Section 1. Product and Company Identification

Manufactured/Supplied by
Fort Dodge Animal Health
800 5th Street NW
P.O. Box 518
Fort Dodge, IA 50501
Phone: 515-955-4600
Fax: 515-955-9149

Date of Preparation
17 January 2002

Product No.
30-4401

Material Use
Pharmaceutical: Veterinary pharmaceutical.

In Case of Emergency
515-955-6033

Section 2. Composition - Information on Ingredients

<table>
<thead>
<tr>
<th>Name of Ingredients</th>
<th>CAS No.</th>
<th>Conc.</th>
<th>EU Symbol</th>
<th>R Phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Ketamine Hydrochloride</td>
<td>1867-66-9</td>
<td>10</td>
<td>Xn</td>
<td>R22</td>
</tr>
<tr>
<td>2) Benzethonium Chloride</td>
<td>121-54-0</td>
<td>0.01</td>
<td>N</td>
<td>R22, R38, R41, R51</td>
</tr>
<tr>
<td>3) Water For Injection.</td>
<td>7732-18-5</td>
<td>90</td>
<td>Xi</td>
<td>Not controlled.</td>
</tr>
</tbody>
</table>

Section 3. Hazards Identification - Summary of Primary Effects and Critical Hazards

Acute Health Effects
Severely irritating to eyes.

Chronic Health Effects
Potential organ systems affected are: Central Nervous System (CNS).

Environmental Hazards
Toxic for: Bluegill Fathead minnow

Section 4. First Aid Measures - (by medical responders using "Universal Precautions")

Eye Contact
Flush eyes with plenty of water for 15 minutes, occasionally lifting upper and lower eyelids. (Check person for contact lenses and remove if present.) If redness or irritation persists have eyes examined by doctor immediately.

Skin Contact
Flush skin with plenty of soap and water for at least 15 minutes (remove all contaminated clothing and shoes). Get medical attention if symptoms persist.

Inhalation
No specific treatment, treat symptomatically. If breathing is difficult, give oxygen, if respiratory arrest occurs provide artificial respiration and seek immediate medical assistance.

Ingestion
No specific treatment, treat symptomatically. Call medical doctor or poison control center immediately if large quantities are ingested.

Notes to Medical Doctor
Direct treatment at control of symptoms.

Continued on Next Page
Section 5. Fire-Fighting Measures

Extinguishing Media and Instructions: Follow your company's procedures. Use an extinguishing agent suitable for the surrounding class of fire.

Special Exposure Hazards: None. Dispose of fire debris and contaminated fire fighting water in accordance with regulations.

Special Fire Fighting Protective Equipment: No special product precautions or equipment.

Section 6. Accidental Release Measures

Small Spill Guidelines: Follow your company's spill procedures. Keep people away from spill. Put on appropriate personal protective equipment (see Section 8). Use a tool to scoop up solid or absorbed material and put into appropriate labeled waste container.

Large Spill Guidelines: Initiate company's spill response procedures immediately. Keep people out of area. Put on appropriate personal protective equipment (see Section 8).

Environmental Precautions: No special measures are typically indicated.

Section 7. Handling and Storage

Handling (ventilation and fire prevention): Avoid contact with eyes, skin, and clothing. Avoid generating or breathing product aerosol. Wash after handling.

Storage (conditions and limitations): Store tightly closed in original container. Keep containers in a well ventilated, secure location.

Section 8. Exposure Controls and Personal Protection - (normal and intended use)

<table>
<thead>
<tr>
<th>Component</th>
<th>REG. Limit</th>
<th>OSHA (PEL)</th>
<th>ACGIH (TLV®)</th>
<th>Company Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Ketamine Hydrochloride</td>
<td></td>
<td></td>
<td></td>
<td>0.025 mg/m³</td>
</tr>
</tbody>
</table>

Engineering Design and Control Measures: General ventilation is typically sufficient to keep airborne levels below established values. Provide eye wash and quick drench shower close to work station. Clean, appropriately launder, or dispose of all potentially contaminated work clothing, foot wear, and protective equipment after use.

Protective Clothing:
- **Eyes**: Safety glasses. Goggles, face shield, or other full-face protection where if the potential exists for direct exposure to aerosols or splashes.
- **Skin**: Lab coat.
- **Hands**: Gloves, Chemical resistant.
- **Respiratory**: Respirator selection must be based on anticipated exposure levels, product hazards, and the safe working limits of the selected respirator. A respirator is not needed under normal and intended conditions of product use.
**Section 9. Physical and Chemical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State and Appearance</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>Mixture.</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not available.</td>
</tr>
<tr>
<td>Melting/Freezing Point</td>
<td>0°C (32°F) based on data for: Water For Injection.</td>
</tr>
<tr>
<td>Density/Bulk Density</td>
<td>1 (Water = 1) (Water For Injection.)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>18 mm of Hg (@ 20°C) (Water For Injection.)</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Ketaset (Ketamine Hydrochloride) Veterinary Injection for Intramuscular Use: Easily soluble in cold water, hot water.</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Autoignition Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosion Limits</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Dust Explosivity</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

**Section 10. Stability and Reactivity**

<table>
<thead>
<tr>
<th>Conditions to Avoid and Incompatibility</th>
<th>Extremely reactive or incompatible with acids, alkalis. Reactive with organic materials.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decomposition Products</td>
<td>These products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2...), halogenated compounds.</td>
</tr>
</tbody>
</table>

**Section 11. Toxicological Information**

**Acute Effects**

<table>
<thead>
<tr>
<th>Component</th>
<th>Test</th>
<th>Result</th>
<th>Route</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Ketamine Hydrochloride</td>
<td>LD50</td>
<td>447 mg/kg</td>
<td>oral</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td>LD50</td>
<td>617 mg/kg</td>
<td>oral</td>
<td>Mouse</td>
</tr>
<tr>
<td>2) Benzethonium Chloride</td>
<td>LD50</td>
<td>368 mg/kg</td>
<td>oral</td>
<td>Rat</td>
</tr>
</tbody>
</table>

**Eye Contact**

Severely irritating (USA). Irritating (EU).

**Skin Contact**

Corrosive (USA). Causes Severe Skin Burns (EU).

**Inhalation**

Not available.

**Ingestion**

Practically non-toxic if swallowed.

**Chronic Effects**

**Target Organs**

Potential organ systems effected are: Cardiovascular System, Gastrointestinal Tract, Central Nervous System (CNS).

**Adverse Effects Statements**

No known significant effects or critical hazards.

*Continued on Next Page*
### Sensitization
Not available.

### Carcinogenic Effects
Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.

### Mutagenic Effects
Not mutagenic in a standard battery of genetic toxicological tests.

### Teratogenic Effects
No known human teratogenic effect

### Reproductive Effects
No evidence of human reproductive effects.

### Other Effects
FDA  C - Risk cannot be ruled out.

### Section 12. Ecological Information

<table>
<thead>
<tr>
<th>Environmental Fate</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Hazards</td>
<td>Toxic for: Bluegill  Fathead minnow</td>
</tr>
</tbody>
</table>

**Ecotoxicity**

<table>
<thead>
<tr>
<th>Component</th>
<th>Species</th>
<th>Period</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Benzethonium Chloride</td>
<td>Bluegill</td>
<td>96 hour(s)</td>
<td>1.4 mg/l</td>
</tr>
</tbody>
</table>

Other Not available.

### Section 13. Disposal Considerations

Waste Handling and Disposal: Avoid disposal, make attempts to use product completely in accordance with intended use. Incinerate unwanted products and waste materials.

**Note:** The waste generator must be informed of and follow all applicable rules and regulations for the handling and disposal of waste.

### Section 14. Transport Information

| Proper Shipping Name, Primary Class, UNNA Number, Packaging Group | Not controlled. |
| ADR/RID Classification (Road and Rail Transport) | Not controlled. |
| ADNR Classification (Inland Waterways) | Not controlled. |
| IMO/IMDG Class (Maritime Transport) | Not controlled. |
| ICAO/IATA (Air Transport) | Not controlled. |
| CEFIC Tremcard | Not available. |
| U.S.A. DOT Class | Not controlled. |
| RQ | Not applicable. |

NFPA Flammability Health Reactivity Specific hazard

**Continued on Next Page**

Obtained by Global Safety Management, Inc. (www.globalsafetynet.com)
## Section 15. Regulatory Information and Warning Labels

### (R) Risk Phrases
- R41- Risk of serious damage to eyes.

### (S) Safety Phrases
- S41- In case of fire and/or explosion do not breathe fumes.

**NOTE:** This product has been classified in accordance with applicable country-specific regulations.

## Section 16. Other Key Information

### Other Considerations
See product label and package insert for additional information.

**19 January 2002**

**Responsible for MSDS:** Global Engineering, Environmental and Safety

Fort Dodge Animal Health -- within American Home Products Corporation

### Notice to Reader

* This symbol indicates information which has changed from the previous MSDS.

The information provided in this MSDS is based on current knowledge, however, this does not constitute a warranty by the Company for that information. The product user is responsible for the appropriate and intended handling, use, and disposal of this product in accordance with label or package precautions and this information. All materials may present unknown hazards and should be used with caution.

**MSDSs available in multiple languages**