

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
Product name : Ammonium Hydroxide, 50% v/v (1+1)  
Product code : LC11140

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : For laboratory and manufacturing use only

#### 1.3. Details of the supplier of the safety data sheet

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](mailto:info@labchem.com) - [www.labchem.com](http://www.labchem.com)

#### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Skin corrosion/irritation Category 1C H314  
Serious eye damage/eye irritation Category 1 H318  
Specific target organ toxicity (single exposure) Category 3 H335  
Hazardous to the aquatic environment - Acute Hazard Category 2 H401

Full text of H statements : see section 16

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H314 - Causes severe skin burns and eye damage  
H335 - May cause respiratory irritation  
H401 - Toxic to aquatic life

Precautionary statements (GHS-US) : P260 - Do not breathe mist, vapors, spray  
P264 - Wash exposed skin thoroughly after handling  
P271 - Use only outdoors or in a well-ventilated area  
P273 - Avoid release to the environment  
P280 - Wear protective gloves, eye 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  
P363 - Wash contaminated clothing before reuse  
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

Other hazards not contributing to the classification : None under normal conditions.

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

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substance

Not applicable

### 3.2. Mixture

Name	Product identifier	%	GHS-US classification
Water	(CAS No) 7732-18-5	86.96	Not classified
Ammonium Hydroxide, ACS	(CAS No) 1336-21-6	13.04	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:vapour), H332 Skin Corr. 1C, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400

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

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell.
First-aid measures after skin contact	: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center or doctor/physician.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.
First-aid measures after ingestion	: Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries	: Causes severe skin burns and eye damage.
Symptoms/injuries after inhalation	: May cause respiratory irritation.
Symptoms/injuries after eye contact	: Causes serious eye damage.

### 4.3. Indication of any immediate medical attention and special treatment needed

Obtain medical assistance.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	: Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media	: Do not use a heavy water stream.

### 5.2. Special hazards arising from the substance or mixture

Reactivity	: Thermal decomposition generates : Corrosive vapors.
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### 5.3. Advice for firefighters

Firefighting instructions	: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
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	: Safety glasses. Gloves. Protective clothing. Combined gas/dust mask with filter type K/P2.
Emergency procedures	: Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

Protective equipment	: Equip cleanup crew with proper protection.
Emergency procedures	: Ventilate area.

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### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

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

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

### 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 : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Do not breathe mist, vapors, spray. Use only outdoors or in a well-ventilated area.

Hygiene measures : Wash exposed skin thoroughly after handling. Wash contaminated clothing before reuse.

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

Technical measures : Comply with applicable regulations.

Storage conditions : Keep cool. Keep only in the original container in a cool, well ventilated place away from : incompatible materials. Keep container tightly closed.

Incompatible products : metals. Strong acids.

Incompatible materials : Sources of ignition. Direct sunlight.

## 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
OSHA	OSHA PEL (TWA) (mg/m³)	35 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	50 ppm
IDLH	US IDLH (ppm)	300 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
Water (7732-18-5)		
Not applicable		

### 8.2. Exposure controls

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

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



Hand protection : Wear protective gloves.

Eye protection : Chemical goggles or face shield.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : Wear appropriate mask.

Other information : Do not eat, drink or smoke during use.

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### SECTION 9: Physical and chemical properties

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

Physical state	: Liquid
Color	: Colorless
Odor	: Ammonia odour
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
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	: No data available
Specific gravity / density	: 0.95 g/ml
Solubility	: No data available
Log Pow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: 1.25 cSt
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

#### 9.2. Other information

No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

Thermal decomposition generates : Corrosive vapors.

#### 10.2. Chemical stability

Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

Not established.

#### 10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

#### 10.5. Incompatible materials

Strong acids. metals.

#### 10.6. Hazardous decomposition products

Gaseous ammonia. 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)	350.000 mg/kg body weight

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Ammonium Hydroxide, ACS (1336-21-6)	
ATE US (vapors)	10.714 mg/l/4h
Water (7732-18-5)	
LD50 oral rat	≥ 90000 mg/kg
ATE US (oral)	90000.000 mg/kg body weight

Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Causes serious eye damage.
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	: Based on available data, the classification criteria are not met.
Symptoms/injuries after inhalation	: May cause respiratory irritation.
Symptoms/injuries after eye contact	: Causes serious eye damage.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - water : Toxic to aquatic life.

Ammonium Hydroxide, ACS (1336-21-6)	
LC50 fish 1	0.16 - 1.1 mg/l (LC50; 96 h)
EC50 Daphnia 1	2.08 mg/l (LC50; 48 h)

### 12.2. Persistence and degradability

Ammonium Hydroxide, 50% v/v (1+1)	
Persistence and degradability	Not established.
Ammonium Hydroxide, ACS (1336-21-6)	
Persistence and degradability	Readily biodegradable in water. Ozonation in water. Biodegradable in the soil. No test data on mobility of the components available. Ozonation in the air.
Water (7732-18-5)	
Persistence and degradability	Not established.

### 12.3. Bioaccumulative potential

Ammonium Hydroxide, 50% v/v (1+1)	
Bioaccumulative potential	Not established.
Ammonium Hydroxide, ACS (1336-21-6)	
Log Pow	-1.3
Bioaccumulative potential	Bioaccumulation: not applicable.
Water (7732-18-5)	
Bioaccumulative potential	Not established.

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

Effect on the global warming	: No known effects from this product.
GWPmix comment	: No known effects from this product.

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Other information : Avoid release to the environment.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.

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  
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



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)  
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)  
T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3)  
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.

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### Ammonium Hydroxide, 50% v/v (1+1)

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
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All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

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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.

Ammonium Hydroxide, ACS	CAS No 1336-21-6	13.04%
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### Ammonium Hydroxide, ACS (1336-21-6)

RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
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## 15.2. International regulations

### CANADA

#### Ammonium Hydroxide, 50% v/v (1+1)

WHMIS Classification	Class E - Corrosive Material
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#### Ammonium Hydroxide, ACS (1336-21-6)

WHMIS Classification	Class E - Corrosive Material
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#### Water (7732-18-5)

WHMIS Classification	Uncontrolled product according to WHMIS classification criteria
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### EU-Regulations

No additional information available

### National regulations

No additional information available

## 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 : 11/21/2016

Other information : None.

Full text of H-phrases: see section 16:

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H332	Harmful if inhaled
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H401	Toxic to aquatic life

NFPA health hazard

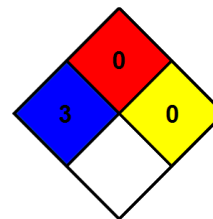
: 3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

NFPA fire hazard

: 0 - Materials that will not burn.

NFPA reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III 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 : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal protection

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

SDS US LabChem

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