Hugh Hoagland Consulting, Inc.

ArcWear.com

Electric Arc Exposure Tests

For

Flamesafe

Electric Arc Exposure Tests

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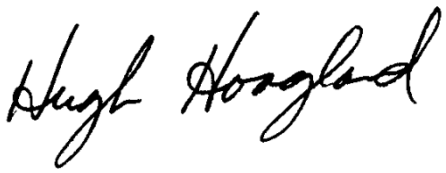

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Test apparatus

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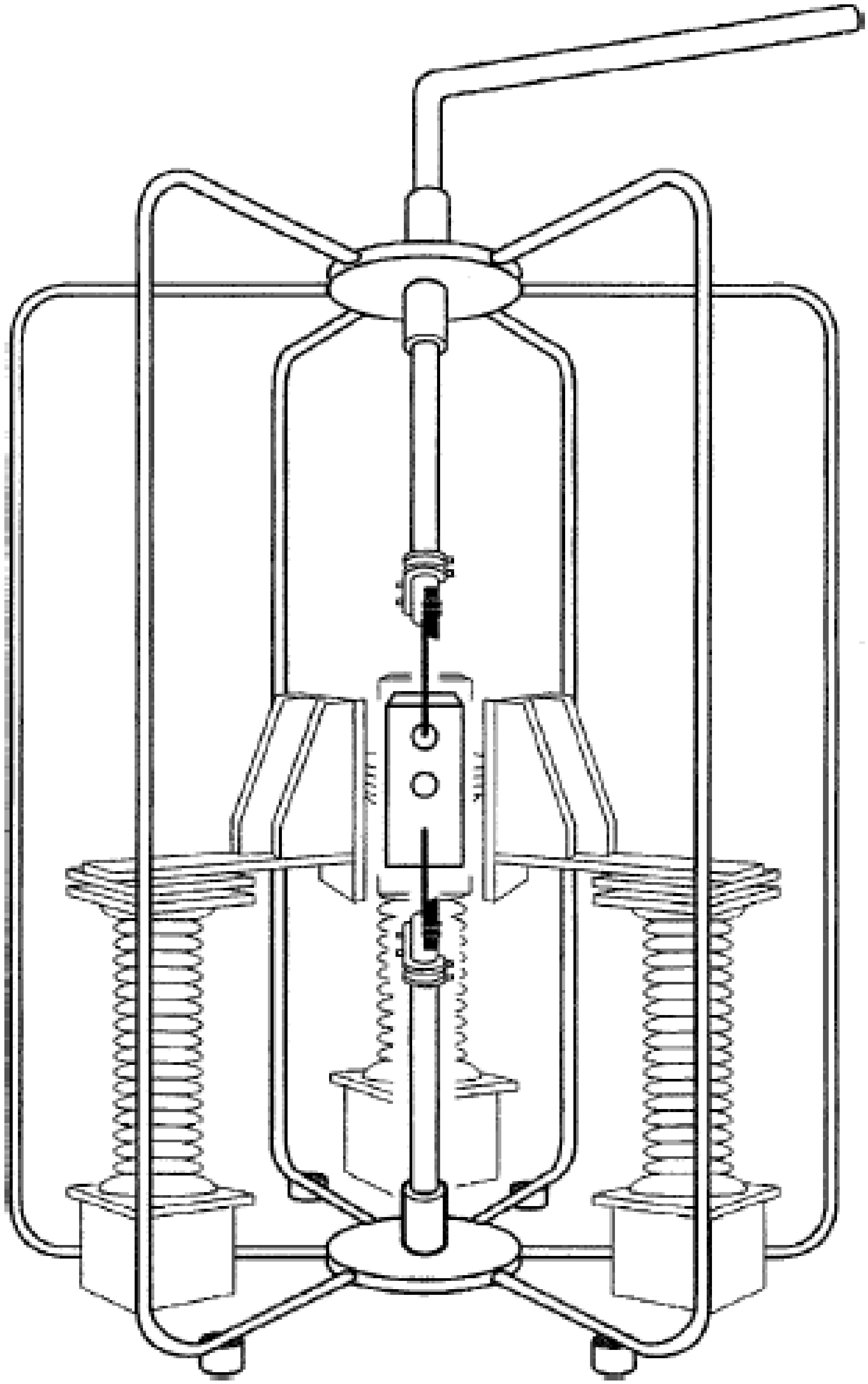
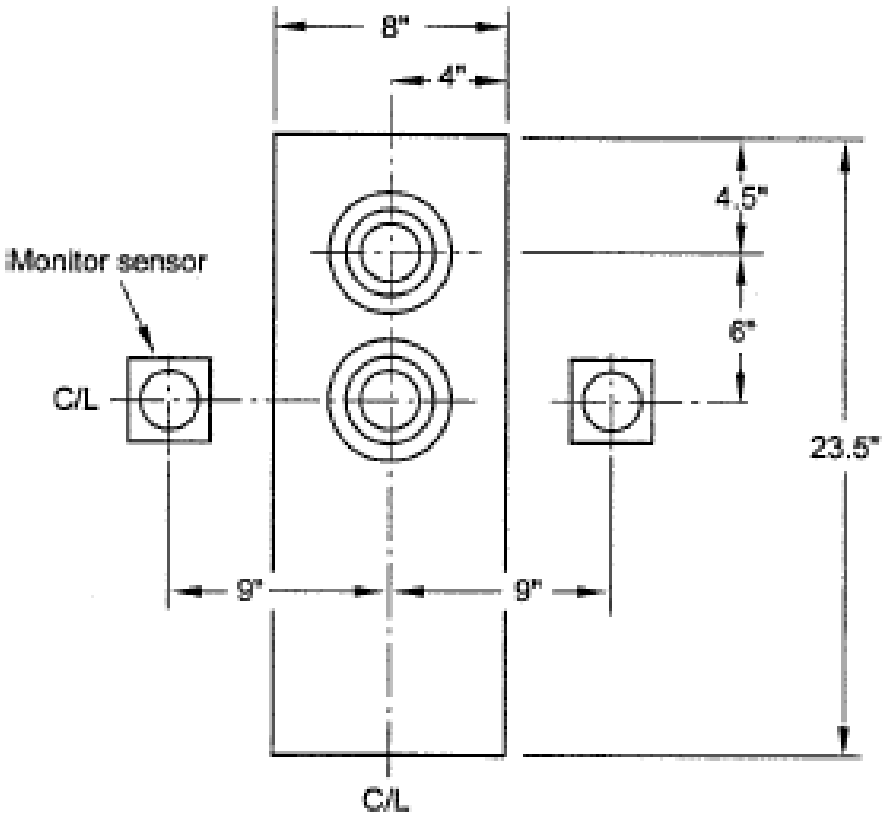


Instrumented Panel and Monitor Sensors



Arc Thermal Energy Measurement

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10-4974

Conclusions

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Date:
Wednesday, October

Report #
K-418292

High Current Test Laboratory
Kinectrics Inc., Canada
Test Summary

Client

Flamesafe Workwear

Fabric description

FSM, ILUCO 34190 6.8 oz/yd² 230 g/m² Interlock Knit, 100% Cotton, Navy LW 8.1 oz/yd² 274 g/m²

Reference Standard

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

Test Parameters: Test current: 12
Distance to Fabric: 12
Arc Gap: 12

Number of samples analysed: 21
Incident Energy Range: 9 to 19 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 = 13.9 Cal/cm²
Heat Attenuation Factor, HAF = 86.0%

Panel data and observations of the fabric 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 material. The client shall review this full report, the video recordings of the arc exposure and the photographs of the sampless after the test to determine if the material meets the intended specification.

Test performed at:

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Contact information

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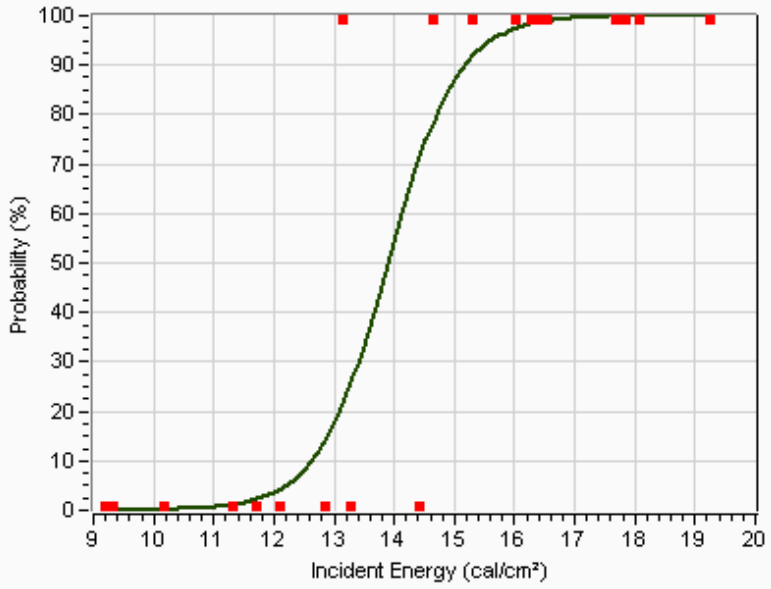
ASTM F1959/F1959M-06ae1
Standard Test Method for Determining the Arc Rating of Materials for Clothing

Client: Flamesafe Workwear

Fabric Description: FSM, ILUCO 34190 6.8 oz/yd² 230 g/m² Interlock Knit, 100% Cotton, Navy LW 8.1 oz/yd² 274 g/m²

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

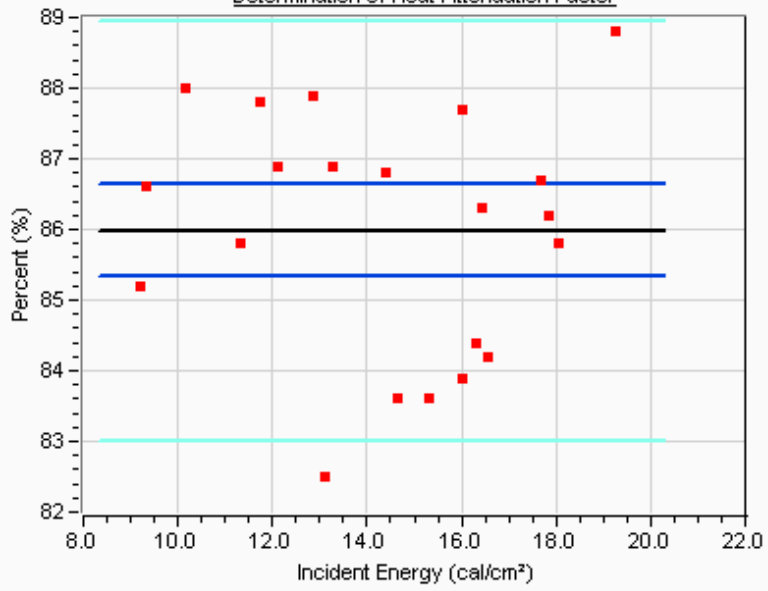


ATPV = 13.9 cal/cm²

Probability of Burn	Ei
5%	12.2
10%	12.6
20%	13.1
30%	13.4
40%	13.7
50%	13.9
60%	14.1
70%	14.4
80%	14.7
90%	15.2

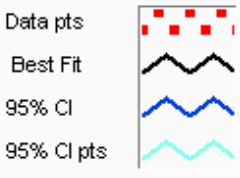
Pts = 21
Pts above Stoll = 12
Pts Break-Open = 1
Pts always >STOLL = 11
Pts always <STOLL = 7
Pts within 20% = 14
Pts in mix zone = 3

Determination of Heat Attenuation Factor



HAF = 86.0 %

Confidence Intervals
95% CI = 85.3 , 86.6



Kinectrics WO: K-418292

Wednesday, October 27, 2010

Fabric Description: FSM, ILUCO 34190 6.8 oz/yd² 230 g/m² Interlock Knit, 100% Cotton, Navy LW 8.1 oz/yd² 274 g/m²

	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
1	10-4973	A	11.1	9.32	-0.70	86.6	No	-	-	No	
2	10-4973	B	11.1	9.20	-0.62	85.2	No	-	-	No	
3	10-4973	C	11.1	10.18	-0.71	88.0	No	-	-	No	
4	10-4974	A	15.2	11.72	-0.57	87.8	No	-	-	No	
5	10-4974	B	15.2	11.32	-0.51	85.8	No	-	-	No	
6	10-4974	C	15.2	13.26	-0.35	86.9	No	-	-	No	
7	10-4975	A	19.2	16.01	0.63	83.9	Yes	-	-	No	
8	10-4975	B	19.2	14.41	-0.27	86.8	No	-	-	No	
9	10-4975	C	19.2	15.30	0.56	83.6	Yes	-	-	No	
10	10-4976	A	23.2	17.68	0.49	86.7	Yes	-	-	No	
11	10-4976	B	23.2	18.07	0.66	85.8	Yes	-	-	No	
12	10-4976	C	23.2	19.26	0.31	88.8	Yes	Y	-	No	
13	10-4977	A	21.2	16.54	0.63	84.2	Yes	-	-	No	
14	10-4977	B	21.2	16.29	0.59	84.4	Yes	-	-	No	
15	10-4977	C	21.2	16.42	0.37	86.3	Yes	-	-	No	
16	10-4978	A	17.2	12.11	-0.58	86.9	No	-	-	No	
17	10-4978	B	17.2	12.86	-0.56	87.9	No	-	-	No	
18	10-4978	C	17.2	16.02	0.09	87.7	Yes	-	-	No	
19	10-4979	A	18.2	14.66	0.39	83.6	Yes	-	-	No	
20	10-4979	B	18.2	13.13	0.13	82.5	Yes	-	-	No	
21	10-4979	C	18.2	17.84	0.57	86.2	Yes	-	-	No	
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