PLASTIC STEEL LIQUID (B) RESIN

This product appears in the following stock number(s):
10210 10220 10230 B-1500 B-500

Last revised: 07/02/01
Printed: 12/4/2001

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Tradename: PLASTIC STEEL LIQUID (B) 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

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 **Exposure limits**

Constituent	Abbr.	CAS No.	Weight percent	ACGIH TLV	OSHA PEL	Other Limits
Bisphenol A diglycidyl ether resin	DGEBPA	25068386	20-40	n/e	n/e	n/e

"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 gray viscous liquid with little odor.

WARNING! Eye and skin 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:
The low vapor vapor pressure of the resin makes inhalation unlikely in normal use.

LIQUID HARDENER 0203

This product appears in the following stock number(s):
10230

Last revised: 06/04/01
Printed: 1/4/2002

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Tradename: LIQUID HARDENER 0203

General use: The following health hazard data pertain to the hardener only. When fully cured, the mixed product is non-hazardous.

Chemical family: Modified Aliphatic Polyamines

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 **Exposure limits**

Constituent	Abbr.	CAS No.	Weight percent	ACGIH TLV	OSHA PEL	Other Limits
Diethylenetriamine	DETA	111400	< 5	1 ppm	1 ppm	1ppm (Canada)
Tetraethylenepentamine	TEPA	112572	< 20	n/e	n/e	n/e
Polyamide of tall-oil fatty acid dimers and tetraethylenepentamine		68953366	> 60	n/e	n/e	n/e

"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: Brown liquid with ammonia like odor.

WARNING! Eye, skin and respiratory irritant. Harmful if absorbed through skin. May cause skin or respiratory sensitization.

Potential health effects

Primary routes of exposure: ☒ Skin contact ☒ Skin absorption ☒ Eye contact ☒ Inhalation ☐ Ingestion

Symptoms of acute overexposure:

Skin: May be severely irritating to skin (pain, redness, swelling). May cause sensitization. May be toxic if absorbed through skin.

Eyes: Severe irritation or burns. Vapors may be irritating. Symptoms include redness, swelling, pain, blinking, and / or tearing.

Inhalation:

Vapors/ mists may be severely irritating to upper respiratory tract (burning sensation, cough, wheezing, shortness of breathe, nausea, vomiting). May cause respiratory tract sensitization.

Ingestion:

May be severely irritating to mouth, throat and stomach (abdominal pain, nausea, vomiting, diarrhea, dizziness, weakness, thirst, collapse, possible coma).

Effects of chronic overexposure:

Can cause skin and/or respiratory sensitization (asthma-like/allergic symptoms, itching, swelling, rashes) on later exposure. DETA has caused liver and kidney damage in laboratory animals. Repeated exposures to high vapor concentrations of TEPA may cause injury to the liver, kidney, and respiratory tract. TEPA has caused allergic sensitization in humans.

Carcinogenicity -- OSHA regulated: No **ACGIH: No** **National Toxicology Program: No**

International Agency for Research on Cancer: No

Cancer-suspect constituent(s) : None

Medical conditions which may be aggravated by exposure:

Preexisting eye, skin, and respiratory disorders may be aggravated by exposure to this material. Preexisting skin or respiratory tract allergies may increase the chance of developing increased allergy symptoms form exposure to this product. Impaired reproductive functions from preexisting disorders may be aggravated by exposure to this product.

Other effects:

May produce temporary and reversible hazy or blurred vision. Symptoms disappear when exposure is terminated but predisposes an effected individual to physical accidents and reduces the ability to undertake skilled tasks (e.g. driving a motorized vehicle). It has been generally observed in animal studies that aliphatic amines can cause changes in lungs, liver, kidneys and heart. Inhalation of ethyleneamines may cause sensitization of the respiratory tract and the development of an asthmatic reaction on further exposure. There may be susceptible individuals who develop long-term hyperreactive airways, asthma and other respiratory injury following exposure to extremely low concentrations of ethyleneamines, even below the irritation threshold.

4. FIRST AID MEASURES

First aid for eyes:

Immediately flush with water for at least 15 minutes holding eyelids open. Contact a physician.

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. Get medical attention.

First aid for inhalation:

Remove to fresh air. Provide oxygen if breathing is difficult. Contact a physician if symptoms persist.

First aid for ingestion:

Do NOT induce vomiting except under the direction of a medical professional. If conscious administer large amounts of water or milk. 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): 250 **Method:** TCC

Explosive limits in air (percent) -- **Lower:** n/d **Upper:** n/d

Special firefighting procedures:

Dilution with large volumes of water will reduce the intensity of flames. Wear self-contained breathing apparatus and protective clothing.. Product will float on water.

Unusual fire and explosion hazards:

Toxic vapors and gases may form from decomposition which may cause delayed lung damage (pulmonary edema).

Hazardous products of combustion:

Oxides of nitrogen and carbon, ammonia, and other unidentified organic compounds.

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. Clean-up waste water should be placed in appropriate containers for proper disposal.

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 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. Do not mix this product with nitrites or other nitrosating agents because nitrosamine may be formed (may cause cancer).

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 :

General mechanical ventilation is adequate for occasional use. For prolonged or repeated use, local exhaust is recommended. Ventilation must in any case keep DETA concentration below TLV.

Other engineering controls :

Have emergency shower and eye wash stations available.

Personal protective equipment

Eye and face protection:
Safety glasses with side shields or splash proof goggles.

Skin protection:
Chemical resistant rubber gloves and other protective clothing 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 cartidge respirator for uncured resin, dust/particle respirator during grinding/sanding operations for cured resin, or fresh airline respirator as exposure levels dictate (see OSHA 1910.134).

9. PHYSICAL AND CHEMICAL PROPERTIES

Specific gravity:	0.96	**Boiling point (°F):**	>400
Melting point (°F):	n/d	**Vapor density (air = 1):**	3.5
Vapor pressure (mmHg):	<1 at 68 °F	**Evaporation rate (butyl acetate = 1):**	n/d
VOC (grams/liter):	0	**Solubility in water:**	Appreciable
Percent volatile by volume:	0	**pH (5% solution or slurry in water):**	10-11
Percent solids by weight:	100		

10. STABILITY AND REACTIVITY

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

Conditions to avoid :
Exposure to open flames or excessive heat.

Incompatible materials:
Strong oxidizing agents, acids and cholrinated organic compounds. Aldehydes. Ketones. Acrylates. Organic halides. Nitrites or other nitrosating agents.

Hazardous products of decomposition:
Oxides of nitrogen and carbon, ammonia, ethylenediamine, volatile amines, and other unidentified organic compounds.

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): Not available.

Acute dermal effects: LD50 (rabbit): Not available.

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

Eye irritation:
Not available.

Subchronic effects:
Not available.

Carcinogenicity, teratogenicity, and mutagenicity:
TEPA has exhibited evidence for weak mutagenic activity in vitro test systems.

Other chronic effects:
Not available.

Toxicological information on hazardous chemical constituents of this product:

Constituent	Oral LD50 (rat)	Dermal LD50 (rabbit)	Inhalation LC50 4hr, (rat)
Diethylenetriamine	1080 mg/kg	1090 mg/kg	n/d
Tetraethylenepentamine	3224 mg/kg	660 mg/kg	n/d
Polyamide of tall-oil fatty acid dimers and tetraethylenepentamine	n/d	n/d	n/d

'n/d' = 'not determined'

12 ECOLOGICAL INFORMATION

Ecotoxicity:
Not available.

Mobility and persistence:
Not available.

Environmental fate:
Not available.

13. DISPOSAL CONSIDERATIONS

Please see also Section 15, Regulatory Information.

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
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:

Constituent	Extremely Hazardous*	Toxic Chemical**	CERCLA RQ (lbs)	TSCA 12B Export Notification
Diethylenetriamine	No	No	0.0	Required
Tetraethylenepentamine	No	No	0.0	Not required
Polyamide of tall-oil fatty acid dimers and tetraethylenepentamine	No	No	0.0	Not required

*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.

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

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

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

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. 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 **Method:** PMCC

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.

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 nuisance dust during sanding/grinding of cured product.

Storage:

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

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 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

Specific gravity:	2.8	**Boiling point (°F):**	>500
Melting point (°F):	n/d	**Vapor density (air = 1):**	>1
Vapor pressure (mmHg):	0.03 mm Hg at 171 °F	**Evaporation rate (butyl acetate = 1):**	<<1
VOC (grams/liter):	0	**Solubility in water:**	Negligible
Percent volatile by volume:	0	**pH (5% solution or slurry in water):**	neutral
Percent solids by weight:	100		

10. STABILITY AND REACTIVITY

This material 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 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): Not available.

Acute dermal effects: LD50 (rabbit): Not available.

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

Eye irritation:
Not available.

Subchronic effects:
No data available.

Carcinogenicity, teratogenicity, and mutagenicity:
1) MUTAGENICITY: Liquid resins based on diglycidyl ether of Bisphenol A (DGEBPA), 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 DGEBPA yielded no evidence of carcinogenicy 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 carcinogenicy is inadequate.

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 dermititis.

Toxicological information on hazardous chemical constituents of this product:

Constituent	Oral LD50 (rat)	Dermal LD50 (rabbit)	Inhalation LC50 4hr, (rat)
Bisphenol A diglycidyl ether resin	11.4 g/kg	>20 ml/kg	no deaths

'n/d' = 'not determined'

12 ECOLOGICAL INFORMATION

Ecotoxicity:

No data available.

Mobility and persistence:

No data available.

Environmental fate:

No data available.

13. DISPOSAL CONSIDERATIONS

Please see also Section 15, Regulatory Information.

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:

Constituent	Extremely Hazardous*	Toxic Chemical**	CERCLA RQ (lbs)	TSCA 12B Export Notification
Bisphenol A diglycidyl ether resin	No	No	0.0	Not required

*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
All components of this product are on the Domestic Substances List.

16. OTHER INFORMATION

Hazardous Materials Identification System (HMIS) ratings:	Health	Flammability	Reactivity
	2*	1	1

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.

LIQUID HARDENER 0202

This product appears in the following stock number(s):
10210 10220 10710 10720 11220

Last revised: 11/15/01
Printed: 12/4/2001

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Tradename: LIQUID HARDENER 0202
Product Identifier: EPOXY HARDENER
General use: The following data pertain to the hardener only; properly mixed and cured epoxies are not hazardous.
Chemical family: Polyamines and modified polyamines

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 **Exposure limits**

Constituent	Abbr.	CAS No.	Weight percent	ACGIH TLV	OSHA PEL	Other Limits
Triethylenetetramine	TETA	112243	30-60	n/e	n/e	1 ppm (skin) (AIHA-WEEL)
Aminoethylpiperazine	AEP	140318	1-15	n/e	n/e	n/e
Nonylphenol		25154523	5-20	n/e	n/e	n/e
Dimer/TOFA, reaction products with TETA		68082291	45-65	n/e	n/e	n/e

"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.

Potential health effects

Primary routes of exposure: ☒ Skin contact ☒ Skin absorption ☒ Eye contact ☒ Inhalation ☐ Ingestion

Symptoms of acute overexposure:

Skin: Severe irritation or burns, necrosis, blistering and permanent injury. Product can be absorbed through the skin and may cause nausea, headache and general discomfort.

Eyes: Severe irritation or burns. May cause lacrimation, conjunctivitis, corneal damage and may cause permanent injury.

Inhalation:

If the hardener is poorly ventilated, strongly heated or atomized, the vapor or mist can cause severe irritation of the respiratory tract, damage contacted tissue and produce scarring. Coughing and chest pain may result, nausea and vomiting in severe cases.

Ingestion:

Causes severe damage to mucous membranes if swallowed. Burning of mouth, throat, and stomach with abdominal and chest pain. May cause malaise, headache, discomfort bleeding and vomiting of blood. Aspiration may result in lung damage.

Effects of chronic overexposure:

Repeated skin contact or inhalation may cause sensitization, with asthmatic or allergic symptoms on subsequent exposure (itching, rash, defatting, swelling, nausea, faintness, headache). Repeated or prolonged exposure may cause adverse respiratory effects (cough, tightness of chest, shortness of breath), eye effects (conjunctivitis, corneal damage), or skin effects (rash, irritation, corrosion). Effects from inhalation of vapors may be delayed.

Carcinogenicity -- OSHA regulated: No **ACGIH: No** **National Toxicology Program: No**

International Agency for Research on Cancer: No

Cancer-suspect constituent(s) : None

Medical conditions which may be aggravated by exposure:

Eye disease, skin disorders (e.g. eczema) and allergies, asthma and respiratory diseases (e.g. Bronchitis, Emphysema).

Other effects:

Repeated and/or prolonged exposure to low concentrations of vapor may cause: sore throat, eye irritation, nausea, faintness, headache, which are transient. Corneal edema may give rise to a perception of "blue haze" or "fog" around lights which is transient and has no known residual effect.

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.

Extinguishing media:

☒ Water ☒ Carbon dioxide ☒ Dry chemical ☐ Foam ☒ Alcohol foam

Flash Point (°F): >200 **Method:** TCC

Explosive limits in air (percent) -- **Lower:** n/d **Upper:** n/d

Special firefighting procedures:

Do not enter confined space without full bunker gear. Firefighters should wear self-contained breathing apparatus and protective clothing to prevent all skin and eye contact with this material. Cool fire exposed containers with water.

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.

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

Specific gravity:	0.98	**Boiling point (°F):**	>450
Melting point (°F):	n/d	**Vapor density (air = 1):**	>1
Vapor pressure (mmHg):	<10mmHg at 70 °F	**Evaporation rate (butyl acetate = 1):**	<<1
VOC (grams/liter):	0	**Solubility in water:**	0.1-1%
Percent volatile by volume:	0	**pH (5% solution or slurry in water):**	10-11
Percent solids by weight:	100		

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:

Oxidizers, acids, Cl-organic cmpds. Reactive metals (e.g. Na, Ca, zinc). Sodium/calcium hypochlorite. Nitrous acid/ oxide, nitrites. Peroxides. Mat'ls reactive with hydroxyl cmpds.

Hazardous products of decomposition:

Acrid and toxic fumes with organic amines, ammonia, oxides of carbon and nitrogen. Nitric acid. Nitrosamines. Aldehydes.

Conditions under which hazardous polymerization may occur:

Heat is released when this product is mixed with epoxy resins; use care when mixing large quantities.

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. Exposure: hours.

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 anomolies.

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. Nonyphenol has caused allergic sensitization in humans.

Toxicological information on hazardous chemical constituents of this product:

Constituent	Oral LD50 (rat)	Dermal LD50 (rabbit)	Inhalation LC50 4hr, (rat)
Triethylenetetramine	2500 mg/kg	805 mg/kg	n/d
Aminoethylpiperazine	2140 mg/kg	880 mg/kg	n/d
Nonylphenol	1620 mg/kg	2140 mg/kg	>1 mg/L
Dimer/TOFA, reaction products with TETA	n/d	n/d	n/d

'n/d' = 'not determined'

12 ECOLOGICAL INFORMATION

Ecotoxicity:

No data.

Mobility and persistence:

No data.

Environmental fate:

No data.

13. DISPOSAL CONSIDERATIONS

Please see also Section 15, Regulatory Information.

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:

Constituent	Extremely Hazardous*	Toxic Chemical**	CERCLA RQ (lbs)	TSCA 12B Export Notification
Triethylenetetramine	No	No	0.0	Not required
Aminoethylpiperazine	No	No	0.0	Not required
Nonylphenol	No	No	0.0	Not required
Dimer/TOFA, reaction products with TETA	No	No	0.0	Not required

*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
All components of this product are on the Domestic Substances List.

16. OTHER INFORMATION

Hazardous Materials Identification System (HMIS) ratings:	Health	Flammability	Reactivity
	3*	1	0

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.