BIOTECH TESTING SERVICES

TEST REPORT

LAB NO. : 2003936/ 1 - 2	DATE: 05/12/2020

NAME OF CUSTOMER : GREENLAM INDUSTRIES LIMITED

ADDRESS : Vill. Paterh Bhonku, PO Panjehra,
Teh. Nalagarh, Distt. Salon,
Himachal Pradesh – 174 101

REFERENCE : Letter Ref. Nil dated October 20, 2020
K. Attention: GSRA Sharma

DATE OF RECEIPT : 20/10/2020

DATE OF INITIATION : 21/10/2020 & 02/11/2020

DATE OF COMPLETION : 27/10/2020 & 18/11/2020

SAMPLE DESCRIPTION : LAMINATE SAMPLE LABELED AS:-

Sr. No.	Description
1.	New Mika - Treated
2.	New Mika – Untreated
Untreated – Lab Control	

Name of Test:

Evaluation of Antimicrobial Activity of Laminate Sample

Name of Test Protocol:

JIS Z 2801: 2010

Test Organisms used for evaluating Antimicrobial activity:

1. Staphylococcus aureus ATCC 6538
2. Escherichia coli ATCC 8739
3. Klebsiella pneumoniae ATCC 4352
4. Meticillin Resistant Staphylococcus aureus (MRSA) S- 129
5. Pseudomonas aeruginosa ATCC 9027
6. Salmonella typhimurium ATCC 10749
7. Streptococcus faecalis ATCC 9790
8. Enterococcus faecalis ATCC 8459
9. Candida albicans ATCC 10231

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Email : info@biotechts.in / report@biotechts.in / biotechtestingservices@gmail.com / shilpanair@biotechts.in

Test Conditions:

Neutraliser used	: Buffered Saline with Tween 80 - 0.01 %
Contact Time	: 24 hours at 37^0 C
Incubation Temperature	: 37^0 C for Bacteria
Media and Reagent	: Soyabean-casein digest agar for Bacteria

Results:

ANTIBACTERIAL ACTIVITY

1. Test Bacteria: Staphylococcus aureus ATCC 6538

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated – lab Control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.63×10^5				Log = 5.21
Untreated – lab Control: Conc. of Inoculum on untreated sample after 24 hour (B): 2.63×10^5				Log = 5.41
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
New Mika - Treated	<10	<1	**>4.41**	**>99.99**
New Mika – Untreated	500	2.69	**2.72**	**99.80**

2. Test Bacteria: Escherichia coli ATCC 8739

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated – lab Control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.55×10^5				Log = 5.19
Untreated – lab Control: Conc. of Inoculum on untreated sample after 24 hour (B): 2.90×10^5				Log = 5.46
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
New Mika - Treated	10	1.00	**4.46**	**99.99**
New Mika – Untreated	780	2.89	**2.57**	**99.73**

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3. Test Bacteria: Klebsiella pneumoniae ATCC 4352

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated – lab Control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.54×10^5				Log = 5.18
Untreated – lab Control: Conc. of Inoculum on untreated sample after 24 hour (B): 2.04×10^5				Log = 5.30
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
New Mika - Treated	<10	<1	**>4.30**	**>99.99**
New Mika – Untreated	720	2.85	**2.45**	**99.64**

4. Test Bacteria: Meticillin Resistant Staphylococcus aureus (MRSA) S- 129

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated – lab Control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.93×10^5				Log = 5.28
Untreated – lab Control: Conc. of Inoculum on untreated sample after 24 hour (B): 2.18×10^5				Log = 5.33
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
New Mika - Treated	<10	<1	**>4.33**	**>99.99**
New Mika – Untreated	390	2.59	**2.74**	**99.82**

5. Test Bacteria: Pseudomonas aeruginosa ATCC 9027

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated – lab Control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.28×10^5				Log = 5.10
Untreated – lab Control: Conc. of Inoculum on untreated sample after 24 hour (B): 2.12×10^5				Log = 5.32
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
New Mika - Treated	<10	<1	**>4.32**	**>99.99**
New Mika – Untreated	650	2.81	**2.51**	**99.69**

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6. Test Bacteria: Salmonella typhimurium ATCC 10749

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated – lab Control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.77×10^5				Log = 5.24
Untreated – lab Control: Conc. of Inoculum on untreated sample after 24 hour (B): 2.04×10^5				Log = 5.30
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
New Mika - Treated	<10	<1	**>4.30**	**>99.99**
New Mika – Untreated	1580	3.19	**2.11**	**99.22**

7. Test Bacteria: Streptococcus faecalis ATCC 9790

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated – lab Control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.31×10^5				Log = 5.11
Untreated – lab Control: Conc. of Inoculum on untreated sample after 24 hour (B): 1.46×10^5				Log = 5.16
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
New Mika - Treated	460	2.66	**2.50**	**99.68**
New Mika – Untreated	40	1.60	**3.56**	**99.97**

8. Test Bacteria: Enterofococcus faecalis ATCC 8459

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated – lab Control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.28×10^5				Log = 5.10
Untreated – lab Control: Conc. of Inoculum on untreated sample after 24 hour (B): 1.98×10^5				Log = 5.29
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
New Mika - Treated	1320	3.12	**2.17**	**99.33**
New Mika – Untreated	500	2.69	**2.60**	**99.74**

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9. Test Fungus: Candida albicans ATCC 10231

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated – lab Control: Conc. of Inoculum on untreated sample at 0 hours (A): 1.04×10^5				Log = 5.01
Untreated – lab Control: Conc. of Inoculum on untreated sample after 24 hour (B): 1.14×10^5				Log = 5.05
Sample Identification	**No. Fungi on treated sample (C)**	**Log of Fungi on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
New Mika - Treated	<10	<1	**>4.04**	**>99.99**
New Mika – Untreated	40	1.60	**3.45**	**99.96**

The Standard Antimicrobial value of Evaluation R ≥ 2.0

COMMENT:

When tested as specified, Sample labeled **New Mika - Treated** and **New Mika – Untreated; PASSES** the Quantitative Assessment of activity for Staphylococcus aureus, Escherichia coli, Klebsiella pneumonia, Meticillin Resistant Staphylococcus aureus, Pseudomonas aeruginosa, Salmonella typhimurium, Streptococcus faecalis, Enterococcus faecalis and Candida albicans by **JIS Z 2801: 2010 Test Method**.

For BIOTECH TESTING SERVICES

BIOTECH TESTING SERVICES BTS MUMBAI

Dr Shilpa U. Nair
Quality Manager
(Authorized Signatory)

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