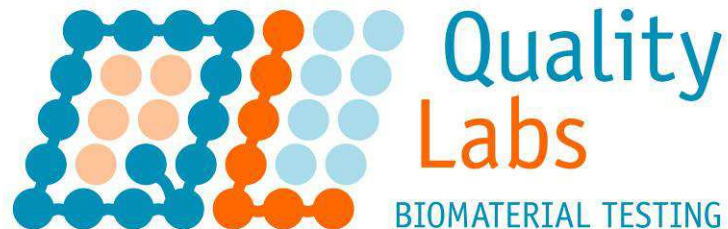


Work Order	1781_REV3
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Test Report

ISO 22196

ISO 22196:2007 Plastics — Measurement of antibacterial activity on plastics surfaces

Test Object:

Bacterial reduction of MRSA on coated surfaces following repeated disinfection

Work Order	1781_REV3
Setup-Code	140120-10170-22196-01

Report on Findings

Client: Bioni CS GmbH
Address: Lessingstr. 21
 46149 Oberhausen

Work order no.: 1781 Rev 3

Test object: Bakterienreduktion auf Beschichtungsflächen nach mehrmaliger Desinfektion gegen MRSA

Sample description: lackierte Prüfplättchen

Date of receipt of sample: Jan-10-2014

Type of test: ISO 22196:2007 Plastics — Measurement of antibacterial activity on plastics surfaces

Test Germ: *Staphylococcus aureus* DSM 21979/EDCC 5247

Test laboratory: QualityLabs BT GmbH
Address: Neumeyerstrasse 46a
 90411 Nuremberg, Germany

Setup-Code: 140120-10170-22196-01

Sample material: n.b.

No. of pages in report: 7

Report on findings to the client: **Place and date of preparation:** Nuremberg, Jan-31-2014
 Replaces the test report from Jan-31-2014
Recipient: Bioni CS GmbH

Released: _____
 Harald Gerauer, Laboratory Director
 QualityLabs BT GmbH

Approved: _____
 Dr. Jörg Brünke, Technical Director
 QualityLabs BT GmbH

Work Order	1781_REV3
Setup-Code	140120-10170-22196-01

Declaration on Quality Assurance

This investigation was performed and supervised according to the standard operating procedure "SOP zu ISO 20743" (SOP 5.6 vom 07.03.2011) 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 based on ISO 22196. The germs are removed using ultrasound and vortex devices. Also they were not poured into agar, as written in the ISO, but plated onto ready Plate-Count-Agar.

During the test, the germ-solution (5×10^5 / ml) is applied directly to the test sample (5cm x 5cm). Immediately after inoculation, the bacteria from one set of samples (reference and antimicrobial equipped sample) are separated from the sample 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 antimicrobial equipped samples is incubated with germs 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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References to deviations, preincubations, special test conditions

Prior to testing all samples were wiped 10 times with a 1.0 % disinfection solution “perform” from Schülke and were subsequently dried. After the last disinfection cycle all samples were rinsed with water and then dried..

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Test Results

No.	Sample Name	Sample Code		t_0		CV [%]		t_{24}		CV [%]	Reduction [%]
1	Referenz (Reference)	101701301140001	4.1×10^5	4.2×10^5	3.9×10^5	3.2	1.3×10^5	2.3×10^5	3.0×10^5	40.3	-
2	Interior paint with biocide-mix (a.o. zinc pyrithione)	101701301140002					9.0×10^4	2.8×10^4	2.4×10^4	78,2	81.01
3	Bioni System W23.1	101701301140003					$<1 \times 10^1$	$<1 \times 10^1$	$<1 \times 10^1$	0.0	>99.99

*see "Interpretation of Results", page 5

Test strain	<i>Staphylococcus aureus</i> DSM 21979/EDCC 5247
Initial cell count / ml	5.0×10^5
Initials of the editor	HG
Measurement ended on	Jan-22-2014

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Comments on test objects

NONE

Interpretation of the results based on the measurements

NONE

Editor: Mr. Gerauer _____

Crosschecked: Mrs. Leisgang _____

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References

ISO 22196:2007 Plastics — Measurement of antibacterial activity on plastics surfaces