

# MATERIAL SAFETY DATA SHEET

**Fibergrate**

Composite Structures

## Bonding Kit - Part B

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### SECTION I - CHEMICAL PRODUCT & COMPANY IDENTIFICATION

24-HOUR EMERGENCY PHONE NUMBER: Shell (713) 473-9461 or CHEMTREC (800) 424-9300

General MSDS Assistance: Shell (713) 241-4819

Product Name: EPI-CURE® 3140 Curing Agent (Formerly EPON CURING AGENT® V-40, EPI-CURE® 8540 and EUREDUR® 3140)

Chemical Name: Mixture (See Section II)

Fibergrate Revision Date: 02/08/08

Chemical Family: Polyamide

Shell Revision Date: 08/30/96

HMIS Rating: H=3, F=1, R=0

Reprint Date: 02/08/08

WHMIS Rating: D1B, D2B, E

Shell Oil Company

Product Safety & Compliance

PO Box 4320

Houston, TX 77210

### SECTION II - PRODUCT/INGREDIENTS

#### PRODUCT

EPI-CURE 3140 CURING AGENT

#### INGREDIENTS

- | INGREDIENTS                   | CAS NUMBER | PERCENT |
|-------------------------------|------------|---------|
| 1 Fatty Acid Polyamides       | 68410-23-1 | >84     |
| 2 Triethylenetetramine (TETA) | 112-24-3   | <16     |

### SECTION III - ACUTE TOXICITY DATA

ACUTE ORAL LD50: >5 g/kg (Rat)

ACUTE DERMAL LD50: >8 g/kg (Rabbit)

ACUTE INHALATION LD50: No Data Available

### SECTION IV - HEALTH INFORMATION

The health effects noted below are consistent with requirements under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**EYE CONTACT:** Product may be extremely irritating to the eyes and may cause severe damage including blindness.

Vapors may be irritating.

**SKIN CONTACT:** Product may be mildly irritating to the skin. Product may cause skin sensitization.

**INHALATION:** Mists or vapors may produce severe respiratory irritation.

**INGESTION:** Not expected to be a relevant route of exposure, however, product may produce irritation of mouth and throat and the gastrointestinal tract.

**SIGNS AND SYMPTOMS:** Irritation as noted above. Skin sensitization (allergy) may be evidenced by rashes, especially hives.

**AGGRAVATED MEDICAL CONDITIONS:** Preexisting skin, eye and respiratory disorders may be aggravated by exposure to this product.

**OTHER HEALTH EFFECTS:** See Section VII for supplemental health information.

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Fibergrate Revision Date: 02/08/08

Shell Revision Date: 08/30/96

## SECTION V - OCCUPATIONAL EXPOSURE LIMITS

PRODUCT/ INGREDIENT	OSHA		ACGIH		Other
	PEL/TWA	PEL/CEILING	TLV/TWA	TLV/STBL	
Product	None Established				
Ingredient 1	None Established				
Ingredient 2	None Established				

## SECTION VI - EMERGENCY AND FIRST AID PROCEDURES

**EYE CONTACT:** Immediate flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Rinse continuously with water while on way to get medical attention.

**SKIN CONTACT:** Remove contaminated clothing or shoes. Wipe excess from skin and flush with plenty of water for at least 15 minutes. Use soap if available or follow by washing with soap and water. Do not reuse clothing until thoroughly cleaned. Get medical attention.

**INHALATION:** Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention.

**INGESTION:** Do not induce vomiting. Give one glass of water unless victim is drowsy, convulsing or unconscious. Seek medical attention.

## SECTION VII - SUPPLEMENTAL HEALTH INFORMATION

Triethylenetetramine (TETA) has been found to be a direct acting mutagen in the Ames Assay. It gave positive results with and without activation.

TETA was 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 secondary to copper deficiency resulting from the chelating activity of TETA.

## SECTION VIII - PHYSICAL DATA

**BOILING POINT:** Decomposes

**VAPOR PRESSURE (MM HG):** Negligible @ 20° C

**SOLUBILITY (In Water):** Slight

**EVAPORATION RATE (Normal Butyl Acetate = 1):** Not Available

**APPEARANCE AND ODOR:** Amber, viscous liquid with ammonia odor.

**SPECIFIC GRAVITY:** 0.96 (H2O = 1)

**MELTING POINT:** Not Available

**VAPOR DENSITY (Air = 1):** >1

## SECTION IX - FIRE AND EXPLOSION HAZARDS

**FLASH POINT AND METHOD:** >428° F (220° C) (COC)

**FLAMMABLE LIMITS/PERCENT VOLUME IN AIR:** Lower: N/APP

Upper: N/APP

**EXTINGUISHING MEDIA:** Use water fog, "alcohol" foam, dry chemical or CO2. Do not use a direct stream of water.

Product will float. Water or foam may cause frothing which can be violent, especially sprayed into containers of hot or burning liquid.

**SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS:** Material will not burn unless preheated. Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots), including a positive pressure NIOSH approved self-contained breathing apparatus. Cool fire exposed containers with water.

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## SECTION IX - FIRE AND EXPLOSION HAZARDS, cont.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Delayed lung damage (pulmonary edema) can be experienced after exposure to combustion products, sometimes hours after the exposure. Nitrogen oxides and nitrogen containing organic compounds may be released upon combustion. See Section XIII.

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## SECTION X - REACTIVITY

**STABILITY:** Stable

**HAZARDOUS POLYMERIZATION:** Will not occur

**CONDITIONS AND MATERIALS TO AVOID:** Avoid contact with strong oxidizing agents. Reaction with epoxy resins can produce considerable heat. (See Section XIII).

**HAZARDOUS DECOMPOSITION PRODUCTS:** Nitrogen oxides, carbon monoxide and unidentified organic compounds (some containing nitrogen) may be formed during thermal or oxidative decomposition or combustion. See Section XIII.

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## SECTION XI - EMPLOYEE PROTECTION

**RESPIRATORY PROTECTION:** Avoid breathing vapors/mists. Use a NIOSH-approved respirator as required to prevent overexposure. In accord with 29 CFR 1910.134, use either a full-face, atmosphere-supplying respirator or an air-purifying respirator for organic vapors. Avoid breathing vapors which may be produced under some conditions such as heating or applications of uncured material in large surface areas (e.g., flooring and painting). Avoid breathing aerosols and mists which may be formed by various methods of application.

**PROTECTIVE CLOTHING:** Do not get in eyes. Wear chemical goggles if there is potential contact with eyes. Avoid contact with skin and clothing. Wear chemical-resistant gloves and protective clothing.

**ADDITIONAL PROTECTIVE MEASURES:** Use ventilation as required to control vapor concentrations. Eye wash fountains and safety showers should be available for emergency use.

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## SECTION XII - ENVIRONMENTAL PROTECTION

**SPILL OR LEAK PROCEDURES:** Triethylenetetramine (TETA) is resistant to biodegradation in biological wastewater treatment plants. It could be toxic to the biomass in a treatment plant and could be toxic to fish. May burn although not readily ignitable. Use cautious judgement when cleaning up large spills.

**Large Spills:** Wear respirator and protective clothing as appropriate. Shut off source of leak if safe to do so. Dike and contain. Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand or other suitable material; dispose of properly. Flush area with water to remove trace residue.

**Small Spills:** Take up with an absorbent material and dispose of properly.

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## SECTION XIII - SPECIAL PRECAUTIONS

**WARNING:** Extremely irritating to the eyes. May cause skin and respiratory tract irritation. May cause skin sensitization. Containers, even those that have been emptied, can contain hazardous product residues. Wash with soap and water before eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing before reuse. Contaminated leather articles including shoes cannot be decontaminated and should be destroyed.

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## SECTION XIII - SPECIAL PRECAUTIONS, cont.

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Shell Revision Date: 08/30/96

Heating this curing agent in the presence of air may cause thermal and oxidative decomposition. With some epoxy resins, it may produce exothermic reactions which in large masses can cause runaway polymerization and charring of the reactants. Fumes and vapors from these thermal and chemical decompositions vary widely in composition and toxicity. Do not breath fumes. Use a NIOSH-approved respirator as required to prevent overexposure. In accord with 29 CFR 1910.134, use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors.

Store in a cool, dry place with adequate ventilation. Keep away from open flames and high temperatures. Do not pressurize drum containers to empty them.

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## SECTION XIV - TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION (DOT) CLASSIFICATION:

Class: 8

UN I.D. # UN2259

Packing Group: II

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## SECTION XV - OTHER REGULATORY INFORMATION

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements, you should contact the appropriate agency in your state.

State Listed Component	CAS No.	Percent	State Code
Triethylenetetramine(TETA)	112-24-3	<16	CA, FL, MA, NJ, PA

CA = California Hazardous Substance List; FL = Florida Substance List; MA = Massachusetts Substance List; NJ = New Jersey Hazardous Substance List; PA = Pennsylvania Hazardous Substance List

This Material Safety Data Sheet (MSDS) has been prepared in compliance with the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. The information contained herein is based on data available to Fibergrate Composite Structures by Shell Oil Company and is believed to be accurate. However, Fibergrate makes no warranty expressed or implied concerning the accuracy of the information contained herein. It is the user's responsibility to determine the safety, toxicity and suitability of the product described herein. All materials may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

# ENVIRONMENTAL DATA SHEET

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Fibergrate Revision Date: 02/08/08

Chemical Family: Polyamide

Shell Revision Date: 12/21/93

HMIS Rating: H=3, F=1, R=0

Reprint Date: 02/08/08

WHMIS Rating: D1B, D2B, E

Shell Oil Company

Product Safety & Compliance

PO Box 4320

Houston, TX 77210

### SECTION II - PRODUCT COMPOSITION

PRODUCT

EPI-CURE 3140 CURING AGENT

INGREDIENTS

CAS NUMBER

PERCENT

1 Fatty Acid Polyamides

68410-23-1

>84

2 Triethylenetetramine (TETA)

112-24-3

<16

### SECTION III - SARA TITLE III INFORMATION

PRODUCT	EHS RQ	EHS TPQ	SEC-313	313 CATEGORY	311/312 CATEGORY
	*1	*2	*3	*4	*5
Epi-Cure 3140 Curing Agent					H-1

\*1 = Reportable Quantity of Extremely Hazardous Substance, SEC 302

\*2 = Threshold Planning Quantity, Extremely Hazardous Substance, SEC 302

\*3 = Toxic Chemical SEC 313

\*4 = Category as required by SEC 313 (40 CFR 372.65 C), must be used on toxic release inventory form

\*5 = Category (for aggregate reporting requirements under SARA 311, 312)

Health: H-1 = Immediate (Acute) Health Hazard

H-2 = Delayed (Chronic) Health Hazard

Physical: P-3 = Fire Hazard

P-4 = Sudden Release of Pressure Hazard

P-5 = Reactive Hazard

### SECTION IV - ENVIRONMENTAL RELEASE INFORMATION

Triethylenetetramine (TETA) is resistant to biodegradation in biological wastewater treatment plants. It could be toxic to the biomass in a treatment plant and could be toxic to fish. Keep out of surface waters, sewers and waterways entering or leading to surface waters. Notify authorities if any exposure to the general public or environment occurs or is likely to occur.

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## SECTION IV - ENVIRONMENTAL RELEASE INFORMATION, cont.

EPA - COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (EPA-CERCLA). Under EPA-CERCLA ("Superfund"), releases to air, land or water may be reportable to the national response center, 800-424-8802 (circumstances surround the release and cleanup determine reportability).

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## SECTION V - RCRA INFORMATION

Place in an appropriate disposal facility in compliance with local regulations.

The information contained in this Environmental Data Sheet (EDS) is based on data available to Fibergrate Composite Structures by Shell Oil Company and is believed to be accurate. However, Fibergrate makes no warranty expressed or implied concerning the accuracy of the information contained herein. It is the user's responsibility to determine the safety, toxicity and suitability of the product described herein. All materials may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.