5-MINUTE EPOXY RESIN

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: EPOXY RESIN
Chemical family: Epoxy resin
General information: This information applies to the resin component of the two-part kit; handle freshly-mixed resin and hardener as recommended for the hardener. After curing, the product is not hazardous.

MANUFACTURER
ITW Devcon
30 Endicott St.
Danvers, MA 01923

EMERGENCY INFORMATION
Emergency telephone number (CHEMTREC) (800) 424-9300
Other calls: (978) 777-1100

2. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS CONSTITUENTS

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Abbr.</th>
<th>CAS No.</th>
<th>Weight percent</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>Other Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bisphenol A diglycidyl ether resin</td>
<td>DGEBA</td>
<td>25068386</td>
<td>&gt; 60</td>
<td>n/e</td>
<td>n/e</td>
<td>n/e</td>
</tr>
</tbody>
</table>

"TLV" means the Threshold Limit Value exposure (eight-hour, time-weighted average, unless otherwise noted) as established by the American Conference of Governmental Industrial Hygienists. "STEL" indicates a short-term exposure limit. "PEL" indicates the OSHA Permissible Exposure Limit. "n/e" indicates that no exposure limit has been established. An asterisk (*) indicates a substance whose identity is a trade secret of our supplier and unknown to us.

3. HAZARDS IDENTIFICATION

Emergency Overview
Appearance, physical form, odor: viscous liquid with little odor.

CAUTION! Eye and skin irritant. Potential skin sensitizer. Avoid contact with eyes. Avoid prolonged or repeated skin contact. Do not take internally. Wash thoroughly after handling.

Potential health effects:
Primary routes of exposure:

- Skin contact
- Skin absorption
- Eye contact
- Inhalation
- Ingestion

Symptoms of acute overexposure:

Skin:
Moderate irritant. Contact at elevated temperatures can cause thermal burns which may result in permanent damage. May cause skin sensitization (itching, redness, rashes, hives, burning).

Eyes:
Moderate irritant. Contact at elevated temperatures can cause thermal burns which may result in permanent damage or blindness.
Inhalation:
The low vapor vapor pressure of the resin makes inhalation unlikely in normal use. In applications where vapors (caused by high temperature) or mists (caused by mixing) are created, breathing may cause a mild burning sensation in the nose, throat and lungs.

Effects of chronic overexposure:
Prolonged or repeated skin contact may cause sensitization, with itching, swelling, or rashes on later exposure.

Medical conditions which may be aggravated by exposure:
Preexisting eye and skin disorders. Development of preexisting skin or lung allergy symptoms may increase.

Ingestion:
Acute oral toxicity is low. May cause gastric distress.

Carcinogenicity -- OSHA regulated: No
ACGIH: No
National Toxicology Program: No
International Agency for Research on Cancer: No
Cancer-suspect constituent(s): None

Other effects:
See section 11.

4. FIRST AID MEASURES

First aid for eyes:
Flush eye with clean water for at least 15 minutes while gently holding eyelids open. Get immediate medical attention.

First aid for skin:
Immediately remove contaminated clothing and excess contaminant. Flush skin with water. Wash thoroughly with soap and warm water. Consult a physician if irritation develops.

First aid for inhalation:
Remove patient to fresh air. Administer oxygen if breathing is difficult. Get medical attention if symptoms persist.

First aid for ingestion:
Do NOT induce vomiting. Rinse mouth out with water, then sip water to remove taste from mouth. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Get medical attention.

5. FIRE FIGHTING MEASURES

Extinguishing media:
- Water
- Carbon dioxide
- Dry chemical
- Foam
- Alcohol foam

Flash Point (°F): >400

Explosive limits in air -- Lower: n/d
Upper: n/d

Special firefighting procedures:
Material will not burn unless preheated. Do not enter confined space without full bunker gear. Firefighters should wear self-contained breathing apparatus and protective clothing. Cool fire exposed containers with water.

Unusual fire and explosion hazards:
Heating above 300 deg F in the presence of air may cause slow oxidative decomposition and above 500 deg F may cause polymerization.
Hazardous products of combustion:
When heated to decomposition it emits fumes of Cl-, carbon monoxide, other fumes and vapors varying in composition and toxicity.

6. ACCIDENTAL RELEASE MEASURES

Spill control:
Avoid personal contact. Eliminate ignition sources. Ventilate area.

Containment:
Dike, contain and absorb with clay, sand or other suitable material.

Cleanup:
For large spills, pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand, or other suitable material and dispose of properly. Flush area with water to remove trace residue.

Special procedures:
Prevent spill from entering drainage/sewer systems, waterways, and surface waters.

7. HANDLING AND STORAGE

Handling precautions:
Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after using and particularly before eating, drinking, smoking, applying cosmetics, or using toilet facilities. Launder contaminated clothing and protective gear before reuse. Discard contaminated leather articles. Handle mixed resin and hardener in accordance with the potential hazard of the curing agent used. Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against nuisance dust during sanding/grinding of cured product.

Storage precautions:
Store in a cool, dry area away from high temperatures and flames. Keep containers closed when not in use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls

Ventilation:
Local exhaust ventilation is preferred although good general mechanical ventilation is usually adequate for most industrial applications. Local exhaust is recommended for confined areas.

Other engineering controls:
Have emergency shower and eye wash available.

Personal protective equipment

Eye and face protection:
Chemical goggles if liquid contact is likely, or Safety glasses with side shields.

Skin Protection:
Chemical-resistant gloves (i.e. butyl) and other gear as required to prevent skin contact.

Respiratory protection:
None required at normal handling temperatures and conditions. Use NIOSH approved organic vapor cartridges for uncured resin and dust/particle respirators during grinding/sanding operations of cured resin as exposure levels dictate.
9. PHYSICAL AND CHEMICAL PROPERTIES

Specific gravity: 1.17
Melting point (°F): n/d
Vapor pressure (mmHg): 0.03 mm Hg at 171 °F
VOC (grams/liter): 0
Percent volatile by volume: 0
Percent solids by weight: 100

Boiling point (°F): >500
Vapor density (air = 1): >1
Evaporation rate (butyl acetate = 1): <<1
Solubility in water: Negligible
pH (5% solution or slurry in water): neutral

10. STABILITY AND REACTIVITY

This product is chemically stable. Hazardous polymerization will not occur.

Conditions to avoid:
Open flame and extreme heat

Incompatible materials:
Strong Lewis or mineral acids, strong oxidizing agents, strong mineral and organic bases (especially primary and secondary aliphatic amines).

Hazardous decomposition products:
Oxides of carbon; aldehydes, acids and other organic substances may be formed during combustion or elevated temperature (>500 deg F) degradation.

Conditions of hazardous polymerization:
Heat is generated when resin is mixed with curing agents; Run-a-way cure reactions may char and decompose the resin, generating unidentified fumes and vapors which may be toxic.

11. TOXICOLOGICAL INFORMATION

Acute oral effects:
LD50 (rat): 11,400 mg/kg (DGEBA Resin)

Acute dermal effects
LD50 (rabbit): >20 ml/kg (DGEBA Resin)
DGEBA: Draize -1.6 (rabbit)

Acute inhalation effects:
LC50 (rat): No deaths in saturate in 8 hours

Eye irritation:
DGEBA: Draize -2 (rabbit)

Subchronic effects
No data available.

Chronic effects
Prolonged or repeated skin contact may cause sensitization, with itching, swelling, or rashes on later exposure. Studies have shown bisphenol A diglycidyl ether resin to cause allergic contact dermatitis.

Carcinogenicity, teratogenicity, and mutagenicity:
1) MUTAGENICITY: Liquid resins based on diglycidyl ether of Bisphenol A (DGEBA), have proved to be inactive when tested by in vivo mutagenicity assays. These resins have shown activity in in vitro microbial mutagenicity screening and have produced chromosomal aberrations in cultured rat liver cells. The significance of these tests to man is unknown. 2) CARCINOGENICITY: Recent 2-year bioassays in rats and mice exposed by the dermal route to DGEBA yielded no evidence of carcinogenicity to the skin or any other organs. This study clarifies prior equivocal results from a 2-year mouse skin painting study, which were suggestive, but not conclusive, for weak carcinogenic activity. 3) The International Agency for Research on Cancer (IARC) concluded that DGEBA is not classifiable as a carcinogen (IARC group 3), that is human and animal evidence of carcinogenicity is inadequate.
Toxicological information on hazardous chemical constituents of this product:

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Oral LD50 (rat)</th>
<th>Dermal LD50 (rabbit)</th>
<th>Inhalation LC50 (rat, 4 hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bisphenol A diglycidyl ether resin</td>
<td>11.4 g/kg</td>
<td>&gt;20 ml/kg</td>
<td>no deaths</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

Ecotoxicity:
No data available.

Mobility and persistence: Environmental fate:
No data available. No data available.

13. DISPOSAL CONSIDERATIONS

Waste management recommendations:
If this resin becomes a waste, it would not be a hazardous waste by RCRA criteria (40CFR 261). Dispose of according to applicable federal, state, and local regulations.

14. TRANSPORT INFORMATION

Proper shipping name: Non-regulated
Technical name: N/A
Hazard class: N/A
UN number: N/A
Packing group: N/A
IMDG Page no.: N/A
Emergency Response Guide no.: N/A
Other: N/A

15. REGULATORY INFORMATION

U.S. Federal Regulations
TSCA:
All ingredients of this product are listed, or are exempt from listing, on the TSCA Inventory.

The following RCRA code(s) applies to this material if it becomes waste: None

Regulatory status of hazardous chemical constituents of this product:

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Extremely Hazardous*</th>
<th>Toxic Chemical**</th>
<th>CERCLA RQ (lbs)</th>
<th>TSCA 12B Export Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bisphenol A diglycidyl ether resin</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Not required</td>
</tr>
</tbody>
</table>

*Consult the appropriate regulations for emergency planning and release reporting requirements for substances on the SARA Section 301 Extremely Hazardous Substances list.
**Substances for which the "Toxic Chemical" column is marked "Yes" are on the SARA Section 313 list of Toxic Chemicals, for which release reporting may be required. Consult the appropriate regulations for specific requirements.
Classification of this material for SARA Section 312 hazardous materials inventory reporting:
Immediate health hazard  Delayed health hazard

Canadian regulations
WHMIS hazard class(es):  D2B
All components of this product are on the Domestic Substances List.

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>Hazardous Materials Information System (HMIS) ratings:</th>
<th>Health</th>
<th>Flammability</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>2*</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

The information and recommendations in this document are based on the best information available to us at the time of preparation, but we make no other warranty, express or implied, as to its correctness or completeness, or as to the results of reliance on this document.
1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Chemical family: Polymercaptan/polyamine mixture

General information: The following information applies to the hardener component of the two-part kit and to freshly mixed resin and hardener. After curing, this product is not hazardous.

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Abbr.</th>
<th>CAS No.</th>
<th>Weight percent</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>Other Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4,6-Tri(dimethylaminomethyl)phenol</td>
<td>DMP</td>
<td>90722</td>
<td>10-20</td>
<td>n/e</td>
<td>n/e</td>
<td>n/e</td>
</tr>
<tr>
<td>Mercaptan amine blend</td>
<td>*</td>
<td></td>
<td>80-90</td>
<td>n/e</td>
<td>n/e</td>
<td>n/e</td>
</tr>
</tbody>
</table>

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3. HAZARDS IDENTIFICATION

Emergency Overview
Appearance, physical form, odor: Viscous, amber liquid with Mercaptan odor.

WARNING! Severe eye, skin and respiratory tract irritant (evidenced by itching, redness, burning sensation). Potential skin sensitizer. Overexposure may cause delayed lung effects. Avoid breathing vapors. Use with adequate ventilation. Do not take internally. Wash thoroughly after handling.

Potential health effects:
Primary routes of exposure:
- ☐ Skin contact
- ☐ Skin absorption
- ☐ Eye contact
- ☐ Inhalation
- ☐ Ingestion

Symptoms of acute overexposure:
Skin: Can cause severe irritation, especially on prolonged contact. Potential sensitizer.

Eyes: Causes severe irritation with possible permanent damage and even blindness.
Inhalation:
Considered slightly toxic. Can cause irritation of respiratory tract. Over exposure to fumes or vapors may cause delayed lung injury and chemical pneumonia.

Effects of chronic overexposure:
Prolonged or severe overexposure to DMP vapor can cause delayed lung damage and chemical pneumonia. Prolonged or repeated contact with this material may cause skin sensitization.

Medical conditions which may be aggravated by exposure:
May aggravate existing skin, eye, and lung conditions.

Carcinogenicity -- OSHA regulated: No  ACGIH: No  National Toxicology Program: No
International Agency for Research on Cancer: No
Cancer-suspect constituent(s): None

Other effects:

4. FIRST AID MEASURES

First aid for eyes:
Flush eye with clean water for at least 15 minutes while gently holding eyelids open. Get immediate medical attention.

First aid for skin:
Remove contaminated clothing and shoes. Wash thoroughly with soap and warm water. Consult a physician if irritation develops.

First aid for inhalation:
Remove patient to fresh air. Provide oxygen if breathing is difficult. Consult a physician if symptoms persist.

First aid for ingestion:
Do not induce vomiting. Give large amounts of water followed by milk if available. Consult a physician.

5. FIRE FIGHTING MEASURES

Extinguishing media:
- Water
- Carbon dioxide
- Dry chemical
- Foam
- Alcohol foam

Flash Point (°F): >200
Method: PMCC

Explosive limits in air -- Lower: n/d
Upper: n/d

Special firefighting procedures:
Firefighters should wear self-contained breathing apparatus and protective clothing in confined areas. Cool containers with water spray

Unusual fire and explosion hazards:
Toxic smoke and vapors may form during combustion.

Hazardous products of combustion:
Oxides of carbon, oxides of sulfur, oxides of nitrogen.
6. ACCIDENTAL RELEASE MEASURES

Spill control:
Avoid personal contact. Eliminate ignition sources. Ventilate area.

Cleanup:
For large spills, pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand, or other suitable material and dispose of properly. Flush area with water to remove trace residue.

Containment:
Dike, contain and absorb with clay, sand or other suitable material.

Special procedures:
Prevent spill from entering drainage/sewer systems, waterways, and surface waters.

7. HANDLING AND STORAGE

Handling precautions:
Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after using and particularly before eating, drinking, smoking, applying cosmetics, or using toilet facilities. Launder contaminated clothing and protective gear before reuse. Discard contaminated leather articles. Handle mixed resin and hardener in accordance with the potential hazard of the curing agent used. Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against nuisance dust during sanding/grinding of cured product.

Storage precautions:
Store in a cool, dry area away from high temperatures and flames.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls

Ventilation:
General mechanical ventilation is adequate for occasional use. For prolonged or repeated use, local exhaust is recommended.

Other engineering controls:
Have emergency shower and eye wash stations available.

Personal protective equipment

Eye and face protection:
Safety glasses with sideshields or chemical goggles.

Skin Protection:
Chemical-resistant rubber (for example, neoprene, butyl rubber or nitrile) gloves and other protective gear as needed to prevent skin contact.

Respiratory protection:
None needed in normal use with proper ventilation. In poorly ventilated areas or when creating a dust or mist, use NIOSH-approved organic vapor respirator.
9. PHYSICAL AND CHEMICAL PROPERTIES

Specific gravity: 1.13
Melting point (°F): n/d
Vapor pressure (mmHg): <<1 at 70 °F
VOC (grams/liter): 0
Percent volatile by volume: 0
Percent solids by weight: 100
Boiling point (°F): n/d
Vapor density (air = 1): n/d
Evaporation rate (butyl acetate = 1): n/d
Solubility in water: Negligible
pH (5% solution or slurry in water): 9.5

10. STABILITY AND REACTIVITY

This product is chemically stable. Hazardous polymerization will not occur.

Conditions to avoid:
Open flame and extreme heat.

Incompatible materials:
Strong oxidizing agents.

Hazardous decomposition products:
Oxides of carbon, oxides of sulfur, oxides of nitrogen.

Conditions of hazardous polymerization:
When this hardener is mixed with an epoxy resin heat is generated; be careful when mixing more than an ounce or so.

11. TOXICOLOGICAL INFORMATION

Acute oral effects:
LD50 (rat): Not available.

Acute dermal effects
LD50 (rabbit): Not available.

Acute inhalation effects:
LC50 (rat): Not available. in 0 hours

Eye irritation:
Rabbit: Severe irritant.

Subchronic effects
No data.

Chronic effects
No data.

Carcinogenicity, teratogenicity, and mutagenicity:
No data.

Toxicological information on hazardous chemical constituents of this product:

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<thead>
<tr>
<th>Constituent</th>
<th>Oral LD50 (rat)</th>
<th>Dermal LD50 (rabbit)</th>
<th>Inhalation LC50 (rat, 4 hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4,6-Tri(dimethylaminomethyl)phenol</td>
<td>1670 mg/kg</td>
<td>1400 mg/kg</td>
<td>&gt; 0.5 mg/L</td>
</tr>
<tr>
<td>Mercaptan amine blend</td>
<td>n/d</td>
<td>n/d</td>
<td>n/d</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

Ecotoxicity:
No data.

Mobility and persistence:
No data.

Environmental fate:
No data.
13. DISPOSAL CONSIDERATIONS

Waste management recommendations:
If this material becomes a waste, it would not be a hazardous waste by RCRA criteria (40CFR 261). Dispose of according to applicable federal, state, and local regulations.

14. TRANSPORT INFORMATION

Proper shipping name: Non-regulated
Technical name: N/A
Hazard class: N/A
UN number: N/A     Packing group: N/A     IMDG Page no.: N/A
Emergency Response Guide no.: N/A
Other: N/A

15. REGULATORY INFORMATION

U.S. Federal Regulations

TSCA:
All ingredients of this product are listed, or are exempt from listing, on the TSCA Inventory.

The following RCRA code(s) applies to this material if it becomes waste: None

Regulatory status of hazardous chemical constituents of this product:

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Extremely Hazardous</th>
<th>Toxic Chemical**</th>
<th>CERCLA RQ (lbs)</th>
<th>TSCA 12B Export Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4,6-Tri(dimethylaminomethyl)phenol</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Not required</td>
</tr>
<tr>
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<td>No</td>
<td>No</td>
<td>No</td>
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</tr>
</tbody>
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**Substances for which the "Toxic Chemical" column is marked "Yes" are on the SARA Section 313 list of Toxic Chemicals, for which release reporting may be required. Consult the appropriate regulations for specific requirements.

Classification of this material for SARA Section 312 hazardous materials inventory reporting:
Immediate health hazard  Delayed health hazard

Canadian regulations

WHMIS hazard class(es): D2B
All components of this product are on the Domestic Substances List.
16. OTHER INFORMATION

Hazardous Materials Information System (HMIS) ratings:

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>3*</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Revisions for this issue:

<table>
<thead>
<tr>
<th>MSDS Section</th>
<th>Revisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Address</td>
</tr>
</tbody>
</table>

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