

T51132.m111

April 5, 2012

To Whom It May Concern:

RE: Question on arc testing for Bug X FREE Insect Repellent Spray on Arc Rated Materials

This letter is to address the difference in the energy levels between panel A and B in these two arc exposures. ArcWear is an independent test company using an ISO 17025 accredited lab for evaluating PPE, fabrics and etc. using arc test methods. The method used in the report below was ASTM F1959. The question has arisen as to why there was a higher energy level on panel B than on panel A. This is the nature of an arc. The arc in the test will rotate slightly greater on each panel over time, thus we never do a single exposure for anything. These exposures were to determine if fabric with the water-based insect repellent with some hydrocarbons would cause a performance difference in afterflame time or burn when applied to a common arc rated material.

Trial # 08-311			
Panel	Panel A	Panel B	
Repellent applied	Yes	No	
Incident energy E _i , cal/cm ²	6.14	7.05	
Afterflame, s	0	0	
Break open	No	No	
			
Trial # 08-312			
Panel	Panel A	Panel B	
Repellent applied	Yes	No	
Incident energy E _i , cal/cm ²	13.23	10.72	
Afterflame, s	0	0	
Break open	No	No	
			

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There was concern raised by an end user that perhaps the difference in the look of panel A in the first shot was a sign of much lower energy. This is not the case. Panel A exhibits a phenomenon we see in damp or wet fabrics. At low levels the water on the surface will allow surface cooling sufficient to prevent the fabric from charring or to prevent the dye in the cloth from sublimating. If this occurs the fabric "looks" like it didn't get any energy because the charring does not occur.

In the next shot, we raised the energy and one can see the small amount of liquid is overcome and the results look a little more normal. This is common. The energies are those recorded by the copper calorimeters on each side of each panel and the burns underneath are recorded by the same style calorimeter.

This insect repellent showed no increase in afterflame at either of the two levels (one was below the arc rating of the fabric and the other exposure was above the arc rating of the fabric). This, along with the burn data, indicates that this product is unlikely to cause any additional burn from ignition of the insect repellent on the surface of a garment.

Feel free to contact me directly if you have further questions about the testing. ArcWear does not promote any products and accepts no liability for test results or product performance.

Sincerely,

A handwritten signature in cursive script that reads "Hugh Hoagland".

Hugh Hoagland
ArcWear.com