1. PRODUCT AND COMPANY IDENTIFICATION

Product name: KEMAMIDE® E ULTRA BEAD

Chemical name: Erucamide

Use of substance/preparation: Release agent. Chemical intermediate

Supplier: PMC Biogenix Inc.
1231 Pope Street
Memphis, TN 38108 USA

Emergency telephone number: CHEMTREC (24 hours) 800-424-9300

Environmental, Health and Safety Department: 901-320-5883
Customer Service: 800-641-2152
Prepared by: Product Safety Department Date of Issue: 02/29/2008

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

NORMAL PRECAUTIONS COMMON TO SAFE MANUFACTURING PRACTICE SHOULD BE FOLLOWED IN HANDLING AND STORAGE.

USUAL HAZARDS ASSOCIATED WITH ORGANIC DUSTS. THE POSSIBILITY OF EXPLOSION EXISTS UNDER DUSTY CONDITIONS. AVOID DUSTING WHEN HANDLING AND AVOID ALL POSSIBLE SOURCES OF IGNITION (SPARK AND FLAME). MOLTEN PRODUCT MAY CAUSE THERMAL BURNS.

3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>INGREDIENT</th>
<th>% BY WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>13-Docosenamide, (Z)-</td>
<td></td>
</tr>
<tr>
<td>CAS# 112-84-5</td>
<td></td>
</tr>
</tbody>
</table>

MSDS #10350USEN
4. FIRST AID MEASURES

Swallowing
No emergency care anticipated. WHEN MOLTEN ONLY (molten product can cause thermal burns) - Obtain medical attention immediately.

Inhalation
Remove to fresh air.

Skin contact
Wash skin thoroughly with soap and water for at least 15 minutes. If redness or irritation occurs, seek medical attention. WHEN MOLTEN ONLY (molten product can cause thermal burns) - For contact with hot molten material, cool burned skin area by immersing in cold water or apply cold water.

Eye contact
Immediately flush eyes with water and continue washing for at least 15 minutes. If redness or irritation occurs, seek medical attention. WHEN MOLTEN ONLY (molten product can cause thermal burns) - Obtain medical attention immediately. Immediately flush eyes with water and continue washing for at least 15 minutes. If redness or irritation occurs, seek medical attention.

5. FIRE-FIGHTING MEASURES

Flash point: 428 °F 220 °C
Flammable limits
Lower limit: Not available
Upper limit: Not available

Autoignition temperature: Not available

Hazardous combustion products
Burning can produce the following combustion products:
Carbon monoxide.
Carbon dioxide.
Oxides of nitrogen.

Special fire fighting procedures
Do not direct a solid stream of water or foam into burning molten material; this may cause spattering and spread the fire.

Special protective equipment for firefighters
Firefighters must be equipped to prevent breathing of vapors or products of combustion. Wear an approved self-contained breathing apparatus and protective clothing.

Extinguishing media
Suitable: Extinguish with:
- dry chemical
- water spray
- CO2
- foam
- dry powder (ABC-powder)

Unsuitable: High volume water jet.

Unusual fire and explosion hazards
In case of a fire aside from the major combustion products carbon dioxide and carbon monoxide other harmful gases and vapors may be formed. Oxides of nitrogen.

6. ACCIDENTAL RELEASE MEASURES
Personal precautions
Avoid dust formation., In case of occurrence of dust respiratory protective equipment required.

Environmental precautions
This product is insoluble in water and will float on the surface., Prevent from entering sewer system or surface water., Disposal: see section 13

Methods for cleaning up
Avoid dust formation.
Avoid dispersion of dust.
Sweep up and collect in a suitable container for disposal.
Sweep up using non-sparking equipment.
Eliminate sources of ignition.
Dispose of waste material in compliance with all federal, state, and local regulations.

7. HANDLING AND STORAGE

HANDLING
Handling precautions
Keep container tightly closed., Avoid dispersion of dust in air., Do not get in eyes, on skin, on clothing., Use only in well ventilated areas., Do not breathe hot vapors.

STORAGE
Storage requirements
Normal precautions common to good safety practice should be followed in storage., Store at ambient temperature., Repair all broken bags immediately.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

<table>
<thead>
<tr>
<th>Component</th>
<th>Type</th>
<th>Value</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulates not otherwise regulated</td>
<td>TWA, OSHA</td>
<td>15.0 mg/m³</td>
<td>Total dust</td>
</tr>
<tr>
<td></td>
<td>TWA, OSHA</td>
<td>5.0 mg/m³</td>
<td>Respirable fraction</td>
</tr>
<tr>
<td></td>
<td>TWA - ACGIH</td>
<td>10.0 mg/m³</td>
<td>Total inhalable dust</td>
</tr>
<tr>
<td></td>
<td>TWA - ACGIH</td>
<td>3.0 mg/m³</td>
<td>Respirable fraction</td>
</tr>
</tbody>
</table>

PERSONAL PROTECTION

Respiratory protection
Dust respirator, if dusting conditions exist.

Hand protection / protective gloves
Neoprene, Rubber, Heat protective impervious gloves when handling molten product.

Eye protection

Skin protection
Rubber or plastic apron, Use heat protective equipment (such as gloves, long sleeves, and aprons) when handling molten material.
ENGINEERING CONTROLS

Ventilation
Use local ventilation or engineering controls as needed to maintain personnel exposure below the exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE
Physical state Solid
Color Off-white
Odor Slight fatty
Odor threshold Not available

OTHER PROPERTIES
Boiling point > 550 °F
Melting point 167 - 185 °F
Solidification Not available
pH Not available
Specific gravity (H2O=1) Not available
Density ~ 0.88 g/cm³ at 25 °C
0.815 g/cm³ at 130 °C
Vapor pressure

Solubility in water Insoluble
Solubility in organic solvents No data available.
Partitioning coefficient Not available
Flash point 428 °F
220 °C Method: Pensky-Martens closed cup ASTM D 93
Autoignition temperature Not available
Upper explosion limits Not available
Lower explosion limits Not available
Percent volatiles 0 %(m)
10. STABILITY AND REACTIVITY

**Stability:** Stable under normal conditions.

**Stability - Conditions to avoid:**
None known.

**Incompatible materials:**
Strong oxidizing agents.

**Hazardous combustion products:**
Burning can produce the following combustion products:
- Carbon monoxide.
- Carbon dioxide.
- Oxides of nitrogen.

**Hazardous polymerization:** Will not occur.

11. TOXICOLOGICAL INFORMATION

**SWALLOWING**
Acute effects
Low acute toxicity.

Test results
**Acute toxicity:**
- LD50 Rats (Males)
  - Result: > 10,000 mg/kg

**SKIN ABSORPTION**
Acute effects
Low acute toxicity.

**INHALATION**
Acute effects
Dust may cause irritation of the respiratory tract.

**SKIN CONTACT**
Acute effects
May cause slight irritation.

Test results
**Skin irritation:**
- Species: Rabbit
  - Result: Slight erythema, slight edema
  - Classification: Not irritant
  - Remark: 0.5 ml; occlusive

**EYE CONTACT**
Acute effects
May cause slight irritation.
12. ECOLOGICAL INFORMATION

Not expected to be acutely toxic to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

General: It is our opinion this product is not a RCRA hazardous waste. It is the generator's responsibility to make their own determination as to the RCRA status of waste they generate. We have not performed a Toxicity Characteristic Leachate Procedure (TCLP) on this product. Incinerate in a furnace where permitted under appropriate Federal, State, and local regulations.

Non-cleaned packages
Subject completely emptied paper bags to paper recycling.

14. TRANSPORT INFORMATION

DOT Classification
This product is not regulated by DOT.

IMDG Classification
This product is not regulated by IMDG.

ICAO Classification
This product is not regulated by ICAO.

15. REGULATORY INFORMATION

Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of quantities of hazardous substances equal to or greater than the reportable quantities (RQ's) in 40CFR302.4. Components present in this product at a level which could require reporting under the statute are:
**** NONE ****

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQ's) and release reporting based on Reportable Quantities (RQ's) in 40CFR355 (used for SARA 302 and 304). Components present in this product at a level which could require reporting under the statute are:
**** NONE ****

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual reports of release of toxic chemicals that appear in 40CFR372 (for SARA 313). This information must be included in MSDS's that are copied and distributed for this material. Components present in this product at a level which could require reporting under the statute are:
**** NONE ****
16. OTHER INFORMATION

HMIS RATING

<table>
<thead>
<tr>
<th>Health: 1</th>
<th>Flammability: 1</th>
<th>Reactivity: 0</th>
<th>PPI:</th>
</tr>
</thead>
<tbody>
<tr>
<td>STP</td>
<td>Standard temperature and pressure</td>
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</tr>
<tr>
<td>W/W</td>
<td>Weight/Weight</td>
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<tr>
<td>0 (HMIS)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1 (HMIS)</td>
<td>Slight hazard</td>
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<td></td>
</tr>
<tr>
<td>2 (HMIS)</td>
<td>Moderate hazard</td>
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<tr>
<td>3 (HMIS)</td>
<td>Serious hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 (HMIS)</td>
<td>Severe hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X (HMIS)</td>
<td>Personal protection rating to be supplied by user depending on use conditions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

THE OPINIONS EXPRESSED HEREIN ARE THOSE OF QUALIFIED EXPERTS WITHIN PMC BIOGENIX INC. WE BELIEVE THAT THE INFORMATION CONTAINED HEREIN IS CURRENT AS OF THE DATE OF THIS SAFETY DATA SHEET. SINCE THE USE OF THIS INFORMATION AND OF THESE OPINIONS AND THE CONDITIONS OF USE OF THIS PRODUCT ARE NOT WITHIN THE CONTROL OF PMC BIOGENIX INC., IT IS THE USER'S OBLIGATION TO DETERMINE THE CONDITIONS OF SAFE USE OF THE PRODUCTS.