ASTM E 2180 – 07 (2012)

Standard Test Method for Determining the Activity of Incorporated Antimicrobial Agent(s) in Polymeric or Hydrophobic Materials

FINAL REPORT: R2016-593

Prepared for:
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Accredited Testing Provided by:

The MicroStar® Lab
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TESTING CERT: #2832.01

Testing Initiated: September 1, 2016
Testing Completed: September 6, 2016
Report Issued: September 12, 2016

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Objective:

To evaluate the surface of one sample for antimicrobial effectiveness against *Staphylococcus aureus ATCC 6538* as demonstrated by ASTM E 2180 test method.

Test Sample Identification:

1. Karellis 11301

Test Procedure Summary:

The test organism was adjusted and diluted to obtain the starting inoculum concentration of 1-5 x 10^6 CFU/mL. The untreated control was tested in triplicate at Time = 0 and Time = 24 hours. The treated samples were tested in triplicate at Time = 24 hours. Each sample piece was placed in a sterile Petri dish, inoculated and then incubated at 35 ± 2°C and a relative humidity of at least 75%. At the appropriate time the samples were placed in sterile sample bags and the neutralizing broth was added to each sample. The sample was then sonicated for 1 minute followed by 1 minute of massage to facilitate the release of the agar slurry to the neutralizing broth. Serial dilutions of the neutralizing broth containing the inoculum were plated. All plates were incubated at 35 ± 2°C for 48 hours. After incubation, bacterial colonies were counted and recorded.

Test Variables

Test Organism: *Staphylococcus aureus ATCC 6538*

Sample Size:	3 cm x 3 cm
Method of Sterilization /Pre-Cleaning:	None
Untreated Control:	Untreated plastic control supplied by MicroStar
Dilution Medium Used:	Agar slurry per standard
Neutralizing Broth Used:	D/E neutralizing broth
Amount of Neutralizing Broth:	10 mL
Inoculum Agar Slurry Concentration:	*S. aureus ATCC#6538:* 5.4 x 10^6; Log value 6.73
Amount of Inoculum:	1.0 mL
Contact Time:	24 hours
Deviations from Standard Test Method:	None, testing performed per ASTM E2180 without deviation.

Test Results:

The results for the test pieces can be found in the data table below. These results pertain only to the samples tested.

Percent reduction is determined by comparing the treated sample after the contact time to the untreated plastic control after the contact time using the geometric mean and antilog as indicated by the standard test method.

Percent reduction is translated into log reduction by the following:

90% reduction = 1 log reduction; i.e. 1,000,000 (Log Value 6.00) reduced to 100,000 (Log Value 5.00)

99% reduction = 2 log reduction; i.e. 1,000,000 (Log Value 6.00) reduced to 10,000 (Log Value 4.00)

99.9% reduction = 3 log reduction; i.e. 1,000,000 (Log Value 6.00) reduced to 1,000 (Log Value 3.00)

99.99% reduction = 4 log reduction; i.e. 1,000,000 (Log Value 6.00) reduced to 100 (Log Value 2.00)

99.999% reduction = 5 log reduction; i.e. 1,000,000 (Log Value 6.00) reduced to 10 (Log Value 1.00)

Results against S. aureus ATCC#6538

	Compared to MSL Control		
Sample	**Geometric Mean of Recovered Bacteria (Log Value)**	**Log Reduction at Time = 24 Hours (Log Value)**	**Percent Reduction at Time = 24 Hours**
MicroStar Control	5.42		
Karellis 11301	5.79	No Reduction	