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The Woodlands, TX 77387-4980

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24-Hour Emergency Phone: (800) 328-8501
International Emergency Phone: (409) 727-0831
Asia Pacific Emergency Phone: (65) 6336-6011

Effective Date: 6/4/09

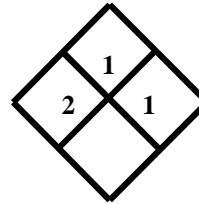
Material Safety Data Sheet

MSDS No: 6236

1. PRODUCT IDENTIFICATION

Trade Name: RenCast 178-59-1

Chemical Family: Isocyanate



NFPA RATING

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

HMS RATING

Synonyms:

TDT 178-59-1 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	Benzene, 1,1'-Methylenebis[4-Isocyanato-MDI Common Name: Concentration: 30.00 - 60.00 % by wt	0.005 ppm	NE	0.02 ppm	NE	NE	NR	NR	NR
*	9016-87-9	Isocyanic Acid, Polymethylenepolyphenylene Ester Polymethylene polyphenyl isocyanate Common Name: Concentration: 30.00 - 60.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR

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

3. HAZARDS IDENTIFICATION

Emergency Overview: Can cause skin irritation, eye irritation, allergic respiratory reaction, and allergic skin reaction. Can be harmful if inhaled.

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

Chronic: Prolonged or repeated exposure can cause allergic reaction to skin and respiratory tract



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4. FIRST AID MEASURES

Ingestion: Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

Skin: Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Destroy contaminated shoes. Seek immediate medical attention.

Inhalation: Remove to fresh air. Seek immediate medical attention.

Eyes: Immediately flush eyes with water for at least 15 minutes. Seek immediate medical attention.

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:	> 392°F (> 200 °C)
Flash Point Method Used:	PMCC
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: Can cause skin irritation, eye irritation, allergic respiratory reaction, and allergic skin reaction. Can be harmful if inhaled. 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

Effective Date: 6/4/09

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:	Brown
Odor:	Slight Aromatic
Physical State:	Liquid
Solubility in Water:	Reacts with water
Vapor Pressure:	< 0.0001 mm Hg at 25°C (77 °F)
Specific Gravity:	1.24 (water = 1)
Boiling Point:	Not Determined
Evaporation Rate:	Not Determined
Vapor Density:	> 1 (Air = 1)
pH:	Not Determined
Coefficient of water/oil:	Not Evaluated

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. Water, alcohol, strong oxidizing agents, strong bases, metal-organic compounds.

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

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

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

Skin Irritation: Irritant.

Eye Irritation: Irritant.

12. ECOLOGICAL INFORMATION

Effective Date: 6/4/09

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:	Not Regulated
IATA: Non-Bulk	
Proper Shipping Name:	Not Regulated
IMDG: Non-Bulk	
Proper Shipping Name:	Not Regulated
TDG: Non-Bulk	
Proper Shipping Name:	Not Regulated

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: Isocyanic Acid, Polymethylenepolyphenylene Ester
Common Name: Polymethylene polyphenyl isocyanate
Percent in Composition: 30 - 60 % by wt
Comment: DIISOCYANATE COMPOUNDS

Chemical Name: Benzene, 1,1'-Methylenebis[4-Isocyanato-
Common Name: MDI
Percent in Composition: 30 - 60 % by wt
Comment: DIISOCYANATE COMPOUNDS

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.

Effective Date: 6/4/09

International Regulations:

Australian Inventory Status: This product contains only chemicals which are currently listed on the Australian Inventory of Chemical Substances.

Canadian Inventory Status: This product contains only chemicals that are currently listed on the Canadian Domestic Substance List.

Canadian WHMIS: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. D2A

European Inventory Status (EINECS): This product contains only chemicals that are currently listed on the European Inventory of Existing Commercial Chemical Substances (EINECS).

Japanese Inventory Status: This product contains only chemicals currently listed on the Japanese Ministry of International Trade and Industry List of Existing and New Chemical Substances.

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: Isocyanic Acid, Polymethylenepolyphenylene Ester

Common Name: Polymethylene polyphenyl isocyanate

CAS Number: 9016-87-9

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

16. OTHER INFORMATION

MSDS No:	6236
Reason Issued:	6/09 update for WHMIS
Prepared By:	Matt Austin
Approved By:	Dianne Blessing
Title:	EH&S Specialist

Other Information: C01 CLW

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Effective Date: 6/4/09

The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.

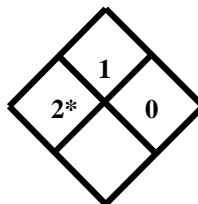


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Effective Date: 6/8/09**Material Safety Data Sheet**

MSDS No: 6237

1. PRODUCT IDENTIFICATION**Trade Name:** Ren 178-59-1**MSDS Category:** Commercial Product**Chemical Family:** Polyol

NFPA RATING

Health:	2*
Flammability:	2
Reactivity:	0
Personal Protection:	

HMIS RATING

Synonyms:

TDT 178-59-1 Hardener

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

O S H A	CAS No.	CHEMICAL IDENTITY	EXPOSURE LIMITS				MFR.	CARCINOGEN STATUS		
			ACGIH		OSHA			IARC	NTP	OSHA
			TWA	STEL	PEL	STEL				
*	100-51-6 Common Name: Concentration	Benzenemethanol Benzyl alcohol 1.00 - 5.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	102-60-3 Common Name: Concentration	2-Propanol, 1,1',1'',1'''-(1,2-ethanediyldinitrilo)tetrakis-Amine based tetrol 1.00 - 5.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	12736-96-8 Concentration	SODIUM POTASSIUM ALUMINIUM SILICATE OF VARIABLE COMPOSITION 5.00 - 10.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	1309-37-1 Concentration	Iron oxide (Fe ₂ O ₃) 1.00 - 5.00 % by wt	5 mg/m ³	NE	10 mg/m ³	NE	NE	NR	NR	NR
*	1317-65-3 Common Name: Concentration	Limestone Calcium carbonate 30.00 - 60.00 % by wt	10 mg/m ³	NE	5 mg/m ³	NE	NE	NR	NR	NR
*	14808-60-7 Common Name:	Quartz (SiO ₂) Crystalline silica	0.05 mg/m ³	NE	0.1 mg/m ³	NE	NE	Yes	Yes	NR

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	Concentration	0.50 - 1.00 % by wt								
*	8001-79-4 Common Name: Concentration	Castor Oil Castor oil 5.00 - 10.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR
*	9051-49-4 Common Name: Concentration	Poly(Oxy(Methyl-1,2-Ethanediy)), .alpha.-Hydro-.omega.-Hydroxy, Ether with 2,2- Bis(Hydroxymethyl)-1,3- Propanediol (4:1) Polyether polyol 10.00 - 30.00 % by wt	NE	NE	NE	NE	NE	NR	NR	NR

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

3. HAZARDS IDENTIFICATION

Emergency Overview: Can cause skin irritation and eye irritation. May be harmful if swallowed.

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

Chronic: This product contains Crystalline silica. Repeated inhalation of respirable free Crystalline silica dust may cause delayed lung injury (silicosis) and cancer.

4. FIRST AID MEASURES

Ingestion: Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

Skin: Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Destroy contaminated shoes. Seek immediate medical attention.

Inhalation: Remove to fresh air. Seek immediate medical attention.

Eyes: Immediately flush eyes with water for at least 15 minutes. Seek immediate medical attention.

Overexposure Effects: Causes skin and eye irritation. May cause allergic skin reaction.

Medical Conditions Aggravated by Exposure: Skin and eye 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: > 93°C (> 199 °F) (estimated)

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

Effective Date: 6/8/09

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: Combustible. Keep away from heat and flame. Can cause skin irritation, eye irritation, and allergic skin reaction. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Notice! Contains crystalline silica. Breathing dust may cause cancer and delayed lung injury.

Other Handling Information: Crystalline silica may be generated when machining cured products. Overexposure may create possible cancer and silicosis hazard.

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

Color:	Red
Odor:	Slight
Physical State:	Filled Liquid
Solubility in Water:	Slight
Specific Gravity:	1.69 (water = 1)
Boiling Point:	Not Determined
Evaporation Rate:	Not Determined
Vapor Density:	Not Determined
VOC:	Negligible
pH:	Not Determined
Coefficient of water/oil:	Not Determined

10. STABILITY AND REACTIVITY

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

Stability: Stable.

Effective Date: 6/8/09

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****Sensitization:** Possible in susceptible individuals.**Carcinogenicity:** This product contains crystalline silica. Repeated inhalation of respirable free crystalline silica dust may cause delayed lung injury (silicosis) and cancer.**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:** Not Regulated**IATA: Non-Bulk****Proper Shipping Name:** Not Regulated**IMDG: Non-Bulk****Proper Shipping Name:** Not Regulated**TDG: Non-Bulk****Proper Shipping Name:** Not Regulated**15. REGULATORY INFORMATION****US Federal Regulations:****Occupational Safety and Health Act (OSHA):** This product is considered to be a hazardous chemical under the OSHA Hazard Communication Standard (29 CFR 1910.1200).**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 does not contain any chemicals for routine annual toxic chemical release reporting under Section 313 (40 CFR 372).

Effective Date: 6/8/09

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.

International Regulations:

Australian Inventory Status: This product contains only chemicals which are currently listed on the Australian Inventory of Chemical Substances.

Canadian Inventory Status: This product contains components which are included on the Domestic Substances List (DSL) and the Non-Domestic Substances List (NDSL).

Canadian WHMIS: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. D2A, D2B

European Inventory Status (EINECS): This product contains only chemicals that are currently listed on the European Inventory of Existing Commercial Chemical Substances (EINECS).

Japanese Inventory Status: This product contains one or more chemicals currently not on the Japanese Ministry of International Trade and Industry List of Existing and New Chemical Substances.

State Regulations:

California Proposition 65: The following is required composition information. This product contains the following chemical(s) which are currently listed on the California list of Known Carcinogens and Reproductive Toxins:

Chemical Name: Quartz (SiO₂)

Common Name: Crystalline silica

CAS Number: 14808-60-7

Percent in Composition: 0.5 - 1 % by wt

Comment: Warning! This chemical is known to the State of California to cause cancer.

Chemical Name: Arsenic

CAS Number: 7440-38-2

Percent in Composition: 0 - 0.0001 % by wt

Comment: Warning! This chemical is known to the State of California to cause cancer and birth defects or other reproductive harm.

Chemical Name: Lead

CAS Number: 7439-92-1

Percent in Composition: 0 - 0.0001 % by wt

Comment: Warning! This chemical is known to the State of California to cause cancer and birth defects or other reproductive harm.

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

Chemical Name: Limestone

Common Name: Calcium carbonate

CAS Number: 1317-65-3

Comment: Hazardous Substance

Effective Date: 6/8/09

Chemical Name: Poly(Oxy(Methyl-1,2-Ethanediy)), .alpha.-Hydro-.omega.-Hydroxy, Ether with 2,2-Bis(Hydroxymethyl)-1,3-Propanediol (4:1)
Common Name: Polyether polyol
CAS Number: 9051-49-4
Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: SODIUM POTASSIUM ALUMINIUM SILICATE OF VARIABLE COMPOSITION
CAS Number: 12736-96-8
Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: Castor Oil
Common Name: Castor oil
CAS Number: 8001-79-4
Comment: Not on Pennsylvania Hazardous Substance List

Chemical Name: Iron oxide (Fe₂O₃)
CAS Number: 1309-37-1
Comment: Hazardous Substance

Chemical Name: Benzenemethanol
Common Name: Benzyl alcohol
CAS Number: 100-51-6
Comment: Hazardous Substance

16. OTHER INFORMATION

MSDS No:	6237
Approved By:	Dianne Blessing
Title:	EH&S Specialist

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