Date: November 16, 2009	High Current Test Laboratory Kinectrics Inc., Canada Test Summary	KINECTRICS ISO 9001-2000
Report # K-418205		

Client

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

Fabric description

9.5 oz/yd² Style 451 INDURA Ultra Soft, Navy over
13.1 oz/yd² Style 801 INDURA Ultra Soft, Medium Grey

Reference Standard

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

Test Parameters: Test current: 8kA
Distance to Fabric: 12 inches
Arc Gap: 12 inches
Number of samples analysed: 30
Incident Energy Range: 14 to 52 cal/cm²

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 = 43.0 Cal/cm²
Heat Attenuation Factor, HAF = 91.6%

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
800 Kipling Ave
Toronto, Ontario, M8Z 6C4
Tel: 416 207 6000

Contact information

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

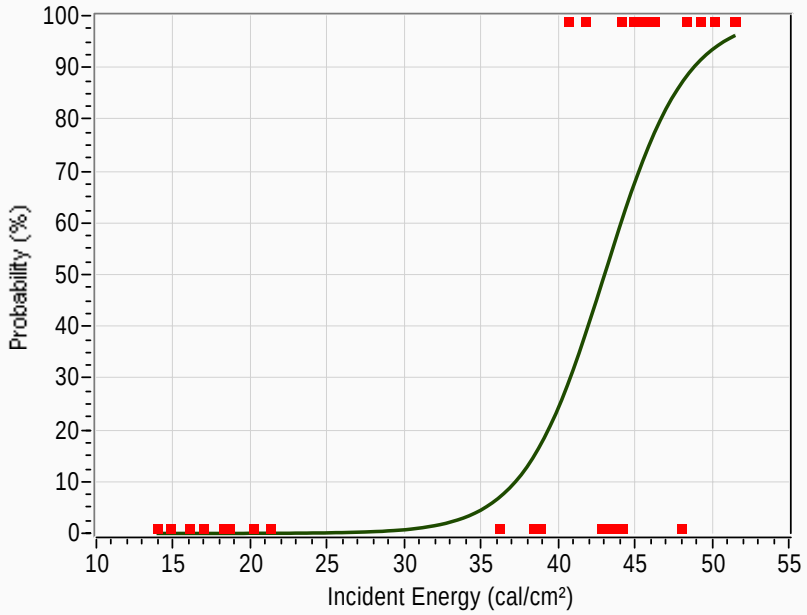
ASTM F1959/F1959M-06ae1
Standard Test Method for Determining the Arc Rating of Materials for Clothing

KINECTRICS
ISO 9001-2000

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

Fabric Description: 9.5 oz/yd² Style 451 INDURA Ultra Soft, Navy over
13.1 oz/yd² Style 801 INDURA Ultra Soft, Medium Grey

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

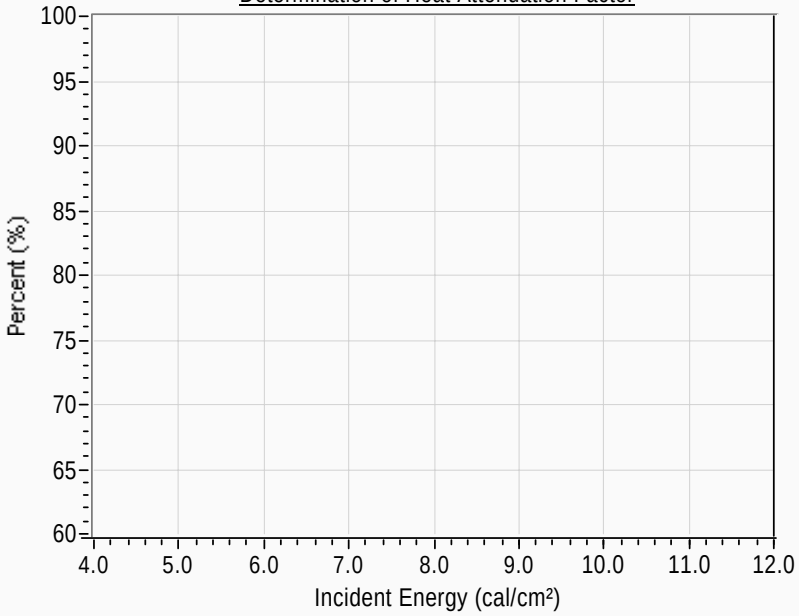


ATPV = 43.0 cal/cm²

Probability of Burn	Ei
5%	35.3
10%	37.2
20%	39.4
30%	40.8
40%	42.0
50%	43.0
60%	44.1
70%	45.3
80%	46.7
90%	48.8

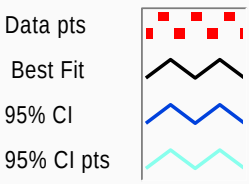
 # Pts = 30
 # Pts above Stoll = 13
 # Pts Break-Open = 2
 # Pts always >STOLL = 5
 # Pts always <STOLL = 12
 # Pts within 20% = 21
 # Pts in mix zone = 13

Determination of Heat Attenuation Factor



HAF = 91.6 %

Confidence Intervals
95% CI = 90.8 , 92.4



Kinectrics WO: K-418205

November 16, 2009

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

KINECTRICS
ISO 9001-2000

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

Fabric Description: 9.5 oz/yd² Style 451 INDURA Ultra Soft, Navy over
13.1 oz/yd² Style 801 INDURA Ultra Soft, Medium Grey

	Test #	Panel	Cycles # (60Hz)	Ei cal/cm²	SCD cal/cm²	HAF %	Burn yes/no	Break Open Y/N	After Flame sec.	Omit Y/N	Comment	Ignition T-shirt
1	09-5379	A	24.1	18.25	-0.72	90.8	No	-	-	No	No ablation of outer FR layer	
2	09-5379	B	24.1	20.21	-0.84	92.8	No	-	-	No	Ablation of outer FR layer	
3	09-5379	C	24.1	18.65	-0.56	89.9	No	-	-	No	No ablation of outer FR layer	
4	09-5380	A	22.1	16.90	-0.58	88.4	No	-	-	No	"	
5	09-5380	B	22.1	21.26	-0.72	92.1	No	-	-	No	Ablation of outer FR layer	
6	09-5380	C	22.1	16.94	-0.60	89.0	No	-	-	No	No ablation of outer FR layer	
7	09-5381	A	20.1	14.80	-0.69	88.2	No	-	-	No	"	
8	09-5381	B	20.1	16.05	-0.68	88.8	No	-	-	No	"	
9	09-5381	C	20.1	13.90	-0.46	85.2	No	-	-	No	"	
10	09-5382	A	60.1	42.82	-0.01	94.0	No	-	-	No	Ablation of outer FR layer	
11	09-5382	B	60.1	46.05	0.26	93.7	Yes	-	-	No	"	
12	09-5382	C	60.1	48.34	2.56	89.6	Yes	-	-	No	"	
13	09-5383	A	57.2	43.87	-0.04	94.0	No	-	-	No	"	
14	09-5383	B	57.2	40.65	0.14	93.3	Yes	-	-	No	"	
15	09-5383	C	57.2	44.88	0.12	94.0	Yes	-	-	No	"	
16	09-5384	A	55.1	38.81	-0.24	93.8	No	-	-	No	"	
17	09-5384	B	55.1	41.75	0.04	94.3	Yes	-	-	No	"	
18	09-5384	C	55.1	44.13	0.46	93.0	Yes	-	-	No	"	
19	09-5385	A	52.1	38.38	-0.10	93.8	No	-	-	No	"	
20	09-5385	B	52.1	36.19	-0.14	94.0	No	-	-	No	"	
21	09-5385	C	52.1	43.33	-0.12	94.6	No	-	-	No	"	
22	09-5386	A	61.1	45.36	1.32	91.6	Yes	-	-	No	"	
23	09-5386	B	61.1	44.16	-0.14	94.4	No	-	-	No	"	
24	09-5386	C	61.1	48.00	-0.06	94.5	No	-	-	No	"	
25	09-5387	A	65.1	50.14	1.25	92.4	Yes	-	-	No	"	
26	09-5387	B	65.1	46.24	1.39	91.5	Yes	-	-	No	"	
27	09-5387	C	65.1	49.20	3.95	87.4	Yes	Y	4	No	Ablation of outer FR layer, Break-open of inner FR layer	
28	09-5388	A	66.1	51.53	3.24	89.1	Yes	Y	1.5	No	Ablation of outer FR layer, Break-open of inner FR layer	
29	09-5388	B	66.1	45.49	1.61	90.8	Yes	-	-	No	Ablation of outer FR layer	
30	09-5388	C	66.1	51.44	3.06	89.4	Yes	-	-	No	"	
31												
32												
33												
34												
35												
36												