ALUMINUM LIQUID (F-2) RESIN

This product appears in the following stock number(s):
10710  10720  10750  16710  F2-500

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Tradename: ALUMINUM LIQUID (F-2) RESIN
Product Identifier: EPOXY RESIN
General use: 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.
Chemical family: Metal filled epoxy resin

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>Crystalline silica</td>
<td></td>
<td>14808607</td>
<td>&lt; 1</td>
<td>0.05 mg/m^3</td>
<td>10/(%Q+2) mg/m^3</td>
<td>0.10 mg/m^3 (Canada)</td>
</tr>
<tr>
<td>Bisphenol A diglycidyl ether resin</td>
<td>DGEBA</td>
<td>25068386</td>
<td>20-40</td>
<td>n/e</td>
<td>n/e</td>
<td>n/e</td>
</tr>
<tr>
<td>Alkyl glycidyl ether</td>
<td></td>
<td>68609972</td>
<td>1-10</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) 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, form, odor: Dark grey paste with little odor.

[WARNING! Eye, skin and respiratory irritant. Potential skin sensitizer.]

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. May cause skin sensitization (rashes, hives).
Eyes: Moderate irritant. Contact at elevated temperatures can cause thermal burns.
Inhalation:
Inhalation of vapors may cause irritation in the respiratory tract.

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

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

Carcinogenicity -- OSHA regulated: No  ACGIH: No  National Toxicology Program: Yes
International Agency for Research on Cancer: Yes
Cancer-suspect constituent(s): Crystalline silica

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

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. Give two glasses of water to dilute if patient is conscious. Get medical attention.

5. FIRE FIGHTING MEASURES
General fire and explosion characteristics:
Class IIIB, combustible liquid.

Extinguishing media:
Water  Carbon dioxide  Dry chemical  Foam  Alcohol foam

Flash Point (°F): >200  Method: Estimate
Explosive limits in air (percent) --  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 spray.

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. Personnel in vicinity and downwind should be evacuated.

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 silica dust during sanding/grinding of cured product.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls
Ventilation:
Use ventilation that is adequate to keep employee exposure to airborne concentrations below exposure limits (or to the lowest feasible levels when limits have not been established). Although good general mechanical ventilation is usually adequate for most industrial applications, local exhaust ventilation is preferred (see ACGIH - Industrial Ventilation). Local exhaust may be required for confined areas (see OSHA 1910.146).

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

Personal protective equipment
Eye and face protection:
Safety glasses with side shields.

Skin protection:
Chemical-resistant gloves and other gear as required to prevent skin contact.

Respiratory protection:
None needed in normal use with proper ventilation. In poorly ventilated areas use NIOSH approved organic vapor cartridges for uncured resin and dust/particle respirators during grinding/sanding operations of cured resin as exposure levels dictate (see OSHA 1910.134).
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity</td>
<td>1.92</td>
</tr>
<tr>
<td>Melting point (°F):</td>
<td>n/d</td>
</tr>
<tr>
<td>Vapor pressure (mmHg):</td>
<td>n/d at 0 °F</td>
</tr>
<tr>
<td>VOC (grams/liter):</td>
<td>0</td>
</tr>
<tr>
<td>Percent volatile by volume:</td>
<td>0</td>
</tr>
<tr>
<td>Percent solids by weight:</td>
<td>100</td>
</tr>
<tr>
<td>Boiling point (°F):</td>
<td>&gt;400</td>
</tr>
<tr>
<td>Vapor density (air = 1):</td>
<td>&gt;1</td>
</tr>
<tr>
<td>Evaporation rate (butyl acetate = 1):</td>
<td>&lt;&lt;1</td>
</tr>
<tr>
<td>Solubility in water:</td>
<td>Negligible</td>
</tr>
<tr>
<td>pH (5% solution or slurry in water):</td>
<td>neutral</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

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

Conditions to avoid:
- Open flame and extreme heat

Incompatible materials:
- Lewis or mineral acids, oxidizing agents, mineral & organic bases (esp. prim. & sec. aliphatic amines). Silica will dissolve in HF & produce silicone tetrafluoride (corrosive gas).

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

Conditions under which hazardous polymerization may occur:
- 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): > 10 g/kg

Acute dermal effects: LD50 (rabbit): > 4500 mg/kg

Acute inhalation effects: LC50 (rat): Not determined

Eye irritation: Not available.

Subchronic effects:
- Alkyl (C12-C14) glycidyl ether subchronic exposure to rabbits, skin, 20 days, 2 ml of 5% solution/kg/day showed no histologic evidence of toxicity (EPA Doc. 1982). Sensitization has occurred in laboratory animals after repeated exposure.

Carcinogenicity, teratogenicity, and mutagenicity:
- 1) MUTAGENICITY: Liquid resins based on diglycidyl ether of Bisphenol A (DGEBA), have proved to be inactive
Other chronic effects:
DGEBPA: 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 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 DGEBPA 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 DGEBPA is not classifiable as a carcinogen (IARC group 3), that is human and animal evidence of carcinogenicity is inadequate.

Mobility and persistence:
No data available.

Environmental fate:
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. Incineration is the preferred method of disposal.

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 4hr, (rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystalline silica</td>
<td>n/d</td>
<td>n/d</td>
<td>n/d</td>
</tr>
<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>
<tr>
<td>Alkyl glycidyl ether</td>
<td>&gt;19.2 g/kg</td>
<td>&gt; 4.5 g/kg</td>
<td>n/d</td>
</tr>
</tbody>
</table>

'n/d' = 'not determined'

12 ECOLOGICAL INFORMATION

Ecotoxicity:
No data available.

Mobility and persistence:
No data available.

Environmental fate:
No data available.

Please see also Section 15, Regulatory Information.
14. TRANSPORT INFORMATION

Proper shipping name: Non-regulated  
Technical name : N/A  
Hazard class : N/A  
UN number: N/A  
Packing group: N/A  
Emergency Response Guide no.: N/A  
IMDG page number: 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>Crystalline silica</td>
<td>No</td>
<td>No</td>
<td>0.0</td>
<td>Not required</td>
</tr>
<tr>
<td>Bisphenol A diglycidyl ether resin</td>
<td>No</td>
<td>No</td>
<td>0.0</td>
<td>Not required</td>
</tr>
<tr>
<td>Alkyl glycidyl ether</td>
<td>No</td>
<td>No</td>
<td>0.0</td>
<td>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 Substance 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. For specific requirements, consult the appropriate regulations.

For purposes of SARA Section 312 hazardous materials inventory reporting, the following hazard classes apply to this material: - Immediate health hazard -- Delayed health hazard -

Canadian regulations

WHMIS hazard class(es) : D2B; D2A
All components of this product are on the Domestic Substances List.
### Hazardous Materials Identification System (HMIS) ratings:

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2*</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>3</td>
<td>Updated health data</td>
</tr>
<tr>
<td>11</td>
<td>Updated toxicology data</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.
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>Triethylenetetramine</td>
<td>TETA</td>
<td>112243</td>
<td>30-60</td>
<td>n/e</td>
<td>n/e</td>
<td>1 ppm (skin) (AIHA-WEEL)</td>
</tr>
<tr>
<td>Aminoethylpiperazine</td>
<td>AEP</td>
<td>140318</td>
<td>1-15</td>
<td>n/e</td>
<td>n/e</td>
<td></td>
</tr>
<tr>
<td>Nonylphenol</td>
<td></td>
<td>25154523</td>
<td>5-20</td>
<td>n/e</td>
<td>n/e</td>
<td>n/e</td>
</tr>
<tr>
<td>Dimer/TOFA, reaction products with TETA</td>
<td></td>
<td>68082291</td>
<td>45-65</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) 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, form, odor: White paste with mild ammonia-like odor.

**WARNING!** Eye, skin and respiratory irritant. Harmful if absorbed through skin. Potential skin sensitizer.
4. FIRST AID MEASURES

First aid for eyes:
Flush eye with clean water for at least 20 minutes while gently holding eyelids open, lifting upper and lower lids. Get immediate medical attention.

First aid for skin:
Immediately remove contaminated clothing and excess contaminant. Flush skin with water for at least 15 minutes. 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. Administer 3-4 glasses of milk or water. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips (if sitting) or to the side (if lying down) to prevent aspiration. Get immediate medical attention.

5. FIRE FIGHTING MEASURES

General fire and explosion characteristics:
Class IIIB.
Unusual fire and explosion hazards:
Sudden reaction and fire may result if product is mixed with an oxidizing agent. Personnel in vicinity and downwind should be evacuated.

Hazardous products of combustion:
Acrid and toxic fumes with organic amines, ammonia, oxides of carbon and nitrogen.

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. Collect run-off water and transfer to drums or tanks for later disposal. Notify local health authorities and other appropriate agencies if such contamination occurs.

Storage:
Store in a cool, dry area away from high temperatures and flames. Do not store in reactive metal containers. Keep away from acids, oxidizers. Keep container tightly closed when not in use.

6. ACCIDENTAL RELEASE MEASURES

Spill control:
Avoid personal contact. Evacuate area. 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. Collect run-off water and transfer to drums or tanks for later disposal. Notify local health authorities and other appropriate agencies if such contamination occurs.

7. HANDLING AND STORAGE

Handling precautions:
Avoid breathing vapors. 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 dust during sanding/grinding of cured product. Do NOT mix with sodium nitrite or other nitrosating agents as cancer-causing nitrosamines could be formed.

Storage:
Store in a cool, dry area away from high temperatures and flames. Do not store in reactive metal containers. Keep away from acids, oxidizers. Keep container tightly closed when not in use.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls

Ventilation:
Use ventilation that is adequate to keep employee exposure to airborne concentrations below exposure limits (or to the lowest feasible levels when limits have not been established). Although good general mechanical ventilation is usually adequate for most industrial applications, local exhaust ventilation is preferred (see ACGIH - Industrial Ventilation). Local exhaust may be required for confined areas (see OSHA 1910.146).

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 rubber (e.g. neoprene, butyl rubber, 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 use NIOSH approved organic vapor cartidges for uncured resin and dust/particle respirators during grinding/sanding operations of cured resin as exposure levels dictate (see OSHA 1910.134).

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity</td>
<td>0.98</td>
</tr>
<tr>
<td>Melting point (°F)</td>
<td>n/d</td>
</tr>
<tr>
<td>Boiling point (°F)</td>
<td>&gt;450</td>
</tr>
<tr>
<td>Vapor pressure (mmHg)</td>
<td>&lt;10mmHg at 70 °F</td>
</tr>
<tr>
<td>Evaporation rate (butyl acetate = 1)</td>
<td>&lt;&lt;1</td>
</tr>
<tr>
<td>VOC (grams/liter)</td>
<td>0</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>0.1-1%</td>
</tr>
<tr>
<td>Percent volatile by volume</td>
<td>0</td>
</tr>
<tr>
<td>pH (5% solution or slurry in water)</td>
<td>10-11</td>
</tr>
<tr>
<td>Percent solids by weight</td>
<td>100</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

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

Conditions to avoid:
Extreme heat or open flame. Product slowly corrodes copper, aluminum, zinc and galvanized surfaces.

Incompatible materials:

Hazardous products of decomposition:

Conditions under which hazardous polymerization may occur:
11. TOXICOLOGICAL INFORMATION

Acute oral effects: LD50 (rat): > 2000 mg/kg (estimate)

Acute dermal effects: LD50 (rabbit): > 1000 mg/kg (estimate)
   TETA has been found to be toxic by skin absorption (ANSI Z129.1 1988). TETA is corrosive to the skin of a rabbit.

Acute inhalation effects: LC50 (rat): Not available.

Eye irritation:
   TETA is a severe irritant to the eyes of a rabbit.

Subchronic effects:
   No data.

Carcinogenicity, teratogenicity, and mutagenicity:
   TETA has tested positive in screening tests for mutagenicity. TETA was found fetotoxic and teratogenic when fed to rats at 0.83% and 1.67% of diet. When applied dermally to the skin of pregnant guinea pigs, there was a 90% abortion rate or death of fetus with developmental anomalies.

Other chronic effects:
   It has been generally observed in animal studies that aliphatic amines can cause changes in the lungs and heart. TETA has been found to produce liver and kidney damage and brain congestion in dermally exposed animals. Sensitization has occurred in laboratory animals after repeated exposures to TETA. Nonylphenol has caused allergic sensitization in humans.

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 4hr, (rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triethylenetetramine</td>
<td>2500 mg/kg</td>
<td>805 mg/kg</td>
<td>n/d</td>
</tr>
<tr>
<td>Aminoethylpiperazine</td>
<td>2140 mg/kg</td>
<td>880 mg/kg</td>
<td>n/d</td>
</tr>
<tr>
<td>Nonylphenol</td>
<td>1620 mg/kg</td>
<td>2140 mg/kg</td>
<td>&gt;1 mg/L</td>
</tr>
<tr>
<td>Dimer/TOFA, reaction products with TETA</td>
<td>n/d</td>
<td>n/d</td>
<td>n/d</td>
</tr>
</tbody>
</table>

"n/d" = "not determined"

12 ECOLOGICAL INFORMATION

Ecotoxicity:
   No data.

Mobility and persistence:
   No data.

Environmental fate:
   No data.
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. Incineration is the preferred method of disposal.

14. TRANSPORT INFORMATION

Proper shipping name: Non-regulated
Technical name: N/A
Hazard class: N/A
UN number: N/A
Packing group: N/A
Emergency Response Guide no.: N/A
IMDG page number: 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>Triethylenetetramine</td>
<td>No</td>
<td>No</td>
<td>0.0</td>
<td>Not required</td>
</tr>
<tr>
<td>Aminoethylpiperazine</td>
<td>No</td>
<td>No</td>
<td>0.0</td>
<td>Not required</td>
</tr>
<tr>
<td>Nonylphenol</td>
<td>No</td>
<td>No</td>
<td>0.0</td>
<td>Not required</td>
</tr>
<tr>
<td>Dimer/TOFA, reaction products with TETA</td>
<td>No</td>
<td>No</td>
<td>0.0</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 Substance 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. For specific requirements, consult the appropriate regulations.

For purposes of SARA Section 312 hazardous materials inventory reporting, the following hazard classes apply to this material: - Immediate health hazard -- Delayed health hazard -
Hazardous Materials Identification System (HMIS) ratings:

<table>
<thead>
<tr>
<th></th>
<th>Health</th>
<th>Flammability</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>3*</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Other information:
This material has been tested in accordance with the requirements of 49CFR 173.136 and found not to be corrosive for transportation.

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.