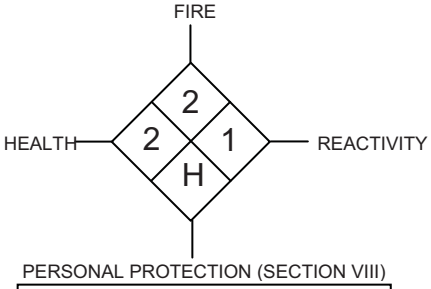
MATERIAL SAFETY DATA SHEET

PRODUCT NAME: Topshield® 5600EF Side-A



HMIS HAZARD RATING
LEAST ---------- 0 SLIGHT ---- 1
MODERATE --- 2 HIGH ------- 3
EXTREME ---- 4

SECTION I - COMPANY IDENTIFICATION

POLYTUFF SYSTEMS INTERNATIONAL

2250 E. Tropicana Ave
Suite 19-600
Las Vegas, NV 89119

Phone: (866) 977-8833
Fax: (800) 804-0182
Email: sales@polytuffus.com
Web: www.polytuffus.com

EMERGENCY CONTACT: (CHEMTREC): 800-424-9300
Outside USA and Canada, call CHEMTREC collect: 703-527-3887

DATE REVISED: December 10, 2009

SECTION II - HAZARDOUS INGREDIENTS/SARA III INFORMATION

		OCCUPATIONAL EXPOSURE LIMITS			VAPOR PRESSURE	
HAZARDOUS COMPONENTS	CAS NUMBER	OSHA PEL	ACGIH TLV	MFG TLV	mm	Hg @ TEMP
*3-ISOCYANATOMETHYL-3,5,5 TRIMETHYL CYCLOHEXYL ISOCYANATE	4098-71-9	.005 ppm (SKIN)	.005 ppm (SKIN)		.0003	20°C (68°F)
URETHANE PREPOLYMER	Trade Secret	N/E	N/E			
ALIPHATIC SOLVENT	64741-65-7	100ppm	100ppm		1.2	20°C (68°F)

* Indicates toxic chemical(s) subject to the reporting requirements of Section 313 of Title III and of 40 CFR 372.
Information concerning non-hazardous ingredients is considered a Trade Secret

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT: >149°C (300°F)

SPECIFIC GRAVITY: (H_2O=1): 1.12

COATING V.O.C. (Combined Side-A & Side-B):: 77 g/l (0.64 lb/gal)

VAPOR DENSITY: N/A

EVAPORATION RATE: Slower than ether

SOLUBILITY IN WATER: Reacts with water

APPEARANCE AND ODOR: White viscous liquid, mild chemical odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 51.6°C (125°F)

METHOD USED: TCC

FLAMMABLE LIMITS IN AIR BY VOLUME: Lower: N/E

Upper: N/E

EXTINGUISHING MEDIA: Dry chemical, foam, carbon dioxide. If water is used, use very large quantities of cold water. The reaction between water and hot isocyanate may be vigorous.

SPECIAL FIRE FIGHTING PROCEDURES: Wear NIOSH approved self-contained breathing apparatus in positive pressure mode with full-face piece. Boots, gloves (neoprene), goggles, and full protective clothing are also required. Excessive pressure or temperature may cause explosive rupture of containers.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure buildup may rupture them.

SECTION V - REACTIVITY DATA

STABILITY: Stable under normal conditions.

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CONDITIONS TO AVOID: Heat, high temperature, open flame, sparks, and moisture. Contact with incompatible materials in a closed system will cause liberation of carbon dioxide and buildup of pressure.

INCOMPATIBILITY (MATERIALS TO AVOID): This product will react with any material containing active hydrogens, such as water, alcohol, ammonia, amines, alkalis and acids, the reaction with water is slow under 50°C, but is accelerated at higher temperature and in the presence of alkalis, tertiary amines, and metal compounds. Some reactions can be violent.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Carbon dioxide, carbon monoxide, nitrogen oxides, trace amounts of hydrogen cyanide and unidentified organic compounds may be formed during combustion.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions but under high temperatures in the presence of alkalis, tertiary amines, and metal compounds will accelerate polymerization. Possible evolution of carbon dioxide gas may rupture closed containers.

SECTION VI - HEALTH HAZARD DATA

SKIN CONTACT: Isocyanates react with skin protein and moisture and can cause irritation. Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and, in some cases, skin sensitization. Individuals who have developed a skin sensitization can develop these symptoms as a result of contact with very small amounts of liquid material or as a result of exposure to vapor. Animal tests have indicated that respiratory sensitization can result from skin contact with IPDI.

EYE CONTACT: Liquid, aerosols or vapors are severely irritating and can cause pain, tearing, reddening and swelling. Prolonged vapor contact may cause conjunctivitis. Any level of contact should not be left untreated.

SKIN ABSORPTION: Systemically toxic concentrations of this product will probably not be absorbed through human skin.

INGESTION: Can result in irritating and corrosive action in the mouth, stomach tissue and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea. Small amounts of this product aspirated into the respiratory system during ingestion or vomiting may cause mild to severe pulmonary injury.

INHALATION: Isocyanate 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). High vapor concentrations may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system (CNS) effects. 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). As a result of previous repeated overexposures or a single large dose, certain individuals may develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV. 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. Chronic overexposure to isocyanate has also been reported to cause lung damage (including decrease in lung function) which may be permanent. Sensitization can either be temporary or permanent.

HEALTH HAZARDS: ACUTE: Exposure may cause mucous membrane and respiratory tract irritation, tightness of chest, headache, shortness of breath, and a dry cough. At concentrations exceeding current occupational limits and for sensitized individuals at levels less than or greater than current occupational limits, asthma-like symptoms may occur. These symptoms may include coughing, wheezing, and shortness of breath. A hypersensitive pneumonitis may also occur if the person is sensitized. This syndrome is characterized by fever, nonproductive cough, wheezing, chills, and shortness of breath. Dizziness, anesthesia, drowsiness, unconsciousness and other central nervous system effects may also result. The effects of acute exposure may be delayed in onset up to 12-24 hours. **CHRONIC:** Repeated exposure above current occupational limits may cause an allergic sensitization of the respiratory tract. This is characterized by an asthma-like response upon re-exposure to the chemical. The symptoms may include coughing, wheezing, shortness of breath and chest tightness. Central nervous system (CNS) impairment possibly leading to unconsciousness.

CARCINOGENICITY: NTP: No IARC Monographs: No OSHA Regulated: No

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Cardiovascular disease, asthma or asthmatic bronchitis, emphysema, allergic disease, chronic respiratory disease, sinusitis, headache and dizziness.

EMERGENCY AND FIRST AID PROCEDURES: EYE CONTACT: Immediately flush eyes with plenty of water, preferably lukewarm. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Have eyes examined and treated by medical personnel. **INHALATION:** Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is labored, give oxygen. Consult medical personnel. **SKIN CONTACT:** Wash material off the skin thoroughly with plenty of soap and water. If redness, itching, or a burning sensation develops, get medical attention. Wash contaminated clothing and decontaminate footwear before reuse. **INGESTION:** Do not induce vomiting. Give 1 or 2 glasses of milk or water to drink and refer person to medical personnel. Do not give anything by mouth to an unconscious person.

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SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wear skin, eye, and respiratory protection during cleanup. Soak up material with absorbent and shovel into a chemical waste container. Cover container, but do not seal, and remove from work area. Prepare a decontamination solution of 2.0% liquid detergent and 3-8% concentrated ammonium hydroxide in water (5-10% sodium carbonate may be substituted for the ammonium hydroxide). Follow the precautions on the supplier's material safety data sheets. All operations should be performed by trained personnel familiar with the hazards of the chemicals used. Treat the spill area with the decontamination solution, using about 10 parts of solution for each part of the spill, and allow it to react for at least 15 minutes. Carbon dioxide will be evolved, leaving insoluble polyureas. Residues from spill cleanup, even when treated as described may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, call CHEMTREC (Chemical Transportation Emergency Center) at 800-424-9300.

WASTE DISPOSAL METHOD: Slowly stir the isocyanate waste into the decontamination solution described above. Let stand for 48 hours, allowing the evolved carbon dioxide to vent away, residues may still be subject to RCRA storage and disposal requirements. Dispose off in compliance with all relevant local, state, and federal laws and regulations regarding treatment.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Keep in cool, dry, ventilated storage area, in closed containers and out of direct sunlight. Store liquid in containers above ground and surrounded by dikes to contain spills or leaks. Keep containers closed when not in use. Do not cut, drill, grind, weld or perform similar operations on or near containers. Do not pressurize containers to empty them.

OTHER PRECAUTIONS: Prevent skin and eye contact, observe TLV limitations. Avoid breathing vapors. Workers should shower and change to fresh clothing after each shift. A sensitized individual should not be exposed to the product that caused the sensitization. Air circulation and exhaustion of isocyanate vapors must be maintained until the coatings have fully cured to insure that no potential fire, explosion or health hazard remains. Warning properties (irritation of he eyes, nose ad throat or odor) are not adequate to prevent chronic overexposure from inhalation. This product can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposure to lower concentrations. Exposure to vapors of heated isocyanates can be extremely dangerous. Employee education and training in safe handling of this material is required under OSHA hazard communication standard. Individuals with existing respiratory disease such as chronic bronchitis, emphysema, or asthma should not be exposed to isocyanates. These individuals should be identified through baseline and annual evaluation and removed from further exposure. Medical examination should include medical history, vital capacity, and forced expiratory volume at one second.

SECTION VIII - CONTROL MEASURES

VENTILATION: Use local exhaust ventilation to keep airborne concentrations below the TLV. Follow guidelines in the ACGIH publication “Industrial Ventilation”.

RESPIRATORY PROTECTION: If airborne concentrations exceed or are expected to exceed the TLV, use MSHA/NIOSH approved positive pressure supplied air respirator with a full-face piece or an air supplied hood with carbon monoxide and oil contaminant monitoring systems. For emergencies, use a positive pressure self-contained breathing apparatus. Air purifying (half-mask/full-face) respirator with cartridges/canister approved for use against organic vapors.

PROTECTIVE CLOTHING: Gloves determined to be impervious under the conditions of use should be worn always when working with this product. Depending on conditions of use, additional protection may be required such as apron, arm covers, or full body suit. Wash contaminated clothing before re-wearing. Protective clothing should be selected and used in accordance with "Guidelines for the Selection of Chemical Protective Clothing" published by ACGIH.

EYE PROTECTION: Chemical tight goggles and full-face shield.

OTHER PROTECTIVE EQUIPMENT AND MEASURES: Unhindered access to safety shower and eye wash stations. As a general hygienic practice, wash hands and face after use. Showers and cleaning of clothes are recommended. Follow all label instructions. Educate and train employees in safe use of product.

SECTION IX - REGULATORY INFORMATION

DOT PROPER SHIPPING NAME: Not regulated.

IATA PROPER SHIPPING NAME: UN 1263, Paint, Class 3, PG III, Flammable Liquid.

IMO PROPER SHIPPING NAME: UN 1263, Paint, Class 3, PG III, Flammable Liquid.

STATE REGULATIONS: CALIFORNIA: As per requirements of the Safe Drinking Water & Toxic Enforcement Act of CA, USA 1985 (proposition 65), the public is warned that materials used in this product may create an exposure to chemicals known to the State of

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California to cause cancer, birth defects, or other reproductive harm. This warning required by Section 25249.6 of the California Health and Safety Code.

TOXIC SUBSTANCE CONTROL ACT: All chemicals comprising this product are listed on the TSCA inventory.

USER'S RESPONSIBILITY: A bulletin such as this cannot be expected to cover all possible individual situations. As the user has the responsibility to provide a safe workplace, all aspects of an individual operation should be examined to determine if, or where, precautions, in addition to those described herein, are required. Any health hazard and safety information herein should be passed on to your customers or employees, as the case may be.

DISCLAIMER: The information contained herein is, to the best of our knowledge and belief, accurate and current as of the date of this MSDS. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. All chemicals may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Final determination of suitability of the chemical is the sole responsibility of the user. No representations or warranties, either expressed or implied, of merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to the information contained herein or the chemical to which the information refers. It is the responsibility of the user to comply with all applicable federal, state and local laws and regulations.

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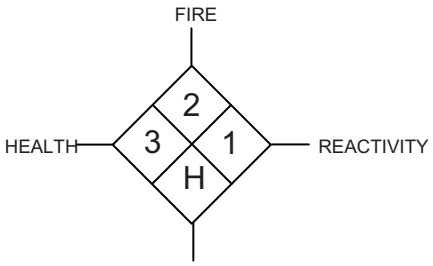
MATERIAL SAFETY DATA SHEET

PRODUCT NAME: Topshield® 5600EF Side-B



PERSONAL PROTECTION (SECTION VIII)

HMIS HAZARD RATING
LEAST ---------- 0 SLIGHT ---- 1
MODERATE --- 2 HIGH ------- 3
EXTREME ---- 4

SECTION I - COMPANY IDENTIFICATION

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Outside USA and Canada, call CHEMTREC collect: 703-527-3887

DATE REVISED: December 10, 2009

SECTION II - HAZARDOUS INGREDIENTS/SARA III INFORMATION

HAZARDOUS COMPONENTS	CAS NUMBER	OCCUPATIONAL EXPOSURE LIMITS OSHA PEL	ACGIH TLV	MFG TLV	VAPOR PRESSURE mm	Hg @ TEMP
AMINE	Trade Secret	N/E	N/E		0.001	20°C (68°F)

* No toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372.
Information concerning non-hazardous ingredients is considered a Trade Secret

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT: 308°C (586°F)

SPECIFIC GRAVITY: (H_2O=1): 0.96

COATING V.O.C. (Combined Side-A & Side-B): 77 g/l (0.64 lb/gal)

VAPOR DENSITY: Heavier than air

EVAPORATION RATE: Slower than ether

SOLUBILITY IN WATER: Insoluble

APPEARANCE AND ODOR: Black liquid, amine odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 135°C (275°F)

METHOD USED: TCC

FLAMMABLE LIMITS IN AIR BY VOLUME: Lower: N/E Upper: N/E

EXTINGUISHING MEDIA: Dry chemical, foam, carbon dioxide, water spray (fog).

SPECIAL FIRE FIGHTING PROCEDURES: Wear NIOSH approved self-contained breathing apparatus in positive pressure mode with full-face piece. Boots, gloves (neoprene), goggles, and full protective clothing are also required.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known.

SECTION V - REACTIVITY DATA

STABILITY: Stable under normal conditions.

CONDITIONS TO AVOID: Heat, high temperature and moisture.

INCOMPATIBILITY (MATERIALS TO AVOID): Isocyanates and strong oxidizers.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Combustion products: organic vapors and thermal decomposition fragments.

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HAZARDOUS POLYMERIZATION: Will not occur.

SECTION VI - HEALTH HAZARD DATA

SKIN CONTACT: Skin sensitization and irritation may develop after repeated and/or prolonged contact with human skin.

EYE CONTACT: Can induce irritation or chemical burns on contact with eyes.

SKIN ABSORPTION: Product may be absorbed through skin and cause nausea, headache, and general discomfort.

INGESTION: In humans, irritation or chemical burns of the mouth, pharynx, esophagus and stomach can develop following ingestion, and injury may be severe and cause death.

INHALATION: Vapors can irritate eyes, nose and respiratory passages. Severe overexposure may induce respiratory sensitization with asthma like symptoms. Symptoms include chronic cough, tightness of chest with difficulty in breathing.

HEALTH HAZARDS: ACUTE: Exposure may cause skin and eye irritation, respiratory tract irritation. Affects of exposure may be delayed. **CHRONIC:** Repeated and prolonged exposure at low levels may result in adverse skin and eye effects, liver and kidney disorders.

CARCINOGENICITY: NTP: No IARC Monographs: Yes OSHA Regulated: No
IARC classifies carbon black as a category 2B carcinogen (known animal carcinogen, possible human carcinogen) based on inhalation studies. Because this product is a free-flowing liquid or paste, dust inhalation is not an expected route of exposure. Sanding cured product can result in exposure to carbon black dusting.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Skin allergies, chronic respiratory disease, headache, dizziness, eye diseases.

EMERGENCY AND FIRST AID PROCEDURES: EYE CONTACT: Immediately flush eyes with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Have eyes examined and treated by medical personnel. **INHALATION**: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is labored, give oxygen. Consult medical personnel. **SKIN CONTACT**: Wash material off the skin with plenty of soap and water. If redness, itching, or a burning sensation develops, get medical attention. Wash contaminated clothing and decontaminate footwear before reuse. **INGESTION**: Do not induce vomiting. Give 1 or 2 glasses of water to drink and refer person to medical personnel. Never give anything by mouth to an unconscious person.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Wear skin, eye, and respiratory protection during cleanup. Soak up material with absorbent and shovel into a chemical waste container. Cover container, but do not seal, and remove from work area. Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, call CHEMTREC (Chemical Transportation Emergency Center) at 800-424-9300.

WASTE DISPOSAL METHOD: Spill cleanup residues may still be subject to RCRA storage and disposal requirements. Dispose off in compliance with all relevant local, state, and federal laws and regulations regarding treatment.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store in tightly sealed containers to protect from atmospheric moisture. Store in a cool dry area.

OTHER PRECAUTIONS: Prevent skin and eye contact, observe TLV limitations. Avoid breathing vapors. Workers should shower and change to fresh clothing after each shift. A sensitized individual should not be exposed to the product that caused the sensitization.

SECTION VIII - CONTROL MEASURES

VENTILATION: Use local exhaust ventilation to keep airborne concentrations below the TLV. Follow guidelines in the ACGIH publication “Industrial Ventilation”.

RESPIRATORY PROTECTION: If airborne concentrations exceed or are expected to exceed the TLV, use MSHA/NIOSH approved organic vapor cartridge respirators. For emergencies, use a positive pressure self-contained breathing apparatus.

PROTECTIVE CLOTHING: Gloves determined to be impervious under the conditions of use should be worn always when working with this product. Depending on conditions of use, additional protection may be required such as apron, arm covers, or full body suit. Wash contaminated clothing before wearing. Protective clothing should be selected and used in accordance with “Guidelines for the Selection of Chemical Protective Clothing” published by ACGIH.

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EYE PROTECTION: Chemical tight goggles and full-face shield.

OTHER PROTECTIVE EQUIPMENT AND MEASURES: Unhindered access to safety shower and eye wash stations. As a general hygienic practice, wash hands and face after use. Showers and cleaning of clothes are recommended.

SECTION IX - REGULATORY INFORMATION

DOT PROPER SHIPPING NAME: UN 1760, Corrosive Liquid, N.O.S. (Contains Amine), Class 8, PG III

IATA PROPER SHIPPING NAME: UN 1760, Corrosive Liquid, N.O.S. (Contains Amine), Class 8, PG III.

IMO PROPER SHIPPING NAME: UN 1760, Corrosive Liquid, N.O.S. (Contains Amine), Class 8, PG III.

STATE REGULATIONS: CALIFORNIA – None.

TOXIC SUBSTANCE CONTROL ACT: All chemicals comprising this product are listed on the TSCA inventory.

USER'S RESPONSIBILITY: A bulletin such as this cannot be expected to cover all possible individual situations. As the user has the responsibility to provide a safe workplace, all aspects of an individual operation should be examined to determine if, or where, precautions, in addition to those described herein, are required. Any health hazard and safety information herein should be passed on to your customers or employees, as the case may be.

DISCLAIMER: The information contained herein is, to the best of our knowledge and belief, accurate and current as of the date of this MSDS. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. All chemicals may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Final determination of suitability of the chemical is the sole responsibility of the user. No representations or warranties, either expressed or implied, of merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to the information contained herein or the chemical to which the information refers. It is the responsibility of the user to comply with all applicable federal, state and local laws and regulations.

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