Universitat Autònoma de Barcelona

Departament de Ciència Animal i dels Aliments

Research Grup Microbiological Analysis of Surfaces and Evaluation of Biofilms (AMicS)

INTERNATIONAL STANDARD ISO-22196:2011
Plastics — Measurement of antibacterial activity on plastics surfaces

Innova Chemical SL.

Test report

1.	**Date of commencement of the experiments**			27/10/18	
2.	**Date of the test report**			30/10/18	
3.	**Type of material used:**	**Product**		**Name**	**Reference**
a.	Treated test specimens:	Innova SL.		PU Varnish	2C Varnish
b.	Untreated test specimens:	Innova SL.			Control
c.	Size of test specimens:			50x50 mm	
d.	Shape of test specimens:		2500	mm^2	
e.	Thickness of the test specimens:		12	mm	
4.	**Polymer used for the cover film:**				
a.	Type of polymer:	Polyethylene.			
b.	Size of the film:		40x40	mm	
c.	Shape of the film:		1600	mm^2	
d.	Thickness of the film:		<10	mm	
5.	**Microorganisms:**				
a.	Bacteria 1:	*Staphylococcus aureus* ATCC 6538P			
b.	Bacteria 2:	*Escherichia coli* ATCC 8739			
6.	**Volume of test inoculum used:**		0,1	ml	
7.	**Number of viable bacteria in the test inoculum:**				
a.	Staphylococcus aureus ATCC 6538P		4,12	$log(ufc/cm^2)$	
b.	Escherichia coli ATCC 8739		4,40	$log(ufc/cm^2)$	
8.	**Values:**				
a.	PU Varnish Innova Chemical	Staphylococcus aureus ATCC 6538P			
i.	U0:		=	3,71	$log\ ufc/cm^2$
ii.	Ut:		=	6,06	$log\ ufc/cm^2$
iii.	At:		<	1,80	$log\ ufc/cm^2$
b.	PU Varnish Innova Chemical)	Escherichia coli ATCC 8739			
i.	U0:		=	3,96	$log\ ufc/cm^2$
ii.	Ut:		=	6,06	$log\ ufc/cm^2$
iii.	At:		<	1,80	$log\ ufc/cm^2$
c.	**Antibacterial activity calculated:**				
a.	Staphylococcus aureus ATCC 6538P		>	4,12	$log\ ufc/cm^2$
b.	Escherichia coli ATCC 8739		>	4,26	$log\ ufc/cm^2$
10.	**% of bacterial reduction**				
a.	Staphylococcus aureus ATCC 6538P		>	99,99	%
b.	Escherichia coli ATCC 8739		>	99,99	%
10.	**Cleaning procedure:**	Isopropanol			
11.	**Extraction of bacteria procedure:**	Friction over the hard surface with 3g of glass pearls and vortexing during 1 minute (in accordance to ISO-13697).			

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12. Conclusions:

a. The analyzed samples presented a significant antimicrobial activity, in agreement with the ISO-22196:2011 norm, after the use of Staphylococcus aureus ATCC 6538P.

b. The analyzed samples presented a significant antimicrobial activity, in agreement with the ISO-22196:2011 norm, after the use of Escherichia coli ATCC 8739.

Dr. José Juan Rodríguez Jerez
Professor

Bellaterra (Cerdanyola del Vallès), 30/10/18

Notes: The results obtained reflect, exclusively, the antibacterial properties of the analyzed samples and lots, and may not be extrapolated to other products or materials.

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