PROTECTIVE FLOORINGS & LININGS
A DIVISION OF MILAMAR COATINGS, L.L.C.

Material Safety Data Sheet

Revision Date:	08/12	Print Date:	08/20/12	
Version 2.0		MSDS Identification:	1600CS - Part B	Concrete Sealer

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	:	1600CS - Part B
Product Use Description	:	Concrete Sealer
Company	:	Protective Floorings and Linings A Division of Milamar Coatings, LLC 311 N.W. 122nd St, Suite 100 Oklahoma City, OK 73114
Telephone	:	405-755-8448
Emergency Telephone Number:		ChemTel 800-255-3924 or 813-248-0585 (International)

2. COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS Number	Concentration (Weight)
Tetraethylenepentamine	112-57-2	< 10 %
Phenol, 4,4'-(1-methylethylidene)bis-	80-05-7	< 10 %
Aromatic 100	64742-95-6	40%
Xylene	1330-20-7	20%

3. HAZARDS INFORMATION

Emergency Overview

Dark Brown Color.
Somewhat Viscous Liquid.
Aromatic Odor.
May Cause Lung Damage.
May Cause Eye, Skin And Respiratory Track Irritation.
Harmful If Inhaled.
May Cause Allergic Respiratory Reaction.
May Cause Allergic Skin Reaction.
Toxic Gases / Fumes Are Given Off During Burning Or Thermal Decomposition.

Potential Health Effects (See Section 11 for toxicological data.)

Acute Inhalation : Solvent vapors or mist at concentrations above the TLV 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 hyperactivity can respond to concentrations below the TLV with similar symptoms as well as asthma attack. Exposure well above the TLV may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). These effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like

symptoms (e.g., fever, chills) has also been reported. These symptoms can be delayed up to several hours after exposure.

Chronic Inhalation	:	As a result of previous repeated overexposure or a single large dose, individuals may develop isocycnate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthma attack, could be immediate or delayed (up to several hours after exposure), Similar 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. Overexposure to isocyanates has also been reported to cause lung damage (including decrease in lung function) which may be permanent, Sensitization can either be temporary or permanent.
Acute Skin Contact	:	Isocyanates react with skin protein and moisture and can cause irritation which may include the following symptoms: reddening, swelling, rash, scaling or blistering. Cured material is difficult to remove.
Chronic Skin Contact	:	Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and n some cases, skin sensitization can develop these symptoms from contact with liquid or vapors. Animal tests have indicated that respiratory sensitization can result from skin contact with MDI. This data reinforces the need to prevent direct skin contact with MDI. (See Toxicological Information, SENSITIZATION).
Acute Eye Contact	:	Liquid, aerosols or vapors are irritating and can cause tearing, reddening and swelling. If left untreated, corneal damage can occur and injury is slow to heal. However, damage is usually reversible. See First Aid Measures for treatment.
Chronic Eye Damage	:	None determined.
Acute Ingestion	:	Can result in irritation and corrosive action in the mouth, stomach tissue and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea.
Chronic Ingestion	:	None determined.
Carcinogenicity	:	Neither MDI or polymeric MDI are listed by the NTP, IARC or regulated by OSHA as carcinogens.
Medical Conditions Aggravated By Exposure	:	Asthma, other respiratory disorders (bronchitis, emphysema, bronchial hyperactivity), skin allergies, eczema.

4. FIRST AID MEASURES

Eye Contact	:	Flush with copious amount of water, preferable, lukewarm water for at least 15 minutes, holding eyelids open all the time. Refer individual to physician or ophthalmologist for immediate follow up.
Skin Contact	:	Remove contaminated clothing. Wash affected skin thoroughly with soap and water. Wash contaminated clothing thoroughly before reuse. For severe exposure, get under safety shower after removing clothing, then get medical attention. For lesser exposures, seed medical attention if irritation develops or persists after the area is washed.

Inhalation	:	Move to an area free from risk of further exposure. Administer oxygen or artificial respiration as needed. Obtain medical attention. Asthma type symptoms may develop and may be immediate or delayed up to several hours. Consult a physician should this occur.
Ingestion	:	DO NOT INDUCE VOMITING. Give 1 to 2 cups of milk or water to drink. DO NOT GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. Consult physician.
NOTE TO PHYSICIAN	:	Eyes. Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapors have produced reversible corneal epithelial edema impairing vision. Skin: This compound is a known skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burns. If burned, treat as a vomiting is contraindicated because of the irritating nature of this compound. Respiratory: this compound is a known pulmonary sensitizer. Treatment is essentially symptomatic. An individual having a skin or pulmonary sensitization reaction to this material should be removed from exposure to any isocyanate.

5. FIRE-FIGHTING MEASURES

Flammable Properties		
Flash Point	:	75 Degrees F (TCC) for lowest component
Method Used	:	ASTM-D93, PMCC
Auto Ignition Temperature	:	914F (490C) based on styrene
Flammability Limits		
LEL	:	1%
UFL	:	7%
Extinguishing Media	:	Dry Chemical; Carbon Dioxide; Foam; Water spray for large fires.
Media To Be Avoided	:	Do not use direct water stream.
Fire Fighting Instructions	:	Full emergency equipment with self-contained breathing apparatus with full protective clothing should be worn by firefighters. During a fire, MDI vapors and other irritation, highly toxic gases may be generated by thermal decomposition or combustion. (See Stability and Reactivity). At temperatures greater than 400 degrees F (204 degrees C), polymeric MDI can polymerize and decompose which can cause pressure build-up in closed containers. Explosive rupture is possible. Therefore, use cold water to cool fire-exposed containers.

6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory Information)

Spill Or Leak Procedures	:	Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment, including respiratory equipment during clean-up. (See Employee Protection Recommendations). Major Spill:If temporary control of isocyanate vapor is required, a blanket of protein foam (available at most fire departments) may be placed over the spill. Large quantities may be pumped into closed, but not sealed, container for disposal. Minor Spill: Absorb isocyanates with saw dust or other absorbent, shovel into suitable unsealed containers and transport to well ventilated area (outside) and treat with neutralizing solution: mixture of water (80%) with non-ionic surfactant. Tergitol TMN-10 (20%), or; water (90%), concentrated ammonia (3-8%) and detergent (2%). Add about 10 parts of neutralizer per part of isocyanate, with mixing. Allow to stand uncovered for 48 hours to let CO2 to escape. Clean-up:

Decontaminate floor with decontamination solution letting stand for 15 minutes.

7. HANDLING AND STORAGE

Storage Temperature (MIN / Max)	:	32 degrees F (0 degrees C) / 104 degrees F (40 degrees C).
Shelf Life	:	6 months @ 77 degrees F (25 degrees C).
Special Sensitivity	:	If container is exposed to high heat, 400 degrees F, (204 degrees C) it can be pressurized and possibly rupture.
Handling and Storage Precautions	:	Store in tightly closed containers to prevent moisture contaminating. Do not reseal contamination is suspected. Avoid contact with dkin and eyes. Do not breathe aerosols or vapors. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent chronic overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to relatively high concentration or upon repeated inhalation exposures to lower concentrations. Exposure to vapors of heated MDI can be extremely dangerous. Employee education and training in the safe use and handling of this compound are required under the OSHA Hazard Communication Standard.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures	:	Provide general and / or local exhaust ventilation to control airborne levels below the exposure guideline. Use only with adequate ventilation.
Personal Protective Equipment		
Eye / Face Protection	:	Liquid chemical goggles. Vapor resistant goggles should be worn when contact lenses are in use. In a splash hazard environment chemical goggles should be used in combination with a full face-shield.
Skin Protection	:	Permeation resistant gloves (butyl rubber, nitrile rubber, polyvinyl alcohol). However, please note that PVA degrades in water. Cover as much of the exposed skin area as possible with appropriate clothing. If skin creams are used, keep the area covered by the cream to a minimum.
Ventilation Requirements	:	Local exhaust should be used to maintain levels below the TLV whenever MDI is processed, heated or spray applied. Standard reference sources regarding industrial ventilation (i.e.., ACGIH Industrial Ventilation) should be consulted for guidance about adequate ventilation.
Respirator Requirements	:	Concentrations greater than the TLV can occur whenever concentrations of MDI exceed the TLV or are not known, respiratory protection must be worn. A supplied air respirator (either positive pressure or continuous flow type) is required. In an emergency situation, a self-contained breathing apparatus may be used. MDI has poor warning properties, since the concentration at which MDI can be smelled is substantially higher than the maximum exposure limit. Observe OSHA regulations for respirator use (29 CFR 1910.134).
Monitoring	:	Isocyanate exposure levels must be monitored. Monitoring of airborne isocyanates in the breathing zone of individuals should become part of the overall employee exposure characterization program. Monitoring techniques have been developed by NIOSH, and OSHA.

Medical Surveillance	:	Medical supervision of all employees who handle or come in contact with isocyanates is recommended. These should include pre-employment and periodic medical examinations with pulmonary function tests (FEV, FVC as a minimum). Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with isocyanates. Once a person is diagnosed as sensitized to an isocyanate, no further exposure can be permitted.
Additional Protective Measures	:	Safety showers and eyewash stations should be available. Educate and train employees in safe use of product. Follow all label instructions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Dark Brown, Somewhat Viscous Liquid
Odor	:	Aromatic
Vapor Pressure	:	7.8mm HG at 68 degrees F.
Vapor Density	:	4.0
Melting / Freezing Point	:	Not Established
Bulk Density	:	8.20 lbs. / gallon
% Volatile By Volume	:	60%
Specific Gravity	:	0.963 @ 60 Degrees F.

10. STABILITY AND REACTIVITY

Stability	:	Stable under recommended storage conditions. See Storage, Section 7.
Hazardous Polymerization	:	May occur. Contact with moisture, other materials which react with isocyanates, or temperatures above 400 degrees F (204 degrees C), may cause polymerization.
Incompatibilities	:	Water, amines, strong bases, alcohols. Will cause some corrosion to copper alloys and aluminum.
Instability Conditions	:	Contamination with water.
Decomposition Products	:	By high heat and fire: carbon monoxide, oxides of nitrogen, traces of HCN, MDI vapors or aerosols.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Oral LD50	:	Greater than 15,800 mg/kg (Rat)

Dermal LD50	:	Greater 5010 but less than 7,940 mg/kg (Rabbit)
Inhalation LC50	:	The four hour LC50 for polymeric MDI in rats ranges from 370 to 490 mg/m3. The LC50 for monomeric MDI was estimated to be between 172 and 187 mg/m3.
Eye Effects	:	Slight to moderate irritation.
Skin Effects	:	Slight to moderate irritation.
Sensitization	:	MDI has been shown to produce dermal sensitization in laboratory animals. Evidence of respiratory sensitization has also been observed in guinea pigs. In addition, there is some evidence suggestive of cross-sensitization between different types of diisocyanates.
Chronic Toxicity	:	In a combined inhalation toxicity / oncogenicity study, rats were exposed to an aerosol of polymeric MDI for 6 hours per day, 5 days per week for one or two years. The exposure concentrations were 0, 0.2, 1.0, and 6.0 mg/m3. Microscopic examination of tissues revealed the effects or irritation to the nasal cavity and lungs in animals exposed to 1.0 and 6.0 mg/m3. Microscopic examination of tissues revealed the effects of irritation to the nasal cavity and lungs in animals exposed to 1.0 and 6.0 mg / m3. The No Observable Effect Level (NOEL) was 0.2 mg / m3.
Carcinogenicity	:	In the study described above (See Chronic Toxicity), the occurrence of pulmonary adenomas and a single pulmonary adenocarcinoma was considered to be related to MDI. These tumors were observed only in rate exposed to the high concentration of 6.0 mg/m3.
Mutagenicity	:	Positive (Salmonella microsome test with metabolic activation; cell transformation assay) as well as negative (mouse lymphoma specific locus mutation test with or without metabolic activation) results have been observed "in vitro." However, MDI was negative in and "in vivo" (mouse micronucleus) assay.
Developmental Toxicity	:	Rats were exposed to polymeric MDI at air concentrations of 0, 1, 4, and 12 mg/m3 during days 6 - 15 of gestation. Material Toxicity (including mortality) was observed at the highest concentration of 12 mg / m3 accompanied by embryo and fetal toxicity. However, no teratogenic effects were observed even at this lethal concentration.

12. ECOLOGICAL INFORMATION (for detailed Ecological data, write or call the address or non-emergency number shown on Section 1).

Ecology Data For	:	Diphenylmethane Diisocyanate (Monomeric and Polymeric)
Aquatic Toxicity	:	LC50-24hr. (Static): Greater than 500mg / liter for Daphnia magna, limnea Stagnalis, and Zebra fish (Brachydanio rerio) for both polymeric and monomeric MDI.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method	:	Waste must be disposed of in accordance with federal, state and local environmental control regulations. Incineration is the preferred method.
Empty Container Precautions	:	Empty containers must be handles with care due to product residue. Decontaminate containers

prior to disposal. Empty decontaminated containers should be rushed to prevent reuse. DO NOT HEAT OR CUT EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH. (See Fire Fighting Measures and Stability and Reactivity. Gases may be highly toxic.

14. TRANSPORT INFORMATION

CFR (D.O.T.)

Proper Shipping Name	:	Resin Solution
Class	:	3
UN / ID No.	:	UN1866
Packing Group	:	III
Hazardous Substance	:	Xylene

15. REGULATORY INFORMATION (not meant to be all-inclusive -- selected regulations represented)

Notice: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections or health and safety information.

OSHA Status : This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCS Status : On TSCA Inventory

CERCLA Reportable Quantity : 5,000 lbs for 4,4'-Diphenlymethane Diisocyanate, CAS #101-68-8 100 lbs for Xylene, CAS #1330-20-7

Sara Title III :
Section 302 Extremely Hazardous Substances: None
Section 311/312: Hazard Categories: Immediate Health Hazard; Delayed Health Hazard; Reactive Hazard, Flammable Hazard
Section 313: Toxic Chemicals : Xylene (1330-20-7) 17.59%
Ethyl Benzene (100-41-4) 4%
1,2,4-Trimethylbenzene (95-63-6) 16%
Cumene (98-82-8) 0.80%

RCRA Status : When discarded in its packaged form, this product meets the criteria of ignitability and should be managed as a hazardous waste.

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 for your state.

Component Name	Concentration	State Code
4,4'-Diphenylmethane Diisocyanate (MDI)	8.80%	PA1, FL, IL, MA, RI, NJ1, NJ4, CN2
Diphenylmethane Diisocyanate (MDI) (2,2 2,4)	0.50%	NJ4
Polyisocyanate based on MDI	30.40%	PA3, NJ4

NJTSRN (31765300002)-5317P

Xylene	20%	PA1, MA, NJ1

IL	=	Illinois Toxic Substances List
MA	=	Massachusetts Hazardous Substance List
NJ1	=	New Jersey Hazardous Substance List
NJ4	=	New Jersey Other - included in 5 predominant ingredients >1%
NJTSRN	=	New Jersey Trade Secret Registry Number
PA1	=	Pennsylvania Hazardous Substance List
PA3	=	Pennsylvania Non-hazardous present at 3% or greater
RI	=	Rhode Island List of Designated Substances
CN2	=	Canada WHMIS Ingredient Disclosure List over 0.1%.

California Proposition 65
To the best of our knowledge, this product contains no levels of listed substances, which the State of California has found to cause cancer, birth defects or other reproductive effects.

16. OTHER INFORMATION

NFPA 704M Ratings: Health - 3 Flammability - 3 Reactivity - 1 Other - --

HMIS Ratings: Health - 3* Flammability - 3 Reactivity - 1

Prepared By : Protective Floorings and Linings. EH&S Product Safety Department