1. MATERIAL IDENTIFICATION

Product Name: Therobond 1500 Resin

2. COMPOSITION

<table>
<thead>
<tr>
<th>HAZARDOUS COMPONENTS</th>
<th>CAS NO.</th>
<th>PERCENT</th>
<th>ACGIH TLV-TWA</th>
<th>OSHA PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epoxy Resin</td>
<td>25068-38-6</td>
<td>20-50</td>
<td>N.E.</td>
<td>N.E.</td>
</tr>
<tr>
<td>Glycidyl Ether</td>
<td>Proprietary</td>
<td>1-6</td>
<td>N.E.</td>
<td>N.E.</td>
</tr>
<tr>
<td>Inert Filler</td>
<td>Proprietary</td>
<td>50-65</td>
<td>N.E.</td>
<td>N.E.</td>
</tr>
</tbody>
</table>

Abbreviations: N.E. = Not Established

3. HEALTH HAZARDS IDENTIFICATION

Routes of Exposure: Eyes: Yes Skin: Yes Inhalation: No

Eye Contact: May cause irritation. May cause thermal burns at elevated temperatures.

Skin Contact: May cause irritation and sensitization. May cause thermal burns at elevated temperatures.

Inhalation: Effects are not known.

Ingestion: Effects are not known.

4. FIRST AID MEASURES

Eyes: Flush eyes thoroughly with water for at least 15 minutes while holding eyelids open. Seek medical attention.

Skin: Remove contaminated clothing and wipe from skin. Flush the affected area with water. Follow by washing with soap and water. Wash contaminated clothing thoroughly before reuse. If irritation persists, obtain medical attention.

Inhalation: Remove to fresh air, and provide oxygen or artificial respiration if needed. Obtain medical attention.

Ingestion: Do not induce vomiting. Obtain medical attention.
## 5. FIRE FIGHTING MEASURES

**FLAMMABLE PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flashpoint:</td>
<td>480 °F</td>
</tr>
<tr>
<td>Explosive Limits:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Auto - Ignition Temperature:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Hazardous Decomposition Products:</td>
<td>Carbon monoxide, carbon dioxide, aldehydes, acids, and other organic substances</td>
</tr>
</tbody>
</table>

**Fire Fighting Instructions:** Firefighters should be equipped with full bunker gear, including a positive pressure, NIOSH approved, self-contained breathing apparatus. Fire-exposed containers may be cooled with water.

**Extinguishing Media:** Use water fog, carbon dioxide, dry chemical, or an appropriate foam.

## 6. ACCIDENTAL RELEASE MEASURES

Ventilate the spill area, and evacuate if necessary. Absorb with clay, sand, or another suitable material, and dispose of properly. Clean-up personnel should use adequate protective equipment, including respiratory protection.

## 7. HANDLING AND STORAGE

Store in a cool, dry place away from ignition sources and temperatures above 300 °F. Avoid contact with incompatible materials. Some curing agents, if present in sufficiently large quantities, can cause exothermic reactions and runaway polymerization, yielding fumes, which vary widely in composition and toxicity. Do not breathe fumes.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Engineering/Ventilation Controls:** General ventilation and local exhaust may be required to maintain airborne concentrations below the established exposure limits exposure when generating vapors or mists.

**Respiratory Protection:** When local ventilation is unavailable and airborne limits are exceeded, a NIOSH-approved respirator, a supplied-air respirator, or a self-contained breathing apparatus is required.

**Skin Protection:** Impervious gloves and protective clothing should be worn whenever skin contact is possible. Continued skin contact can lead to sensitization. Skin contact must be avoided. Once skin contact takes place it is important to remove material and wash contact area with soap and water. Contaminated clothing must be cleaned prior to reuse.

**Eye Protection:** Chemical splash goggles or safety glasses with side shields should be worn as appropriate.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance:</td>
<td>Black</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>&gt;500 °F</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.55</td>
</tr>
<tr>
<td>Vapor Pressure (mmHg):</td>
<td>0.03 at 77 °C</td>
</tr>
<tr>
<td>Vapor Density (air=1):</td>
<td>Not determined</td>
</tr>
<tr>
<td>Evaporation Rate:</td>
<td>Not determined</td>
</tr>
<tr>
<td>Solubility in Water:</td>
<td>Negligible</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions and use.

Conditions and Materials to Avoid: Keep away from ignition sources and temperatures above 300 °F. Reacts with strong oxidizing agents, acids, and strong bases.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, aldehydes, acids, and other organic substances.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

This section provides toxicological information with regard to the pure form of the components indicated. This information can be subject to misinterpretation. It is therefore suggested that persons trained in its evaluation interpret this information.

Epoxy Resin:

- LD_{50} Acute Oral Rat: 11.4 g/kg
- LD_{50} Acute Dermal Rabbit: > 20 ml/kg
- Eye Irritation: Driaze – 2 Rabbit
- Skin Irritation: Driaze – 1.6 Rabbit

Note: Due to this product’s physical composition, the release or generation of dust is not expected to occur under normal conditions of use.

12. ECOLOGICAL INFORMATION

No data found.

13. DISPOSAL CONSIDERATIONS

Keep out of surface waters, sewers, and waterways entering or leading to surface waters. Notify authorities if any exposure to the environment occurs or is likely to occur. Utilize an appropriate disposal facility, in compliance with applicable federal, state, and local environmental control regulations.

14. TRANSPORT INFORMATION

D.O.T. Classification: Not Regulated
Hazard Class: None UN #: None PG: None ERG #: None Hazard Labels: None

I.A.T.A. Classification: Not Regulated
Hazard Class: None UN #: None PG: None ERG #: None Hazard Labels: None
15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TSCA:

The chemical components of this product are contained on section 8(B) of the chemical substance inventory list (40CFR710).

SARA Title III Information

Section 313 - Toxic Chemicals:
Pursuant to section 313 of SARA Title III, this product does not contain a toxic chemical in a concentration in excess of 1 percent of the mixture, or 0.1 percent if a carcinogen.

Section 311 / 312 - Hazard Categories
Pursuant to section 311/312 of SARA title III, the physical and health hazard categories for this product are identified as follows:

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Sudden Release of Pressure Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Reactivity Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Immediate (Acute) Health Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Delayed (Chronic) Health Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

HMIS Hazards:  Health: 2  Flammability: 1  Reactivity: 0
NFPA Hazards:  Health: 2  Flammability: 1  Reactivity: 0

This information is intended solely for the use of individuals trained in the use of this particular system.

Resin Designs LLC urges each customer or recipient of this MSDS to study it carefully in order to become aware of and understand the hazards associated with the product. The reader should consider consulting reference works or individuals that are experts in ventilation, toxicology, and fire prevention, as necessary or appropriate in order to use and understand the data contained in this MSDS.

To promote safe handling, each customer or recipient should: 1 - notify its employees, agents, contractors, and others whom it knows or believes will use this material or the information in this MSDS and any other information regarding hazards or safety. 2 - furnish this same information to each of its customers for the product. 3 - request its customers to notify their employees, customers, and other users of the product of this information.

The information contained herein is based on the data available to us and is believed to be correct. However, Resin Designs LLC makes no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. Resin Designs LLC assumes no responsibility for injury from the use of the product described herein.
1. MATERIAL IDENTIFICATION

Product Name: Therobond 1500 Hardener

2. COMPOSITION

<table>
<thead>
<tr>
<th>HAZARDOUS COMPONENTS</th>
<th>CAS NO.</th>
<th>PERCENT</th>
<th>ACGIH TLV-TWA</th>
<th>OSHA PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyglycol Diamine</td>
<td>4246-51-9</td>
<td>&gt;60</td>
<td>NE</td>
<td>NE</td>
</tr>
</tbody>
</table>

Abbreviations: N.E. = Not Established

3. HEALTH HAZARDS IDENTIFICATION

Routes of Exposure:

- Eyes: Yes
- Skin: Yes
- Inhalation: Yes

Eye Contact: Corrosive. May cause severe irritation including blindness.

Skin Contact: Corrosive. May cause irritation and sensitization and tissue damage. Skin contact with liquid may result in dermatitis and deep burns.

Inhalation: May be corrosive to upper respiratory tract. May cause irritation to the nose, throat and lungs.

Ingestion: Corrosive. May cause severe and permanent damage to mouth, throat and stomach.

4. FIRST AID MEASURES

Eyes: Flush eyes thoroughly with water for at least 15 minutes while holding eyelids open. Seek medical attention.

Skin: Remove contaminated clothing and wipe from skin. Flush the affected area with water. Follow by washing with soap and water. Wash contaminated clothing thoroughly before reuse. If irritation persists, obtain medical attention.

Inhalation: Remove to fresh air, and provide oxygen or artificial respiration if needed. Obtain medical attention.

Ingestion: Do not induce vomiting. Give two glasses of milk or water unless the victim is drowsy, convulsing, or unconscious. If vomiting occurs, give fluids again. Obtain medical attention.
5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

Flashpoint: >200F
Explosive Limits: Not determined
Auto - Ignition Temperature: Not determined
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, aldehydes, acids, and other organic substances

Fire Fighting Instructions: Firefighters should be equipped with full bunker gear, including a positive pressure, NIOSH approved, self-contained breathing apparatus. Fire-exposed containers may be cooled with water.

Extinguishing Media: Use water fog, carbon dioxide, dry chemical, or an appropriate foam. Use water spray to cool fire exposed containers.

6. ACCIDENTAL RELEASE MEASURES

Ventilate the spill area, and evacuate if necessary. Absorb with clay, sand, or another suitable material, and dispose of properly. Clean-up personnel should use adequate protective equipment, including respiratory protection.

7. HANDLING AND STORAGE

Store in a cool, dry place away from ignition sources and temperatures above 300 °F. Avoid contact with incompatible materials. Some applications of this curing agent, if present in sufficiently large quantities, can cause exothermic reactions and runaway polymerization, yielding fumes, which vary widely in composition and toxicity. Do not breathe fumes. Wear chemical-resistant gloves.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering/Ventilation Controls: General ventilation and local exhaust may be required to maintain airborne concentrations below the established exposure limits exposure when generating vapors or mists. An eye wash facility should be readily available.

Respiratory Protection: When local ventilation is unavailable and airborne limits are exceeded, a NIOSH-approved respirator, a supplied-air respirator, or a self-contained breathing apparatus is required.

Skin Protection: Impervious gloves and protective clothing should be worn as necessary.

Eye Protection: Chemical splash goggles or safety glasses with side shields should be worn as appropriate.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear to Amber liquid
Boiling Point: Not determined
Specific Gravity 1.00
Vapor Pressure (mmHg): Not determined
Vapor Density (air=1): Not determined
Evaporation Rate: Not determined
Solubility in Water: Negligible
10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions and use.

Conditions and Materials to Avoid: Keep away from ignition sources and temperatures above 300 °F. Reacts with strong oxidizing agents, acids, and strong bases.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, aldehydes, acids, and other organic substances.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Polyglycol diamine:
- LD50 Acute Oral Rat: 3160 mg/kg
- LD50 Acute Dermal Rabbit: 2500 mg/kg
- LD50 Acute Dermal Rat: >2150 mg/kg

Note: This material is corrosive to body tissues. Skin contact may result in dermatitis and deep burns. Eye contact may result in burns and permanent injury. Ingestion may result in severe gastric disturbances and corrosive damage.

Note: Due to this product’s physical composition, the release or generation of dust is not expected to occur under normal conditions of use.

12. ECOLOGICAL INFORMATION

No data found.

13. DISPOSAL CONSIDERATIONS

Keep out of surface waters, sewers, and waterways entering or leading to surface waters. Notify authorities if any exposure to the environment occurs or is likely to occur. Utilize an appropriate disposal facility, in compliance with applicable federal, state, and local environmental control regulations.

14. TRANSPORT INFORMATION

CFR Classification: Amines, liquid, corrosive, n.o.s. (3,3’-(Oxybis(2,1-ethane-diyloxy)bis-1 propanamine)
- Class 8
- UN2735
- Packing Group II

I.A.T.A. Classification: Amines, liquid, corrosive, n.o.s. (3,3’-(Oxybis(2,1-ethane-diyloxy)bis-1 propanamine)
- Class 8
- UN2735
- Packing Group II
15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TSCA:
The chemical components of this product are contained on section 8(B) of the chemical substance inventory list (40CFR710).

SARA Title III Information

Section 313 - Toxic Chemicals:
Pursuant to section 313 of SARA Title III, this product does not contain a toxic chemical in a concentration in excess of 1 percent of the mixture, or 0.1 percent if a carcinogen.

Section 311 / 312 - Hazard Categories
Pursuant to section 311/312 of SARA title III, the physical and health hazard categories for this product are identified as follows:

- Fire Hazard: No
- Sudden Release of Pressure Hazard: No
- Reactivity Hazard: No
- Immediate (Acute) Health Hazard: Yes
- Delayed (Chronic) Health Hazard: No

STATE REGULATIONS / RIGHT TO KNOW

California Proposition 65: This product is not known to contain any chemicals, which are recognized by the State of California to cause cancer, birth defects, or other reproductive harm.

16. OTHER INFORMATION

HMIS Hazards: Health: 3 Flammability: 1 Reactivity: 0
NFPA Hazards: Health: 3 Flammability: 1 Reactivity: 0

This information is intended solely for the use of individuals trained in the use of this particular system. Resin Designs LLC urges each customer or recipient of this MSDS to study it carefully in order to become aware of and understand the hazards associated with the product. The reader should consider consulting reference works or individuals that are experts in ventilation, toxicology, and fire prevention, as necessary or appropriate in order to use and understand the data contained in this MSDS.

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The information contained herein is based on the data available to us and is believed to be correct. However, Resin Designs LLC. makes no warranty, expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof. Resin Designs LLC. assumes no responsibility for injury from the use of the product described herein.