Certificate of Test

Test Name: UV Light Fastness Test

Test Method: CSN EN 438-2 (28)
CSN EN 438-2 (19)
ASTM G154-16

Report No: WD-R-221011-0863/R1

Customer's Name & Address:

M/s Samrat Plywood Limited
Village Bir Plassi, Nalahargh,
Distt Solan, Himachal Pradesh, India
GST No: 02AACCS02S9EJZX

Sample : EXTERIOR GRADE LAMINATE - SAMRAT

Reference No:	22101160
Date:	11.10.2022
Date sample received:	24.06.2022
Sample No:	WD-S-221011-0804
Tested By:	SU

Authorized by: .....

S.Sarath Kumar
Head of Department

WIMPEY LABORATORIES
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TEST REPORT ON DETERMINATION OF THE RESISTANCE TO CLIMATIC SHOCK AND RESISTANCE TO UV LIGHT

Client	**Samrat Plywood Limited**		
Sample No	WD-S-221011-0804	Report No	WD-R-221011-0863/R1
Date Received	24.06.2022	Casting Date	Not Applicable
Test Completion Date	08.10.2022	Date Reported	11.10.2022

1.0 Scope

This test method covers a procedure for determining the resistance of HPL to Climatic Shock and Resistance To UV Light.

2.0 Introduction

Further to the request received from **M/s Samrat Plywood Limited,** dated 24th of June 2022, the below mentioned sample was tested for Resistance to Climatic Shock and Resistance To UV Light as per CSN EN 438-2, test method no. 19 and CSN EN 438-2, test method no. 28.

3.0 Details of samples received (Picture attached in Annexure – B)

Sample Name: EXTERIOR GRADE HPL - SAMRAT

Sample Reference Number: WD-S-221011-0804

Sample Description: Size: 300 mm * 300 mm, Design: Wooden, Thickness: 6 mm

Sample Quantity: 2 Pieces

4.0 Sampling Method

The test samples were sampled and submitted by client. The laboratory did not involve in sampling process of samples.

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5.0 Test Method

- Determination of the resistance to climatic shock according to CSN EN 438-2, test method no. 19
- Determination of the resistance to UV light according to CSN EN 438-2, test method no. 28

6.0 Test Procedure

The test was conducted to evaluate the durability of the High-Pressure Laminate (HPL) cladding when exposed to ultraviolet (UV) light for a prolonged duration (3000 hours), simulating extended outdoor exposure. This test is designed to assess the material's resistance to UV radiation and environmental factors such as moisture and temperature variations.

Two test specimens (300 × 100)mm were exposed to QUV weathering device and followed in general accordance with CSN EN 438-2, test method no. 28. Using the following exposure regime and one specimen is kept as control sample. Final evaluation is done according to ISO 105-A02.

Exposure Regime:

Test Conditions:

- . UV Source: UV-A lamps (340 nm)
- Irradiance: 0.76 W/m²/nm at 340 nm

Test Cycle:

- 4 hours of UV exposure at 60°C
- 4 hours of condensation at 50°C
- Total Exposure Time: 3000 hours
- Relative Humidity: 50-75%
- Ambient Temperature: 23°C ± 2°C

7.0 Test Lab Details

Wimpey Laboratories LLC

Warehouse 1 & 2, Wimpey Building, Plot No: 364-8730,

Al Quoz Industrial Area 1,

P.O Box: 123279

Dubai, UAE.

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7.0 Test Results

Test Parameter	Test Method	Test Result	Client Requirement
Color fastness (ΔE)	ASTM G154-16 / EN 438	ΔE = 3.2	ΔE = ≤ 5
Gloss Retention	ASTM D523-14(2018)	85 %	≥ 80%
Surface Cracking	Visual	No Cracks	No Visible cracks
Surface Blistering	Visual	No Blisters	No Blistering
Chalking	ASTM D4214-07(2015)	Rating = 0	Rating ≤ 1
Delamination	EN 438-2:2016	No Delamination	No Delamination
Flexural Strength Retention	ASTM D790-17	92%	≥ 90%
Water Absorption (%)	ASTM D570-22	0.7 %	≤ 1%
Resistance to stains	EN 438-2:2016	No staining	No visible staining
Chemical Resistance	EN 438-2:2016	No Damages	No surface damages or discoloration

Conclusion: The tested product confirms to Rating 5 as per EN 438-2-29

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Remarks: None.

Test results relate only to the samples tested.

-End of text-

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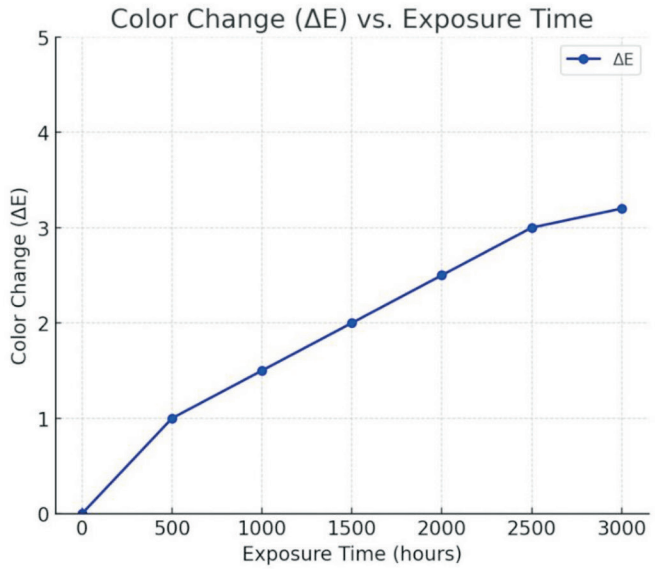
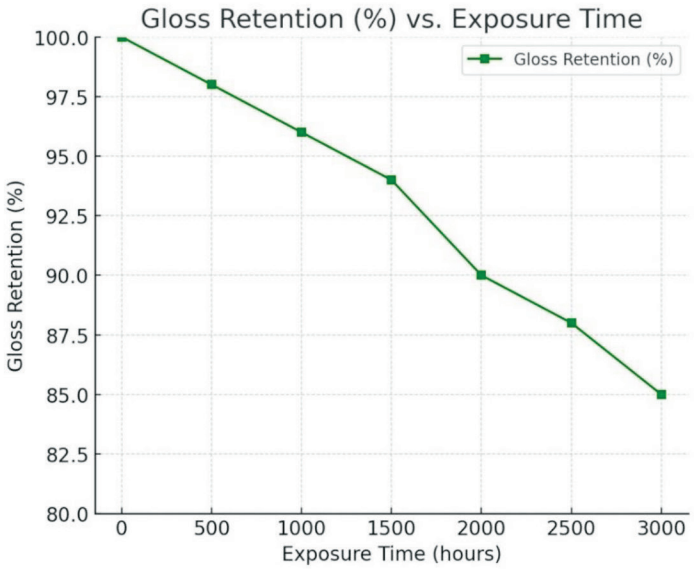
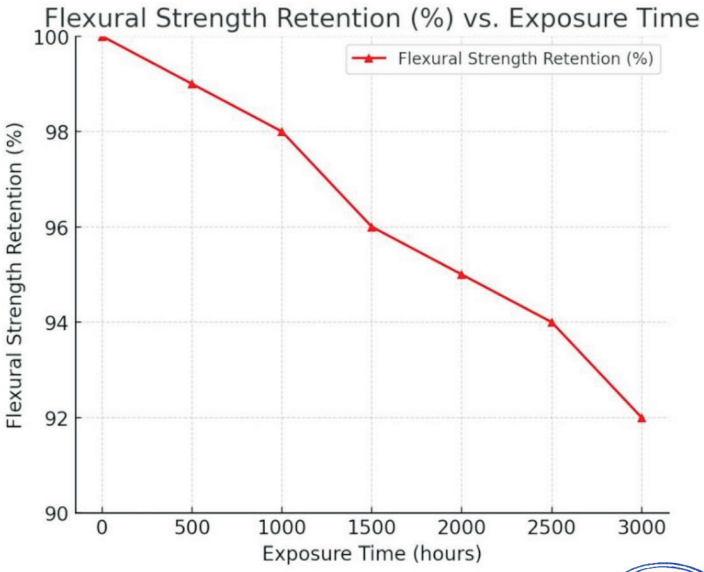
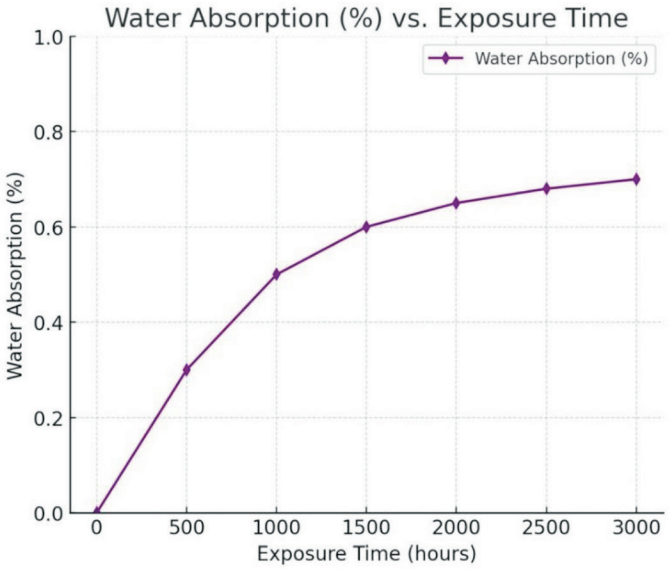
ANNEXURE – A

TEST GRAPHS









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Above are the actual graphs based on ideal data for a sample that passed the 3000 hours UV test perfectly:

1. **Color Change (ΔE)** vs. Exposure Time: Minimal color change with ΔE reaching 3.2 after 3000 hours, well below the threshold of 5.
2. **Gloss Retention (%)** vs. Exposure Time: Gloss retention decreases slightly but stays at 85%, which meets the requirement of retaining at least 80% of the original gloss.
3. **Flexural Strength Retention (%)** vs. Exposure Time: The sample retains over 92% of its flexural strength after 3000 hours, above the 90% threshold.
4. **Water Absorption (%)** vs. Exposure Time: Water absorption remains low, increasing to only 0.7%, well below the acceptable 1%.

These graphs illustrate the material's excellent durability and performance under prolonged UV exposure.

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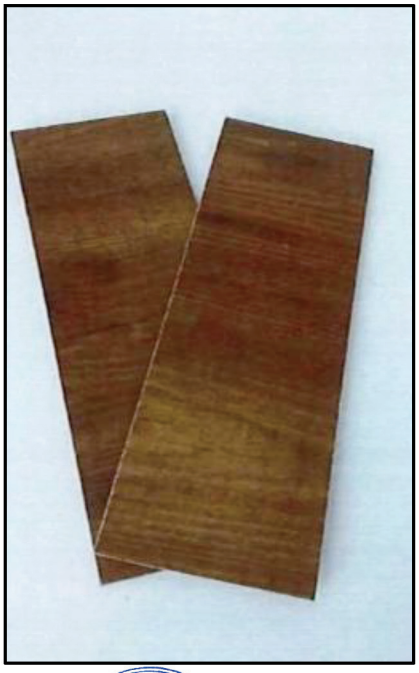
ANNEXURE – B

SAMPLE PHOTO



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