

Date:  
June 2, 2009

Report #  
K-418167

High Current Test Laboratory  
Kinectrics Inc., Canada  
Test Summary



**Client**

Westex Inc  
2845 W. 48th Place  
Chicago, IL 60632

**Fabric description**

9.5 oz/yd<sup>2</sup> Style 451 INDURA Ultra Soft, navy over  
6.0 oz/yd<sup>2</sup> Style 341 INDURA Ultra Soft, navy

**Reference Standard**

ASTM F1959/F1959M-06 Standard Test Method for Determining The Arc Rating Of Materials for Clothing

**Test Parameters:**

Test current: 8kA	Number of samples analysed: 21
Distance to Fabric: 12 inches	Incident Energy Range: 15 to 39 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 = 32.4 Cal/cm<sup>2</sup>**  
**Heat Attenuation Factor, HAF = 91.0%**

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:**

Kinectrics Inc.  
Toronto, Ontario  
416-207-6000  
HCL@Kinectrics.com

**Contact information**

Josh Moody  
Westex, Inc.  
773-523-7000  
jmoody@westexinc.com

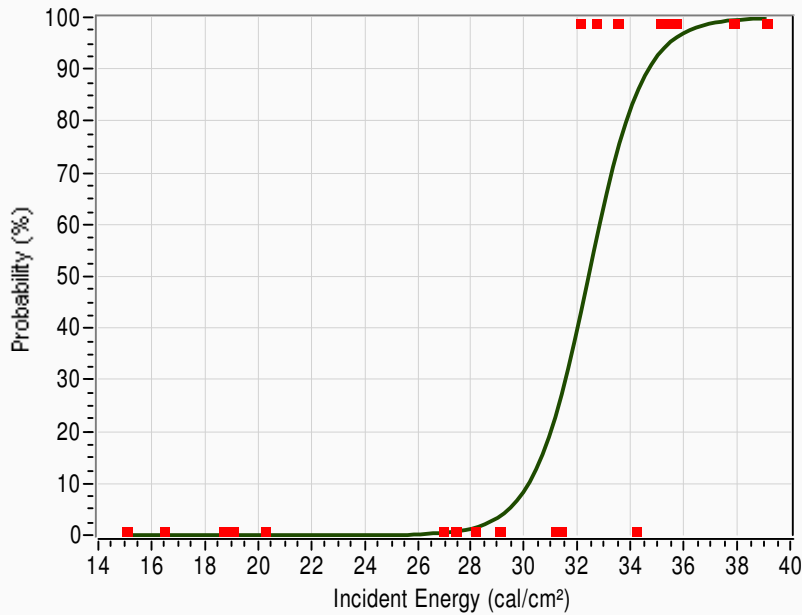
**ASTM F1959/F1959M-06**  
**Standard Test Method for Determining The Arc Rating Of Materials for Clothing**



**Client:** Westex Inc  
 2845 W. 48th Place  
 Chicago, IL 60632

**Fabric** 9.5 oz/yd<sup>2</sup> Style 451 INDURA Ultra Soft, navy over  
**Description:** 6.0 oz/yd<sup>2</sup> Style 341 INDURA Ultra Soft, navy

Determination of ATPV, 50% Probability of 2nd Degree Burn

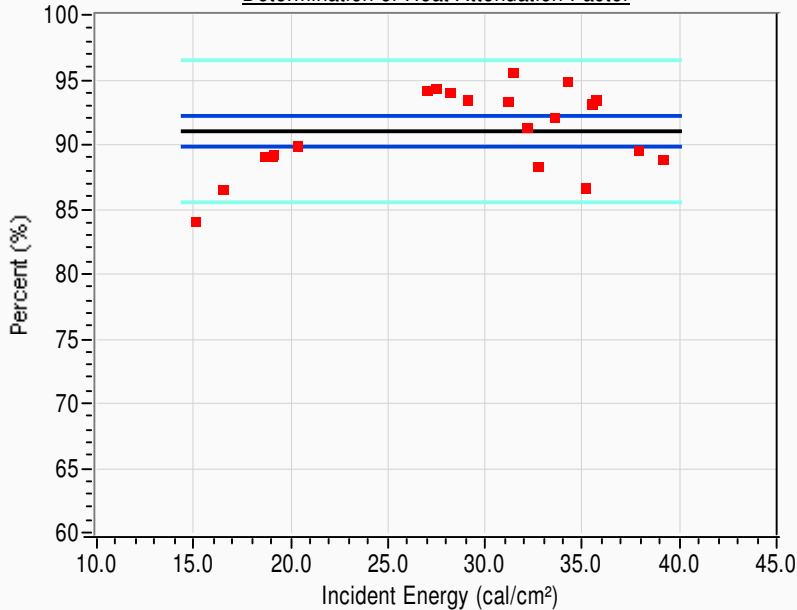


**ATPV = 32.4 cal/cm<sup>2</sup>**

Probability of Burn	Ei
5%	29.4
10%	30.2
20%	31.0
30%	31.5
40%	32.0
50%	32.4
60%	32.8
70%	33.3
80%	33.8
90%	34.7

- # Pts = 21
- # Pts above Stoll = 8
- # Pts Break-Open = 1
- # Pts always >STOLL = 5
- # Pts always <STOLL = 12
- # Pts within 20% = 14
- # Pts in mix zone = 4

Determination of Heat Attenuation Factor



**HAF = 91.0 %**

Confidence Intervals  
 95% CI = 89.9 , 92.2

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

ASTM F1959/F1959M-06  
Standard Test Method for Determining The Arc Rating Of Materials for Clothing



**Client:** Westex Inc  
2845 W. 48th Place  
Chicago, IL 60632

**Fabric Description:** 9.5 oz/yd<sup>2</sup> Style 451 INDURA Ultra Soft, navy over  
6.0 oz/yd<sup>2</sup> Style 341 INDURA Ultra Soft, navy

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	09-2517	A	24.3	19.00	-0.31	89.1	No	-	1	No	No ablation of outer FR layer	
2	09-2517	B	24.3	19.07	-0.35	89.3	No	-	-	No	Ablation of outer FR layer	
3	09-2517	C	24.3	20.28	-0.42	90.0	No	-	-	No	No ablation of outer FR layer	
4	09-2518	A	21.3	15.05	-0.05	84.1	No	-	-	No	"	
5	09-2518	B	21.3	16.46	-0.17	86.6	No	-	-	No	"	
6	09-2518	C	21.3	18.66	-0.34	89.1	No	-	1	No	"	
7	09-2519	A	39.3	29.08	-0.30	93.5	No	-	-	No	Ablation of outer FR layer	
8	09-2519	B	39.3	27.40	-0.53	94.4	No	-	-	No	"	
9	09-2519	C	39.3	34.21	-0.34	94.9	No	-	-	No	"	
10	09-2520	A	45.1	32.69	1.86	88.3	Yes	-	2	No	"	
11	09-2520	B	45.1	33.52	0.31	92.1	Yes	-	19.5	No	"	
12	09-2520	C	45.1	35.49	0.10	93.2	Yes	-	4	No	"	
13	09-2521	A	49.3	35.09	2.64	86.7	Yes	-	5	No	"	
14	09-2521	B	49.3	39.10	2.37	88.9	Yes	-	3	No	"	
15	09-2521	C	49.3	37.87	2.03	89.6	Yes	Y	2	No	Break-open on innermost FR Layer	
16	09-2522	A	42.2	26.95	-0.51	94.2	No	-	-	No	Ablation of outer FR layer	
17	09-2522	B	42.2	35.69	0.20	93.5	Yes	-	-	No	"	
18	09-2522	C	42.2	32.12	0.66	91.4	Yes	-	-	No	"	
19	09-2523	A	40.1	28.17	-0.52	94.1	No	-	-	No	"	
20	09-2523	B	40.1	31.39	-0.60	95.6	No	-	-	No	"	
21	09-2523	C	40.1	31.14	-0.11	93.4	No	-	-	No	"	
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												
35												
36												