

Customer Report

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Project Title

Antimicrobial Test

ID **0415-BIL-01 -- 1**

Entry Date 4/27/2015

Project Summary

The **JIS Z 2801** test method is designed to measure the antimicrobial properties of solid or hard surface treated test samples incubated with selected microorganisms. The basis of the test methods is the incubation of a microorganism inoculum in contact with the test sample for a duration of 24 hours without drying of the inoculum. Following this exposure, the inoculated bacteria are recovered and the concentration of the organisms is determined. The antimicrobial performance is determined by comparison of the recovered organisms from the untreated material and treated material after the 24 hour incubation.

The antimicrobial performance is reported as both the Log10 and % Reduction relative to the untreated control sample.

Rev1. revised company name
Rev2. revised sample ID

Recommended Reading

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

Guidance on anti-microbial 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

<i>Sample #</i>	<i>Sample Name</i>	<i>Sample Notes</i>
JIS Z 2801 - Antimicrobial Surface Test for antimicrobial activity and efficacy		
1	KLIMA ASEPSIS by VILBA (with NANOTEK SA nanotechnology)	
2	UTC	

Result Table

Contact	DGF NEW TECH CANADA LTD	Nicolas Frega	323-867-6893
Title	Antimicrobial Test		
Project ID	0415-BIL-01 -- 1	Entry Date 4/27/2015	Test Start Date 4/27/2015

Result Table *

Test Method JIS Z 2801 - Antimicrobial Surface Test for antimicrobial activity and efficacy

Sample #	1	KLIMA ASEPSIS by VILBA (with NANOTEK SA nanotechnology)	Interval	Result
Inoculum	<i>S. aureus (6538)</i>			
	percent reduction > 99.99%		24 hr	4.7 Log10 Reduction
Inoculum	<i>E. coli (8739)</i>			
	percent reduction > 99.99%		24 hr	6.1 Log10 Reduction
Sample #	2	UTC	Interval	Result
Inoculum	<i>S. aureus (6538)</i>			
	bacteria concentration = 2.88E5 CFU/ml		0 hr	-
	bacteria concentration = 3.5E6 CFU/ml		24 hr	-
Inoculum	<i>E. coli (8739)</i>			
	bacteria concentration = 3.08E5 CFU/ml		0 hr	-
	bacteria concentration = 8.4E7 CFU/ml		24 hr	-

Test Method - Additional Information

JIS Z2801 - Antimicrobial Surface Test for antimicrobial activity and efficacy on polymeric surfaces

JIS 2801 specifies a method of evaluating the antibacterial activity of antibacterial-treated plastic products (including intermediate products). It is not intended to be used to evaluate the effects and propagation of bacteria on plastics without antibacterial treatments. No cleaning is applied to the test pieces unless requested by the customer. Cover film is comprised of 2mil thick polyethylene with dimensions ~1 to 2 mm smaller than the test piece unless limited by required dimensions. Test inoculum is 200 ul unless noted

JIS Z2801 Antimicrobial activity is determined in the following manner:

Antimicrobial performance

$$R = (U_t - U_0) - (A_t - U_0) = U_t - A_t$$

where

R is the antibacterial activity;

U₀ is the average of the common logarithm of the number of viable bacteria, in cells/cm², recovered from the untreated test specimens immediately after inoculation;

U_t is the average of the common logarithm of the number of viable bacteria, in cells/cm², recovered from the untreated test specimens after 24 h;

A_t is the average of the common logarithm of the number of viable bacteria, in cells/cm², recovered from the treated test specimens after 24 h.

For purposes of common reference to other antimicrobial test methods, the % reduction is also reported in the notes section for each sample result.

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.

Untreated Control (UTC) - untreated control sample material used to demonstrate normal test performance, showing robust microorganism growth. (40 x 40mm unless noted)

LOD = Limit of detection for bacterial counting

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