permissible exposure limits according to OSHA (PEL): 50 ppm (NH₃)
- ACGIH introduces threshold values: 25 ppm (NH₃) (TWA), 35 ppm (STEL) Equip adequate and appropriate personal protective equipment according to NIOSH standards. There must be good ventilation to control evaporation and dispersion in the work area. Isolate areas with dangerous chemicals. Contain or recover chemicals if possible. Do not allow spills to enter drains. The remaining substances due to spillage and leakage can be diluted with water, neutralizing with dilute acids such as acetic acid, hydrochloric acid or sulfuric acid. Absorb the remaining corrosive material with clay, vecmiculite (mica-expanded mineral) or other inert material and place in a suitable container for destruction.

2. When spilled, leak large large area

Limit air exposure:

- Permissible exposure limits according to OSHA (PEL): 50 ppm (NH₃)
- ACGIH introduces threshold values: 25 ppm (NH₃) (TWA), 35 ppm (STEL) Wear full personal protective equipment according to NIOSH standards: if exposure limit exceeds 10 times and is not possible For mechanical control, use a half face respirator. You can use a respirator if the exposure limit exceeds 50 times. If the level of exposure beyond the limit of exposure cannot be determined, use a gas pressure respirator. Note: air filter respirators do not work in anoxic areas. There must be good ventilation to control evaporation and dispersion in the work area. Isolate areas with dangerous chemicals. Contain or recover chemicals if possible. Do not allow spills to enter drains. The remaining substances due to spillage and leakage can be diluted with water, neutralizing with dilute acids such as acetic acid, hydrochloric acid or sulfuric acid. Absorbent the remaining chemicals are made of clay, vecmiculite (mica-expanded minerals) or other inert substances and placed in suitable containers for destruction.

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 (ventilation, use only in closed systems, use of explosion-proof electrical equipment, internal transportation, etc.)

- Use non-sparking equipment and tools with good ventilation to control and prevent chemical spills and leaks in the working area. Should use air hose to hold exposure is within limits. Gloves, boots, glasses, coats, aprons or seamless clothing should be used on contact.

2. Measures and conditions to be applied when storing (temperature, arrangement, restrictions on sources of ignition, explosion, substances to avoid general storage ...)

- Store in a closed container in a cool, dry place, storage temperature below 25 degrees Celsius, separate and well ventilated, away from places that may cause fires. Avoid heat, moisture, and avoid incompatibles. Preservation avoid physical damage. Do not disinfect, use containers for other purposes. When opening metal containers do not use ignition tools.

Containers that are still empty may be harmful. Comply with warnings and instructions for the product.

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. Necessary measures to limit exposure (ventilation or measures to reduce the concentration of steam and gas in the work area, isolation measures, limiting working hours, etc.)

3. Personal protective equipment at work

- **Eye protection:** goggles

- **Face protection:** NIOSH respirator mask If the exposure limit is exceeded 10 times and cannot be controlled, use a half respirator. Gas masks can be used if the exposure limit is exceeded 50 times. If the level of exposure beyond the exposure limit cannot be determined, use an air respirator. Note: air filter respirators do not work in anoxic areas.

- **Body protection:** long sleeve clothes

- **Hand protection:** chemical safety gloves

- **Foot protection:** protective shoes, rubber boots.

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: Wash, clean body immediately after using or contacting with chemicals. Must have eye wash, medicine or cleaning equipment, near the work area, posted warning signs.

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: gas	Boiling point (°C): 36°C
Color:	Melting point (°C): -72° C
Specific smell:	Flash point (°C) according to the identification method:
Vapor pressure (mmHg) at temperature, standard pressure: <115 mmHg (10% NH ₃); 580 nmmHg (28% NH ₃)	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/m ³): 900kg/mol	Molecular weight:

PART X - STABILITY AND OPERATION OF CHEMICALS

1. Stability: Stable under normal conditions of use.

2. Reactivity:

- - Decomposition reaction and products of decomposition reaction: ammonia, nitrogen oxide
- - Polymerization: does not occur
- - Reactive reactions: Acids, Acrolein, dimethyl sulfate, halogen, silver nitrate, propylene oxide, nitromethane, silver oxide, silver permanganate, essential oils, beta-propiolactone. The most popular metal.
- Avoid: Heat, light, sources of fire

PART XI - TOXICOLOGICAL INFORMATION

Ingredient name	Kind of threshold	Result	Road contact	Biological test
Ammonia	LD50	350mg/kg	Mouth	Rabbit

1. Chronic effects on humans: Carcinogenicity, reproductive toxicity, and genetically modified sea

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.

PHẦN XII - THÔNG TIN VỀ SINH THÁI

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: (will be added when information is available)

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

Products of biodegradation: (will be added when information is available)

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

Mobility: If the product enters the soil, it will be flexible and may contaminate groundwater.
Soluble in water.

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: (will be added when information is available)

PART XIV - REQUIREMENTS FOR SHIPPING

Name specified	UN	Name of sea shipping	Types and groups of dangerous goods	Packing	Shipping label	Additional information
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<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. 	2672		Type: 8	Group III		
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PART XV - TECHNICAL REGULATIONS AND LEGAL REGULATIONS MUST COMPLIANCE

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

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: October 29, 2019

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.