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TEST REPORT
MEASUREMENT OF ANTIBACTERIAL ACTIVITY OF SILK PLASTER – DECORATIVE PLASTER

Request No: Q2-240328-03
Sample No: S2-240328-03
Report No: R2-240328-03

Prepared for

Vivant Space Trading LLC

Dubai

United Arab Emirates

Date of Request: Mar 28,2024
Sample Receiving Date: Mar 28,2024
Testing Initiated: April 06,2024
Testing Completed: April 18,2024
Report Issued: April 19,2024

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OBJECTIVE

According to the test request, the sample provided was to be tested for antibacterial activity against *Escherichia coli* ATCC 8739 and *Staphylococcus aureus* ATCC 6538 based on ISO 22196:2011 ("Measurement of antibacterial activity on plastics and other non-porous surfaces").

SAMPLE DETAILS

Sample Description: Silk Plaster – Decorative Plaster
Brand: Silk plaster
Origin: Lativia – Europe
Sole Dealer: Vivant Space Trading LLC.

EXPERIMENTAL CONDITIONS

Test Organism	*Staphylococcus aureus* ATCC # 6538 *Escherichia coli* ATCC # 8739
Sample Size	Plastic Flim (40 mm x 40 mm)- Coated with Silk Plaster
Method of Sterilization/Pre-Cleaning	None
Laboratory Control Sample	Untreated plastic control (40 mm x 40 mm x 0.05 mm film)
Dilution Medium Used	Sterile dilute nutrient broth as per standard
Neutralizing Broth Used	D/E Neutralizing Broth
Amount of Neutralizing Broth	10 mL
Starting Inoculum Concentration	*Staphylococcus aureus* (ATCC#6538):4.6 x 10^5CFU/ml *Escherichia coli* (ATCC # 8739): 5.5 x 10^5CFU/ml
Amount of Inoculum	0.4 mL
Contact Time	24 hours

TEST PROCEDURE SUMMARY

The Test Sample provided by the sponsor Silk Plaster was coated on a Plastic Flim and allow it to dry for 48 hrs. The specimen of 4 x 4 cm sample (Coated with Silk Plaster) and laboratory control have been prepared for each strain. The control was tested in triplicate at Time = 0 and Time = 24 hours. The test samples were tested in triplicate at Time = 24 hours. Separately for each test strain, 0,4 ml of standardized culture at 2,5-10×10^5 cells/ml has been added to the specimen then the inoculum has been covered and gently press down with a 40x40 mm film so that the test inoculum spreads to, but does not leak beyond, the edges of the film. The specimens inoculated have been left for 24 h (contact time) in standard test condition. At t0 and after the specified contact time, each specimen has been recovered and neutralized with 10 ml of validated neutralizer; viable microorganisms have been enumerated by pour plate method on TSA at 35±1°C for 24 hours; then bacterial colonies from each dilution series have been counted and recorded and the Logarithmic reduction of bacteria from test sample versus laboratory control sample at specified contact time has been calculated.

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CALCULATION OF THE ANTIBACTERIAL ACTIVITY

When the test is deemed valid, the antibacterial activity is calculated using following formula:

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

Where:

R is the antibacterial activity;

U_0: average of the Log cells/cm², recovered from laboratory control at t_0;

U_t: average of the Log cells/cm², recovered from laboratory control after24h;

A_t: average of the Log cells/cm², recovered from test sample after 24 h.

TEST RESULTS

Average number of viable bacteria recovered from each specimen expressed as CFU/cm² and value of U_0, U_t and A_t calculated

Strain	Contact time	Specimen	Geometric mean (CFU/cm²)	Log CFU/cm²
S. aureus	t_0	Untreated (U_0)	1.1×10^4	4.0
	T_{24h}	Untreated (U_{t24h})	3.1×10^3	3.4
		Treated (A_{t24h})	<1	<0
E. coli	t_0	Untreated (U_0)	1.6×10^4	3.2
	T_{24h}	Untreated (U_{t24h})	4.3×10^3	3.6
		Treated (A_{t24h})	<1	<0

Antibacterial activity calculated as Log Reduction and % Reduction

Strain	t (h)	Log Reduction	% Reduction
S. aureus	24h	>3.4	>99.96
E. coli		>3.6	>99.97

CONCLUSIONS

On the basis of the obtained results, in compliance with the validity criteria, can be stated that the test sample tested at 24 hours of contact time, has antimicrobial activity (Log reduction >2 Log) against S. aureus and E. coli, respectively in adopted experimental conditions.

End of Report

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