SEFAR AMERICA INC.
MATERIAL SAFETY DATA SHEET

SECTION 1: IDENTIFICATION

Product Name: HARDENER D
Distributor: Sefar America Inc.
Screen Printing Division
333 South Highland Avenue
Briarcliff Manor, NY 10510

Emergency Telephone Number: CHEM-TELL(800) 255-3924
MSDS Date of Revision: 9/28/98

Fax: (914) 941-1017

SECTION 2: PRODUCT COMPONENTS

Component	Amount	CAS#	Exposure Limits
4,4-Diphenylmethane Diisocyanate (MDI)	<45%	101-68-8	0.02 ppm OSHA PEL-Ceiling 0.005 ppm ACGIH TLV-TWA
Diphenylmethane Diisocyanate(MDI)	<10%	26447-40-5	None Established
Higher Oligomers of MDI	<55%	9016-87-9	None Established

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Warning! Brown liquid with a musty odor. May cause eye, skin and respiratory irritation. May cause skin and respiratory sensitization (allergic reaction). Prolonged overexposure may cause lung damage.

Potential Health Effects:

Eye: Direct contact may cause irritation. If left untreated, corneal injury can occur which may be slow to heal.
Skin: May cause irritation, swelling, rash, scaling and blistering. Cured material is difficult to remove. Skin sensitization (allergy) can occur. Animal studies indicate that respiratory sensitization can result from skin contact.
Inhalation: Vapors and mist may cause irritation of the mucous membranes and upper respiratory tract with sore throat, chest discomfort, shortness of breath and reduced lung function. Exposures well above the TLV may cause bronchitis, pulmonary edema and respiratory sensitization.
Ingestion: Irritation or burns of the mouth and throat, vomiting, abdominal pain and diarrhea.
Chronic Hazards: Repeated overexposure or a single large dose may result in respiratory sensitization which will cause an allergic reaction to later exposures even well below the TLV. Symptoms can include wheezing, chest tightness, cough, shortness of breath and asthma attack. Reaction may be immediate or delayed several hours. Overexposure to isocyanates may also cause permanent lung damage.
Medical Conditions Aggravated By Exposure: Individuals with pre-existing skin or respiratory conditions may be at increased risk from exposure to this product.
Carcinogen: None of the components are listed as a carcinogen by NTP, IARC, or OSHA.

SECTION 4: FIRST AID MEASURES

Eye: Immediately flush with water (preferably lukewarm water) for at least 15 minutes while holding lids open to assure that the entire surface is flushed. Seek immediate medical attention.
Skin: Remove contaminated clothing. Wash thoroughly with soap & water. Launder clothing before re-use. If irritation persists seek medical attention.
Inhalation: Move victim to fresh air. Give artificial respiration if breathing has stopped. Seek immediate medical attention.

Ingestion: Immediately call Poison Control Center or an Emergency Department and follow their instructions. Do not induce vomiting. If emergency advice is unavailable, give 1 to 2 cups of water or milk. Never give anything by mouth to an unconsciousness or convulsing person. Seek immediate medical attention.

SECTION 5: FIRE AND EXPLOSION DATA

Flash Point: 390 F (198.8 C) PMCC
Flammable Limits: Not available
Extinguishing Media: Dry chemical, carbon dioxide, foam or water spray.
Special Fire Fighting Procedures: Firefighters should wear self-contained breathing apparatus and full protective clothing for all fires involving chemicals. Cool fire exposed containers with water.
Unusual Fire Hazards: At temperatures above 400 F (204 C) MDI can polymerize and cause container rupture.
Combustion Products: When heated can decompose to carbon monoxide, carbon dioxide, nitrogen oxides and traces of hydrogen cyanide.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill: Wear protective equipment to avoid contact with spilled material. Ventilate area. Absorb with inert material and place in container for disposal.

SECTION 7: HANDLING AND STORAGE

Handling: Avoid contact with the eyes, skin or clothing. Avoid breathing vapors or mists. Wash thoroughly after handling. Use with adequate ventilation.
Storage: Store in a tightly closed container to prevent moisture contamination. Keep away from heat and open flames.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation: Local exhaust ventilation may be needed to maintain exposures below the occupational exposure limit.
Respiratory Protection: If the exposure limit is exceeded, use a NIOSH approved supplied air respirator. Respirator selection depends upon the process, conditions and contaminant concentration. Use appropriate respiratory equipment recommended by an Industrial Hygienist or other Health Professional.
Skin Protection: Butyl rubber or nitrile rubber gloves to prevent skin contact.
Eye Protection: Wear chemical splash goggles.
Other Protective Equipment: Wear appropriate protective clothing to prevent skin contact. A safety shower and eye wash facility should be available in the work area.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Brown liquid with a musty odor.
pH: Not applicable
Boiling Point: 406 F (208 C)
Melting Point: Not available
Vapor Pressure: $<10^{-5}$ mm Hg @ 25 C
Specific Gravity: 1.24
Water Solubility: Insoluble (reacts slowly releasing CO2)
Vapor Density: 8.5 (air=1)

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable under normal conditions.
Incompatibility/Conditions to Avoid: Water, amines, strong bases, alcohols. Corrosive to copper and aluminum. Avoid contact with water or moisture. MDI reacts slowly with water forming carbon dioxide which may cause containers to rupture.
Hazardous Decomposition Products: When heated can decompose to carbon dioxide, carbon monoxide, oxides of nitrogen, traces of hydrogen cyanide and MDI vapors.
Hazardous Polymerization: May occur. Contact with moisture and temperatures above 400 F (204 C) may cause polymerization.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity Values: LD50 Oral Rat - >15,800 mg/kg; LC50 Inhalation Rat - 100-187 mg/m3/4 hr;
LD50 Skin Rabbit - 5010 - 7940 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

No data available at this time.

SECTION 13: DISPOSAL INFORMATION

Dispose in accordance with local, state and federal regulations. Incineration is the preferred method.

SECTION 14: TRANSPORT INFORMATION

DOT Hazard Classification: Not Regulated

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:
CERCLA 103 Reportable Quantity: Product: 11,110 (4,4-Diphenylmethane Diisocyanate - 5,000 lbs)
SARA TITLE III:
Hazard Category for Section 311/312: Acute Health, Chronic Health, Reactive
Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313
Reporting requirements:

4,4-Diphenylmethane Diisocyanate	101-68-8	45% Max
Polymeric Diphenylmethane Diisocyanate	9016-87-9	100%

Section 302 Extremely Hazardous Substances (TPQ): None.
EPA Toxic Substances Control Act (TSCA) Status: The ingredients of this product are all on the TSCA Inventory list.

INTERNATIONAL REGULATIONS:

Canadian WHMIS Classification: Class D, Division 2, Subdivision A (Very Toxic Material causing other toxic effects)
Canadian DSL: All of the components of this products are on the Canadian Domestic Substances List.
EINECS: All components of this product are on the European Inventory of Existing Commercial Chemical Substances.
Australian AICS: All of the components of this product are listed on the Australian Inventory of Chemical Substances.

STATE REGULATIONS:

California Proposition 65: This product is not known to contain chemicals regulated under California Proposition 65.

SECTION 16: OTHER INFORMATION

NFPA Rating: Health - 3 Flammability - 1 Reactivity - 1
HMIS Rating: Health - 3 Flammability - 1 Reactivity - 1

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