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Nearchimica

**Antimicrobial Assessment of Three Fabric Samples**

**3606855**

Three cotton polyester fabric samples, treated with Ultra-Fresh KW-48, were received from Nearchimica on April 27, 2020. At Thomson Research Associates, Inc., the samples were tested for antimicrobial activity using a quantitative test method.

**PROCEDURE**

**Quantitative Antibacterial Assessment:**

ISO20743:2013 (E) was used to quantitatively test the specimen for antibacterial activity. In brief:

1. A piece of the sample was placed into a container with a lid.
2. A 0.2 mL inoculum of *Staphylococcus aureus* (ATCC #6538) was placed, in microdroplets, on the surface of the samples. 0.05% Triton X-100 was added to the inoculum as a wetting agent.
3. The specimen was incubated 24 hours at 37C.
4. 20 mL of Lethen broth was added to the container and shaken. The bacteria in the liquid were quantified by using a series of dilution plates.

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**RESULTS**

$M_a$  = logarithm of starting bacterial inoculum  
 $M_b$  = logarithm of number of bacteria after 24 hour incubation on untreated sample / inoculum control (average of 3 specimens)  
 $M_c$  = logarithm of number of bacteria after 24 hour incubation on treated sample (average of 3 specimens)  
 $S$  = Log Reduction =  $M_b - M_c$

Quantitative Assessment of Activity – ISO20743:2013					
<i>S. aureus</i>					
Concentration of starting inoculum ( $M_a$ )		$\log 5.52 \times 10^4 = 4.7$			
Inoculum Control after 24 hour incubation ( $M_b$ )		$\log 1.29 \times 10^7 = 7.1$			
Growth Value ( $F = M_b - M_a$ )		2.4			
Sample Description		No. Bacteria Recovered	Log Recovery ( $M_c$ )	Log Reduction (S)	% Reduction
1	RL 230/20 ART.1 Dalia	$6.82 \times 10^2$	2.8	4.3	>99.9%
2	RL 230/20 ART.2 Orchidea	$1.40 \times 10^2$	2.1	5.0	>99.9%
3	RF 230/20 ART.3 Agugnato	$6.55 \times 10^1$	1.8	5.3	>99.9%

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c: Nearchimica