

Date:  
May 5, 2009

Report #  
K-418157

High Current Test Laboratory  
Kinectrics Inc., Canada  
Test Summary



**Client**

ArcWear.com

**Fabric description**

Indura Ultrasoft Style 451, 9.0 oz/yd<sup>2</sup> 88% Cotton/12% Nylon, Navy, Laundered weight 9.8 oz/yd<sup>2</sup> over DRIFIRE Style 69265-1000034FNB, 9.11 oz/yd<sup>2</sup> Comfort Mesh, 85% Protex C (Modacrylic), 15% Cotton, Navy, Laundered weight 9.8 oz/yd<sup>2</sup>

**Reference Standard**

ASTM F1959/F1959M-06ae1 Standard Test Method for Determining the Arc Rating of Materials for Clothing

**Test Parameters:**

Test current: 8kA

Number of samples analysed: 30

Distance to Fabric: 12 inches

Incident Energy Range: 10 to 40 cal/cm<sup>2</sup>

Arc Gap: 12 inches

**Summary**

The arc rating of this material is intended for use as flame resistant clothing for workers exposed to electric arcs. The material used in this test method are in the form of flat specimens, actual performance of the complete garment may vary depending on the final design and assembly of the garment. This test method does not apply to the electrical contact or electrical shock hazard.

Based on the data obtained and analysed in accordance with the latest version of the applicable standards, the following Arc Rating was calculated.

**Arc Thermal Performance Value, ATPV = 20.0 Cal/cm<sup>2</sup>  
Heat Attenuation Factor, HAF = 89.4%**

The measured data and observations of the test samples after the arc exposure were collected and summarized in the attached table. The graphs and statistics on the attached sheets provide more detailed information to better understand the Arc Rating assigned to this item. The client shall review this full report, the video recordings of the arc exposure and the photographs of the samples after the test to determine if the material meets the intended specification.

**Test performed by:**

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ASTM F1959/F1959M-06ae1  
Standard Test Method for Determining the Arc Rating of Materials for Clothing

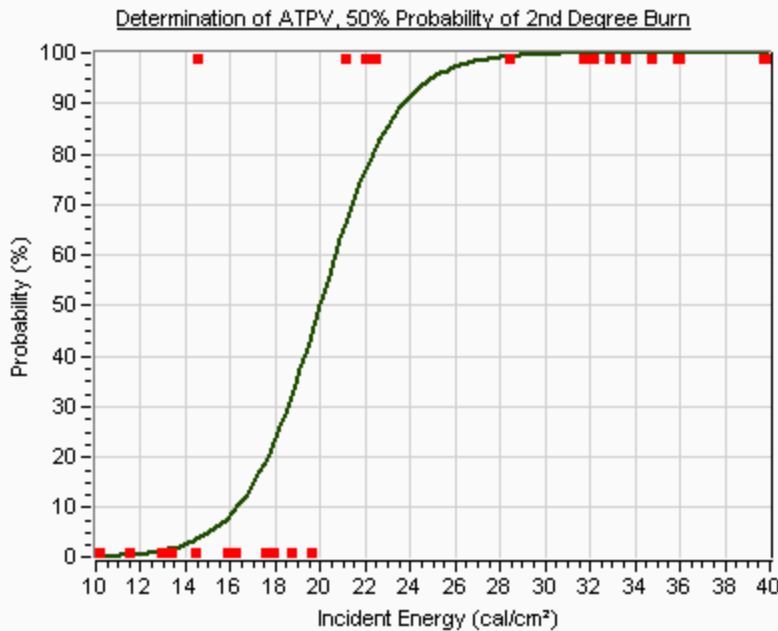


**Client:** ArcWear.com

**Fabric**

**Description:**

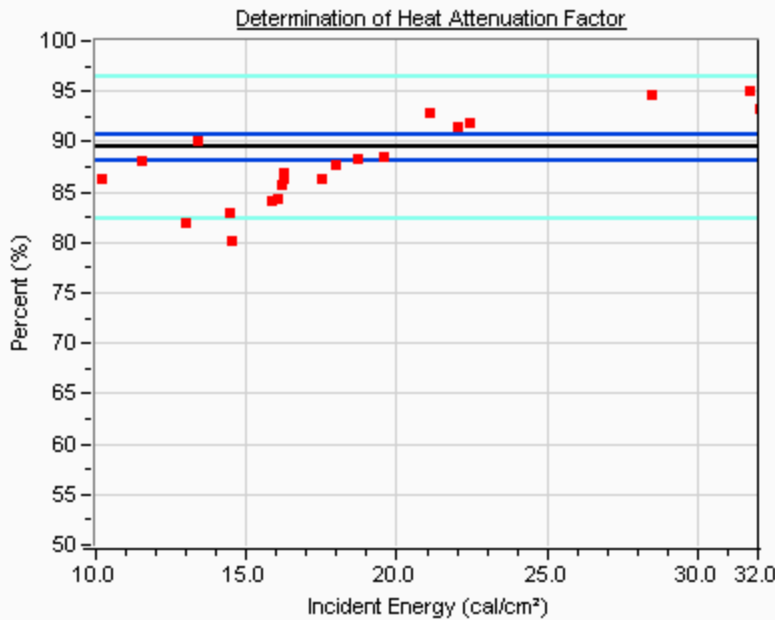
Indura Ultrasoft Style 451, 9.0 oz/yd<sup>2</sup> 88% Cotton/12% Nylon, Navy, Laundered weight 9.8 oz/yd<sup>2</sup> over DRIFIRE Style 69265-10000034FNB, 9.11 oz/yd<sup>2</sup> Comfort Mesh, 85% Protex C (Modacrylic), 15% Cotton, Navy, Laundered weight 9.8 oz/yd<sup>2</sup>



**ATPV = 20.0 cal/cm<sup>2</sup>**

Probability of Burn	Ei
5%	15.0
10%	16.3
20%	17.6
30%	18.6
40%	19.3
50%	20.0
60%	20.7
70%	21.4
80%	22.3
90%	23.7

- # Pts = 30
- # Pts above Stoll = 16
- # Pts Break-Open = 6
- # Pts always >STOLL = 15
- # Pts always <STOLL = 5
- # Pts within 20% = 11
- # Pts in mix zone = 10



**HAF = 89.4 %**

Confidence Intervals  
95% CI = 88.1 , 90.7

- Data pts
- Best Fit
- 95% CI
- 95% CI pts

ASTM F1959/F1959M-06ae1  
Standard Test Method for Determining the Arc Rating of Materials for



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Test #	Panel	Cycles # (60Hz)	Ei cal/cm <sup>2</sup>	SCD cal/cm <sup>2</sup>	HAF %	Burn yes/no	Break Open Y/N	After Flame sec.	Omit Y/N	Comment	Ignition T-shirt
1	09-1850	A	15.1	10.22	-1.11	86.3	No	-	-	No	
2	09-1850	B	15.1	11.55	-1.12	88.1	No	-	-	No	
3	09-1850	C	15.1	13.42	-1.13	90.1	No	-	-	No	
4	09-1851	A	19.1	14.42	-0.46	82.9	No	-	-	No	
5	09-1851	B	19.1	14.53	0.02	80.2	Yes	-	-	No	This sample didn't have real evidence of back of cloth scorching but did burn.
6	09-1851	C	19.1	15.86	-0.27	84.1	No	-	-	No	
7	09-1852	A	21.1	16.25	-0.52	86.9	No	-	-	No	
8	09-1852	B	21.1	18.74	-0.53	88.2	No	-	-	No	
9	09-1852	C	21.1	16.16	-0.48	85.7	No	-	-	No	
10	09-1853	A	24.1	19.57	-0.48	88.4	No	-	-	No	
11	09-1853	B	24.1	17.95	-0.48	87.6	No	-	-	No	
12	09-1853	C	24.1	17.54	-0.41	86.3	No	-	-	No	
13	09-1854	A	28.1	21.13	-0.92	92.9	y	-	-	No	Ablation
14	09-1854	B	28.1	22.06	-0.76	91.4	y	-	-	No	Ablation
15	09-1854	C	28.1	22.43	-0.76	91.9	y	-	-	No	Ablation
16	09-1855	A	40.1	28.47	-0.82	94.6	y	-	-	No	Ablation
17	09-1855	B	40.1	32.92	0.03	92.4	Y	-	-	No	Ablation
18	09-1855	C	40.1	31.71	-0.79	95.0	y	-	-	No	Ablation
19	09-1856	A	43.0	32.16	-0.70	94.4	y	-	-	No	Ablation
20	09-1856	B	43.0	34.79	-0.75	94.7	y	-	-	No	Ablation
21	09-1856	C	43.0	32.08	-0.56	93.3	y	-	-	No	Ablation
22	09-1857	A	48.1	33.60	-0.08	92.2	y	Y	-	No	Ablation
23	09-1857	B	48.1	39.77	0.49	92.7	Yes	Y	-	No	Ablation
24	09-1857	C	48.1	35.99	0.66	93.0	Yes	Y	-	No	Ablation
25	09-1858	A	52.1	35.93	1.01	90.0	Yes	Y	-	No	Ablation
26	09-1858	B	52.1	39.77	1.27	92.3	Yes	Y	-	No	Ablation
27	09-1858	C	52.1	39.85	0.17	93.6	Yes	Y	-	No	Ablation
28	09-1859	A	20.1	16.06	-0.26	84.3	No	-	-	No	
29	09-1859	B	20.1	16.26	-0.49	86.4	No	-	-	No	
30	09-1859	C	20.1	12.97	-0.49	81.9	No	-	-	No	
31											
32											
33											
34											
35											
36											