ArcWear

R&D Electric Arc Exposure Tests

For R&R Lotion

Product

R&R Lotion Inc., Insect Repellent and Clothing Treatment IR3535 tested on Mfg. Milliken, Style MPG S000105572, 7.5 oz/yd² 254 g/m² Twill, 88% Cotton 12% Nylon, Navy, AAD 8.5 oz/yd² 288 g/m²

Report Number: 1901Ps14-R01

January 2019

Tests Conducted by Kinectrics High Current Laboratory
Toronto, Ontario, Canada

R&D Electric Arc Exposure Report

ASTM F1959/F1959M-14e1 Standard Test Method for Determining the Arc Rating of Materials for Clothing

General

At the request of R. Fletcher, R&D electric arc exposure tests were conducted on textile systems for R&R Lotion. R. Fletcher Rich arranged with ArcWear to facilitate R&D testing by the High Current Laboratory of Kinectrics in Toronto and to review test data.

R&D tests documented in this report were conducted in accordance with ASTM International Standard F1959/F 1959M-14e1 Standard Test Method for Determining the Arc Rating of Materials for Clothing.

R&D Test samples

The test material was received on January 11, 2019. The test material was washed three times by ArcWear.

The test material is described in the table below. Insect Repellant and Clothing Treatment was applied over a 2 inch by 10 inch area that covers panel sensors*.

Customer	R&R Lotion
Product Sample Evaluated:	R&R Lotion Inc., Insect Repellent and Clothing Treatment IR3535
Material used for evaluation:	Milliken, Style MPG S000105572, 7.5 oz/yd² 254 g/m² Twill, 88% Cotton 12% Nylon, Navy, AAD 8.5 oz/yd² 288 g/m²

R&D Test results

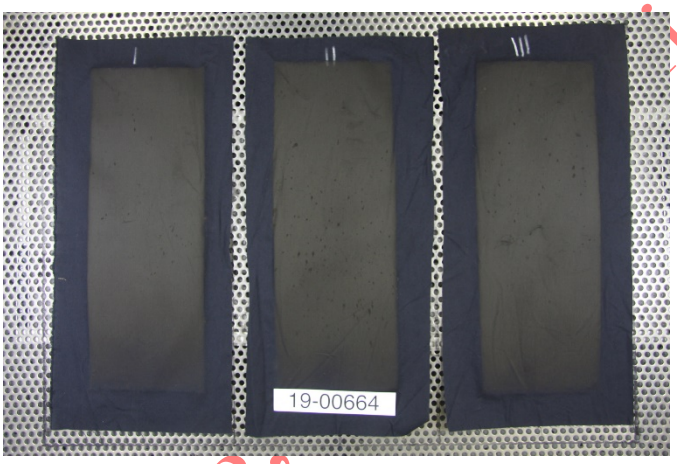
The following test data was recorded for each trial:

- test specimen description and order of layer
- distance from an arc center line to the panel surface
- subjective evaluation arc exposure electrical conditions: arc trial number, RMS arc current, peak arc current, arc voltage, arc duration, energy dissipated in arc, plots of arc current and arc voltage
- temperature rise response from two monitor and two panel sensors for each panel in each trial, plot of average responses from two panel and two monitor sensors, plot of Incident energy distribution *Ei* from bare shot analysis
- photographs of exposed material panels
- video

*R01-revision was created to correct a typographical error.

Above mentioned test data is part of report and either included in this report or available for download from ArcWearOnline.com arc testing website. Test data is accessible only to and protected with the R&R Lotion unique password.

Trial # K-352141-664			
Panel	Panel A	Panel B	Panel C
Incident energy Ei, cal/cm²	9.6	9.35	9.17
Second degree burn prediction	Below Stoll – No burn	Below Stoll – No burn	Below Stoll – No burn
Break open	No	No	No
Afterflame, seconds	00.0	00.0	00.0
Ignition	No	No	No
Melting	No	No	No
Dripping	No	No	No



Trial # K-352141-665			
Panel	Panel A	Panel B	Panel C
Incident energy Ei, cal/cm²	8.1	8.17	7.73
Second degree burn prediction	Below Stoll – No burn	Below Stoll – No burn	Below Stoll – No burn
Break open	No	No	No
Afterflame, seconds	00.0	00.0	00.0
Ignition	No	No	No
Melting	No	No	No
Dripping	No	No	No

Trial # K-352141-666			
Panel	Panel A	Panel B	Panel C
Incident energy Ei, cal/cm²	6.39	6.17	8.9
Second degree burn prediction	Below Stoll – No burn	Below Stoll – No burn	Below Stoll – No burn
Break open	No	No	No
Afterflame, seconds	00.0	00.0	00.0
Ignition	No	No	No
Melting	No	No	No
Dripping	No	No	No

Conclusions

Note: This is not an official rating. Testing has been completed as scouting for RESEACH AND DEVELOPMENT purposes only.

The Stoll Curve was not crossed when performing partial testing at the approximate incident energy level of 8 cal/cm^2. Results on the partial testing performed showed no evidence that the product applied in the due diligence testing would be detrimental to the arc rating of the material of application. No additional afterflame, no ignition, no melting and dripping was observed as result of arc exposure.