February 14, 2011

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Antimicrobial Assessment of Four PVC Samples

2702691

Four PVC samples, three of which were treated with either Ultra-Fresh CA-16 or Ultra-Fresh NM-100, were received from Elian on February 03, 2011. At Thomson Research Associates Inc., the samples were tested for antimicrobial activity using a quantitative test method.

PROCEDURE

Quantitative Antibacterial Assessment:

ISO 22196:2007 was used to quantitatively test the specimen for antibacterial activity. In brief:

1. The sample was placed into a container with a lid.
2. A 0.3 mL inoculum of *Klebsiella pneumoniae* (ATCC #4352), *Escherichia coli* (ATCC #8739), or *Staphylococcus aureus* (ATCC #6538), was placed, in microdroplets, on the surface of the samples. Sterile films were placed over the inoculum to encourage good contact.
3. The specimen was incubated 24 hours at 37C.
4. 20 mL of Letheen broth was added to the container and shook. The liquid was plated using dilution techniques.
5. The "Value of Antimicrobial Activity" was carried out using the formula

   $R = [\log (B/C)]$

   Where:

   R= value of antimicrobial activity

   B = Average of the number of viable cells of bacteria on the untreated test piece after 24 hours

   C = Average of the number of viable cells of bacteria on the antimicrobial

test piece after 24 hours.

RESULTS

Quantitative Assessment of Activity - ISO 22196:2007 *E. coli*					
Concentration of starting inoculum			2.18×10^5 CFU/mL		
	Sample Description	**No. Bacteria Recovered**	**Log Value**	**R = [log(B/C)]**	**% Reduction**
1	PVC Sample without treatment	2.27×10^4	4.4	---	---
2	PVC Sample treated with 2% Ultra-Fresh NM-100	1.67×10^3	3.2	1.2	92.7%
3	PVC Sample treated with 3% Ultra-Fresh NM-100	3.76×10^4	4.6	-0.2	0.0%
4	PVC Sample treated with 2% Ultra-Fresh CA-16	1.48×10^2	2.2	2.2	99.3%

Note: The level of treatment stated above indicates theoretical levels only.

Quantitative Assessment of Activity - ISO 22196:2007 *K. pneumoniae*					
Concentration of starting inoculum			1.92×10^5 CFU/mL		
	Sample Description	**No. Bacteria Recovered**	**Log Value**	**R = [log(B/C)]**	**% Reduction**
1	PVC Sample without treatment	1.05×10^5	5.0	---	---
2	PVC Sample treated with 2% Ultra-Fresh NM-100	5.69×10^1	1.8	3.2	>99.9%
3	PVC Sample treated with 3% Ultra-Fresh NM-100	7.17×10^1	1.9	3.1	>99.9%
4	PVC Sample treated with 2% Ultra-Fresh CA-16	1.15×10^2	2.1	2.9	99.9%

Note: The level of treatment stated above indicates theoretical levels only.

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Quantitative Assessment of Activity - ISO 22196:2007 *S. aureus*					
Concentration of starting inoculum			2.18×10^5 CFU/mL		
	Sample Description	**No. Bacteria Recovered**	**Log Value**	**R = [log(B/C)]**	**% Reduction**
1	PVC Sample without treatment	2.00×10^4	4.3	---	---
2	PVC Sample treated with 2% Ultra-Fresh NM-100	2.98×10^1	1.5	2.8	99.9%
3	PVC Sample treated with 3% Ultra-Fresh NM-100	4.93×10^2	2.7	1.6	97.5%
4	PVC Sample treated with 2% Ultra-Fresh CA-16	5.50×10^1	1.7	2.6	99.7%

Note: The level of treatment stated above indicates theoretical levels only.

THOMSON RESEARCH ASSOCIATES INC.

C Lian
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c: Rondot SAS

Référence	PVC
78240	X
78242	X
78244	X