

MATERIAL SAFETY DATA SHEET

MSDS IDENTIFICATION NAME: TYFO® SW-1, Component A **DATE:** April 6, 2010 **PAGE:** 1 OF 5
MSDS NUMBER: TYFO-SW1A-001 **SUPERSEDES MSDS:** 6/11/08

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®SW-1, Component A
CHEMICAL FAMILY: Epoxy Resin Mixture

SECTION II: HAZARDOUS INGREDIENTS

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200).

MATERIAL OR COMPONENT	CAS NUMBER	% BY WEIGHT	OSHA(PEL)	ACGIH(TLV)
BIS A EPOXY RESIN	25068-38-6	0-80%	N/E	N/E
HYDROCARBON	68477-31-6	0-10%	N/E	N/E
GLYCIDYL DILUENT AROMATIC	2426-.08-6	0-10%	25ppm	25 ppm
TITANIUM DIOXIDE	13463-67-7	0-10%	5 mg/m3	5 mg/m3
COLLOIDAL SILICA	67762-90-7	0-10%	N/E	N/E

N/E = NOT ESTABLISHED

SECTION III: HAZARD IDENTIFICATION

EMERGENCY OVERVIEW:

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:

EYES: Product may cause severe irritation.

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

SKIN ABSORPTION: No known information available.

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.

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. Pre-existing eye, skin, and respiratory disorders may be aggravated by exposure of this product.

SECTION IV: FIRST AID MEASURES

EYES: Flush eyes with water, lifting upper and lower lids occasionally for 15 minutes. Seek medical attention.

SKIN CONTACT: Immediately remove contaminated clothing. Wash thoroughly with soap and water for at least 15 minutes. If irritation occurs, get medical attention. Do not re-use clothing until thoroughly cleaned.

INHALATION: If inhaled, remove to fresh air, If breathing has stopped, administer artificial respiration, preferably mouth-to-mouth. If breathing is difficult, qualified personnel may administer oxygen. 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 CO₂ to extinguish fires. Use water to keep containers cool.

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 NIOSH 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 other 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 and high temperatures.

SECTION VIII: EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE/FACE PROTECTION: Avoid eye and skin contact. Wear chemical type goggles and a face shield to prevent contact with eyes.

SKIN PROTECTION: Protective clothing such as uniforms, coveralls or lab coats must be worn. Wear chemical resistant protective clothing, gloves, and boots. Launder or dry-clean when soiled.

SECTION VIII: EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

RESPIRATORY PROTECTION: Avoid prolonged or repeated breathing of vapors. In confined spaces or areas with limited ventilation a NIOSH approved respirator is recommended to prevent overexposure. In accord with 29 cfr 1910.134, use a full face, air supplying respirator or an air-purifying respirator for organic vapors.

VENTILATION: Use explosion proof exhaust ventilation 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 material gets on work-clothes, employee should shower immediately and the clothing should be laundered before it is worn again.

SECTION IX: PHYSICAL AND CHEMICAL PROPERTIES

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

N/AV= Not available

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: The products of combustion and decomposition depend on other materials present in the fire and the actual conditions of the fire. Burning may produce carbon dioxide, carbon monoxide, aldehydes, acids, and other unidentified gases and vapors which may be toxic. Avoid inhalation.

HAZARDOUS POYMERIZATIONS: Will not occur under normal conditions of use.

SECTION XI: TOXICOLOGICAL INFORMATION

PRIMARY ROUTE OF ENTRY: INHALATION, DERMAL, EYES

EFFECTS OF OVEREXPOSURE

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.

SECTION XI: TOXICOLOGICAL INFORMATION (CONTINUED)

SKIN ABSORPTION: No information available.
INGESTION: Not expected to be a relevant route of entry. May be slightly toxic if ingested.
LD(50) ORAL: CAS. NO.
1: 11.4 g/kg (rat)
2: 1000-2050 mg/kg (rat)
3: 2622 mg/kg (rat)
CHRONIC: Product does not contain chemicals considered to be carcinogenic by NTP, IARC, or OHSA.

This product contains residual (<5ppm) quantities of epichlorohydrin (ECH) (CAS NO. 106-89-8). It is very unlikely that normal work practices with this product could result in measurable 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.

This product contains silicon dioxide and titanium dioxide as fillers, which are bound in the resin matrix, hence affects of any exposure to inhalation as nuisance dust is unlikely. These items are listed on the SARA TITLE III Section 313 inventory.

SECTION XII: ECOLOGICAL INFORMATION

Marine Pollutant: NL
(NL = Not Listed; P = Moderate; PP = Severe; ND = Not 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/UN SHIPPING NAME	Not Regulated
DOT HAZARD CLASS	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.

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 of 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 or the direct sources for these laws such as the International Agency for Research on Cancer (ISRC), 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*