MATERIAL SAFETY DATA SHEET

PILGRIM PERMOCOAT, INC.
402 S. 22ND ST.
TAMPA, FLORIDA 33605

PILGRIM CODE-W
ISSUE DATE-9/12/06
REVISED-

SECTION 1 - MATERIAL IDENTIFICATION

PRODUCT NAME – UROCEL W, B COMPONENT
CHEMICAL NAME - Hydrophilic Aliphatic Polyisocyanate based on Hexamethylene Diisocyanate DOT CLASS –See Section 14

FORMULA -TRADE SECRET

EMERGENCY CONTACT - ROBERT FORLONG DAY PHONE - 813-248-3328

SECTION 2 –Hazards Identification

Emergency Overview

WARNING! Color: Light yellow **Form:** liquid **Odor:** Slight.
Toxic gases/fumes may be given off during burning or thermal decomposition. Closed container may forcibly rupture under extreme heat or when contents have been contaminated with water. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Causes respiratory tract irritation. May cause allergic respiratory reaction. Harmful if inhaled. Respiratory sensitizer. Lung damage and respiratory sensitization may be permanent. Causes skin irritation. May cause allergic skin reaction. Skin sensitizer. Causes eye irritation. May cause lung damage.

Potential Health Effects

Primary Routes of Entry: Skin Contact, Inhalation, Eye Contact

Medical Conditions Aggravated by Exposure: Skin disorders, Respiratory disorders, Eye disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation

Acute Inhalation

Diisocyanate or polyisocyanate vapors or mist at concentrations above the exposure limits or guidelines can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) with symptoms of runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing difficulty). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the exposure limits or guidelines with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the exposure limits or guidelines 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 or polyisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates or polyisocyanates at levels well below the exposure limits or guidelines. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be 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.

Skin
Immediately remove contaminated clothing and shoes. Wash off with soap and water. Use lukewarm water if possible. Wash contaminated clothing before reuse. For severe exposures, immediately get under safety shower and begin rinsing. Get medical attention if irritation develops and persists.

Chronic Skin
Prolonged contact can cause reddening, swelling, rash, and, in some cases, skin sensitization.

Eye
Acute Eye
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use lukewarm water if possible. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Then remove contact lenses, if easily removable, and continue eye irrigation for not less than 15 minutes. Get medical attention if irritation develops.

Chronic Eye
Prolonged vapor contact may cause conjuntivitis.

Ingestion

Acute Ingestion
May cause irritation; Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

Carcinogenicity:
No Carcinogenic substances as defined by IARC, NTP and/or OSHA

3. CompositionInformation on Ingredients

Hazardous Components
Residual diisocyanate monomer content:, < 0.25%

Weight %	Components	CAS-No.
60 - 100%	Homopolymer of Hexamethylene	28182-81-2
<=0.25%	Diisocyanate	822-06-0
	Hexamethylene-1,6-Diisocyanate	

4. First Aid Measures

Eye Contact
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use lukewarm water if possible. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Then remove contact lenses, if easily removable, and continue eye irrigation for not less than 15 minutes. Get medical attention if irritation develops.

Skin Contact
In case of skin contact, wash affected areas with soap and water. Immediately remove contaminated clothing and shoes. Get medical attention if irritation develops.

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.

Ingestion
If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

Notes to physician
Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: This compound is a 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 compound. Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

5. Fire-Fighting Measures

Suitable Extinguishing Media: carbon dioxide (CO2), dry chemical, foam, water spray for large fires.

Special Fire Fighting Procedures
Firefighters should wear NFPA compliant structural firefighting protective equipment, including selfcontained 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.

6. Accidental release measures

Spill and Leak Procedures
Evacuate non-emergency personnel. Isolate the area and prevent access. Remove ignition sources. Notify management. Put on protective equipment. Control source of the leak. Ventilate. Contain the spill to prevent spread into drains, sewers, water supplies, or soil. Call Bayer at 412-923-1800 for assistance and advice. Major Spill or Leak (Standing liquid): To minimize vapor, cover the spillage with fire fighting foam (AFFF). Released material may be pumped into closed, but not sealed, metal container for disposal. Process can generate heat. Minor Spill or Leak (Wet surface): Cover spill area with suitable absorbent material (Kitty Litter, Oil-Dri®, etc). Saturate absorbent material with neutralization solution and mix. Wait 15 minutes. Collect material in open-head metal containers. Repeat applications of decontamination solution, with scrubbing, followed by absorbent until the surface is decontaminated. Check for residual surface contamination. Swype® test kits have been used for this purpose. Apply lid loosely and allow containers to vent for 72 hours to let carbon dioxide (CO2) escape.

Neutralization solutions:
(1) Colorimetric Laboratories Inc. (CLI) decontamination solution.
(2) A mixture of 75% water, 20% non-ionic surfactant (e.g. Poly-Tergent SL-62, Tergitol TMN-10) and 5% n-propanol.
(3) A mixture of 80% water, 20% non-ionic surfactant (e.g. Poly-Tergent SL-62, Tergitol TMN-10).
(4) A mixture of 90% water, 3-8% ammonium hydroxide or concentrated ammonia, and 2% liquid detergent.

7. Handling and Storage

Storage Temperature:
Minimum: 34 °C (-29.2 °F)
maximum: 50 °C (122 °F)

Storage Period
6 Months @ 25 °C (77 °F)

Handling/Storage Precautions
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.

Further Info on Storage Conditions
Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200.

8. Exposure Controls Personal Protection

Homopolymer of Hexamethylene Diisocyanate (28182-81-2)
Time Weighted Average (TWA): 0.5 mg/m3
Short Term Exposure Limit (STEL): 1.00 mg/m3 (15-min)

Hexamethylene-1,6-Diisocyanate (822-06-0)
US. ACGIH Threshold Limit Values
Time Weighted Average (TWA): 0.005 ppm
Ceiling Limit Value: 0.02 ppm

Industrial Hygiene/Ventilation Measures
Good industrial hygiene practice dictates that worker protection should be achieved through engineering controls, such as ventilation, whenever feasible. When such controls are not feasible to achieve full protection, the use of respirators and other personal protective equipment is mandated. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination. Curing ovens must be ventilated to prevent emissions into the workplace. If oven off-gases are not vented properly (i.e. they are released into the work area), it is possible to be exposed to airborne monomeric HDI.

Respiratory Protection
A respirator that is recommended or approved for use in isocyanate-containing environments (air-purifying or fresh air-supplied) may be necessary for spray applications or other situations such as high temperature use which may produce inhalation exposures. A supplied-air respirator (either positive pressure or continuous flow-type) is recommended. Before an air-purifying respirator can be used, air monitoring must be performed to measure airborne concentrations of HDI monomer and HDI polyisocyanate. Specific conditions under which air-purifying respirators can be used are outlined in the following sections. Observe OSHA regulations for respirator use (29 CFR 1910.134). SPRAY APPLICATION: A. Good industrial hygiene practice dictates that when

isocyanate-based coatings are spray applied, some form of respiratory protection should be worn. During the spray application of coatings containing this product the use of a supplied-air (either positive pressure or continuous flow-type) respirator is mandatory when ONE OR MORE of the following conditions exists: -the airborne isocyanate concentrations are not known; or -the airborne isocyanate monomer concentrations exceed 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); or -the airborne polyisocyanate (polymeric, oligomeric) concentrations exceed 5 mg/m3 averaged over 8 hours or 10 mg/m3 averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits); or -operations are performed in a confined space (See OSHA Confined Space Standard, 29 CFR 1910.146). A properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate-containing spray paint environments, and used in accordance with all recommendations made by the manufacturer, can be used when ALL of the following conditions are met: -The airborne isocyanate monomer concentrations are known to be below 0.05 ppm averaged over eight (8) hours (10 times 8 hour TWA exposure limit); and -the airborne polyisocyanate (polymeric, oligomeric) concentrations are known to be below 5 mg/m3 averaged over 8 hours or 10 mg/m3 averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits) and - a NIOSH-certified End of Service Life Indicator or a change schedule based upon objective information or data is used to ensure that cartridges are replaced before the end of their service life. In addition, prefilters should be changed whenever breathing resistance increases due to particulate buildup.
NON-SPRAY OPERATIONS: A. During non-spray operations such as mixing, batch-making, brush or roller application, etc., at elevated temperatures (for example, heating of material or application to a hot substrate), it is possible to be exposed to airborne isocyanate vapors. Therefore, when the coatings system will be applied in a non-spray manner, a supplied-air (either positive pressure or continuous flow-type) respirator is mandatory when ONE OR MORE of the following conditions exists: - the airborne isocyanate concentrations are not known; or - the airborne isocyanate monomer concentrations exceed 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); or - the airborne polyisocyanate (polymeric, oligomeric) concentrations exceed 5 mg/m3 averaged over 8 hours or 10 mg/m3 averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits); or - operations are performed in a confined space (See OSHA Confined Space Standard, 29 CFR 1910.146). A properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective inisocyanate-containing paint environments, and used in accordance with all recommendations made by the manufacturer, can be used when ALL of the following conditions are met: -the airborne concentrations of the isocyanate monomer are below 0.05 ppm averaged over eight (8) hours (10 times the 8 hour TWA exposure limit); and - the airborne polyisocyanate (polymeric, oligomeric) concentrations are known to be below 5 mg/m3 averaged over eight (8) hours or 10 mg/m3 averaged over 15 minutes (10 times the 8 hour TWA or the 15 minute STEL exposure limits) and - a NIOSH-certified End of Service Life Indicator or a change schedule based upon objective information or data is used to ensure that cartridges are replaced before the end of their service life. In addition, prefilters should be changed whenever breathing resistance increases due to particulate buildup.

Hand Protection
Permeation resistant gloves., Butyl rubber gloves., Nitrile rubber gloves.

Eye Protection
Chemical safety goggles or safety glasses with side-shields., Chemical safety goggles in combination with a full face shield if a splash hazard exists.

Skin and body protection
Permeation resistant clothing, Gloves, long sleeved shirts and pants.

Medical Surveillance
All applicants who are assigned to an isocyanate work area should undergo a pre-placement medical evaluation. A history of eczema or respiratory allergies such as hay fever, are possible reasons for medical exclusion from isocyanate areas. Applicants who have a history of adult

asthma should be restricted from work with isocyanates. Applicants with a history of prior isocyanate sensitization should be excluded from further work with isocyanates. A comprehensive annual medical surveillance program should be instituted for all employees who are potentially exposed to diisocyanates. Once a worker has been diagnosed as sensitized to any isocyanate, no further exposure can be permitted.

Additional Protective Measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

9. Physical and chemical properties

Form:	liquid
Color:	Light Yellow
Odor:	Slight
pH:	NA
Freezing Point:	No data available
Boiling PointRange:	Approximately 100 °C (212 °F) similar to water
Flash Point:	185 °C (365 °F))
Lower Explosion Limit:	Not Established
Upper Explosion Limit:	Not Established
Vapor Pressure:	HDI Polyisocyanate: 5.2 X 10-9 @ 68 F (20 C) mmHg
Specific Gravity:	1.15 @ 20 °C (68 °F)
Solubility in Water:	Reacts slowly with water to liberate CO2 gas
Autoignition Temperature:	Approximately 445 °C (833 °F)
Viscosity, Dynamic:	Approximately 800 mPa.s @ 20 °C (68 °F)
Bulk Density:	Approximately 9.597 lb/gal

10. Stability and Reactivity

Hazardous Reactions
Contact with moisture, other materials that react with isocyanates, or temperatures above 350 F (177 C), may cause polymerization.

Stability
Stable under normal conditions of use and storage.

Materials to avoid
Water, Amines, Strong bases, Alcohols, copper alloys

Conditions to avoid
Protect from freezing.

Hazardous decomposition products
By Fire and High Heat: Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke, Hydrogen cyanide, Isocyanate, Isocyanic Acid, Other undetermined compounds

11. Toxicological Information

Toxicity Data for Homopolymer of Hexamethylene Diisocyanate
Acute Oral Toxicity
LD50: > 5,000 mg/kg (Rat)
Estimated Value

Acute Inhalation Toxicity

LC50: 390-453 mg/m3, aerosol, 4 hrs (Rat, Male/Female)
RD50: 20.8 mg/m3, 3 hrs

Acute dermal toxicity
LD50: > 5,000 mg/kg (rabbit)

Skin Irritation
rabbit, Draize, Slightly irritating

Eye Irritation
rabbit, Draize, Slightly irritating

Sensitization
dermal: sensitizer (guinea pig, Maximisation Test (GPMT))
dermal: non-sensitizer (Guinea pig, Buehler)
inhalation: non-sensitizer (guinea pig)

Repeated Dose Toxicity
3 wks, inhalation: NOAEL: 3.7 - 4.3 mg/m3, (Rat)
90 ds, inhalation: NOAEL: 3.3 - 3.4 mg/m3, (Rat)
Irritation to lungs and nasal cavity.

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

12. Ecological Information

Ecological Data for Homopolymer of Hexamethylene Diisocyanate
Biodegradation
0 %, Exposure time: 28 Days, Not readily biodegradable.

Acute and Prolonged Toxicity to Fish
LC0: > 100 mg/l (Zebra fish (Brachydanio rerio), 96 hrs)

Acute Toxicity to Aquatic Invertebrates
EC0: > 100 mg/l (Water flea (Daphnia magna), 48 hrs)

Toxicity to Aquatic Plants
EC50: > 1,000 mg/l, (Green algae (Scenedesmus subspicatus), 72 hrs)

Toxicity to Microorganisms
EC50: > 1,000 mg/l, (Activated sludge microorganisms, 3 hrs)

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state and local environmental control laws. Incineration is the preferred method.

Empty Container Precautions
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.

14. Transportation information

Land transport (DOT)
Proper Shipping Name: Other regulated substances, liquid, n.o.s. (contains Hexamethylene-1,6-Diisocyanate)

Hazard Class or Division: 9
UN/NA Number: NA3082
Packaging Group: III
Hazard Label(s): Class 9

RSPA/DOT Regulated Components:
Hexamethylene-1,6-Diisocyanate

Reportable Quantity: 40,000 lb
Sea transport (IMDG)
Non-Regulated

Air transport (ICAO/IATA)
Non-Regulated

Additional Transportation Information
When in individual containers of less than the Product RQ, this material ships as non-regulated.

15. Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
None

SARA Section 311/312 Hazard Categories:
Acute Health Hazard, Chronic Health Hazard, Reactivity Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components
None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):
If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

State Right-To-Know Information

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 in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight %	Components	CAS-No.
60 - 100%	Homopolymer of Hexamethylene Diisocyanate	28182-81-2 1
>=1%	Hydrophilic Aliphatic Polyisocyanate based on Hexamethylene Diisocyanate	CAS# is a trade secret

New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists:

Weight %	Components	CAS-No.
<=0.25%	Hexamethylene-1,6-Diisocyanate	822-06-0

California Prop. 65:

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

16. Other Information

NFPA 704M Rating

Health 2
Flammability 1
Reactivity 1
0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

Health 2*
Flammability 1
Physical Hazard 1
0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

- = Chronic Health Hazard

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of Pilgrim Permocoat, Inc.. The information in this MSDS relates only to the specific material designated herein. Pilgrim Permocoat, Inc. assumes no legal responsibility for use of or reliance upon the information in this MSDS.