BIOTECH TESTING SERVICES

TEST REPORT

LAB NO. : 2000936/ 1	DATE: 26/03/2020

NAME OF CUSTOMER : GREENLAM INDUSTRIES LIMITED

ADDRESS : Plot no. E - 176/179, Phase-II,
RIICO Industrial Area, P.O Behror,
Dist. Alwar

REFERENCE : Letter Ref. Nil dated March 17, 2020
K. Attention: GSRA Sharma

DATE OF RECEIPT : 19/03/2020

DATE OF INITIATION : 19/03/2020

DATE OF COMPLETION : 26/03/2020

SAMPLE DESCRIPTION : LAMINATE SAMPLE LABELED AS:-

Sr. No.	Description
1.	Product Description:- Greenlam High Pressure Compact Laminate Thickness:- 12mm Décor No./Finish:- 113(Suede)
Untreated – Lab Control	

Name of Test:

Evaluation of Antimicrobial Activity of Laminate specimen

Name of Test Protocol:

JIS Z 2801: 2012 (amendment 1)

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

• Samples are not drawn by the laboratory • Result relate only to the samples tested
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104/105, Malwa, Patanwala Ind. Estate, L.B.S. Marg, Ghatkopar (W), Mumbai - 400086, INDIA • Tel. : +91-22-2500 2811, 2500 2812
Email : info@biotechts.in / report@biotechts.in / biotechtestingservices@gmail.com / shilpanair@biotechts.in

Test Conditions:

Neutralizer used	: Buffered Saline with Tween 80 - 0.01 %
Contact Time	: 24 hours at 37^0 C
Incubation Temperature	: 37^0 C for Bacteria; 28^0 C for Fungi
Media and Reagent	: Soyabean-casein digest agar for Bacteria; Sabouraud's dextrose agar for Fungi

RESULTS:

ANTIBACTERIAL ACTIVITY

1. Test Bacteria: Staphylococcus aureus ATCC 6538

Quantitative Assessment of Activity - JIS Z 2801: 2012				
Untreated: Conc. of Inoculum on untreated sample at 0 hours (A): 1.43×10^4				Log = 4.00
Untreated: Conc. of Inoculum on untreated sample after 24 hour (B): 1.52×10^5				Log = 5.18
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
Product: Greenlam High Pressure Compact Laminate Thickness:- 12mm Décor No./Finish:- 113(Suede)	10	1.00	**4.18**	**99.99**

2. Test Bacteria: Escherichia coli ATCC 8739

Quantitative Assessment of Activity - JIS Z 2801: 2012				
Untreated: Conc. of Inoculum on untreated sample at 0 hours (A): 3.50×10^4				Log = 4.54
Untreated: Conc. of Inoculum on untreated sample after 24 hour (B): 1.60×10^5				Log = 5.20
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
Product: Greenlam High Pressure Compact Laminate Thickness:- 12mm Décor No./Finish:- 113(Suede)	1370	3.13	**2.07**	**99.14**

3. Test Bacteria: Klebsiella pneumoniae ATCC 4352

Quantitative Assessment of Activity - JIS Z 2801: 2012				
Untreated: Conc. of Inoculum on untreated sample at 0 hours (A): 1.72×10^5				Log = 5.23
Untreated: Conc. of Inoculum on untreated sample after 24 hour (B): 2.60×10^5				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)
Product: Greenlam High Pressure Compact Laminate Thickness:- 12mm Décor No./Finish:- 113(Suede)	2400	3.38	**2.03**	**99.07**

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

Quantitative Assessment of Activity - JIS Z 2801: 2012				
Untreated: Conc. of Inoculum on untreated sample at 0 hours (A): 2.70×10^4				Log = 4.43
Untreated: Conc. of Inoculum on untreated sample after 24 hour (B): 4.10×10^5				Log = 5.61
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
Product: Greenlam High Pressure Compact Laminate Thickness:- 12mm Décor No./Finish:- 113(Suede)	<10	<1	**>4.61**	**>99.99**

5. Test Bacteria: Pseudomonas aeruginosa ATCC 9027

Quantitative Assessment of Activity - JIS Z 2801: 2012				
Untreated: Conc. of Inoculum on untreated sample at 0 hours (A): 2.30×10^4				Log = 4.36
Untreated: Conc. of Inoculum on untreated sample after 24 hour (B): 2.00×10^5				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)
Product: Greenlam High Pressure Compact Laminate Thickness:- 12mm Décor No./Finish:- 113(Suede)	150	2.17	**3.13**	**99.92**

6. Test Bacteria: Salmonella typhimurium ATCC 10749

Quantitative Assessment of Activity - JIS Z 2801: 2012				
Untreated: Conc. of Inoculum on untreated sample at 0 hours (A): 2.70×10^4				Log = 4.43
Untreated: Conc. of Inoculum on untreated sample after 24 hour (B): 8.00×10^4				Log = 4.90
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
Product: Greenlam High Pressure Compact Laminate Thickness:- 12mm Décor No./Finish:- 113(Suede)	70	1.84	**3.06**	**99.91**

7. Test Bacteria: Streptococcus faecalis ATCC 9790

Quantitative Assessment of Activity - JIS Z 2801: 2012				
Untreated: Conc. of Inoculum on untreated sample at 0 hours (A): 3.90×10^4				Log = 4.59
Untreated: Conc. of Inoculum on untreated sample after 24 hour (B): 7.00×10^4				Log = 4.84
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
Product: Greenlam High Pressure Compact Laminate Thickness:- 12mm Décor No./Finish:- 113(Suede)	490	2.69	**2.15**	**99.30**

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8. Test Bacteria: Enterococcus faecalis ATCC 8459

Quantitative Assessment of Activity - JIS Z 2801: 2012				
Untreated: Conc. of Inoculum on untreated sample at 0 hours (A): 4.00×10^4				Log = 4.60
Untreated: Conc. of Inoculum on untreated sample after 24 hour (B): 9.00×10^4				Log = 4.95
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
Product: Greenlam High Pressure Compact Laminate Thickness:- 12mm Décor No./Finish:- 113(Suede)	710	2.85	**2.10**	**99.21**

9. Test Fungus: Candida albicans ATCC 10231

Quantitative Assessment of Activity - JIS Z 2801: 2010				
Untreated: Conc. of Inoculum on untreated sample at 0 hours (A): 2.10×10^4				Log = 4.32
Untreated: Conc. of Inoculum on untreated sample after 24 hour (B): 8.20×10^4				Log = 4.91
Sample Identification	**No. Bacteria on treated sample (C)**	**Log of Bacteria on treated sample**	**Antimicrobial Activity (R)** (Log B-C)	**Microbial Kill** (% Reduction)
Product: Greenlam High Pressure Compact Laminate Thickness:- 12mm Décor No./Finish:- 113(Suede)	40	1.60	**3.31**	**99.95**

The Standard Antimicrobial value of Evaluation R ≥ 2.0

COMMENT:

When tested as specified, laminate labeled as Product: Greenlam High Pressure Compact Laminate; Thickness: 12mm; Décor No./Finish: 113(Suede); **PASSES** the Quantitative Assessment of activity for Staphylococcus aureus, Escherichia coli, Klebsiella pneumoniae, Meticillin Resistant Staphylococcus aureus, Pseudomonas aeruginosa, Salmonella typhimurium, Streptococcus faecalis, Enterofococcus faecalis and Candida albicans by **JIS Z 2801: 2012 Test Method.**

For BIOTECH TESTING SERVICES

BIOTECH TESTING SERVICES BTS MUMBAI

Dr Shilpa U. Nair
Quality Manager
(Authorized Signaory)

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