

Aschaffenburg, 20 January 2021

From: Kt-sp
Authorized by: Dr. Kreuter**REPORT**

Order No.: 19234/1-1 **Page 1 of 3 pages**

Client: KOLPA
Proizvodnja in predelava plastičnih mas, d.d. Metlika
Rosalnice 5
8330 Metlika / Slovenia

Date of order: 24 November 2020

Receipt of sample material: 25 November 2020

Origin of sample material: From the client

Purpose: Analysis of two solid surface materials for antibacterial activity according to JIS Z 2801 (respectively ISO 22196)



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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 the following sample material was in hand:

Sample 1: Kerrock without AB Additive (Reference)
Sample 4: Kerrock with Glass Powder BCA-2161-L-11495

Carrying out of the Tests

Examination period: 25 November 2020 to 18 January 2021

Test for Antibacterial Efficacy *

The determination was performed according to JIS Z 2801:2012 (respectively ISO 22196:2011).

Square specimens were contaminated with the test microorganism on the test side. Immediately after inoculation (0 h) the germ suspension was removed from some test pieces by rinsing with Neutralizing Broth and the germ count was determined. The remaining test pieces were stored in a humid chamber. After 24 hours the germ suspension was removed and the germ count on those samples was determined (24 h) as well.

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

Test organisms: *Staphylococcus aureus* (DSM 346)
Escherichia coli (DSM 1576)

Volume of germ suspension: 400 µl per sample specimen

Sample specimen size: 5 x 5 cm

Film size: 4 x 4 cm

Neutralization broth: BD Difco D/E Neutralizing Broth

Storage conditions: 36 ± 1 °C, 24 h

Nutrient medium: PC-Agar

Calculation of antibacterial activity R:

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

R = antibacterial activity

U₀ = average of logarithm numbers of viable bacteria [cells/cm²] immediately after inoculation on reference test pieces

U_t = average of logarithm numbers of viable bacteria [cells/cm²] after 24 hours of incubation on the reference test pieces

A_t = average of logarithm numbers of viable bacteria [cells/cm²] after 24 hours of incubation on the equipped test pieces

Additionally, the percent reductions were calculated in comparison to the average initial numbers of bacteria on the reference material.

Results:

<i>Staphylococcus aureus</i> (DSM 346)	Sample 1	Sample 4
Average CFU/cm ² (0 h)	1.72 x 10 ⁴	---
Average CFU/cm ² (24 h)	1.75 x 10 ²	2
U ₀ = Log CFU/cm ² (0 h)	4.2	---
U _t = Log CFU/cm ² (24 h)	2.2	---
A _t = Log CFU/cm ² (24 h)	---	0.1
% reduction (24 h)	98.98	99.99
antibacterial activity R	---	2.0

<i>Escherichia coli</i> (DSM 1576)	Sample 1	Sample 4
Average CFU/cm ² (0 h)	2.77 x 10 ⁴	---
Average CFU/cm ² (24 h)	2.84 x 10 ⁵	1
U ₀ = Log CFU/cm ² (0 h)	4.4	---
U _t = Log CFU/cm ² (24 h)	5.2	---
A _t = Log CFU/cm ² (24 h)	---	0.1
% reduction (24 h)	-928.25	99.99
antibacterial activity R	---	5.1

CFU = colony-forming units

19234/1-1 ≙ Partial report for order no. 19234/1; the original test report no. 19234/1-I of 20 January 2021 remains valid

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

End of report