

MATERIAL SAFETY DATA SHEET

Milamar Coatings, Inc. 311 NW 122nd St, Ste 100 Oklahoma City, OK 73114**24-Hour Emergency Assistance**

Chem•Tel: 1-800-255-3924

General Assistance

Tele-Tech: 405-755-8448

Health: 2**Fire: 3****Reactivity: 1**

Least = 0

High = 3

Hazard Rating

Slight = 1

Moderate = 2

Extreme = 4

SECTION I**Product: 500 Urethane Hardener, Part B****Chemical Name:** 1,6-Hexamethylene Diisocyanate Based Polyisocyanate**Chemical Family:** Aliphatic Polyisocyanate**Product Description:** Polyisocyanate resin**SECTION II-A Product / Ingredient**

<u>No.</u>	<u>Composition</u>	<u>CAS Number</u>	<u>Percent</u>
1	Homopolymer of HDI	28182-81-2	60-80%
2	Hexamethylene Diisocyanate (HDI)	822-06-0	> 0.5%
	Residual monomer content less than 0.5% based on free solids at the time of manufacture. However, after 3-6 months storage, the free monomer content may rise to a maximum of 1.6.		
3	n-Butyl Acetate	123-86-4	20-40%

SECTION II-B Acute Toxicity Data

<u>No.</u>	<u>Acute Oral LD50</u>	<u>Acute Dermal LD50</u>	<u>Acute Inhalation LC50</u>
1	> 10.0 g/kg (rats)	Moderate irritant (rabbit)	0.14 to 1.15 g/kg (rats)
2	Not available	Not available	Not available
3	14 g/kg (rats)	Moderate irritant (rabbit)	2000 ppm (rat)

SECTION III Health Information

The health effects noted below are consistent with requirements under the OSHA Hazard Communication Standard (29 CFR 1910-1200).

Eye Contact: Irritating and will injure eye tissue if not removed promptly. Prolonged vapor contact may cause conjunctivitis.

Skin Contact: Isocyanates react with skin protein and moisture and can cause severe irritation. Has been known to cause allergic skin reaction in humans. Prolonged contact may cause blisters. Cured material is difficult to remove.

Inhalation: High vapor concentrations are irritating to the eyes and respiratory tract causing runny nose, sore throat, coughing, chest discomfort, shortness of breath, and reduced lung function (breathing obstruction). The solvent vapors are anesthetic, cause headaches and dizziness and may have other central nervous system effects, including death. As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma), which will cause them to react to a later exposure to isocyanate at levels well below the TLV. Sensitization may be either temporary or permanent.

Ingestion: Can result in irritation and possible corrosive action in the mouth, stomach tissue, and digestive tract. Vomiting may cause aspiration of the solvent resulting in chemical pneumonitis.

Signs and Symptoms: Irritation as noted above. Skin sensitization (allergy) may be evidenced by blisters, redness, or rashes, especially hives.

Aggravated Medical Conditions: Preexisting skin and eye disorders may be aggravated by exposure to this product. Preexisting skin and lung allergies may increase the chance of developing increased allergy symptoms from exposure to this product.

Other Health Effects: Based on animal studies, repeated exposure to components of this product may cause damage to respiratory systems. Reports have associated repeated and prolonged occupational exposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling vapors may be harmful or fatal.

SECTION IV Occupational Exposure Limits

No.	OSHA		ACGIH		Other
	PEL/TWA	PEL/Ceiling	TLV/TWA	TLV/STEL	
1	0.5 mg/m ³ (rec. by supplier)		1.0 mg/m ³ (rec. by supplier)		
2	0.02 ppm (rec. by supplier)		0.005 ppm		
3	150 ppm		150 ppm 200 ppm		

SECTION V Emergency and First Aid Procedures

Eye Contact: Remove contact lenses at once. Immediately flush eyes with large amounts of water or normal saline for at least 30 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water. **Prompt medical attention is essential.**

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician if irritation persists. Wash clothing before reuse.

Inhalation: Remove victim to fresh air if effects occur. If not breathing, give artificial respiration. **Get immediate medical attention.** Asthmatic-type symptoms may develop and may be immediate or delayed up to several hours.

Ingestion: Do not induce vomiting. If patient is conscious and can swallow, give two cups of water or milk (16 oz.). **Get immediate medical attention.** Never give anything by mouth to an unconscious or convulsing person.

Note to Physician: EYES: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation frequently. Workplace vapors could produce reversible corneal epithelial edema impairing vision.

SKIN: This product is a known skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn. **INGESTION:** Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the product. **INHALATION:** This product is a known pulmonary sensitizer. Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material must be removed from any further exposure to any isocyanate.

SECTION VI Supplemental Health Information

Contact a Poison Control Center for additional treatment information. Health studies have shown that many petroleum hydrocarbons pose potential human health risks, which vary from person to person. As a precaution, exposure to liquids, vapors, mists, or fumes should be minimized.

SECTION VII Physical Data

Boiling Point (°F): Not established **Specific Gravity (H₂O = 1):** 1.06

Vapor Pressure (mm Hg @ 20°C): Polyisocyanate: ~7.5 x 10⁻⁵ mm Hg @ 20° C

Butyl Acetate: 15 mm Hg @ 20° C

Solubility (In Water): Insoluble - reacts slowly with water to liberate CO₂ gas.

Vapor Density (Air = 1): > 1

Evaporation Rate (N-Butyl Acetate = 1): 1 (for solvent)

Appearance and Odor: Clear, viscous liquid with strong solvent odor.

SECTION VIII Fire and Explosion Hazards

Flash Point and Method: 76°F Seta flash

Flammable Limits /% Volume in Air: LEL = 1.7 UEL = 7.6 @ 77 °F

Extinguishing Media: Use foam, dry chemical, water spray, or CO₂.

Special Fire Fighting Procedures and Precautions: Full emergency equipment with self-contained breathing apparatus and full protective clothing should be worn by firefighters. During a fire, HDI vapors and other irritating, highly toxic gases may be generated by thermal decomposition. Use water spray to cool fire-exposed surfaces and to protect personnel. Try to cover liquid spills with foam. Solvent vapors are heavier than air and may travel a considerable distance where they may linger and/or find an ignition source and flash back.

Unusual Fire and Explosion Hazards: Closed containers may explode when exposed to extreme heat or burst when contaminated with water (CO₂ evolved).

SECTION IX Reactivity

Stability: Stable under normal conditions.

Hazardous Polymerization: May occur. Contact with moisture or other materials which react with isocyanates or temperatures over 400° F (204° C) may cause polymerization.

Conditions and Materials to Avoid: Water, amines, strong bases, alcohols, metal compounds and surface-active materials.

Hazardous Decomposition Products: By heat and fire -- carbon monoxide, carbon dioxide, oxides of nitrogen, HCN, HDI.

SECTION X Employee Protection

Respiratory Protection: Provide adequate ventilation. Avoid breathing of vapors or mists. Airborne concentrations should be kept to lowest levels possible. When exposures are not adequately controlled, use a respirator approved for use in isocyanate environments. Selection of air purifying or positive-pressure supplied air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

Protective Clothing: Contact Lenses should not be worn. Precautions should be taken so that persons handling this product do not breathe the vapors or have it contact the eyes or skin. In spray operations, protection must be afforded against exposure to both vapor and spray mist. Protective clothing such as uniforms, coveralls, or lab coats must be worn. Launder or dry-clean when soiled. Gloves and goggles resistant to chemicals and petroleum distillates are required. If skin creams are used, keep the area protected only by the cream to a minimum. When handling large quantities, impervious suits, gloves, and rubber boots must be worn.

SECTION XI Environmental Protection

Spill or Leak Procedures: Evacuate nonessential personnel. Ventilate the area. Avoid breathing vapor. Use self-contained breathing apparatus or supplied air for large spills or confined areas. Contain spill if possible. Prevent entry into sewers and waterways. Cover spill with sawdust, vermiculite, Fuller's earth, or other absorbent material. Pour decontamination solution over spill area and allow reacting for at least 10 minutes. Collect material in open containers and add further amounts of decontamination solution. Remove containers to a safe place, cover loosely, and allow to stand for 24 to 48 hours. Wash down spill area with decontamination solutions.

Decontamination Solutions: (1) nonionic surfactant Union carbide's Tergitol TMN-10 (20%) and water (80%) (2) concentrated ammonia (3-8%), detergent (2%), and water (90-95%). Dispose of in accordance with federal, state, and local regulations.

SECTION XII Special Precautions

Ground all transfer equipment. Take precautionary measures against static discharge. Handle as an industrial chemical. Keep container tightly closed when not in use to prevent moisture contamination. Do not reseal if contamination is suspected. Practice good caution and personal cleanliness to avoid skin and eye contact. Hold bulk storage under nitrogen blanket. Store in a cool (between 50 and 81°F), dry place with adequate ventilation. Keep away from open flames and high temperatures. At temperatures above 100°F, material may slowly polymerize without hazard.

SECTION XIII Transportation Requirements

Department of Transportation Classification:

Hazard Class: 3 -- Flammable Liquid

Packing Group: III

Identification Number: UN 1866

Label Required: Flammable Liquid

D.O.T. Proper Shipping Name: Resin Solution, Flammable, 3, PG III, UN 1866

SECTION XIV Other Regulatory Controls

Not meant to be all-inclusive. Selected regulations presented.

A. SARA Title III Section 311/312 hazards: Immediate health hazard, delayed health hazard, fire hazard, reactive hazard

B. TSCA Status: Listed on TSCA Inventory

C. OSHA Hazard Comm. Std.: Hazardous chemical

SECTION XV State Regulatory Information

1. PA2, NJ2
3. PA, MA, NJ

CA = California Haz. Subst. List; CA65 = California Safe Drinking Water and Toxics Enforcement Act List; CT = Connecticut Tox. Subst. List; FL = Florida Subst. List; IL = Illinois Tox. Subst. List; LA = Louisiana Haz. Subst. List; MA = Massachusetts Subst. List; ME = Maine Haz. Subst. List; MN = Minnesota Haz. Subst. List; NJ = New Jersey Haz. Subst. List; NJ2 = New Jersey Other; PA = Pennsylvania Haz. Subst. List; PA2 = Pennsylvania Non-hazardous present at 3% or Greater; RI = Rhode Island Haz. Subst. List.

SECTION XVI Special Notes

Updated MSDS.

The information contained herein is based on the data available to us and is believed to be correct. However, Milamar Coatings, L.L.C. makes no warranty, expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Milamar Coatings, L.L.C. assumes no responsibility for injury from the use of the product described herein.

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Prepared By: Milamar Coatings, L.L.C.
311 NW 122nd St, Ste 100
Oklahoma City, OK 73114