
 | M A T E R I A L S A F E T Y D A T A S H E E T |

=====|
 | SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION |
 |=====|

PRODUCT NAME : TRT WOOD TIE PART A ISOCYANATE
 IDENTIFICATION NUMBER: TRT WOOD TIE PART A
 PRODUCT USE/CLASS : Polyurethane activator

SUPPLIER:
 ENCORE RAIL SYSTEMS, INC
 2350 Midway Boulevard
 Broomfield, CO 80020
 INFORMATION: 866-712-7622
 EMERGENCY PHONE: 1-800-424-9300 CHEMTREC
 PREPARER: Technical Department, PHONE: 866-712-7622, PREPARE DATE: 09/08/09

=====|
 | SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS |
 |=====|

| ITEM | CHEMICAL NAME | CAS NUMBER | WT/WT% |
|------|--|------------|-----------|
| 01 | Diphenylmethane Diisocyanate (2,2;2,4) | 26447-40-5 | 30.0-60.0 |
| 02 | 4,4'-diphenylmethanediisocyanate | 101-68-8 | 30.0-60.0 |

| ----- EXPOSURE LIMITS ----- | | | | | | |
|-----------------------------|----------|----------|---------|-------------|---------|------|
| | ACGIH | | OSHA | | COMPANY | |
| ITEM | TLV-TWA | TLV-STEL | PEL-TWA | PEL-CEILING | TLV-TWA | SKIN |
| 01 | N.E. | N.E. | N.E. | N/E | N.E. | NO |
| 02 | 0.005ppm | N.E. | N/A | 0.02ppm | N.E. | NO |

(See Section 16 for abbreviation legend)

=====|
 | SECTION 3 - HAZARDS IDENTIFICATION |
 |=====|

EMERGENCY OVERVIEW: May cause target organ or system damage. Refer to chronic health effects section. Contents may develop pressure if exposed to water. At elevated temperatures, vapors are irritating to the eyes and respiratory tract. May cause allergic skin reaction. May cause allergic respiratory reaction. Irritating to skin and eyes. Harmful if inhaled.

ACUTE EFFECTS - EYE CONTACT: Moderately irritating to the eyes with stinging, redness, and tearing. May cause reversible corneal injury.

ACUTE EFFECTS - SKIN CONTACT: Moderate irritant. Prolonged contact may cause dermatitis. Potential skin sensitizer.

ACUTE EFFECTS - INHALATION: Vapors and/or aerosols formed at elevated temperatures can be irritating. Can cause respiratory tract irritation with dryness, runny nose, sore throat, and coughing. Strong respiratory sensitizer - may cause asthma-like response.

ACUTE EFFECTS - INGESTION: Irritating to mouth, throat and stomach, with nausea.

CHRONIC OVEREXPOSURE EFFECTS: *When processed at room temperature under conditions of good general ventilation, use of this product is not expected to result in release of vapors above the recommended TLV/PEL. It should be noted, however, that chronic overexposure to isocyanate may cause respiratory sensitization which may cause future reactions even at levels below the TLV. Reaction may be immediate or delayed up to several hours

=====|

=====|
| SECTION 3 - HAZARDS IDENTIFICATION |
=====|

after exposure. Additionally, there are reports that sensitized individuals can experience symptoms when exposed to dust, cold air, or other irritants. Such sensitization and/or increased lung sensitivity may be temporary or permanent. Dermal/respiratory cross-sensitization reactions are possible. Persons with preexisting nonspecific bronchial hyperreactivity (such as asthma) may experience symptoms at levels below the TLV or PEL. Respiratory overexposure to isocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) which may be permanent.

OTHER INFORMATION: No information.

PRIMARY ROUTE(S) OF ENTRY: SKIN CONTACT, INHALATION, EYE CONTACT,

=====|
| SECTION 4 - FIRST AID MEASURES |
=====|

EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes. Get immediate medical attention.

SKIN CONTACT: Immediately flush affected area(s) thoroughly with water at least 15 minutes. Remove and wash contaminated clothing. Contaminated leather articles should be disposed of. Obtain medical attention.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

INGESTION: Swallowing less than an ounce will not cause significant harm. For larger amounts, do not induce vomiting, but give one or two glasses of water to drink and get medical attention.

NOTES TO PHYSICIAN: INHALATION: The manifestations of respiratory symptoms, including pulmonary edema, resulting from acute overexposure, may be delayed. No specific antidote. Supportive care. Treat symptomatically. EYES: Stain for evidence or corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Persons that have experienced an allergic reaction should be removed from any further exposure to any isocyanate.

=====|
| SECTION 5 - FIRE FIGHTING MEASURES |
=====|

FLASH POINT: 415 F LOWER EXPLOSIVE LIMIT: N.A.
(PENSKY-MARTENS C.C.) UPPER EXPLOSIVE LIMIT: N.A.
AUTOIGNITION TEMPERATURE: No data

EXTINGUISHING MEDIA: CO₂, DRY CHEMICAL, FOAM, WATER FOG

UNUSUAL FIRE AND EXPLOSION HAZARDS: Closed containers may rupture or explode (due to pressure build-up) when exposed to extreme heat. Irritating and/or toxic gases or fumes may be generated by thermal decomposition or combustion.

SPECIAL FIREFIGHTING PROCEDURES: Use NIOSH-approved self-contained breathing apparatus and full protective clothing. Use water to cool exposed containers. Water stream directed into fire may cause frothing with subsequent spread of flame.

Continued on Page 3)

=====

=====
 | SECTION 6 - ACCIDENTAL RELEASE MEASURES |
 =====

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wear appropriate protective equipment to protect against vapor and contact exposure. Dike and contain spill away from drains, sewers, and waterways. Collect free liquid into closed, but not sealed, metal container appropriate for disposal. Do not fill more than 2/3 full. Allow to vent. Cover remaining material with inert absorbent, such as clay. Saturate absorbent with neutralizing solution of 90% water, 8% concentrated ammonia, and 2% liquid detergent. Mix in place. Wait 15 minutes. Collect used absorbent in open-head containers. Rinse floor with same solution as above, letting the solution remain on the contaminated area for at least 15 minutes before removal. Follow with more absorbent. Place all materials in used absorbent container - allow to stand partially covered for 72 hours before disposal.

 =====
 | SECTION 7 - HANDLING AND STORAGE |
 =====

HANDLING: Use only in a well ventilated area. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Avoid breathing vapors. Avoid contact with eyes, skin, and clothing. DO NOT take internally. DO NOT heat. FOR INDUSTRIAL USE ONLY.

STORAGE: Store away from heat. Store in a tightly closed container. Purge container with nitrogen before resealing. Keep dry.

 =====
 | SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION |
 =====

ENGINEERING CONTROLS: No special ventilation normally required under room temperature application (<90 deg F). If vapor levels are unknown, or if material is heated, apply local exhaust as needed to control vapor levels to below recommended TLV/PEL.

RESPIRATORY PROTECTION: If use is performed in a poorly-ventilated space, if vapor levels exceed TLV/PEL, or if effects occur, use NIOSH-approved positive-pressure supplied-air respirator in accordance with applicable health and safety regulations and manufacturer's recommendations.

SKIN PROTECTION: Clean clothing to cover skin. Saranex gloves. Butyl rubber gloves. Nitrile gloves. Neoprene gloves.

EYE PROTECTION: Chemical splash goggles.

OTHER PROTECTIVE EQUIPMENT: Accessible eye wash and safety shower.

HYGIENIC PRACTICES: Follow good general industrial safety practices during use. Do not smoke or eat during use. Wash after handling. Use only with adequate ventilation. DO NOT reuse empty containers without commercial clean or recondition. Follow all MSDS/label precautions even after container is emptied.

 =====
 | SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES |
 =====

| | | | |
|--|---------------------|------------------|------------------------|
| BOILING RANGE | : 381 - 381 F | VAPOR DENSITY | : Is heavier than air |
| ODOR | : Mild musty | ODOR THRESHOLD | : No data |
| APPEARANCE | : Brown | EVAPORATION RATE | : Is slower than Butyl |
| SOLUBILITY IN H2O | : Reacts with water | | Acetate |
| FREEZE POINT | : No data | SPECIFIC GRAVITY | : 1.2392 |
| VAPOR PRESSURE | : <0.1 mmHg @ 20C | pH @ 0.0 % | : N/A |
| PHYSICAL STATE | : Liquid | VISCOSITY | : Low |
| COEFFICIENT OF WATER/OIL DISTRIBUTION: No data | | | |
| (See Section 16 for abbreviation legend) | | | |

Continued on Page 4)

 =====

SECTION 10 - STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Prolonged exposure to heat. Exposure to moisture.

INCOMPATIBILITY: Strong Lewis or mineral acids. Strong bases or oxidants. Metals. Water. Alcohols. Amines. Copper alloys.

HAZARDOUS DECOMPOSITION PRODUCTS: Oxides of carbon. Oxides of nitrogen, ammonia. Toxic monomers. Traces of hydrogen cyanide in oxygen-deficient environments.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

SECTION 11 - TOXICOLOGICAL PROPERTIES

Oral LD50 (rat) = >2000 mg/kg
Inh LC50 (rat) (vapor) = 490 mg/m3/4hr

SECTION 12 - ECOLOGICAL INFORMATION

ECOLOGICAL TEST DATA: Does not bioaccumulate.
LC0: >1,000 mg/l (Zebra fish, 96 hrs)
LC0: >3,000 mg/l (Killifish, 96 hr)
EC50: >1,000 mg/l (Daphnia magna, 24 hr)

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Review all current federal, state, and local regulations regarding health and disposal for appropriate disposal procedures. Material is not considered a "hazardous waste" under Federal RCRA regulations if disposed of "as sold." DO NOT landfill free liquid. When mixed and cured in accordance with product instructions, product is inert and non-hazardous and may be landfilled if local regulations permit. Contact supplier for assistance with disposal of free liquid.

SECTION 14 - TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME: Not regulated
DOT TECHNICAL NAME: N/A
DOT HAZARD CLASS: N/A HAZARD SUBCLASS: N/A
DOT UN/NA NUMBER: N/A PACKING GROUP: N/A RESP. GUIDE PAGE:

INTERNATIONAL SHIPPING NAME: Not regulated
INTERNATIONAL ID NUMBER: N/A
IMDG CLASS (1°,2°): N/A PACKING GROUP: N/A
IMDG EMS: N/A IATA CLASS (1°,2°): N/A

SECTION 15 - REGULATORY INFORMATION

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)

```

=====
|                                     |
|                SECTION 15 - REGULATORY INFORMATION                |
|                                     |
=====

```

CERCLA - SARA HAZARD CATEGORY:

This product has been reviewed, and is considered, under applicable definitions, to meet the following categories:

IMMEDIATE HEALTH HAZARD CHRONIC HEALTH HAZARD

SARA SECTION 313:

This product contains the following substances subject to the reporting requirements of Section 313 and 40 CFR part 372:

| CHEMICAL NAME | CAS NUMBER | MAX WT % |
|------------------------|------------|----------|
| Diisocyanate compounds | N/A | 100 |

TOXIC SUBSTANCES CONTROL ACT:

The chemical substances in this product are on the TSCA Section 8 Inventory.

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(B) if exported from the United States:

| CHEMICAL NAME | CAS NUMBER |
|--|------------|
| Diphenylmethane Diisocyanate (2,2;2,4) | 26447-40-5 |

CALIFORNIA PROPOSITION 65:

No Proposition 65 chemicals known to exist in this product.

CANADIAN WHMIS: This MSDS has been prepared in compliance with Controlled Product Regulations except for use of the 16 headings.

CANADIAN WHMIS CLASS: D2A

COMPONENT RCRA CLASSIFICATIONS: Not regulated

COMPONENT RCRA CODES: No information.

CERCLA RQ VALUE (MINIMUM): 5,000 lb

```

=====
|                                     |
|                SECTION 16 - OTHER INFORMATION                |
|                                     |
=====

```

HMIS RATINGS - HEALTH: 2* FLAMMABILITY: 1 REACTIVITY: 1

PREVIOUS MSDS REVISION DATE:

REASON FOR REVISION: new format

VOLATILE ORGANIC COMPOUNDS (VOCs): 0 grams/ltr (calculated)

LEGEND: N.A. - No information, N.E. - Not Established, N.D. - Not Determined

ABBREVIATIONS: ACGIH = American Conference of Governmental Industrial Hygienists; OSHA = US Occupational Health and Safety Administration; UK = United Kingdom; TLV-TWA = Threshold Limit Value-Time Weighted Average (8 hrs); STEL = Short-Term Exposure Limit (15 min); C = Ceiling Value; PEL = Permissible Exposure Limit

DISCLAIMER: To the best of our knowledge, the information contained in this MSDS is accurate or is obtained from sources believed to be accurate. However, no liability, expressed or implied, is assumed for the accuracy or completeness of the information contained herein. Buyer assumes liability in its use of the material.

=====

<END OF MSDS>