Work Order	4056.1
Setup-Code	210525-1286-22196-01

Test Report

ISO 22196 (Mod)

Measurement of antibacterial activity on plastics surfaces

Test Object:

VireXbuster versus
Staphylococcus aureus DSM799 ATCC6538

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The result apply only to the samples tested.

Report on Findings

Client: DaXem GmbH
Address: Dr.-Chrastny-Str. 14
85643 Steinhöring

Work order no.: 4056.1

Test object: VireXbuster versus *Staphylococcus aureus* DSM799 ATCC6538

Sample description: VireXbuster

Date of receipt of sample: 2021-May-19

Type of test: ISO 22196-07: Plastics — Measurement of antibacterial activity on plastics surfaces

Test Germ: *Staphylococcus aureus* DSM799 ATCC6538

Test laboratory: QualityLabs BT GmbH

Address: Neumeyerstrasse 46a
90411 Nuremberg, Germany

Setup-Code: 210525-1286-22196-01

Sample material: metal plates

No. of pages in report: 7

Report on findings to the client:
Place and date of preparation: Nuremberg, 2021-May-27
Recipient: DaXem GmbH

Laboratory Director:

Dr. Sabine Krause, Laboratory Manager
QualityLabs BT GmbH

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Declaration on Quality Assurance

This investigation was performed and supervised according to the standard operating procedure “SOP zu ISO 22196 (Mod)" by QualityLabs BT GmbH. The laboratory and process are continually monitored by independent, external authorities, as well as by internal audits.

Archiving

A copy of the test report, a protocol of the measurement as well as the accompanying correspondence and business records are archived by QualityLabs BT GmbH. The retention period is at least 10 years.

Test description

Anti-bacterial activity is determined in accordance with a modified version of ISO 22196.

During the test, a thin liquid-film containing the bacteria (1.25×10^4 CFU / cm^2) is applied directly to the test sample (5 cm x 5 cm). To avoid desiccation a foil (4cm x 4cm, Stomacher Bags) is applied. Immediately after inoculation, the bacteria from the reference sample are separated from the sample and the enveloping foil surfaces using ultrasound and vortex devices and the number of viable germs (CFU – colony-forming units) is determined (t_0 value). A further set of reference samples and samples given anti-microbial treatment is incubated with bacteria in a liquid-film and the enveloping foil in a damp environment at 37°C. After a minimum of 24 hours, the bacteria are separated from the sample surfaces using ultrasound and vortex devices and the number of viable germs is determined (t_{24} value).

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Assessment of antimicrobial activity

A logarithmic germ reduction of **≥ 3 log scales** of the antimicrobial sample in comparison to the respective reference is used as assessment criterion to pass the antimicrobial test.

Germ reduction [log scales]	Antibacterial activity
< 3	No sufficient antimicrobial activity
≥ 3	Sufficient antimicrobial activity

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References to Testconditions

Testconditions		
Sample size	25	cm^2
Foil size	16	cm^2
Volume Inoculum	400	µl
Sample cleaning	-	-

References to deviations, preincubations, special test conditions

NONE

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Test Results

	Sample Name	Sample Code	t_0 (cells/cm^2)			t_{24} (cells/cm^2)			Reduction [%]	Log Reduction
1	Leneta (reference)	12862005210001	7.9×10^4	8.2×10^4	9.0×10^4	4.9×10^4	4.3×10^4	2.1×10^5	-	**Reference**
2	VireXbuster	12862005210002				$< 1.0 \times 10^1$	$< 1.0 \times 10^1$	$< 1.0 \times 10^1$	> 99.99	**> 4**

*see “Interpretation of Results”, page 7

Test strain	*Staphylococcus aureus DSM799 ATCC6538*
Initial cell count inoculum / cm^2	**1.25×10^4**
Initials of the editor	TS
Measurement ended on	May-27-2021

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Comments on test objects

NONE

Interpretation of the results based on the measurements

The sample **VireXbuster** showed sufficient antibacterial activity against the test strain *Staphylococcus aureus* DSM799 ATCC6538 in comparison with the reference sample.

Editor: Ms. Streidl ____ **Crosschecked:** Ms. Görgey ____

References

ISO 22196-07: Plastics — Measurement of antibacterial activity on plastics surfaces

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