

# MATERIAL SAFETY DATA SHEET

**MSDS IDENTIFICATION NAME:** TYFO® 103, Component A  
**MSDS NUMBER:** TYFO-103A-001

**DATE:** April 6, 2010 **PAGE:** 1 OF 4  
**SUPERSEDES MSDS:** 3/5/2008

## 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® 103, Component A  
**CHEMICAL FAMILY:** Epoxy Resin Mixture

## SECTION II: HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	CAS NUMBER	% BY WEIGHT	OSHA(PEL)	ACGIH(TLV)	STEL
BIS A EPOXY RESIN	25068-38-6	<80	N/E	N/E	N/E
BIS F EPOXY RESIN	28064-14-4	<40	N/E	N/E	N/E
GLYCIDYL	2210-79-9	<20	N/E	N/E	N/E

\* The specific chemical identity and proportion of this component is considered trade secret information  
N/E = NOT ESTABLISHED

## SECTION III: HAZARD IDENTIFICATION

### EMERGENCY OVERVIEW:

### APPEARANCE AND ODOR:

Clear liquid with a slight odor.

### PRIMARY ROUTES OF EXPOSURE:

EYES--Yes    SKIN CONTACT--Yes    INHALATION--Yes    INGESTION--NO

### HMIS RATING:

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

### POTENTIAL HEALTH EFFECTS:

**INHALATION:** Vapors from product may cause irritation to the nose, throat, and respiratory tract. Coughing and chest pains may result. High vapor concentrations may produce CNS depression.

**EYES:** Product may cause severe irritation.

**SKIN CONTACT:** Product may cause irritation, redness and discomfort which is transient.

**SKIN ABSORPTION:** No known information available.

**INGESTION:** Not expected to be a relevant route of exposure. Product may be slightly toxic if ingested.

**CHRONIC:** Repeated exposure may cause skin sensitization, skin irritation, and dermatitis. Preexisting eye, skin, and respiratory disorders may be aggravated by exposure of this product.

**SECTION IV: FIRST AID MEASURES**

**EYES:** In case of eye contact, immediately flush eyes with water, lifting upper and lower lids occasionally for 15 minutes. Seek medical attention.

**SKIN CONTACT:** In case of contact, immediately remove contaminated clothing. Wash skin thoroughly with soap and water for at least 15 minutes. Get medical attention if irritation develops. Do not re-use clothing until thoroughly cleaned.

**INHALATION:** If excessive inhalation of vapor occurs, remove to fresh air. If breathing is difficult, qualified personnel may administer oxygen. If breathing has stopped, administer artificial respiration. Seek medical attention.

**INGESTION:** Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Seek medical attention.

**SECTION V: FIRE FIGHTING MEASURES**

**FLASH POINT/METHOD OF DETERMINATION:** >200°F/ SETAFLASH

**AUTO-IGNITION TEMP.:** NOT AVAILABLE

**LIMITS OF FLAMMABILITY: LEL:** NOT AVAILABLE    **UEL:** NOT AVAILABLE

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

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

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Containers exposed to intense heat from fires should be cooled with water to prevent vapor pressure buildup, which could result in container rupture.

**SECTION VI: ACCIDENTAL RELEASE MEASURES**

**PROCEDURES IN CASE OF ACCIDENTAL RELEASE OF LEAKAGE:** Clean up personnel must be equipped with self-contained breathing apparatus, rubber gloves and protective clothing. Dike and contain the spill. Soak up residue with an absorbent such as clay, sand or suitable material. Dispose of the absorbent material in accordance with federal, state and local regulations. Residual resin may be removed with hot soapy water.

**WASTE DISPOSAL METHOD:** Dispose in compliance with federal, state and local regulations.

**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, strong oxidizers and high temperatures.

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

**PROTECTIVE CLOTHING:** Do not get on skin or clothing. Wear chemical resistant protective clothing, gloves, and boots. Wear chemical goggles to prevent contact with eyes.

**RESPIRATORY PROTECTION:** Avoid prolonged or repeated breathing of vapors. Use a NIOSH approved respirator to prevent over exposure. In accord with 29 cfr 1910.134, use a full face, air supplying respirator or an air-purifying respirator for organic vapors.

**GENERAL HYGIENE RECOMMENDATIONS:** Before eating, drinking, smoking or using toilet facilities, wash face and hand thoroughly with soap and water. Remove any contaminated clothing and launder before reuse. Properly dispose of shoes and clothing that are extremely contaminated. Use vacuum equipment to remove cured product dust from clothing and work areas. Compressed air is not recommended.

### SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES

<b>APPEARANCE AND ODOR</b>	clear liquid / slight odor
<b>BOILING POINT (°F/°C)</b>	N/AV
<b>FREEZING POINT (°F/°C)</b>	N/AV
<b>SPECIFIC GRAVITY ( WATER = 1)</b>	1.13
<b>pH OF UNDILUTED PRODUCT</b>	N/AV
<b>VAPOR PRESSURE (MM Hg. @ 20°C)</b>	<10
<b>VAPOR DENSITY (AIR-1)</b>	>AIR
<b>VISCOSITY</b>	N/AV
<b>PERCENT (%) VOC</b>	0.1
<b>SOLUBILITY IN WATER</b>	Negligible
<b>ODOR THRESHOLD</b>	N/AV
<b>WATER/OIL DISTRIBUTION COEFFICIENT</b>	N/AV
<b>EVAPORATION RATE</b>	N/AV

### SECTION X: STABILITY AND REACTIVITY

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

**INCOMPATIBLE MATERIALS:** Avoid heat, flame and contact with strong oxidizing agents. Contamination with strong acids, bases, amines and mercaptans may cause an exothermic polymerization. Do not store or handle in aluminum equipment at temperatures above 120°F.

**PRODUCTS EVOLVED FROM HEAT OF COMBUSTION OR DECOMPOSITION:** Carbon monoxide, aldehydes and acids may be formed during combustion.

**HAZARDOUS POLYMERIZATIONS:** Will not occur under normal conditions of use.

### SECTION XI: TOXICOLOGICAL INFORMATION

#### MATERIAL OR COMPONENT TOXICITY DATA:

**INHALATION:** May cause irritation on the respiratory tract.

**LC(50) INHAL.** N/AV

**EYES:** May be severely irritating to the eyes

**SKIN CONTACT:** May be irritating to the skin. In some individuals it may cause sensitization.

**SKIN ABSORPTION:** No information available.

**INGESTION:** Not expected to be a relevant route of entry. May be slightly toxic if ingested.

<b>LD(50) ORAL</b>	<b>CAS. NO.</b>	
	25068-38-6	11.4 g/kg (rat)
	28064-14-4	7.8 g/kg (rat)
	2210-79-9 1	980 mg/kg (rat)

**CHRONIC:** Product does not contain chemicals considered to be a carcinogenic by NTP, IARC, or OSHA.

This product contains residual (<5ppm) quantities of epichlorohydrin ECH (CAS # 106-89-8). It is very unlikely that normal work practices with this product could result in measureable ECH concentrations in the workplace atmosphere. Nevertheless, you should be aware that ECH has been reported to produce cancer in laboratory animals and to produce mutagenic changes in bacteria and cultured human cells. It has been classified by IARC as a probable human carcinogen. It has been classified as an anticipated human carcinogen by NTP.

**SECTION XII: ECOLOGICAL INFORMATION**

Marine Pollutant: NL

(NL = Not Listed; P = Moderate; PP = Severe; ND = Not Determined)

**SECTION XIII: DISPOSAL CONSIDERATIONS****WASTE DISPOSAL METHODS:** Dispose in a manner which complies with local, state and federal regulations.**SECTION XIV: TRANSPORTATION INFORMATION****DOT AND IATA:**

DOT/UN SHIPPING NAME	Not regulated
DOT HAZARD CLASS	Not regulated
Shipping Name	Not regulated
EMERGENCY RESPONSE GUIDE	128

**SECTION XV: REGULATORY INFORMATION****ALL MATERIALS OF COMPONENTS OF THIS PRODUCT ARE EITHER LISTED OR ARE NOT REQUIRED TO BE LISTED IN THE EPA TSCA INVENTORY.****SARA****TITLE III SECTION 302:** No reportable materials.**TITLE III SECTION 311/312:** Health hazard: Immediate  
Physical hazard: Fire**TITLE III SECTION 313:** No reportable materials**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 CHEMICAL PRESENT AND PREEXISTING INDIVIDUAL DIFFERENCES IN RESPONSE TO THE EXPOSURE.**The data provided is based on the information received from our raw material suppliers and other sources believed to be reliable. **THIS DATA DOES NOT CONSTITUTE A GUARANTEE (EXPRESSED OR IMPLIED), WARRANTY (INCLUDING A PARTICULAR PURPOSE) OR REPRESENTATION (INCLUDING FREEDOM FROM PATENT LIABILITY) BY US WITH RESPECT OT THE DATA, THE PRODUCT DESCRIBED OR ITS USE FOR ANY SPECIFIC PURPOSE, EVEN IF THAT PURPOSE IS KNOWN TO US. WE DISCLAIM LIABILITY FOR DAMAGE OR INJURY INCURRING DIRECTLY OR INDIRECTLY FROM THE US OF THIS PRODUCT.****APPROVED AND AUTHORIZED BY:** *Edward R. Fyfe*