



## MATERIAL SAFETY DATA SHEET

DSM NeoResins  
730 Main Street  
Wilmington, MA 01887-3386 USA  
Phone: 978-658-6600  
Fax: 978-657-7978

Issued: 03/05/2008

Date of Printing: 02/24/2011

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Id:** Uradur 1117  
**Chemical Family:** Moisture Cure Polyurethane Solution  
**Application:** Coating Solution  
**Prepared By:** Health, Safety and Environment Department  
**HMIS Classification:** Health: 3\* Flammability: 3 Physical Hazard: 1  
**HMIS Ratings:** 0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe  
(\* Chronic Health Hazard)

#### For Chemical Emergency

**Chemtrec Day & Night International** 800-424-9300  
703-527-3887

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT NAME/ CAS NUMBER	WEIGHT %	OSHA PEL	ACGIH TLV (8 hr.)
Polyurethane Polymer	70 to 100	N/A	N/A
Ethyl Acetate 141-78-6	25 to 30	1400 mg/m <sup>3</sup> 400 ppm	400 ppm
TDI Type 2 26471-62-5	5 to 10	N/A	0.005 ppm

**Other Information:** Not Applicable

### 3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** DANGER: Flammable liquid and vapor. Clear to amber liquid. Contains monomeric TDI - Toxic; Sharp pungent odor; Causes respiratory tract irritation; May cause allergic respiratory reaction; Respiratory sensitizer; Causes skin irritation; Skin sensitizer; Causes eye irritation; Harmful if swallowed; May cause lung damage; Toxic gases/fumes are given off during burning or thermal decomposition; Closed containers may explode under extreme heat. TDI reacts with water to release CO<sub>2</sub>, which can cause closed containers to rupture. Do not seal containers of material that has been contaminated with water.

<b>Inhalation:</b>	TDI - Acute inhalation of vapors or mist at concentrations above the TLV can irritate the mucous membranes in the respiratory tract causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function. Chronic exposure or a single large dose, certain individuals may develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV. TDI - Effects of exposure may be delayed for several hours, and can be exacerbated by physical activity.
<b>Skin Contact:</b>	TDI - Isocyanates react with skin protein and moisture and can cause irritation which may include the following symptoms: reddening, swelling, rash, scaling or blistering.
<b>Eye Contact:</b>	TDI - Liquid, aerosols or vapors are severely irritating and can cause pain, tearing, reddening and swelling.
<b>Ingestion:</b>	TDI - Acute ingestion can result in irritation and corrosive action in the mouth, stomach tissue and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting, and diarrhea.

#### 4. FIRST AID MEASURES

<b>Inhalation:</b>	If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.
<b>Skin Contact:</b>	For skin contact, wipe away excess material with dry towel. Then wash affected areas with plenty of water, and soap if available, for several minutes. Get medical attention if irritation occurs. Remove contaminated clothing and launder before reuse. Remove contaminated shoes and discard.
<b>Eye Contact:</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention.
<b>Ingestion:</b>	If swallowed, induce vomiting immediately by giving two glasses of water and sticking fingers down throat; never give anything to an unconscious person. Get medical attention.

#### 5. FIRE FIGHTING MEASURES

<b>Lowest Component Flash Point (°F):</b>	Ethyl Acetate = 24 F
<b>Flash Point Method:</b>	Closed Cup
<b>FLAMMABILITY</b>	(Lowest Component Information)
<b>LFL (% Vol):</b>	Ethyl Acetate = 2.2%
<b>UFL (% Vol):</b>	Ethyl Acetate = 9.0%
<b>Extinguishing Media:</b>	Water fog, carbon dioxide, foam, dry chemical.
<b>Special Fire Hazards:</b>	Vapors are heavier than air and can travel along the ground to a source of ignition and flash back; they can accumulate in low lying areas. Containers can rupture in a fire releasing toxic and corrosive gases.
<b>Special Exposure Hazards:</b>	During a fire, TDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion.
<b>Special Protective Equipment:</b>	Fire fighters should wear full protective clothing, including self-contained breathing equipment:
<b>NFPA Rating:</b>	Health: 3 Flammability: 3 Reactivity: 1 Special: W

#### 6. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautionary Measures:</b>	Wear appropriate protective equipment (See Section 8).
---	--

## 6. ACCIDENTAL RELEASE MEASURES

<b>Environmental Precautions:</b>	Prevent from entering sewers, waterways or low areas. Prevent contamination of soil.
<b>Spill Procedures:</b>	Remove all sources of ignition and ventilate the area. Vapors are much heavier than air and as such will accumulate in low-lying areas, presenting a hazard to anyone entering such places. Low-lying areas should be ventilated and checked before permitting access. Soak up residue with an absorbent such as clay or sand. Place in a non-leaking container for proper disposal according to Federal, State, and Local regulations. Clean up spill area with a decontamination solution made up of 50% isopropyl alcohol, 45% water, and 5% concentrated ammonia solution. Solution should cover the area for at least an hour. Allow for ventilation of containers with spill clean up as CO2 generation will occur with clean up solution.

## 7. HANDLING AND STORAGE

<b>NORMAL HANDLING:</b>	Wear appropriate protective equipment. See Section 8 for normal handling recommendations. Avoid contact with eyes, skin, and clothing. Use in well ventilated area. Ground and bond containers before transferring liquid.
<b>STORAGE RECOMMENDATIONS:</b>	Flammable Storage Keep containers tightly closed. Store in a cool dry place. Ground equipment to prevent static build-up. Ground containers when pouring or transferring.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Engineering Controls:</b>	Good mechanical ventilation is necessary to remove fumes from work place to reduce fire and health hazards. If ventilation is inadequate, use approved organic vapor face mask.
<b>Respiratory Protection:</b>	Use an approved NIOSH organic vapor respirator below the TLV. If TLV is exceeded or overexposure is likely, use positive pressure or self contained breathing apparatus.
<b>Eyes:</b>	Wear safety glasses or goggles to protect against exposure.
<b>Gloves:</b>	Appropriate chemical resistant gloves should be worn.
<b>Protective Clothing:</b>	Long sleeved clothing
<b>Hygienic Work Practices:</b>	Use with proper ventilation. Follow good industrial chemical hygiene practices.



## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Liquid
<b>Color:</b>	CLEAR AMBER HAZY
<b>Odor:</b>	SOLVENT ODOR
<b>% Solids by Weight:</b>	75%
<b>% Volatile by Volume:</b>	33 %
<b>pH:</b>	Not Determined
<b>Specific Gravity:</b>	1.188
<b>Density:</b>	9.90 lbs./gallon
<b>Solubility in Water:</b>	Not Determined
<b>Molecular Weight:</b>	Not Determined
<b>VOCs (lbs/gallon):</b>	2.48 lbs./gal
<b>Evaporation Rate (Highest Component Information):</b>	(Normal Butyl Acetate=1) ETHYL ACETATE = 4.5

**Boiling Point (°F)** ETHYL ACETATE = 171 F  
**(Lowest Component Information):**

**Flash Point (°F/C)** ETHYL ACETATE = 24 F (-4 C)  
**(Lowest Component Information):**

## 10. STABILITY AND REACTIVITY

**Chemical Stability:** Stable under normal conditions of handling, use and transportation.  
**Hazardous Polymerization:** Will not occur under normal conditions. Avoid contact with water or moisture. Polymerization will occur releasing CO<sub>2</sub>. Pressure buildup in closed container may occur  
**Conditions to Avoid:** Avoid contact with heat, sparks, open flame, and static discharge.  
**Materials to Avoid:** Avoid contact with Moisture and water as polymerization will occur to release CO<sub>2</sub> which may pressurize non-vented containers. Avoid contact with alcohols, amines, acids, strong oxidizing agents, strong bases.  
**Hazardous Decomposition Products:** Combustion of the dried polymer may release : Carbon Dioxide, Carbon Monoxide, Oxides of Nitrogen, Traces of HCN.  
**Additional Guidelines:** Not Applicable

## 11. TOXICOLOGICAL INFORMATION

**Acute Effects:** Acute Health Effects of this product have not been determined. The following information is available on major components: TDI - LD<sub>50</sub>, Oral-Rats 5110 mg/kg; LD<sub>50</sub>, Dermal-Rabbit >10,000 mg/kg ;LC<sub>50</sub>, Inhalation-Rat 480 ppm (1 hr.) ETHYL ACETATE - LD<sub>50</sub>, Oral-Rat 6.1 g/kg; LC<sub>50</sub>, Inhalation-Rat 1600 ppm 8 hrs

**Chronic Effects:** Chronic Health Effects of this product have not been determined. The following information is available on major components: TDI - Chronic inhalation toxicity studies (doses of 0.05 - 1.5 ppm; 0.36 - 10.9 mg/m<sup>3</sup>) using rats, mice, and rabbits have shown that the effects of TDI via inhalation exposure are limited to the nasal passages and the pulmonary system. Pathological findings were rhinitis, bronchitis, bronchopneumonia, pneumonitis, proliferation of fibrous tissue in the bronchioles. The LOEL = 0.05 ppm based on rhinitis, bronchitis, and pneumonitis. ETHYL ACETATE - Rats received 0, 300, 900, or 3600 mg/kg ethyl acetate daily by gavage for 90 days. The high dose male rats showed significantly depressed body and organ weights and depressed food consumption. the No-Observed-Adverse-Effect-Level (NOAEL) was considered to be 900 mg/kg. rats were exposed to 0, 350, 750, 1500 ppm ethyl acetate vapor for 6 hours per day, 5 days per week, for 13 weeks. No mortality was observed. Observations noted in the 750 and 1500 ppm groups included diminished alerting response due to the sedative properties of ethyl acetate) during the daily 6-hour exposure periods which reversed after exposure ended. Decreased body weight and food consumption were also noted. No persistent neurotoxic effects were observed in a battery of tests conducted to assess this endpoint during subchronic inhalation exposure. Microscopic examination of the tissues and organs did not reveal evidence of systemic toxicity at any dose level. The only microscopic finding was irritation of the nasal tissue (nasal olfactory mucosa) at all doses. At 350 ppm, the nasal irritation was graded as "minimal" in severity.

**Aggravated Conditions:** Not determined.

**Carcinogenicity:** Carcinogenic effects of this product have not been determined. The following information is available on major components: TDI - No tumors were observed in carcinogenicity studies in which mice and rats were exposed to TDI via inhalation at 10 and 30 times the TLV for an 8 hour period. However in gavage studies TDI caused an increase in the spontaneous tumor rate in both mice and rats. Inhalation is considered the relevant route of exposure for humans. (See TDI MSDS for more information) ETHYL ACETATE - No additional test data found for this products.

**Reproductive/Developmental Toxicity:**

Reproductive / Developmental health effects of this product have not been determined. The following information is available on major components: TDI - Has been evaluated for reproductive toxicity in a two-generation reproduction study using rats. Adults and offspring were exposed via inhalation to TDI at concentrations of 0, 0.02, 0.08, and 0.3 ppm. There were no reproductive effects. ETHYL ACETATE - In the subchronic inhalation study previously discussed, there were no effects at any does level on the number of spermatids in the testes, the number of sperm in the epididymides, sperm motility or sperm morphology. No other studies conducted according to established scientific principles were available.

**Mutagenicity:**

Mutagenicity of this product has not been determined. The following information is available on major components: TDI - A number of in-vitro, in-vivo, and in-vivo / in-vitro mutagenicity assays have been conducted, with both positive and negative results being reported. (See TDI MSDS for more information) ETHYL ACETATE - IN VITRO: Results were equivocal. Was negative in two Ames tests with Salmonella typhimurium and in a recombination assay with Bacillus subtilis. In the Sister Chromatid Exchange (SCE) assay with Chinese hamster ovary (CHO) cells, it was positive with activation and negative without activation. In five separate tests for aneuploidy with Saccharomyces cerevisiae, it was positive four times. It was negative for chromosomal aberrations in CHO cells, but positive in Chinese hamster lung fibroblasts. IN VIVO: Not Mutagenic: Ethyl Acetate was negative in three separate micronucleus assays - mouse (i.p.), Chinese hamster (I.P.) and Chinese hamster (gavage).

**Other:**

None known.

**12. ECOLOGICAL INFORMATION**

**Ethyl Acetate  
141-78-6 (25 to 30)**

Water Flea Data	717 mg/L EC50 Daphnia magna 48 h
Microtox Data	1180 mg/L EC50 Photobacterium phosphoreum 5 min
	1500 mg/L EC50 Pseudomonas fluorescens 15 min
	5870 mg/L EC50 Photobacterium phosphoreum 15 min
	7400 mg/L EC50 Pseudomonas fluorescens 2 h
Freshwater Fish Species Data	230 mg/L LC50 Pimephales promelas 96 h
	484 mg/L LC50 Oncorhynchus mykiss 96 h
Freshwater Algae Data	3300 mg/L EC50 Scenedesmus subspicatus 48 h

**13. DISPOSAL CONSIDERATIONS**

**Other Disposal Considerations:  
Contaminated Packaging:**

None  
Empty drums may contain harmful vapors and residue. If empty container retains product residues, all label precautions must be observed. Transport with all closures in place. Dispose according to national or local regulations. Empty containers may contain explosive vapors. Keep from spark, flame, and heat sources. Do not Cut or Weld.

**RCRA Status: (Classification applies to the product as sold.)**

D001 (Ignitable) D003 (Reactive)

**14. TRANSPORT INFORMATION**

**DOT:**

**DOT Shipping Name:** ISOCYANATE SOLUTION, FLAMMABLE, TOXIC N.O.S. (Ethyl Acetate, Toluene Diisocyanate)  
**DOT Information:** 3, 6.1 UN2478 PG II

## 14. TRANSPORT INFORMATION

**DOT Label:** FLAMMABLE LIQUID, TOXIC  
**DOT ERG:** 155

## 15. REGULATORY INFORMATION

### U.S. REGULATORY RULES

**TSCA Inventory Status:** All components are included in the EPA Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

INGREDIENT NAME/ CAS NUMBER	CERCLA Reportable Quantity	CERCLA/SARA - 302 Ext. Haz. Substances	TSCA - Sect. 12(b) Export Notification	SARA 313 Chemicals
Polyurethane Polymer (70 to 100)	N/A	N/A	Not Listed.	
Ethyl Acetate 141-78-6 (25 to 30)	2270 kg final RQ 5000 lb final RQ	N/A	Not Listed.	
TDI Type 2 26471-62-5 (5 to 10)	100 lb final RQ 45.4 kg final RQ	N/A	Not Listed.	0.1 % de minimis concentration

### STATE REGULATIONS

**PROPOSITION 65 STATUS:** WARNING: One or more components present in this product are known to the State of California to cause cancer and/or reproductive toxicity and is subject to warning and discharge requirements under the "Safe Drinking Water and Toxic Enforcement Act of 1986.

INGREDIENT NAME/ CAS NUMBER	RI Hazardous Substance List	MN Right to Know List	NJ Right to Know List	MA Right to Know List	PA Right to Know List
Polyurethane Polymer (70 to 100)	Not Present	Not Present	TSRN 050250533-5026	Not Present	Not Present
Ethyl Acetate 141-78-6 (25 to 30)	Toxic; Flammable	Present	sn 0841	Present	Environmental hazard
TDI Type 2 26471-62-5 (5 to 10)	Not Present	Not Present	Not present	Present	Environmental hazard

### CANADIAN REGULATIONS

**Canadian Inventory:** All components are included on the Canadian DSL.  
**WHMIS Hazard Classification:** B2 FLAMMABLE LIQUIDS  
 D1A VERY TOXIC MATERIALS  
 D2A VERY TOXIC MATERIALS  
 D2B TOXIC MATERIALS



### OTHER REGULATIONS

## 16. OTHER INFORMATION

## 16. OTHER INFORMATION

The following has been revised New Address  
since the last issue of this MSDS:

**Label Number:**

# 4

**Additional Information:**

Not Applicable

**Important Note:**

This company makes no warranty regarding the safety of this product when used incorrectly.

**\*\*\*END OF MSDS\*\*\***