



UNDERSTANDING LAMINATE SELECTION:

Making the right choice for your interior application

INTRODUCTION

From furniture to benchtops to wall panels and partitions, decorative laminate provides a durable and decorative surface for a variety of residential and commercial applications.

The two principal laminate types are High Pressure Laminates (HPL) and Low Pressure Melamine (LPM). Low Pressure Melamine is alternatively known in the market as Melamine Face Board (MFB), Melamine Faced Panels (MFP), Low Pressure Laminate (LPL), Thermo-Fused Laminate (TFL), Thermally Fused Melamine (TFM), Pre-finished board, Melamine board, Decorative board and Decorative panels.

The key aspect that distinguishes HPL and LPM is their structure and manufacturing process. Therefore, a basic understanding of the laminate manufacturing process is required to understand their application differences.

This paper provides architects and specifiers with an understanding of the capabilities of both High Pressure Laminates (HPL) and Low Pressure Melamine (LPM) which is critical in making an informed choice for the specific application requirements.

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HIGH PRESSURE LAMINATE (HPL)

Structure & Manufacturing Process

HPL is comprised of resin-impregnated kraft paper, decorative paper face material (that provides the pattern, woodgrain or solid colour of the sheet) and a clear melamine-impregnated overlay (that gives laminates its surface strength and scratch-resistance).

These sheets are bonded at pressures greater than 1000 kilograms per-square-metre, with temperatures approaching 149°C. The pressed sheets are trimmed, and then sanded on the back to facilitate bonding to suitable substrates such as Particleboard or MDF (Medium Density Fibreboard).

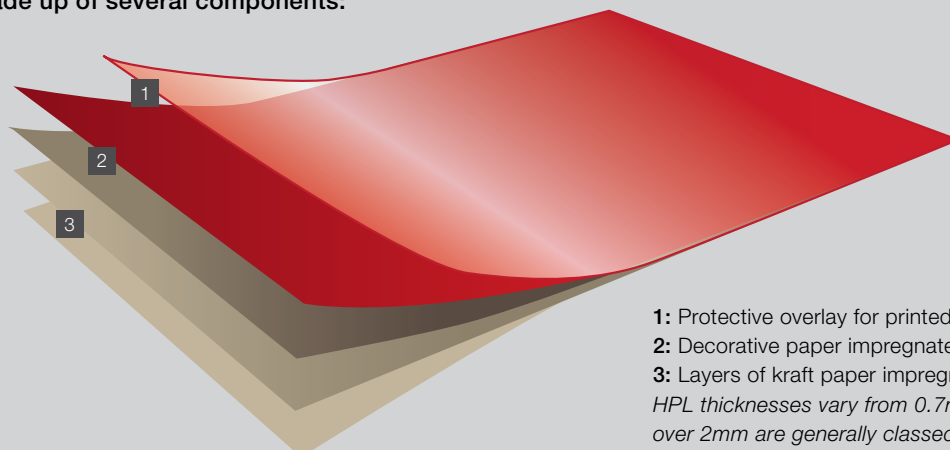
Applications

HPL is commonly used in horizontal and vertical applications, both commercially and in residences for items such as benchtops, vanity tops, tables, counters, wall panels and cabinet doors. The structural integrity of the paper core provides a high level of impact resistance, allowing HPL to be used in high traffic areas.

Availability

HPL is available in hundreds of solid colours, woodgrains and abstracts with multiple textured finishes.

HPL is made up of several components:



- 1: Protective overlay for printed decors
 - 2: Decorative paper impregnated with melamine resin
 - 3: Layers of kraft paper impregnated with phenolic resin
- HPL thicknesses vary from 0.7mm to 25mm. Thicknesses over 2mm are generally classed as compact laminate.*

WILSONART HPL SOLUTIONS

Wilsonart high pressure laminates are available with several enhanced performance capabilities and texture options to meet the challenges of any design space.

AEON™ Enhanced Performance Laminate

AEON™ Scratch & Scuff-Resistant Enhanced Performance delivers a laminate with unique wear characteristics without compromising design flexibility. From satin to high-gloss, timber grain to quarry, there is a colour or finish to suit most applications, whether it be residential or commercial. Two sizes of aluminium particle in the surface coat of the laminate give a surface 3 – 5 times more durable than standard laminate, where objects appear to glide across the surface as if on ball bearings. Unlike competitor products, Wilsonart passes the material through this engineered 'bathing' process twice to ensure equal coverage of the particles.

AEON™ has also been tested using a NEMA developed wear resistance test. The NEMA standard for traditional laminate is 400 cycles. Wilsonart Laminates with AEON™ technology reach 1,200 cycles, outperforming traditional laminate by 3x!

Key benefits of using HPL:

- Hygienic surface and Easy maintenance
- Ability to create your Custom design
- Scratch, Abrasion & Impact Resistant
- You can bond it on to a wide range of substrates
- Variety of specialty laminate solutions available
- Highly durable for horizontal and vertical applications
- Many design options with wide range of colours and textures



Specialty Laminate

Special projects deserve special laminates. Wilsonart's innovation team has developed a growing range of specialty surface solutions to give you even more choice than ever, including:

• Markerboard laminate

The ideal laminate writing surface for classrooms, hospital areas, offices, business centres, sporting facilities or as a menu board in a cafe or restaurant.

• Fire-Rated Laminate

Fire-rated laminate meets or exceeds fire codes from a variety of laboratories across the country and comes in a wide range of patterns and colours.

• Traceless Anti-Fingerprint Laminate

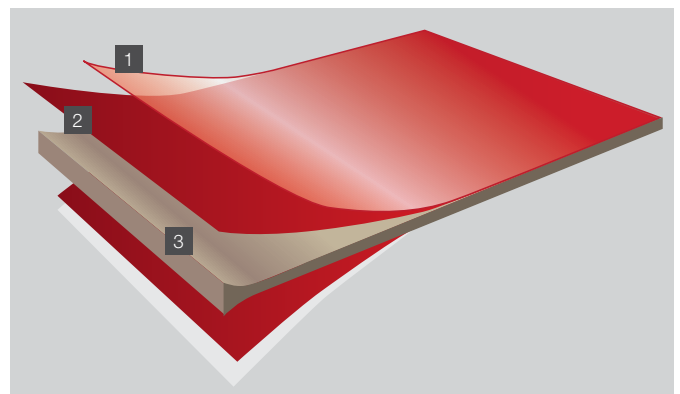
This unique laminate technology ensures that finger marks are almost never seen, thereby substantially reducing the effort required for care and maintenance.

• Chemical Resistant Laminate

Chemical Resistant Laminate, like Wilsonart Chemsurf, is ideal for areas that require protection against damaging substances such as acids, alkalis, corrosives and other destructive chemicals.

• Compact Laminate

Impact, abrasion, moisture, scratch and heat resistant, Compact Laminate is often used for toilet partitions and tabletops in high traffic, public areas where hygiene is key.



1: Protective overlay for printed decors

2: Decorative paper on both sides impregnated with melamine resin

3: Layers of kraft paper impregnated with phenolic resin

Compact laminate thicknesses range from 2mm to 25mm.

• WilsonartXYou Custom Laminate

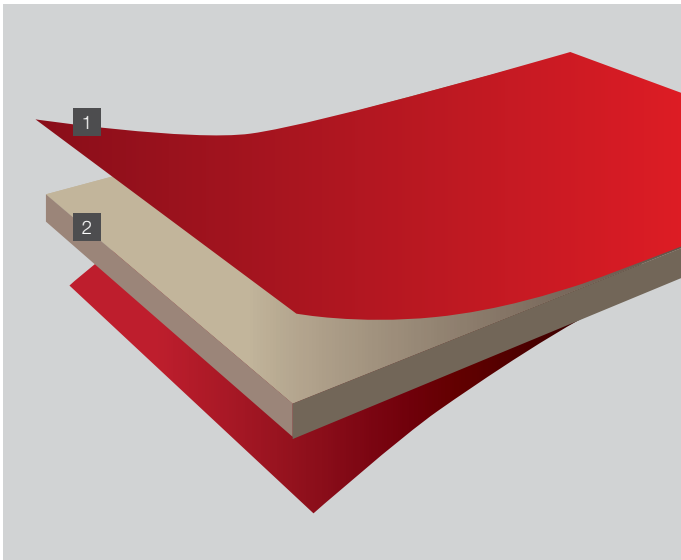
Wilsonart® X You custom laminate offers you the opportunity to uniquely design and create custom laminate for your office space, retail displays, cafe tables, wall coverings and other areas where company logos or custom work can be used. Wilsonart® X You custom laminate capability extends to high-pressure laminate, compact laminate and marker board, offering the chance to customise almost any environment.

LOW PRESSURE MELAMINE (LPM)

Structure & Manufacturing Process

LPM is generally offered in panel form. It consists of decorative paper impregnated with melamine resin which is bonded directly to particleboard or MDF (medium density fibreboard) substrate. No adhesives are used in making LPM panels as the resins in the paper “fuse” the paper onto the board.

Unlike HPL, the LPM manufacturing process works with low pressure (20-30 bar) and high temperature (170-190°C). As LPM paper is specifically engineered to be thermally fused to a substrate, it does not have the kraft paper core found in HPL, thus impact resistance of LPM is lower.



1: Decorative paper both sides impregnated with melamine resin
2: Chipboard or MDF core

LPM thicknesses range from 12mm to 32mm

Applications

LPM panels may be used in vertical, low impact or low wear applications, but are not typically for horizontal applications. Commonly used for commercial applications including store fixtures, toilet partitions and office furniture and residential applications for bathroom vanities, entertainment centres and closet shelving systems.

Availability

LPM is available in hundreds of solid colours, woodgrains and abstracts with multiple finishes. Depending on the selected substrate, either particleboard or MDF, LPM is generally available in the following thicknesses – 12, 16, 18, 25 and 32mm.

Standards

LPM is required to meet Australian standards of formaldehyde emissions as pressed wood, such as MDF and particleboard, are bound using a formaldehyde based resin. Only low formaldehyde-emitting pressed wood products

should be used, such as those that meet the Australian Standards for formaldehyde emission limits (E0 and E1). All Australian manufactured MDF and particleboard must meet the E1 or Low Formaldehyde Emission standard. E0 exceeds Australian Emission standards.¹

Finishes

Low Pressure Melamine is available in various finishes that include gloss, matt, lightly textured and embossed woodgrains. Each can be used to enhance your joinery and furniture applications.

Key Benefits of using LPM:

- Economical decorative panel ready to use
- Crack resistant
- Scratch resistant
- Easy to Maintain
- Available in a variety of colours and finishes
- Range of thicknesses to suit your application
- Coordinate your LPM with your high pressure laminate

Where to use LPM:

- Kitchen, bathroom and laundry cabinets
- Furniture
- Office furniture
- Partitions
- TV cabinets
- Wall and storage units
- Bar fronts
- Shelvings
- Wardrobes
- Reception areas
- Store fit outs and displays
- Workstations

Types of substrates

Particleboard is a three layered board with fine particles on the top and bottom surfaces and larger wood flakes in the middle. Particleboard comes in either raw form with a sanded surface or with a decorative laminate overlay.

Grades of particleboards available - Standard and Moisture Resistant (MR). MR Particleboard has a much slower response to wetting than standard types. It is manufactured with wood particles coated with a moisture resistant resin. Also, the wax that is used in the resin has water repellent properties.

MDF is short for Medium Density Fibreboard, it is a similar product to Particleboard. However, it often uses residuals from denser timber such as Hardwood. MDF is formed when the residual wood fibres of the hardwood are combined with a binding agent and compressed in high temperature. MDF is a versatile panel that offers a smoother finish than particleboard.

DECORATIVE LAMINATE SOLUTIONS BY WILSONART

HPL and LPM come in a variety of surface finishes and textures. To appreciate the range of finishes, textures and enhanced performance capabilities it is worth looking at the extensive Wilsonart Laminate Range.

Wilsonart decorative surfaces are widely adopted by designers and highly regarded by all. Whatever your project – home, school, food outlet or hospital, Wilsonart has a material to suit your needs. Wilsonart offers endless design possibilities through our extensive range of colours, patterns and textures, allowing you to closely match your vision.

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Drawing inspiration from around the globe, Wilsonart continuously redefines decorative surfaces globally through improved performance and aesthetics

WILSONART ENGINEERED SURFACES

Wilsonart Engineered Surfaces, headquartered in Austin, Texas, is a world leading manufacturing and distribution organisation that is driven by a mission to create innovative, high performance surfaces people love. Wilsonart takes pride in offering world-class service its customers can count on, delivered by people (all over the world) who care.

Visit Wilsonart.com.au for more information on where to buy and order your product samples.



REFERENCES

¹ <https://www.nicnas.gov.au/communications/publications/information-sheets/existing-chemical-info-sheets/formaldehyde-in-pressed-wood-products-safety-factsheet>