



SHRIRAM INSTITUTE FOR INDUSTRIAL RESEARCH

(A unit of Shriram Scientific and Industrial Research Foundation)

19, University Road, Delhi – 110007 (India)
An ISO - 9001, 14001 & OHSAS 18001 Certified Institute

Website : www.shriraminstitute.org
E-mail id : customercare@shriraminstitute.org

TEST CERTIFICATE

NO : C1/0000220568

Issued To :

Client Code : (NDLS01M1925)
MERINO INDUSTRIES LTD.
70, KLJ COMPLEX, 2ND FLOOR, MOTI NAGAR
NEW DELHI
DELHI-110015
Kind Attn: MR. MAYANK BANSAL, SR. MANAGER

Date : 01-07-2020
Job No : 2006-1-111-1529
Booking No : RG2021/1/1120
Booking Date : 20-06-2020
Customer Ref No. : E.MAIL
Customer Ref Dt. : 09-06-2020

Sample Particulars:

One sample of FINGUARD (Anti-Fingerprint Laminates) was received.

"The sampling was not carried out by Shriram Institute for Industrial Research. The sample details provided in test certificate are based on declaration by the party."

Product Details- FINGUARD (Anti-Fingerprint Laminates)
Test- Determination of Antimicrobial activity of FINGUARD (Anti-Fingerprint Laminates)
Protocol- As per guidelines of ISO:22196-2011
Test Organisms-

- a) **Bacteria-** *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumoniae*, *Salmonella typhimurium*,
Pseudomonas aeruginosa and *Enterococcus faecalis*
b) **Fungus-** *Candida albicans*

Sample Size 50 mm x 50 mm each piece

1) Antimicrobial Activity against *Staphylococcus aureus*

S. No.	Untreated sample	No of colonies (in cfu/piece)	Log Value
1	Number of bacteria inoculated per piece at 0 hrs (U_0)	4.6×10^5	5.66
2	Number of bacteria inoculated per piece after 24 hrs incubation(U_t)	7.7×10^5	5.88

S. No.	Treated sample (Finguard)	No of colonies (in cfu/piece)	Log Value (A_t)	Antibacterial Activity after 24 hrs ($U_t - A_t$)
3	Number of bacteria inoculated per piece at 24 hrs (A_t)	<1	0	5.88

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2) Antimicrobial Activity against *Escherichia coli*

S. No.	Untreated sample	No of colonies (in cfu/piece)	Log Value
1	Number of bacteria inoculated per piece at 0 hrs (U_0)	4.7×10^5	5.67
2	Number of bacteria inoculated per piece after 24 hrs incubation(U_t)	6.9×10^5	5.83

S. No.	Treated sample (Finguard)	No of colonies (in cfu/piece)	Log Value (A_t)	Antibacterial Activity after 24 hrs ($U_t - A_t$)
3	Number of bacteria inoculated per piece at 24 hrs (A_t)	<1	0	5.83

3) Antimicrobial Activity against *Salmonella typhimurium*

S. No.	Untreated sample	No of colonies (in cfu/piece)	Log Value
1	Number of bacteria inoculated per piece at 0 hrs (U_0)	5.5×10^5	5.74
2	Number of bacteria inoculated per piece after 24 hrs incubation(U_t)	7.5×10^5	5.87

S. No.	Treated sample (Finguard)	No of colonies (in cfu/piece)	Log Value (A_t)	Antibacterial Activity after 24 hrs ($U_t - A_t$)
3	Number of bacteria inoculated per piece at 24 hrs (A_t)	<1	0	5.87

4) Antimicrobial Activity against *Klebsiella pneumoniae*

S. No.	Untreated sample	No of colonies (in cfu/piece)	Log Value
1	Number of bacteria inoculated per piece at 0 hrs (U_0)	4.5×10^5	5.65
2	Number of bacteria inoculated per piece after 24 hrs incubation(U_t)	8.4×10^5	5.92

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S. No.	Treated sample (Finguard)	No of colonies (in cfu/piece)	Log Value (A_t)	Antibacterial Activity after 24 hrs ($U_t - A_t$)
3	Number of bacteria inoculated per piece at 24 hrs (A_t)	<1	0	5.92

5) Antimicrobial Activity against *Pseudomonas aeruginosa*

S. No.	Untreated sample	No of colonies (in cfu/piece)	Log Value
1	Number of bacteria inoculated per piece at 0 hrs (U_0)	5.4×10^5	5.73
2	Number of bacteria inoculated per piece after 24 hrs incubation(U_t)	7.6×10^5	5.88

S. No.	Treated sample (Finguard)	No of colonies (in cfu/piece)	Log Value (A_t)	Antibacterial Activity after 24 hrs ($U_t - A_t$)
3	Number of bacteria inoculated per piece at 24 hrs (A_t)	<1	0	5.88

6) Antimicrobial Activity against *Enterococcus faecalis*

S. No.	Untreated sample	No of colonies (in cfu/piece)	Log Value
1	Number of bacteria inoculated per piece at 0 hrs (U_0)	4.5×10^5	5.65
2	Number of bacteria inoculated per piece after 24 hrs incubation(U_t)	7.2×10^5	5.85

S. No.	Treated sample (Finguard)	No of colonies (in cfu/piece)	Log Value (A_t)	Antibacterial Activity after 24 hrs ($U_t - A_t$)
3	Number of bacteria inoculated per piece at 24 hrs (A_t)	<1	0	5.85

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7) Antimicrobial Activity against *Candida albicans*

S. No.	Untreated sample	No of colonies (in cfu/piece)	Log Value
1	Number of fungus inoculated per piece at 0 hrs (U_0)	4.2×10^5	5.62
2	Number of fungus inoculated per piece after 24 hrs incubation(U_t)	6.3×10^5	5.79

S. No.	Treated sample (Finguard)	No of colonies (in cfu/piece)	Log Value (A_t)	Antifungal Activity after 24 hrs ($U_t - A_t$)
3	Number of fungus inoculated per piece at 24 hrs (A_t)	<1	0	5.79

Interpretation: The antimicrobial activity of FINGUARD (Anti-Fingerprint Laminates) were found 5.88 against *Staphylococcus aureus*, 5.83 against *Escherichia coli*, 5.92 against *Klebsiella pneumoniae*, 5.87 against *Salmonella typhimurium*, 5.88 against *Pseudomonas aeruginosa*, 5.85 against *Enterococcus faecalis* and 5.79 against *Candida albicans* which were above the value of 2.0 as per guidelines, hence sample passes the test.

DOR: 20.06.2020

DOC: 01.07.2020

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