ALUMINUM PUTTY (F) RESIN

Last revised: 12/08/98
Printed: 01/26/01

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: EPOXY RESIN

Chemical family: Metal filled epoxy resin

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

MANUFACTURER

ITW Devcon
30 Endicott St.
Danvers, MA 01923

EMERGENCY INFORMATION

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

2. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS CONSTITUENTS				Exposure limits		
Constituent	Abbr.	CAS No.	Weight percent	ACGIH TLV	OSHA PEL	Other Limits
Crystalline silica		14808607	< 1	0.05 mg/m3	10/(%Q+2) mg/m3	0.1 (Canada) 3
Bisphenol A diglycidyl ether resin	DGEBPA	25068386	30-40	n/e	n/e	n/e

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

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance, physical form, odor: Dark gray paste with little odor.

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

Potential health effects:

Primary routes of exposure:

■ Skin contact ☐ Skin absorption ☐ Eye contact ☐ Inhalation ☐ Ingestion

Symptoms of acute overexposure:

Skin:

Moderate irritant. Contact at elevated temperatures can cause thermal burns. 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.

Medical conditions which may be aggravated by exposure:

Preexisting eye and skin disorders. Development of preexisting skin or lung allergy symptoms may increase.

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

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 -- Lower: n/d **Upper:** n/d

Special firefighting procedures:

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

Unusual fire and explosion hazards:

Heating above 300 deg F in the presence of air may cause slow oxidative decomposition and above 500 deg F may cause polymerization.

Hazardous products of combustion:

When heated to decomposition it emits fumes of Cl- , carbon monoxide, other fumes and vapors varying in composition and toxicity.

6. ACCIDENTAL RELEASE MEASURES

Spill control:

Avoid personal contact. Eliminate ignition sources. Ventilate area.

Containment:

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

Cleanup:

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

Special procedures:

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

7. HANDLING AND STORAGE

Handling precautions:

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

Storage precautions:

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

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 cartidges for uncured resin and dust/particle respirators during grinding/sanding operations of cured resin as exposure levels dictate.

9. PHYSICAL AND CHEMICAL PROPERTIES

Specific gravity:	1.92	**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		0

10. STABILITY AND REACTIVITY

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

Conditions to avoid:

Open flame and extreme heat

Incompatible materials:

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

Hazardous decomposition products:

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

Conditions of hazardous polymerization:

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

11. TOXICOLOGICAL INFORMATION

Acute oral effects:

LD50 (rat): Not available.

Acute dermal effects

LD50 (rabbit): Not available.

Acute inhalation effects:

LC50 (rat): Not available. in 0 hours

Eye irritation:

Not available.

Subchronic effects

No data available.

Chronic effects

2-year bioassays in mice exposed by the dermal route to EPON 828, DGEBPA, or other commercial resins yielded limited evidence of weak carcinogenicity. The authors concluded that the renal tumor evidence with EPON 828 "was of no biological significance" and that the resin "is not a systemic carcinogen when applied to the dorsal skin of CF1 mice."

Carcinogenicity, teratogenicity, and mutagenicity:

Both the resin and the diglycidyl ether of bisphenol A (a component of this product) have proved to be inactive when tested by In Vivo mutagenicity assays. Both have shown activity by In Vitro microbial mutagenicity screening and have produced chromosomal aberrations in cultured rat liver cells.

Toxicological information on hazardous chemical constituents of this product:

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

12. ECOLOGICAL INFORMATION

Ecotoxicity:

No data available.

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.

14. TRANSPORT INFORMATION

Proper shipping name: Non-regulated

Technical name: N/A

Hazard class: N/A

UN number: N/A **Packing group:** N/A **IMDG Page no.:** N/A

Emergency Response Guide no.: N/A

Other: N/A

15. REGULATORY INFORMATION

U.S. Federal Regulations

TSCA:

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

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

Regulatory status of hazardous chemical constituents of this product:

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

*Consult the appropriate regulations for emergency planning and release reporting requirements for substances on the SARA Section 301 Extremely Hazardous Substances list.
**Substances for which the "Toxic Chemical" column is marked "Yes" are on the SARA Section 313 list of Toxic Chemicals, for which release reporting may be required. Consult the appropriate regulations for specific requirements.

Classification of this material for SARA Section 312 hazardous materials inventory reporting:

Immediate health hazard Delayed health hazard

Canadian regulations

WHMIS hazard class(es): D2B; D2A

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

16. OTHER INFORMATION

Hazardous Materials Information System (HMIS) ratings:

Health	Flammability	Reactivity
2*	1	1

PUTTY HARDENER 0200

Last revised: 12/04/98
Printed: 01/26/01

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier: EPOXY HARDENER

Chemical family: Polyamines and modified polyamines

General information: The following data pertain to the hardener only; properly mixed and cured epoxies are not hazardous.

MANUFACTURER

ITW Devcon
30 Endicott St.
Danvers, MA 01923

EMERGENCY INFORMATION

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

2. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS CONSTITUENTS **Exposure limits**

Constituent	Abbr.	CAS No.	Weight percent	ACGIH TLV	OSHA PEL	Other Limits
Triethylenetetramine	TETA	112243	30-40	n/e	n/e	1 ppm (AIHA-WE) (EL)
Aminoethylpiperazine	AEP	140318	1-10	n/e	n/e	n/e
Nonylphenol		25154523	1-10	n/e	n/e	n/e
Dimer/TOFA, reaction products with TETA		68082291	40-50	n/e	n/e	n/e

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

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance, physical form, odor: White paste with mild ammonia-like odor.

WARNING! Severe eye, skin and respiratory tract irritant (evidenced by rash, burning sensation, sore throat, nausea, shortness of breath). Harmful if absorbed through skin. May cause skin sensitization. Avoid breathing vapors. Use with adequate ventilation. Do not take internally. Wash thoroughly after handling. Do not expose to heat or flames.

Potential health effects:

Primary routes of exposure:

■ Skin contact ■ Skin absorption ■ Eye contact ■ Inhalation □ Ingestion

Symptoms of acute overexposure:

Skin:
Severe irritant.

Eyes:
Severe irritant

Inhalation:
Irritation of nose and throat; nausea and vomiting in severe cases

Ingestion:
May cause irritation of mouth and throat and gastrointestinal tract.

Effects of chronic overexposure:

Repeated skin contact can cause sensitization, with itching, rashes, or swelling of the skin. TETA may cause respiratory sensitization and chronic lung toxicity (cough, tightness of chest, shortness of breath). Nonyphenol has caused allergic sensitization in humans.

Medical conditions which may be aggravated by exposure:
Eye disease, skin disorders and allergies.

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

Other effects:

Repeated and/or prolonged exposure to low concentrations of vapor may cause: sore throat, eye irritation, nausea, faintness, headache, which are transient. Repeated and /or prolonged exposures may result in: adverse skin effects (such as defatting, rash, irritation or corrosion), adverse eye effects (such as conjunctivitis or corneal damage).

4. FIRST AID MEASURES

First aid for eyes:
Immediately flush with clean water for at least 15 minutes while gently holding eyelids open. Get medical help as soon as possible.

First aid for skin:
Immediately remove contaminated clothing and shoes and wash well with soap and warm water. See a doctor if irritation developes.

First aid for inhalation:
Remove patient to fresh air. Give oxygen or artificial respiration if needed. See a doctor if symptoms persist.

First aid for ingestion:
Do not induce vomiting. Dilute with lots of milk or water and get immediate medical help.

5. FIRE FIGHTING MEASURES

Extinguishing media:
■ Water ■ Carbon dioxide ■ Dry chemical ☐ Foam ☐ Alcohol foam

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

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

Special firefighting procedures:

Firefighters should wear self-contained breathing apparatus and sufficient protective gear to prevent all skin and eye contact with this material.

Unusual fire and explosion hazards:

None

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. Eliminate ignition sources. Ventilate area.

Containment:

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

Cleanup:

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

Special procedures:

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

7. HANDLING AND STORAGE

Handling precautions:

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

Storage precautions:

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls

Ventilation:

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

Other engineering controls:

Have emergency shower and eye wash stations available.

Personal protective equipment

Eye and face protection:

Safety glasses with sideshields or chemical goggles.

Skin Protection:

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

Respiratory protection:

None needed in normal use with proper ventilation. In poorly ventilated areas or when creating a dust or mist, use NIOSH-approved organic vapor respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Specific gravity:	0.98		**Boiling point (°F):**	>450
Melting point (°F):	n/d		**Vapor density (air = 1):**	>1
Vapor pressure (mmHg):	<0.01	at 68 °F	**Evaporation rate (butyl acetate = 1):**	<<1
VOC (grams/liter):	0		**Solubility in water:**	30-60%
Percent volatile by volume:	0		**pH (5% solution or slurry in water):**	10-11
Percent solids by weight:	100			0

10. STABILITY AND REACTIVITY

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

Conditions to avoid:

Extreme heat or open flame

Incompatible materials:

Strong oxidizers, acids, and chlorinated organic compounds

Hazardous decomposition products:

Acrid and toxic fumes with organic amines, ammonia, oxides of carbon and nitrogen

Conditions of hazardous polymerization:

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 a severe irritant to the skin of a rabbit.

Acute inhalation effects:

LC50 (rat): No data in 0 hours

Eye irritation:

TETA is a severe irritant to the eyes of a rabbit.

Subchronic effects

No data.

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.

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. 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 (rat, 4 hours)
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

12. ECOLOGICAL INFORMATION

Ecotoxicity:

No data.

Mobility and persistence:

No data.

Environmental fate:

No data.

13. DISPOSAL CONSIDERATIONS

Waste management recommendations:

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

14. TRANSPORT INFORMATION

Proper shipping name: Non-regulated

Technical name: N/A

Hazard class: N/A

UN number: N/A **Packing group:** N/A **IMDG Page no.:** N/A

Emergency Response Guide no.: N/A

Other: N/A

15. REGULATORY INFORMATION

U.S. Federal Regulations

TSCA:

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

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

Regulatory status of hazardous chemical constituents of this product:

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

*Consult the appropriate regulations for emergency planning and release reporting requirements for substances on the SARA Section 301 Extremely Hazardous Substances list.
**Substances for which the "Toxic Chemical" column is marked "Yes" are on the SARA Section 313 list of Toxic Chemicals, for which release reporting may be required. Consult the appropriate regulations for specific requirements.

Classification of this material for SARA Section 312 hazardous materials inventory reporting:

Immediate health hazard Delayed health hazard

Canadian regulations

WHMIS hazard class(es): D2B; D2A

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

16. OTHER INFORMATION

Hazardous Materials Information System (HMIS) ratings:

Health	Flammability	Reactivity
3*	1	1

Other information:

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