SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product form : Mixture
Product name : Ammonium Hydroxide, 6.0N (6.0M)
Product code : LC11120

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 - www.labchem.com

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

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification
Skin Corr. 1C H314
Eye Dam. 1 H318
STOT SE 3 H335
Aquatic Acute 2 H401

2.2. Label elements

GHS-US labelling
Hazard pictograms (GHS-US) :

GHS05
GHS07

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, vapours, 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.
2.4. Unknown acute toxicity (GHS-US)
No data available

SECTION 3: Composition/information on ingredients

3.1. Substance
Not applicable
Full text of H-phrases: see section 16

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>(CAS No) 7732-18-5</td>
<td>89.3</td>
<td>Not classified</td>
</tr>
<tr>
<td>Ammonium Hydroxide, 28-30% w/w</td>
<td>(CAS No) 1336-21-6</td>
<td>10.7</td>
<td>Acute Tox. 4 (Oral), H302 Skin Corr. 1A, H514 Aquatic Acute 1, H400</td>
</tr>
</tbody>
</table>

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 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/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
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 vapours.

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
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment: Equip cleanup crew with proper protection.
Emergency procedures: Ventilate area.

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 vapour. Do not breathe mist, vapours, 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.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Ammonium Hydroxide, 28-30% w/w (1336-21-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH</td>
</tr>
<tr>
<td>USA ACGIH</td>
</tr>
<tr>
<td>USA ACGIH</td>
</tr>
<tr>
<td>USA ACGIH</td>
</tr>
<tr>
<td>USA OSHA</td>
</tr>
<tr>
<td>USA OSHA</td>
</tr>
</tbody>
</table>

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.

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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>Colourless.</td>
</tr>
<tr>
<td>Odour</td>
<td>Ammonia odour.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Self ignition temperature</td>
<td>No data available</td>
</tr>
</tbody>
</table>

02/19/2014 EN (English) 3/8
### Decomposition temperature
No data available

### Flammability (solid, gas)
No data available

### Vapour pressure
No data available

### Relative vapour density at 20 °C
No data available

### Relative density
No data available

### Density
0.95 g/ml

### Solubility
No data available

### Log Pow
No data available

### Log Kow
No data available

### Viscosity, kinematic
1.2 cSt

### Viscosity, dynamic
No data available

### Explosive properties
No data available

### Oxidising properties
No data available

### Explosive limits
No data available

### 9.2. Other information
No additional information available

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity
Thermal decomposition generates: Corrosive vapours.

#### 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

#### 10.6. Hazardous decomposition products
Gaseous ammonia. Thermal decomposition generates: Corrosive vapours.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

**Acute toxicity**: Not classified

<table>
<thead>
<tr>
<th>Substance</th>
<th>Route</th>
<th>Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ammonium Hydroxide, 28-30% w/w (1336-21-6)</strong></td>
<td>LD50 oral rat</td>
<td>350 mg/kg</td>
</tr>
<tr>
<td><strong>Water (7732-18-5)</strong></td>
<td>LD50 oral rat</td>
<td>≥ 90000 mg/kg</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**: Causes severe skin burns and eye damage.

**Serious eye damage/irritation**: Causes serious eye damage.

**Respiratory or skin sensitisation**: 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.
- May cause respiratory irritation.
- Causes serious eye damage.
- Inhalation, Skin and eye contact

### SECTION 12: Ecological Information

#### 12.1 Toxicity

**Ecology - water**: Toxic to aquatic life.

<table>
<thead>
<tr>
<th>Ammonium Hydroxide, 28-30% w/w (1336-21-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fishes 1</td>
</tr>
<tr>
<td>0.16 - 1.1 mg/l (96 h; Salmo gairdneri (Oncorhynchus mykiss); Solution &gt;=50%)</td>
</tr>
<tr>
<td>LC50 other aquatic organisms 1</td>
</tr>
<tr>
<td>1 - 10 mg/l (96 h; Solution &gt;=50%)</td>
</tr>
<tr>
<td>LC50 fish 2</td>
</tr>
<tr>
<td>0.75 - 3.4 mg/l (96 h; Pimephales promelas; Solution &gt;=50%)</td>
</tr>
<tr>
<td>TLM fish 1</td>
</tr>
<tr>
<td>47 ppm (48 h; Salmo gairdneri (Oncorhynchus mykiss); Cool water)</td>
</tr>
<tr>
<td>TLM fish 2</td>
</tr>
<tr>
<td>34 ppm (48 h; Salmo gairdneri (Oncorhynchus mykiss); Warm water)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Threshold limit other aquatic organisms 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 10.96 h; Solution &gt;=50%</td>
</tr>
</tbody>
</table>

#### 12.2 Persistence and Degradability

**Ammonium Hydroxide, 6.0N (6.0M)**

Persistence and degradability: Not established.

**Ammonium Hydroxide, 28-30% w/w (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 of the mixture available. Ozonation in the air.

**Water (7732-18-5)**

Persistence and degradability: Not established.

#### 12.3 Bioaccumulative Potential

**Ammonium Hydroxide, 6.0N (6.0M)**

Bioaccumulative potential: Not established.

**Ammonium Hydroxide, 28-30% w/w (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

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

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): 2672

DOT NA no.: UN2672

DOT 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 ammonia)
Ammonium Hydroxide, 6.0N (6.0M)
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>Department of Transportation (DOT) Hazard Classes</th>
<th>8 - Class 8 - Corrosive material 49 CFR 173.136</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard labels (DOT)</td>
<td>8 - Corrosive</td>
</tr>
<tr>
<td>Packing group (DOT)</td>
<td>III - Minor Danger</td>
</tr>
<tr>
<td>DOT Special Provisions (49 CFR 172.102)</td>
<td>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.</td>
</tr>
<tr>
<td>DOT Packaging Exceptions (49 CFR 173.xxx)</td>
<td>154</td>
</tr>
<tr>
<td>DOT Packaging Non Bulk (49 CFR 173.xxx)</td>
<td>203</td>
</tr>
<tr>
<td>DOT Packaging Bulk (49 CFR 173.xxx)</td>
<td>241</td>
</tr>
<tr>
<td>DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)</td>
<td>5 L</td>
</tr>
<tr>
<td>DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)</td>
<td>60 L</td>
</tr>
<tr>
<td>DOT Vessel Stowage Location</td>
<td>A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.</td>
</tr>
<tr>
<td>DOT Vessel Stowage Other</td>
<td>40 - Stow “clear of living quarters”,52 - Stow “separated from” acids,85 - Under deck stowage must be in mechanically ventilated space</td>
</tr>
</tbody>
</table>

Additional information

Other information : No supplementary information available.

ADR

Transport document description :

Transport by sea
No additional information available

Air transport
No additional information available

SECTION 15: Regulatory information

15.1: US Federal regulations

| Ammonium Hydroxide, 6.0N (6.0M)               | Immediate (acute) health hazard |
| SARA Section 311/312 Hazard Classes          |                                |

Ammonium Hydroxide, 28-30% w/w (1336-21-6)

| Listed on the United States TSCA (Toxic Substances Control Act) inventory |                                |
| Listed on SARA Section 313 (Specific toxic chemical listings)            |                                |
| RQ (Reportable quantity, section 304 of EPA's List of Lists) : 1000 lb    |                                |

Water (7732-18-5)

| Listed on the United States TSCA (Toxic Substances Control Act) inventory |                                |
### 15.2. International regulations

#### CANADA

<table>
<thead>
<tr>
<th>Product</th>
<th>WHMIS Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Hydroxide, 6.0N (6.0M)</td>
<td>Class E - Corrosive Material</td>
</tr>
<tr>
<td>Ammonium Hydroxide, 28-30% w/w (1336-21-6)</td>
<td>Class E - Corrosive Material</td>
</tr>
<tr>
<td>Water (7732-18-5)</td>
<td>Uncontrolled product according to WHMIS classification criteria</td>
</tr>
</tbody>
</table>

#### EU-Regulations

No additional information available

### Classification according to Regulation (EC) No. 1272/2008 [CLP]

### Classification according to Directive 67/548/EEC or 1999/45/EC

Not classified

### 15.2. National regulations

#### Water (7732-18-5)

Not listed on the Canadian Ingredient Disclosure List

### 15.3. US State regulations

No additional information available

### SECTION 16: Other information

Other information : None.

Full text of H-phrases: see section 16:

<table>
<thead>
<tr>
<th>H-Phrase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life</td>
</tr>
<tr>
<td>H401</td>
<td>Toxic to aquatic life</td>
</tr>
</tbody>
</table>
Ammonium Hydroxide, 6.0N (6.0M)
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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 : 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

HMIS III Rating
Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability : 0 Minimal Hazard
Physical : 1 Slight Hazard
Personal Protection : B

SDS US (GHS HazCom 2012)

Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and LabChem Inc assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his application.