

Alcalá la Real, April 2021

Derprosa Antimicrobial Certificate

Taghleef Industries S.L declares that:

Derprosa Antimicrobial refers to Taghleef Industries' range of transparent films with antiviral and antibacterial properties for paper and cardboard lamination in graphic arts applications.

Derprosa Gloss Antimicrobial and Derprosa Matte Antimicrobial maintain the same product codes as the Bacterstop range, which they replace.

15F138 Derprosa Gloss Antimicrobial Wet	15F148 Derprosa Matte Antimicrobial Wet
24F238 Derprosa Gloss Antimicrobial Thermal	27F248 Derprosa Matte Antimicrobial Thermal
24D238 Derprosa Gloss Antimicrobial Digi-Stick	27D248 Derprosa Matte Antimicrobial Digi-Stick

Derprosa Antimicrobial has been tested by independent laboratories to prove its antimicrobial properties for both viruses and bacteria. At the date of issuance of this document, the results obtained are as follows:

Antiviral properties:

Virus used for testing:

Coronavirus SARS-CoV-2 causing COVID-19 disease and the pandemic.

Tests carried out by independent laboratory, according to ISO 21702 on antiviral activity of plastic surfaces and other non-porous surfaces.

Results:

The trial carried out in external and independent laboratory shows that under experimental conditions (25°C, 90% RH, 24 hours), the BOPP Film references (F138) surface shows an antiviral activity (SARS-CoV-2) per cm² of 84.15% efficiency under the ISO 21702 protocol, when compared to a film that does not contain the active ingredient in its composition.

The same active ingredient has been used in the listed products mentioned in this statement.

Antibacterial properties:

Bacteria used for testing:

MRSA (Methicillin-resistant Staphylococcus Aureus) and E-Coli (Escherichia Coli).

Tests carried out by independent laboratory, according to ISO 22196 on antibacterial activity of plastic surfaces and other non-porous surfaces.


Results:

Tests have shown that after 24 hours there is a reduction of more than 99% of bacteria on its surface.

The choice of these two bacteria for these tests is because they are two bacteria that affect humans differently and with commonly differentiated transmission pathways.

Anti-fungal and anti-mold properties:

The biocidal properties of the additives used for the manufacture of Derprosa Antimicrobial and the manufacturing process itself allow positive results to be inferred from the anti-fungal and anti-mold qualities, although the necessary tests have not yet been carried out to determine the degree of effectiveness.

Derprosa Antimicrobial certificate		
Date: 06.04.2021	Approved by: R&D Director  Javier del Barrio	Page 1 of 1

I. CONCLUSION

Antiviral activities of the BOPP Film 25T138 surface and non-active surface have been tested under conditions defined by the ISO 21702 (2019) protocol for a contact time of 2 and 24 hours against the SARS-CoV2.

The BOPP Film 25TSS surface is the control for this test.

- BOPP Film 25T138 surface, 2 hours of contact time

Under experimental conditions (25°C, 90% RH, 2 hours), the BOPP Film 25T138 surface shows an antiviral activity per cm² associated with a logarithmic reduction of 0.2log₁₀ (36.90%) efficiency under the ISO 21702 protocol.

PRODUCT	Contact time	Antiviral activity R (log ₁₀ /cm ²)	Antiviral activity (%)
BOPP Film 25T138	2 hours	R = 0.2	36.90

- BOPP Film 25T138 surface, 24 hours of contact time

Under experimental conditions (25°C, 90% RH, 24 hours), the BOPP Film 25T138 surface shows an antiviral activity per cm² associated with a logarithmic reduction of 0.8log₁₀ (84.15%) efficiency under the ISO 21702 protocol.

PRODUCT	Contact time	Antiviral activity R (log ₁₀ /cm ²)	Antiviral activity (%)
BOPP Film 25T138	24 hours	R = 0.8	84.15

CERTIFICATE OF ANALYSIS

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CUSTOMER

CERTIFICATE NO.

1039496.166/13780

CUSTOMER REF.

20149

SAMPLE DETAILS

DATE RECEIVED

28/04/2020

TAGHLEEF INDUSTRIES SL (DERPROSA)

ORDER NO.

METHOD: Determination of Antibacterial Activity using Test Based on MOD ISO 22196

DATE ANALYSED

29/04/2020

DATE REPORTED

01/05/2020

RESULTS (AS CFU CM²)

SAMPLE	SPECIES	CONTACT TIME		REDUCTION (CONTROL)	
		0 hrs	24 hrs	Log 10	%
CONTROL (DERPROSA DF230)	<i>E coli</i>	1.6E+04	6.8E+03		
TREATED (DERPROSA DF238)	<i>E coli</i>	1.6E+04	< 11.11	≥ 2.79	≥ 99.84%
CONTROL (DERPROSA DF230)	MRSA	1.1E+04	4.5E+03		
TREATED (DERPROSA DF238)	MRSA	1.1E+04	< 11.11	≥ 2.61	≥ 99.75%

Key: NS = Poor survival on control supplied.

The above data show the difference in the population following contact with the surface of the samples listed for 24 hours at 35°C under a RH of > 95% relative to the control sample.

Certificate valid for up to 2 years from date of test.

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