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Antimicrobial Test Report

Aim

Testing antimicrobial activity against ***M**ethicillin-**r**esistant **S**taphylococcus **a**ureus* (MRSA) of a curtain fabric treated with **Drapilux Bioactive**.

Test Samples

- **Drapilux Bioactive** curtain fabric, PET Trevira CS, mesh like, treated in 2-step process:
  1. step: *Pure by HeiQ®: 30 g/l AGS-20 TF + 15 g/l AGS-20 SD; dryed at 120 °C for 2 min*.
  2. step: 120 g/l Air + 10 g/l PU-DM + 10 g/l *AGS-20 SD*; dryed at 120 °C for 2 min.

Methods

- Testing method: ISO 20743.
- Prepare sample test pieces of ca.0.4g, repeated in triplicate
- Samples sterilized with steam treatment (steam at 100°C for 5 minutes, drying at 70°C for 5 hours).
- Prepare bacteria culture of ca. 3 x10^5 cells/ml
- 200 µl of bacteria culture applied to sample
- Sample incubated for 18 hours at 37 °C
- Living bacteria remaining on each sample are rinsed off and counted. Counting provides the number of so-called Colony Forming Units (cfu) which is an indicator of bacteria population.
- Calculation of antimicrobial performance metrics (From cfu counts after 18 hrs). See metric calculations below.

Antimicrobial Performance Metrics

- Performance metrics calculated from the mean cfu counts as follows:

$$\% \text{ Reduction} = \frac{[(\text{Mean cfu})_{control} - (\text{Mean cfu})_{sample}]}{(\text{Mean cfu})_{control}} \times 100$$

$$\text{Log reduction} = Log_{10}(\text{Mean cfu})_{control} - Log_{10}(\text{Mean cfu})_{sample}$$

- Antimicrobial performance categories are defined according to the following table:

Antimicrobial performance	Log reduction	% Reduction
None	<0.5	<68.4%
Slight	0.5 to <1	68.4% to <90%
Medium	1 to <2	90% to <99%
Good	2 to <3	99% to <99.9%
Very good	≥ 3	≥ 99.9%

Test organisms

Species	Comment	Strain
***M**ethicillin-**r**esistant **S**taphylococcus **a**ureus*	Gram positive bacteria	NCTC 8325 mec

Results

MRSA (Staphylococcus aureus, **NCTC 8325 mec*)***							
#	**ID**	**Sample**	**Bacteria count (cfu)**		**% reduction**	**Log reduction**	**Performance**
			Mean	**St.Dev**			
-	0912	HeiQ reference polyester (0 hrs)	7.2E+04	1.1E+04	-	-	-
-	0912	HeiQ reference polyester	4.3E+06	8.5E+05	-	-	-
1	BT10-0102-001	**Drapilux Bioactive** curtain fabric, unwashed	9.9E+01	0.0E+00	**99.998%**	**4.6**	**Very good**

Discussion

Control materials

- Inoculated untreated polyester reference sample (0912) shows growth of bacteria after 18 hours incubation indicating the viability of the bacteria and no inherent antimicrobial effect of the reference sample.

Sample materials

- Treated fabric sample shows very good antimicrobial activity against *Methicillin-resistant Staphylococcus aureus (MRSA)*.

Conclusions

- Curtain fabric treated with *Pure by HeiQ®* in first process step and Air in second process step shows excellent antimicrobial activity against *Methicillin-resistant Staphylococcus aureus (MRSA)*.

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