

Certificate of Analysis

Customer: CLEAF S.P.A.
Via Bottego 15
20851 Lissone MB
Italia

Certificate Number: 100/CLE0017
Date of testing: 26 10 2016

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Test Method: ASTM G21-15 Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi*

Standard interpretation of results according to ASTM G21 Fungal Species Used for Testing

Observed fungal growth on sample	Rating
None	0
Trace growth (10% coverage)	1
Light growth (10-30% coverage)	2
Moderate growth (30-60% coverage)	3
Heavy growth (>60% coverage)	4

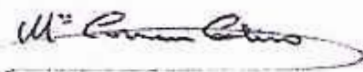
Gliocladium virens ATCC 9645
Aspergillus niger ATCC 9642
Penicillium pinophilum ATCC 11797
Chaetomium globosum ATCC 6205
Aureobasidium pullulans ATCC 15233

Results

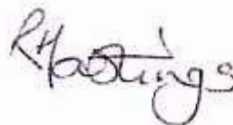
Sample	Rating at 28 days
Antibacterial melamine surface treated with BioCote additive B65003 Tested in triplicate. Each score in results table represents outcome of each replicate sample	0, 0, 0
Control. Non-antimicrobial laminate sample	1, 2, 2

* The ASTM G 21 test determines the effect of fungi on certain properties and characteristics of synthetic polymeric materials. These materials may include but are not limited to paint, plastics, paper, cardboard, dry wall, etc. These materials might be in different physical forms such as tubes, rods, laminates film materials, sheets, etc.

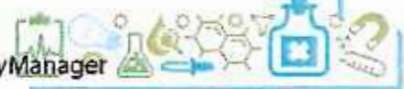
STATEMENT OF EFFICACY LONGEVITY: The Ag+ additive will continue to provide a highly efficacious antimould property to the treated laminates for a period of product usage of greater than five (5) years as determined by the extensive artificial aging of the laminates prior to testing



Maria G Galino
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Certificate of Analysis

Customer: CLEAF S.P.A.
Via Bottego 15
20851 Lissone MB
Italia

Certificate Number: 90/CLE 0002

Date of testing: 25 08 2015

Test Method: Determination of Antibacterial Activity using Test Based on ISO22196: 2011

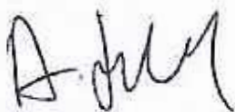
Sample	Test Bacterium	Number of bacteria		Red ⁿ against Initial		Red ⁿ against Control	
		0 Hrs	24 Hrs	Log ₀	%	Log ₀	%
CLEAF S.P.A., Italy. Antibacterial melamine surface treated with BioCote additive B65003	MRSA	1.75E +05	<11.11	>4.19	>99.99%	>3.88	>99.98%
	E.coli	1.50E +05	<11.11	4.13	>99.99%	>4.22	>99.99%
Control. Non- antibacterial melamine surface sample	MRSA	1.75E +05	8.5E +04	>0.31	>51.42%	N/A	N/A
	E.coli	1.50E +05	1.86E +05	-0.09	Growth	N/A	N/A

MRSA - Methicillin resistant *Staphylococcus aureus*

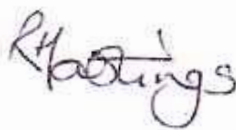
NA - not applicable

All samples included in this Certificate of Analysis were artificially aged prior to testing by continuous exposure 65°C dry heat for 10 days. The parameter of 'Reduction (of test bacteria) against Control' allows the antibacterial activity of treated melamine surface to be attributed to the presence of the active ingredient (Ag).

STATEMENT OF EFFICACY LONGEVITY: The Ag⁺ additive will continue to provide a highly efficacious antibacterial property to the treated melamine surface for a period of product usage of greater than five (5) years as determined by the extensive artificial aging of the melamine surface samples prior to testing.



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