Technical Report
BI-OME®

Devan Report Reference : XXX
Date : 01/05/2020

Company submitting the project:	Devan Chemicals
Devan Distributor:	XXX
Finishing Mill:	Devan lab BE, Belgium

Summary :

Substrate was treated for antimicrobial and viral reducing properties

PES/COT blend 127g/m2

Treated with Bi-ome AV via padding

15g/L Bi-ome AM5
15g/L Crealink AV

30g/L in total – calculated on 100%WPU

Devan Chemicals Klein Frankrijkstraat 8 B-9600 Ronse Belgium
Tel.: +32 (0) 55 23 01 10
E-mails : info@devan.net Website: www.devan.net

Technical Report
BI-OME®

Antimicrobial Test Results – ASTM E2149 (2013a)
Devan test lab

Bi-ome AV 30g/L (3%) PES/COT	Microbiological Analysis Bacterial [1] (% reduction)		Blue Test [2]	Pass/Fail [3]
	1hr	24hrs	% Extraction	
Untreated	0,0	0,0		
Before washing	99,50	99,99	69,6	PASS
5washes – 40°C	87,94	99,99	12	PASS

[1] ASTM E2149-13 "Dynamic Shake Flask": 1g sample, 50ml 0.3 mM KH2PO4, 1x10^5 E.coli/ml, 0.01% Q2-5211 Wetting Agent
[2] Blue Test: BPB Extraction: 1.0 g sample weight, 0.001% BPB dH2O solution, 20 minutes exposure, 595 nm Absorbance, 0.01% Q2-5211 Wetting Agent
[3] Pass/Fail: Based on the BI-OME® Quality Assurance Standards

Devan Chemicals Klein Frankrijkstraat 8 B-9600 Ronse Belgium
Tel.: +32 (0) 55 23 01 10
E-mails : info@devan.net Website: www.devan.net

Technical Report
BI-OME®

Antiviral Test Results

ISO 18184 (2019) – tested against Feline Corona virus (FCov) – 2h contact time

Performed by an external lab – MSL : Test identification Reference: **J001581 – 24/04/2020**

Scope

This standard outlines the test method for the determination of the antiviral activity of the textile products against specified viruses.

Method

A 20mmx20mm sample of test material is cut (overall mass should be 0.40g and can be made up with extra material if required). 9 control pieces are required and 6 test pieces.
3 pieces of each material are used to test the effect of the fabric on cells without virus (cytotoxicity), 3 control pieces are used to recover the starting titre of virus. The remaining pieces ate inoculated with 200µl of virus at a concentration of ~10^7 $TCID^{50}$ (giving a final concentration of 10^5) and left for the contact time.
Following the contact time, the fabric is recovered in 20ml of cell culture media and enumerated onto an appropriate cell line. TCID50 is calculated following the appropriate incubation time. Antiviral activity is calculated by comparison of the antiviral test material to the immediate recover from the control fabric.

	Feline coronavirus	COVID-19 (SARS—CoV2)
Realm	Riboviria	Riboviria
Order	Nidovirales	Nidovirales
Family	Coronaviridae	Coronaviridae
Genus	Alphacoronavirus	Betacoronavirus
Species	Alphacoronavirus 1	COVID-19

The members of the family Coronaviridae are enveloped and have a positive sense RNA genome. Coronaviruses have a distinct morphology with an outer 'corona' of embedded envelope spikes. These viruses cause a broad spectrum of animal and human disease.

Andrew M.Q. King, Michael J. Adams, Eric B. Carstens, and Elliot J. Lefkowitz 'Virus Taxonomy, Classification and Nomenclature of Viruses, Ninth Report of the International Committee on Taxonomy of Viruses' 2012 ISBN 9780123846846

Unwashed sample

Contact time:2 hour				
Sample	Log recovery	Average	Reduction	Percentage
Control 1	5.00			
Control 2	5.63			
Control 3	5.38	5.33	0.43	62.85%
Test 1	3.50			
Test 2	3.33			
Test 3	3.29	3.37	2.39	99.59%

Washed sample

Contact time:2 hour				
Sample	Log recovery	Average	Reduction	Percentage
Control 1	5.00			
Control 2	5.63			
Control 3	5.38	5.33	0.43	62.85%
Test 1	3.96			
Test 2	4.63			
Test 3	4.04	4.21	1.56	97.25%

*Control fabric must not show >1 log reduction

Test Result Summary

The test fabric (unwashed) showed an overall log reduction of 2.39 when tested against Feline coronavirus with a 2-hour contact time.
The test fabric (washed) showed an overall log reduction of 1.56 when tested against Feline coronavirus with a 2-hour contact time.

Devan Chemicals Klein Frankrijkstraat 8 B-9600 Ronse Belgium
Tel.: +32 (0) 55 23 01 10
E-mails : info@devan.net Website: www.devan.net

Technical Report
BI-OME®

Conclusions:

The samples treated with BI-OME® show significant bacterial reduction before and after 5xW at 40°C. These samples pass the BI-OME® quality control standards and criteria.
These samples show a significant activity reduction of the Feline Corona virus after 2h contact time before and after washing.

This project has been approved by :

Devan Lab
Devan Chemicals

Devan Chemicals Klein Frankrijkstraat 8 B-9600 Ronse Belgium
Tel.: +32 (0) 55 23 01 10
E-mails : info@devan.net Website: www.devan.net