AMMONIA BUFFER SOLUTION

MATERIAL SAFETY DATA SHEET
SDS/MSDS

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

1.1 Product identifiers
   Product name: Ammonia Buffer Solution
   Product Code: 804500

1.2 Relevant identified uses of the substance or mixture and uses advised against
   Identified uses: Laboratory chemicals, Industrial & for professional use only.

1.3 Details of the supplier of the safety data sheet
   Company: Central Drug House (P) Ltd
   7/28 Varadaan House
   New Delhi - 110002
   INDIA
   Telephone: +91 11 49404040
   Email: care@cdhfinechemical.com

1.4 Emergency telephone number
   Emergency Phone #: +91 11 49404040 (9:00am - 6:00 pm) [Office hours]

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   Classification according to Regulation (EC) No 1272/2008
   Skin corrosion (Category 1B), H314
   Specific target organ – single respiratory system (Category 3), H335
   For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements
   Labelling according Regulation (EC) No 1272/2008
   Pictogram
   Signal word: Warning
   Hazard statement(s)
   H314: Causes severe skin burns and eye damage.
   H335: May cause respiratory irritation.
   Precautionary statement(s)
   P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
   P301 + P330 + P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
   P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
   P308+P310: IF exposed or concerned: Immediately call a POISON CENTER or doctor/physician.
2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Mixtures

Hazardous ingredients according to Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia solution</td>
<td>Acute Tox. 4; Skin Corr. 1B;</td>
<td>&gt;=5 - &lt; 10 %</td>
</tr>
<tr>
<td>CAS-No. 1336-21-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC-No. 215-647-6</td>
<td>Eye Dam. 1; Aquatic Acute 1;</td>
<td></td>
</tr>
<tr>
<td>Index-No. 007-001-01-2</td>
<td>Aquatic Chronic 2; H302, H314, H318, H400, H411</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Concentration limits:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;= 5 %; STOT SE 3, H335;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M-Factor - Aquatic Acute: 1</td>
<td></td>
</tr>
<tr>
<td>Ammonium Chloride</td>
<td>Acute Tox. 4; Eye Irrit. 2;</td>
<td>&gt;=3 - &lt; 10 %</td>
</tr>
<tr>
<td>CAS-No. 12125-02-9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC-No. 235-186-4</td>
<td>Aquatic Chronic 2; H302, H319, H411</td>
<td></td>
</tr>
<tr>
<td>Index-No. 017-014-00-8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
fresh air. Call in physician.

In case of skin contact
Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

In case of eye contact
Rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
Make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed
Risk of blindness! Irritation and corrosion, bronchitis, Cough, Shortness of breath, Abdominal pain, Bloody vomiting, Nausea, shock, Convulsions

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Not combustible. Ammonia solution itself is not flammable, but can form an ignitable ammonia/air-mixture by outgassing. Ambient fire may liberate hazardous vapours.

Fire may cause evolution of: nitrogen oxides
5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe
distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from
contaminating surface water or the ground water system. Remove container from danger zone and cool
with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact.
Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures. Consult an
expert.
Advice for emergency responders: Protective equipment see section 8.

6.2 Environmental precautions
Do not empty into drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and
10). Take up with liquid-absorbent and neutralising material. Dispose of properly. Clean up affected area.

6.4 Reference to other sections
No data available

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Advice on safe handling: Observe label precautions.
Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after
working with substance.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions: Tightly closed.
Recommended storage temperature see product label.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and
at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under
appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique
(without touching glove's outer surface) to avoid skin contact with this product. Dispose of
contaminated gloves after use in accordance with applicable laws and good laboratory practices.
Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected
according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use (US) or type ABEK (EN 14387) respirator cartridges as a backup to enginee protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance
   Form: liquid
   Colour: Colourless

b) Odour
   ammoniacal

c) Odour Threshold
   No data available

d) pH
   No data available

e) Melting point/freezing point
   Approximately 0°C

f) Initial boiling point and boiling range
   Approximately 36°C - Approximately 36°C

g) Flash point
   No data available

h) Evaporation rate
   No data available

i) Flammability (solid, gas)
   No data available

j) Upper/lower flammability or explosive limits
   No data available

k) Vapour pressure
   No data available

l) Vapour density
   No data available

m) Relative density
   0.950 g at 20 °C

n) Water solubility
   Miscible with water

o) Partition coefficient: n-octanol/water
   No data available

p) Auto-ignition temperature
   No data available

q) Decomposition temperature
   No data available

r) Viscosity
   No data available

s) Explosive properties
   No data available

t) Oxidizing properties
   No data available

9.2 Other safety information
   No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
   No data available

10.2 Chemical stability
   Ammonia solution itself is not flammable, but can form an ignitable ammonia/air-mixture by outgassing.
10.3 **Possibility of hazardous reactions**

A risk of explosion and/or of toxic gas formation exists with the following substances: Oxidizing agents, Mercury, Oxygen, silver compounds, nitrogen trichloride, hydrogen peroxide, silver, antimony hydride, halogens, Acids, Calcium, Chlorites, auric salts, perchlorates, sodium hypochlorite, mercury compounds, halogen oxides. Heavy metals, Heavy metal salts, Acid chlorides, Acid anhydrides

**Risk of ignition or formation of inflamable gases or vapours with:** Boranes, Boron, Oxides of phosphorus, Nitric acid, silicon compounds, chromium(VI) oxide, chromyl chloride.

**Exothermic reaction with:** Acetaldehyde, Acrolein, Barium, boron compounds, Bromine, halogen-halogen compounds, hydrogen bromide, silane, Hydrogen chloride gas, halogen compounds, dimethylsulfate, nitrogen oxides, Fluorine, Hydrogen fluoride, chlorates, Carbon dioxide (CO₂) Ethylene oxide, polymerisable

10.4 **Conditions to avoid**

Warming.

10.5 **Incompatible materials**

Aluminium, Lead, Nickel, silver, Zinc, Copper, metal alloys, various metals, copper compounds

10.6 **Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

**SECTION 11: Toxicological information**

11.1 **Information on toxicological effects**

**Acute oral toxicity**

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

**Acute inhalation toxicity**

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

**Acute dermal toxicity**

No data available

**Skin corrosion/irritation**

Mixture causes burns.

**Serious eye damage/eye irritation**

Mixture causes serious eye damage. Risk of blindness!

**Respiratory or skin sensitisation**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

Mixture may cause respiratory irritation.

Target Organs: Respiratory system

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**Additional Information**

No data available
SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Additional ecological information

Biological effects: Harmful due to pH shift. Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: - IMDG: - IATA: -

14.2 UN proper shipping name
ADR/RID: Not dangerous goods IMDG: Not dangerous goods IATA: Not dangerous goods

14.3 Transport hazard class(es)
ADR/RID: - IMDG: - IATA: -

14.4 Packaging group
ADR/RID: - IMDG: - IATA: -

14.5 Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user
No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical safety assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H400 Very toxic to aquatic life.

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Central Drug House (P) Ltd and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.cdhfinechemical.com for additional terms and conditions of sale.