# Ammonium Hydroxide, ACS

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 07/06/1998 Revision date: 11/27/2018 Supersedes: 11/21/2016 Version: 3.0

## SECTION 1: Identification

### 1.1. Identification

| | | |
|---|---|---|
| Product form | : | Substance |
| Substance name | : | Ammonium Hydroxide, ACS |
| CAS-No. | : | 1336-21-6 |
| Product code | : | LC11050 |
| Formula | : | NH4OH |
| Synonyms | : | ammonia hydrate, 28%-30% / Ammonia solution, relative density between 0.880 and 0.957 at 15 °C in water, with more than 10% but not more than 35% ammonia / ammonia,aqua 25%<=conc<35% / ammonia,liquor,25%<=conc<35% / ammonia, solutions, 28%-30% / ammoniawater, 28%-30% / aqua ammonia, solution, 28%-30% / spirit of hartshorn, 28%-30% |

### 1.2. Recommended use and restrictions on use

| | | |
|---|---|---|
| Use of the substance/mixture | : | Chemical raw material<br>Food industry: additive<br>Solvent |
| Recommended use | : | Laboratory chemicals |
| Restrictions on use | : | Not for food, drug or household use |

### 1.3. Supplier

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

### 1.4. Emergency telephone number

| | | |
|---|---|---|
| Emergency number | : | CHEMTREC: 1-800-424-9300 or +1-703-741-5970 |

## SECTION 2: Hazard(s) identification

### 2.1. Classification of the substance or mixture

**GHS US classification**

| | | |
|---|---|---|
| Acute toxicity (oral) Category 4 | H302 | Harmful if swallowed |
| Skin corrosion/irritation Category 1C | H314 | Causes severe skin burns and eye damage |
| Serious eye damage/eye irritation Category 1 | H318 | Causes serious eye damage |
| Specific target organ toxicity (single exposure) Category 3 | H335 | May cause respiratory irritation |
| Hazardous to the aquatic environment - Acute Hazard Category 1 | H400 | Very toxic to aquatic life |

Full text of H statements : see section 16

### 2.2. GHS Label elements, including precautionary statements

**GHS US labeling**

Hazard pictograms (GHS US) :

GHS05 GHS07 GHS09

Signal word (GHS US) : Danger

Hazard statements (GHS US) : H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation
H400 - Very toxic to aquatic life

Precautionary statements (GHS US) : P260 - Do not breathe mist, spray, vapors.

P264 - Wash exposed skin thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear eye protection, face protection, protective clothing, protective gloves.
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 person to fresh air and keep 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.
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 to comply with local, state and federal regulations

### 2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None.

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Substance type : Multi-constituent

Name : Ammonium Hydroxide, ACS

CAS-No. : 1336-21-6

| Name | Product identifier | % | GHS US classification |
|---|---|---|---|
| Water | (CAS-No.) 7732-18-5 | 72 | Not classified |
| Ammonia | (CAS-No.) 7664-41-7 | 28 | Flam. Gas 2, H221<br>Press. Gas (Comp.), H280<br>Acute Tox. 3 (Inhalation), H331<br>Skin Corr. 1B, H314<br>Aquatic Acute 1, H400 |

Full text of hazard classes and H-statements : see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service. Doctor: administration of corticoid spray.

First-aid measures after skin contact : Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Do not give activated charcoal. Immediately consult a doctor/medical service. Call Poison Information Centre (www.big.be/antigif.htm). Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital. Do not give chemical antidote.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects : Causes severe skin burns and eye damage.

| | | |
|---|---|---|
| Symptoms/effects after inhalation | : | Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. ON CONTINUOUS EXPOSURE/CONTACT: Corrosion of the upper respiratory tract. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of lung edema. Risk of pneumonia. Respiratory difficulties. |
| Symptoms/effects after skin contact | : | Caustic burns/corrosion of the skin. |
| Symptoms/effects after eye contact | : | Corrosion of the eye tissue. |
| Symptoms/effects after ingestion | : | Burns to the gastric/intestinal mucosa. Possible esophageal perforation. AFTER ABSORPTION OF LARGE QUANTITIES: AFTER ABSORPTION OF LARGE QUANTITIES: Shock. |
| Chronic symptoms | : | No effects known. |

### 4.3. Immediate medical attention and special treatment, if necessary

Obtain medical assistance.

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

| | | |
|---|---|---|
| Suitable extinguishing media | : | Adapt extinguishing media to the environment for surrounding fires. |
| Unsuitable extinguishing media | : | Do not use a heavy water stream. |

### 5.2. Specific hazards arising from the chemical

| | | |
|---|---|---|
| Fire hazard | : | DIRECT FIRE HAZARD. Non combustible. |
| Explosion hazard | : | INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard". |
| Reactivity | : | Concentrated solution violent to explosive reaction with many compounds e.g.: with (some) halogens compounds, with (strong) oxidizers and with (some) acids. |

### 5.3. Special protective equipment and precautions for fire-fighters

| | | |
|---|---|---|
| Firefighting instructions | : | Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it. |
| Protection during firefighting | : | Do not enter fire area without proper protective equipment, including respiratory protection. |

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

| | | |
|---|---|---|
| Protective equipment | : | Gas-tight suit. Corrosion-proof suit. |
| Emergency procedures | : | Keep upwind. Mark the danger area. Consider evacuation. Seal off low-lying areas. Close doors and windows of adjacent premises. No naked flames. Corrosion-proof appliances. Keep containers closed. Wash contaminated clothes. |

#### 6.1.2. For emergency responders

| | | |
|---|---|---|
| Protective equipment | : | Equip cleanup crew with proper protection. |
| Emergency procedures | : | Stop leak if safe to do so. Ventilate area. |

### 6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

### 6.3. Methods and material for containment and cleaning up

| | | |
|---|---|---|
| For containment | : | Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Dilute toxic gases/vapours with water spray. Take account of toxic/corrosive precipitation water. |
| Methods for cleaning up | : | Take up liquid spill into inert absorbent material, e.g.: sand, earth, vermiculite. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling. |

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

| | | |
|---|---|---|
| Precautions for safe handling | : | Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Exhaust gas must be neutralised. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Use corrosionproof equipment. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. |

Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash exposed skin thoroughly after handling.

### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions : Keep container tightly closed.

Incompatible products : silver nitrate. Strong bases. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

Maximum storage period : 365 days

Storage temperature : < 38 °C

Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources.

Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents. strong acids. halogens.

Storage area : Store at ambient temperature. Keep out of direct sunlight. Store in a dark area. Keep container in a well-ventilated place. Keep locked up. Provide for a tub to collect spills. Meet the legal requirements.

Special rules on packaging : SPECIAL REQUIREMENTS: closing. clean. opaque. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials : SUITABLE MATERIAL: synthetic material. glass. MATERIAL TO AVOID: aluminium. copper. tin. zinc. nickel. bronze.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| **Ammonium Hydroxide, ACS (1336-21-6)** | | |
|---|---|---|
| ACGIH | ACGIH TWA (mg/m³) | 17 mg/m³ |
| ACGIH | ACGIH STEL (mg/m³) | 24 mg/m³ |
| NIOSH | NIOSH REL (TWA) (mg/m³) | 18 mg/m³ |
| NIOSH | NIOSH REL (TWA) (ppm) | 25 ppm |
| NIOSH | NIOSH REL (STEL) (mg/m³) | 27 mg/m³ |
| NIOSH | NIOSH REL (STEL) (ppm) | 35 ppm |

| **Water (7732-18-5)** |
|---|
| Not applicable |

| **Ammonia (7664-41-7)** | | |
|---|---|---|
| ACGIH | ACGIH TWA (mg/m³) | 17 mg/m³ |
| ACGIH | ACGIH TWA (ppm) | 25 ppm |
| ACGIH | ACGIH STEL (mg/m³) | 24 mg/m³ |
| ACGIH | ACGIH STEL (ppm) | 25 ppm |
| NIOSH | NIOSH REL (TWA) (mg/m³) | 18 mg/m³ |
| NIOSH | NIOSH REL (TWA) (ppm) | 25 ppm |
| NIOSH | NIOSH REL (STEL) (mg/m³) | 27 mg/m³ |
| NIOSH | NIOSH REL (STEL) (ppm) | 35 ppm |

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

### 8.3. Individual protection measures/Personal protective equipment

**Personal protective equipment:**

Corrosionproof clothing. Face shield. High gas/vapor concentration: gas mask. Gloves. Safety glasses. Avoid all unnecessary exposure.

**Materials for protective clothing:**

GIVE EXCELLENT RESISTANCE: butyl rubber. GIVE GOOD RESISTANCE: neoprene. nitrile rubber. viton. tetrafluoroethylene. GIVE LESS RESISTANCE: PVC. GIVE POOR RESISTANCE: natural rubber. polyethylene. PVA

**Hand protection:**

Gloves

**Eye protection:**

Safety glasses

**Skin and body protection:**

Head/neck protection. Corrosion-proof clothing

**Respiratory protection:**

Full face mask with filter type B at conc. in air > exposure limit. High vapour/gas concentration: self-contained respirator

**Thermal hazard protection:**

None necessary.

**Other information:**

Do not eat, drink or smoke during use.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

| | | |
|---|---|---|
| Physical state | : | Liquid |
| Appearance | : | Liquid. |
| Color | : | Colourless |
| Odor | : | Irritating/pungent odour |
| Odor threshold | : | 5 - 50 ppm |
| pH | : | 11.7 (3.5 %) |
| Melting point | : | No data available |
| Freezing point | : | No data available |
| Boiling point | : | 27 °C |
| Flash point | : | Not applicable |
| Relative evaporation rate (butyl acetate=1) | : | No data available |
| Flammability (solid, gas) | : | Non flammable. |
| Vapor pressure | : | No data available |
| Relative vapor density at 20 °C | : | No data available |
| Relative density | : | 0.88 - 0.91 |
| Specific gravity / density | : | 0.89 |
| Molecular mass | : | 35.05 g/mol |
| Solubility | : | Soluble in water.<br>Water: complete |
| Log Pow | : | No data available |
| Auto-ignition temperature | : | No data available |
| Decomposition temperature | : | No data available |

| | | |
|---|---|---|
| Viscosity, kinematic | : | No data available |
| Viscosity, dynamic | : | No data available |
| Explosion limits | : | No data available |
| Explosive properties | : | No data available |
| Oxidizing properties | : | No data available |

### 9.2. Other information

| | | |
|---|---|---|
| VOC content | : | Not applicable (inorganic) |
| Other properties | : | Clear. Physical properties depending on the concentration. Volatile. Basic reaction. |

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Concentrated solution violent to explosive reaction with many compounds e.g.: with (some) halogens compounds, with (strong) oxidizers and with (some) acids.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Reacts vigorously with strong oxidizers and acids. Not established.

### 10.4. Conditions to avoid

High temperature. Incompatible materials. Direct sunlight. Extremely high or low temperatures.

### 10.5. Incompatible materials

May react violently with acids. Strong acids. Strong bases.

### 10.6. Hazardous decomposition products

Gaseous ammonia. fume. Carbon monoxide. Carbon dioxide. Thermal decomposition generates : Corrosive vapors.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

| | | |
|---|---|---|
| Likely routes of exposure | : | Inhalation; Skin and eye contact |
| Acute toxicity | : | Not classified |

| **Ammonium Hydroxide, ACS (1336-21-6)** | |
|---|---|
| LD50 oral rat | 350 mg/kg |
| ATE US (oral) | 350 mg/kg body weight |

| **Water (7732-18-5)** | |
|---|---|
| LD50 oral rat | ≥ 90000 mg/kg |
| ATE US (oral) | 90000 mg/kg body weight |

| **Ammonia (7664-41-7)** | |
|---|---|
| ATE US (gases) | 3643 ppmV/4h |
| ATE US (vapors) | 24.2 mg/l/4h |

| | | |
|---|---|---|
| Skin corrosion/irritation | : | Causes severe skin burns and eye damage.<br>pH: 11.7 (3.5 %) |
| Serious eye damage/irritation | : | Causes serious eye damage.<br>pH: 11.7 (3.5 %) |
| Respiratory or skin sensitization | : | Not classified |
| Germ cell mutagenicity | : | Not classified |
| Carcinogenicity | : | Not classified |
| Reproductive toxicity | : | Not classified |
| Specific target organ toxicity – single exposure | : | May cause respiratory irritation. |
| Specific target organ toxicity – repeated exposure | : | Not classified |
| Aspiration hazard | : | Not classified |

| | | |
|---|---|---|
| Potential Adverse human health effects and symptoms | : | Harmful if swallowed. |
| Symptoms/effects after inhalation | : | Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. ON CONTINUOUS EXPOSURE/CONTACT: Corrosion of the upper respiratory tract. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of lung edema. Risk of pneumonia. Respiratory difficulties. |
| Symptoms/effects after skin contact | : | Caustic burns/corrosion of the skin. |
| Symptoms/effects after eye contact | : | Corrosion of the eye tissue. |
| Symptoms/effects after ingestion | : | Burns to the gastric/intestinal mucosa. Possible esophageal perforation. AFTER ABSORPTION OF LARGE QUANTITIES: AFTER ABSORPTION OF LARGE QUANTITIES: Shock. |
| Chronic symptoms | : | No effects known. |

## SECTION 12: Ecological information

### 12.1. Toxicity

| | | |
|---|---|---|
| Ecology - general | : | Dangerous for the environment. |
| Ecology - air | : | None of the known components is included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Ozonolysis in air. Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). |
| Ecology - water | : | Very toxic to fishes. Groundwater pollutant. Affects the self-cleaning capacity of surface water. Inhibition of activated sludge. May cause eutrophication. pH shift. Very toxic to plankton. Ozonation in water. |

### 12.2. Persistence and degradability

| **Ammonium Hydroxide, ACS (1336-21-6)** | |
|---|---|
| Persistence and degradability | Biodegradable in the soil. Readily biodegradable in water. |

| **Water (7732-18-5)** | |
|---|---|
| Persistence and degradability | Not established. |

| **Ammonia (7664-41-7)** | |
|---|---|
| Persistence and degradability | Not established. |

### 12.3. Bioaccumulative potential

| **Ammonium Hydroxide, ACS (1336-21-6)** | |
|---|---|
| Bioaccumulative potential | Does not contain bioaccumulative component(s). |

| **Water (7732-18-5)** | |
|---|---|
| Bioaccumulative potential | Not established. |

| **Ammonia (7664-41-7)** | |
|---|---|
| Bioaccumulative potential | Not established. |

### 12.4. Mobility in soil

| **Ammonium Hydroxide, ACS (1336-21-6)** | |
|---|---|
| Ecology - soil | No (test)data on mobility of the components available. |

### 12.5. Other adverse effects

| | | |
|---|---|---|
| Other information | : | Avoid release to the environment. |

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

| | | |
|---|---|---|
| Regional legislation (waste) | : | LWCA (the Netherlands): KGA category 02. |
| Waste disposal recommendations | : | Use appropriate containment to avoid environmental contamination. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery. Remove for physico-chemical/biological treatment. |

| | | |
|---|---|---|
| Additional information | : | Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997. |
| Ecology - waste materials | : | Avoid release to the environment. |

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT

| | | |
|---|---|---|
| Transport document description | : | UN2672 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 ammonia), 8, III |
| UN-No.(DOT) | : | UN2672 |
| Proper Shipping Name (DOT) | : | Ammonia solutions<br>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 ammonia |
| Transport hazard class(es) (DOT) | : | 8 - Class 8 - Corrosive material 49 CFR 173.136 |
| Packing group (DOT) | : | III - Minor Danger |
| Hazard labels (DOT) | : | 8 - Corrosive |


| | | |
|---|---|---|
| Dangerous for the environment | : | Yes |
| Marine pollutant | : | Yes |

| | | |
|---|---|---|
| DOT Packaging Non Bulk (49 CFR 173.xxx) | : | 203 |
| DOT Packaging Bulk (49 CFR 173.xxx) | : | 241 |
| DOT Special Provisions (49 CFR 172.102) | : | IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).<br>IP8 - Ammonia solutions may be transported in rigid or composite plastic IBCs (31H1, 31H2 and 31HZ1) that have successfully passed, without leakage or permanent deformation, the hydrostatic test specified in 178.814 of this subchapter at a test pressure that is not less than 1.5 times the vapor pressure of the contents at 55 C (131 F).<br>T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3)<br>TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. |
| DOT Packaging Exceptions (49 CFR 173.xxx) | : | 154 |
| DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) | : | 5 L |
| DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) | : | 60 L |
| DOT Vessel Stowage Location | : | A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel. |
| DOT Vessel Stowage Other | : | 40 - Stow ‘‘clear of living quarters’’,52 - Stow ‘‘separated from’’ acids,85 - Under deck stowage must be in mechanically ventilated space |
| Other information | : | No supplementary information available. |

### Transport by sea

| | | |
|---|---|---|
| Transport document description (IMDG) | : | UN 2672 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 ammonia), 8, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS |
| UN-No. (IMDG) | : | 2672 |

| | | |
|---|---|---|
| Proper Shipping Name (IMDG) | : | Ammonia solutions |
| Class (IMDG) | : | 8 - Corrosive substances |
| Packing group (IMDG) | : | III - substances presenting low danger |
| EmS-No. (1) | : | F-A |
| EmS-No. (2) | : | S-B |
| Marine pollutant | : | Yes |

### Air transport

| | | |
|---|---|---|
| Transport document description (IATA) | : | UN 2672 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 ammonia), 8, III, ENVIRONMENTALLY HAZARDOUS |
| UN-No. (IATA) | : | 2672 |
| Proper Shipping Name (IATA) | : | Ammonia solutions |
| Class (IATA) | : | 8 - Corrosives |
| Packing group (IATA) | : | III - Minor Danger |

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

| **Ammonium Hydroxide, ACS (1336-21-6)** | |
|---|---|
| Listed on the United States TSCA (Toxic Substances Control Act) inventory<br>Subject to reporting requirements of United States SARA Section 313 | |
| RQ (Reportable quantity, section 304 of EPA's List of Lists) | 1000 lb |
| SARA Section 311/312 Hazard Classes | Health hazard - Acute toxicity (any route of exposure)<br>Health hazard - Skin corrosion or Irritation<br>Health hazard - Serious eye damage or eye irritation |

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

| | | |
|---|---|---|
| Ammonia | CAS-No. 7664-41-7 | 28% |

| **Ammonia (7664-41-7)** | |
|---|---|
| RQ (Reportable quantity, section 304 of EPA's List of Lists) | 1000 lb |
| SARA Section 302 Threshold Planning Quantity (TPQ) | 500 lb |

### 15.2. International regulations

**CANADA**

No additional information available

| **Ammonia (7664-41-7)** |
|---|
| Listed on the Canadian DSL (Domestic Substances List) |

**EU-Regulations**

No additional information available

**National regulations**

| **Ammonia (7664-41-7)** |
|---|
| Listed on the Canadian IDL (Ingredient Disclosure List) |

### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

## SECTION 16: Other information

Revision date : 11/27/2018

Training advice : Users of breathing apparatus must be trained.

Other information : None.

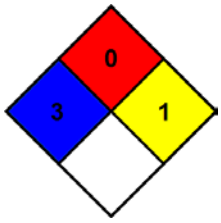
Full text of H-phrases: see section 16:

| | |
|---|---|
| H221 | Flammable gas |
| H280 | Contains gas under pressure; may explode if heated |
| H302 | Harmful if swallowed |
| H314 | Causes severe skin burns and eye damage |
| H318 | Causes serious eye damage |
| H331 | Toxic if inhaled |
| H335 | May cause respiratory irritation |
| H400 | Very toxic to aquatic life |

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 1 - Materials that in themselves are normally stable but can become unstable at elevated temperatures and pressures.




Hazard Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Personal protection : H

H - Splash goggles, Gloves, Synthetic apron, Vapor respirator

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