MATERIAL SAFETY DATA SHEETS

I. PRODUCT AND COMPANY IDENTIFICATION

Company: Epoxy Systems, Inc.
Address: 20774 West Pennsylvania
Dunnellon, FL 34431
Product Name: **Single Packaging – Epoxy.com #4**
Product Description: Polyurethane Repair Resin
Emergency Contact No.: 1-800-533-8253 PERS
Date Prepared or Revised: February 2013

II. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Names	CAS Numbers
Urethane Prepolymer	57516-88-8
Toluene diisocyanate (80/20)	26471-62-5

The remaining ingredients are designated as "trade secret".

III. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

Non-corrosive. Will polymerize when exposed to water
May cause eye and skin irritation.
May cause skin sensitization.

POTENTIAL HEALTH EFFECTS

ACUTE

Eye Contact: May cause eye irritation, swelling, tearing, redness or cornea damage.

Skin Contact: Moderate irritation. May cause skin sensitization, evidenced by rashes and hives.

Inhalation: Diisocyanate vapors or mist can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Moderate irritation to the nose and respiratory tract. May cause Central Nervous System depression, evidenced by headache, dizziness, and nausea.

Ingestion: May cause irritation to the gastrointestinal tract. May cause Central Nervous System , depression or other systemic effects. May cause irritation; Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

Systemic Effects: Lungs, eyes, and skin.

Chronic Inhalation: As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates (asthma or asthma-like symptoms).

IV. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. If redness, burning, blurred vision, or swelling persists, **CONSULT A PHYSICIAN**.

Skin Contact: Remove product and immediately wash affected area with soap and water. Do not apply greases or ointments. Remove contaminated clothing. Wash clothing with soap and water before reuse. If redness, burning, or swelling persists, **CONSULT A PHYSICIAN**.

Ingestion: **DO NOT INDUCE VOMITING**. SEEK IMMEDIATE MEDICAL ATTENTION! DELAYED TREATMENT MAY RESULT IN FATALITY. Rinse mouth out with water. Never administer anything by mouth to an unconscious person. Rinse out mouth with water, then drink sips of water to remove taste from mouth. Aspiration of material into the lungs due to vomiting can cause chemical pneumonitis which can be fatal.

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. **CONSULT A PHYSICIAN**.

V. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Water fog, carbon dioxide or dry chemical, aqueous foam.

Fire And Explosion Hazard: Hazardous decomposition products may occur when materials polymerize at temperatures above 500°F. Do not allow run-off from fire fighting to enter drains or water courses.

Fire Fighting Equipment and Procedures: Do not scatter material with high pressure water streams. 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. Exposure to heated diisocyanate can be extremely dangerous 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.

Hazardous Decomposition Products: Fire or intense heat will decompose the product into CO_2, CO, Hydrogen Cyanide, Oxides of Nitrogen, Isocyanates, Isocyanic Acid, and dense black smoke.

VI. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use cautious judgment when cleaning up spill. Shut off leaks, if possible without personal risk. Wear suitable protective clothing, gloves and eye/face protection. Evacuate personnel to safe areas.

Environmental Precautions: Construct a dike to prevent spreading. Keep out of sewers, storm drains, surface waters, and soils.

Clean-up Methods: **Small spills**: Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal.
Large spills: Approach suspected leak areas with caution. Create a dike or trench to contain material. Soak up with absorbent material such as clay, sand or other suitable non-reactive material. Place in leak-proof containers. Seal tightly for proper disposal.

Additional Information: Notify authorities if any exposures to the general public or environment occur or are likely to occur. Dispose in accordance with federal, state, and local regulations.

VII. STORAGE AND HANDLING

Storage: Keep away from: acids, oxidizers, heat, or flames. Keep in cool, dry, well-ventilated area in closed containers. Protect containers from physical damage. Keep in manufacturer's sealed nitrogen packed pail. Maintain storage temperatures between 65°F to 86°F (18°C to 30°C).

Handling: 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.

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Protective Measure: Wear appropriate personal protective equipment.

Eye Protection: Avoid contact with eyes. Wear chemical splash goggles or safety glasses with side shield.

Hand Protection: Wear chemical-resistant gloves such as: Nitrile, neoprene, butyl.

Skin and Body Protection: Wear chemical-resistant gloves and other clothing as required to minimize contact.

Respirator Protection: Not required for properly ventilated areas.

Exposure Limits:

COMPONENT	ACGIH (TLV)	OSHA (PEL)
Toluene diisocyanate (80/20)**:**	0.005 ppm	0.02 ppm, 0.2mg/m^3

Engineering Controls: Normal room ventilation is usually adequate under normal use. Local exhaust should be used to maintain levels below the TLV whenever MDI is heated, sprayed, or aerosolized. Standard reference sources regarding industrial ventilation (e.g., ACGIH Industrial Ventilation Manual) should be consulted for guidance about adequate ventilation. To ensure that published exposure limits have not been exceeded, monitoring for airborne diisocyanate should become part of the overall employee exposure characterization program.

Inhalation: Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyper reactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL 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.

Chronic Inhalation: As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or 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.

Respiratory Protection: Airborne TDI concentrations greater than the ACGIH TLV-TWA (TLV) or OSHA PEL-C (PEL) can occur in inadequately ventilated environments when TDI is sprayed, aerosolized, or heated. In such cases, respiratory protection must be worn. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134). The type of respiratory protection available includes (1) an atmosphere-supplying respirator such as a self-contained breathing apparatus (SCBA) or a supplied air respirator (SAR) in the positive pressure or continuous flow mode, or (2) an air-purifying respirator (APR). If an APR is selected then (a) the cartridge must be equipped with an end-of-service life indicator (ESLI) certified by NIOSH, or(b) a change out schedule, based on objective information or data that will ensure that the cartridges are changed out before the end of their service life, must be developed and implemented. The basis for the change out schedule must be described in the written respirator program. Further, if an APR is selected, the airborne diisocyanate concentration must be no greater than 10 times the TLV or PEL. The recommended APR cartridge is an organic vapor/particulate filter combination cartridge (OV/P100).

Eye Protection:	Safety goggles or face shield
Skin Protection:	Use gloves; wear protective clothing to prevent skin contact. In cured form, the product is difficult to remove from skin and hair.
Work Hygienic Practices:	Use good hygiene practices when handling this material including changing and laundering of work clothes after use.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Form:	**Liquid**	**Freezing Point:**	N/E
Color:	Amber	**Flash Point:**	>250°F (Open Cup)
Odor:	Musty	**Specific Gravity:**	1.21@ 72°F
Vapor Pressure:	Not Volatile	**Solubility In Water:**	Reacts with
Boiling Point:	>500˚F (> 260˚C)		

X. REACTIVITY DATA

Stability:	Stable under normal storage conditions.
Conditions to Avoid:	Will polymerize with heat and/or moisture.
Materials to Avoid:	Amines, Strong Bases, Alcohols, Copper Alloys, Liquid Chlorine. Water- until ready to react.
Hazardous Decomposition Products:	Combustion may produce carbon monoxide, carbon dioxide, aldehydes, acids and other organic substances. Fire or intense heat will decompose the product into CO, CO2, Hydrogen Cyanide, Oxides of Nitrogen, Isocyanates, Isocyanic Acid, and dense black smoke.
Hazardous Polymerization:	During normal polymerization CO_2 is produced.

XI. TOXICOLOGICAL PROPERTIES

Acute Oral (LD_{50}, Rat):	Non toxic
Acute Dermal (LD_{50}, Rabbit):	N/E
Acute Inhalation (LC_{50}, Rat):	N/E
Chronic Health Hazard:	
Carcinogenicity:	**4,4'-Diphenylmethane Diisocyanate** IARC: Group 3 (not classifiable as to its carcinogenicity in humans) EPA- CBD MAK: 4
Acute Toxicity:	**4,4'-Diphenylmethane Diisocyanate** Oral LD50 (rat) >5800 mg/kg Inhalation LC50 (rat) : 14ppm/4hrs Dermal LD50 (rabbit) : >16 mL/kg

XII. DISPOSAL CONSIDERATIONS

Waste From Residues	This material is not a hazardous waste by RCRA criteria (40 CFR 261). Waste disposal should be in accordance with existing federal, state and local environmental control laws. Incineration is the preferred method.
Unused Products:	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. If container is to be disposed, ensure all product residues are removed prior to disposal. Dispose of per local, state and federal guidelines as required by your specific local. This product in its cured foam state is inert and non-toxic.

XIII. TRANSPORTATION

DOT:	Not Regulated For Transport
ICAO/IATA:	Not Regulated For Transport
IMO:	Not Regulated For Transport

XIV. REGULATORY INFORMATION

Country	Regulatory List
USA	TSCA

EPA SARA Title III Section 312 (40 CFR 370) Hazardous Classification: Acute/Chronic Health Hazard.
EPA SARA Title III Section 313 (40 CFR 372) Component(s) above 'de minimus' level: None.
US. California "Safe Drinking Water and Toxic Enforcement Act" (Proposition 65): This product contains small traces of the following chemicals that are known to the State of California to cause cancer and/or reproductive toxicity and other har

Component	Regulation	Concentration	Remarks
Toluene-2,4-diisocyanate	ACGIH	0.005 ppm	

***** May be absorbed through skin.
TSCA: All ingredients are listed in or exempt from the TSCA Master Inventory File
WHMIS: All ingredients are listed on the CEPA Domestic Substances List (DSL)
Ingredient Disclosure List (IDL), the following components are on the list: 4,4'- Diphenylmethane Diisocyanate 101-68-8

XV. OTHER INFORMATION

HMIS RATING

Health	Flammability	Physical Hazard
2	1	1

N/E – Not Established

This Material Safety Data Sheet (MSDS) is prepared by Epoxy Systems, Inc. . in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this MSDS. This MSDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.