

The Laserlite Solid Sheet Range

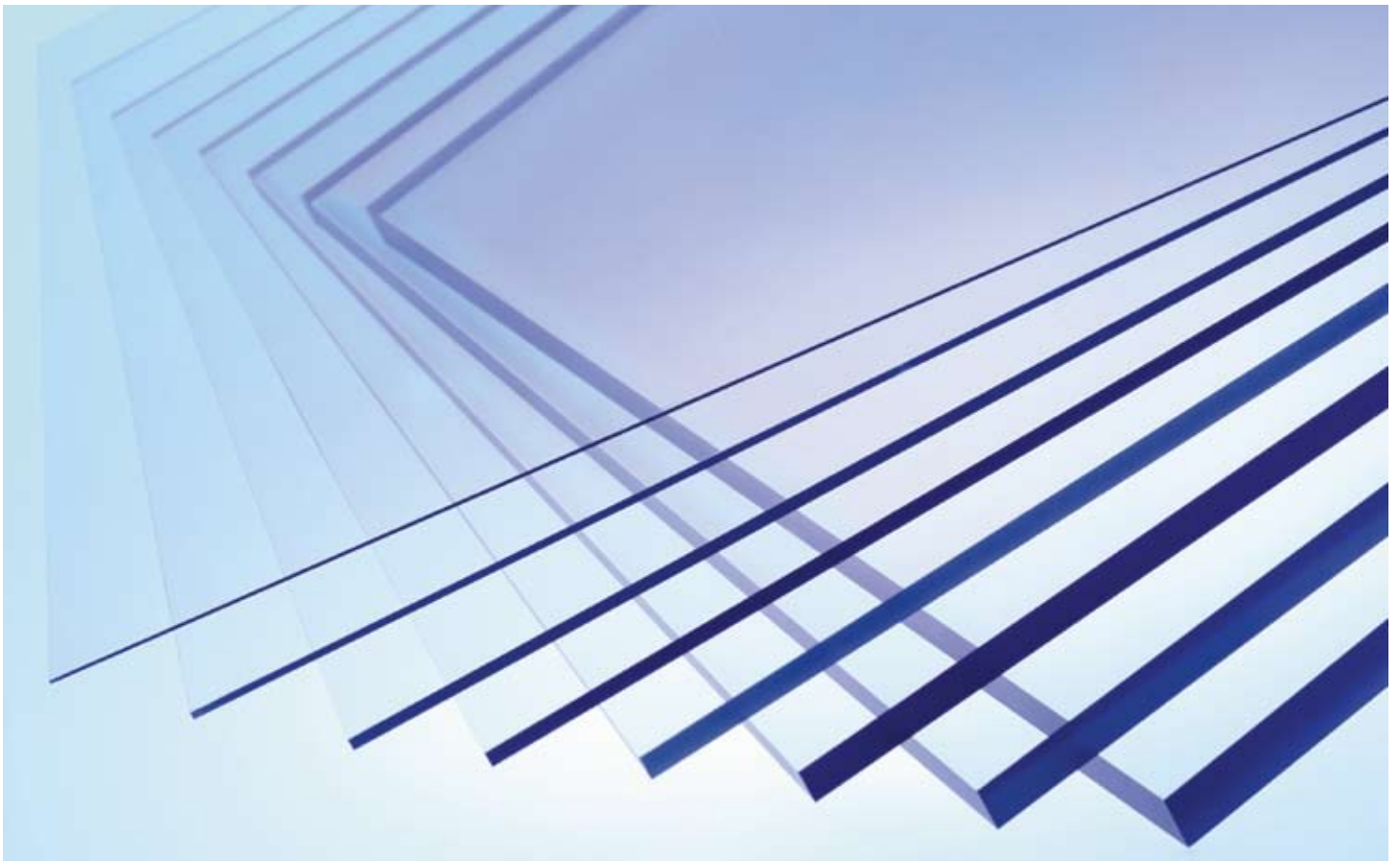


makrolon[®]



vivak[®]

Vymar[®]



Welcome to a world of opportunity

A world of endless creative freedom.

Wherever glass reaches its limit, Laserlite's Solid Sheet Range is the logical next step. It is undoubtedly an exciting time to be involved in the architectural, engineering and construction industries. It's equally rewarding to provide those industries and the individuals who operate within them, with new age materials that literally 'open the doors' to new levels of safety and expression through form.

Modern architecture that seeks to push the boundaries of design would be almost inconceivable without Laserlite's Solid Sheet Range. The inherent physical properties of the range place virtually no limitations on imagination. We seek to explore this potential in the 'spirit of cooperation'. By this we mean that we service a range of industries with both an unbridled enthusiasm for the extraordinary potential the Solid Sheet Range has to offer and an unsurpassed scientific appreciation of the application of modern industrial materials.

From security applications that protect you from bullets, to external applications like bus shelters that protect you from the wind and rain. From sound barriers on freeways, to product dispensers of chocolate bars. The unique flexibility of the equally unique Solid Sheet Range affords engineers, designers and architects alike with the power to dream of a more exciting tomorrow.



What we offer

Experience, Service, Commitment and Flawless Solutions.

Unsurpassed experience

Our customers are regularly invited to draw from the vast depth of our experience in the industry. Our extensive local knowledge and technical know-how is proudly backed by Bayer resources and expertise - one of the major global players in the plastics industry. This strategic integration provides decades of experience, competence and know-how in the production and distribution of high quality polycarbonate and co-polyester solid sheets.

Unrivalled flexibility and service

Significant investment in Australian manufacturing has enabled Laserlite to produce an extended range of solid sheet products and dramatically improve manufacturing flexibility.

Our substantial investment in manufacturing is a demonstration of the commitment Laserlite has to supporting local industry.

By making us your partner we can offer you innovative product solutions, competent, reliable service and the ability to act rapidly and flexibly in this industry.

This commitment is also shared by the Laserlite service teams. Teams that seek to work with an organisation, in close cooperation, to better understand the specific requirements and technical considerations of the project.

A first class, versatile range

Our versatile solid sheet product range offers a high degree of flexibility, which ensures a broader scope for design - meaning you have virtually unlimited design freedom when it comes to planning your project.

MAKROLON® Polycarbonate - Laserlite offers customers a comprehensive range of high-tech polycarbonate solid sheets made from Makrolon® resin. Ranging from Makrolon® GP polycarbonate sheets for general glazing and industrial applications to Makrolon® UV for increased UV protection, Makrolon® AR when abrasion resistance, impact strength and graffiti removal are essential and finally Makrolon® BR laminate sheets for bullet resistant protection - there is a Makrolon® polycarbonate solid sheet product that is suitable for nearly every conceivable challenge.

VIVAK® PETG - This particularly lightweight and extremely break-resistant co-polyester sheet has superior thermoforming and mechanical properties.

It is highly transparent, as well as easy to print and thermoform. It is suitable for food contact applications. With remarkable ease of fabrication, even at low temperatures, Vivak sheets ensure low energy consumption and high productivity.

Vymar® PVC - Cost effective, versatile and robust, this thermoformable, electrically non-conductive material is suitable for a wide range of applications. It is manufactured locally and for environmental and consumer protection reasons, it is made without the use of heavy metals.



MAKROLON® - The Solid Sheet for Professionals

We use Makrolon® resin

Makrolon® is a high-tech polycarbonate from Bayer Material Science. Patented by Bayer back in 1953, Makrolon® polycarbonate has built an impressive catalogue of successes in many different areas of product application. Today, countless producers of high quality products all over the world rely on the properties of Makrolon® because they have confidence in its unique abilities. It is characterised by high levels of mechanical, optical, electrical and thermal properties, as well as being lightweight.

The Makrolon® label symbolises expertise, high quality and meets highly specialised requirements. You can confidently add value to your project by using Makrolon® - the multi-talented material of our time and the future.

Makrolon® Polycarbonate Solid Sheet products

Makrolon® Polycarbonate resins supplied by Bayer Material Science, combined with the latest production facilities, ensure that the physical properties of Makrolon® Polycarbonate Solid Sheet, made in Australia by Laserlite Australia, will meet your functional and aesthetic requirements and offer scope for new ideas.

Makrolon® GP - General Purpose Polycarbonate Solid Sheet:

Offering economy and high performance, Makrolon® GP polycarbonate solid sheet has proven to be cost effective in a wide range of industrial and design applications.

Makrolon® UV - Ultra Violet Resistant Polycarbonate Solid Sheet:

Enhanced UV protection on both sides offers exceptional weatherability. Its superior impact strength and formability makes this product an ideal choice for exterior glazing and other external applications that require increased weatherability and UV resistance. Also available in roll form.

Makrolon® AR - Abrasion Resistant Polycarbonate Solid Sheet:

Makrolon® AR sheet is an abrasion and UV resistant polycarbonate sheet that offers glass-like hardness coupled with the impact strength of Makrolon® GP. Makrolon® AR has the added benefits of a unique, clear, hard coat finish for improved surface hardness that provides superior clarity when subjected to repeated contact, cyclical cleaning and even vandalism.

Makrolon® BR - Bullet Resistant Polycarbonate Solid Sheet:

This is a laminated Makrolon® polycarbonate sheet, used for security applications that require bullet resistance. It also has abrasion and UV resistant surfaces for an extended service life in harsh environments. Applications include banks as well as government and detention facilities. Also available is Containment Glazing laminated sheet.

Product Selector Guide - The facts at a glance

This is a quick reference tool to select the appropriate Makrolon® product to fit your design or application.

Product Features	Makrolon® GP	Makrolon® UV	Makrolon® AR
Superior impact strength	■	■	■
UV resistance		■	■
Abrasion resistance			■
Thermoformable	■	■	
Cold-formable	■	■	
Chemical: excellent resistance			■
Chemical: good resistance	■	■	

Application Selector Guide

This is a quick reference tool for the more common applications.

Applications	Makrolon® GP	Makrolon® UV	Makrolon® AR
See-through walls	■	■	■
Covers: dust	■	■	■
Doors: freight	■	■	■
Doors: electrical enclosures	■	■	■
Electrical component parts	■	■	■
Fabricated: part not curved	■	■	■
Fabricated: part curved	■	■	
Guards: machine	■	■	■
Glazing: interior	■	■	■
Glazing: exterior		■	■
Lighting panels		■	
Medical parts	■		
Vacuum formed and thermoformed	■	■	

MAKROLON® GP - General Purpose Polycarbonate Solid Sheet

Makrolon® GP polycarbonate solid sheet is a high performance, all purpose glazing material that is durable, cost effective and energy efficient. It's suitable for a wide range of industrial and design applications. Renowned for its exceptional mechanical, optical, electrical and thermal properties, Makrolon® GP provides superior all-round performance.

Your Benefits

- Extreme impact strength
- Broad temperature resistance
- Cost effective
- Good fire behaviour
- High transparency

Applications

Makrolon® GP is used extensively in glazing for protection against both accidental breakage and deliberate vandalism.

In manufacturing environments, this high impact material excels in applications like:

- Machine guards
- Noise-abatement shields
- Workstation partitions
- Freight doors and other in-plant glazing

Availability

Makrolon® GP is available in:

Standard Colours: Clear, Bronze tint, Grey tint, Opal

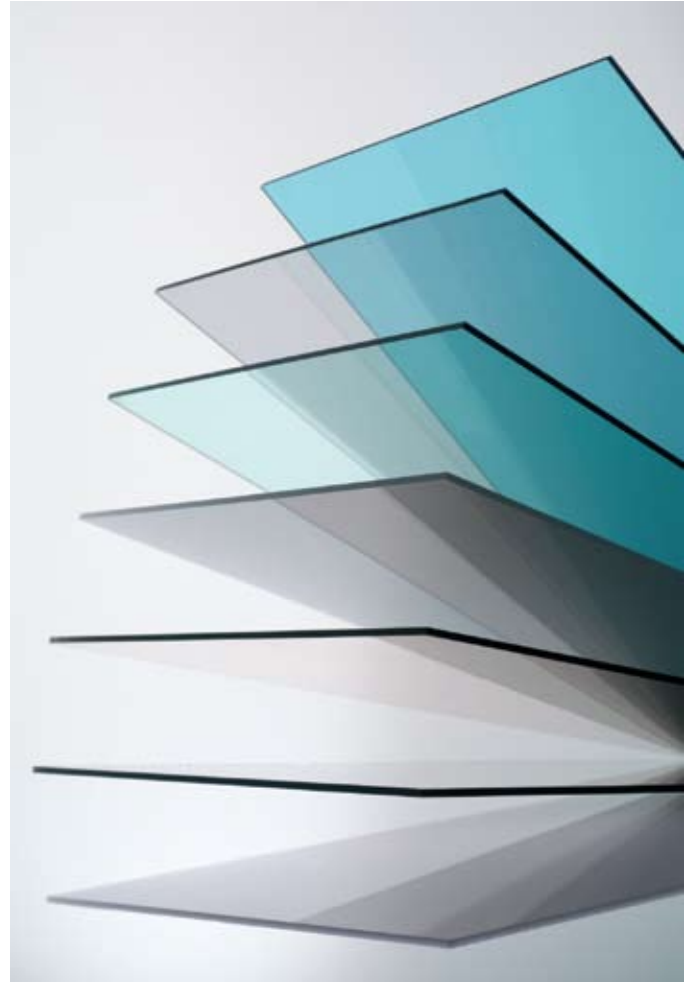
Gauges: From 1.0 mm to 12.7 mm

Standard Sizes: 2440mm x 1220mm & 2440mm x 1830mm

Other colours, gauges and sizes are also available on request, subject to conditions.

Warranty

Makrolon® GP has a 5 year limited warranty against breakage from the date of purchase.



Makrolon® UV - Ultra Violet Resistant Polycarbonate Solid Sheet

Makrolon® UV polycarbonate solid sheet is a UV enhanced sheet that is resistant on both sides, so it offers exceptional weatherability and superior impact strength. Makrolon® UV can be thermoformed, fabricated and decorated, making it an ideal choice for applications where increased weatherability and UV resistance is critical.

Your Benefits

- Extreme impact strength
- Broad temperature resistance
- UV resistant
- Good fire behaviour
- High transparency

Applications

Makrolon® UV is ideal for outdoor applications.

Glazing and roofing applications include:

- Covered walkways
- Barrel vaults
- Skylights
- Bus shelters
- Balcony glazing and thermoformed skylights.
- Signage applications include: publicity columns, elevated sign masts and other harsh environment installations

Availability

Makrolon® UV is available in:

Grade: UV both sides

Standard Colours: Clear, Bronze tint, Grey tint, Opal

Gauges: From 1.0 mm to 12.7 mm

Standard Sizes: 2440mm x 1220mm & 2440mm x 1830mm

Other colours, gauges and sizes are also available on request, subject to conditions.

Warranty

Makrolon® UV has a 10 year limited warranty against breakage, loss of light transmission and excessive yellowing from date of purchase.



MAKROLON® AR - Abrasion Resistant Polycarbonate Solid Sheet

Makrolon® AR offers all the strength, durability and clarity of the Makrolon® polycarbonate solid sheet range, with the added characteristic of a clear, hard coat finish on both sides. This unique coating provides both superior abrasion and UV resistance, as well as enhanced weatherability and chemical protection. Makrolon® AR polycarbonate sheets offer the extra protection you need to ensure a long service life in a demanding glazing application.

Your Benefits

- Extreme impact strength
- High abrasion resistance
- Excellent weathering resistance
- High clarity
- Superior hard coat

Applications

Makrolon® AR is ideal for outdoor applications and for safety and security shelter glazing. Makrolon® AR sheets are also used extensively in correctional and psychiatric facilities. Additionally, the product performs well for viewing windows and machine guards in harsh chemical environments. Due to its hard coat finish, these sheets cannot be formed like other Makrolon® sheets.

Applications include:

- Safety glazing
- Anti-vandal glazing
- Noise barriers
- Industrial protective sheeting
- Bus shelters

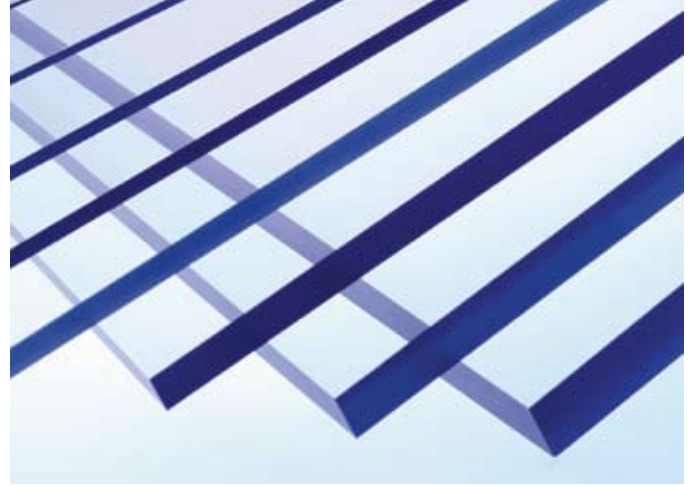
Availability

Makrolon® AR is available in:

Grades: AR both sides, UV both sides
Standard Colour: Clear
Gauges: From 3.0 mm to 12.7 mm
Standard Sizes: 2440mm x 1220mm & 2440mm x 1830mm
Other sizes are available on request, subject to conditions.

Warranty

Makrolon® AR has a 7 year limited warranty against breakage, delamination and weathering from date of purchase.



MAKROLON® BR - Bullet Resistant Solid Sheet

Combining Makrolon® AR technology with the latest advancements in security glazing techniques, Makrolon® BR is the ultimate choice for high level security applications. Increasing crime, readily available weapons and larger glazed areas in modern detention centres have created a demand for higher performing security glazing materials. Whatever the application, Makrolon® BR laminates offer unsurpassed performance compared to competitive glass and glass clad polycarbonate products.

The Makrolon® BR range of laminates offer multiple levels of protection ranging from certified containment glazing to UL Level 3 bullet resistant glazing (a material capable of withstanding multiple rounds of ammunition fired from medium to super-powered hand guns). Under attack they will not spall or 'spider web'. This allows for complete vision, which can be critical for an appropriate response in the event of an attack.

Makrolon® BR sheets feature hard coated surfaces for exceptional resistance to abrasion and UV degradation. They are also covered by a limited warranty against structural delamination and coating failure caused by manufacturing defects, as well as excessive yellowing due to weathering.

Makrolon® is also available in three grades of Containment Glazing laminated sheets which are used primarily in detention facilities and prison glazings to meet the specific requirements for protection against forced entry/egress into, or from, controlled areas. In addition they can be used in specialty vehicle glazing.

Product Selector Guide - The facts at a glance

Product Features	Makrolon® BR750	Makrolon® BR1000	Makrolon® BR1250
High impact resistance	■	■	■
UVdegradation resistance	■	■	■
Chemical resistance	■	■	■
Abrasion resistance	■	■	■
Resistance to ballistic attack	UL Level 1	UL Level 2	UL Level 3
Will not spall or spider web	■	■	■

MAKROLON® BR750 Bullet Resistant

Makrolon® BR750 laminate is a three-ply combination Makrolon® polycarbonate sheet for use in security applications that require UL Level 1 bullet resistant glazing.

Applications

Makrolon® BR750 is used in a wide variety of security applications.

Installations include:

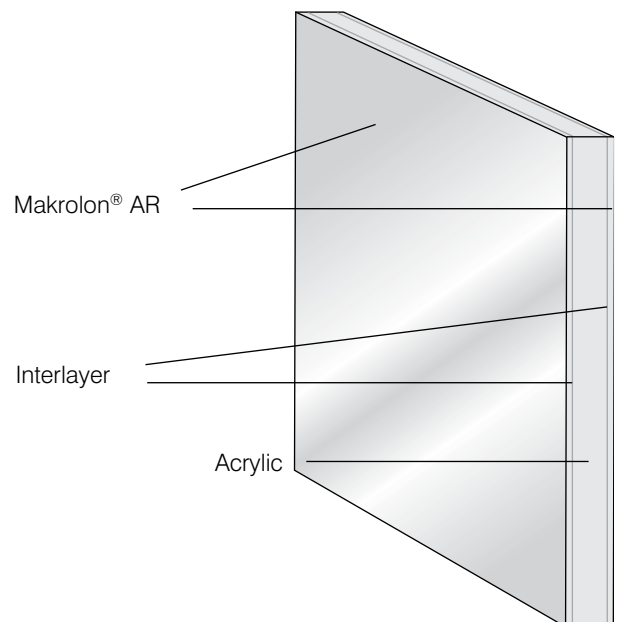
- 24 hour convenience stores
- Specialty retailers
- Banks and other cash transaction areas
- Government centres
- Schools and institutions

Product Specification

Makrolon® BR750 - 20mm gauge 3-ply
 3mm Makrolon® AR
 Interlayer
 14mm acrylic
 Interlayer
 3mm Makrolon® AR
 Standard Size: 2400mm x 1220mm

Ballistic Results

UL752 Level 1 (MPSA) - Medium power small arms, 9mm automatic
 HPW TP0500.02 Level B Ballistics (9mm)



MAKROLON® BR1000 Bullet Resistant

Makrolon® BR1000 laminate is a four-ply Makrolon® polycarbonate sheet for use in security applications that require UL Level 2 bullet resistant glazing.

Applications

Makrolon® BR1000 laminate is used in containment and bullet-resistant glazing applications and a wide variety of higher level security installations.

Installations include:

- Psychiatric hospitals
- Specialty retailers
- Banks and other cash transaction areas
- Government centres
- Detention facilities

Product Specification

Makrolon® BR1000 - 25mm gauge 4-ply
3mm Makrolon® AR
Interlayer
9.5mm Makrolon® GP
Interlayer
9.5mm Makrolon® GP
Interlayer
3mm Makrolon® AR

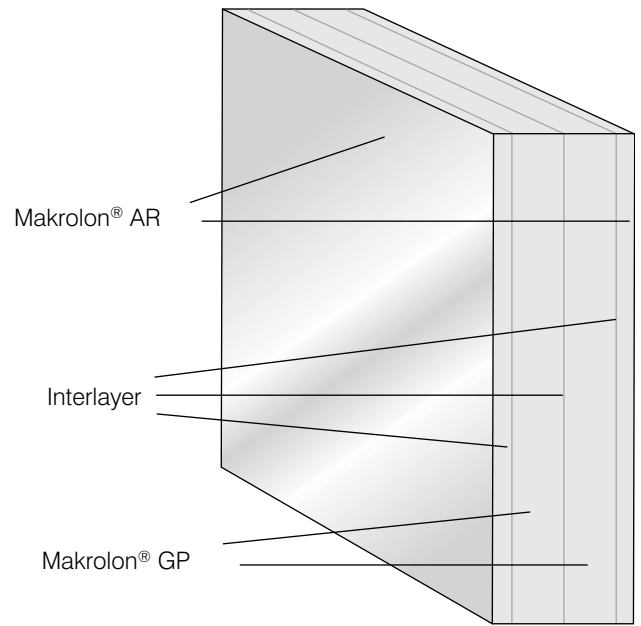
Standard Sheet Size: 2400mm x 1220mm

Ballistic Results

HPW Level V Step 42

HPW TP0500.02 Level B Ballistics (9mm)

UL 752 Level 2 (HPSA) - High powered small arms,
.357 Magnum



MAKROLON® BR1250 Bullet Resistant

Makrolon® BR1250 laminate is a four-ply Makrolon® polycarbonate sheet for use in security applications that require UL Level 3 bullet resistant glazing.

Applications

Makrolon® BR1250 laminate is used in containment and bullet-resistant glazing and the wide variety of higher level security applications.

Installations include:

- Prisons
- Detention facilities
- Banks and other cash transaction areas
- Government centres
- Correction facilities

Product Specification

Makrolon® BR1250 - 32mm gauge 4-ply
3mm Makrolon® AR
Interlayer
13mm Makrolon® GP
Interlayer
13mm Makrolon® GP
Interlayer
3mm Makrolon® AR

Standard Sheet Size: 2400mm x 1220mm

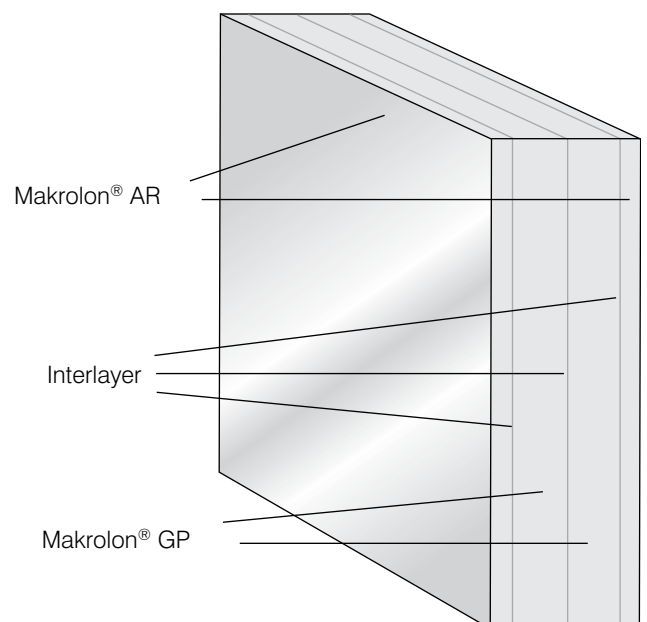
Ballistic Results

UL 752 Level 3 (SPSA) - Super power small arms, .44 Magnum

HPW Level V

HPW TP0500.02 Level C Ballistics (.44 Magnum)

ASTM F1233 Class IV Step 38



VIVAK® Co-polyester (PETG) Solid Sheet

Vivak® is a clear transparent sheet made from thermoplastic co-polyester (PETG). It offers extreme clarity and light transmittance and high gloss level. In addition, it has high impact resistance, even at low temperatures and is approved for food contact applications. With superior thermoforming and mechanical properties, Vivak® offers designers a high degree of design freedom.

Vivak® sheet offers deep draws, complex die cuts and precise moulded-in details without sacrificing structural integrity. It can be bonded or fastened with adhesives, tapes, ultrasonic welding or rivets. In addition, Vivak® sheet is easily decorated by painting, silk screening or hot stamping. It is also easy to fabricate, form, bond and decorate.

Vivak® sheet products offer virtually unlimited options for complex shapes and objects in applications that range from industry to visual communications, to specialised purposes in the medical field.

With their ease of fabrication even at low temperatures, they ensure low energy consumption and high productivity. Manufactured in Australia by Laserlite under strict quality control meeting ISO 9001:2000 certification guidelines for both plant and process.

Your Benefits

- Optical clarity, transparency with high surface gloss
- Excellent thermoforming properties
- No pre-drying at low temperatures
- Easy to fabricate
- Break resistance and impact strength at low temperatures
- Approved for food contact
- Ease of printing
- High light transmittance up to 90%
- Fire resistance
- Fully recyclable

Applications

Typical applications include:

- Vacuum-formed and screen printed displays
- Prostheses and special equipment
- Medical applications
- Shop fittings
- Food containers
- Moulds for food services
- Protective glazing
- Product dispensers

Availability

Vivak® PETG is available in:

Standard Colour: Clear

Gauges: 0.5mm, 0.75mm, 1.0mm, 1.5mm, 2.0mm, 3.0mm

Standard Sizes: 2440mm x 1220mm & 2440mm x 1830mm

Other gauges and sizes are available on request, subject to conditions.

Warranty

Laserlite Australia warrants the original purchaser of the product that it is free from defects due to manufacture or workmanship.



Vymar® uPVC Solid Sheet

Vymar® unplasticised Polyvinyl Chloride (uPVC) Solid Sheet is extruded in Australia, by Laserlite Australia, under strict quality control conditions that meet the ISO 9001:2000 certification guidelines for both plant and process. It is manufactured without the use of heavy metal type additives such as lead or cadmium for environmental and consumer protection.

Vymar® uPVC is a cost effective, versatile and robust sheet that provides comprehensive solutions for a wide range of applications, from wall panelling to insulation and signage. It is thermoformable, electrically non-conductive and is resistant to grease, oil and a wide range of chemicals. PVC solid sheets can be easily machined, heat formed, welded and solvent cemented.

Your Benefits

- No heavy metals present
- Cost effective
- Resistant to grease/oil
- Versatile
- Robust
- Durable
- Resistant to corrosion by a wide range of chemicals
- Impervious to chemical and sulphur-bearing compounds
- Electrically non-conductive
- High strength to weight ratio
- Excellent fire retardant properties
- Abrasion resistant
- Recyclable
- Moisture resistant
- Easy to thermoform
- Protected by thermoformable release masking

Applications

Typical applications include:

- Chemical storage tanks
- Extraction systems
- Meter boxes
- Vacuum-formed components
- Electrical insulators
- Cooling tower elements
- Industrial ducting
- Fume cupboards
- Signage
- Screen printing

Availability

Vymar® uPVC is available in:

Grades: General Purpose, UV Resistant

Standard Colours: White, Grey

Gauges: 1.0mm, 1.5mm, 2.0mm, 3.0mm, 4.5mm, 6.0mm, 8.0mm, 10.0mm

Standard Size: 2440mm x 1220mm

Other colours, gauges and sizes are available on request, subject to conditions.

Warranty

Laserlite Australia warrants the original purchaser of the product that it is free from defects due to manufacture or workmanship.

The logo for Vymar, featuring the word "Vymar" in a bold, yellow, sans-serif font. A registered trademark symbol (®) is located at the top right of the letter "r".

Performance Warranty

Laserlite Australia Pty Ltd warrants the original purchaser of Laserlite Solid Sheets that the products are free from defects due to manufacture or workmanship. Full warranty details are available on request from your local Laserlite Sales Office and website.

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Northern Territory 0820
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Product Liability Clause

This information and our technical advice whether verbal, in writing or by way of trials is given in good faith but without warranty. Our advice does not release you from the obligation to verify the information provided in our safety data and technical information sheets and to test the products as to their suitability for the intended use and processes. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and therefore entirely your own responsibility. Our products are sold in accordance with the current version of our Terms and Conditions of Sale.



A Bayer Company

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makrolon®

All Laserlite Polycarbonate Solid Sheet products are manufactured from high-tech, high-quality Bayer **Makrolon®** polycarbonate resin for high impact resistance, light weight, excellent transparency, UV stability and excellent fire resistance. Makrolon, Vivak and Vymar are registered trademarks of Bayer AG.