

**ENGINEERING SPECIFICATION**  
**STATE OF INDIANA**  
**DEPARTMENT OF CORRECTION**  
**PEN INDUSTRIES**

**I. OBJECTIVE:**

To provide the minimum requirements for Twill Woven Fabric used for the manufacturing of garments.

**II. REQUIREMENTS:**

<u>CHARACTERISTICS</u>	<u>PHYSICAL SPECIFICATIONS</u>	<u>TEST METHOD/ STANDARD</u>
A. Fiber Content ( $\pm 5\%$ )	65% Polyester/35% Cotton First Quality Only	
B. Color	Khaki	Pantone Color Number #17-1118 TC Galey & Lord #4479-A-0639
C. Construction	2x1 Left Hand Twill	
D. Weight (oz./sq. yd.)	7.5 ounces + .50 oz - .25 oz	
E. Fabric Width	60" O.A.	
F. Finished Count	$\pm 5$	
Warp	86 ends	
Filling	46 picks	
G. Yarn Size		
Warp	15.50/l 65/35 P/C	
Fill	10.25/l 65/35 P/C	
<u>PERFORMANCE CHARACTERISTICS</u>		
H. Tensile		
Warp	160 lbs $\pm 10\%$	ASTM D5034
Fill	125 lbs $\pm 10\%$	
I. Tear		
Warp	8.2 lbs $\pm 10\%$	ASTM D1424
Fill	9.3 lbs $\pm 10\%$	
J. Shrinkage	3%	AATCC 135 3 washings
K. Pilling-60 min.	3.0	ASTM D3512
L. Colorfastness Requirements	<u>Lightfastness</u> 20 hr.	
	4.0	AATCC 16A

ORIGIN DATE	DESCRIPTION	DOCUMENT NO.
April 15, 1996	FABRIC, TWILL, 7.5 OZX60, KHAKI	00039-000
GENERATED BY		RELEASE DATE
R. Scott		January 17, 2001
ERN NO		REVISION NO.
010003		B

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Perspiration AATCC 15

Shade Change 4.0

Staining 3.0

Washfastness AATCC 61-IIA

Shade Change 4.0

Staining 3.0

Crocking AATCC 8

Dry 4.0

Wet 3.0

M. Shading

Shade to be consistent within each lot. For each shipment there will be no more variance between lots than a gray scale rating of 4. Shade evaluation to be made using the AATCC gray shade chart.

N. Workmanship

The material will be free from avoidable imperfections in manufacture and from defects or blemishes affecting the appearance or serviceability, otherwise it will be grounds for returning the merchandise at the vendor's expense.

**III. PROCUREMENT:**

**A. Packaging/Shipping**

Each roll will be ticketed or labeled to indicate weight and yardage per roll, the dye lot number, manufacture, supplier and part number along with a specific reference number.

Samples will be submitted with the bid (continuous 1 yard X full width) requirement of fabric being offered. PEN Products intends to test the sample to be in accordance with written specifications.

All goods will be put up on rolls in continuous length each not less than 100 yards and not more than 150 yards. The final piece to complete the order need not be less than 20 yards long. Each roll must have a cardboard tube in center. All rolls are to be individually wrapped in sealed poly bags .006 mil thickness (minimum).

All rolls must be delivered on skids.

B. Method of Specifying	00039-001	Khaki
Method of Specifying	00039-002	Red

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