

TEST REPORT

LAB NO. : 2101724/ 1

DATE: 03/06/2021

NAME OF CUSTOMER : M/s. HERRINGBONE & SUI PVT LTD
ADDRESS : PLOT NO 1909, G.I.D.C, Phase 3
Near Water Tank,
Umbergaon VALSAD Gujarat, 396171
REFERENCE : Letter Ref. Nil dated May 20, 2021
Kind Attention: Rohan
DATE OF RECEIPT : 24/05/2021
DATE OF INITIATION : 25/05/2021
DATE OF COMPLETION : 03/06/2021
SAMPLE DESCRIPTION : Mask Sample labeled as-

Sr. No.	Description
1.	Pangolin





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Purpose of Test:

Antiviral Activity of Fabric

Name of Test:

Evaluation of Antimicrobial Activity by modified AATCC 100-2012

Test Microorganism Information:

MS2 Bacteriophage (MS2) is an RNA virus of the family Leviviridae. Escherichia coli 15597 are the hosts for MS2 bacteriophages. Due to its environmental resistance, MS2 bacteriophages are used as a surrogate virus (particularly in place of Picornaviruses such as Poliovirus and human Norovirus) in water quality and Antimicrobial studies.

Virus: MS2 Bacteriophage

Permissive Host Cell: Escherichia coli ATCC 15597

Test Parameters used in Study:

Sample size	: 48 mm discs
No. of swatches used	: 0.75 gram
Method of Sterilization of sample	: Autoclaving
Viral Inoculum Volume	: 0.5 ml; 1.30×10^5 PFU/ ml
Host Cell Line	: E. coli 15597
Dilution Medium	: Phosphate Buffered Saline (PBS)
Contact Time	: 2 hours and 24 hours at 35°C
TSA Neutralizer	: 10 ml D/E broth
Assay Medium	: 50% TSA agar
Incubation Period	: 48 hours



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Procedure:

1. Test and control fabrics are cut into appropriately-sized swatches of 50 mm diameter and stacked. The numbers of swatches taken are enough to absorb the entire liquid inoculum of 0.5 ml quantity.
2. Stock virus is standardized to prepare a test inoculum.
3. Test and control materials are inoculated with the test virus, and incubated in a humid environment at 35°C temperature for the 2 hours and 24 hours contact time.
4. The viral concentration is determined at "Time Zero" to verify the target inoculums using plaque assay techniques. Assay plates are incubated for 48 hours for the virus-host cell system.
5. After the incubation period, following neutralization, the carrier suspensions are quantified to determine the levels of infectious virus survived and the assay is scored for titre of test virus.
6. Adequate control is implemented to verify neutralization effectiveness of the antimicrobial agent with Neutralizer used.
7. Percent reductions are computed for test fabric relative to the Time Zero enumeration(s), and reported.

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Results:

Mask swatches in contact with test organism for 2 hours & 24 hours at 35° C showed the following results:-

Sample Identification	Test Organism: MS2 Bacteriophage				Log Reduction of Virus at 2 hours	Percentage Reduction of Virus at 2 hours	MS2 Bacteriophage		Log Reduction of Virus at 24 hours	Percentage Reduction of Virus at 24 hours
	Average PFU/Carrier at 0 hours (B)		Average PFU/Carrier at 2 hours (A)				Average PFU/Carrier at 24 hours (A)			
	PFU	log	PFU	log			PFU	log		
Pangolin	9.30 x 10 ⁴	4.96	1.70 x 10 ²	2.23	2.73	99.81	1.00 x 10 ²	2.00	2.96	99.89
Lab Control - Untreated			9.80 x 10 ⁴	4.99	0.00	0.00	1.00 x 10 ⁵	5.00	0.00	0.00

REMARKS:

1. PFU: Plaque Forming Unit = No. of Microorganisms
2. Percentage Reduction = $(B - A / B) \times 100$
3. Log reduction Log (B/A)

Where:

B = Number of viable test microorganisms on the control carriers immediately after inoculation

A = Number of viable test microorganisms on the test carriers after the contact time

INTERPRETATION:

Mask labeled as Pangolin has shown 99.81% and 99.89% reduction of Virus in 2 hours and 24 hours when analyzed as per AATCC 100 - 2012 test Method using MS2 Bacteriophage as surrogate virus.

Disclaimer:

Bacteriophages are viruses of Bacteria. They are suitable only as a Preliminary screen in the development of germicidal product.

Due to variation in virus antigen, for specific virucidal claims, test should be conducted specifically with that virus

For BIOTECH TESTING SERVICES



Dr Shilpa U. Nair
Quality Manager
(Authorized Signatory)