

TEST REPORT

LAB NO. : 2001792/ 1
DATE: 04/07/2020

NAME OF CUSTOMER : M/S. THREADS INDIA LIMITED
ADDRESS : D-3/A, Panki Industrial Estate,
 Panki, Kanpur Nagar, Uttar Pradesh - 208022
REFERENCE : Letter Ref NIL dated June 23, 2020
 Kind attention: Rahul Srivastava
DATE OF RECEIPT : 23/06/2020
DATE OF INITIATION : 23/06/2020
DATE OF COMPLETION : 04/07/2020
SAMPLE DESCRIPTION : THREAD SAMPLE LABELED AS: -

Sr. No.	Description
1.	Spun Thread, T.Art -11493 TKT 100, Shade N.W 5000 Mtrs
Untreated – Lab Control	



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	: 2 (0.75 g)
Method of Sterilization of sample	: Autoclaving
Viral Inoculum Volume	: 0.5 ml; 1.10×10^6 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 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:

Fabric 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		
Spun Thread, T.Art -11493 TKT 100, Shade N.W 5000 Mtrs	8.40x10 ⁴	4.92	3.40x10 ³	3.53	1.39	95.95	1.83x10 ³	4.26	0.66	97.82
Lab Control - Untreated			9.50x10 ⁵	4.97	0.00	0.00	1.00x10 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:

Fabric labeled as Spun Thread, T.Art -11493 TKT 100, Shade N.W 5000 Mtrs has shown 95.95% and 97.82% reduction of Virus in 2 hours and 24 hours respectively 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)

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