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Quality Control
Biodegradation
Antimicrobials

Customer Report

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CONTACT

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Project Title

Antimicrobial Testing

ID **0915-BOY-01 -- 1**

Entry Date 9/24/2015

Project Summary

The **AATCC TM 100** test method is designed to measure the antimicrobial properties of textile or absorbent material incubated with selected microorganisms. The basis of the test methods is the incubation of the microorganism inoculum in contact with the test sample for a duration of up to 24 hours without drying. Following this exposure, the inoculated microorganisms are recovered and the concentration of the organisms is determined. Candida albicans was tested according to the standard method, culturing C. albicans prior to testing was conducted as required by the organism.
The antimicrobial performance is determined by comparison of the recovered organisms from the test samples at time 0, and treated material after selected time points and is reported as a percent value relative to the control sample material.

Recommended Reading
Online Resource for Product Development, Testing, and Inquiry; ***The Wily Microbe***

Guidance on antimicrobial preservation http://wily-microbe.situbiosciences.com/15-microbial-control/
http://wily-microbe.situbiosciences.com/34-microbial-control-testing/

Antimicrobial testing with textiles http://wily-microbe.situbiosciences.com/280-textile-testing-antimicrobials/

Sample List

Method Name

Sample #	*Sample Name*	*Sample Notes*
AATCC 100 Assessment of Antibacterial Finishes on Textile Materials		
1	TBD Fabric	Treated fabric in Triplicate
2	UTC	Control in Triplicate
Project - ATCC Ordering & Culturing		
3	C. albicans adaptation	

Result Table

Contact	Viroblock	Thierry Pelet	41 22 884 83 44
Title	Antimicrobial Testing		
Project ID	0915-BOY-01 -- 1	Entry Date 9/24/2015	Test Start Date 9/24/2015

Result Table *

Test Method AATCC 100 Assessment of Antibacterial Finishes on Textile Materials

Sample # 1 TBD Fabric

	Interval	Result
Inoculum *C. albicans (10231)*		
Notes Section		
replicate 1	24 *hr*	99.68 *% Reduction*
replicate 2	24 *hr*	99.91 *% Reduction*
replicate 3	24 *hr*	99.86 *% Reduction*
Inoculum *S. aureus (6538)*		
Notes Section		
replicate 1	24 *hr*	99.99 *% Reduction*
replicate 2	24 *hr*	99.99 *% Reduction*
replicate 3	24 *hr*	99.99 *% Reduction*

Sample # 2 UTC

	Interval	Result
Inoculum *C. albicans (10231)*		
Notes Section		
replicate 1	0 *hr*	520000 *CFU/ml*
replicate 2	0 *hr*	480000 *CFU/ml*
replicate 3	0 *hr*	460000 *CFU/ml*
replicate 1	24 *hr*	920000 *CFU/ml*
replicate 2	24 *hr*	970000 *CFU/ml*
replicate 3	24 *hr*	1100000 *CFU/ml*
Inoculum *S. aureus (6538)*		
Notes Section		
replicate 1	0 *hr*	480000 *CFU/ml*
replicate 2	0 *hr*	490000 *CFU/ml*
replicate 3	0 *hr*	510000 *CFU/ml*
replicate 1	24 *hr*	11000000 *CFU/ml*
replicate 2	24 *hr*	12000000 *CFU/ml*
replicate 3	24 *hr*	11000000 *CFU/ml*

Result Table *

Test Method | **Project - ATCC Ordering & Culturing**

Sample # 3 | **C. albicans adaptation**

	Interval	Result
Inoculum	***None ()***	

Notes Section

complete

Result Table *

Test Method - Additional Information

AATCC 100 Assessment of Antibacterial Finishes on Textile Materials

Method Conventions
Test results are reported as the % Reduction of the test sample microorganism counts relative to the control sample microorganism counts. Samples demonstrating no reduction are reported as "0% Reduction". Microorganism concentrations are reported as the number of colony forming units (cfu) per swatch of material. The number of material swatches used in each test is reported. Standard neutralizing media used is 1x or 1:10x D/E Neutralization Broth. Modification to the test media may be done to facility the use of alternative microorganisms in the test protocol.

Terminology
activity, n..*of an antibacterial agent*, a measure of effectiveness of the agent.
antibacterial agent, n..*in textiles*, any chemical which kills bacteria (bactericide) or interferes with microorganism growth.
Percent Reduction (% Reduction) – the measure of the difference between the microorganisms counted for control and test samples during a specific test period. Testing is conducted using identical conditions unless noted for the samples types. Concentrations are determined as CFU/ml.
Colony forming units (cfu)/ volume (milliliter – ml) : standard units of microorganisms concentration.
CFU/swatch - colony forming units / swatch of material tested
Untreated Control (UTC) - untreated control sample material used to demonstrate normal test performance, showing robust microorganism growth.
Interval - represents the point or time point from which the result value was determine; T0 indicates that the result is from the soonest possible time from inoculation to recovery of the inoculated sample (typically < 5min).
Result - the result is the measure of change or abundance. Result units indicate the actual measurements, frequently relative to a control value depending on the method or test requirements.

Tests of uncertainty for microbiological methods are based on empirically determined data either from replicate tests conducted in the laboratory or provided by external sources such as Interlaboratory Studies. When possible, external references will be used to guide the test method uncertainty estimate.

Test measurement uncertainty is based on the established standard provided in SOP 050410 Measurement Uncertainty Estimates.

Measurement Uncertainty was determined by the method of reproducibility of replicates (using T0 and T1 and/or T24 hour samples) (See A2LA Reference G108)
Expanded Uncertainty for the test method of k=2 is for a 95% confidence of Log10 (0.034).

Uncertainty Values in CFU are obtained by converting CFU counts (C1) to Log10 values (Log10 C1); multiply this result by the Expanded Uncertainty (Log10 C1*EU), then add and subtract from the Log10 value (Log C1 +/- (Log10 C1*EU)); convert back by taking the anti-log (1x10^ (Log C1 +/- (Log10 C1*EU)) which provides the upper and lower limits of 95% confidence in CFU.

AATCC provides a statement of precision and bias as follows:
Studies (see 13.9) indicate the following within-laboratory precision of the Standard Plate Count (SPC) Test: (a) among-analyst variation of 18% and (b) within-analyst variation of 8%. *REF (Peeler, J. T.; Leslie, J. W.; Messer, J. W. Replicate counting errors by analysts and bacterial colony counters. J. Food Protection, Vol. 45, 1982, pp 238-240.)*

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Technology Director