



Sign & Display Products Portfolio

Bring Your Colors To Life

Content

About Palram	3
Anywhere the Eye Can See, It's Likely to See an Ad	4
Sign & Display Products Matrix	5
PALIGHT® – Premium Foam PVC	6
PALIGHT® Digital – Static-free Foam PVC	7
PALGLAS® Digital – Ready to Print Acrylic	8
PALBOARD™ – Multi-layered PVC	9
Diffusers: PALCLEAR® Diffuser & PALSUN® LB (Light Box)	10
PALCLEAR® – Flat Transparent PVC	11
PALSUN® – Flat Solid Polycarbonate	12
PALOPAQUE® – Flat Opaque PVC	13
SUNLITE® – Multiwall Polycarbonate	14

About Palram

For over 50 years Palram has been a global leader in manufacturing extruded thermoplastic sheets. This production and application experience is expressed in an extensive product offering that includes architectural panel systems and finished consumer products.

The sheets, manufactured mainly from polycarbonate, PVC and Acrylic are designed to suit a diverse range of applications in various markets: DIY, construction, architectural projects, sign and display, agricultural, glazing, and fabrication. Palram panel systems are offered as part of the company's advanced products and services bundle for the construction and architectural markets. A variety of finished-products are marketed through DIY chain stores across the globe.

Palram has been a public company since 1994. In 1998 Palram established a strategic partnership with Bayer AG, which holds a 25% share ownership in the Palram subsidiary "Paltough Industries (1998) LTD".



“Anywhere the eye can see, it’s likely to see an ad”*

Signs and ads are everywhere. They are so common that the scale of their presence is incomprehensible. They appear indoors and outdoors in a wide variety of formats; printed/illuminated/fabricated. In many cases, more than one is utilized.

For Palram, a global leading thermoplastic sheet manufacturer, it’s a challenging and exciting category, where product requirements are continually more demanding, and the bar is set higher every year.

This brochure covers the Palram portfolio for the Sign & Display sector. Palram products appear in three main categories, Digital Printing, POP/POS Display Units, and Illuminated Sign Boxes.

Sign & Display Application Categories

Each product will be marked with an icon corresponding to the category it best fits. Some products fit into more than one category, and will be marked accordingly.



1. Digital Printing

This category entails printing on rigid media for promotions, advertisements, signage, decorative printing, or outdoor artworks. There is no limit to the multitude of applications. The principal process is printing, mostly digital printing on wide format printers. This can sometimes involve the use of specialty inks, or unique printing processes. What distinguishes this category from the next one is that digital printing is the key process that is used before the product is finalized, with maybe an additional basic process like cutting, framing, or simple bending.

Examples of display venues include:

- 1.1. Indoor: Malls, terminals, shops, theaters, interior design, decorative printing
- 1.2. Outdoor: Highways, parks, outlets, stadiums



2. POS/POP Display Units

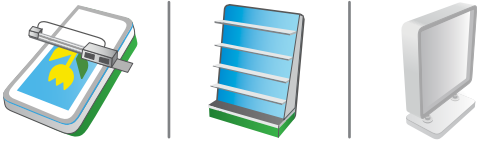
In this category of products, Palram offers opaque, translucent or transparent media for printed and other presentations. The products need to be able to undergo fabrication in different workflow processes such as bending, thermoforming, milling, cutting, etc. The finished items can be used to promote products and services at point of purchase/point of sale locations. They can also appear as components of stands at trade shows.



3. Illuminated Sign Boxes

The sign boxes category refers to the use of translucent, diffused media for illuminated signage. They can be displayed either indoors or outdoors, with different requirements in each case. Sign boxes can be either single or double-sided with varying depths. Media can be used for diffusing purposes in transport advertising or mall scape advertising, as covers for street furniture solutions, or for the body and faces of channel letters’ signage.

* Jack Sullivan, senior VP and out-of-home media director at Starcom USA, an advertising agency, New York Times article by LOUISE STORY, Published: January 15, 2007 (<http://tinyurl.com/br855jc>)



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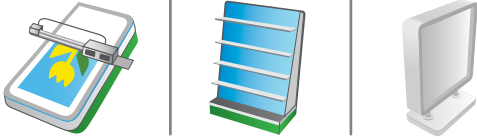
PALIGHT® - Premium Foamed PVC

PALIGHT is among the leading premium foam PVC sheets in the market. PALIGHT is a lightweight, versatile, flexible, and durable foamed PVC sheet that is ideal for use in advertising and construction. The PALIGHT sheet exhibits the whitest available surface and was successfully tested and approved, by the majority of digital flatbed printer manufacturers. In addition, PALIGHT comes in a wide range of standard and special designer colors, standard matte or gloss finishes.

Printers and advertisers benefit from its consistent smooth and bright surface for producing high quality displays. PALIGHT is easily handled, cut and fabricated using conventional tools and equipment, and can be printed, painted or laminated. It has good insulation, high chemical resistance, and good scores in flammability tests.

Due to its comparatively high density, PALIGHT has excellent mechanical properties, and is mostly suitable for applications that require further fabrication and rely on the structural strength of the sheet, as part of the final stand or display unit.





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PALIGHT® DIGITAL Static-free Foamed PVC

PALIGHT Digital is the PALRAM's new generation of foam PVC sheet that was designed to address key requirements of today's digital print market. When reviewing key requirements for digital print applications, there are two requirements that top the list; achieve excellent image quality, and enable maximum productivity. Excellent image quality usually means one of the two:

- Excellent print quality – high registration, and crisp, fine details of the printed image.
PALIGHT Digital is static-free. This characteristic significantly improves the overall print quality, especially where it is needed; in the small text and fine details, and on the edges of images and graphics. These areas on the sheet are the most prone to bad image quality. When the sheet is charged with static electricity, the ink particles are diverted away from their intended trajectories on the surface of the substrate, causing fuzzy text or overspray of color, which is most noticeable in small text, or around the contours of images.
With PALIGHT Digital, the ink drops accurately hit their target, and the result is an improved image quality. In addition, working with a static-free sheet means no more electric shocks for the operator when dealing with the media. Operators report noticeable difference from working with standard sheets, and are greatly pleased with it.
- Superb color reproduction – high conformity of printed colors to original graphic file and image.
PALIGHT Digital has a high value of neutral white index substrate color that supports professional color management, and provides great, vivid colors.



High image quality

- PALIGHT Digital smooth and uniform surface serves as an ideal substrate for digital print inks enabling good details, smooth gradations, and homogenous area cover.
- Fixed thickness of boards supports better ink adhesion resulting in increased image quality and longer sustainability of product.
- Bright white base color provides high quality and accuracy of color imaging.



Easy to use

- PALIGHT Digital rigid yet lightweight physical properties, make it easy to use even for the most creative and unique sign & graphics applications.



Durable & safe

- PALIGHT Digital is a great solution for indoor advertisement uses, due to its high resistance to chemicals and low water absorption.
- PALIGHT Digital complies with highest safety requirements.
- PALIGHT Digital meets US & EU requirements for recycling.





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PALGLAS® Digital

Acrylic is one of the commonly used transparent substrates for POP/POS, Sign Box applications. Its physical properties, ease of fabrication, smooth finishing and economic pricing make it an ideal media. However, there is one major drawback when printing on acrylic. Its surface tension is considerably higher than that of the ink used, and the result is poor ink adhesion to the media. In order to overcome this phenomenon, the acrylic sheet needs to be treated with specific primers before print. The pre-print treatment has elevated costs attached to it. The ink adhesion primer is expensive. Labor is manual, thus time consuming and expensive. When primer application is not even, it shows on the printed image, and requires repeating the process on a new sheet.

PALGLAS Digital is a new print ready acrylic sheet from Palram. All of the above is irrelevant with PALGLAS Digital. Simply take the protective masking off the sheet, and load it onto the printer. Ink adhesion is excellent, as is the image quality. All other properties of the media remain intact.

PALGLAS Digital saves time, labor and in doing so, cuts costs and increases overall production.





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PALBOARD™ Multi-layered PVC

PALBOARD is an innovative sheet that offers the qualities of rigid and foamed PVC together. Relying on Palram's 50 years of experience in extruding quality PVC sheets, it offers the surface quality and characteristics of rigid PVC with a lower weight due to a recycled foamed PVC core. PALBOARD is easy to thermoform and fabricate, making it ideal for a wide variety of sign and display applications.

PALBOARD makes an excellent printing substrate and is also suitable for digital or traditional printing. PALBOARD can be used in harsh chemical environments due to its high chemical resistance.

Main benefits

- Hard smooth surface
- Recycled lightweight foamed PVC core
- Glossy, matte or embossed surfaces
- Optional 2 or 3 layers
- High structural strength with relatively low weight
- Excellent chemical and fire resistance
- Easy to fabricate
- Good adhesion capabilities
- Good electrical and thermal insulation

Typical applications

- Industrial and construction Signs
- Displays and point of purchase stands
- Fabricated and structural parts
- Digitally printed signs and posters



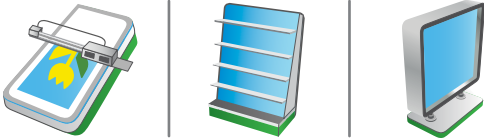
Easy to use

- Rigid yet lightweight physical properties, make it easy to fabricate



High image quality

- Smooth and uniform surface
- Bright white base color



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Light Diffusers - PALCLEAR® Diffuser & PALSUN® LB (Light Box)

The sign boxes market is a mature one in many aspects, yet it is still dynamic, and not standardized. The introduction of cost-effective LED lights, and their fast ongoing development, is changing the sign boxes and channel letters market. Sign box cans are getting slimmer, and have lower costs of maintenance and energy. On one hand, diffuser sheets need to be efficient, and to transmit as much light as possible, whereas, on the other hand, they need to diffuse the light from a much closer distance to the light source, as the sign boxes get slimmer (and LED luminance intensity gets stronger).

On the left image, the effect of a poorly diffused sheet is clearly visible in the shape of light and shade ribs. On the right image, the appearance is even.



Low quality sign face, uneven light diffusion.



PALSUN LB/PALCLEAR Diffuser, uniform light diffusion. No 'ribs' and no burn through.

An additional requirement is for the diffuser to provide good vivid appearances of the image even when lights are off. This requirement is achieved by a high reflective value of the diffuser sheet. Both below images demonstrate a sign box with lights 'off'.

The left image shows a dull image appearance, compared with the vivid appearance in the right image, where a proper diffuser was used.



Low quality sign face, greyish appearance when light 'off'.



PALSUN LB/PALCLEAR Diffuser, high reflectance, good, vivid appearance when lights 'off'.

PALRAM offers two types of diffuser sheets; the polycarbonate PALSUN LB for outdoor uses, and the PALCLEAR Diffuser PVC sheet, for indoor use. Both sheets offer excellent light transmission properties, and high haze (diffusion) values.



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PALCLEAR® - Flat Transparent PVC

PALCLEAR flat transparent PVC sheet provides solutions for various applications in frequented indoor applications. PALCLEAR combines excellent mechanical properties and impact strength, water-clear clarity, excellent resistance to chemicals and fire resistance. It withstands many chemical agents and can be easily formed using various fabrication techniques. Optional characteristics range from high clarity and anti-glare surface to increased impact resistance.

Key benefits

- Excellent resistance to chemicals
- High fire rating: Suitable for frequented areas
- High light transmission "Water Clear" Clarity
- Optional high-impact
- Formable: can be thermoformed, vacuum formed, bent hot or cold, fabricated
- PALCLEAR® Matte: Anti-glare finish on one side to eliminate reflection





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PALSUN® - Flat Solid Polycarbonate

PALSUN is a flat solid polycarbonate sheet that combines ultra-high impact resistance with clarity, making it the material of choice for demanding applications. PALSUN is virtually unbreakable, yet it is transparent as glass at less than half its weight. PALSUN can be cold bent and easily fabricated and formed, making it ideal POP/POS units. PALSUN Diffuser and LB sheets are extensively used in durable light boxes.

Key benefits:

- High impact resistance - virtually unbreakable
- High clarity and light transmission
- Weather and UV resistant
- Wide service temperature range
- Blocks harmful UV radiation
- Lightweight
- Easy to handle and install
- Versatile, formable, and easily fabricated
- Available in diffuser grades for light boxes





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PALOPAQUE™ - Flat Opaque PVC

PALOPAQUE is a flat UV-stabilized PVC sheet. Easily formed and fabricated, PALOPAQUE is ideal for a wide variety of applications. PALOPAQUE makes an excellent printing substrate for the advertising and signage industries and is suitable for digital or traditional printing. With its high chemical resistance, PALOPAQUE is highly suitable for industrial applications, such as POP/POS stands.

Key benefits

- Excellent chemical resistance
- High impact strength
- Easily fabricated and formed
- Highest fire rating
- Glossy, Matte Hair-Cell or surfaces
- High electrical and thermal insulation
- Easy fabrication
- Non toxic

Surface finishes

PALOPAQUE is offered with glossy smooth finish on both sides as standard. Matte and Hair-Cell finishes on one side are optional.





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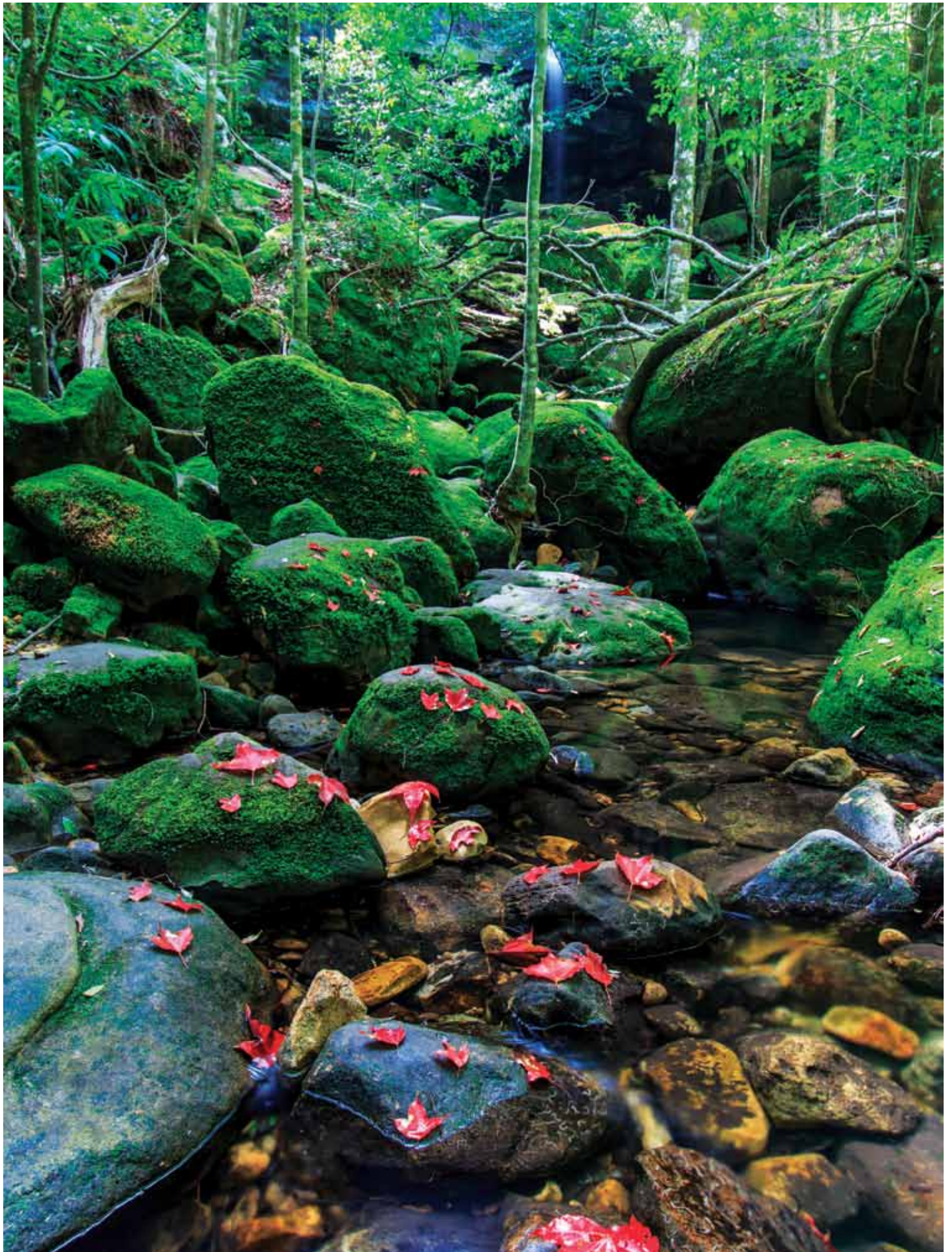
SUNLITE® - Multiwall Polycarbonate

SUNLITE, multiwall polycarbonate sheet, has a cellular polycarbonate structure that yields a lightweight sheet with high impact strength and superior thermal insulation. Interior designers and advertisers take advantage of SUNLITE's special appearance and add a unique touch to their designs.

Key Benefits

- Lightweight and impact resistant
- High light transmission
- Excellent structural durability
- Weather and UV resistance
- Blocks virtually all UV radiation
- Easy to handle and install
- High fire performance rating







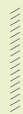
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