

Date:
April 7, 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/yd² Style 451 Indura Ultra Soft, Navy over
7.5 oz/yd² Style 301 Indura Ultra Soft, Khaki

Reference Standard

ASTM F1959/F1959M-06 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: 21
Incident Energy Range: 17 to 37 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 = 32.2 Cal/cm²
Heat Attenuation Factor, HAF = 90.4%**

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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416-207-6305
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Contact information

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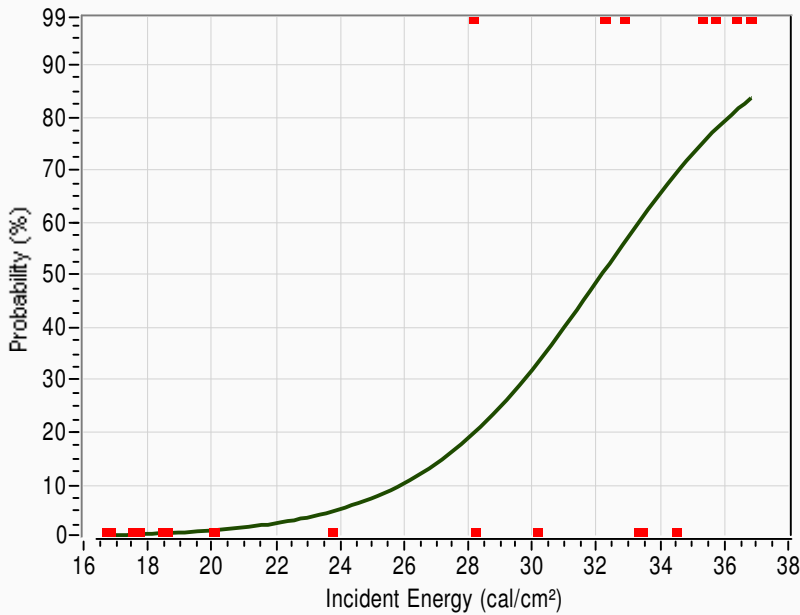
ASTM F1959/F1959M-06
Standard Test Method for Determining The Arc Rating Of Materials for Clothing



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 Chicago, IL 60632

Fabric 9.5 oz/yd² Style 451 Indura Ultra Soft, Navy over
Description: 7.5 oz/yd² Style 301 Indura Ultra Soft, Khaki

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

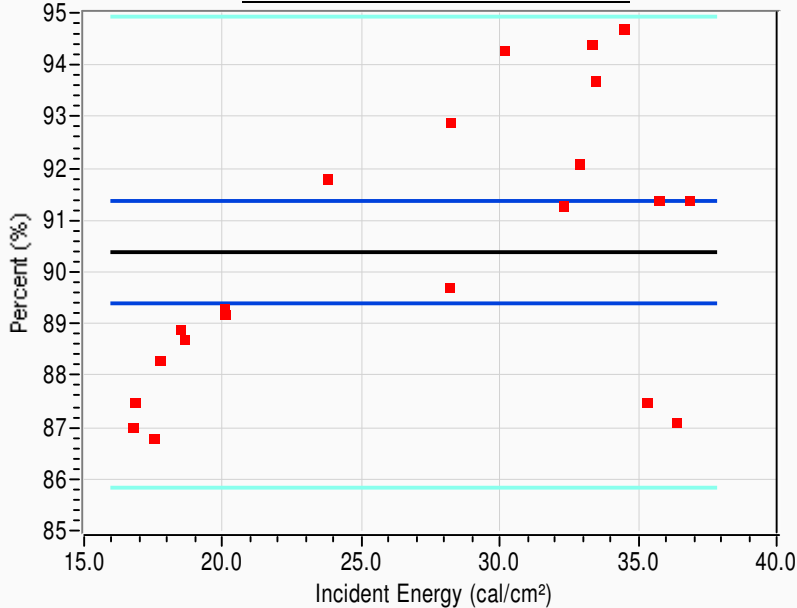


ATPV = 32.2 cal/cm²

| Probability of Burn | Ei |
|---------------------|------|
| 5% | 23.7 |
| 10% | 25.9 |
| 20% | 28.2 |
| 30% | 29.7 |
| 40% | 31.0 |
| 50% | 32.2 |
| 60% | 33.3 |
| 70% | 34.6 |
| 80% | 36.1 |
| 90% | 36.8 |

- # Pts = 21
- # Pts above Stoll = 7
- # Pts Break-Open = 0
- # Pts always >STOLL = 4
- # Pts always <STOLL = 9
- # Pts within 20% = 12
- # Pts in mix zone = 8

Determination of Heat Attenuation Factor



HAF = 90.4 %

Confidence Intervals
 95% CI = 89.4 , 91.4

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

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Fabric Description: 9.5 oz/yd² Style 451 Indura Ultra Soft, Navy over
7.5 oz/yd² Style 301 Indura Ultra Soft, Khaki

| Test # | Panel | Cycles # (60Hz) | Ei cal/cm ² | SCD cal/cm ² | HAF % | Burn yes/no | Break Open Y/N | After Flame sec. | Omit Y/N | Comment | Ignition T-shirt |
|--------|---------|-----------------|------------------------|-------------------------|-------|-------------|----------------|------------------|----------|---------|----------------------------|
| 1 | 09-1338 | A | 22.1 | 17.49 | -0.13 | 86.8 | No | - | - | No | |
| 2 | 09-1338 | B | 22.1 | 16.73 | -0.33 | 87.0 | No | - | - | No | |
| 3 | 09-1338 | C | 22.1 | 17.73 | -0.36 | 88.3 | No | - | - | No | |
| 4 | 09-1339 | A | 24.1 | 18.46 | -0.40 | 88.9 | No | - | - | No | |
| 5 | 09-1339 | B | 24.1 | 20.06 | -0.26 | 89.2 | No | - | - | No | |
| 6 | 09-1339 | C | 24.1 | 16.80 | -0.39 | 87.5 | No | - | - | No | |
| 7 | 09-1340 | A | 26.1 | 18.59 | -0.38 | 88.7 | No | - | - | No | |
| 8 | 09-1340 | B | 26.1 | 23.75 | -0.41 | 91.8 | No | - | - | No | Ablation of outer FR layer |
| 9 | 09-1340 | C | 26.1 | 20.03 | -0.31 | 89.3 | No | - | - | No | |
| 10 | 09-1341 | A | 45.1 | 28.16 | 0.47 | 89.7 | Yes | - | - | No | Ablation of outer FR layer |
| 11 | 09-1341 | B | 45.1 | 35.72 | 0.83 | 91.4 | Yes | - | - | No | Ablation of outer FR layer |
| 12 | 09-1341 | C | 45.1 | 35.32 | 2.15 | 87.5 | Yes | - | - | No | Ablation of outer FR layer |
| 13 | 09-1342 | A | 42.1 | 28.22 | -0.25 | 92.9 | No | - | - | No | Ablation of outer FR layer |
| 14 | 09-1342 | B | 42.1 | 32.86 | 0.23 | 92.1 | Yes | - | 6 | No | Ablation of outer FR layer |
| 15 | 09-1342 | C | 42.1 | 34.47 | -0.47 | 94.7 | No | - | - | No | Ablation of outer FR layer |
| 16 | 09-1343 | A | 48.2 | 33.43 | -0.28 | 93.7 | No | - | - | No | Ablation of outer FR layer |
| 17 | 09-1343 | B | 48.2 | 36.83 | 0.93 | 91.4 | Yes | - | - | No | Ablation of outer FR layer |
| 18 | 09-1343 | C | 48.2 | 36.36 | 2.51 | 87.1 | Yes | - | - | No | Ablation of outer FR layer |
| 19 | 09-1344 | A | 42.0 | 30.16 | -0.59 | 94.3 | No | - | - | No | Ablation of outer FR layer |
| 20 | 09-1344 | B | 42.0 | 33.30 | -0.38 | 94.4 | No | - | - | No | Ablation of outer FR layer |
| 21 | 09-1344 | C | 42.0 | 32.28 | 0.38 | 91.3 | Yes | - | - | No | Ablation of outer FR layer |
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