SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: BETAMIX ULTRA HERBICIDE
MSDS Number: 102000014215
EPA Registration No.: 264-851

Bayer CropScience
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
USA

For MEDICAL, TRANSPORTATION or other EMERGENCY call: 1-800-334-7577 (24 hours/day)
For Product Information call: 1-866-99BAYER (1-866-992-2937)

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Average % by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desmedipham</td>
<td>13684-56-5</td>
<td>15.00</td>
</tr>
<tr>
<td>Phenmedipham</td>
<td>13684-63-4</td>
<td>15.00</td>
</tr>
</tbody>
</table>

SECTION 3. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview: Warning! Causes substantial but temporary eye injury. Avoid contact with skin and clothing. Do not get in eyes or on clothing. Wear natural rubber gloves, protective clothing, and goggles. Toxic to fish. Toxic to aquatic organisms.

Physical State: liquid
Odor: aromatic
Appearance: bronze
Routes of Exposure: Eye contact, Ingestion, Skin Absorption, Skin contact

Immediate Effects:
Eye: Causes substantial but temporary eye injury.
Skin: May cause skin irritation. Harmful if absorbed through skin.
Ingestion: Harmful if swallowed.

SECTION 4. FIRST AID MEASURES
General
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Eye
Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

Skin
Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Inhalation
Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Notes to Physician Treatment
There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point
> 200 °F / > 93 °C

Suitable Extinguishing Media
Extinguishing media - small fires, carbon dioxide (CO2), dry chemical

Extinguishing media - large fires, water spray, foam, alcohol foam

Fire Fighting Instructions
Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Keep unauthorized people away. Avoid contact with spilled product or contaminated surfaces. Refer to protective measures listed in sections 7 and 8.

Methods for Cleaning Up
Take all necessary action to prevent and to remedy the effects of the spill. Any disposal practice must be in compliance with all Federal, State/provincial, and local laws and regulations.
Additional Advice

Dike contaminated area with absorbent granules, soil, sand, etc. Recover material, if possible. Do not allow product to enter streams, sewers or other waterways.

Small spills can be absorbed with absorbent granules, spill control pads, or any absorbent material. Carefully sweep up absorbed spilled material. Place in covered container for reuse or disposal.

Scrub contaminated area with soap and water. Use dry absorbent material such as clay granules to absorb and collect wash solution for proper disposal. Contaminated soil may have to be removed and disposed.

SECTION 7. HANDLING AND STORAGE

Handling Procedures

Do not breathe vapours or spray mist. Do not get in eyes or on clothing. Avoid contact with skin.

Storing Procedures

Do not contaminate water, food, or feed by storage or disposal. Store in original container. Store in a cool, dry secured storage area. Store in an area away from food, feedstuffs, fertilizers, seed and water sources.

Do not use, pour or store near heat or open flame.

Work/Hygienic Procedures

Handle in accordance with good industrial hygiene and safety practice. Recommendations for exposure control/personal protection are intended for the manufacture, formulation and packaging of the product.

Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If no such instructions for washables, use detergent and hot water.

Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. As soon as practical, wash thoroughly and change into clean clothing.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection

Train employees in safe use of the product. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Eye wash facility and safety shower should be available.
Engineering Controls  Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.

Eye/Face Protection  protective eyewear

Hand Protection  Chemical-resistant gloves (barrier laminate, butyl rubber, nitrile rubber or Viton)

Body Protection  Wear long-sleeved shirt and long pants and shoes plus socks.

Respiratory Protection  When respiratory protection is necessary under the conditions of use, wear a respirator approved by the National Institute for Occupational Safety and Health (NIOSH).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>bronze</td>
</tr>
<tr>
<td>Physical State</td>
<td>liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>aromatic</td>
</tr>
<tr>
<td>pH</td>
<td>3.1</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>9,029 lb/gal</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>dispersible</td>
</tr>
</tbody>
</table>

SECTION 10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Stability</td>
<td>Stable</td>
</tr>
<tr>
<td>Hazardous Reactions</td>
<td>Will not occur.</td>
</tr>
</tbody>
</table>

SECTION 11. TOXICOLOGICAL INFORMATION

Only acute toxicity studies have been performed on this product as formulated. The non-acute information pertains to the technical-grade active ingredients, Phenmedipham and Desmedipham.

<table>
<thead>
<tr>
<th>Toxicity Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Oral Toxicity</td>
<td>female rat: LD50: &gt; 2,000 mg/kg</td>
</tr>
<tr>
<td>Acute Dermal Toxicity</td>
<td>male/female rat: LD50: &gt; 2,000 mg/kg</td>
</tr>
</tbody>
</table>
Acute Inhalation Toxicity

male/female rat: LC50: > 2.1 mg/l
Exposure time: 4 h
Determined in the form of liquid aerosol.
(actual)

male/female rat: LC50: > 8.4 mg/l
Exposure time: 1 h
Determined in the form of liquid aerosol.
Extrapolated from the 4 hr LC50.
(actual)

Skin Irritation

rabbit: Slight irritation.

Eye Irritation

rabbit: Moderate eye irritation.

Sensitization

guinea pig: Non-sensitizing.

Chronic Toxicity

Phenmedipham: In two-year feeding studies with phenmedipham 1.10 (10/14) in rats, mice and dogs, no organotoxic effects were observed; the only effects noted at the high experimental doses (500-1000 ppm) were reduced weight gain (rats) and increased kidney weight (mice).

Desmedipham: In two-year feeding studies with desmedipham in mice and rats, adverse effects were observed only in animals receiving high doses (750-1,500 ppm). The effects include increased spleen weight, toxic hemolytic anemia (both species) and elevated methemoglobin levels (rats only, 300-1,500 ppm). However, there were no significant increases in mortality rate in both species even at high dose levels. In a similar one-year study with dogs (up to 5,000 ppm), toxic hemolytic anemia associated with compensatory erythropoiesis (generation of blood cells) was the main effect noted, with a threshold level of 300 ppm. The approximate no-effect level for desmedipham in the tested animals is: 25 mg/kg/day in mice; 3 mg/kg/day in rats; and 10 mg/kg/day in dogs.

Assessment Carcinogenicity

ACGIH
None.

NTP
None.

IARC
None.

OSHA
None.

Reproductive & Developmental Toxicity

REPRODUCTION: Both phenmedipham and desmedipham were shown to have no adverse effects on fertility or reproduction in multi-generation rat reproduction studies at dose levels up to 1,250 mg/kg/day.

DEVELOPMENTAL TOXICITY: Phenmedipham showed no embryotoxic or teratogenic effects in a rat or a rabbit teratology study.
No teratogenic effects of desmedipham were observed in fetuses of rabbits given up to 450 mg/kg/day during gestation. In rats, desmedipham induced methemoglobin formation in dams at all doses tested (10-1000 ppm). However, no teratogenic or embryotoxic effects were observed in the offspring from dams administered a low dose of 10 mg/kg/day. At the higher doses (100-1000 mg/kg/day), the dose-dependent, elevated methemoglobin levels were found to be maternally toxic, leading to an increased frequency of malformation.

**Mutagenicity**

Phenmedipham was not mutagenic or genotoxic when tested in numerous (eight) mutagenesis systems.

Desmedipham was not mutagenic or genotoxic when tested in Ames mutation test and chromosomal aberration tests using human lymphocytes or mouse micronucleus. It was mutagenic only in mouse lymphoma cells when tested at high doses which extended into the toxic range (50-100 mg/ml).

**SECTION 12. ECOLOGICAL INFORMATION**

**Environmental Precautions**

Toxic to fish and aquatic organisms. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to fish/aquatic organisms in adjacent sites. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.
SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance
Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal
Triple rinse containers. Do not re-use empty containers. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by State and Local authorities, by burning.

SECTION 14. TRANSPORT INFORMATION

TDG (Canada):
Not regulated for road or rail.

TRANSPORTATION CLASSIFICATION(US):
Not regulated for shipment by any mode of transportation

FREIGHT CLASSIFICATION:
Compounds, Tree or Weedkilling, N.O.I., other than poison; having a density of greater than 20 LBS. per cubic foot

SECTION 15. REGULATORY INFORMATION

EPA Registration No. 264-851

US Federal Regulations
TSCA list
None.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
None.

SARA Title III - Section 302 - Notification and Information
None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting
Desmedipham 13684-56-5

US States Regulatory Reporting
CA Prop65
This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients
Desmedipham 13684-56-5 NJ
Canadian Regulations
  Canadian Domestic Substance List
  None.

Environmental
  CERCLA
  None.
  Clean Water Section 307 Priority Pollutants
  None.
  Safe Drinking Water Act Maximum Contaminant Levels
  None.

International Regulations
  European Inventory of Existing Commercial Substances (EINECS)
  Desmedipham  13684-56-5
  Phenmedipham  13684-63-4

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):
  Health - 3  Flammability - 2  Reactivity - 0  Others - none
  0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason to Revise: Add EPA Registration No.

Revision Date: 04/21/2006

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