



MSDS

MATERIAL SAFETY DATA SHEET

MSDS No. AXTDF DATE REVISED / REVIEWED: 3/29/2011 REVISED FROM: 7/20/2009

SECTION 1 • PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME OR NUMBER: **ARMATEX® TF**

“ARMATEX® TF” series PTFE dispersion coated fiberglass cloth, nonwoven, tape, sleeving, sewing thread, yarn and rope.

COMPANY: Mid-Mountain Materials, Inc.
ADDRESS: PO Box 800
 Mercer Island, WA 98040

TELEPHONE: 206-762-7600
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COMPLETED BY: Amulya Das
Date: March 29, 2011

SECTION 2 • COMPOSITION / INFORMATION ON INGREDIENTS

<u>CHEMICAL / COMMON NAME</u>	<u>C.A.S. NUMBER</u>	<u>% BY WEIGHT (optional)</u>
Continuous Filament Fiber Glass	65997-17-3	60-80
Polytetrafluoroethylene	9002-84-0	20-40

SECTION 3 • HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

1) Polytetrafluoroethylene (PTFE):

Inhalation of fumes from overheating or burning the resin may cause “polymer fume fever” (see Human Health Effects below).

The compound is not a skin irritant. Effects in animals from single exposure by inhalation to high concentrations of the dust include irritation of the lungs. Repeated oral doses resulted in no observable toxic effects except for alteration in the number of circulating white blood cells after long-term dosing (25% of diet for 90 days). Tests demonstrate no developmental toxicity in animals, and no genetic damage in animals or in bacterial cell cultures.



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Human Health Effects of Overexposure to PTFE:

Inhalation of fumes from overheating PTFE may cause polymer fume fever, a temporary flu-like illness with fever, chills, and sometimes cough of approximately 24 hours duration. There are some reports in the literature of persistent pulmonary effects in individuals, especially smokers, who have had repeated episodes of polymer fume fever. Because of complicating factors, such as mixed exposure and smoking history, these findings are uncertain. Protection against acute exposure should also provide protection against any potential chronic effects. Smokers should avoid contamination of tobacco products, and should wash their hands before smoking. Significant skin permeation after contact appears unlikely. There are no reports of human sensitization. Small amounts carbonyl fluoride and hydrogen fluoride may also be evolved when PTFE is overheated or burned.

Inhalation of low concentrations of Hydrogen Fluoride can initially include symptoms of choking, coughing, and severe eye, nose and throat irritation. Possibly followed after a symptomless period of 1 – 2 days by fever, chills, difficulty in breathing, cyanosis, and pulmonary edema. Acute or chronic overexposure to HF can injure the liver and kidneys.

Inhalation, ingestion, or skin or eye contact with Carbonyl Fluoride may initially include: skin irritation, with discomfort or rash; eye corrosion with corneal or conjunctival ulceration; irritation of the upper respiratory passages; or temporary lingering irritation effects with cough, discomfort, difficulty breathing, or shortness of breath. Symptoms may be delayed.

Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposure from thermal decomposition products.

2) Fiberglass Substrate:

PRIMARY ROUTE(S) OF EXPOSURE: Inhalation.

(Acute): Exposure to glass fibers sometimes causes irritation of the skin. Less frequently irritation of the eyes, nose or throat may occur. Ingestion may cause short-term irritation of the stomach and intestines. See section 8 of MSDS for exposure controls.

(Chronic): There are no known health affects connected with long term use or contact with this product. See section 11 of MSDS for toxicology information.



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SECTION 4 • FIRST AID MEASURES

EMERGENCY/FIRST AID PROCEDURES

SKIN: Rinse contacted areas with room temperature to cool water, then wash gently with mild soap. If fiberglass becomes imbedded, seek medical attention. If molten material gets on skin, cool rapidly with cold water – do not attempt to remove material from skin. Obtain medical treatment for thermal burn.

EYE: Flush eyes with clear water for at least 15 minutes - seek medical attention.

INHALATION: Move person to fresh air. Seek medical attention if irritation persists. If overheated, move to fresh air.

INGESTION: Ingestion of this material is not likely. If it does occur, give 2 glasses of water and induce vomiting. Never give anything by mouth to an unconscious person. Call a physician.

Watch for several days to make sure intestinal blockage does not occur. If there is blockage, seek medical attention.

SECTION 5 • FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: N/A

SPECIAL FIRE FIGHTING INSTRUCTIONS: In a sustained fire, self - contained breathing apparatus, (SCBA), should be worn.

FLASH POINT: Does not burn. Will melt at high temperature. Hazardous gasses/vapors produced in fire are hydrogen fluoride (HF), carbon monoxide, potentially toxic fluorinated compounds.

FLAMMABILITY LIMITS: N/A

LOWER EXPLOSIVE LIMIT: None - does not support flame.

UPPER EXPLOSIVE LIMIT: None – does not support flame.

AUTO IGNITION TEMPERATURE: N/A



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SECTION 6 • ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS/LEAK: Wet Sweep or vacuum fibrous dust.

SECTION 7 • HANDLING AND STORAGE

HANDLING:

Personal: No special precautions. Avoid contamination of cigarettes or tobacco with dust from this material.

Physical: Do not use a torch to clean this material from equipment without local exhaust ventilation and respirator.

SECTION 8 • EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS/WORK PRACTICES

VENTILATION Use local exhaust to completely remove vapors and fumes if being exposed to high temperatures. Otherwise, local exhaust ventilation (if needed) to maintain appropriate airborne dust levels..

PERSONAL PROTECTIVE EQUIPMENT/PROTECTIVE MEASURES

RESPIRATORY PROTECTION:

Most applications of these products should not require respiratory protection. However, the substrate of this material is made of fiberglass, and if airborne fibrous glass concentrations exceed the OSHA permissible limits or if irritation occurs, a properly fitted NIOSH/MSHA approved disposable dust respirator such as the 3M model 8210 (formerly 8710) or model 9900(in high humidity environments) or equivalent should be used. Use respiratory protection in accordance with your company's respiratory protection program, local regulations and OSHA regulations under CFR 1910.134.

PROTECTIVE CLOTHING: Loose fitting long sleeved shirt that covers to the base of the neck, long pants and gloves. Skin irritation is known to occur chiefly at pressure points such as around neck, wrist, waist and between fingers.

EYE PROTECTION: Safety glasses with side shields or goggles.

WORK/HYGIENIC PRACTICES: Wash thoroughly with soap and water after use.

EXPOSURE GUIDELINES:



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<u>Ingredient</u>	<u>OSHA PEL</u> (8-hr TWA)	<u>AGGIH TLV</u> (8-hr TWA)	<u>AEL</u>
Fiber Glass Continuous Filament	5 mg/m ³ (respirable dust) 15 mg/m ³ (total dust) 1 fiber /cc (respirable, proposed)	5 mg/m ³ (inhalable fraction) 1 fiber/cc (respirable)	NE
Polytetrafluoroethylene	15 mg/m ³ , 8 Hr, TWA, total dust 5 mg/m ³ , 8 Hr. TWA, respirable dust	NE	10 mg/m ³ , 8 Hr. TWA, total dust 5 mg/m ³ , 8Hr. TWA, respirable dust

SECTION 9 • PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Solid

COLOR AND ODOR: White fibrous textiles coated with dry, somewhat slippery coating, color varies. No odor.

% SOLUBILITY IN WATER: Insoluble

SPECIFIC GRAVITY (water = 1): undetermined

VAPOR PRESSURE: (mm Hg @ 20°C): N/A

VISCOSITY: N/A

MELTING POINT: Coating, 621-648° F
 Substrate: 2150°F

BOILING POINT: N/A

EVAPORATIVE RATE (n-Butyl Acetate = 1): N/A

% VOLATILE BY VOLUME: N/A



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POUR POINT: N/A

pH: N/E

SECTION 10 • STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions of use. **Decomposition (Coating):** Heating above 572°F, may cause evolution of particulate matter, which can cause polymer fume fever (see HUMAN HEALTH EFFECTS). Trace amounts of Hydrogen fluoride and carbonyl fluoride maybe evolved at about 750°F, with larger amounts at higher temperatures.

INCOMPATIBILITY: None known

HAZARDOUS DECOMPOSITION PRODUCTS: Sizing or binders may decompose in a fire. Primary combustion products are carbon monoxide, carbon dioxide and water. Other undetermined compounds could be released in small quantities.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 • TOXICOLOGY INFORMATION

CARCINOGENICITY: PTFE COATING

None of the components present in this coating material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

CARCINOGENICITY: FIBERGLASS

The table below indicates whether each agency has listed each ingredient as a carcinogen:

<u>Ingredient</u>	<u>AGGIH</u>	<u>IARC</u>	<u>NTP</u>	<u>OSHA</u>
Fiber Glass Continuous Filament	A4	No	No	No

AGGIH: A4 not classifiable as a Human Carcinogen

Fiber Glass Continuous Filament: The International Agency for Research on Cancer (IARC) in June, 1987, categorized fiber glass continuous filament as not classifiable with respect to human carcinogenicity (Group 3). The evidence from human as well as animal studies was evaluated by IARC as insufficient to classify fiberglass continuous filament as a possible, probable, or confirmed cancer causing material.



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The ACGIH A4 classification, not classifiable as a human carcinogen, for respirable continuous filament glass fibers is based on inadequate data in terms of its carcinogenicity in humans and/or animals.

For respirable continuous filament glass fibers, a TLV – TWA of 1 fiber/cc with an ACGIH A4 classification was adopted for nonrespirable glass filament fiber, measured as inhalable dust, to prevent mechanical irritation of the upper respiratory tract.

SECTION 12 • ECOLOGICAL INFORMATION

This material is not expected to cause harm to animals, plants or fish.

SECTION 13 • DISPOSAL CONSIDERATION

WASTE DISPOSAL METHOD: Dispose solid waste in accordance with local, state and federal regulations. Not considered a hazardous waste under “RCRA” regulations.

SECTION 14 • TRANSPORTATION INFORMATION

DOT INFORMATION: Not regulated.

HAZARD CLASS: Not considered hazardous waste under federal “RCRA” regulations.

PROPER SHIPPING NAME: Not regulated.

LABELS REQUIRED: None

BILL OF LADING DESCRIPTION: None

UN/NA CODE: None

SECTION 15 • REGULATORY INFORMATION

SARA TITLE III INFORMATION

Hazard Categories:

Acute Health: Yes

Chronic Health: No

Fire Hazard: No

Pressure Hazard: No



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Reactivity Hazard: No

Reportable Ingredients:

Sec.302/304 None
Sec. 313 None

California Proposition 65: No ingredient is listed.

Clean Air Act: No ingredient is listed

WHMIS (Canada): Status not controlled and no classification.

NSR Status (Canada): Each ingredient is on the DSL.

TSCA Status: Each ingredient is on the inventory.

SECTION 16 • OTHER APPLICABLE INFORMATION
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<u>HMIS and NFPA Hazard Rating:</u>	<u>Category</u>	<u>HMIS</u>	<u>NFPA</u>
	Acute Health	1	1
	Flammability	0	0
	Reactivity	0	0

NFPA Unusual Hazards: None

HMIS Personal Protection: To be supplied by user depending upon use.

Revision summary: This MSDS replaces the July 8,1996 MSDS. Exposure limits in Section 8 and toxicological information in Section 11 have been revised. Read this information carefully.

State Regulations (U.S.):

STATE RIGHT- TO- KNOW

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet, with the exceptions indicated.

SUBSTANCES ON THE PENNSYLVANIA HAZARDOUS SUBSTANCES LIST PRESENT AT A CONCENTRATION OF 1% OR MORE (0.01% FOR SPECIAL HAZARDOUS SUBSTANCES) :
Polytetrafluoroethylene is listed, but we believe it was listed in error and have petitioned to have it delisted.

NFPA Rating



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Health : 2
 Flammability : 1
 Reactivity : 0

NPCA-HMIS Rating
 Health : 1
 Flammability : 0
 Reactivity : 0

Additional Information

MEDICAL USE: CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see DuPont CAUTION Bulletin No. H-50102, available on request.

LEGEND:

ACGIH	American Conference of Governmental Industrial Hygienists	RCRA	Resource Conservation and Recovery Act
AEL	DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such shall take precedence.	SARA	Superfund Amendments and Reauthorization Act
limits		STEL	Short Term Exposure Limit
CAS	Chemical Abstract Services	TCLP	Toxic Chemical Leachate Program
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	TDG	Transportation of Dangerous Goods
CFR	Code of Federal Regulations	TLV	Threshold Limit Value
DOT	Department of Transportation	TSCA	Toxic Substance Control Act
DSL	Domestic Substances List (Canada)	TWA	Time Weighted Average
EINECS	European Inventory of Existing Commercial Chemical Substances	WHMIS	Workplace Hazardous Materials Information System
EPA	Environmental Protection Agency	cm	centimeter
IARC	International Agency for Research on Cancer	g	gram
LC	Lethal Concentration	in	inch
LD	Lethal Dose	kg	kilogram
NIOSH	National Institute for Occupational Safety and Health	lb	pound
NTP	National Toxicology Program	m	meter
OSHA	Occupational Safety and Health Administration	mg	milligram
PEL	Permissible Exposure Limit	mm	millimeter
PIN	Product Identification Number	oz	ounce
		ppm	parts per million
		µg	microgram
		NA	Not Applicable
		ND	No Data
		NE	Not Established

To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy or completeness of such information. Moreover, there is a need to reduce human



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exposure to many materials to the lowest practical limits in view of possible long term adverse effects. To the extent that any hazards may have been mentioned in the publication, we neither suggest nor guarantee that such hazards are the only ones that exist. Final determination of the suitability of any information or product for the use contemplated by any user, the manner of that use, and whether there is any infringement of any patents is the sole responsibility of the user. We recommend that anyone intending to rely on any recommendation or to use any equipment, processing technique, or material mentioned in this publication should satisfy himself as to such suitability and that he can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufacturers' or suppliers' current instruction for handling each material they use.

<<< END OF MSDS >>>

• NA = Not Applicable • ND = No Data • NE = Not Established