

Microbe Investigations AG

LS20-03086

Report date: November 13, 2020

Customer: AVP Antiviral-Protection GmbH & Co. KG

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Microbe Investigations AG (MIS) is a spin-off company of ETH Zürich

MIS provides microbiological testing services primarily for industrial customers assessing the characteristics of developmental products. MIS also provides a depth of expertise in fundamental aspects of microbiology gained throughout many years of world-leading research. Target customers are primarily companies working with antimicrobial treatments on textiles, plastics, and coatings.

More information: www.microbe-investigations.com

Test report overview

General Info	Name	Contact	Key Account Manager
Customer	AVP Antiviral-Protection GmbH & Co. KG	L. Mast	R. Mundinger
Distributor	-	-	-
Brand owner	-	-	-
Brand label	-	Application at	Client
Reason for testing	Quality validation	Application by	Not specified
Effects	HeiQ Viroblock	Scale	4 - production

Test methods carried out in this report

Effect / Property	Testing standard	Test parameter
Domestic laundering	ISO 6330:2013	4G: 40°C, gentle setting (wool silk synthetics)
Quantitative antibacterial test on textiles	ISO 20743:2013	Bacterium: <i>Staphylococcus aureus</i> (ATCC 6538P)
Quantitative antiviral test on textiles	ISO 18184:2019	Betacoronavirus 1, strain OC43 (ATCC VR-1558)

Test results: Excellent - Perfect application // no adjustment on recipe or application needed

Test summary / comments:

- In the test ISO 20743, all the samples showed excellent antibacterial activity against *Staphylococcus aureus*, initially and after 30 home launderings.
- In the test ISO 18184, all the unwashed samples showed excellent antiviral activity and all the 30 washed samples showed good antiviral activity against *Beta Coronavirus (Strain: OC43)*.

Samples, finishing process and textile information

Sample	Sample description
2	13715; NPJ03 75 g/l
3	61015; NPJ03 75 g/l

Recipe	Sample number	
	2	3
Product	2	3
Viroblock NPJ03 [g/l]	75	75
Substrates	2	3
Polyester [%]	100	100
Textile information	2	3
Weight [g/m2]	-	-
Construction	WOV	WOV
Structure	-	-

Legend:

Construction process	Textile structure
WOV = Woven	

Antibacterial Testing

Recipe	Sample number			
Product	2		3	
Viroblock NPJ03 [g/l]	75		75	
ISO 6330 parameters	2-1	2-2	3-1	3-2
ISO 6330 4G		30		30
Drying conditions		A		A

ISO 20743: Staphylococcus aureus (ATCC 6538P)

Control	Intial	After 18 h		
Log cfu	4.25	6.72		
Sub-Samples	2-1	2-2	3-1	3-2
Log cfu Sample (staph)	2.70	4.00	2.56	4.00
Percent reduction Sample (staph) [%]	99.991	99.811	99.993	99.811
Log reduction Sample (staph)	4.00	2.70	4.20	2.70
Activity Sample (staph)	++	+	++	+

Antiviral Testing

Recipe	Sample number			
Product	2		3	
Viroblock NPJ03 [g/l]	75		75	
ISO 6330 parameters	2-1	2-2	3-1	3-2
ISO 6330 4G		30		30
Drying conditions		A		A

ISO 18184: Betacoronavirus 1 (ATCC VR-1558)

Sub-Samples	2-1	2-2	3-1	3-2
Ig(Va) (control, immediately) Betacoronavirus 1	7.20	7.20	7.34	7.34
Ig(Vc) (sample, after 2 hours) Betacoronavirus 1	3.75	4.85	3.33	4.91
Antiviral activity Value Mv Betacoronavirus 1	3.50	2.40	4.00	2.40
Percent reduction Betacoronavirus 1 [%]	99.965	99.557	99.990	99.631
Activity Betacoronavirus 1	Pass	Pass	Pass	Pass