

# MATERIAL SAFETY DATA SHEET

**MSDS IDENTIFICATION NAME:** TYFO® MB-3, Component A      **DATE:** April 6, 2010 **PAGE:** 1 OF 5  
**MSDS NUMBER:** TYFO-MB-3A-001      **SUPERSEDES MSDS:** Mar. 9, 2009

## SECTION I: MATERIAL AND MANUFACTURER IDENTIFICATION

**MANUFACTURER:**  
 FYFE CO. LLC  
 8380 Miralani Drive, Suite A  
 San Diego, CA 92126

**EMERGENCY TELEPHONE NUMBER:**  
 800-424-9300 or 703-527-3887

**INFORMATION TELEPHONE NUMBER:**  
 858-642-0694

**PRODUCTION IDENTIFICATION NUMBER:** TYFO® MB-3, Component A  
**CHEMICAL FAMILY:** Filler Epoxy Resin

## SECTION II: HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	CAS NUMBER	% BY WEIGHT	OSHA(PEL)	ACGIH(TLV)
Proprietary epoxy resin	Proprietary	94-99	Not determined	Not determined
Proprietary filler #1	Proprietary	1-6	$\frac{15 \text{ mg/m}^3 \text{ (Total)}}{5 \text{ mg/m}^3 \text{ (Respirable)}}$	$\frac{10 \text{ mg/m}^3 \text{ (Total)}}{3 \text{ mg/m}^3 \text{ (Respirable)}}$
Proprietary filler #2	Proprietary	1-4	$\frac{15 \text{ mg/m}^3 \text{ (Total)}}{5 \text{ mg/m}^3 \text{ (Respirable)}}$	$\frac{10 \text{ mg/m}^3 \text{ (Total)}}{3 \text{ mg/m}^3 \text{ (Respirable)}}$

THE PERCENTAGES WILL VARY DEPENDING ON THE INDIVIDUAL MATERIAL OR COMPONENT VARIATION.

THE EXPOSURE LIMITS EXPRESSED ARE FOR EACH INDIVIDUAL MATERIAL OR COMPONENT AND NOT FOR THE TOTAL PRODUCT.

## SECTION III: HAZARD IDENTIFICATION

### EMERGENCY OVERVIEW:

### APPEARANCE AND ODOR:

Amber colored, viscous liquid with slight odor.

### STATEMENTS OF HAZARD:

**CAUTION ! MAY CAUSE SKIN AND EYE IRRITATION AND SKIN SENSITIZATION.**

**CONTACT AT ELEVATED TEMPERATURES CAN RESULT IN THERMAL BURNS.**

### PRIMARY ROUTES OF EXPOSURE:

EYES--YES      SKIN CONTACT--YES      INHALATION--NO      INGESTION--NO

### HMIS RATING:

HEALTH--2      FLAMMABILITY--1      REACTIVITY--0      SPECIAL--NONE

### POTENTIAL HEALTH EFFECTS:

**EYES:** Causes irritation to the eyes, Contact with product at elevated temperature could cause thermal burns.

**SKIN:** Causes skin irritation and possible sensitization. Contact with product at elevated temperature could cause thermal burns.

**INHALATION:** Due to low volatility, inhalation unlikely, Avoid breathing vapor, mist or spray.

**SECTION III: HAZARD IDENTIFICATION (CONTINUED)**

**INGESTION:** Material has a low order of acute oral toxicity, ingestion unlikely.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Preexisting conditions such as eye disease, asthma, allergies, eczema and other lung and skin disorders may be aggravated by exposure to the product.

**OTHER:** None of the components present in this material at concentrations equal to or greater than 0.1% are listed of regulated by IARC, NTP, OSHA or ACGIH as a carcinogen. Dust from machining the cured product may cause mechanical irritation of eyes, skin, nose, throat and upper respiratory tract.

<b>EXPOSURE LIMITS FOR CURED PRODUCT DUST:</b>	<b>OSHA(PEL)</b>	<b>ACGIH(TLV)</b>
	$15 \text{ mg/m}^3$ (Total)	$10 \text{ mg/m}^3$ (Total)
	$5 \text{ mg/m}^3$ (Respirable)	$3 \text{ mg/m}^3$ (Respirable)

**SECTION IV: FIRST AID MEASURES**

**EYES:** In case of eye contact, immediately flush eyes with large amounts of water for at least 15 minutes, keeping the eyelids open. Get medical attention.

**SKIN CONTACT:** In case of contact, immediately wash skin with soap and plenty of water. Wash contaminated clothing before re-use and destroy contaminated shoes.

**INHALATION:** If inhaled, remove to fresh air, If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, qualified personnel may administer oxygen. Get medical attention.

**INGESTION:** Ingestion of this material is unlikely. If swallowed, get medical attention immediately. Do not induce vomiting.

**SECTION V: FIRE FIGHTING MEASURES**

**FLASH POINT/METHOD OF DETERMINATION:** Not determined

**MEANS OF EXTINCTION:** Use water-spray, foam, dry chemical or CO<sub>2</sub> to extinguish fires. Use water to keep containers cool.

**SPECIAL FIRE HAZARDS:** Avoid exposure through use of a self-contained, positive-pressure breathing apparatus.

**SECTION VI: ACCIDENTAL RELEASE MEASURES**

**PROCEDURES IN CASE OF ACCIDENTAL RELEASE OF LEAKAGE:** Ventilate area. Avoid breathing vapor. Use self-contained breathing apparatus or supplied air for large spills or confined areas. Avoid contact with skin, eyes or clothing (See Section VIII). contain spill if possible. Absorb or wipe up with suitable material, put into a container and dispose of properly (See Section XIII). Prevent entry into sewers and waterways.

**SECTION VII: HANDLING AND STORAGE**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** Store in a cool, dry place with adequate ventilation. Store in closed containers. Keep sealed from dirt and moisture. Keep away from open flames and high temperatures.

**SECTION VIII: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**EYE/FACE PROTECTION:** Avoid eye and skin contact. Wear chemical type goggles and a faceshield.

**SKIN PROTECTION:** Protective clothing such as uniforms, coveralls or lab coats must be worn. Launder or dry-clean when soiled. Gloves resistant to chemicals are required.

**RESPIRATORY PROTECTION:** Not ordinarily required. If vapor or mist is generated, use a NIOSH approved organic vapor respirator. If sufficient dust is generated during machining of the cured product, use a NIOSH approved dust respirator.

**VENTILATION:** Local exhaust ventilation recommended sufficient to control the vapor, mist or dust being generated. If exhaust ventilation is not available or is inadequate, use a NIOSH approved respirator, as appropriate.

**GENERAL HYGIENE RECOMMENDATIONS:** Before eating, drinking, smoking or using toilet facilities, wash face and hands thoroughly with soap and water. If significant amounts of this material gets on work clothes, the employee should shower immediately and the clothing should be laundered before it is worn again.

**SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES**

<b>APPEARANCE AND ODOR</b>	Amber colored, viscous liquid with slight odor
<b>BOILING POINT (°F/°C)</b>	Not determined
<b>MELTING POINT (°F/°C)</b>	Not determined
<b>SPECIFIC GRAVITY ( WATER=1)</b>	Not determined
<b>pH OF UNDILUTED PRODUCT</b>	Not determined
<b>VAPOR PRESSURE (MM Hg.)</b>	Not determined
<b>VAPOR DENSITY (AIR-1)</b>	Not determined
<b>VISCOSITY</b>	Not determined
<b>PERCENT (%) VOC</b>	0.0%; Tested per ASTM D2369-95 with TYFO® MB-3, Component A and Component B mixed together.
<b>SOLUBILITY IN WATER</b>	Not determined

**SECTION X: STABILITY AND REACTIVITY**

**STABILITY:** Stable under normal handling and storage conditions.

**INCOMPATIBLE MATERIALS:** Avoid contact with strong oxidizing agents, strong Lewis or mineral acids and strong mineral and organic bases especially primary and secondary aliphatic amines.

**PRODUCTS EVOLVED FROM HEAT OF COMBUSTION OR DECOMPOSITION:** The products of combustion and decomposition depend on other materials present in the fire and the actual conditions of the fire. Burning will produce carbon dioxide, carbon monoxide, aldehydes, phenolics, water and other unidentified gases and vapors which may be toxic. Avoid inhalation.

**HAZARDOUS POLYMERIZATIONS:** Will not occur under normal conditions of use. When mixed with Component B of a resin system and /or rapid heating of the product in bulk may produce an uncontrolled exothermic reaction which may char and decompose the resin system, generating unidentified gases and vapors which may be toxic. Avoid inhalation.

### SECTION XI: TOXICOLOGICAL INFORMATION

#### MATERIAL OR COMPONENT TOXICITY DATA:

##### MEDIAN LETHAL DOSE (SPECIES):

ORAL (LD <sub>50</sub> )	Proprietary epoxy resin	>5,000 mg/kg (Rat)
	Proprietary filler #1	>5,000 mg/kg (Rat)
	Proprietary filler #2	>12,960 mg/kg (Mus)
INHALATION (LD <sub>50</sub> )	Proprietary epoxy resin	No deaths in saturated Air, 8 hours
	Proprietary filler #1	Mechanical nuisance dust irritation
DERMAL (LD <sub>50</sub> )	Proprietary epoxy resin	>6,000 mg/kg (Rabbit)

##### IRRITATION INDEX, ESTIMATION OF IRRITATION (SPECIES):

SKIN	Proprietary epoxy resin	Moderate irritation
	Proprietary filler #1	Mechanical nuisance dust irritation
	Proprietary filler #2	Mechanical nuisance dust irritation
EYES	Proprietary epoxy resin	Slight irritation
	Proprietary filler #1	Mechanical nuisance dust irritation
	Proprietary filler #2	Mechanical nuisance dust irritation
SENSITIZATION	Proprietary epoxy resin	Possible sensitization

**OTHER:** None

### SECTION XII: ECOLOGICAL INFORMATION

No ecological data has been determined.

### SECTION XIII: DISPOSAL CONSIDERATIONS

**WASTE DISPOSAL METHODS:** Material for disposal should be placed in appropriate sealed containers to avoid potential human and environmental exposure. It is the responsibility of the generator to comply with all federal, state, provincial and local laws and regulations. We recommend that you contact an appropriate waste disposal contractor and environmental agency for relevant laws and regulations. Under the US, Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user of the product to determine at the time of disposal, whether the product meets relevant waste classification and to assure proper disposal.

### SECTION XIV: TRANSPORTATION INFORMATION

#### DOT AND IATA:

PROPER SHIPPING NAME	Not Regulated
HAZARD CLASS	Not Regulated
IDENTIFICATION NUMBER	Not Regulated
PACKING GROUP	Not Regulated
LABEL REQUIRED	None

### SECTION XV: REGULATORY INFORMATION

#### SARA TITLE III:

SECTION 302/304 EXTREMELY HAZARDOUS SUBSTANCE: None

SECTION 311 HAZARDOUS CATEGORIZATION: Proprietary mixture, Class 1 (Acute)

SECTION 313 TOXIC CHEMICALS: None

**SECTION XV: REGULATORY INFORMATION (CONTINUED)****CERCLA SECTION 102(a) HAZARDOUS SUBSTANCE:**

This product is not listed as a Hazardous Substance in 40 CFR, Part 302.4, but may contain trace amounts of listed substances.

**RCRA INFORMATION:** Currently, this product is not listed in federal hazardous waste regulations 40 CFR, Part 261.33, paragraphs (e) or (f), i.e. chemical products that are considered hazardous if they become waste. It does not exhibit any of the hazardous characteristics listed in 40 CFR, Part 261, Subpart C. State of local hazardous waste regulations may apply if they are different from the federal regulation. It is the responsibility of the user of the product to determine at the time of disposal, whether the product meets relevant waste classification and to assure proper disposal.

**WHMIS (CANADA): CLASSIFICATION:** Class D, Division 2, Subdivision B, Toxic

**INGREDIENT DISCLOSURE LIST:** This product is not listed, but it may contain trace amounts of listed ingredients at below de minimus concentrations (%).

**CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 (PROPOSITION 65):**

**WARNING! THE STATE OF CALIFORNIA HAS DETERMINED THAT THE FOLLOWING LISTED MATERIAL OR COMPONENT CHEMICALS IN THIS PRODUCT MAY CAUSE CANCER, BIRTH DEFECTS OF OTHER REPRODUCTIVE HARM:**

Acrylonitrile (CAS # 107-13-1), known to cause cancer, trace amount

Butadiene (CAS # 106-99-0), known to cause cancer, trace amount

Epichlorohydrin (CAS # 106-89-8), known to cause cancer, trace amount

Phenyl Glycidyl Ether (CAS # 122-60-1), known to cause cancer, trace amount

**ALL MATERIALS OF COMPONENTS OF THIS PRODUCT ARE EITHER LISTED OR ARE NOT REQUIRED TO BE LISTED IN THE EPA TSCA INVENTORY.**

**THIS PRODUCT DOES NOT CONTAIN OR IS NOT MANUFACTURED WITH OZONE DEPLETING SUBSTANCES AS IDENTIFIED IN THE TITLE VI, CLEAN AIR ACT "STRATOSPHERIC OZONE PROTECTION" AND THE REGULATIONS SET FORTH IN 40 CFR, PART 82.**

**SECTION XVI: OTHER INFORMATION**

**SPECIAL PRECAUTIONS:** Empty containers will retain some of the product residue. When handling or disposing of them, follow all label warnings, other instructions and waste disposal procedures.

**EXPLANATION AND DISCLAIMER:** Wherever such words or phrases as "hazardous," "toxic," "carcinogen," etc. appear herein, they are used as defined or described under state employee right-to-know laws, Federal OSHA laws or the direct sources for these laws such as the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), etc. The use of such words or phrases should not be taken to mean that we deem or imply any substance or exposure to be toxic, hazardous or otherwise harmful. ANY EXPOSURE CAN ONLY BE UNDERSTOOD WITHIN THE ENTIRE CONTEXT OF ITS OCCURRENCE, WHICH INCLUDES SUCH FACTORS AS THE SUBSTANCE'S CHARACTERISTICS AS DEFINED IN THE MSDS, AMOUNT AND DURATION OF EXPOSURES, OTHER CHEMICALS PRESENT AND PREEXISTING INDIVIDUAL DIFFERENCES IN RESPONSE TO THE EXPOSURE.

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**APPROVED AND AUTHORIZED BY:** *Edward R. Fyfe*