



**MATERIAL SAFETY DATA SHEET**

Report No.: MSDS033007, Rev.080210

Date: December 10, 2010

**TFC100® POLYURETHANE SEALANT, COLORS**  
**TFC116® POLYURETHANE SEALANT, COLORS**

**SECTION 1 – PRODUCT AND COMPANY IDENTIFICATION**

PRODUCT NAME: TFC 100 Polyurethane Sealant, Colors

PRODUCT CODE: TFC 100

ADDRESS: Triangle Fasteners, Inc  
1925 Preble Ave  
Pittsburgh, PA 15233

PHONE: (412) 321-5000

FAX: ( )

EMERGENCY PHONE: (CHEMTREC) (800) 424-9300  
International (CHEMTREC) (703) 527-3887

REVISION DATE: 7/15/05

SUPERSEDES: 6/3/04

**SECTION 2 – COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS**

This product consists of a mixture/preparation.

CAS No.	Ingredient	Wt %
1330-20-7	Xylene	1-4
100-41-4	Ethyl benzene	0.1-1.0
101-68-8	Diphenylmethane diisocyanate	(MDI) 0.5-1.5

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### SECTION 3 – HAZARDS IDENTIFICATION

#### MAIN SYMPTOMS:

**EYE:** Direct contact irritates moderately with redness and swelling.

**SKIN:** A single short exposure (less than 24 hours) may irritate. Repeated prolonged contact (24 to 48 hours) may irritate moderately. MDI may cause irritation to the skin or mucous membranes. Ethyl benzene may be absorbed through the skin.

**INHALATION:** Vapor overexposure, and/or inhalation may severely irritate eyes, nose, throat, upper respiratory tract, and lungs. Vapor overexposure may cause drowsiness. Inhalation of high concentrations of xylene, or ethyl benzene may cause respiratory irritation or difficulties and central nervous system effects characterized by headache, nausea, dizziness, and/or drowsiness. MDI vapors or mist can cause irritation of upper respiratory tract: signs/symptoms can include soreness of the nose and throat, coughing, and sneezing. Persons previously sensitized to isocyanates may experience an allergic respiratory reaction: signs/symptoms can include difficulty breathing, wheezing, tightness of chest, and respiratory failure.

**ORAL:** Swallowing may cause digestive discomfort and gastrointestinal irritation. Ingestion of xylene may cause central nervous system effects. Aspiration of xylene or ethyl benzene into lungs may cause chemical pneumonitis.

**NFPA HAZARD CODES:** Health: 2 Flammability: 2 Reactivity: 0



## **SECTION 4 – FIRST-AID PROCEDURES**

- INHALATION:** Remove to fresh air. If ill effects persist get medical attention.
- SKIN CONTACT:** Remove from skin and wash thoroughly with soap and water or waterless cleanser. Get medical attention if irritation or other ill effects develop or persist.
- EYE CONTACT:** Immediately flush with water for 15 minutes. Get medical attention.
- INGESTION:** Get medical attention.
- COMMENTS:** Treat according to person's condition and specifics of exposure.

## **SECTION 5 – FIRE-FIGHTING MEASURES**

- SUITABLE EXTINGUISHING MEDIA:** Compatible with all usual extinguishing media
- FIRE FIGHTING PROCEDURES:** Wear full protective clothing, positive pressure or pressure demand breathing apparatus and protective covering for exposed areas of the head. If large amount is involved, evacuate area.
- FLASH POINT (SETAFLASH):** Greater than 65°C (150°F)
- HAZARDOUS DECOMPOSITION PRODUCTS:** By high heat and fire: oxides of carbon, oxides of nitrogen, and hydrogen chloride.



## **SECTION 6 – ACCIDENTAL RELEASE MEASURES**

**PERSONAL PRECAUTIONS:** Observe all personal protective equipment recommendations described in Sections 5 and 8.

**ENVIRONMENTAL PRECAUTIONS:** Disposal of collected product, residues, and cleanup materials may be governmentally regulated. Observe all applicable local, state and federal waste management regulations.

**METHODS FOR CLEANING UP:** Ventilate area. Extinguish all ignition sources. Contain spill. Evacuate unprotected personnel from hazard area. Cover with absorbent, place in approved drum; do not seal drum for 48 hours to avoid possible pressure build-up. Local, state, and federal reporting requirements may apply to spills or releases of this material into the environment. See applicable regulatory compliance information in Section 15.

## **SECTION 7 – HANDLING AND STORAGE**

**HANDLING:** Assure good ventilation

**STORAGE:** Eliminate sources of ignition. Store in original sealed containers away from heat and moisture.



## SECTION 8 – EXPOSURE CONTROL AND PERSONAL PROTECTION

LOCAL EXHAUST: Recommended  
GENERAL VENTILATION: Recommended

### PERSONAL PROTECTIVE EQUIPMENT:

EYE PROTECTION: Avoid eye contact. Use proper protection - safety glasses as a minimum.

SKIN AND BODY PROTECTION: Avoid skin contact. Protect hands with impervious rubber gloves and wear typical full cover clothing. Gloves must be checked before each use for signs of degradation and penetration and for proper functioning.

RESPIRATORY PROTECTION: Avoid breathing of vapors. Wear appropriate, properly fitted NIOSH/MSHA approved respirator when the airborne contaminant levels exceed the exposure limits indicated on the MSDS. Follow respirator manufacturer's directions for respirator use.

HYGIENE MEASURES (INGESTION): Wash hands after handling and before eating.

PRECAUTIONARY MEASURES: Avoid eye contact. Avoid skin contact. Avoid breathing vapor. Keep container closed. Do not take internally.

Note: These precautions are for room temperature handling. Use at elevated temperatures or in aerosol spray applications may require added precautions.



## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM:	Solid (Paste)
ODOR:	Slight odor
FLASHPOINT:	Greater than 65°C (150°F)
VAPOR PRESSURE (AT 100°F):	Not Applicable
VAPOR DENSITY:	3.66 (Xylene)
DENSITY:	10.4 lb/gal
SOLUBILITY IN WATER (%):	NIL
SPECIFIC GRAVITY (AT 77°F/25°C):	1.25
% VOLATILE BY VOLUME:	Less than 4%
VOLATILE ORGANIC CONTENT (VOC):	3.72% by weight; 33 g/L (0.27 lbs/gal)
FLASH POINT (SETAFLASH):	Greater than 65°C (150°F)
FLAMMABILITY LIMITS IN AIR (XYLENE):	LEL: 1% UEL: 8%

NOTE: The above information is not intended for use in preparing product specifications.

## SECTION 10 – STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable. No hazardous reactions when stored and handled according to prescribed instructions.

HAZARDOUS DECOMPOSITION PRODUCTS: decomposition products as described in Section 5.



## SECTION 11 – TOXICOLOGICAL INFORMATION

May cause respiratory sensitization, eye and skin irritation. May cause allergic respiratory and/or allergic skin reaction.

Xylene: Inhalation LC50 – 5,000 ppm/4hr (rat)  
Oral LD50 – 4,300 mg/kg (rat)  
Dermal LD50 – >1,700 mg/kg (rabbit)  
Ethyl benzene: Oral LD50 – 3,500 mg/kg (rat)  
Dermal LD50 – 17,800  $\mu$ L/kg (rabbit)  
Inhalation LCLo – 4,000 ppm/4hr (rat)  
MDI Inhalation LC50 – 178 mg/m<sup>3</sup> (rat)  
Oral LD50 – 2,200 mg/kg (mouse)

### CHRONIC EXPOSURE:

**SKIN:** Repeat contact with skin may cause severe irritation, sensitization, or allergic reaction. Prolonged skin contact with xylene or ethyl benzene may cause skin irritation or dermatitis.

**INHALATION:** Vapor overexposure may cause drowsiness, irritate eyes, nose, and throat, or injure blood, liver, or central nervous system.

Chronic exposure to xylene may cause damage to the eyes, central nervous system, bone marrow, liver, or kidneys. Chronic inhalation of ethyl benzene may have central nervous effects. Chronic overexposure to isocyanates (found in MDI) may cause lung damage and isocyanate sensitization (chemical asthma), which may be temporary or permanent.

**ORAL:** Swallowing may have adverse effects depending on quantity ingested. Ingestion of xylene may cause central nervous system



## **SECTION 12 – ECOLOGICAL INFORMATION**

Do not allow product to enter waste water drains, waterways or soil. However, when exposed to moisture and air in the environment, the product cures to a solid state in which no leach-able materials will be released.

## **SECTION 13 – DISPOSAL INFORMATION**

PRODUCT DISPOSAL: RCRA Hazard Class (40 CFR 261)

When a decision is made to discard this material, as received, is it classified as a hazardous waste? No State or local laws may impose additional regulatory requirements regarding disposal.

## **SECTION 14 – TRANSPORT INFORMATION**

DOT Information (49CFR 172.101)

PROPER SHIPPING NAME:	Not Applicable
HAZARD CLASS:	Not Applicable
UN / NA NUMBER:	None
PACKING GROUP:	Not Applicable



## SECTION 15 – REGULATORY INFORMATION

Contents of this MSDS comply with the OSHA Hazard Communication Standard 29CFR1910.1200.

### US FEDERAL REGULATIONS:

#### CERCLA/SARA – Hazardous Substances and their Reportable Quantities

4,4'-Methylenediphenyl diisocyanate	101-68-8	final RQ = 5000 pounds (2270 kg)
Ethyl benzene	100-41-4	final RQ = 100 pounds (45.4 kg)
Xylene	1330-20-7	final RQ = 100 pounds (45.4 kg)

Based on an evaluation of the components used, this product does contain hazardous ingredients identified as per 29 CFR 1910.1200.

### TOXIC SUBSTANCE CONTROL ACT (TSCA):

TSCA Status: All chemical substances found in this product comply with the Toxic Substances Control Act inventory reporting requirements.

### SARA 302 EXTREMELY HAZARDOUS SUBSTANCES

None

### SARA 311/312 HAZARD CATEGORIES:

Immediate: Yes

Delayed: No

Fire: No

Pressure: No

Reactive: No

### Section 313

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right to Know Act:

Chemical CAS No. Wt%

Xylene 1330-20-7 1-4

Ethyl benzene 100-41-4 0.1-1.0

Methylene Bisphenol Isocyanate (MDI) 101-68-8 0.5-1.5

### STATE REGULATIONS:

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**FASTENING SYSTEMS DESIGN AND ENGINEERING CENTER**

This product does comply with the California Air Resources Board maximum for VOCs in a sealant.

Per the California Air Resources Board TITLE 17 Division 3 Chapter 1 Subchapter 8.5 Article 2 §94508, a VOC is a substance with a vapor pressure greater than or equal to 0.1 mmHg at 20°C (68°F), or is a chemical compound with less than or equal to 12 carbon atoms if the vapor pressure is not known, or is a chemical compound with a boiling point less than or equal to 216°C (421°F).

**STATE RIGHT-TO-KNOW REGULATIONS:**

States within the US that have promulgated State Right-to-Know regulations with chemical listing requirements including the chemicals in this product are provided below.

<b>Chemical</b>	<b>CAS No.</b>	<b>Wt%</b>	<b>States</b>
MDI-based prepolymer	Proprietary	25-45	Delaware, Florida, Massachusetts, Minnesota, New Jersey, New York, Pennsylvania, Washington
Butyl benzyl phthalate	85-68-7	15-40	Delaware, Massachusetts, Michigan, New Jersey, New York, Pennsylvania
Polyvinyl chloride	9002-86-2	10-30	New Jersey
Calcium carbonate	1317-65-3	5-40	Minnesota
Xylene	1330-20-7	1-4	Delaware, Florida, Massachusetts, Michigan, Minnesota, New Jersey, New York, Pennsylvania, Washington
Ethyl benzene	100-41-4	0.1-1.0	Delaware, Florida, Massachusetts, Minnesota, New Jersey, New York, Pennsylvania, Washington
MDI	101-68-8	0.5-1.5	Delaware, Florida, Massachusetts, Minnesota, New Jersey, New York, Pennsylvania, Washington

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## INTERNATIONAL:

### Canada

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

### Canadian DSL

All ingredients in this product are currently listed on the Canadian Domestic Substances List (DSL) except the non-hazardous polyurethane prepolymer and dimorpholine ethane, which are both on the NDSL. (Based upon the concentration of the prepolymer in the formulation, it would require over 128,000 10.1 fl.oz. cartridges of Low VOC 25 to reach the 10,000 kg yearly limit for an NDSL polymer approved under Schedule VI before reporting is required. This is equal to approximately 49 200-Gal batches of Low VOC 25. There is also a cumulative limit of 50,000 kg that can take many years to reach, assuming no one year exceeds the 10,000 kg limit. The dimorpholine ethane is in such small quantities that it would require millions of cartridges to reach the yearly limit.) The substances that are on the DSL would not be considered new for the purposes of the Canadian Environmental Protection Act (CEPA).

### Note:

The recipient of this product should be aware of the possible existence of additional local regulations, which may be applicable to this product.

## **SECTION 16 – OTHER INFORMATION**

These data are offered in good faith as typical values and not as a product specification. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.