

## SAFETY DATA SHEET- 992 back

### Section 1: Identification

Product: 19 oz Aluminized Carbon Kevlar (ACK)  
Base Material: Series 900 Textile

*Manufacturers Identification:*  
John Tillman Co.  
1300 W Artesia Blvd  
Compton, CA 90220  
800-255-5480

Last revised: 6/19/14

Tillman Aluminized Carbon Kevlar (ACK) fabric, is a woven fabric consisting of an aramid fiber blend over an oxidized PAN (OPF) core yarn, and an aluminum film on one side. The suggested applications include safety clothing, curtains, and molten metal splash protection.

### Section 2: Hazard Identification

*There are no hazardous ingredients in this product according to OSHA 29 CFR 1910.1200.*

*Hazard:* Irritant

*Acute exposure:* Although the textile itself is not considered toxic or hazardous- dust from cutting and application may cause irritation to the respiratory tract and cause symptoms similar to bronchitis. The product has a very low order of acute toxicity and ingestion is not expected to cause any harm.

The exposure limit for particulate not otherwise regulated is 15 mg/m<sup>3</sup> total dust and 5 mg/m<sup>3</sup> respirable dust

*Primary Routes of Exposure:* eye contact, skin contact and inhalation may cause temporary irritation.

### Section 3: Composition and Information on Ingredients

<i>Ingredients</i>	<i>% w/w</i>	<i>CAS #</i>
Para-aramid	22%	26125-61-1
Oxidized polyacrylonitrile	62%	308060-39-1
Aluminized Film	16%	n/a

### Section 4: First-Aid Measures

*Inhalation:* If irritation occurs, move to fresh air

*Skin Contact:* If irritation occurs, wash with water and mild soap

*Eye Contact:* If irritation occurs, gently rinse the affected area with clean water for at least 15 minutes.

*Ingestion:* Rinse mouth with water and seek medical attention

If in any case irritation persists please seek medical assistance.

### Section 5: Fire-fighting Measures

*Suitable Extinguishing Media:* dry chemical powder, foam, fog, carbon dioxide or water.

*Specific Hazards:* not explosive. The product itself will not burn but its packaging may.

Flash point: n/a

Auto Ignition temp: n/a

Flammability limits: n/a

*Special Protective Equipment:* Self-containing breathing apparatus, protective clothing, gloves and a helmet.

## Section 6: Accidental Release Measures

*Personal Precaution:* Do not breathe in fiber dust; use a respirator if there is a lot of dust.

*Methods and Materials for Containment:* Scoop up dust and fibre mechanically, ideally with a vacuum cleaner to avoid spreading it into the air. Also, avoid dust and fibre spillage into drains and sewers.

## Section 7: Handling and Storage

*Precautions for Safe Handling:* Avoid contact with eyes and skin. Wear suitable protective gear when cutting and working with the material. For large rolls use appropriate mechanical devices. Avoid breathing in dust. Handle in accordance with good industrial hygiene and safety practices.

*Conditions for Safe Storage:* Store in a cool, dry, well ventilated location

## Section 8: Exposure Controls/ Personal Protection

*Exposure Controls:* Not directly subjected to any exposure regulations (OSHA, PEL, ACGIH, TLV or NIOSH-REL)

Respirable fiber-shaped particulates (RFP) may be released from cut-fibers. It is recommended to keep these levels below 5 mg/m<sup>3</sup>.

*Appropriate Engineering Controls:* Ventilation- local exhaust ventilation should be provided as necessary to maintain exposures below occupational exposure limits.

*Individual Protection Measures:* The following precautions are advisable during cutting and fabrication or other operations that could generate dust while using this material.

If the level of dust in the air exceeds occupational exposure limits regulated under OSHA regulations 29 CFR 190.134 use properly fitted NIOSH/MHSA approved dust respirator.

Eye protection: Safety glasses, goggles, or face shields, as necessary.

Protective clothing: wear loose fitting long sleeve shirt and pants to protect areas from exposure to dust. The use of barrier creams can, in some instances, be helpful.

## Section 9: Physical and Chemical Properties

*Appearance:* light green and aluminized one side

*Odor:* none

*Odor Threshold:* n/a

*pH:* n/a

*Melting/ Freezing Point:* n/a

*Initial Boiling Point:* n/a

*Flash Point:* n/a

*Evaporation:* n/a

*Flammability:* none flammable

*Upper/Lower Flammability:* n/a

*Vapor Pressure:* n/a

*Vapor Density:* n/a

*Relative Density:* >1 g/cm<sup>3</sup>

*Solubility:* insoluble in water

*Partition coefficient:* n/a

*Auto-ignition Temp:* n/a

*Decomposition Temp:* 572°F 300°C

*Viscosity:* n/a

## Section 10: Stability and Reactivity

*Chemical Stability:* Stable under normal conditions

*Possibility of Hazardous Reaction:* none reasonably foreseeable

*Incompatible Materials:* Extremely strong bases or acids can cause chemical decomposition (hydrolysis) of the molecules if exposed for an extended period of time which can release harmful byproducts. Long exposure to UV light can negatively affect the strength and color of the base fabric.

*Hazardous Decomposition Products:* Thermal decomposition starting at temperatures above 572°F (300°C) may release toxic or hazardous products such as carbon monoxide, carbon dioxide, silicon dioxide, nitrogen oxides, small amounts of hydrogen cyanide and ammonia.

*Hazardous Polymerization:* Will not occur.

## **Section 11: Toxicological Information**

*Routes of Exposure:*

*Inhalation:* Acute LC<sub>50</sub> is unknown. Repeated inhalation of RFP can cause bronchitis like symptoms.

*Skin:* Dermal toxicity is unknown. Slight skin irritation has been observed in isolated cases. No chronic effects are known for this product.

*Eyes:* While this product has not been tested, it is expected that it would be minimally irritating to the eyes based on tests with similar products.

*Ingestion:* Oral LD<sub>50</sub> is not available for this product. There are no known chronic effects.

*Acute Toxicity:* unknown

IARC, NTP, ACGIH or OSHA does not classify this material as a carcinogen or suspect carcinogen.

## **Section 12: Ecological Information**

*Ecotoxicity:* n/a

*Persistence and Degradability:* n/a

*Bioaccumulative potential:* n/a

*Mobility in Soil:* n/a

This product is not considered harmful to aquatic organisms nor to cause long-term adverse effects to the environment.

## **Section 13: Disposal Considerations**

Disposal should be in accordance with relevant national and local regulations pertaining to the disposal of non-hazardous waste. Do not dump dust particles into sewers or anybody of water.

## **Section 14: Transport Information**

*UN Number:* n/a

*Shipping Information:* Not regulated for transport.

**All information and recommendations are presented in good faith and are believed to be correct but no warranty, expressed or implied is made. All materials should be handled with reasonable caution.**

# Material Safety Data Sheet- 992 palm Flextra®

Trade Names-Synonyms	AMI-FLEX <sup>®</sup> -Woven para-aramid/meta-aramid/fiber glass in various forms - cloth, tapes, rope, blankets, tadpole, tubing, yarn, etc.
Product Identification	FL, FLHB, FLY and FLR series.
Chemical Name-Synonyms	poly(terephthaloylchloride/p-phenylenediamine) poly(isophthaloylchloride/m-phenylenediamine) /continuous filament fiber glass - para-aramid /meta-aramid/fibrous glass, glass fibers.
Manufacturer's Name	John Tillman Company 1300 W. Artesia blvd. Compton, CA 90220 Phone: 800-255-5480

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Hazardous Ingredients</u>	<u>Weight %</u>	<u>OSHA-PEL</u>	<u>ACGIH-TLV</u>	<u>OTHER</u>
Poly(terephthaloylchloride/ p-phenylenediamine)/para-aramid	proprietary	a.	a.	-----
Poly(isophthaloylchloride/ m-phenylenediamine) /metaaramid	proprietary	a.	a.	-----
Fiberglass, continuous filament	proprietary	b.	5mg/ m <sup>3</sup> .8 hr TWA (inhalable) 1 fiber/cm <sup>3</sup> 8-hr TWA (respirable)	3 x 10 <sup>6</sup> fibers/m <sup>3</sup> 10-hr TWA (NIOSH)
N,N-dimethylacetamide	< 1.0	10 ppm	10 ppm	-----
DMAC				
N-methyl-2-pyrrolidone (NMP)	< 2.0	-----none	established-----	
<b><u>Nonhazardous Ingredients</u></b>				
Sizing/finish	proprietary	-----none	established-----	
Water	proprietary	-----none	established-----	

## 2. COMPOSITION / INFORMATION ON INGREDIENTS (CON'T)

a. OSHA has not established a specific PEL (Permissible Exposure Limit) for para-aramid or meta-aramid nor has the American Conference of Governmental Industrial Hygienists (ACGIH) established a TLV (Threshold Limit Value). They are considered to be "particulate not otherwise regulated" (PNOR) and are covered under the OSHA nuisance dust PEL's of  $5 \text{ mg/m}^3$  for the respirable dust fraction and  $15 \text{ mg/m}^3$  for the total dust fraction for an 8-hr TWA (Time Weighted Average).

IARC rated p-aramid fibrils as "non-classifiable as to its carcinogenicity for animals and for humans": Class III. However, it is strongly recommended not to exceed 2 RFP/ml as 8 hour TWA, with a concentration of 2.5 RFP/ml (15 min.) as a ceiling value. RFP (respirable, fiber-shaped particulates) are fragments with diameters less than  $3 \mu\text{m}$ , lengths up to  $100 \mu\text{m}$  and a length/diameter ratio of at least 3:1.

b. OSHA has not established a specific PEL for fibrous glass. It is considered to be a "particulate not otherwise regulated" (PNOR) and is covered under the OSHA nuisance dust PEL's of  $5 \text{ mg/m}^3$  for the respirable dust fraction and  $15 \text{ mg/m}^3$  for the total dust fraction for an 8-hr TWA (Time Weighted Average).

## 3. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF EXPOSURE: Inhalation and skin contact.

HEALTH HAZARDS (Including acute and chronic effects and symptoms of overexposure):

ACUTE: Inhalation : Inhalation of dusts and fibers may result in irritation of the upper respiratory tract (mouth, nose and throat).

Skin Contact: Skin contact with dusts and fibers may produce itching and temporary mechanical irritation.

Eye Contact: Eye contact with fibers and dusts may produce temporary mechanical irritation.

Ingestion: Temporary mechanical irritation of the digestive tract. Observe individual. If symptoms develop, consult a physician.

CHRONIC: See carcinogenicity section below. There are no known health effects associated with chronic exposure to this product.

CARCINOGENICITY:

Hazardous Ingredients: Listed as carcinogen by: ACGIH IARC NTP OSHA

Fiberglass continuous filament No No\* No, No

Poly(isophthaloylchloride/ m-phenylenediamine)  
meta-aramid -----see note a. below----

3. HAZARDS IDENTIFICATION (CON'T)

Hazardous Ingredients: Listed as carcinogen by: ACGIH IARC NTP OSHA

Poly(terephthaloylchloride/p-phenylenediamine)				
para-aramid (see note b. below)	No	No	No	No
N,N-dimethylacetamide				
DMAC	-----see note a. below-----			
N-methyl-2-pyrrolidone	No	No	No	No
NMP				

\*IARC: In June, 1987 the International Agency for Research on Cancer (IARC) categorized fiberglass continuous filaments 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 filaments as a possible, probable, or confirmed cancer causing material.

- a. Meta-aramid fibers may contain less than 1% residual DMAC. A two-week subchronic test in which mice were exposed to DMAC via inhalation showed liver and testicular effects at high exposure concentrations (300, 500 and 700 ppm). No adverse effects were observed at 100 ppm.
- b. Repeated and prolonged inhalation of excessive concentrations of para-aramid respirable fibers may cause permanent lung injury. Short-term inhalation studies in rats and hamsters with an extended follow-up of up to nine months have demonstrated that p-aramid RFP are not biopersistent. Long p-aramid RFP are quickly transversely broken into smaller fragments and then removed from the lung. However, extremely high amounts of inhaled p-aramid RFP may inhibit the clearance mechanisms. Inhalation of high concentrations of RFP causes pulmonary inflammation in rats and hamsters; lifelong exposure to concentrations of 100 and 400 RFP/ml caused pulmonary fibrosis in rats. Only minimal fibrosis was seen at 25 RFP/ml. The fibrosis was largely reversible after cessation of exposure. No malignant tumors resulted from the lifelong inhalation tests in rats. Instead, proliferative cystic tissue changes were observed in rats after exposure to particulates. They occur mainly in (female) rats and have never been observed in human beings. These cysts were subject of scientific debate for an extended period of time, but current consensus holds that they are not malignant and that their occurrences in animals have no relevance to humans. Intraperitoneal injections of excessive amounts of p-aramid RFP caused only a non-significant increase in the observed number of mesotheliomas. The validity of the intraperitoneal test for the prediction of carcinogenicity is

questionable.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Persons with a history of chronic respiratory or skin conditions that are aggravated by mechanical irritants may be at increased risk for worsening their condition from exposure during use of the product.

4. FIRST AID MEASURES **Inhalation:** Move individual to fresh air. Seek medical attention if irritation persists.

**Skin Contact:** Wash with mild soap and running water. Use a washcloth to help remove fibers. To avoid further irritation do not rub or scratch irritated areas. Rubbing or scratching may force fibers into the skin. Seek medical attention if irritation persists.

**Eye Contact:** Flush eyes with flowing water for at least 15 minutes. Seek medical attention if irritation persists.

**Ingestion:** N. A. (Not Applicable)

#### 5. FIRE FIGHTING MEASURES

Flash Point (°F): NA (Not Applicable)

Auto Ignition Temperature (°F): NA

Flammability Limits (%): LEL: NA UEL: NA

Extinguishing Media: Water, foam, carbon dioxide, dry chemical

**Special Fire -Fighting Instructions:** Wear self contained breathing apparatus.

#### **Unusual Fire and Explosion Hazards:**

Meta-aramid fiber is inherently flame resistant; however, if combustible materials are collected on meta-aramid constructions, such as filter media, and exposed to an ignition source, these materials may ignite. Further, the presence of noncombustible dusts such as copper oxide, iron oxide, and lead oxide can negate the inherent flame resistance of meta-

aramid.

If material ignites, toxic and irritating gases will be emitted. (See Section 10.)

An accumulation of paramid dust and fly in sufficient concentration could present a fire risk. Para-aramid dust particles are potentially explosive (Class ST 1): keep all sources of ignition away from those areas where concentrations may occur. Take into account the possible effects of an electrostatic charge.

#### 6. ACCIDENTAL RELEASE MEASURES

**ACTION TO TAKE FOR SPILLS** (Use Appropriate Safety Equipment): Use appropriate personal protective equipment during cleanup. For solid product, not applicable. For dusts and fibers generated during fabrication vacuum up using high efficiency particulate air (HEPA) filtered vacuum equipment and containerize.

7. HANDLING, STORAGE AND DISPOSAL HANDLING: See Section 8.

#### 7. HANDLING, STORAGE AND DISPOSAL (CON'T)

**STOR \_\_\_\_\_ AGE**: No special precautions necessary.

**DISPOSAL**: Dispose of in accordance with federal, state and local regulations as a solid no hazardous waste. DMAC in wastewater streams contributes to the Biological Oxygen Demand (BOD) but is readily biodegradable in conventional biological sewage treatment systems. Wastewater containing DMAC should be disposed of in accordance with state and local regulations for wastewater discharges.

#### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**VENTILATION**: General dilution ventilation and/or local exhaust ventilation should be provided, as necessary, to maintain exposures below PEL's or TLV's. **Adequate ventilation must be provided at elevated temperatures.**

**RESPIRATORY PROTECTION**: A properly fitted NIOSH/MHSA approved disposable dust respirator such as the 3M model 8210 or model 9900 (in high humidity environments) or equivalent should be used when: high dust levels are encountered; the level of fibers in the air exceeds the OSHA permissible exposure limits; or if irritation occurs. Use respiratory protection in accordance with your company's respiratory protection program and OSHA regulations under 29 CFR 1910.134.

When processing meta-aramid fiber products at elevated temperatures or in a way that creates airborne DMAC, wear NIOSH/MHSA-approved organic vapor cartridge respirators if there is a potential for exposures in excess of the applicable limits.



EYE PROTECTION: Safety glasses, goggles or face shields should be worn whenever materials are being handled.

PROTECTIVE CLOTHING: Wear loose fitting, long sleeved shirt that covers to the base of the neck, and long pants. Skin irritation from exposure to fiberglass is known to occur chiefly at pressure points such as around the neck, wrist and waist. Wear gloves when handling product.

WORK/HYGIENIC PRACTICES: Handle in accordance with good industrial hygiene and safety practices:

- = Avoid unnecessary exposure to dusts and fibers
- = Remove fibers from skin after exposure
- = Be careful not to rub or scratch irritated areas. Rubbing or scratching may force the fibers into the skin. The fibers should be washed off. Use of barrier creams can, in some instances, be helpful.
- = Use vacuum equipment to remove fibers and dusts from clothing.  
**COMPRESSED AIR SHOULD NEVER BE USED.** Always wash work clothes separately and wipe out the washer/sink in order to prevent loose glass fibers from getting on other clothes.
- = Keep the work area clean of any dusts and fibers generated during fabrication. Use vacuum equipment to clean up dusts and fibers. Avoid sweeping or using compressed air as these techniques resuspend dusts and fibers into the air.
- = Have access to safety showers and eye wash fountains.
- = For professional use only. **Keep out of children's reach.**

## 9. PHYSICAL AND CHEMICAL PROPERTIES

MELTING POINT (Softening): Thermal degradation with loss of product strength begins above 300oC (572oF)	BOILING POINT (oC): NA (Not Applicable)	
SPECIFIC GRAVITY : N.M. (Not Measured)	PERCENT VOLATILE:	N.M.
VAPOR PRESSURE (mm Hg): NA	VAPOR DENSITY (Air = 1): NA	

EVAPORATIVE RATE (Ethyl Ether = 1): NA SOLUBILITY IN WATER: Not soluble

APPEARANCE AND ODOR: Yellow/tan colored solid with no odor.

pH: N/A

## 10. STABILITY AND REACTIVITY

STABILITY (Conditions to Avoid): Heating material above 250° C will rapidly volatilize NMP, **Adequate ventilation must be provided.**

INCOMPATIBILITY (Materials to Avoid): None known.

## 10. STABILITY AND REACTIVITY (CON'T)

INCOMPATIBILITY (Materials to Avoid): None known.

### HAZARDOUS DECOMPOSITION PRODUCTS:

Sizings or binders may decompose in a fire. Primary decomposition products include carbon monoxide, carbon dioxide, other hydrocarbons, small amounts of hydrogen cyanide and water.

HAZARDOUS POLYMERIZATION: Will not occur.

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