Technical Service

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Colan Australia
Huntingwood

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The data contained in this report are based on our current test method and our current knowledge and experience. In view of the many factors that may affect processing and application of products, the above data does not relieve manufacturers from carrying out their own tests; neither does the data imply or guarantee of certain properties, nor the suitability of the product for specific purposes nor agreed contractual quality of the product.

Please note that any conclusions and recommendations, either made or implied, are based on information drawn from examination of the samples identified in this report only. These results may be influenced by, for example, contamination level variations in raw materials, any stored component solutions and manufacturing equipment, or changes in formulation, manufacturing procedure or raw material suppliers.

OBJECTIVES:

To provide a quantitative evaluation of the antibacterial activity in a sock sample as demonstrated by AATCC Test Method 100-2012, Antibacterial Finishes on Textile Materials: Assessment of.

SAMPLES:

The following sample was received at the laboratory on 05/02/2019 and testing commenced on 12/03/2019

Sample	Description
1	; Merino Wool. Pty. Ltd.
2	Bamboo loose top socks.

EXAMINATIONS:

AATCC Test Method 100-2012, Antibacterial Finishes on Textile Materials: Assessment of

VARIATION:

Klebsiella pneumomiae ATCC 10031 was used in place of *Klebsiella pneumomiae* ATCC 4352

DISCUSSION:

AATCC Test Method 100 requires that the test organisms are diluted in a nutrient broth. This broth will provide sufficient nutrients for the test organisms to grow on the test pieces unless they are inhibited by the test piece. There must therefore be a significant increase in the number of organisms recovered from the control piece for the test to be valid. The test conducted showed >2 log increase in the number of organisms recovered from the control pieces, showing that the test was valid.

The results for the test socks showed no decrease in recovered organisms over the 24h test period. The Bush basher socks showed a significant increase in the numbers recovered at 24h for both test organisms. The bamboo socks showed a significant increase in the *K. pneumoniae* over the 24hour contact period and an increase of 0.4 logs for the *St. aureus*.

RESULTS:

Table No. 1 Recovery of test organisms

Sample		***Staphylococcus aureus* ATCC 6538P**		***Klebsiella pneumoniae* ATCC 4352**		**Number of swatches**
		CFU/sample	**R value**	***CFU/sample***	**R value**	
1. ; Merino Wool	A 24hr	3.6×10^7	NA	6.6×10^8	NA	1
	B 0hr	8.8×10^5		9.4×10^5		1
2. Bamboo loose top socks	A 24hr	1.4×10^6	NA	5.1×10^7	NA	1
	B 0hr	8.0×10^5		7.6×10^5		1
3. Filter Paper - Whatman No:1 (Untreated Control)	A 24hr	8.7×10^7	NA	1.1×10^8	N/A	2
	C 0hr	6.6×10^5		4.2×10^5		2
Inoculum count		1.0×10^6		1.1×10^6		

NA = not applicable if the count at 24hr is greater than the count at 0hr.

Value A: average of the number of viable cells of bacteria on the treated test pieces after 24h contact with the inoculum.
Value B: average of the number of viable cells of bacteria immediately after inoculation on the test pieces.
Value C: average of the number of viable cells of bacteria immediately after inoculation on the untreated control pieces.
Value R: % reduction

Conditions of Test Effectiveness

1. The number of test organisms recovered from uninoculated treated test pieces must be <100.

9000 organisms were recovered from the merino wool sock and 600 organisms were recovered from the bamboo sock. The socks were not supplied in sealed packaging, but usual aseptic techniques were used to conduct the counts on the socks. The colony morphology of the recovered organisms was not typical of the test organisms.

2. A significant increase in the number of test organisms recovered from the inoculated untreated control test piece after 24hr compared to the numbers immediately after inoculation of the test organisms. The test organisms were prepared in nutrient broth.

Test Procedure:

AATCC Test Method 100-2012, Antibacterial Finishes on Textile Materials: Assessment of, was followed, with no sterilisation of the test pieces.

The test organisms were:

Staphylococcus aureus ATCC 6538
Klebsiella pneumoniae ATCC 10031

Test pieces were prepared by cutting swatches of fabric 4.8± 0.1cm diameter. Sample swatches were stacked and placed into sterile containers. The number of swatches to be tested was determined by the number of swatches that could absorb 1± 0.1ml of inoculum without leaving any free liquid. 1mL of inoculum was evenly distributed onto the surface of the swatches. The inoculum consists of 24hr nutrient broth cultures diluted in further nutrient broth to the desired concentration. The inoculated swatches were incubated for 24hours. After 24hours contact time 100mL of neutralising diluent is poured into the jar and shaken for 1 minute. Serial dilutions are then prepared, and the number of surviving organisms enumerated using the pour plate method with Tryptone Soya agar.