

## PERFORMANCE & DURABILITY COMPLIANCE

**Objective:** Performance testing of High Pressure Decorative Laminates (HPL) evaluates mechanical strength, dimensional stability, environmental resistance, surface durability, fastening integrity, and chemical resistance to ensure compliance with European and international product performance standards for interior and exterior applications.

**Validation:** Testing is conducted in ISO/IEC 17025 accredited laboratories under internationally recognized standards including EN 438, ASTM, ISO, NEMA, and SEFA performance specifications to verify structural integrity, weather resistance, mechanical properties, and long-term durability.

**Results:** Certified test results confirm that HPL meets or exceeds the required performance classifications for compact and thin laminates, demonstrating suitability for architectural, façade, laboratory, furniture, and high-traffic interior applications.

### 1. Performance Test (Thickness 2 mm – 25 mm)

Description: Evaluation of bending strength, impact resistance, surface wear, dimensional stability, and overall mechanical performance of Compact Grade laminates.

Standard: EN 438-2

Test Results: All tested parameters meet required EN 438 classification for Compact Grade laminates – PASS.

Link to Download Result:

<https://www.virlaminate.com/assets/pdf/certifications/performance-test-reports/en-438-2-performance-test-compact-hpl.pdf>



### 2. Performance Test (Thickness 0.5 mm – 1.8 mm)

Description: Assessment of mechanical and surface properties for thin decorative laminates used in furniture and interior applications.

Standard: EN 438-2

Test Results: Meets required performance values for Thin HPL classification – Complies.

Link to Download Result:

<https://www.virlaminate.com/assets/pdf/certifications/performance-test-reports/en-438-2-performance-test-thin-hpl.pdf>



### 3. Climate Shock Test

Description: Assesses resistance of laminate to sudden temperature and humidity fluctuations simulating extreme service conditions.

Standard: EN 438-2: Clause 19

Test Results: No warping, delamination, cracking, or surface defects observed after climatic cycling – Complies.

Link to Download Result:

<https://www.virlaminate.com/assets/pdf/certifications/performance-test-reports/en-438-2-climate-shock-test-compact-hpl.pdf>



### 4. Co-efficient of Linear Expansion (Thermal Expansion)

Description: Determines the dimensional change of HPL when exposed to temperature variations, ensuring structural stability and installation reliability.

Standard: ASTM D 696 / ISO 11359-2

Test Results: As per ASTM D 696 and ISO 11359-2, the reported values were  $7.31 \times 10^{-6}$  mm/mm°C and  $6.81 \times 10^{-6}$  mm/mm°C for the temperature range of -20°C to 100°C

Link to Download Result:

<https://www.virlaminate.com/assets/pdf/certifications/performance-test-reports/iso-11359-2-co-efficient-of-linear-expansion-test.pdf>



### 5. Artificial Weathering Test

Description: Evaluates resistance of Compact HPL to accelerated UV exposure and simulated outdoor environmental conditions.

Standard: EN 438-2: Clause 29

Test Results: No significant colour change, cracking, blistering, or surface degradation observed after exposure cycle – PASS.

Link to Download Result:

<https://www.virlaminate.com/assets/pdf/certifications/performance-test-reports/en-438-2-artificial-weathering-test-compact.pdf>





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## 6. NEMA Performance Test (Thickness 2 mm – 25 mm)

Description: Comprehensive evaluation of decorative laminate properties including wear resistance, impact strength, stain resistance, dimensional stability, and heat resistance.

Standard: NEMA LD 3

Test Results: Product satisfies NEMA LD 3 minimum performance requirements.

Link to Download Result:

<https://www.virlaminate.com/assets/pdf/certifications/performance-test-reports/nema-ld3-performance-test-compact-hpl.pdf>

## 7. Screw Pullout Resistance Test

Description: Determines resistance of HPL panel to screw withdrawal force to ensure secure fastening and structural reliability.

Standard: ISO 13894-1

Test Results: Achieved required pullout strength without structural failure – Complies.

Link to Download Result:

<https://www.virlaminate.com/assets/pdf/certifications/performance-test-reports/iso-13894-1-screw-pullout-test.pdf>



## 8. Chemical Stain Resistance Test

Description: Evaluates resistance of laminate surface against chemical exposure and staining under laboratory conditions.

Standard: SEFA 3-2020 (Clause 2.1.1)

Test Results: Majority results Level 0 (No Effect) and Level 1 (Excellent). Within SEFA acceptance criteria – PASS.

Link to Download Result:

<https://www.virlaminate.com/assets/pdf/certifications/performance-test-reports/sefa-3-2020-chemical-stain-resistant-test.pdf>



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