MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product Name: DESMODUR E-3265
Material Number: 833452
Chemical Family: Aliphatic Polyisocyanate in Organic Solvent
Chemical Name: 1,6-Hexamethylene Diisocyanate Based Polyisocyanate in Organic Solvents

2. Hazards Identification

Emergency Overview

WARNING! Color: Yellow  Form: liquid  Odor: Solvent.
Flammable. Toxic gases/fumes may be given off during burning or thermal decomposition. Closed container may forcibly rupture under extreme heat or when contents have been contaminated with water. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Vapors may spread long distances and ignite. Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling solvents may be harmful or fatal. Causes respiratory tract irritation. May cause allergic respiratory reaction. Harmful if inhaled. Respiratory sensitizer. Lung damage and respiratory sensitization may be permanent. Causes skin irritation. May cause allergic skin reaction. Skin sensitizer. Animal tests and other research indicate that skin contact with diisocyanates can play a role in causing isocyanate sensitization and respiratory reaction. Causes eye irritation. May cause lung damage.

Potential Health Effects

Primary Routes of Entry: Skin Contact, Inhalation, Eye Contact
Medical Conditions Aggravated by Exposure: Skin Allergies, Eczema, Asthma, Respiratory disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE
**Inhalation**

**Acute Inhalation**

**For Product: DESMODUR E-3265**

Diisocyanate or polyisocyanate vapors or mist at concentrations above the exposure limits or guidelines can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) with symptoms of runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing difficulty). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the exposure limits or guidelines with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the exposure limits or guidelines may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g. fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible. Inhalation of the solvents may cause central nervous system depression with symptoms of nausea, lightheadedness, drowsiness, dizziness and loss of co-ordination.

**For Component: Propylene Glycol Monomethyl Ether Acetate**

Causes respiratory tract irritation with symptoms of coughing, sore throat and runny nose.

**For Component: 1,2,4-Trimethylbenzene**

May be harmful by inhalation. May cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion. May cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose. May cause pulmonary edema with symptoms of breathing difficulty and tightness of chest.

**For Component: Petroleum solvent**

Causes respiratory tract irritation with symptoms of coughing, sore throat and runny nose.

**For Component: Cumene**

Causes respiratory tract irritation with symptoms of coughing, sore throat and runny nose. May cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion. Expected to be toxic by inhalation.

**Chronic Inhalation**

**For Product: DESMODUR E-3265**

As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates or polyisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates or polyisocyanates at levels well below the exposure limits or guidelines. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to diisocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling solvents may be harmful or fatal.

**For Component: Propylene Glycol Monomethyl Ether Acetate**

Chronic exposure to organic solvents has been associated with various neurotoxic effects including permanent brain and nervous system damage.

**For Component: 1,2,4-Trimethylbenzene**

Repeated and prolonged contact may cause an allergic respiratory reaction in sensitive individuals. Prolonged or repeated exposure may result in adverse respiratory effects including cough, tightness of chest and shortness of breath.
For Component: Petroleum solvent
Chronic exposure to organic solvents has been associated with various neurotoxic effects including permanent brain and nervous system damage.

For Component: Cumene
Repeated or prolonged exposure may cause effects as described in chronic ingestion.

Skin
Acute Skin
For Product: DESMODUR E-3265
Causes irritation with symptoms of reddening, itching, and swelling. Can cause sensitization. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove.

For Component: Propylene Glycol Monomethyl Ether Acetate
Not expected to be irritating.

For Component: 1,2,4-Trimethylbenzene
May cause irritation with symptoms of reddening and itching.

For Component: Petroleum solvent
May cause irritation with symptoms of reddening and itching.

For Component: Cumene
May cause irritation with symptoms of reddening and itching. If sufficient amounts are absorbed, systemic toxicity may occur with symptoms similar to those described in acute inhalation.

Chronic Skin
For Product: DESMODUR E-3265
Prolonged contact can cause reddening, swelling, rash, and, in some cases, skin sensitization. Animal tests and other research indicate that skin contact with diisocyanates can play a role in causing isocyanate sensitization and respiratory reaction. This data reinforces the need to prevent direct skin contact with isocyanates.

For Component: 1,2,4-Trimethylbenzene
Prolonged or repeated skin contact may cause dermatitis with symptoms of red, itchy, dry skin. May cause defatting of the skin with symptoms of dryness and cracking.

For Component: Petroleum solvent
May cause defatting of the skin with symptoms of dryness and cracking. Prolonged or repeated skin contact may cause dermatitis with symptoms of red, itchy, dry skin.

For Component: Cumene
Prolonged or repeated skin contact may cause dermatitis with symptoms of red, itchy, dry skin.

Eye
Acute Eye
For Product: DESMODUR E-3265
Causes irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor may cause irritation with symptoms of burning and tearing.

For Component: Propylene Glycol Monomethyl Ether Acetate
May cause slight irritation.

For Component: 1,2,4-Trimethylbenzene
Causes irritation with symptoms of reddening, tearing, stinging, and swelling.
For Component: **Petroleum solvent**  
Causes irritation with symptoms of reddening, tearing, stinging, and swelling.

**For Component: Cumene**  
May cause irritation with symptoms of reddening, tearing and stinging.

**Chronic Eye**  
**For Product: DESMODUR E-3265**  
Prolonged vapor contact may cause conjunctivitis.

**For Component: 1,2,4-Trimethylbenzene**  
Prolonged vapor contact may cause conjunctivitis.

**For Component: Petroleum solvent**  
Prolonged vapor contact may cause conjunctivitis.

**Ingestion**  
**Acute Ingestion**  
**For Product: DESMODUR E-3265**  
Ingestion and/or vomiting may cause aspiration into the lungs resulting in chemical pneumonitis (inflammation of the lungs).

**For Component: 1,2,4-Trimethylbenzene**  
May cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion. Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea.

**For Component: Petroleum solvent**  
Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea.

**For Component: Cumene**  
Ingestion and/or vomiting may cause aspiration into the lungs resulting in chemical pneumonitis (inflammation of the lungs). Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea. May cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion. May be harmful if swallowed.

**Chronic Ingestion**  
**For Product: DESMODUR E-3265**  
Chronic exposure to organic solvents has been associated with various neurotoxic effects including permanent brain and nervous system damage.

**For Component: Petroleum solvent**  
Chronic exposure to organic solvents has been associated with various neurotoxic effects including permanent brain and nervous system damage.

**For Component: Cumene**  
May cause kidney damage. May cause liver damage. May cause blood disorders.

**Carcinogenicity:**  
No Carcinogenic substances as defined by IARC, NTP and/or OSHA

## 3. Composition/Information on Ingredients

**Hazardous Components**
Residual diisocyanate monomer content at time of manufacture: < 0.50%. During storage, especially at temperatures near the top of the recommended storage temperature range, HDI monomer content may rise to a maximum of: 1.30%

<table>
<thead>
<tr>
<th>Weight %</th>
<th>Components</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 - 100%</td>
<td>Aliphatic Polyisocyanate based on HDI</td>
<td>CAS# is a trade secret</td>
</tr>
<tr>
<td>10 - 20%</td>
<td>Petroleum solvent</td>
<td>64742-95-6</td>
</tr>
<tr>
<td>7 - 13%</td>
<td>1,2,4-Trimethylbenzene</td>
<td>95-63-6</td>
</tr>
<tr>
<td>5 - 10%</td>
<td>Propylene Glycol Monomethyl Ether Acetate</td>
<td>108-65-6</td>
</tr>
<tr>
<td>1 - 5%</td>
<td>1,3,5-Trimethylbenzene</td>
<td>108-67-8</td>
</tr>
<tr>
<td>&lt;=0.5%</td>
<td>Hexamethylene-1,6-Diisocyanate</td>
<td>822-06-0</td>
</tr>
</tbody>
</table>

4. First Aid Measures

**Eye Contact**

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use lukewarm water if possible. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Then remove contact lenses, if easily removable, and continue eye irrigation for not less than 15 minutes. Get medical attention if irritation develops.

**Skin Contact**

Immediately remove contaminated clothing and shoes. In case of skin contact, wash affected areas with soap and water. Use lukewarm water if possible. Wash contaminated clothing before reuse. For severe exposures, immediately get under safety shower and begin rinsing. Get medical attention if irritation develops and persists.

**Inhalation**

Move to an area free from further exposure. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours. Extreme asthmatic reactions can be life threatening.

**Ingestion**

Do not induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.

**Notes to physician**

Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn. Inhalation: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound. Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

5. Fire-Fighting Measures

**Suitable Extinguishing Media:** dry chemical, carbon dioxide (CO2), foam, water spray for large fires.

**Special Fire Fighting Procedures**

Firefighters should wear NFPA compliant structural firefighting protective equipment, including self-contained breathing apparatus and NFPA compliant helmet, hood, boots and gloves. Avoid contact with product. Decontaminate equipment and protective clothing prior to reuse. During a fire, isocyanate vapors...
and other irritating, highly toxic gases may be generated by thermal decomposition or combustion.

**Unusual Fire/Explosion Hazards**
Closed container may forcibly rupture under extreme heat or when contents are contaminated with water (CO2 formed). Use cold-water spray to cool fire-exposed containers to minimize the risk of rupture. Large fires can be extinguished with large volumes of water applied from a safe distance, since reaction between water and hot diisocyanate can be vigorous. Flammable Liquid. Vapors may spread long distances and ignite. Vapors or mist may be a fire and explosion hazard when exposed to high temperature or ignition. Vapors are heavier than air and may travel a considerable distance to a source of ignition and flashback.

### 6. Accidental release measures

**Spill and Leak Procedures**
Evacuate non-emergency personnel. Isolate the area and prevent access. Remove ignition sources. Notify management. Put on protective equipment. Control source of the leak. Ventilate. Contain the spill to prevent spread into drains, sewers, water supplies, or soil. Call Bayer at 412-923-1800 for assistance and advice. Major Spill or Leak (Standing liquid): To minimize vapor, cover the spillage with fire fighting foam (AFFF). Released material may be pumped into closed, but not sealed, metal container for disposal. Process can generate heat. Minor Spill or Leak (Wet surface): Cover spill area with suitable absorbent material (Kitty Litter, Oil-Dri®, etc). Saturate absorbent material with neutralization solution and mix. Wait 15 minutes. Collect material in open-head metal containers. Repeat applications of decontamination solution, with scrubbing, followed by absorbent until the surface is decontaminated. Check for residual surface contamination. Swype® test kits have been used for this purpose. Apply lid loosely and allow containers to vent for 72 hours to let carbon dioxide (CO2) escape.

**Additional Spill Procedures/Neutralization**
Neutralization solutions:
1. Colorimetric Laboratories Inc. (CLI) decontamination solution.
2. A mixture of 75% water, 20% non-ionic surfactant (e.g. Plurafac SL-62, Tergitol TMN-10) and 5% n-propanol.
3. A mixture of 80% water, 20% non-ionic surfactant (e.g. Plurafac SL-62, Tergitol TMN-10).
4. A mixture of 90% water, 3-8% ammonium hydroxide or concentrated ammonia, and 2% liquid detergent.

Bayer requires that CHEMTREC be immediately notified (800-424-9300) when this product is unintentionally released from its container during its course of distribution, regardless of the amount released. Distribution includes transportation, storage incidental to transportation, loading and unloading. Such notification must be immediate and made by the person having knowledge of the release.

### 7. Handling and Storage

**Storage Temperature:**
- Minimum: -34.44 °C (-30 °F)
- Maximum: 50 °C (122 °F)

**Storage Period**
6 Months @ 25 °C (77 °F): after receipt of material by customer

**Handling/Storage Precautions**
Do not breathe vapors, mists, or dusts. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are
not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash thoroughly after handling. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. Ground and bond containers and equipment before transferring to avoid static sparks.

**Further Info on Storage Conditions**
PMA may form peroxides during prolonged storage. Check peroxide content before use.

### 8. Exposure Controls / Personal Protection

**1,2,4-Trimethylbenzene (95-63-6)**

US. ACGIH Threshold Limit Values
- Time Weighted Average (TWA): 25 ppm

**1,3,5-Trimethylbenzene (108-67-8)**

US. ACGIH Threshold Limit Values
- Time Weighted Average (TWA): 25 ppm

**Hexamethylene-1,6-Diisocyanate (822-06-0)**

US. ACGIH Threshold Limit Values
- Time Weighted Average (TWA): 0.005 ppm
- Bayer Exposure Limit
  - Ceiling Limit Value: 0.02 ppm

**Petroleum solvent (64742-95-6)**

Supplier Exposure Limit
- Time Weighted Average (TWA): 50.000 ppm (Vapor.)

**Industrial Hygiene/Ventilation Measures**

Good industrial hygiene practice dictates that worker protection should be achieved through engineering controls, such as ventilation, whenever feasible. When such controls are not feasible to achieve full protection, the use of respirators and other personal protective equipment is mandated. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination. Curing ovens must be ventilated to prevent emissions into the workplace. If oven off-gases are not vented properly (i.e. they are released into the work area), it is possible to be exposed to airborne monomeric HDI.

**Respiratory Protection**

A respirator that is recommended or approved for use in isocyanate-containing environments (air-purifying or fresh air-supplied) may be necessary for spray applications or other situations such as high temperature use which may produce inhalation exposures. A supplied-air respirator (either positive pressure or continuous flow-type) is recommended. Before an air-purifying respirator can be used, air monitoring must be performed to measure airborne concentrations of HDI monomer and HDI polyisocyanate. Specific conditions under which air-purifying respirators can be used are outlined in the following sections. Observe OSHA regulations for respirator use (29 CFR 1910.134). SPRAY APPLICATION: A. Good industrial hygiene practice dictates that when isocyanate-based coatings are spray applied, some form of respiratory protection should be worn. During the spray application of coatings containing this product the use of a supplied-air (either positive pressure or continuous flow-type) respirator is mandatory when ONE OR MORE of the following conditions exists: -the airborne isocyanate concentrations are not known; or -the airborne isocyanate monomer concentrations exceed 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); or -the airborne polyisocyanate (polymeric, oligomeric) concentrations
exceed 5 mg/m³ averaged over 8 hours or 10 mg/m³ averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits); or - operations are performed in a confined space (See OSHA Confined Space Standard, 29 CFR 1910.146). A properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate-containing spray paint environments, and used in accordance with all recommendations made by the manufacturer, can be used when ALL of the following conditions are met: - The airborne isocyanate monomer concentrations are known to be below 0.05 ppm averaged over eight (8) hours (10 times 8 hour TWA exposure limit); and - the airborne polyisocyanate (polymeric, oligomeric) concentrations are known to be below 5 mg/m³ averaged over 8 hours or 10 mg/m³ averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits) and - a NIOSH-certified End of Service Life Indicator or a change schedule based upon objective information or data is used to ensure that cartridges are replaced before the end of their service life. In addition, prefilters should be changed whenever breathing resistance increases due to particulate buildup.

NON-SPRAY OPERATIONS: A. During non-spray operations such as mixing, batch-making, brush or roller application, etc., at elevated temperatures (for example, heating of material or application to a hot substrate), it is possible to be exposed to airborne isocyanate vapors. Therefore, when the coatings system will be applied in a non-spray manner, a supplied-air (either positive pressure or continuous flow-type) respirator is mandatory when ONE OR MORE of the following conditions exists: - the airborne isocyanate concentrations are not known; or - the airborne isocyanate monomer concentrations exceed 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); or - the airborne polyisocyanate (polymeric, oligomeric) concentrations exceed 5 mg/m³ averaged over 8 hours or 10 mg/m³ averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits); or - operations are performed in a confined space (See OSHA Confined Space Standard, 29 CFR 1910.146). A properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate-containing paint environments, and used in accordance with all recommendations made by the manufacturer, can be used when ALL of the following conditions are met: - the airborne concentrations of the isocyanate monomer are below 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); and - the airborne polyisocyanate (polymeric, oligomeric) concentrations are known to be below 5 mg/m³ averaged over eight (8) hours or 10 mg/m³ averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits) and - a NIOSH-certified End of Service Life Indicator or a change schedule based upon objective information or data is used to ensure that cartridges are replaced before the end of their service life. In addition, prefilters should be changed whenever breathing resistance increases due to particulate buildup.

Hand Protection
Gloves should be worn., Nitrile rubber gloves., Butyl rubber gloves., Neoprene gloves

Eye Protection
When handling liquid product, chemical goggles should be worn., Chemical safety goggles in combination with a full face shield if a splash hazard exists.

Skin and body protection
Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact., Gloves, long sleeved shirts and pants.

Medical Surveillance
All applicants who are assigned to an isocyanate work area should undergo a pre-placement medical evaluation. A history of eczema or respiratory allergies such as hay fever, are possible reasons for medical exclusion from isocyanate areas. Applicants who have a history of adult asthma should be restricted from work with isocyanates. Applicants with a history of prior isocyanate sensitization should be excluded from further work with isocyanates. A comprehensive annual medical surveillance program should be instituted for all employees who are potentially exposed to diisocyanates. Once a worker has been diagnosed as sensitized to any isocyanate, no further exposure can be permitted. Refer to the Bayer pamphlet (Medical Surveillance Program for Isocyanate Workers) for additional guidance.

Additional Protective Measures
Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of this product. Follow all label instructions.
9. Physical and chemical properties

Form: liquid
Color: Yellow
Odor: Solvent
pH: Not Applicable
Freezing Point: Approximately -25 °C (-13 °F)
Boiling Point/Range: Approximately 165 °C (329 °F)
Flash Point: 48.89 °C (120.0 °F) (Tagliabue Closed Cup (ASTM D-56))
Lower Explosion Limit: 1.0 %(V) for the solvent
Upper Explosion Limit: 10.8 %(V) for the solvent
Vapor Pressure: HDI Polyisocyanate: 9.3 X 10-6 @ 68 F (20 C) mmHg
Specific Gravity: Approximately 1.05 @ 20 °C (68 °F)
Solubility in Water: Insoluble - Reacts slowly with water to liberate CO2 gas
Autoignition Temperature: 480 °C (896 °F)
Viscosity, Dynamic: no data available
Bulk Density: Approximately 8.7 lb/gal

10. Stability and Reactivity

Hazardous Reactions
Contact with moisture, other materials that react with isocyanates, or temperatures above 350 F (177 C), may cause polymerization.

Stability
Stable under normal conditions of use and storage.

Materials to avoid
Water, Amines, Strong bases, Alcohols, copper alloys

Conditions to avoid
Heat, flames and sparks.

Hazardous decomposition products
By Fire and High Heat: Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke, Hydrogen cyanide, Isocyanate, Isocyanic Acid, Other undetermined compounds

11. Toxicological Information

Toxicity Data for DESMODUR E-3265
Toxicity Note
Resin, Toxicological testing on a comparable product in a different supply form.

Acute Oral Toxicity
LD50: > 5,000 mg/kg (Rat)

Skin Irritation
rabbit, OECD Test Guideline 404, Exposure Time: 4 h, Slightly irritating

Eye Irritation
rabbit, OECD Test Guideline 405, Slightly irritating
Sensitization
Buehler Test: non-sensitizer (Guinea pig)
Maximisation Test (GPMT): sensitizer (guinea pig, Magnusson/Kligmann (Maximization Test))

Mutagenicity
Genetic Toxicity in Vitro:
Ames test: negative (Salmonella typhimurium)

Toxicity Data for Petroleum solvent
Acute Oral Toxicity
LD50: 3,500 mg/kg (Rat, Female)
LD50: > 5,000 mg/kg (Rat, Male/Female)

Acute Inhalation Toxicity
LC50: 10.2 mg/l, 4 hrs (Rat)
LC50: 5.2 mg/l, 4 hrs (Rat)

Acute dermal toxicity
LD50: > 3,160 mg/kg (rabbit)

Skin Irritation
rabbit, Draize, Exposure Time: 24 hrs, Slightly irritating

Eye Irritation
rabbit, Draize, Exposure Time: 24 hrs, Slightly irritating

Sensitization
dermal: non-sensitizer (Guinea pig, Maximization Test)
dermal: non-sensitizer (Human, Other method)

Repeated Dose Toxicity
90 D, inhalation: NOAEL: 6.6 mg/l, (Rat)
14 D, dermal: NOAEL: 3,750 mg/kg, (rabbit)

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Carcinogenicity
mouse, Male, dermal, 2 Years,
negative
rat, Male/Female, inhalation, 109 weeks, 6 hrs/day 7 days/week
positive Kidney carcinomas were found in male rats only at all dose levels.

Toxicity to Reproduction/Fertility
Two generation study, inhalation, 6 hrs/day 7 days/week, (Rat, Male/Female) NOAEL (F1): 500 ppm,
NOAEL (F2): 500 ppm
No effects on Reproductive parameters observed at doses tested.
Three generation study, inhalation, 6 hrs/day 7 days/week, (Rat, Male/Female)
No effects on Reproductive parameters observed at doses tested.

Developmental Toxicity/Teratogenicity
Rat, Female, inhalation, NOAEL (teratogenicity): > 1,573 ppm,
No Teratogenic effects observed at doses tested.

Toxicity Data for 1,2,4-Trimethylbenzene
**Acute Oral Toxicity**
LD50: 3,400 - 6,000 mg/kg (Rat)

**Acute Inhalation Toxicity**
LC50: 18,000 mg/m3, 4 hrs (Rat)

**Acute dermal toxicity**
LD50: > 3,160 mg/kg (rabbit)

**Skin Irritation**
rabbit, Moderately irritating

**Eye Irritation**
Rat, Slightly irritating

**Sensitization**
dermal: non-sensitizer (Guinea pig, Maximization Test)

**Repeated Dose Toxicity**
20 Days, inhalation: NOAEL: < 100 ppm, (rat, )
CNS depression.
28 Days, oral: NOAEL: < 500 mg/kg, (rat, )
Changes in: kidney

**Mutagenicity**
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)
Genetic Toxicity in Vivo:
Sister Chromatid Exchange: (mouse, )
Positive and negative results were seen in various in vivo studies.
Cytogenetic assay: negative (Rat, )

**Developmental Toxicity/Teratogenicity**
rat, female, inhalation, daily, NOAEL (teratogenicity): 0.19%,
No Teratogenic effects observed at doses tested. No fetotoxicity observed at doses tested.

**Toxicity Data for Propylene Glycol Monomethyl Ether Acetate**

**Acute Oral Toxicity**
LD50: > 5,000 mg/kg (Rat, Male/Female)

**Acute Inhalation Toxicity**
LC0: 4,345 ppm, vapor, 6 hrs (Rat)

**Acute dermal toxicity**
LD50: > 5,000 mg/kg (Rat)

**Skin Irritation**
rabbit, Non-irritating

**Eye Irritation**
rabbit, Slightly irritating

**Sensitization**
dermal: non-sensitizer (Guinea pig, Magnusson/Kligmann (Maximization Test))

**Repeated Dose Toxicity**
14 Days, inhalation: NOAEL: 300 ppm, LOAEL: 1,000 ppm, (Rat)
Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Developmental Toxicity/Teratogenicity
Rat, Female, inhalation, 6 hrs/day 7 days/week, NOAEL (teratogenicity): > 4,000 ppm,
No Teratogenic effects observed at doses tested.

12. Ecological Information

Ecological Data for DESMODUR E-3265

Acute and Prolonged Toxicity to Fish
(96 h)
No effects seen at saturation concentration.

Acute Toxicity to Aquatic Invertebrates
(Water flea (Daphnia magna), 48 h)
No effects seen at saturation concentration.

Toxicity to Aquatic Plants
(other: algae, 72 h)
No effects seen at saturation concentration.

Additional Ecotoxicological Remarks
Ecotoxicological testing on a comparable product in a different supply form. Resin

Ecological Data for Petroleum solvent

Biological Oxygen Demand (BOD)
5 Days, 190 mg/l

Chemical Oxygen Demand (COD)
440 mg/g

Acute and Prolonged Toxicity to Fish
LC50: 320 - 435 mg/l (Golden orfe (Leuciscus idus), 48 hrs)
LC50: 9.22 mg/l (Rainbow (Donaldson) Trout (Oncorhynchus mykiss), 96 hrs)

Acute Toxicity to Aquatic Invertebrates
EC50: 170 mg/l (Water flea (Daphnia magna), 24 hrs)
EC50: 226 mg/l (Water flea (Daphnia magna), 24 hrs)

Toxicity to Aquatic Plants
EC50: 56 mg/l, (Green algae (Selenastrum capricornutum), 72 hrs)
EC50: 19 mg/l, (Green algae (Selenastrum capricornutum), 72 hrs)

Toxicity Other Non-Mammal Terrestrial Species
> 2,250 mg/kg, (Bobwhite quail)

Ecological Data for 1,2,4-Trimethylbenzene

Biological Oxygen Demand (BOD)
approximately 190 mg/l

Chemical Oxygen Demand (COD)
approximately 440 mg/g

Bioaccumulation
Carp, 31 - 207 BCF

Acute and Prolonged Toxicity to Fish
LC50: 7.72 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)

Acute Toxicity to Aquatic Invertebrates
EC50: 3.6 mg/l (Water flea (Daphnia magna), 48 hrs)

Ecological Data for Propylene Glycol Monomethyl Ether Acetate
Biodegradation
Aerobic, 100 %, Exposure time: 8 Days

Acute and Prolonged Toxicity to Fish
LC50: 161 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)

Acute Toxicity to Aquatic Invertebrates
EC50: 408 mg/l (Water flea (Daphnia magna), 48 hrs)

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state and local environmental control laws. Incineration is the preferred method.

Empty Container Precautions
Empty containers retain product residue; observe all precautions for product. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not reuse without thorough commercial cleaning and reconditioning.

14. Transportation information

Land transport (DOT)
Proper Shipping Name: Resin solution (contains Petroleum solvent, Xylene, Hexamethylene-1,6-Diisocyanate)
Hazard Class or Division: 3
UN/NA Number: UN1866
Packaging Group: III
Hazard Label(s): Flammable Liquid

RSPA/DOT Regulated Components:
Xylene
Hexamethylene-1,6-Diisocyanate

Reportable Quantity: 11,904 lb

Sea transport (IMDG)
Proper Shipping Name: RESIN SOLUTION (contains Petroleum solvent, Xylene, Hexamethylene-1,6-Diisocyanate)
Hazard Class or Division: 3
15. Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
None

SARA Section 311/312 Hazard Categories:
Acute Health Hazard, Chronic Health Hazard, Fire Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components
1,2,4-Trimethylbenzene

When discarded in its purchased form, this product meets the criteria of ignitability, and should be managed as a hazardous waste (EPA Hazardous Waste Number D001). (40 CFR 261.20-24)

State Right-To-Know Information
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

<table>
<thead>
<tr>
<th>Weight %</th>
<th>Components</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 - 100%</td>
<td>Aliphatic Polyisocyanate based on HDI</td>
<td>CAS# is a trade secret</td>
</tr>
<tr>
<td>10 - 20%</td>
<td>Petroleum solvent</td>
<td>64742-95-6</td>
</tr>
<tr>
<td>7 - 13%</td>
<td>1,2,4-Trimethylbenzene</td>
<td>95-63-6</td>
</tr>
</tbody>
</table>
5 - 10% Propylene Glycol Monomethyl Ether 108-65-6
1 - 5% Acetate
108-67-8

New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists:

<table>
<thead>
<tr>
<th>Weight %</th>
<th>Components</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 - 13%</td>
<td>1,2,4-Trimethylbenzene</td>
<td>95-63-6</td>
</tr>
<tr>
<td>0.1 - 1%</td>
<td>Xylene</td>
<td>1330-20-7</td>
</tr>
<tr>
<td>0.1 - 1%</td>
<td>Hexamethylene-1,6-Diisocyanate</td>
<td>822-06-0</td>
</tr>
<tr>
<td>0.1 - 1%</td>
<td>Cumene</td>
<td>98-82-8</td>
</tr>
</tbody>
</table>

California Prop. 65:
To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

16. Other Information

NFPA 704M Rating

| Health       | 2 |
| Flammability | 3 |
| Reactivity   | 1 |
| Other        |

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

<table>
<thead>
<tr>
<th>Health</th>
<th>2*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>3</td>
</tr>
<tr>
<td>Physical Hazard</td>
<td>1</td>
</tr>
</tbody>
</table>

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
* = Chronic Health Hazard

The method of hazard communication for Bayer MaterialScience LLC is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by Bayer MaterialScience LLC as a customer service.

The handling of products containing reactive HDI polyisocyanate/prepolymer and/or monomeric HDI requires appropriate protective measures referred to in this MSDS. These products are therefore recommended only for use in industrial or trade (commercial) applications. They are not suitable for use in Do-It-Yourself applications.

Contact Person: Product Safety Department
Telephone: (412) 777-2835
MSDS Number: R300094
Version Date: 10/10/2007
Report Version: 2.0

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Changes since the last version will be highlighted in the margin. This version replaces all previous versions.