



# PHYSICAL PROPERTIES

Nomex® Fiber	<span style="color:blue">●</span> Royal Blue <span style="color:darkblue">●</span> Fire Service Navy <span style="color:black">●</span> Dark Navy <span style="color:yellow">●</span> Natural <span style="color:orange">●</span> Tan <span style="color:lightyellow">●</span> Yellow <span style="color:red">●</span> Red <span style="color:green">●</span> Spruce <span style="color:orange">●</span> Orange <span style="color:lightblue">●</span> Light Blue <span style="color:black">●</span> Black <span style="color:gray">●</span> Gray				
Weight (+ or - 5%) and Weave	4.5 oz (sq yd) Plain	6.0 oz (sq yd) Plain	6.8 oz (sq yd) Twill	7.5 oz (sq yd) Plain	NFPA 2112 Requirement
Color Availability	<span style="color:blue">●</span> <span style="color:darkblue">●</span> <span style="color:black">●</span> <span style="color:yellow">●</span> <span style="color:orange">●</span> <span style="color:lightyellow">●</span> <span style="color:red">●</span> <span style="color:green">●</span> <span style="color:orange">●</span> <span style="color:lightblue">●</span> <span style="color:black">●</span> <span style="color:gray">●</span>	<span style="color:blue">●</span> <span style="color:darkblue">●</span> <span style="color:black">●</span> <span style="color:yellow">●</span> <span style="color:orange">●</span> <span style="color:lightyellow">●</span> <span style="color:red">●</span> <span style="color:green">●</span> <span style="color:orange">●</span> <span style="color:lightblue">●</span> <span style="color:black">●</span> <span style="color:gray">●</span>	<span style="color:blue">●</span> <span style="color:darkblue">●</span> <span style="color:black">●</span> <span style="color:yellow">●</span> <span style="color:orange">●</span> <span style="color:lightyellow">●</span> <span style="color:red">●</span> <span style="color:green">●</span> <span style="color:orange">●</span> <span style="color:lightblue">●</span> <span style="color:black">●</span> <span style="color:gray">●</span>	<span style="color:blue">●</span> <span style="color:darkblue">●</span> <span style="color:black">●</span> <span style="color:yellow">●</span> <span style="color:orange">●</span> <span style="color:lightyellow">●</span> <span style="color:red">●</span> <span style="color:green">●</span> <span style="color:orange">●</span> <span style="color:lightblue">●</span> <span style="color:black">●</span> <span style="color:gray">●</span>	
Thickness (inches)	0.020	0.020	0.022	0.022	
Construction (warp [w] x fill [f])	66 x 43	67 x 44	89 x 64	50 x 54	
Vertical Flammability	Char Length (inches [w x f]) ASTM 6413-99 After Flame (seconds [w x f]) After 100x Launderings	2.8 x 2.8 0.0 x 0.0	2.4 x 2.4 0.0 x 0.0	2.5 x 2.5 0.0 x 0.0	4.0 maximum 2.0 maximum
Thermal Protective Performance (cal/cm <sup>2</sup> )	NFPA 1971	10.0 4.5	12.0 6.0	14.0 7.0	6.0 minimum (with spacer) 3.0 minimum (no spacer)
Flash Fire Exposure (Manikin Test)	(% body burn [2.0 cal/cm <sup>2</sup> • sec] at 3 seconds) ASTM F1930	pass	pass	data pending	50.0 maximum
ARC Thermal Performance ATPV (cal/cm <sup>2</sup> )	ASTM 1959 After Flame @ 10 cal (seconds)	4.6 - 4.8 < 1.0	5.7 - 5.9 < 1.0	6.5 - 7.0 < 1.0	6.6 - 6.9 < 1.0
Tensile Strength (lbs [w x f])	ASTM 1682	170 x 100	240 x 150	260 x 180	260 x 240
Elmendorf Tear Strength (lbs [w x f])	ASTM 1424	10 x 7	12 x 8	12 x 8	16 x 13
Dimensional Stability (% [5x])	120°F AATCC 135 140°F Industrial Wash, 160°F Max Stack Dry [5x]	≤ 3.0	≤ 3.0	≤ 3.0	≤ 3.0
Air Permeability (ft <sup>3</sup> /ft <sup>2</sup> /minutes)	ASTM 737	210	80	25	60
Washing Colorfastness	140°F Industrial Wash, 160°F Max Stack Dry [25x]	*4 *4	*4 *4	*4 *4	*4 *4
Colorfastness to Xenon Light (20 hours)	AATCC 16	*3-4	*3-4	*3-4	*3-4
Crocking AATCC 8	Wet	*3-4 - All Colors	*3-4 - All Colors	*3-4 - All Colors	*3-4 - All Colors
	Dry	*5 - All Colors	*5 - All Colors	*5 - All Colors	*5 - All Colors
Wicking (distance in seconds)	0.5 inches (1" strip, tap water)	3 13	3 10	6 14	3 12
	1.5 inches	34	27	37	34
	2.0 inches	62	58	79	70
Theoretical Moisture Regain (%)		4.5	4.5	4.5	4.5
Pilling Resistance	ASTM 3512	30 minutes 60 minutes 90 minutes 120 minutes	*4 *5 *5 *5	*4 *5 *5 *5	*3 *4 *5 *5
Heat Resistance (500°F; 5 minutes)	After 100 Industrial Launderings	pass	pass	pass	pass
Thermal Shrinkage Resistance (%[500°F; 5 minutes])	After 100 Industrial Launderings	< 2.0	< 2.0	< 2.0	< 2.0
Appearance of Fabric	AATCC 124 After 50 Home Launderings	*4	*4	*4	*4

Ratings: \*5 - Best, \*3 - Acceptable, \*1 - Poor

**Laundering** Garments made with FreeStyle fabrics are easily maintained by home or industrial laundering. For detailed laundering specifications, please contact Southern Mills at (800) 241-8630.

**Sunlight/UV Exposure Advisory** Prolonged sunlight and UV exposure can be damaging to aramid fibers, which compose the major portion of FreeStyle fabrics. Both natural (undyed) and dyed aramid fiber, like many other fibers, fade or change color with exposure to sunlight, though thermal performance is not affected. Although Southern Mills' patented dye technology minimizes color change in FreeStyle fabrics, these fabrics may still undergo color change with extended exposure to UV light. The degree of color change may vary according to color chosen. Severe color change and fading may be accompanied by a weakening of the fabrics as well. If fabric is to be exposed to significant amounts of sunlight, it is desirable to select colors less likely to be affected. In addition, proper storage of garments that are not in use can maximize their effective wear life. SOUTHERN MILLS OFFERS NO WARRANTIES, IMPLIED OR OTHERWISE, FOR COLOR CHANGE OR FABRIC DAMAGE DUE TO UV EXPOSURE.

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