

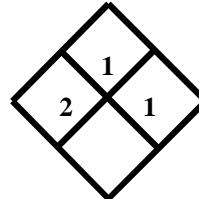
4917 Dawn Avenue  
East Lansing, MI 48823-5691

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24-Hour Emergency Phone: 1-888-354-3323

Effective Date: 12/21/04

## Material Safety Data Sheet

MSDS No: 34410

**1. PRODUCT IDENTIFICATION****Trade Name:** RenPIM 6490 Isocyanate**Chemical Family:** Isocyanate

NFPA RATING

Health:	2*
Flammability:	1
Reactivity:	1
Personal Protection:	

HMIS RATING

**Synonyms:**  
RP 6490 Resin

**Intended Use or Product Type:**  
Polyurethane resin

**2. COMPOSITION / INFORMATION ON INGREDIENTS**

O S H A	CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS					CARCINOGEN STATUS		
			ACGIH		OSHA		MFR.	IARC	NTP	OSHA
			TWA	STEL	PEL	STEL				
*	101-68-8  Common Name:	Benzene, 1,1'-Methylenebis[4-Isocyanato-MDI]	0.005 ppm	NE	0.02 ppm	NE	NE	NR	NR	NR
*	26447-40-5  Common Name:	Benzene, 1,1'-Methylenebis[Isocyanato-Diphenylmethane diisocyanate]	NE	NE	NE	NE	NE	NR	NR	NR
*	39310-05-9  Common Name:	Benzene, 1,1'-Methylenebis(Isocyanato-, homopolymer Diphenylmethane diisocyanate homopolymer)	NE	NE	NE	NE	NE	NR	NR	NR
*	78-40-0	Phosphoric Acid, Triethyl Ester	NE	NE	NE	NE	NE	NR	NR	NR
*	9048-58-2  Common Name:	Poly(oxy-1,4-butanediyl), .alpha.-hydro-.omega.-hydroxy-, polymer with 1,1'-methylenebis[4-isocyanatobenzene] MDI prepolymer	NE	NE	NE	NE	NE	NR	NR	NR

NE = Not Established NR = Not Reviewed \* = OSHA Hazardous Ingredient

### 3. HAZARDS IDENTIFICATION

**Emergency Overview:** Causes skin, eye, and respiratory irritations. May cause allergic skin and respiratory reactions.

**Primary Route(s) of Entry:** Dermal; heated product may produce inhalable vapors.

### 4. FIRST AID MEASURES

**Ingestion:** If conscious, give 2 - 4 glasses of water to drink. Do not induce vomiting. Call a physician.

**Skin:** Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Destroy contaminated shoes.

**Inhalation:** Remove to fresh air. Call a physician.

**Eyes:** Immediately flush eyes with water for at least 15 minutes. Call a physician.

**Overexposure Effects:** Contact with liquid causes eye and skin irritation. If inhaled causes breathlessness, chest discomfort, and reduced pulmonary function. May cause allergic skin and respiratory reactions in some individuals, leading to asthma type spasms of the bronchial tubes and difficulty in breathing.

**Medical Conditions Aggravated by Exposure:** Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases, eye conditions or recurrent skin eczema or sensitization should be excluded from working with isocyanates.

**Additional Information:** Referral to a physician is recommended if there is any question about the seriousness of any injury.

### 5. FIRE FIGHTING MEASURES

**Flash Point:**

> 177°C (> 351 °F)

**Flash Point Method Used:**

Estimated

**Flammable Limits in Air (Lower - % by volume):**

Not established

**Flammable Limits in Air (Upper - % by volume):**

Not established

**Fire Fighting Extinguishing Media:** Carbon dioxide, dry chemical, foam, water.

**Fire Fighting Equipment:** Use self-contained breathing apparatus.

**Fire and Explosion Hazards:** Decomposition and combustion products may be toxic.

### 6. ACCIDENTAL RELEASE MEASURES

**Accidental Release Measures:** Remove spillage by absorbing in absorbent material.

## **7. HANDLING AND STORAGE**

**Signal Word:** Warning!

**Precautions:** Causes irritation if inhaled and can cause skin irritation, eye irritation, allergic respiratory reaction, and allergic skin reaction. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling.

**Other Handling Information:** Nuisance dust may be generated when sanding or sawing cured material.

## **8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Skin Protection:** Wear impermeable gloves.

**Respiratory Protection:** If a person is concerned with exposure to isocyanates, an organic respirator can provide protection at less than the TLV. It is not a requirement at an exposure level less than the TLV. For exposures in excess of the TLV, an air supplied respirator would be required. Conditions that may create exposures above the TLV are spray applications, the material being strongly heated in excess of 125F before application, or the use of material in poorly ventilated areas.

**Eye Protection:** Wear splash-proof chemical goggles.

**Engineering Controls:** General mechanical and local exhaust in accordance with ACGIH recommendations.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

**Color:** Clear to Cloudy

**Physical State:** Liquid

**Solubility in Water:** Reacts with water

**Vapor Pressure:** 0.027 mm Hg at 71°C (160 °F)

**Specific Gravity:** 1.15 (water = 1)

**Boiling Point:** Not Determined

**Evaporation Rate:** Not Determined

**Vapor Density:** > 1 (Air = 1)

**VOC:** 0 g/L

**pH:** Not Determined

**Percent Volatile:** Negligible.

## **10. STABILITY AND REACTIVITY**

**Conditions to Avoid:** Excessive heat for prolonged periods of time.

**Stability:** Stable.

**Incompatibility:** Strong oxidizers, acids and bases.

**Hazardous Decomposition Products:** Combustion may form toxic materials, such as carbon dioxide, carbon monoxide.

**Hazardous Polymerization:** Will not occur.

## **11. TOXICOLOGICAL INFORMATION**

**Acute Inhalation Exposure Effects:** Respiratory irritant.

**Sensitization:** May cause allergic skin reaction and respiratory sensitivity in some people.

**Skin Irritation:** Irritant.

**Eye Irritation:** Irritant.

## **12. ECOLOGICAL INFORMATION**

## **13. DISPOSAL CONSIDERATIONS**

**Waste Disposal Method:** Consult qualified local or corporate personnel for method that will comply with local, state and federal health and environmental regulations.

## **14. TRANSPORT INFORMATION**

**DOT: Non-Bulk**

**Proper Shipping Name:** Resin compounds, N.O.I.

**Department of Transportation:** Not regulated as a hazardous material by the U.S. Dept. of Transportation (DOT) 49 CFR 172.101 hazardous materials table.

## **15. REGULATORY INFORMATION**

### **US Federal Regulations:**

**Occupational Safety and Health Act (OSHA):** This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200. This product is considered to be a hazardous chemical under that standard.

**Resource Conservation and Recovery Act (RCRA):** Not specifically listed as hazardous waste under RCRA (40 CFR 261). However, it is strongly recommended that compound be treated as a hazardous waste and disposed of accordingly.

**SARA Title III: Section 313 Toxic Chemical List (TCL):** This product contains a toxic chemical(s) for routine annual toxic chemical release reporting under section 313 (40 CFR 372). This information must be included in all MSDS's copied or distributed for this material.

Chemical Name: Benzene, 1,1'-Methylenebis[4-Isocyanato-

Common Name: MDI

Percent in Composition: 28.9563 % by wt

Comment:

**TSCA Section 8(b) - Inventory Status:** All chemical components of this product are in compliance with TSCA inventory requirements.

**TSCA Section 12(b) - Export Notification:** This product does not contain any chemical(s) that are subject to a Section 12(b) export notification.

### **State Regulations:**

**California Proposition 65:** This product does not contain any chemicals currently on the California list of Known Carcinogens and Reproductive Toxins.

**Pennsylvania Right-to-Know:** The following is required composition information:

Chemical Name: Poly(oxy-1,4-butanediyl), .alpha.-hydro-.omega.-hydroxy-, polymer with 1,1'-methylenebis[4-isocyanatobenzene]

Common Name: MDI prepolymer

CAS Number: 9048-58-2

Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: Benzene, 1,1'-Methylenebis[4-Isocyanato-

Common Name: MDI

CAS Number: 101-68-8

Comment: Environmental Hazardous Substance

Chemical Name: Benzene, 1,1'-Methylenebis(Isocyanato-, homopolymer

Common Name: Diphenylmethane diisocyanate homopolymer

CAS Number: 39310-05-9

Comment: Not on Pennsylvania Hazardous Substance List

### **16. OTHER INFORMATION**

**MSDS No:** 34410

**Approved By:** Dianne Blessing

**Title:** EH&S Specialist

**Disclaimer:** The information and recommendations contained herein are based upon tests in controlled laboratory conditions, are believed to be correct, and are provided for the sole purpose of hazard communication as part of Huntsman's product safety program. This product has not been tested for, and therefore is not recommended or suitable for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended or likely, or for uses for which implantation within the human body is intended, and Huntsman assumes no liability for any such uses.

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Effective Date: 8/17/06

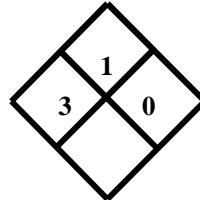
**Material Safety Data Sheet**

MSDS No: 33190

**1. PRODUCT IDENTIFICATION**

Trade Name: RenPIM 6490 Polyol

Chemical Family: Amine Based Polyol

**NFPA RATING**

Health:	3
Flammability:	1
Reactivity:	0
Personal Protection:	

**HMIS RATING****Synonyms:**

LST 51-726 Hardener

RP 6490 Hardener

**Intended Use or Product Type:** Polyurethane hardener**2. COMPOSITION / INFORMATION ON INGREDIENTS**

O S H A	CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS					CARCINOGEN STATUS		
			ACGIH		OSHA		MFR.	IARC	NTP	OSHA
			TWA	STEL	PEL	STEL				
*	102-60-3 Common Name:	2-Propanol, 1,1',1",1""-(1,2-ethanediylidinitrilo)tetrakis-Amine based tetrol	NE	NE	NE	NE	NE	NR	NR	NR
*	107-21-1 Common Name:	1,2-Ethanediol Ethylene glycol	NE	100 mg/m3	NE	NE	NE	NR	NR	NR
*	110-63-4 Common Name:	1,4- Butanediol 1,4-Butanediol	NE	NE	NE	NE	NE	NR	NR	NR
	25214-63-5 Common Name:	1,2-Ethanediamine, polymer with methyloxirane Polyether polyol	NE	NE	NE	NE	NE	NR	NR	NR
*	25322-68-3 Common Name:	Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-hydroxy-Polyether polyol	NE	NE	NE	NE	NE	NR	NR	NR
*	9046-10-0 Common Name:	Poly[Oxy(Methyl-1,2-Ethanediyl)], .alpha.-(2-Aminomethylethyl)-.omega.-(2-Aminomethylethoxy)-Polyoxypropylenediamine	NE	NE	NE	NE	NE	NR	NR	NR
*	139-90-2	2-Propanol , 1,1'-[[2-[(2-	NE	NE	NE	NE	NE	NR	NR	NR

Common Name:	hydroxyethyl)(2-hydroxypropyl)amino]ethyl]imino]bis-Amine based tetrol							
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NE = Not Established NR = Not Reviewed \* = OSHA Hazardous Ingredient

### **3. HAZARDS IDENTIFICATION**

**Emergency Overview:** Corrosive - causes skin burns. Causes irritation if inhaled and can cause eye irritation and allergic skin reaction. Can be harmful if absorbed through skin and may be harmful if swallowed.

**Primary Route(s) of Entry:** Dermal; heated product may produce inhalable vapors.

### **4. FIRST AID MEASURES**

**Ingestion:** If conscious, give 2 - 4 glasses of water to drink. Do not induce vomiting. Call a physician.

**Skin:** Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Destroy contaminated shoes.

**Inhalation:** Remove to fresh air. Call a physician.

**Eyes:** Immediately flush eyes with water for at least 15 minutes. Call a physician.

**Overexposure Effects:** Corrosive - causes skin burns. Causes irritation if inhaled and can cause eye irritation and allergic skin reaction. Can be harmful if absorbed through skin and may be harmful if swallowed.

**Medical Conditions Aggravated by Exposure:** Skin, eye and pulmonary conditions.

**Additional Information:** Referral to a physician is recommended if there is any question about the seriousness of any injury.

### **5. FIRE FIGHTING MEASURES**

**Flash Point:** > 212°F (> 100 °C)

**Flash Point Method Used:** Estimated

**Flammable Limits in Air (Lower - % by volume):** Not established

**Flammable Limits in Air (Upper - % by volume):** Not established

**Fire Fighting Extinguishing Media:** Carbon dioxide, dry chemical, foam, water.

**Fire Fighting Equipment:** Use self-contained breathing apparatus.

**Fire and Explosion Hazards:** Decomposition and combustion products may be toxic.

## **6. ACCIDENTAL RELEASE MEASURES**

**Accidental Release Measures:** Remove spillage by absorbing in absorbent material.

## **7. HANDLING AND STORAGE**

**Signal Word:** Danger!

**Precautions:** Corrosive- causes skin burns. Causes irritation if inhaled and can cause eye irritation and allergic skin reaction. Can be harmful if absorbed through skin and may be harmful if swallowed. Do not get on skin or on clothing. Avoid contact with eyes. Avoid breathing vapor or mist. Avoid tasting or swallowing. Keep container closed when not in use. Use with adequate ventilation. Wash thoroughly after handling.

**Other Handling Information:** Nuisance dust may be generated when sanding or sawing cured material.

## **8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Skin Protection:** Wear impermeable gloves.

**Respiratory Protection:** Use NIOSH approved organic vapor cartridge respirator when vapor/mist exposure is likely.

**Eye Protection:** Wear splash-proof chemical goggles.

**Engineering Controls:** General mechanical and local exhaust in accordance with ACGIH recommendations.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Color:</b>	Colorless to light amber
<b>Physical State:</b>	Liquid
<b>Specific Gravity:</b>	1.03 (water = 1)
<b>Boiling Point:</b>	Not Determined
<b>Evaporation Rate:</b>	Not Determined
<b>Vapor Density:</b>	Not Determined
<b>pH:</b>	Not Determined

**Percent Volatile:** Negligible.

## **10. STABILITY AND REACTIVITY**

**Conditions to Avoid:** Excessive heat for prolonged periods of time.

**Stability:** Stable.

**Incompatibility:** Strong oxidizers, acids and bases.

**Hazardous Decomposition Products:** Combustion may form toxic materials, such as carbon dioxide, carbon monoxide.

**Hazardous Polymerization:** Will not occur.

## **11. TOXICOLOGICAL INFORMATION**

**Acute Oral Effects (LD50):** Component(s) are slightly toxic, 500 - 5000 mg/kg (rat).

**Acute Dermal Toxicity (LD50):** Component(s) are toxic, 200 - 1000 mg/kg (rabbit).

**Acute Inhalation Exposure Effects:** Respiratory irritant.

**Sensitization:** Possible in susceptible individuals.

**Skin Irritation:** Corrosive. Causes burns.

**Eye Irritation:** Irritant.

**Teratogenicity:** Contains Ethylene glycol. An inhalation teratology study has confirmed that ethylene glycol is teratogenic in CD-1 mice. Fetotoxicity was present at 1,000 and 2,500 mg/m<sup>3</sup> as evidenced by reduced body weights and reduced ossification at numerous skeletal districts. Teratogenicity was demonstrated at 1,000 and 2,500 mg/m<sup>3</sup> as evidenced by a significantly increased incidence of malformations.

## **12. ECOLOGICAL INFORMATION**

## **13. DISPOSAL CONSIDERATIONS**

**Waste Disposal Method:** Consult qualified local or corporate personnel for method that will comply with local, state and federal health and environmental regulations.

## **14. TRANSPORT INFORMATION**

**DOT: Non-Bulk**

**Proper Shipping Name:**

Polyamines, liquid, corrosive, N.O.S.

**Technical Shipping Name (If n.o.s.):**

Polyoxypropylenediamine

**Hazard Class:**

8

**ID Number:**

UN 2735

**Packing Group:**

PG II

**Label:**

Corrosive

## **15. REGULATORY INFORMATION**

### **US Federal Regulations:**

**Occupational Safety and Health Act (OSHA):** This Material Safety Data Sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200. This product is considered to be a hazardous chemical under that standard.

**Resource Conservation and Recovery Act (RCRA):** Not a hazardous waste under RCRA (40 CFR 261).

**SARA Title III: Section 313 Toxic Chemical List (TCL):** This product contains a toxic chemical(s) for routine annual toxic chemical release reporting under section 313 (40 CFR 372). This information must be included in all MSDS's copied or distributed for this material.

Chemical Name: 1,2-Ethanediol

Common Name: Ethylene glycol

Percent in Composition: 1 % by wt

Comment:

**TSCA Section 8(b) - Inventory Status:** All chemical components of this product are in compliance with TSCA inventory requirements.

**TSCA Section 12(b) - Export Notification:** This product does not contain any chemical(s) that are subject to a Section 12(b) export notification.

### **State Regulations:**

**Pennsylvania Right-to-Know:** The following is required composition information:

Chemical Name: Poly[Oxy(Methyl-1,2-Ethanediyl)], .alpha.-(2-Aminomethylethyl)-.omega.-(2-Aminomethylethoxy)-

Common Name: Polyoxypolylenediamine

CAS Number: 9046-10-0

Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: 1,2-Ethanediamine, polymer with methyloxirane

Common Name: Polyether polyol

CAS Number: 25214-63-5

Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: 2-Propanol , 1,1'-[[2-[(2-hydroxyethyl)(2-hydroxypropyl)amino] ethyl]imino]bis-

Common Name: Amine based tetrol

CAS Number: 139-90-2

Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: 2-Propanol, 1,1',1",1'''-(1,2-ethanediyl)dinitrilo)tetrakis-

Common Name: Amine based tetrol

CAS Number: 102-60-3

Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: 1,4- Butanediol

Common Name: 1,4-Butanediol

CAS Number: 110-63-4

Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-hydroxy-

Common Name: Polyether polyol

CAS Number: 25322-68-3

Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: 1,2-Ethanediol

Common Name: Ethylene glycol  
CAS Number: 107-21-1  
Comment: Environmental Hazardous Substance

## **16. OTHER INFORMATION**

**MSDS No:** 33190  
**Approved By:** Matt Austin  
**Title:** EHS Chemist

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