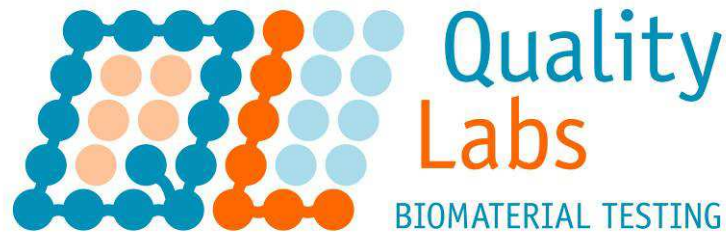


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## Test Report

### ISO 22196 (Mod)

Measurement of antibacterial activity on plastics surfaces

#### Test Object:

*PVC Folien against Escherichia coli*

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## Report on Findings

**Client:** ASPHALT ART INTERNATIONAL AG  
**Address:** Bahnhof-Park 3  
CH-6340 Baar

**Work order no.:** 2353.2

**Test object:** PVC Folien against Escherichia coli

**Sample description:** PVC Folien

**Date of receipt of sample:** Mar-07-2016

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

**Test Germ:** Escherichia coli DSM 1576/ATCC 8739

**Test laboratory:** QualityLabs BT GmbH

**Address:** Neumeyerstrasse 46a  
90411 Nuremberg, Germany

**Setup-Code:** 160315-10229-22196-02

**Sample material:** Vinyzene/PVC

**No. of pages in report:** 6

**Report on findings to the client:** **Place and date of preparation:** Nuremberg, Mar-21-2016  
**Recipient:** ASPHALT ART INTERNATIONAL AG

**Laboratory Director:**

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Harald Gerauer, Laboratory Director  
QualityLabs BT GmbH

**Released:**

\_\_\_\_\_  
Dr. Jörg Brünke, Managing Director  
QualityLabs BT GmbH

Work Order	2353.2
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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 ( $1.25 \times 10^4$  CFU / cm<sup>2</sup>) 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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### References to Testconditions

Testconditions		
Sample size	25	cm <sup>2</sup>
Foil size	16	cm <sup>2</sup>
Volume Inoculum	400	µl
Sample cleaning	-	-

### References to deviations, preincubations, special test conditions

NONE

### Test Report ISO 22196 (Mod)

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## Test Results

Sample Name		Sample Code	t <sub>0</sub> (cells/cm <sup>2</sup> )			t <sub>24</sub> (cells/cm <sup>2</sup> )			Reduction [%]	Log Reduction
1	Referenz (intern)	102291503160001	1,56 x 10 <sup>4</sup>	1,15 x 10 <sup>4</sup>	1,15 x 10 <sup>4</sup>	2,95 x 10 <sup>5</sup>	2,60 x 10 <sup>5</sup>	2,88 x 10 <sup>5</sup>	-	-
2	Clear Walk	102291503160002				<1 x 10 <sup>1</sup>	<1 x 10 <sup>1</sup>	<1 x 10 <sup>1</sup>	>99.99	>4
3	Sport Walk	102291503160003				<1 x 10 <sup>1</sup>	<1 x 10 <sup>1</sup>	<1 x 10 <sup>1</sup>	>99.99	>4
4	Cat Walk	102291503160004				<1 x 10 <sup>1</sup>	<1 x 10 <sup>1</sup>	<1 x 10 <sup>1</sup>	>99.99	>4

\*see "Interpretation of Results", page 6

Test strain	<i>Escherichia coli</i> DSM 1576/ATCC 8739
Initial cell count inoculum / cm <sup>2</sup>	1.25 x 10 <sup>4</sup>
Initials of the editor	SH
Measurement ended on	Mar-17-2016

Work Order	2353.2
Setup-Code	160315-10229-22196-02

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### Comments on test objects

NONE

### Interpretation of the results based on the measurements

NONE

**Editor:** Mrs. Hischenko \_\_\_\_\_

**Crosschecked:** Mr. Gerauer\_\_\_\_\_

### References

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