

TEST REPORT**LAB NO.:** 2301912/ 1**DATE:** 28/09/2023

NAME OF CUSTOMER : JSW PAINTS PRIVATE LIMITED
ADDRESS : Vasind, Shahapur,
Thane - 421604
REFERENCE : Your letter Ref. JSWP/ BTS/07/2023-24 dated August 23, 2023
Kind Attention: Anirudh Neswankar
DATE OF RECEIPT : 25/08/2023
DATE OF INITIATION : 25/08/2023
DATE OF COMPLETION : 28/09/2023
SAMPLE DESCRIPTION : Sample labeled as-

Sr. No.	Description
1.	Halo Majestic Interiors Silk
	Uncoated Leneta panels
Untreated lab control	



Name of Test:

JIS Z 2801: 2010; Amendment 1: 2012

Antibacterial products - Test for antibacterial activity and efficacy

Test Organisms used for evaluating Antimicrobial activity:

1. *Staphylococcus aureus* ATCC 6538
2. *Escherichia coli* ATCC 8739
3. *Pseudomonas aeruginosa* ATCC 9027
4. *Klebsiella pneumoniae* ATCC 4352
5. *Enterococcus faecalis* MTCC 3159
6. *Enterococcus hirae* ATCC 10541
7. *Serratia marcescens* ATCC 14756
8. *Pseudomonas stutzeri* MTCC 101
9. *Vibrio cholerae* 01 MTCC 3904
10. *Bacillus subtilis* ATCC 6633
11. *Nocardia rugosa* MTCC 10604
12. *Shigella flexneri* ATCC 29508
13. *Staphylococcus epidermidis* ATCC 7919
14. *Alcaligenes faecalis* ATCC 8750
15. *Acinetobacter baumannii* ATCC 19606
16. *Pseudomonas putida* ATCC 12633
17. *Salmonella typhimurium* ATCC 23564
18. *Enterobacter aerogenes* ATCC13048
19. *Proteus mirabilis* ATCC 25933
20. *Bacillus cereus* ATCC 14579
21. *Streptococcus faecalis* ATCC 29212
22. *Meticillin Resistant Staphylococcus aureus* ATCC 43300
23. *Listeria monocytogenes* ATCC 19112
24. *Klebsiella pneumoniae* ATCC 2146 - MBL strain
25. *Enterobacter sakazakii* ATCC 51329
26. *Escherichia coli* ATCC 25922
27. *Corynebacterium minutissimum* ATCC 23348
28. *Streptococcus mutans* MTCC 497
29. *Vancomycin Resistant Enterococci* ATCC 51299
30. *Vancomycin Resistant Enterococci* ATCC 2006
31. *Citrobacter freundii* ATCC 43864
32. *Corynebacterium xerosis* ATCC 7711
33. *Proteus vulgaris* ATCC 13315
34. *Micrococcus luteus* ATCC 11880
35. *Klebsiella pneumoniae* ATCC 700603 ESBL strain
36. *Salmonella enterica* MTCC 733
37. *Sarcina luteus* NCIM 2210
38. *Escherichia coli* K12 MTCC 1302
39. *Burkholderia cepacia* MTCC 12970
40. *Clostridium perfringens* ATCC 13124



BIOTECH TESTING SERVICES

Experimental Conditions:

Sample Size	: 5cm x 5cm
Pre-treatment of sample	: ETO Sterilisation
Inoculum Carrier	: 1: 500 Nutrient broth
Cover Film	: LDPE Film
Lab Control	: LDPE Film
Contact Time	: 24 hours at 35° C
Media and Reagent	: For Bacteria - Soyabean-casein digest agar For Clostridium – Clostridial Agar
Incubation Temperature	: Bacteria - 37° C for 48 hours; Clostridium - 37° C for 48 hours (Anaerobic condition)
Neutralizer used	: SCDLP Broth

Compliance for Conditions of Valid test:

Test Bacteria	Logarithmic value of number of viable bacteria untreated sample at 0 hours (Lmax- Lmin)/ Lmean	Average number of viable bacteria recovered immediately after inoculation from the Untreated specimen	The number of viable bacteria recovered from each Untreated specimen after incubation after 24 hrs
Staphylococcus aureus ATCC 6538	0.007	Confirms	Confirms
Escherichia coli ATCC 8739	0.002	Confirms	Confirms
Pseudomonas aeruginosa ATCC 9027	0.011	Confirms	Confirms
Klebsiella pneumoniae ATCC 4352	0.002	Confirms	Confirms
Enterococcus faecalis MTCC 3159	0.005	Confirms	Confirms
Enterococcus hirae ATCC 10541	0.002	Confirms	Confirms
Serratia marcescens ATCC 14756	0.003	Confirms	Confirms
Pseudomonas stutzeri MTCC 101	0.002	Confirms	Confirms
Vibrio cholerae 01 MTCC 3904	0.005	Confirms	Confirms
Bacillus subtilis ATCC 6633	0.008	Confirms	Confirms
Nocardia rugosa MTCC 10604	0.014	Confirms	Confirms
Shigella flexneri ATCC 29508	0.006	Confirms	Confirms
Staphylococcus epidermidis ATCC 7919	0.005	Confirms	Confirms
Alcaligenes faecalis ATCC 8750	0.004	Confirms	Confirms
Acinetobacter baumannii ATCC 19606	0.005	Confirms	Confirms
Pseudomonas putida ATCC 12633	0.007	Confirms	Confirms
Salmonella typhimurium ATCC 23564	0.004	Confirms	Confirms
Enterobacter aerogenes ATCC13048	0.006	Confirms	Confirms

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- Samples are not drawn by the laboratory • Results relate only to the samples tested
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Test Bacteria	Logarithmic value of number of viable bacteria untreated sample at 0 hours (Lmax- Lmin)/ Lmean	Average number of viable bacteria recovered immediately after inoculation from the Untreated specimen	The number of viable bacteria recovered from each Untreated specimen after incubation after 24 hrs
Proteus mirabilis ATCC 25933	0.002	Confirms	Confirms
Bacillus cereus ATCC 14579	0.007	Confirms	Confirms
Streptococcus faecalis ATCC 29212	0.002	Confirms	Confirms
Meticillin Resistant Staphylococcus aureus ATCC 43300	0.004	Confirms	Confirms
Listeria monocytogenes ATCC 19112	0.007	Confirms	Confirms
Klebsiella pneumoniae ATCC 2146 - MBL strain	0.002	Confirms	Confirms
Enterobacter sakazakii ATCC 51329	0.004	Confirms	Confirms
Escherichia coli ATCC 25922	0.002	Confirms	Confirms
Corynebacterium minutissimum ATCC 23348	0.014	Confirms	Confirms
Streptococcus mutans MTCC 497	0.005	Confirms	Confirms
Vancomycin Resistant Enterococci ATCC 51299	0.002	Confirms	Confirms
Vancomycin Resistant Enterococci ATCC 2006	0.009	Confirms	Confirms
Citrobacter freundii ATCC 43864	0.009	Confirms	Confirms
Corynebacterium xerosis ATCC 7711	0.002	Confirms	Confirms
Proteus vulgaris ATCC 13315	0.003	Confirms	Confirms
Micrococcus luteus ATCC 11880	0.003	Confirms	Confirms
Klebsiella pneumoniae ATCC 700603 ESBL strain	0.007	Confirms	Confirms
Salmonella enterica MTCC 733	0.004	Confirms	Confirms
Sarcina luteus NCIM 2210	0.004	Confirms	Confirms
Escherichia coli K12 MTCC 1302	0.004	Confirms	Confirms
Burkholderia cepacia MTCC 12970	0.011	Confirms	Confirms
Clostridium perfringens ATCC 13124	0.010	Confirms	Confirms
Acceptance	≤ 0.2	6.2 × 10 ³ - 2.5 × 10 ⁴ cells/cm ²	Shall not be less than 6.2 × 10 ² cells/cm ²

Results:

ANTIBACTERIAL ACTIVITY

1. Test Bacteria: Staphylococcus aureus ATCC 6538

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				20600	4.31
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				312500	5.49
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>4.70	>99.998	

2. Test Bacteria: Escherichia coli ATCC 8739

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				19700	4.29
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				312500	5.49
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>4.70	>99.998	

3. Test Bacteria: Pseudomonas aeruginosa ATCC 9027

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				22500	4.35
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				50600	4.70
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	62.5	1.79	2.91	99.877	

4. Test Bacteria: Klebsiella pneumoniae ATCC 4352

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				14800	4.17
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				51800	4.71
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	25	1.39	3.32	99.952	

5. Test Bacteria: Enterococcus faecalis MTCC 3159

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm ²			10250	4.01
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm ²			23100	4.36
Sample identification	No. Bacteria on treated sample CFU/cm ² (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	37.5	1.57	2.79	99.838

6. Test Bacteria: Enterococcus hirae ATCC 10541

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm ²			15750	4.20
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm ²			12310	4.09
Sample identification	No. Bacteria on treated sample CFU/cm ² (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>3.29	>99.949

7. Test Bacteria: Serratia marcescens ATCC 14756

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm ²			5930	3.77
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm ²			11700	4.07
Sample identification	No. Bacteria on treated sample CFU/cm ² (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>3.27	>99.946

8. Test Bacteria: Pseudomonas stutzeri MTCC 101

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm ²			13200	4.12
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm ²			9430	3.97
Sample identification	No. Bacteria on treated sample CFU/cm ² (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>3.18	>99.934

9. Test Bacteria: *Vibrio cholerae* 01 MTCC 3904

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				12250	4.09
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				218750	5.34
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	894	2.95	2.39	99.591	

 10. Test Bacteria: *Bacillus subtilis* ATCC 6633

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				58750	4.77
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				56250	4.75
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>3.95	>99.989	

 11. Test Bacteria: *Nocardia rugosa* MTCC 10604

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				18750	4.27
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				23750	4.38
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>3.58	>99.974	

 12. Test Bacteria: *Shigella flexneri* ATCC 29508

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				2750	3.44
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				10375	4.02
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>3.22	>99.940	

13. Test Bacteria: Staphylococcus epidermidis ATCC 7919

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				5280	3.72
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				90625	4.96
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>4.16	>99.993	

14. Test Bacteria: Alcaligenes faecalis ATCC 8750

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				37800	4.58
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				89375	4.95
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>4.16	>99.993	

15. Test Bacteria: Acinetobacter baumannii ATCC 19606

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				4750	3.68
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				26250	4.42
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	107	2.03	2.39	99.595	

16. Test Bacteria: Pseudomonas putida ATCC 12633

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				41250	4.62
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				287500	5.46
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>4.66	>99.998	

17. Test Bacteria: Salmonella typhimurium ATCC 23564

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				50000	4.70
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				41250	4.62
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	44	1.64	2.98	99.894	

18. Test Bacteria: Enterobacter aerogenes ATCC13048

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				45000	4.65
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				51250	4.71
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	670	2.83	1.88	98.695	

19. Test Bacteria: Proteus mirabilis ATCC 25933

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				30625	4.49
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				25000	4.40
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>3.60	>99.975	

20. Test Bacteria: Bacillus cereus ATCC 14579

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				19375	4.29
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				16250	4.21
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	106	2.03	2.18	99.346	

21. Test Bacteria: Streptococcus faecalis ATCC 29212

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				58750	4.77
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				24375	4.39
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>3.59	>99.974	

22. Test Bacteria: Meticillin Resistant Staphylococcus aureus ATCC 43300

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				29375	4.47
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				41250	4.62
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	390	2.59	2.03	99.061	

23. Test Bacteria: Listeria monocytogenes ATCC 19112

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				39375	4.59
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				60000	4.78
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>3.98	>99.990	

24. Test Bacteria: Klebsiella pneumoniae ATCC 2146 - MBL strain

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				10250	4.01
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				36250	4.56
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>3.76	>99.983	

25. Test Bacteria: Enterobacter sakazakii ATCC 51329

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2			56250	4.75
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2			55000	4.74
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>3.94	>99.989

26. Test Bacteria: Escherichia coli ATCC 25922

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2			48125	4.68
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2			113750	5.06
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>4.26	>99.995

27. Test Bacteria: Corynebacterium minutissimum ATCC 23348

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2			18750	4.27
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2			50625	4.70
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>3.91	>99.988

28. Test Bacteria: Streptococcus mutans MTCC 497

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2			26875	4.43
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2			13750	4.14
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>3.34	>99.955

29. Test Bacteria: Vancomycin Resistant Enterococci ATCC 51299

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				36875	4.57
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				20000	4.30
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>3.50	>99.969	

30. Test Bacteria: Vancomycin Resistant Enterococci ATCC 2006

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				26250	4.42
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				115000	5.06
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>4.26	>99.995	

31. Test Bacteria: Citrobacter freundii ATCC 43864

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				26250	4.42
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				50625	4.70
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	<6.25	<0.80	>3.91	>99.988	

32. Test Bacteria: Corynebacterium xerosis ATCC 7711

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012				count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2				12750	4.11
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2				14375	4.16
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)	
Halo Majestic Interiors Silk	31	1.49	2.67	99.783	

33. Test Bacteria: *Proteus vulgaris* ATCC 13315

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2			6600	3.82
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2			10500	4.02
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>3.23	>99.940

 34. Test Bacteria: *Micrococcus luteus* ATCC 11880

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2			5810	3.76
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2			30000	4.48
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>3.68	>99.979

 35. Test Bacteria: *Klebsiella pneumoniae* ATCC 700603 ESBL strain

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2			23125	4.36
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2			9625	3.98
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>3.19	>99.935

 36. Test Bacteria: *Salmonella enterica* MTCC 733

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm2			45625	4.66
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm2			50000	4.70
Sample identification	No. Bacteria on treated sample CFU/cm2 (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>3.90	>99.988

37. Test Bacteria: *Sarcina luteus* NCIM 2210

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm ²			35625	4.55
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm ²			38750	4.59
Sample identification	No. Bacteria on treated sample CFU/cm ² (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>3.79	>99.984

 38. Test Bacteria: *Escherichia coli* K12 MTCC 1302

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm ²			32500	4.51
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm ²			83750	4.92
Sample identification	No. Bacteria on treated sample CFU/cm ² (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>4.13	>99.993

 39. Test Bacteria: *Burkholderia cepacia* MTCC 12970

Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm ²			34375	4.54
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm ²			28125	4.45
Sample identification	No. Bacteria on treated sample CFU/cm ² (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>3.65	>99.978

 40. Test Bacteria: *Clostridium perfringens* ATCC 13124

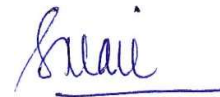
Quantitative Assessment of Activity: JIS Z 2801: 2010; Amen. 1: 2012			count	Log
Uncoated Leneta panels: Inoculum on untreated sample at 0 hours (U0) CFU/cm ²			14375	4.16
Uncoated Leneta panels: Inoculum on untreated sample after 24 hours (Ut) CFU/cm ²			114375	5.06
Sample identification	No. Bacteria on treated sample CFU/cm ² (At)	Log of Bacteria on treated sample	Antimicrobial Activity (R) (Log Ut- At)	Microbial Kill (% Reduction)
Halo Majestic Interiors Silk	<6.25	<0.80	>4.26	>99.995

The Standard Antimicrobial value of Evaluation R \geq 2.0

COMMENT:

When tested as specified, sample labeled as **Halo Majestic Interiors Silk; PASSES** the Quantitative Assessment of activity for Staphylococcus aureus, Escherichia coli, Pseudomonas aeruginosa, Klebsiella pneumoniae, Enterococcus faecalis, Enterococcus hirae, Serratia marcescens, Pseudomonas stutzeri, Vibrio cholerae, Bacillus subtilis, Nocardia rugosa, Shigella flexneri, Staphylococcus epidermidis, Alcaligenes faecalis, Acinetobacter baumannii, Pseudomonas putida, Salmonella typhimurium, Enterobacter aerogenes, Proteus mirabilis, Bacillus cereus, Streptococcus faecalis, Meticillin Resistant Staphylococcus aureus, Listeria monocytogenes, Klebsiella pneumoniae, Enterobacter sakazakii, Escherichia coli, Corynebacterium minutissimum, Streptococcus mutans, Vancomycin Resistant Enterococci, Vancomycin Resistant Enterococci, Citrobacter freundii, Corynebacterium xerosis, Proteus vulgaris, Micrococcus luteus, Klebsiella pneumoniae, Salmonella enterica, Sarcina luteus, Escherichia coli, Burkholderia cepacia and Clostridium perfringens by **JIS Z 2801: 2010; Amendment 1: 2012 Test Method.**

For BIOTECH TESTING SERVICES

A handwritten signature in blue ink, appearing to read 'Shilpa'.

Dr Shilpa U. Nair
Quality Manager
(Authorized Signatory)