Samples Received: October 03, 2011

Samples Tested: October 07, 2011

Test Report

Kinectrics Inc., 800 Kipling Avenue, Unit 2 Toronto, Ontario, Canada Tel: 416-207-6000, www.kinectrics.com



Tested for

Josh Moody Westex (773)-523-7000 jmoody@westex.com

Contact information for item tested:

Test item description

2 layers of 9.5oz 451 UltraSoft (88% cotton / 12% nylon), Navy over 13.6oz Style 801 UltraSoft (88% cotton / 12% nylon), Navy

Reference Standard

ASTM F1959/F1959M-06ae1 Standard Test Method for Determining Arc Thermal Performance of Textile Materials for Clothing by Electric Arc Exposure Method

<u>Test Parameters:</u> Test current: 8 kA Number of samples analysed: 21

Distance to Fabric: 12 inches

Arc Gap: 12 inches Incident Energy Range: 34 to 79 cal/cm²

Arc Rating, ATPV = 60 Cal/cm² Heat Attenuation Factor, HAF = 95%

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. The material was tested as received. Actual performance of the complete garment may vary depending on the final design and assembly of the garment. Based on the data obtained and analysed in accordance with the latest version of the applicable standards, the following Arc Rating was calculated. Individual test sheets, graphs, photographs of the samples and video of every test are provided in digital format to the Client for review.

Note

- The test performed does not apply to electrical contact or electrical shock hazard.
- The test result is applicable only to the Test Item, other material or color may have different protection level.

The testing performed in this report is accredited by the Standards Council of Canada to conform to the requirements of CAN-P-4E (ISO/IEC 17025:2005). General Requirements for the Competence of Testing and Calibration Laboratories . Kinectrics Inc takes reasonable steps to ensure that all work performed shall meet the industry standards and that all reports shall be reasonably free of errors, inaccuracies or omissions. KINECTRICS INC. DOES NOT MAKE ANY WARRANTY OR REPRESENTATION WHATSOEVER, EXPRESS OR IMPLIED, WITH RESPECT TO THE MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY INFORMATION CONTAINED IN THIS REPORT OR THE RESPECTIVE WORKS OR SERVICES SUPPLIED OR PERFORMED BY KINECTRICS INC. Kinectrics Inc. does not accept any liability for any damages, either directly, consequentially or otherwise resulting from the use of this report.

Approved by:

Claude Maurice, Lab Manager High Current Laboratory Ph: 416-207-6305 hcl@kinectrics.com

Kinectrics report # K-418325-10-16 Date:

October 07, 2011

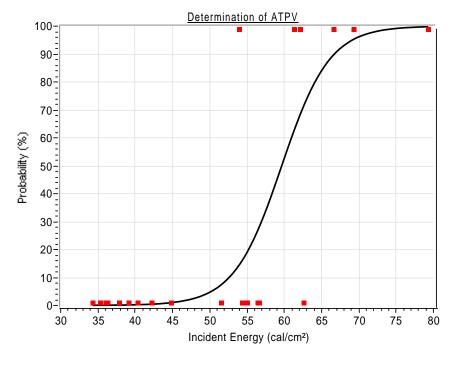
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Determination of ATPV by performing logistic regression on panel burn response as indicated in Summary Table

KINECTRICS ISO 9001-2008

Test Performed in accordance with: ASTM F1959/F1959M-06ae1

Fabric 2 layers of 9.5oz 451 UltraSoft (88% cotton / 12% nylon), Navy over Description: 13.6oz Style 801 UltraSoft (88% cotton / 12% nylon), Navy



ATPV = 60 cal/cm²

Probability	Ei
5%	50.2
10%	52.6
20%	55.2
30%	56.9
40%	58.4
50%	59.7
60%	61.0
70%	62.4
80%	64.1
90%	66.7

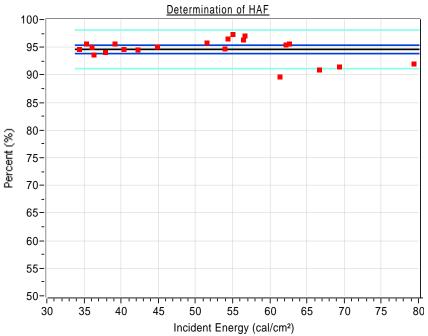
Pts = 21 # Pts above

Pts above Stoll = 6 # Pts Break-Open = 0

Pts always >STOLL = 3 # Pts always <STOLL = 10

Pts within 20% = 11

Pts in mix zone = 8



HAF = 95 %

Confidence Intervals 95% CI = 94.2, 95.8

Data pts
Best Fit
95% CI

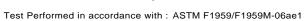
95% CI pts



Date: October 07, 2011

Report # K-418325-10-16

Summary Table





Fabric

Fabric 2 layers of 9.5oz 451 UltraSoft (88% cotton / 12% nylon), Navy over 13.6oz Style 801 UltraSoft (88% cotton / 12% nylon), Navy

Summary of measured energy and observations

	Summary of measured energy and observations												
	Test #	Panel	Test Current	Cycles of 60Hz	Ei Cal/cm²	SCD Cal/cm ²	HAF %	Burn Y/N	Break Open	Ablation Y/N	After Flame	Omit Y/N	Comment
			A	0.00112	Guiroini	Oui/Oiii	76	.,,,	Y/N	""	sec.	""	
1	K-418325-5681	Α	7950	60.2	40.3	-0.51	94.7	No	-	-	3	No	Ablation of outer FR layer only
2	K-418325-5681	В	7950	60.2	39.1	-0.7	95.7	No		Y	2	No	Ablation of outer two FR layers
3	K-418325-5681	С	7950	60.2	44.8	-0.4	95.1	No			2	No	Ablation of outer FR layer only
4	K-418325-5682	Α	8162	55.2	37.8	-0.32	94.1	No		Y	3	No	Ablation of outer two FR layers
5	K-418325-5682	В	8162	55.2	36.0	-1.0	95.0	No	-	-	-	No	Ablation of outer FR layer only
6	K-418325-5682	С	8162	55.2	42.2	-0.3	94.6	No	-	-	2	No	"
7	K-418325-5683	Α	8131	52.2	35.3	-1.21	95.7	No				No	ı
8	K-418325-5683	В	8131	52.2	34.3	-0.7	94.7	No	-	-	-	No	"
9	K-418325-5683	С	8131	52.2	36.3	-0.3	93.7	No			3	No	1
10	K-418325-5684	Α	8153	80.3	53.9	0.09	94.8	Yes		Y	2	No	Ablation of outer two FR layers
11	K-418325-5684	В	8153	80.3	54.3	-0.6	96.6	No	-	Y	2	No	"
12	K-418325-5684	С	8153	80.3	56.4	-0.4	96.4	No	-	Y	-	No	•
13	K-418325-5685	Α	8126	90.2	62.6	-0.14	95.7	No	-	Y	1	No	•
14	K-418325-5685	В	8126	90.2	62.1	0.1	95.5	Yes	-	Υ	2	No	•
15	K-418325-5685	С	8126	90.2	61.3	3.9	89.7	Yes	-	Y	3	No	•
16	K-418325-5686	Α	8126	100.2	66.6	3.62	91.0	Yes	-	Y	7	No	1
17	K-418325-5686	В	8126	100.2	69.3	3.5	91.5	Yes	-	Y	3	No	"
18	K-418325-5686	С	8126	100.2	79.3	3.9	92.0	Yes		Y	2	No	1
19	K-418325-5687	Α	8101	75.2	51.5	-0.41	95.8	No	-	Y	1.5	No	•
20	K-418325-5687	В	8101	75.2	55.0	-0.9	97.4	No	-	Y	1	No	"
21	K-418325-5687	С	8101	75.2	56.6	-0.6	97.1	No	-	Y	1	No	"
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