

Postfach 100565 · 63704 Aschaffenburg  
Zeppelinstraße 3-5 · 63741 Aschaffenburg · Germany

Fon: +49 6021 4989-0 · Fax: +49 6021 4989-30  
E-Mail: info@isega.de · www.isega.de

Aschaffenburg, 5 May 2020

From:           Bie-schu  
Authorized by: Dr. Biester

## REPORT

**Order No.:**                           14961/11-1      **Page 1 of    3   pages**

**Client:**                             Coveright Surfaces Spain S.A.  
Pol. Ind. Can Roca, C/ Sant Marti, s/n  
08107 Martorelles, Barcelona / Spain

**Date of order:**                   22 April 2020

**Receipt of sample material:**   23 April 2020

**Origin of sample material:**    From the client

**Purpose:**                             Analysis of two laminate samples for antimicrobial efficacy



(Dr. Derra)  
Managing Director



(Dr. Biester)  
Dipl.-Biologist  
Head of  
Microbiology Department

The present report refers exclusively to the samples as laid out therein. Information and statistical data on the results can be obtained on request.

## **Sample Material**

For analysis, laminate samples with the following designations were in hand:

Sample 1: Reference Silveright DY / Silverboard  
Sample 2: Sample Silveright DY / Silverboard

## **Carrying out of the Tests**

Examination period: 24 April 2020 to 4 May 2020

## **Test for Antibacterial Efficacy \***

The test was performed according to JIS Z 2801:2012-05. Because of the material properties the method was adapted according to ASTM E 2180:2018 in some points: the germ suspension was mixed with agar slurry (0.3 %) to increase the viscosity and 1 ml of this solution were applied onto the test pieces. The calculation of the bacterial reduction rates was performed in comparison to the initial colony counts (0 h) as stated below.

Square specimens were inoculated on the active side with the test organism. Immediately after inoculation (0 h), the agar-slurry was carefully removed from a part of the samples. The bacteria were eluted in 10 ml neutralisation broth (BD Difco D/E Neutralizing Broth) and the colony-count on the samples was determined. The other inoculated samples were stored in a humid chamber (> 90 % relative humidity). After 24 h, the bacteria were eluted from the remaining samples likewise and the colony count on the samples was determined.

The examination was performed as fourfold determination. The samples were cleaned with 70 % ethanol before the test was started.

Test organism: *Staphylococcus aureus* MRSA (DSM 13661)  
*Escherichia coli* (DSM 1576)

Volume of germ suspension: 1 ml per sample specimen

Sample specimen size: 5 x 5 cm

Storage conditions: 36 ± 1 °C, 24 h, > 90 % humidity

Neutralization broth: BD Difco D/E Neutralizing Broth

Nutrient medium: PC-Agar

The percent reduction of the colony count was calculated according to the following equation:

$$\% - reduction = \frac{(T_0 - T_{24})}{T_0} \times 100$$

The logarithmic reduction was calculated as follows:  $log - reduction = log T_0 - log T_{24}$

$T_0$  = average colony count / sample of untreated test samples, immediately after inoculation

$T_{24}$  = average colony count / sample of the untreated or the antimicrobial test sample after 24 h of incubation

Results:

<b><i>Staphylococcus aureus</i> MRSA</b>	<b>Sample 1</b>	<b>Sample 2</b>
colony count t0 [CFU/specimen]	1.5 x 10 <sup>6</sup>	
colony count t24 [CFU/specimen]	50	< 10
colony count t0 [log CFU/specimen]	6.2	
colony count t24 [log CFU/specimen]	1.4	< 1.0
%-reduction in comparison to t0	99.99	> 99.99
log-reduction in comparison to t0	4.8	5.2

<b><i>Escherichia coli</i></b>	<b>Sample 1</b>	<b>Sample 2</b>
colony count t0 [CFU/specimen]	3.9 x 10 <sup>6</sup>	
colony count t24 [CFU/specimen]	1.6 x 10 <sup>5</sup>	< 10
colony count t0 [log CFU/specimen]	6.6	
colony count t24 [log CFU/specimen]	5.1	< 1.0
%-reduction in comparison to t0	95.99	> 99.99
log-reduction in comparison to t0	1.4	5.6

CFU = colony-forming units (viable cells)

The accreditation applies to the methods marked with \* in the test report (Register no. D-PL-14160-01-01 and D-PL-14160-01-02).

End of report