

**CWC 604 MACHINE BOND RESIN**

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

7409U

Last revised: 12/22/03

Printed: 2/24/2004

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****Tradename:** CWC 604 MACHINE BOND RESIN**General use:** This information applies to the resin component of the three-part kit; handle freshly-mixed resin and hardener as recommended for the hardener. After curing, the product is not hazardous.**Chemical family:** Epoxy resin**MANUFACTURER**ITW Philadelphia Resins  
130 Commerce Dr.  
Montgomeryville, PA 18936**EMERGENCY INFORMATION****Emergency telephone number****(CHEMTREC): (800) 424-9300****Other Calls: (215) 855-8450****2. COMPOSITION/INFORMATION ON INGREDIENTS****HAZARDOUS CONSTITUENTS****Exposure limits**

Constituent	Abbr.	CAS No.	Weight percent	ACGIH TLV	OSHA PEL	Other Limits
Cresyl glycidyl ether		2210799	1-10	n/e	n/e	n/e
Bisphenol A diglycidyl ether resin	DGEBPA	25068386	> 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: 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.

**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. Cresyl glycidyl ether may cause an allergic respiratory reaction.

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

**Note to physician :**

In general, emesis induction is unnecessary in high viscosity, low volatility products, e.g., neat epoxy resins.

**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.

**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 :**

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:**

Safety glasses with side shields.

**Skin protection:**

Chemical-resistant gloves 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

<b>Specific gravity:</b>	1.19	<b>Boiling point (°F):</b>	>500
<b>Melting point (°F):</b>	n/d	<b>Vapor density (air = 1):</b>	>1
<b>Vapor pressure (mmHg):</b>	0.03 mm Hg at 171 °F	<b>Evaporation rate (butyl acetate = 1):</b>	<<1
<b>VOC (grams/liter):</b>	0	<b>Solubility in water:</b>	Negligible
<b>Percent volatile by volume:</b>	0	<b>pH (5% solution or slurry in water):</b>	neutral
<b>Percent solids by weight:</b>	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: 8 hours.

### Eye irritation:

Not available.

### Subchronic effects:

Not available.

### 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 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.

**Other 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.

**Toxicological information on hazardous chemical constituents of this product:**

Constituent	Oral LD50 (rat)	Dermal LD50 (rabbit)	Inhalation LC50 4hr, (rat)
Cresyl glycidyl ether	2500 mg/kg	> 2300 mg/kg	6100 mg/l
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.

**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
Cresyl glycidyl ether	No	No	0.0	Required
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**

<b>Hazardous Materials Identification System (HMIS) ratings:</b>	<b>Health</b>	<b>Flammability</b>	<b>Reactivity</b>
	2*	1	1

**Revisions for this issue:**

MSDS section	Revisions
	Review

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.

**CWC 604 MACHINE BOND AGGREGATE**

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

7409U

Last revised: 12/22/03

Printed: 2/24/2004

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****Tradename:** CWC 604 MACHINE BOND AGGREGATE**General use:** This information applies to the aggregate mixture sold with resin and hardener. After mixing, handle uncured material as for the hardener; after curing, this product is not hazardous.**Chemical family:** Silica-silicate mixture**MANUFACTURER**ITW Philadelphia Resins  
130 Commerce Dr.  
Montgomeryville, PA 18936**EMERGENCY INFORMATION****Emergency telephone number**  
**(CHEMTREC): (800) 424-9300**  
**Other Calls: (215) 855-8450****2. COMPOSITION/INFORMATION ON INGREDIENTS****HAZARDOUS CONSTITUENTS****Exposure limits**

Constituent	Abbr.	CAS No.	Weight percent	ACGIH TLV	OSHA PEL	Other Limits
Amorphous precipitated silica		112926008	1-10	10 mg/m <sup>3</sup>	20 mppcf	n/e
Crystalline silica		14808607	> 60	0.05 mg/m <sup>3</sup>	10/(%Q+2) mg/m <sup>3</sup>	0.10 mg/m <sup>3</sup> (Canada)
Barium sulfate		7727437	20-40	10 mg/m <sup>3</sup>	15 mg/m <sup>3</sup>	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: Natural color sand with no odor.

**CAUTION!** Mechanical irritant. Dusts may cause respiratory irritation.**Potential health effects****Primary routes of exposure:**  Skin contact  Skin absorption  Eye contact  Inhalation  Ingestion**Symptoms of acute overexposure:****Skin:** Abrasive, but not otherwise hazardous on skin contact.**Eyes:** Mechanical irritant

**Inhalation:**

Irritant. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring (see chronic effects).

**Ingestion:**

No data

**Effects of chronic overexposure:**

Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling and sometimes fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

**Carcinogenicity -- OSHA regulated:** No

**ACGIH:** No

**National Toxicology Program:** Yes

**International Agency for Research on Cancer:** Yes

**Cancer-suspect constituent(s) :** Respirable Silica

**Medical conditions which may be aggravated by exposure:**

Eye diseases and respiratory disorders (ie asthma, bronchitis).

**Other effects:**

There is some evidence that breathing respirable crystalline silice or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by fibrosis of the lungs, skin and other internal organs) and kidney disease.

---

**4. FIRST AID MEASURES****First aid for eyes:**

Avoid rubbing particles into the eyes. Flush with a gentle flow of clean water. Contact a physician if irritation persists.

**First aid for skin:**

No first aid needed for simple skin contact. If particles are driven into skin, wash thoroughly and bandage if needed.

**First aid for inhalation:**

Remove patient to fresh air. Administer oxygen if breathing is difficult. Get medical attention if symptoms are serious or persistent.

**First aid for ingestion:**

Consult a physician.

---

**5. FIRE FIGHTING MEASURES****Extinguishing media:**

Water

Carbon dioxide

Dry chemical

Foam

Alcohol foam

**Flash Point (°F):** None

**Method:** not applicable

**Explosive limits in air (percent) -- Lower:** none      **Upper:** none

**Special firefighting procedures:**

Does not support combustion with oxygen.

**Unusual fire and explosion hazards:**

None

**Hazardous products of combustion:**

None

## 6. ACCIDENTAL RELEASE MEASURES

**Spill control:**

Avoid inhalation of dusts if any are raised.

**Containment:**

N/A

**Cleanup:**

Shovel or sweep up for re-use or disposal.

**Special procedures:**

N/A

## 7. HANDLING AND STORAGE

**Handling precautions:**

Do not breath dust. Avoid creating and inhaling dusts of this product. Do not rely on sight to determine if dust is in the air, silica may be present without a visible dust cloud. Launder clothing which has become dusty. Wash with soap and water after use.

**Storage:**

Store in closed containers.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering controls****Ventilation :**

Mechanical ventilation as required to keep dust concentration below the TLV.

**Other engineering controls :**

Eye wash station.

**Personal protective equipment****Eye and face protection:**

Safety glasses with side shields.

**Skin protection:**

Long-sleeved clothing and gloves.

**Respiratory protection:**

Should dust be raised in handling, wear NIOSH-approved dust respirator.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Specific gravity:</b>	3.2	<b>Boiling point (°F):</b>	n/d
<b>Melting point (°F):</b>	> 2500	<b>Vapor density (air = 1):</b>	No vapor
<b>Vapor pressure (mmHg):</b>	Nil at 78 °F	<b>Evaporation rate (butyl acetate = 1):</b>	Nil
<b>VOC (grams/liter):</b>	0	<b>Solubility in water:</b>	Nil
<b>Percent volatile by volume:</b>	0	<b>pH (5% solution or slurry in water):</b>	Neutral
<b>Percent solids by weight:</b>	100		

**10. STABILITY AND REACTIVITY**

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

**Conditions to avoid :**

None

**Incompatible materials:**

Extremely powerful oxidizers (e.g. fluorine, oxygen difluoride, manganese trioxide, chlorine trifluoride)

**Hazardous products of decomposition:**

Silica will dissolve in hydrofluoric acid producing a corrosive gas, silicon tetrafluoride.

**Conditions under which hazardous polymerization may occur:**

None

**11. TOXICOLOGICAL INFORMATION**

**Acute oral effects:** LD50 (rat): No data

**Acute dermal effects:** LD50 (rabbit): No data

**Acute inhalation effects:** LC50 (rat): No data

Exposure: 0 hours.

**Eye irritation:**

No data available.

**Subchronic effects:**

No data available.

**Carcinogenicity, teratogenicity, and mutagenicity:**

No data available.

**Other chronic effects:**

Respirable crystalline quartz may cause chronic lung injury (silicosis). Acute or rapid silicosis may occur in a short period of time in heavy exposure in certain occupations such as sandblasters. Silicosis is a form of disabling pulmonary fibrosis which can be progressive and may lead to death. Pulmonary function may be reduced by inhalation of respirable crystalline silica. It may produce lung scarring which may lead to a progressive massive fibrosis, increasing susceptibility to pulmonary tuberculosis. Progressive massive fibrosis may be accompanied by right heart enlargement, heart failure, and pulmonary failure. Smoking aggravates the effects of exposure.

**Toxicological information on hazardous chemical constituents of this product:**

Constituent	Oral LD50 (rat)	Dermal LD50 (rabbit)	Inhalation LC50 4hr, (rat)
Amorphous precipitated silica	> 10 g/kg	n/d	n/d
Crystalline silica	n/d	n/d	n/d

'n/d' = 'not determined'

Constituent	Oral LD50 (rat)	Dermal LD50 (rabbit)	Inhalation LC50 4hr, (rat)
Barium sulfate	n/d	n/d	n/d

## 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:

The aggregate may be discarded in landfills as nonhazardous waste.

## 14. TRANSPORT INFORMATION

## 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
Amorphous precipitated silica	No	No	0.0	Not required
Crystalline silica	No	No	0.0	Not required
Barium sulfate	No	Yes	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:** - Delayed health hazard -

### Canadian regulations

**WHMIS hazard class(es):** D2B; D2A

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

**16. OTHER INFORMATION**

<b>Hazardous Materials Identification System (HMIS) ratings:</b>	<b>Health</b> 1*	<b>Flammability</b> 0	<b>Reactivity</b> 0
--	---------------------	--------------------------	------------------------

**Revisions for this issue:**

<b>MSDS section</b>	<b>Revisions</b>
11	Updated toxicology data

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.

**CWC 604 MACHINE BOND HARDENER**

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

7409U

Last revised: 06/16/05

Printed: 6/23/2005

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****Tradename:** CWC 604 MACHINE BOND HARDENER**General use:** This information applies to the hardener component of the three-part kit; handle freshly-mixed resin and hardener as recommended for the hardener. After curing, the product is not hazardous.**Chemical family:** amidoamine**MANUFACTURER**ITW Philadelphia Resins  
130 Commerce Dr.  
Montgomeryville, PA 18936**EMERGENCY INFORMATION****Emergency telephone number**  
**(CHEMTREC): (800) 424-9300**  
**Other Calls: (215) 855-8450****2. COMPOSITION/INFORMATION ON INGREDIENTS****HAZARDOUS CONSTITUENTS****Exposure limits**

Constituent	Abbr.	CAS No.	Weight percent	ACGIH TLV	OSHA PEL	Other Limits
Tetraethylenepentamine	TEPA	112572	< 15	n/e	n/e	n/e
Amidoamine		*		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: Amber liquid with 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, pain, burns and permanent damage. TETA can cause toxic effects by skin absorption on prolonged contact. Product is absorbed through the skin and may cause nausea, headache and general discomfort.**Eyes:** Severe irritation, pain or burns; may cause permanent eye injury. Vapors can cause lacrimation, conjunctivitis, and corneal edema.

**Inhalation:**

Inhalation of mists or vapors may cause irritation, coughing and chest pain may result.

**Ingestion:**

May cause nausea unless treated promptly.

**Effects of chronic overexposure:**

Repeated skin contact or inhalation may cause sensitization, with asthmatic or allergic symptoms on subsequent exposure (rash, defatting, nausea, headaches). 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). 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:**

Asthma. Chronic respiratory disease such as Bronchitis and Emphysema. Eye disease. Skin disorders and allergies.

**Other effects:**

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:**

Immediately flush with clean water for at least 15 minutes while gently holding eyelids open. Seek medical advice.

**First aid for skin:**

Immediately remove contaminated clothing and shoes. Flush affected area with water for at least 15 minutes. Wash with soap and water. Seek medical advice.

**First aid for inhalation:**

Remove patient to fresh air. Give oxygen or artificial respiration if needed. Prevent aspiration of vomit. Turn victims head to side. Seek medical advice.

**First aid for ingestion:**

Call a physician immediately. Remove stomach contents by gastric suction or induced vomiting ONLY as directed by medical personnel. Never give anything by mouth to an unconscious person.

**5. FIRE FIGHTING MEASURES****General fire and explosion characteristics:**

Class IIIB

**Extinguishing media:**

Water

Carbon dioxide

Dry chemical

Foam

Alcohol foam

**Flash Point (°F):** >230

**Method:** closed cup

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

**Upper:** n/d

**Special firefighting procedures:**

Firefighters should wear self-contained breathing apparatus and full protective gear (butyl rubber). Keep containers cool with water spray.

**Unusual fire and explosion hazards:**

Closed containers may rupture when exposed to extreme heat. 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:**

Oxides of carbon, oxides of nitrogen, ammonia and unidentified organic combustion products.

---

**6. ACCIDENTAL RELEASE MEASURES****Spill control:**

Avoid personal contact. Wear proper protective clothing. 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 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. Avoid breathing vapors. Handle in well ventilated work area.

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 use sodium nitrite or other nitrosating agents in formulations containing this product, cancer-causing nitrosamines could be formed.

**Storage:**

Keep away from acids and oxidizers. Store in a cool, dry, ventilated area in closed containers. Keep away from high temperatures and flames. Do not store in iron or other reactive metal containers.

---

**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 stations available.

**Personal protective equipment****Eye and face protection:**

Splashproof goggles. In emergency situations - splashproof goggles with face shield.

**Skin protection:**

Impervious rubber gloves (Neoprene, butyl rubber, nitrile) and other impervious gear as needed to prevent skin

---

contact.

**Respiratory protection:**

None needed in normal use with proper ventilation. In poorly ventilated areas use NIOSH approved cartridge respirator (for ammonia vapor) for uncured resin, dust/particle respirators during grinding/sanding operations for cured resin, or fresh airline respirator as exposure levels dictate (see OSHA 1910.134).

---

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Specific gravity:</b>	0.95	<b>Boiling point (°F):</b>	> 392
<b>Melting point (°F):</b>	n/d	<b>Vapor density (air = 1):</b>	>1
<b>Vapor pressure (mmHg):</b>	3.6 mmHg at 70 °F	<b>Evaporation rate (butyl acetate = 1):</b>	<<1
<b>VOC (grams/liter):</b>	0	<b>Solubility in water:</b>	n/d
<b>Percent volatile by volume:</b>	0	<b>pH (5% solution or slurry in water):</b>	Alkaline
<b>Percent solids by weight:</b>	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, reactive metals. Sodium or calcium hypochlorite. Nitrous acid, nitrites, nitrous oxide atm. Peroxides. Mat'ls reactive with hydroxyl compounds.

**Hazardous products of decomposition:**

Acrid and toxic fumes including organic amines, ammonia, oxides of nitrogen and carbon, nitric acid, nitrosamines. Aldehydes.

**Conditions under which hazardous polymerization may occur:**

Heat is generated when this hardener reacts with acids and epoxy resins. Mix only as instructed.

---

**11. TOXICOLOGICAL INFORMATION**

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

**Acute dermal effects:** LD50 (rabbit): > 2000 mg/kg (estimate)

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

Exposure: hours.

**Eye irritation:**

Not available.

**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. TEPA has exhibited evidence for weak mutagenic activity in vitro test systems.

**Other chronic effects:**

It has been generally observed in animal studies that aliphatic amines can cause changes in the lungs, liver, kidneys and heart.

**Toxicological information on hazardous chemical constituents of this product:**

Constituent	Oral LD50 (rat)	Dermal LD50 (rabbit)	Inhalation LC50 4hr, (rat)
Tetraethylenepentamine	3224 mg/kg	660 mg/kg	n/d
Amidoamine	> 2000 mg/kg	> 2000 mg/kg	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:**

**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
Tetraethylenepentamine	No	No	0.0	Not required
Amidoamine	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**

<b>Hazardous Materials Identification System (HMIS) ratings:</b>	<b>Health</b> <b>2*</b>	<b>Flammability</b> <b>1</b>	<b>Reactivity</b> <b>0</b>
--	----------------------------	---------------------------------	-------------------------------

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.