Urea Solution
SAFETY DATA SHEET

1. SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product identifier: Urea Solution.
Synonym(s): Carbamide, Carbonyldiamide.
Chemical Family: Carboxylic acids.
Molecular weight: 60.7 as 100% Urea.
CAS No.: Mixtures.

1.2 Recommended use of the chemical and restrictions on use

Identified Use(s): Fertilizer, Emissions control.
Uses Advised Against: None known.

1.3 Supplier’s details

Company Identification: Cornerstone Chemical Company
10800 River Road,
Waggaman, Louisiana 70094,
USA.
Telephone: 1-504-431-9511
E-mail: info@cornerstonechemco.com

1.4 Emergency Phone No.

CHEMTREC (USA and Canada): 1-800-424-9300 (24h)
CHEMTREC (Outside of USA and Canada): +1-703-527-3887 (24h)

2. SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not classified as dangerous for supply/use.

2.2 Label elements

Hazard Pictogram(s): None.
Signal Word(s): None.
Hazard Statement(s): None.
Precautionary Statement(s): None.

2.3 Other hazards

None.

2.4 Additional Information

None.

3. SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Mixtures

<table>
<thead>
<tr>
<th>Hazardous Ingredient(s)</th>
<th>CAS No.</th>
<th>%W/W</th>
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<tr>
<td>Urea</td>
<td>57-13-6</td>
<td>&lt;70</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>&gt;30</td>
</tr>
<tr>
<td>Ammonia, anhydrous</td>
<td>7664-41-7</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

3.2 Additional Information

None.
4. **SECTION 4: FIRST AID MEASURES**

4.1 **Description of first aid measures**

- **Inhalation**
  - If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If symptoms persist, obtain medical attention.

- **Skin Contact**
  - Wash affected skin with soap and water. If symptoms persist, obtain medical attention.

- **Eye Contact**
  - Flush eyes with water for at least 15 minutes while holding eyelids open. If symptoms persist, obtain medical attention.

- **Ingestion**
  - Rinse mouth. Drink one glass of water. Do not give anything by mouth to an unconscious person. If symptoms persist, obtain medical attention.

4.2 **Most important symptoms and effects, both acute and delayed**

- Unlikely to be required but if necessary treat symptomatically.

4.3 **Indication of any immediate medical attention and special treatment needed**

- No special requirements.

5. **SECTION 5: FIRE-FIGHTING MEASURES**

5.1 **Extinguishing Media**

- **Suitable Extinguishing Media**
  - Extinguish with water spray, dry chemical, sand or carbon dioxide.

- **Unsuitable Extinguishing Media**
  - None known.

5.2 **Special hazards arising from the substance or mixture**

- Decomposition products: Ammonia, Carbon monoxide, Carbon dioxide, Oxides of nitrogen.

5.3 **Advice for fire-fighters**

- Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire.

6. **SECTION 6: ACCIDENTAL RELEASE MEASURES**

6.1 **Personal precautions, protective equipment and emergency procedures**

- Ensure adequate ventilation. Stop leak if safe to do so. Wear protective gloves/eye protection. Wash hands thoroughly after handling.

6.2 **Environmental precautions**

- Do not allow to enter drains, sewers or waterways.

6.3 **Methods and material for containment and cleaning up**

- Cover spills with inert absorbent material. Transfer to a container for disposal. Wash the spillage area with water.

6.4 **Reference to other sections**

- See Also Section 8, 13.

7. **SECTION 7: HANDLING AND STORAGE**

7.1 **Precautions for safe handling**

- Provide adequate ventilation. Wear protective gloves/eye protection. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

7.2 **Conditions for safe storage, including any incompatibilities**

7.2.1 **Storage temperature**

- Ambient temperatures.

7.2.2 **Storage life**

- Stable under normal conditions.
Urea Solution

7.2.3 Incompatible materials

Oxidizing agents, Steel.

8. SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>CAS No.</th>
<th>LTEL (8 hr TWA ppm)</th>
<th>LTEL (8 hr TWA mg/m³)</th>
<th>STEL (ppm)</th>
<th>STEL (mg/m³)</th>
<th>Note</th>
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<tbody>
<tr>
<td>Ammonia, anhydrous</td>
<td>7664-41-7</td>
<td>25</td>
<td>18</td>
<td>35</td>
<td>27</td>
<td>USA (NIOSH/OSHA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50</td>
<td>35</td>
<td>-</td>
<td>-</td>
<td>TLV (ACGIH)</td>
</tr>
</tbody>
</table>

Source:

NIOSH = National Institute of Occupational Safety & Health
OSHA = Occupational Safety and Health Administration
TLV = Threshold Limit Value
ACGIH = American Conference of Industrial Hygienists

8.2 Appropriate engineering controls

Provide adequate ventilation.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear protective eye glasses for protection against liquid splashes. Wear close fitting goggles or full face shield.

Skin protection

Wear suitable protective clothing and gloves.

Wear: Impervious gloves and boots.

Respiratory protection

Normally no personal respiratory protection is necessary.

Wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely.

Thermal hazards

Not applicable.

9. SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance: Colorless.
Color: Liquid.
Odor: Ammoniacal.
Odor Threshold: Not available.
pH: ~10
Melting Point/Freezing Point: 90.6 °C (195 °F)
Initial boiling point and boiling range: ~106 °C (222.8 °F)
Flash point: Not applicable.
Evaporation Rate: Not available.
Flammability (solid, gas): Non-flammable.
Upper/lower flammability or explosive limits: Not applicable.
Vapor pressure: ~80Pa @ 20 °C
Vapor density: Not available.
Relative density: 1.13
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Solubility(ies)  Soluble in water.
Partition coefficient: n-octanol/water  Not available.
Auto-ignition temperature  Not available.
Decomposition Temperature  100 °C (212 °F)
Viscosity  Not available.
Explosive properties  Not explosive.
Oxidizing properties  Not oxidizing.

9.2 Other information
Percent Volatile by volume (%)  1.0 – 1.5

10. SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity  Stable under normal conditions.
10.2 Chemical stability  Stable under normal conditions.
10.3 Possibility of hazardous reactions  Stable under normal conditions.
10.4 Conditions to avoid  Stable under normal conditions.
10.5 Incompatible materials  Oxidizing agents, Steel.
10.6 Hazardous decomposition product(s)  Ammonia, Carbon monoxide, Carbon dioxide, Oxides of nitrogen.

11. SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute toxicity
Oral  Low acute toxicity.
LD50 (rat) >5000mg/kg
Dermal  Low acute toxicity.
LD50 (rat) >2000mg/kg
Inhalation  Dried urea dust: May cause irritation.
Skin corrosion/irritation  Product as supplied: Non-irritant.
Dried urea dust: May cause irritation.
Serious eye damage/irritation  Not classified.
Respiratory or skin sensitization  It is not a skin sensitizer.
Germ cell mutagenicity  There is no evidence of mutagenic potential.
Carcinogenicity  No evidence of carcinogenicity.
Reproductive toxicity  None anticipated.
STOT - single exposure  None anticipated.
STOT - repeated exposure  None anticipated.
Aspiration hazard  None anticipated.
11.2 Other information  None.

12. SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity  Low toxicity to aquatic organisms.
12.2 Persistence and degradability  The product is biodegradable. The product is unlikely to persist in the environment.
Urea (OECD 302): 96%
12.3 Bioaccumulative potential  The product has no potential for bioaccumulation.
12.4 Mobility in soil  The product is soluble in water.
12.5 Other adverse effects  None anticipated.
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13. SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Bury on an authorized landfill site or incinerate under approved controlled conditions.

13.2 Additional information
Disposal should be in accordance with local, state or national legislation.
US RCRA Hazard Class
Not listed.

14. SECTION 14: TRANSPORT INFORMATION

D.O.T. Classification
Not classified as dangerous for transport.

14.1 UN number
Not applicable.

14.2 Proper Shipping Name
Not applicable.

14.3 Transport hazard class(es)
Not applicable.

14.4 Packing group
Not applicable.

14.5 Environmental hazards
Not applicable.

14.6 Special precautions for user
Not applicable.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

15. SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1 OSHA
Toxic and hazardous substances (29 CFR 1910.1900)
Not listed.

Requirements for preparation, adoption, and submittal of implementation plans (40 CFR 51.100)
Not listed.

National emission standards for hazardous air pollutants (40 CFR 61.01)
Not listed.

15.1.2 Title III Consolidated List of Lists
CAA Section 112(r) List of Substances for Accidental Release Prevention
Ammonia (CAS No.: 7664-41-7): Listed. (≥20%). Product as supplied: <1% Ammonia.

OSPAR List of Chemicals for Priority Action
Not listed.

15.1.3 State Right to Know Lists
Ammonia (CAS No.: 7664-41-7): California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

15.1.4 TSCA
All ingredients are listed.

15.1.5 Proposition 65 (California)
Not listed.

15.1.6 Ozone Depleting Substances
Not listed.

16. SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: 1-16.

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<thead>
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<th>NFPA</th>
<th>HMIS</th>
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<tr>
<td>Fire</td>
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<tr>
<td>Instability</td>
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</tr>
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</table>
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LEGEND
LTEL  Long Term Exposure Limit
STEL  Short Term Exposure Limit
STOT  Specific Target Organ Toxicity
OSHA  Occupational Safety and Health Administration
TSCA  Toxic Substances Control Act
NFPA  National Fire Protection Association
HMIS  Hazardous Material Information System
OECD  Organization for Economic Co-operation and Development

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