

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

CimentArt Microcement 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:	Cimentart SL.	PU Varnish	2C Varnish
b. Untreated test specimens:	Cimentart 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:	<i>Staphylococcus aureus</i> ATCC 6538P		
b. Bacteria 2:	<i>Escherichia coli</i> ATCC 8739		
6. Volume of test inoculum used:	0,1 ml		
7. Number of viable bacteria in the test inoculum:			
a. <i>Staphylococcus aureus</i> ATCC 6538P		4,12	log(ufc/cm ²)
b. <i>Escherichia coli</i> ATCC 8739		4,40	log(ufc/cm ²)
8. Values:			
a. PU Varnish Cimentart	<i>Staphylococcus aureus</i> 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 Cimentart	<i>Escherichia coli</i> 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. <i>Staphylococcus aureus</i> ATCC 6538P	>	4,12	log ufc/cm ²
b. <i>Escherichia coli</i> ATCC 8739	>	4,26	log ufc/cm ²
10. % of bacterial reduction			
a. <i>Staphylococcus aureus</i> ATCC 6538P	>	99,99	%
b. <i>Escherichia coli</i> 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).		

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.



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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.