1. Identification of the substance/preparation and of the company/undertaking

1.2 Identification of the product

Product code: A5016
Name of material: Ammonia solution 25%
CAS No.: 1336-21-6

1.2 Recommended use and restriction on use

General use : For experimental, research and industrial use.
Restriction on use : Never drink, Not used except for experimental, research and industrial applications.

1.3 Manufacturer / Supplier / Distributor information

Importer/distributors identification

Company : ASIA CHEMIE (THAILAND) CO., LTD.
Address : 44/27 Moo.4 T.Huaykapi A.Muangchonburi, Chonburi, Thailand. 20130
Telephone number : +66 3838 7988
Fax number : +66 3838 7989
E-mail : asiachemie@gmail.com, natchakot@asiachemie.com, natchakot@gmail.com

2. Hazards identification

2.1 GHS Classification

Acute toxicity (inhalation: vapor): Category3
Skin corrosion/irritation: Category1A
Acute aquatic toxicity: Category1

2.2 GHS label elements

Hazard symbols

Signal word: Danger

Hazard Statements

H314 Causes severe skin burns and eye damage
H331 Toxic if inhaled
H400 Very toxic to aquatic life

Precautionary Statements

P260 Do not breathe gas/mist/vapours/spray.
P261 Avoid breathing gas/mist/vapours/spray.
P264 Wash hands thoroughly after handling.
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.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P311 Call a POISON CENTER or doctor/physician.
P321 Specific treatment
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/national/international regulation.

2.3 Other hazards which do not result in classification: (NFPA Classification)

NFPA grade (0 ~ 4 level)

- Health: 3, Flammability: 0, Reactivity: 0

3. Composition/information on ingredients

Chemical name	Synonyms	CAS Number	Concentration %

Water	*Dihydrogen oxide; Oxidane*	7732-18-5	75
Ammonium hydroxide	Ammonia, solution, with more than 35% but not more than 50%ammonia; Ammonium hydrate; Ammonia, aqueous solution; Ammonium hydroxide; Azanium hydroxide; Ammonium hydroxide ((NH4)(OH)); AMMONIA SOLUTION, STRONG; AQUA AMMONIA	1336-21-6	25

4. First aid measures

4.1 Eye contact
- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

4.2 Skin contact
- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing thoroughly before re-using.
- Get medical attention immediately.
- Wash thoroughly after handling.

4.3 Inhalation contact
- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- If breathing is stopped or irregular, give artificial respiration and supply oxygen.
- Take the doctor's examination.

4.4 Ingestion contact
- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.

4.5 Delayed and immediate effects and also chronic effects from short and long term exposure
- Not available.

4.6 Notes to physician
- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

5. Fire-fighting measures

5.1 Suitable (Unsuitable) extinguishing media
- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray.
- Avoid use of water jet for extinguishing.

5.2 Specific hazards arising from the chemical
- Not available.

5.3 Special protective actions for firefighters
- Cool containers with water until well after fire is out.
- Avoid inhalation of materials or combustion by-products.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Do not touch spilled material. Stop leak if you can do it without risk. - Remove all sources of ignition.
- Do not direct water at spill or source of leak.
- Avoid skin contact and inhalation.
- Cleanup and disposal under expert supervision is advised.

6.2 Environmental precautions
- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

6.3 Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.
- Avoid entering to sewers or water system.
- Prevent the influx to waterways, sewers, basements or confined spaces.

7. Handling and storage

7.1 Precautions for safe handling

- Avoid contact with incompatible materials.
- Comply with all applicable laws and regulations for handling
- Get the manual before use.
- Dealing only with a well-ventilated place.
- Do not inhale the steam prolonged or repeated.

7.2 Conditions for safe storage, including any incompatibilities

- Keep in the original container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- Prevent static electricity and keep away from combustible materials or heat sources.
- Collected them in sealed containers.
- Store away from water and sewer.

8. Exposure controls/personal protection

8.1 Exposure limits

ACGIH TLV

- Not available

OSHA PEL

- Not available

8.2 Engineering controls

- Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.

8.3 Individual protection measures, such as personal protective equipment

Respiratory protection

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full facepiece and organic vaporcartridge(s).
- Any air-purifying respirator with a full facepiece and an organic vapor canister.
- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece

Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

Hand protection

- Wear appropriate glove.

Skin protection

- Wear appropriate clothing.

Others

- Not available

9. Physical and chemical properties

A. Appearance	
- Appearance	Liquid
- Color	colorless
B. Odor	characteristic odor

C. Odor threshold	50 ppm
D. pH	11.6 (1.0 N solution)
E. Melting point/Freezing point	-77 °C
F. Initial Boiling Point/Boiling Ranges	36 °C
G. Flash point	Not available
H. Evaporation rate	Not available
I. Flammability (solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	2160 mmHg (25°C)
L. Solubility	100 g/100 ml (25°C) (estimate)
M. Vapour density	1.2
N. Specific gravity (Relative density)	0.9 (estimate)
O. Partition coefficient of n-octanol/water	-2.66 (estimate)
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	35.04
T. Molecular formula	NH4OH

10. Stability and reactivity

10.1 Chemical Stability
- This material is stable under recommended storage and handling conditions.

10.2 Possibility of hazardous reactions
- Hazardous Polymerization will not occur.

10.3 Conditions to avoid
- Avoid contact with incompatible materials and condition.
- Avoid: Accumulation of electrostatic charges, Heating, Flames and hot surfaces

10.4 Incompatible materials
- Not available

10.5 Hazardous decomposition products
- May emit flammable vapour if involved in fire.

11. Toxicological information

11.1 Information on the likely routes of exposure

Respiratory tracts
- Not available

Oral
- Not available

Eye · Skin
- Causes severe skin burns and eye damage

11.2 Delayed and immediate effects and also chronic effects from short and long term exposure

Acute toxicity

*** Oral**
- Product (ATEmix) : 2000mg/kg < ATEmix <= 5000mg/kg
- [Water] : LD50 > 90000 mg/kg Rat (KOSHA)
- [Ammonium hydroxide] : LD50 = 350 mg/kg Rat (RTECS, NITE), LD50 >350 ㎎/㎏ Rat(HSDB)

*** Dermal**
- Not available

*** Inhalation**
- [Ammonium hydroxide] : 2.0 mg/L < LC50 ≤ 10.0 mg/L

Skin corrosion/irritation
- Causes severe skin burns and eye damage

Serious eye damage/irritation
- Not available

Respiratory sensitization
- Not available

Skin sensitization
- Not available

Carcinogenicity

*** IARC**
- Not available

*** OSHA**
- Not available

*** ACGIH**
- Not available

*** NTP**
- Not available

*** EU CLP**
- Not available

Germ cell mutagenicity
- Not available

Reproductive toxicity
- Not available

STOT-single exposure
- Not available

STOT-repeated exposure
- Not available

Aspiration hazard
- Not available

12. Ecological information

12.1 Ecotoxicity

Fish
- Not available

Crustaceans
- [Ammonium hydroxide] : LC50 0.66 ㎎/ℓ 48 hr Daphnia magna (HSDB)

Algae
- Not available

12.2 Persistence and degradability

Persistence
- [Water] : log Kow = -1.38
- [Ammonium hydroxide] : log Kow -2.66 (estimate)

Degradability
- Not available

12.3 Bioaccumulative potential

Bioaccumulative potential
- Not available

Biodegration
- [Ammonium hydroxide] : Non-biodegradable(because there is no data for rapid degradability and bioaccumulation potential)

12.4 Mobility in soil
- Not available

12.5 Other adverse effects
- Not available

13. Disposal considerations

13.1 Disposal methods
- Stabilization and minimization treatment by incineration or similar method can be applied, if more than two kinds of designated wastes are in mixture state and it is impractical to separate them
- Oil water separation technology shall be applied as pre-waste treatment if it is applicable
- It shall be treated by incineration
- Do disposal as neutralization, hydrolysis and oxidation-reduction.
- High temperature incinerating, high-temperature melt processing will be landfilled
- Solidification processing.

13.2 Special precautions for disposal
- Anyone with business license number who generates industrial wastes shall treat the waste by him/herself or by entrusting to the legal entities who treat the wastes, recycle the wastes of others or install and operate the waste treatment facilities according to the Wastes Control Act

- Dispose of waste in accordance with all applicable laws and regulations.

14. Transport information

14.1 UN No. (IMDG CODE/IATA DGR)
- 2672

14.2 Proper shipping name
- AMMONIA SOLUTIONS, RELATIVE DENSITY BETWEEN 0.880 AND 0.957 AT 15 DEGREES C IN WATER, WITH MORE THAN 10 PERCENT BUT NOT MORE THAN 35 PERCENT AMMON

14.3 Hazard Class
- 8

14.4 IMDG CODE/IATA DGR Packing group
- III

14.5 Marine pollutant
- Applicable

14.6 Special precautions for user related to transport or transportation measures
- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : F-A (General fire schedule)
- EmS SPILLAGE SCHEDULE : S-B (Corrosive substances)

15. Regulatory information

15.1 National and/or international regulatory information

POPs Management Law
- Not applicable

Information of EU Classification

Classification
- [Ammonium hydroxide] : H314, H400

U.S. Federal regulations

*** OSHA PROCESS SAFETY (29CFR1910.119)**
- Not applicable

*** CERCLA Section 103 (40CFR302.4)**
- [Ammonium hydroxide] : 453.599 kg 1000 lb

*** EPCRA Section 302 (40CFR355.30)**
- Not applicable

*** EPCRA Section 304 (40CFR355.40)**
- Not applicable

*** EPCRA Section 313 (40CFR372.65)**
- [Ammonium hydroxide] : Applicable

Rotterdam Convention listed ingredients
- Not applicable

Stockholm Convention listed ingredients
- Not applicable

Montreal Protocol listed ingredients
- Not applicable

16. Other information

Reason for the revision: General update.
Date: 19/9/2014

Revision 6
Date: 18/06/2023

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