

## Palram Display Media

PALRAM has a wide range of flat rigid products that address the diversity of Sign & Display applications. All products match high image quality standards, a variety of fabrication methods, and strict weathering and safety requirements.

All of PALRAM Sign & Display products are developed in cooperation with leading wide-format flatbed printers' manufacturers, and display systems.

Every product is carefully tested and certified, and is backed up by 50 years of experience and service to a worldwide install base.

	Digital Printing	Screen Printing	Fabrications (Cut out, Glue, Cold bend, etc.)	Thermoforming	POP Displays	Exhibitions & Interior Design	Signage Indoor	Signage Outdoor	Illuminated Signage (Diffuser)	Channel Letters
PALIGHT®	●	●	●		●	●	●			
PALIGHT® Digital	●	●	●		●	●	●			
PALFOAM™	●	●	●		●	●	●			
PALOPAQUE™	●	●	●	●	●	●	●			
PALCLEAR®	●	●	●	●	●	●	●	●	●	●
PALSUN®	●	●	●	●	●	●	●	●	●	●
PALGLAS®	●	●	●	●	●	●	●	●	●	●

● Medium Term Usability | ● Long Term Usability (higher weather & impact durability)



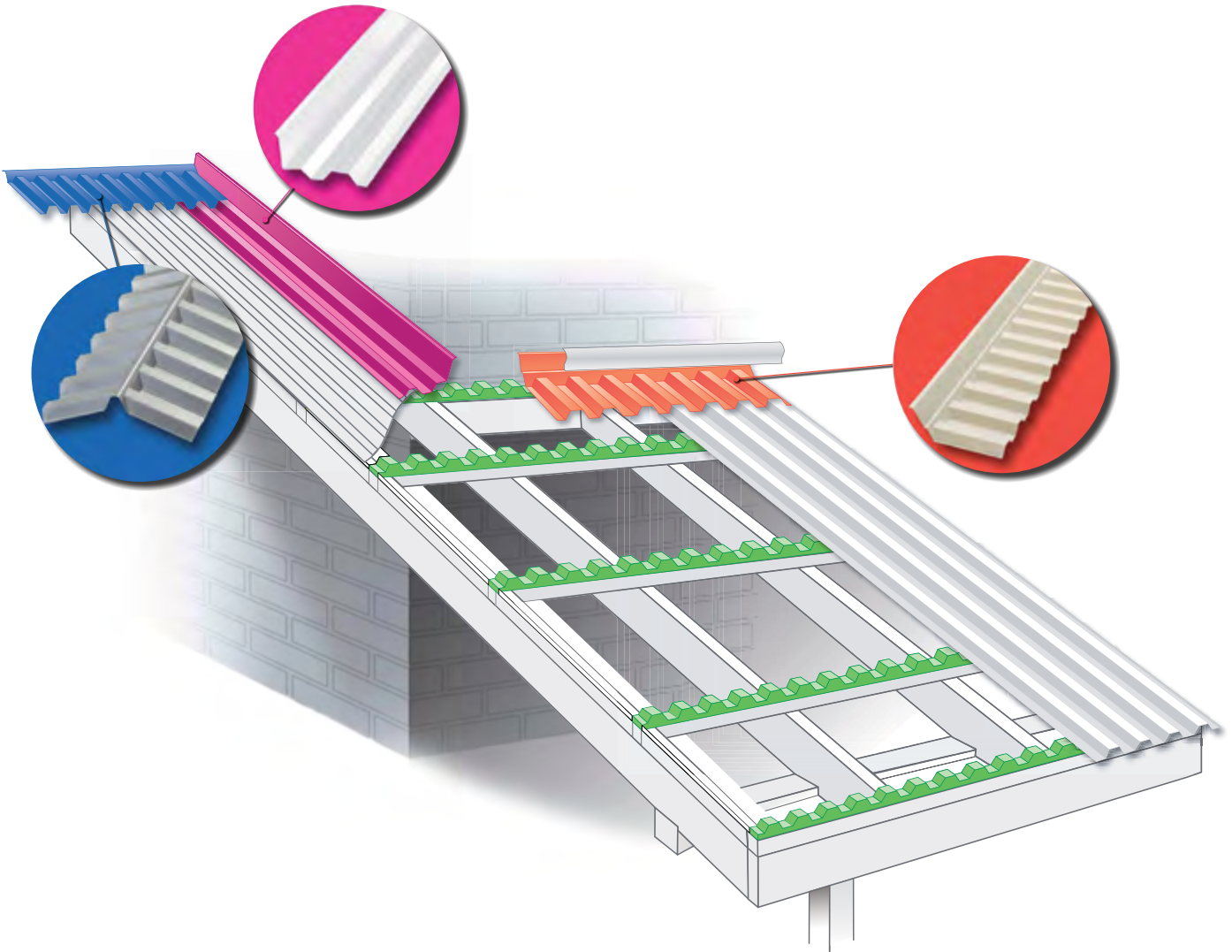
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# Finishing Accessories

For Palram Corrugated Sheets





## Content

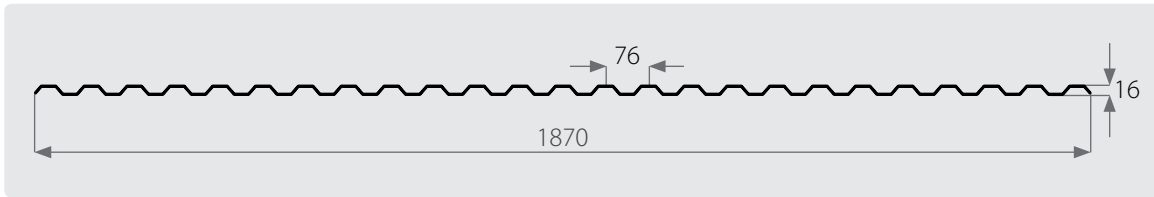
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Please note:

All Palram finishing accessories are subject to a minimum quantity order.

## SUNTUF® Greca/Trapeze (76/18)

### Profile Drawing



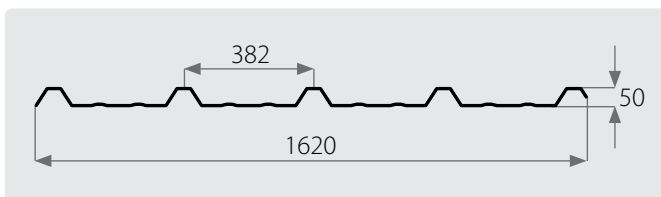
### Available Accessories

Item	Illustration	Cross-Section	Dimensions mm (inch)	Item No.
Universal Ridge Cap			1,270 x 150 x 150 (50" x 6" x 6")	108653
Top Wall Trim			1,270 x 50 x 150 (50" x 2" x 6")	108657

\* All items are subject to a minimum quantity order.

## SUNTUF® 5102 (382/50)

### Profile Drawing



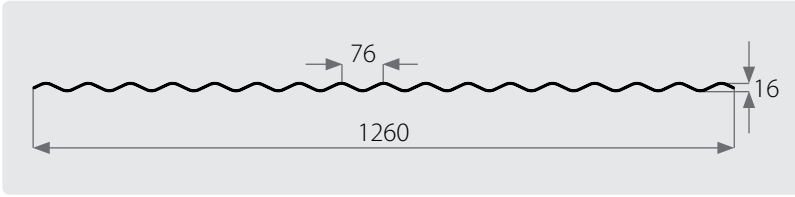
### Available Accessories

Item	Illustration	Cross-Section	Dimensions mm (inch)	Item No.
Universal Ridge Cap			1,530 x 270 x 270 (60" x 11" x 11")	702307

\* All items are subject to a minimum quantity order.

## SUNTUF® Iron/Sinus (76/18)

### Profile Drawing



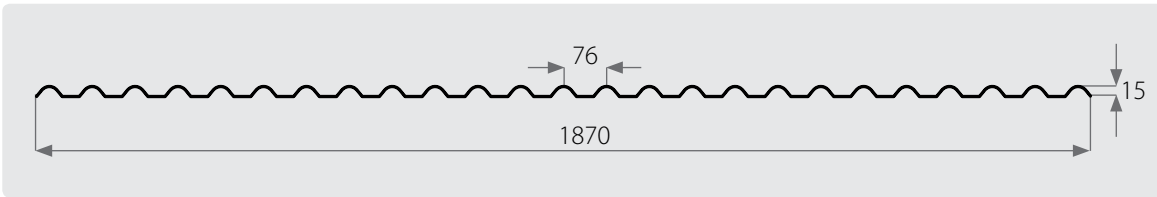
### Available Accessories

Item	Illustration	Cross-Section	Dimensions mm (inch)	Item No.
Universal Ridge Cap			1,270 x 150 x 150 (90" x 6" x 6")	702694
Top Wall Trim			1,270 x 50 x 150 (90" x 2" x 6")	702696

\* All items are subject to a minimum quantity order.

## SUNTUF® Omega (76/15)

### Profile Drawing



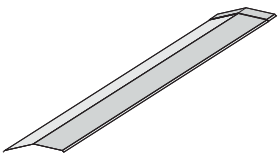
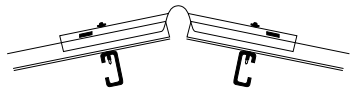
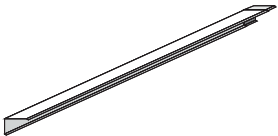
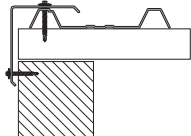
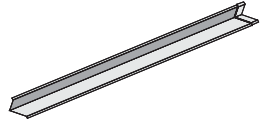
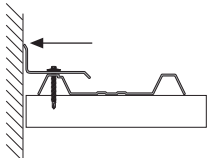
### Available Accessories

Item	Illustration	Cross-Section	Dimensions mm (inch)	Item No.
Universal Ridge Cap			2,280 x 270 x 270 (90" x 10" x 10")	105061

\* All items are subject to a minimum quantity order.

## Flat PVC Finishing Accessories

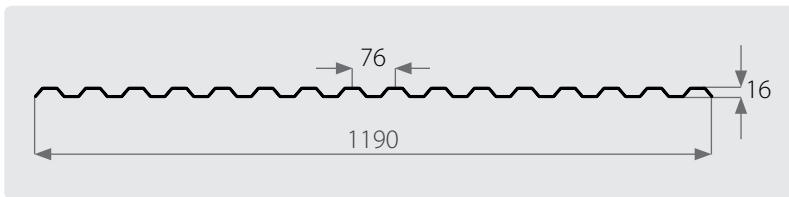
### Available Accessories

Item	Illustration	Cross-Section	Dimensions mm (inch)	Item No.
Flat Ridge Cap 150°			2,500 x 210 x 210 (98" x 8" x 8")	110650
Standard Side Gable Trim 90°			2,500 x 160 x 160 (98" x 6" x 6")	105023
Top Wall Trim			2,500 x 50 x 160 (98" x 2" x 6")	105024

\* Flat accessories are available at any requested measurements, subject to a minimum quantity order.

## PALRUF® Greca/Trapeze (76/18)

### Profile Drawing



### Available Accessories

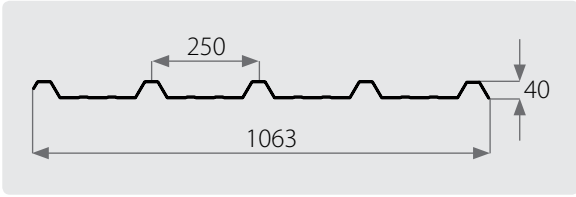
Item	Illustration	Cross-Section	Dimensions mm (inch)	Item No.
Universal Ridge Cap			2,280 x 150 x 150 (90" x 6" x 6")	105014
Top Wall Trim			2,280 x 50 x 150 (90" x 2" x 6")	105015

\* All items are subject to a minimum quantity order.



# PALRUF® Industrial 100 (250/40)

## Profile Drawing



## Available Accessories

Item	Illustration	Cross-Section	Dimensions mm (inch)	Item No.
Universal Ridge Cap			1,100 x 270 x 270 (43.5" x 11" x 11")	105000
Air Vent Panel 500mm			1,800 x 1,063 (71" x 73.5")	105002
Air Vent Cap			Diameter 900mm	105004
Supports			350 x 50 (14" x 2")	701874
Gutter Connector			1,100 x 220 x 80 (43.5" x 9" x 3")	703061

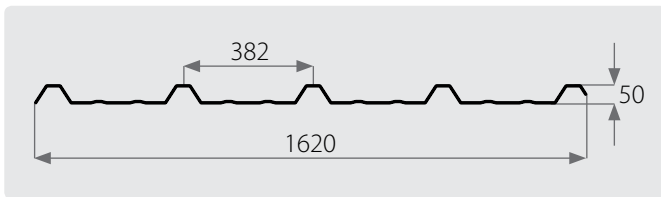
\* All items are subject to a minimum quantity order.



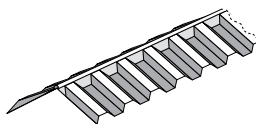
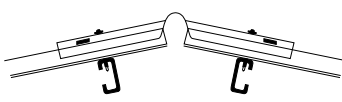


## PALRUF® 5102 (382/50)

### Profile Drawing



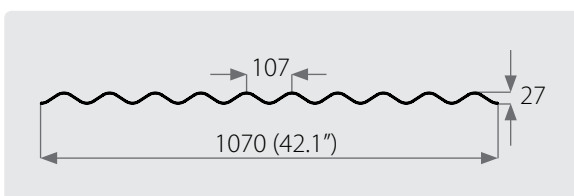
### Available Accessories

Item	Illustration	Cross-Section	Dimensions mm (inch)	Item No.
Universal Ridge Cap			1,530 x 270 x 270 (60" x 11" x 11")	702308

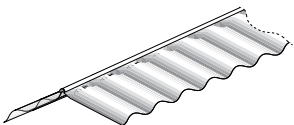
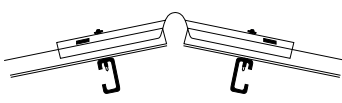
\* All items are subject to a minimum quantity order.

## PALRUF® American 4.2 (107/27)

### Profile Drawing



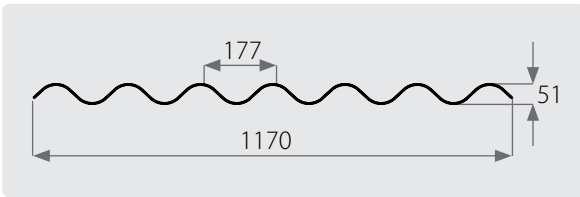
### Available Accessories

Item	Illustration	Cross-Section	Dimensions mm (inch)	Item No.
Universal Ridge Cap			2,150 x 270 x 270 (85" x 11" x 11")	105017

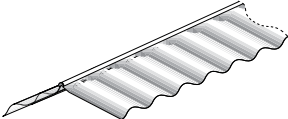
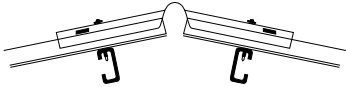
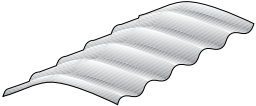
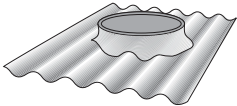
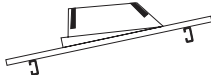


\* All items are subject to a minimum quantity order.

# PALRUF® 5,6 Waves (177/51)

## Profile Drawing



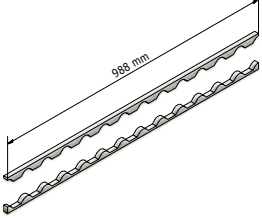
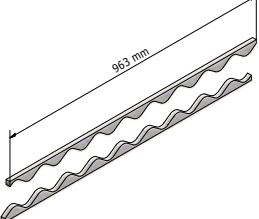
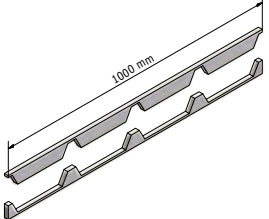
## Available Accessories

Item	Illustration	Cross-Section	Dimensions mm (inch)	Item No.
Universal Ridge Cap			2,180 x 400 x 400 (86" x 16" x 16")	105010
Standard Ridge Cap 150°			920 x 300 x 300 (36" x 12" x 12")	105007
Air Vent Panel 500mm			1800 x 1070 (70" x 42")	700790
Air Vent Cap			Diameter 900mm	105004
Supports			350 x 50 (14" x 2")	701874

\* All items are subject to a minimum quantity order.

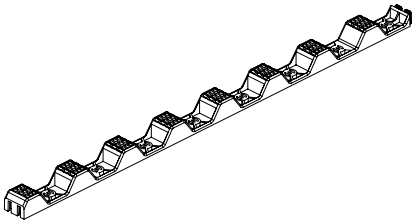
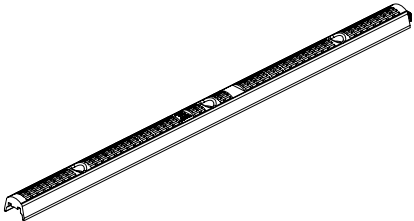
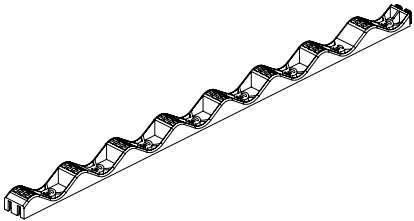


## Foamed Polyethylene Sealing Strips

Item	Illustration	Item No.
Omega (76/15)		Upper: 92041 Lower: 92042
American 4.2 (107/27)		92039
5,6 Waves (177/51)		92362
Greca/Trapeze (76/18)		92011
Industrial 100 (250/40)		Upper: 92010 Lower: 92012

\* All items are subject to a minimum quantity order.

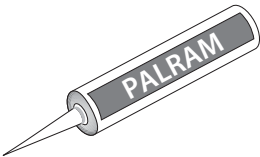
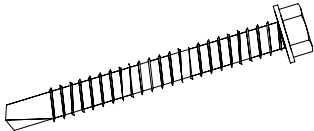
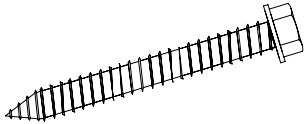

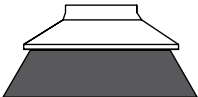
## Closure Strips

Item	Illustration	Item No.
Greca/Trapeze (76/18)	 A perspective view of a metal closure strip with a series of trapezoidal protrusions along its length.	92770
Vertical Universal	 A perspective view of a metal closure strip with a series of small, rectangular protrusions along its length.	92772
Iron/Sins (76/18)	 A perspective view of a metal closure strip with a series of sinusoidal protrusions along its length.	92771

\* All items are subject to a minimum quantity order.



## Fixing Accessories

Item	Illustration	Length mm (inch)	Item No.
Silicone Sealant			92042
Self-Drilling Screw		25 (1")	92049
		32 (1.25")	92050
		38 (1.5")	96966
		51 (2")	97374
		64 (2.5")	92051
		76 (3")	92052
Self-Tapping Screw		89 (3.5")	92053
		25 (1")	92021
		32 (1.25")	92019
		38 (1.5")	96922
		51 (2")	97341
		64 (2.5")	92044
19mm Washer/Gasket		76 (3")	92045
		89 (3.5")	92046
25mm Washer/Gasket			92024

\* All items are subject to a minimum quantity order.

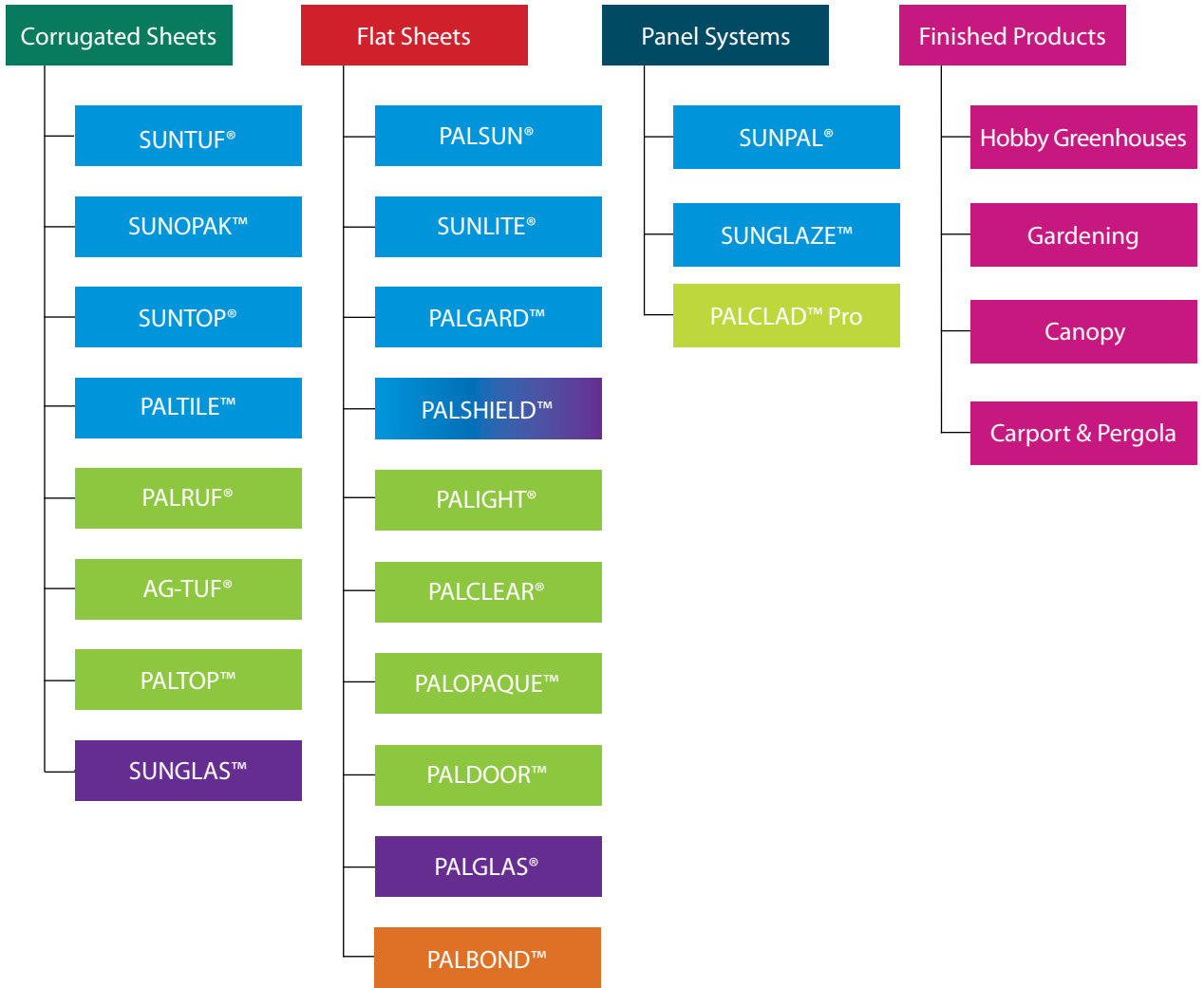


## About Palram

Palram was founded in 1963 and is a leading global manufacturer of semi-finished extruded thermoplastic sheets, panel systems and finished products. Palram sheets, manufactured mainly from Polycarbonate and PVC, are designed to suit a diverse range of applications in various markets, which include DIY, construction, architectural projects, advertising, 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.

## Product Guide

Palram's product range is divided into four main groups, as shown below.



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# Corruated Sheets



Corrugated Polycarbonate Sheet



POLYCARBONATE

### Colors\*

**Transparent:** Clear, Solar Grey, Bronze, Sky Blue, Transparent Green, Smart Grey.  
**Translucent:** White Opal, Diffuser, Solar Control, Solar Ice, Mist Green, Smooth Cream.  
**Opaque:** White, Green, Blue, Red Brick.

**Surfaces:** Smooth, Hair-Cell, Embossed.

### Dimensions\*:

**Width:** 660-1870mm/26-73.5in. (By profile)  
**Length:** 1500-11600mm/59-457in. (By profile)  
**Thickness:** 0.8-2.0mm/0.032-0.079in. (By profile)

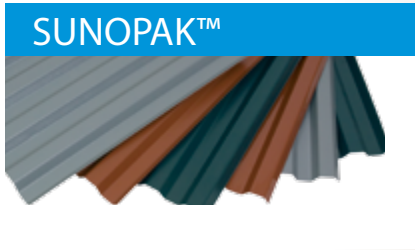
**Profiles\*:** Mini (32/9), Iron/Sinus (76/18), Greca/Trapeze (76/18), Omega (76/15), 5,6 Waves (177/51), American 4.2" (107/27), Trimdek (190/27), Spandek (87.5/24), Industrial 0100 (250/40), 7.2" (183/38)

\* Additional options are available upon request.



### Product Range

SUNTUF® - UV protected on one side  
 SUNTUF® UV2 - UV protected on both sides  
 SUNTUF® Plus - With anti-condensation  
 SUNTUF® Solar Control - Metallic reflective  
 SUNTUF® Smart™ - Transparent reflective  
 SUNTUF® Rooflights - Profile-match skylights



Corrugated Modified Opaque Polycarbonate Sheet



### Product Range

SUNOPAK™ - UV protected on one side  
 SUNOPAK™ UV2 - UV protected on both sides

**Colors\*:** Green, Red, Grey, Black

**Profile\*:** 76/18 Greca/Trapeze, 76/18 Iron/Sinus

**Surfaces:** Smooth, Hair-Cell, Embossed

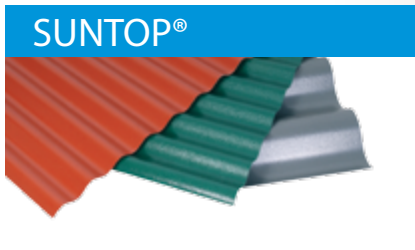
### Dimensions\*:

**Width:** 810-1260mm / 32-49.5in. (By profile)  
**Length:** 1500-6500mm / 59-256in. (By profile)  
**Thickness:** 1mm / 0.039in.

\* Additional options are available upon request.



POLYCARBONATE



Corrugated Foamed Polycarbonate Sheet



**Opaque Colors\*:** Light Grey, Red Brick, Dark Green.

**Profiles:** Iron/Sinus (76/18), 5,6 Waves (177/51), American 4.2" (107/27)

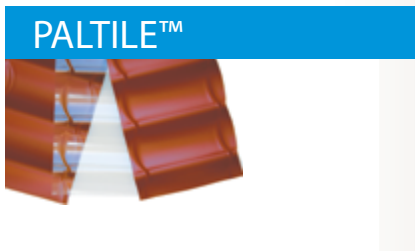
### Dimensions\*:

**Width:** 660-990mm / 26-39in. (By profile)  
**Length:** 1500-6000mm / 59-236in. (By profile)  
**Thickness:** 1.6-2.0mm / 0.039-0.079in. (By profile)

\* Additional options are available upon request.



POLYCARBONATE



Modular Roof Tile System



### Product Range

PAL TILE™ S: Solid Polycarbonate  
 PAL TILE™ F: Foamed Polycarbonate

**Colors:** Red Brick, Clear.

**Finish:** Matte

**Accessories (Red-Brick):** Ridge Cap, Side Gable Trim, Side Wall Trim.

\* Additional options are available upon request.



## PALRUF®



Corrugated PVC Sheet



### Colors\*

**Opaque:** White, Light Grey, Beige,

Light Green, Light Blue

**Transparent:** Clear, Bronze

**Translucent:** White Opal, Diffuser

### Dimensions\*:

**Width:** 550-1217mm / 22-48in. (By profile)

**Length:** 2500-6000mm / 49-236in. (By profile)

**Thickness:** 0.8-3.0mm / 0.031-0.118in. (By profile)

### Profiles\*:

Mini (32/9)

Iron/Sinus (76/18)

Greca/Trapeze (76/18)

Greca/Trapeze (75/19)

Greca/Trapeze (70/18)

5,6 Waves (177/51)

3" Standard (72/20)

American 4.2" (107/27)

American 2.6" (67.8/20)

Big 6 (146/48)

Astoria (305/38)

Industrial 0100 (250/40)

7.2" (183/38)

\* Additional options are available upon request.

### Product Range

PALRUF® Opaque - Suitable for outdoor use

PALRUF® Clear - Clear, UV stabilized

PALRUF® Opal - UV stabilized

PALRUF® HI - High impact resistance

PALRUF® HYG - Antimicrobial action



PVC



## AG-TUF®



Corrugated Indoor PVC Liner Panel



### Product Range

AG-TUF™ - Corrugated indoor PVC liner panel

AG-TUF™ HYG - Antimicrobial action

**Color:** Opaque White

### Dimensions\*:

**Width:** 660-965mm / 26-38in. (By profile)

**Length:** 2500-6150mm / 49-242in. (By profile)

**Thickness:** 0.8-1.3mm / 0.032-0.051in. (By profile)

**Profiles:** Iron/Sinus (76/18), Greca/Trapeze (76/18), 5,6 Waves (177/51), American 4.2" (107/27)

\* Additional options are available upon request.



PVC

## PALTOP™



Corrugated Foamed PVC Sheet



### Product Range

PALTOP™ - Black

PALTOP™ Premium - Colors

**Opaque Colors:** Grey, Green, Red, Black.

### Dimensions\*:

**Width:** 900-1100mm / 35-43in. (By profile)

**Length:** 2-6m / 6.5-20Ft. (By profile)

**Thickness:** 1.2mm / 0.05in. (By profile)

**Profiles:** Iron/Sinus (76/18), Greca/Trapeze (70/18), 5,6 Waves (177/51)

\* Additional options are available upon request.



PVC

## SUNGLAS™



Corrugated High Impact Acrylic Sheet



**Colors\*:** Clear, Bronze, Solar-Ice

**Finishes\*:** Smooth, honeycomb, Embossed

### Dimensions\*:

**Width:** 1045-1050mm / 41-41.5in. (By profile)

**Length:** 1500-7000mm / 59-275.5in. (By profile)

**Thickness:** 1.5-3.5mm / 0.059-0.051in. (By finish)

**Profiles:** Iron/Sinus (76/18), Greca/Trapeze (76/18)

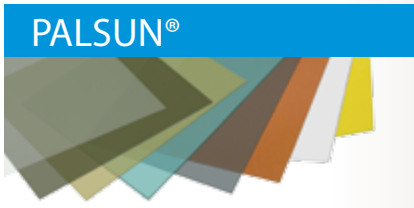
\* Additional options are available upon request.



ACRYLIC



# Flat Sheets



Flat Solid Polycarbonate Sheet

**Product Range**

- PALTUF™ - General purpose (Indoor use)
- PALSUN - UV protected on one side
- PALSUN® UV2 - UV Protected on both sides
- PALSUN® FR - Fire retardant
- PALSUN® Matte - Anti-glare finish
- PALSUN® Solar Control - Metallic reflective
- PALSUN® Breeze - Transparent reflective
- PALSUN® LB - Outdoor light-box applications



**Colors\***

- Transparent:** Clear, Solar Grey, Bronze, Red, Blue, Green, Breeze.
- Translucent:** Yellow, Red, White Opal, White Diffuser, Solar Control, Solar Ice, Solar Olympic.
- Opaque:** Dark Green, Red Brick, Black, Dark Blue, Cream, Light Grey, Dark Grey, Brown, Off White.

**Surfaces:** Smooth, Embossed, Matte, Hair-Cell, Prismatic.

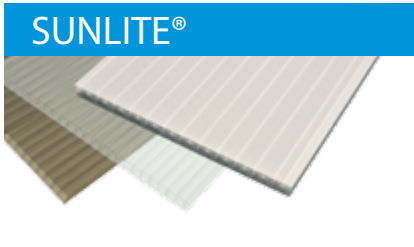
**Dimensions\*:**  
1250x2050mm (49x81in.), 1220x2440mm (31x96in.), 2050x3050mm (81x120in.)

**Thickness\*:** 1-12mm / 0.059-0.472in. (By finish)

\* Additional options are available upon request.



POLYCARBONATE



Multiwall Polycarbonate Sheet

**Product Range**

- SUNLITE® - UV protected on one side
- SUNLITE® UV2 - UV protected on both sides
- SUNLITE® Plus - With anti-condensation
- SUNLITE® Solar Control - Metallic reflective
- SUNLITE® CL - Pearlescent reflective
- SUNLITE® SLT - Translucent reflective
- SUNLITE® Smart - Transparent reflective



**Colors\***

**Standard:** Clear, Solar Grey, Bronze, Red, Blue and Green.

**Special Transparent:** Blue, Green  
**Multi-Layered (ML):** Bronze/Opal, Solar Guard (Solar-control/Opal)

**Dimensions\*:**  
**Width:** 980-2100mm / 38.5-83.5in (By thickness)

**Length\*:** 6000-7000mm / 236-276in.  
Special orders - Up to 12m.

**Thickness\*:** 4-40mm / 0.157-1.575in (By structure)

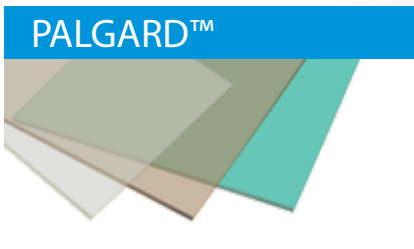
**Structures**

Twin Wall	Triple Wall	X-Lite	VS

\* Additional options are available upon request.



POLYCARBONATE



Flat Solid Abrasion Resistant Polycarbonate Sheet



**Colors\*:** Clear, Bronze

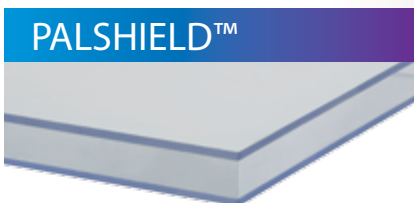
**Dimensions\*:**  
1220x2440 mm (31x96in.)  
1220x1830 mm (49x72 in.)  
2000x3000 mm (79x118 in.)

**Thickness\*:** 3-12 mm (0.118-0.472 in.)

\* Additional options are available upon request.



POLYCARBONATE



Bullet Resistant Panel

**Product Range**

For complete product range please contact your Palram distributor.



**Layer Composition:**

- Top:** Abrasion resistant polycarbonate
- Core:** Single or multiple plies of polycarbonate or acrylic
- Bottom:** Abrasion resistant polycarbonate
- Colors:** Clear, Bronze, Grey

**Dimensions:**  
Width up to 1800 mm (71 in.)  
Length up to 3000 mm (118 in.)

**Thickness:** 19 mm (0.75 in.)



POLYCARBONATE

# Flat Sheets

## PALIGHT®



Flat Foamed PVC Sheet

### Product Range

- PALFOAM™ - Low weight, matte, white only
- PALIGHT® - Matt finish on both sides
- PALIGHT® 2001 - Glossy finish on one side
- PALIGHT® Trimboard\*



### Colors\*

**Standard Colors:** White, Yellow, Red, Blue, Green, Black, Grey.

**Designer Colors:** See brochure for details.

### Product Availability (by Thickness - mm)\*

Color	1220x2440	1560x3050	2030x3050
White ST-10	1-13,15,19,25	All	All
Yellow ST-30	3,5		
Red ST-50	3,5		3,5
Black ST-90	3,5,10	3,5	3,5,6,8,10
Blue ST-70	3,5		
Green ST-80	3		
Grey ST-100	3,5	3,5	3,5

\* Additional options are available upon request.



PVC



## PALCLEAR®



Flat Transparent PVC Sheet

### Product Range

- PALCLEAR® Water Clear - High clarity
- PALCLEAR® Bluish - Traditional bluish tint
- PALCLEAR® UV - UV protected on one side
- PALCLEAR® HI - Increased impact resistance
- PALCLEAR® Matte - Anti-glare effect
- PALCLEAR® Diffuser - Indoor light-box app.
- PALCLEAR® Embossed - Prismatic embossed on one side



### Color:

**Transparent:** Water Clear, Bronze, Bluish  
**Translucent:** White Opal, White Diffuser.

**Surfaces:** Smooth, Matte

### Dimensions\*:

1000x2000mm (39x79in.),  
 1220x2440mm (48x96in.), 1300x2500mm  
 (51x98in.), 1500x3000mm (59x118in.)

**Thickness\*:** 1-15mm / 0.039-0.591in.  
 (By product type and dimensions)

\* Additional options are available upon request.



PVC



## PALOPAQUE™



Flat Opaque PVC Sheet



### Product Range

PALOPAQUE™ - General purpose\*

\*Optional increased UV resistance

**Colors:** White, Light Grey, Dark Grey, Metallic Grey

**Surfaces:** Smooth, Matte, Hair-Cell

**Dimensions\*:** 1000x2000mm (39x79in.),  
 1220x2440mm (48x96in.), 1500x3000mm  
 (59x118in.)

**Thickness\*:** 1-15mm / 0.039-0.591in.  
 (By dimensions)

\* Additional options are available upon request.



PVC

## PALDOOR™



Flat Opaque PVC Sheet



**Colors\*:** 23 Shades of white

### Dimensions\*:

**Width:** Up to 1500mm / Up to 59in.

**Length:** Up to 3000mm / Up to 118in.

**Thickness\*:** 1-4mm / 0.039-0.157in.

\* Additional options are available upon request.



PVC

## PALGLAS®



Flat Extruded Acrylic Sheet



**Colors\*:** Transparent: Clear, Bronze  
Translucent: White Opal  
**Surfaces:** Smooth, Matte  
**Dimensions\*:** 1220x2440mm,  
1500x3000mm, 2050x3050mm  
**Thickness\*:** 2-10mm (By color)

\* Additional options are available upon request.



ACRYLIC

## PALBOND™



Aluminum Composite Panel



**Colors\*:** Yellow (RAL1023), Red (RAL3020),  
Blue (RAL5017), Green (RAL6024),  
Black (RAL9005), White (9016), Gray, Silver  
**Dimensions\*:** 1220x2440mm (48x96in.)  
1500x3000mm (59x118in.)  
**Thickness\*:** 3mm / 0.118in.  
**Finish:** Matte

\* Additional options are available upon request.



OTHERS

## Panel Systems

### SUNPAL®



Multiwall Polycarbonate  
Architectural System



**Colors (LT):** Clear (65%), Bronze (25%),  
White Opal (26%), White Ice (50%),  
Solar Ice (20%), Solar Control Grey (20%),  
Green (50%), Blue (50%), Red (20%).  
**Panel Types:** 8/600mm Light, 8/600mm,  
18/1000mm, 20/1000mm  
**Length:** Up to 12m

\* Additional options are available upon request.



POLYCARBONATE

### SUNGLAZE™



Solid Polycarbonate  
Architectural System



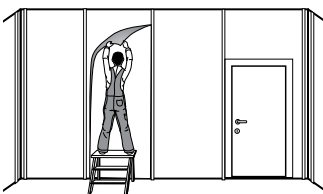
**Colors (LT):** Clear (90%), Bronze (20%), Solar  
Grey (20%), White Opal (28%), White Diffuser  
(80%), Solar Control (20%), Smart Green (18%),  
Smart Grey (20%), Smart Blue (19%).  
**Thickness:** 3mm, 4mm  
**Width:** 400-700mm (3), 400-800mm (4)  
**Length:** 1.5-12m

\* Additional options are available upon request.



POLYCARBONATE

### PALCLAD™ Pro



PVC Wall Cladding System



**Cladding accessories:** H profile, J profile,  
external & internal corners, welding rods.  
**Colors\*:** STD White, Off White, Cream, Beige  
Light Pistachio, Stone, Deep Ice, Light Pink,  
Light Blue, Red Wine, Dark Pink, Red, Orange,  
Crimson Pink, Avocado, Green Grape, Lilac,  
Light Turquoise, Ocean Blue, Warm Grey,  
Medium Grey, Black, Dark Grey, Light Grey,  
Mink, Grey Cream, Beige Cream, Desert Sand.  
**Surfaces:** Glossy, embossed or matte.



PVC

## Finished Products

### Hobby Greenhouses



A wide range of hobby greenhouses relies on Palram's high quality flat polycarbonate sheets. The clear and impact resistant panels provide the high light transmission needed for optimal plant growth, block harmful UV radiation and resist extreme weather conditions.



Green Line 6'x8'



Snap & Grow 8'x12'



Snap & Grow 6'x10'

### Gardening



**The extras that make a difference:** Unique solutions for everyday needs that facilitate home improvement around the house. The gardening products are suitable for beginners' first steps or experts who want to improve their gardening experience.



Cold Frame



Bio Planter



Store It Easy

### Canopy



The Canopy turns a functional need into aesthetic expression, combining high performance design and style to create an impressive entryway shelter for upscale house appearance.



Lucida 1350



Aquila 2050



Aquila 1500

### Carport & Pergola



The Carport is an innovative DIY concept that offers aesthetic outdoor environment to shelter your car. Its design is suitable for urban areas, suburbs and the countryside.

The range of Pergola systems is designed for DIY requirements. The pergolas offer accessible and esthetic roofing that shelters from rain, snow, hail, UV radiation or keeps away the shedding of leaves.



Frontier 5000



Pergola 420



Arcadia 5000

Palram's extensive product portfolio is only partially displayed here. For more information please contact your Palram distributor.



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## Sign & Display Products Portfolio

Bring Your Colors To Life

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## 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>)






## Sign & Display Products Matrix

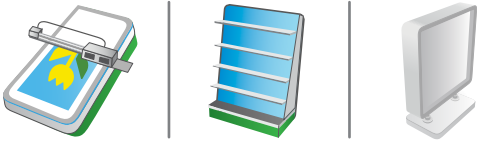
The table below shows Palram Sign & Display products portfolio combined with the typical applications that they are used for (green).

In addition, it shows the key processes that the product is typically subject to (blue).

The right section of the table displays the compatibility of the product with relevant physical properties (purple).

	Typical Applications									Key Processes			Physical Properties											
										Printing	General Fabrications	Hot Bending, Thermoforming	Weather resistance (UV, Temperature)	Durability, Impact Resistance	Fire Resistance	Chemical Resistance	Ease of fabrication, machining	Transparency	Diffusion					
	Advertising Signage	Decorative Design	Exhibitions	POS/POP, Stands, Display Units	Counter Units	Shop in Shop	Promo Zones	Dispensers, Cashier Units	Illuminated Indoor Sign boxes (e.g. Transportation Ads., Mall Scape)															
<b>PALIGHT®</b> Foamed PVC	●	●	●	●	●	●	●				●	●		■	□	□	■	■	■	■	■	■	■	■
<b>PALIGHT® Digital</b> Foamed PVC	●	●	●	●	●	●	●				●	●		■	□	□	■	■	■	■	■	■	■	■
<b>PALGLAS® Digital</b> Acrylic	●	●	●	●	●	●	●	●		●	●	●		■	■	□	□	■	■	■	■	■	■	■
<b>PALBOARD™</b> Multi-layered PVC	●	●	●	●	●	●	●				●	●		■	□	■	■	■	■	■	■	■	■	■
<b>PALSUN®</b> Polycarbonate	●	●	●	●	●	●	●	●	●		●	●	●	■	■	■	□	□	■	■	■	■	■	■
<b>PALSUN® LB</b> Polycarbonate	●	●	●	●	●	●	●	●	●	●	●	●	●	■	■	■	□	□	■	■	■	■	■	■
<b>PALCLEAR®</b> PVC	●	●	●	●	●	●	●	●			●	●		■	□	□	■	■	■	■	■	■	■	■
<b>PALCLEAR® Diffuser</b> PVC	●	●	●	●	●	●	●	●			●	●		■	□	□	■	■	■	■	■	■	■	■
<b>PALOPAQUE®</b> PVC				●	●	●	●				●	●	●	■	□	□	■	■	■	■	■	■	■	■
<b>SUNLITE®</b> Polycarbonate	●	●	●	●	●	●	●	●			●	●		□	■	■	□	□	■	■	■	■	■	■

Not applicable      Moderate  
 Good              Excellent



## 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.





## 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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more information on product 

## 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.





## 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



## 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







## 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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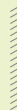
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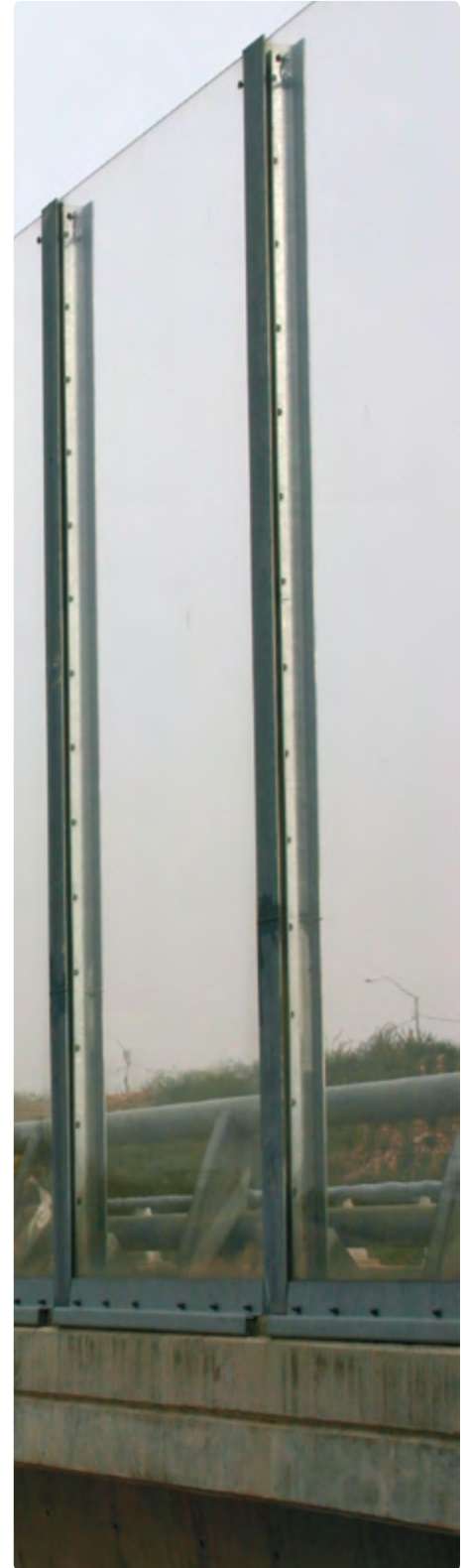




# Transparent Acoustic Barriers



## Transparent Acoustic Barriers



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## Introduction

Acoustic barriers, or noise walls, are exterior structures designed to protect sensitive land areas from noise pollution. They are the most effective method of reducing roadway, railway, and industrial noise sources without effectively changing the noise source itself. Transparent acoustic barriers neutralize the shortcomings of opaque barriers by allowing a clear view of the countryside or urban landscapes and admittance of sunlight, thus preventing a sense of closure or disconnection while providing a significant reduction of both acoustic and environmental pollution.

### Main Purposes of Transparent Acoustic Barriers

- Create noise barriers between high traffic and populated areas
- Maintain visibility and landscape sequence
- Provide lightweight and efficient solution for bridges, in comparison with complete concrete designs
- Provide lightweight extensions for concrete walls

### Palram Transparent Flat Sheets for Acoustic Barriers

PALGLAS® flat extruded acrylic and PALSUN® solid polycarbonate sheets are installed in dozens of acoustic barriers around the globe. The sheets offer:

- **Low weight:** Less than half the weight of glass with similar thickness
- **High transparency:** Matching that of the clearest glass.
- **Durability:** High resistance to impact and vandalism (PALSUN).
- **Weatherability:** Excellent resistance to UV radiation and extreme outdoor conditions.
- **Flexibility** that allows curving, bending and shaping without any special treatment.
- **Compliance** with international standards.





# Considerations for Transparent Acoustic Barriers

## Acoustic Barriers Standardization

Standards EN-1793 and EN-1794 are designed to test all characteristics required for acoustic barriers; the first relates to acoustic properties and the second to other requirements such as wind load, flammability, impact resistance and light transmission. Palram's PALGLAS and PALSUN were tested and approved in accordance with the aforementioned standards.

## Reducing Noise Pollution

Noise levels beyond 80 dB (Decibels) causes high levels stress, loss of attention, physiological changes and other effects. While Normal pleasing sound level is around 30 dB and normal environmental noise is between 40-60 dB, the noise generated by a busy 6 lane highway can reach up to 115 dB, which is unbearable for humans on long term exposure. Transparent acoustic barriers can reduce noise levels by over 30 dB, which can make the difference between a bearable and unbearable environment. Sheet thickness directly effects the level of noise it will reduce. For acoustic test results of Palram sheets please refer to pages 6-7.

## Transparency of the Barrier Glazing

Virgin (unused) sheets have low haze level (~1%). Haze level of all transparent sheets, including acrylic and glass, is highly effected by smog, dust and chemicals that are present in the environment. In order to maintain low haze (high clarity) certain guidelines have to be maintained in the installation. Following these guidelines will allow the transparent wall to maintain its optical properties for many years.

## Impact resistance

Maximum impact parameters should be taken into consideration when designing an Acoustic Transparent Barrier. Anticipated scenarios should include automotive accidents and various collisions, as well as vandalism (Break from stone impact, hammers, etc.).

## Life expectancy

### Weatherability & UV Resistance

Harmful UV rays and other weathering effects may cause deterioration in the performance and appearance of the sheet over very long periods. Please consult with your PALRAM representative to ensure selection of a most suitable product for your requirements.

### Chemical resistance in a highway environment

The main chemicals present in the highway environment are Sulfuric compounds: NO<sub>x</sub>, CO, and H<sub>2</sub>O. Trace quantities of O<sub>3</sub> (Ozone) from ignition systems are also found. In addition to these chemicals there are continuous clouds of particulate matter such as dust (usually silicates), soot (partly oxidized hydrocarbons) and salt from anti freeze powders. Fortunately, PALGLAS is not particularly sensitive to these. The main damage to the sheet is surface coating by particulate matter and acidic etching that might make the sheet hazy. The main goal of maintaining the glazing clear is protecting it from a "Highway soup" of dust, smoke and water.

### Warranty

PALGLAS and PALSUN sheets for acoustic barriers are warranted against breakage and light transmission loss for 10 years.

## Installation considerations

### Frame size

It is recommended to limit the width of a single glazing panel to 2 meters due to several reasons:

- Strength requirement of the metal frame: In lengths over 2m, the forces induced by the sheet on each post is so high that a very thick, unattractive and heavy metal frame is required.
- Rabbet depth must be increased in order to prevent sheets from displacement during high wind loads.

### Framing Method

Sheets must be installed floating in a frame, as glass. It is not allowed to fix the sheet with screws or rivets due to the stresses that such methods induce. Standard glazing frames and profiles for PALGLAS & PALSUN can be suitable, using adequate EPDM profiles. For safety reasons one screw can be attached to every sheet to secure it in cases of extreme impact. The screw should be 10-12 mm diameter and the hole should be well oversized. ***The safety screw should not touch the sheet or limit its thermal expansion.***

## Architectural Considerations

To reduce light transmission a tinted sheet can be used. This will also help to hide the dust and smoke contaminating the sheet. PALRAM recommends 50%-60% LT at any standard color supplied (many other colors can be supplied upon request). Install the sheets as far away from pollution sources as possible. The heavy smog on jammed intersections and bridges or in polluted industrial areas will cause any transparent sheet to lose its transparency very rapidly.

## Cleaning

As for today we do not know of any successful method to clean plastic Acoustic Barriers from pollution and graffiti. So for the time being the best method is preventive care as explained above.

## Summary

The following guidelines should be considered when planning a transparent acoustic barrier:

- The Sheets width should not be more than 2 meters.
- Install the sheets at least 5, preferably 10 meters away from traffic, the further the better.
- Provide physical barriers of green fences, protection walls or trenches between the sheet and the road.
- Where severe graffiti and vandalism is expected, lift transparent parts of the wall 2-3 meters above ground.



# PALGLAS® Flat Extruded Acrylic Sheet

## Main Features

- Thickness suitable for acoustic barriers: 15-25mm
- Inherently resistant to the effects of UV radiation
- Transparent- Above 90% light transmission in clear sheet
- Can be formed and fabricated
- Good chemical resistance: Withstands vehicle gas emissions and graffiti
- Available with matte surface for anti-glare effect

## Sound Insulation

PALGLAS sheets achieved the following results in tests under EN-1793 standard:

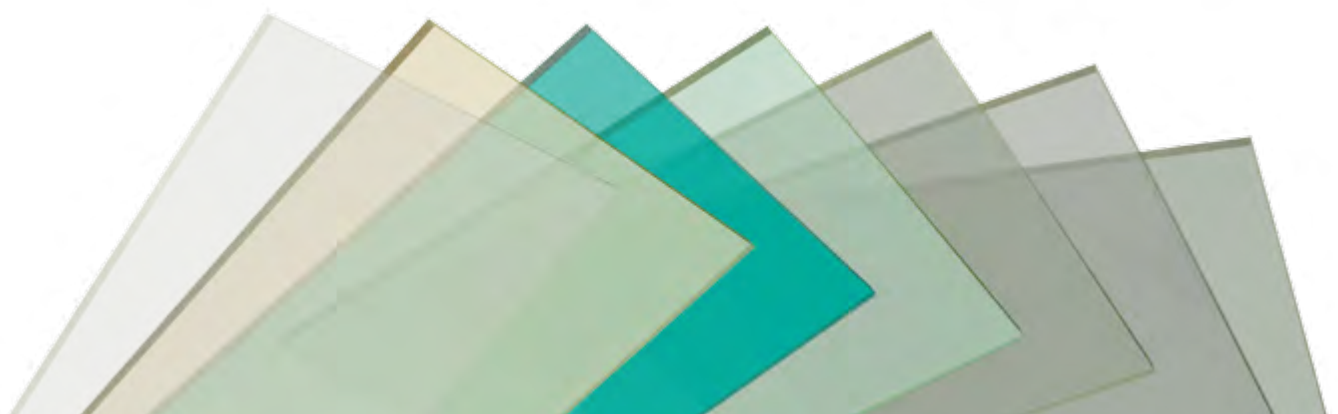
Sheet Type	Noise Reduction
PALGLAS 15mm	32
PALGLAS 20mm	34

## Transparency

Light transmission of clear PALGLAS ranges from 90-93%, depending on thickness. Tinted sheet offer limited light transmission when it is preferred. Typical PALGLAS tints are Bronze and Solar Grey (each of them specified with 50% light transmission).

## Weatherability

PALGLAS is inherently resistant to UV radiation and is completely immune to its harmful effects. This property is a natural part of the acrylic sheet, with no requirement to any UV protective layer.



# PALSUN® Flat Solid Polycarbonate Sheet

## Main Features

- High impact resistance - Virtually unbreakable
- Weather and UV resistant
- Wide service temperature range
- Blocks harmful UV radiation
- Versatile, formable, and machinable
- Available with matte surface for anti-glare effect

## Sound Insulation

PALSUN sheets achieved the following results in tests under EN-1793 standard:

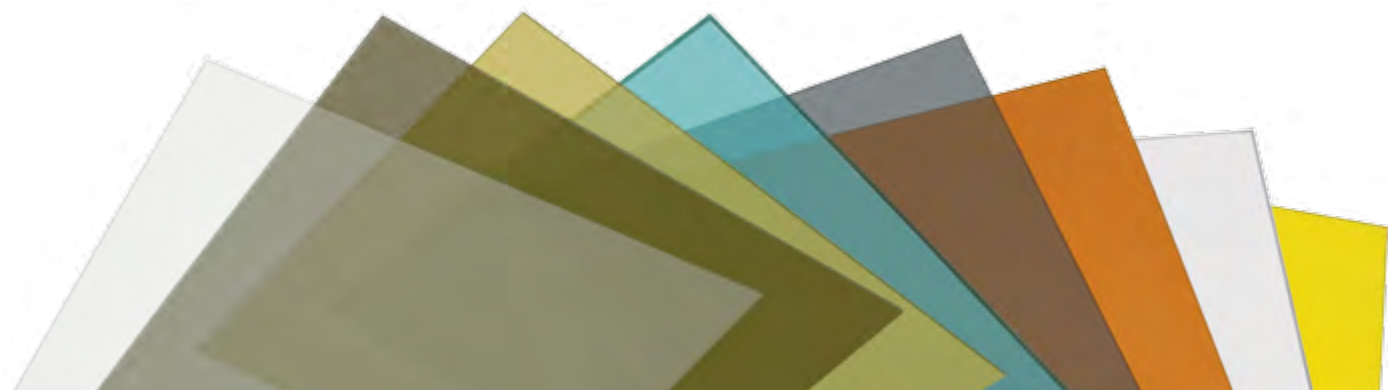
Sheet Type	Noise Reduction
PALSUN / PALGARD 12mm	31
PALSUN / PALGARD 15mm	33

## Transparency

Light transmission of clear PALSUN ranges from 89-90%, depending on thickness. Tinted sheet offer limited light transmission when it is preferred. PALSUN is offered in numerous colors as standard (see product brochure for more information).

## Weatherability

PALSUN is produced with UV protective layer on one or both sides. Additionally, PALSUN blocks 99.9% of harmful UV radiation.



# Acoustic Barrier Projects

Project: Eastlink Road - Melbourne, Australia (2007) | Barrier Glazing: PALGLAS® 20mm Custom Green & Orange



Project: Geelong Ring Road - Victoria, Australia (2008) | Barrier Glazing: PALGLAS® 20mm Custom Orange & Purple



Project: Beijing Ring Road 6 - China (2006) | Barrier Glazing: PALSUN® 6mm Clear

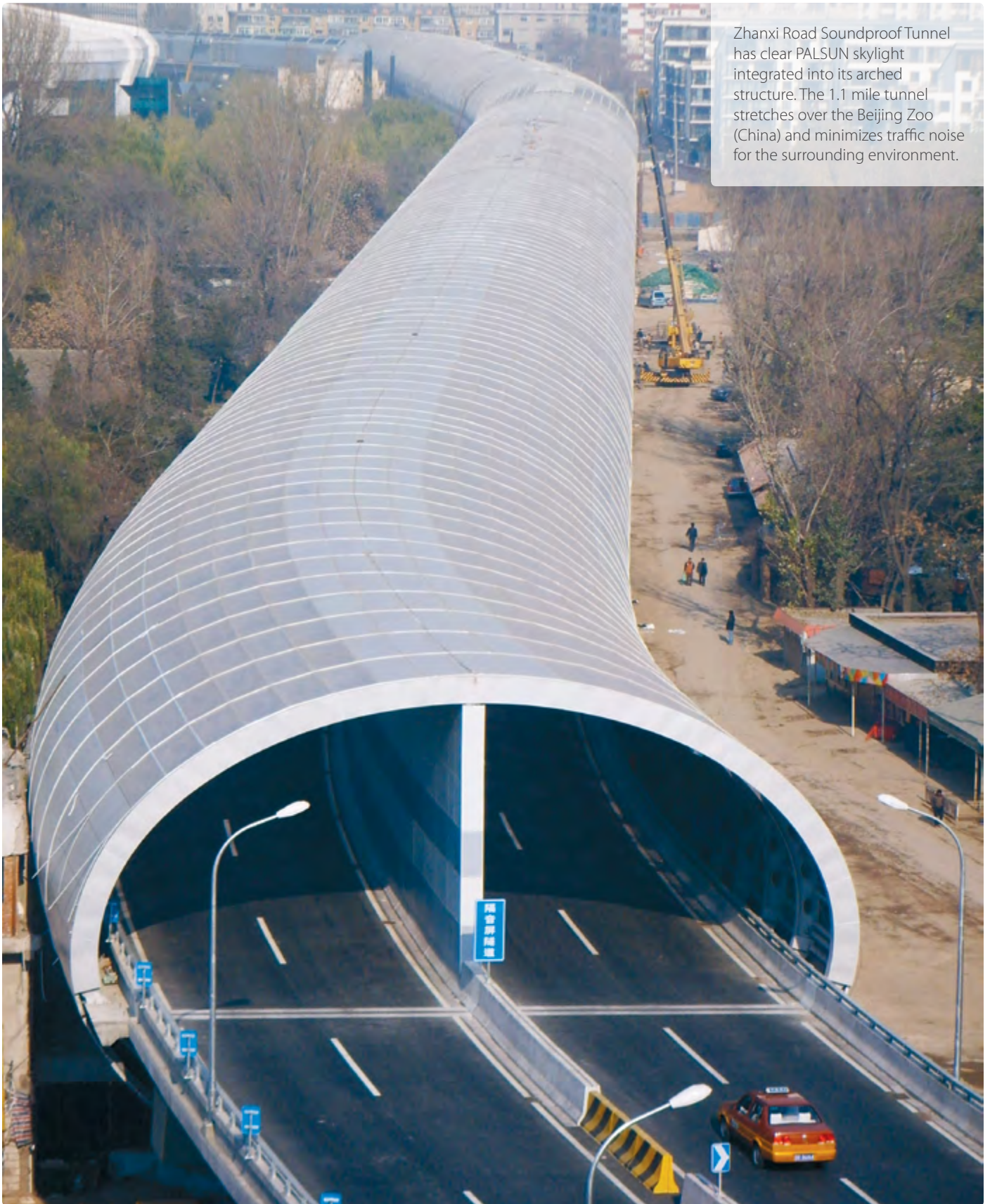


Project: Lai Chi Kok Viaduct - Hong Kong, China (2006) | Barrier Glazing: PALGLAS® 15mm & 18mm Clear & Light Blue





Project: Zhanxi Road Soundproof Tunnel - Hong Kong, China (2005) | Barrier Glazing: PALSUN® 10mm Clear

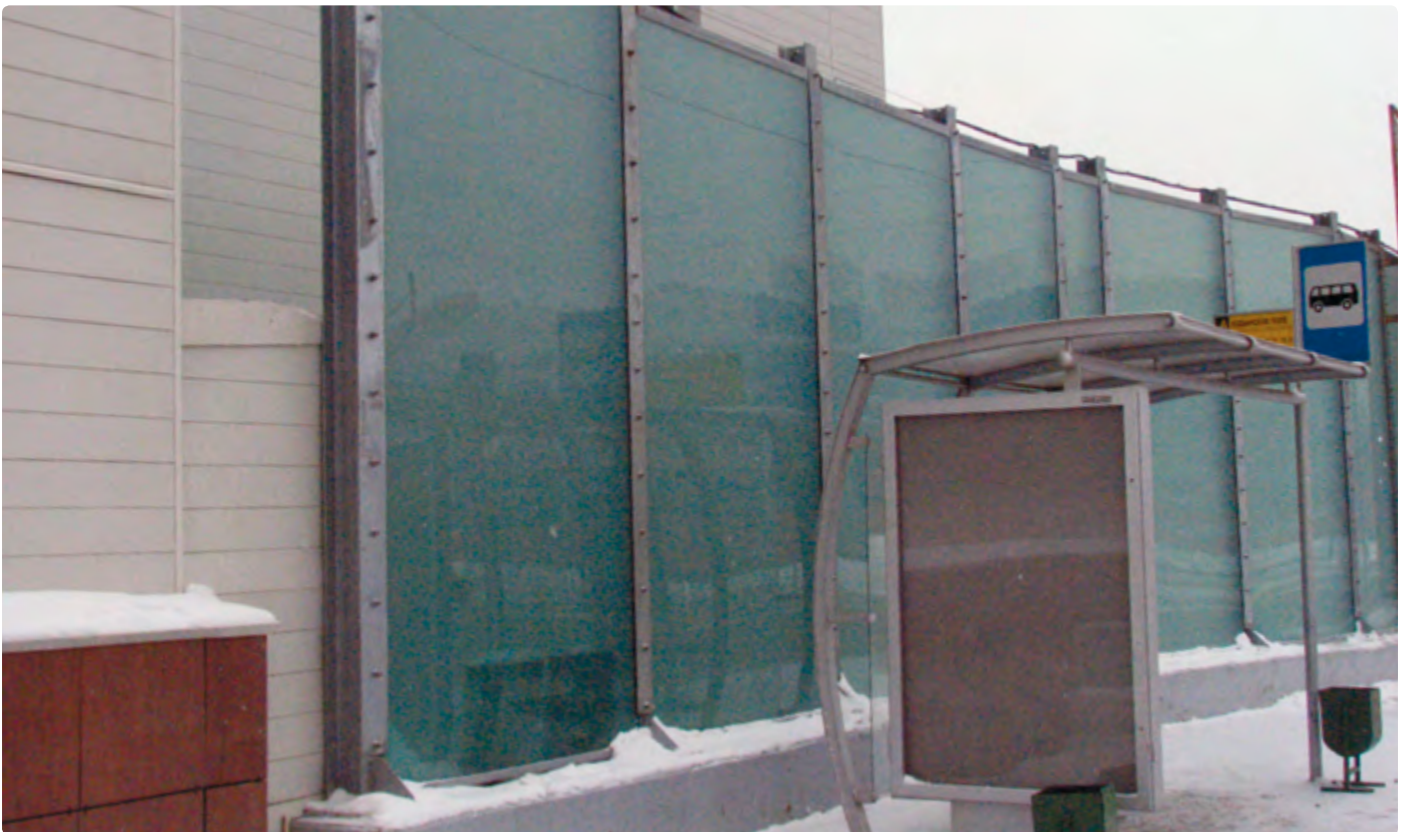


Zhanxi Road Soundproof Tunnel has clear PALSUN skylight integrated into its arched structure. The 1.1 mile tunnel stretches over the Beijing Zoo (China) and minimizes traffic noise for the surrounding environment.

Project: Police Dog Pound - Hong Kong, China (2005) | Barrier Glazing: PALSUN® 12mm Clear



Project: Urban Acoustic Barrier - Moscow, Russia (2007) | Barrier Glazing: PALGARD™ 12mm Translucent Green



Project: Road 6 Cross-Country Highway - Israel (2004) | Barrier Glazing: PALGLAS® 20mm Clear



Project: Netania Interchange - Israel (2002) | Barrier Glazing: PALGLAS® 15mm Clear



Project: Kfar Saba Interchange (Road 531) Israel (2002) | Barrier Glazing: PALGLAS® 20mm Clear



Project: Ayalon/Holon Interchange - Israel (2003) | Barrier Glazing: PALGLAS® 20mm Clear



Project: Ayalon Road System - Tel Aviv, Israel (2000) | Barrier Glazing: PALGLAS® 20mm Clear





Project: Tai Po Project - Hong Kong, China (2009) | Barrier Glazing: PALGLAS® 15mm Green Matte



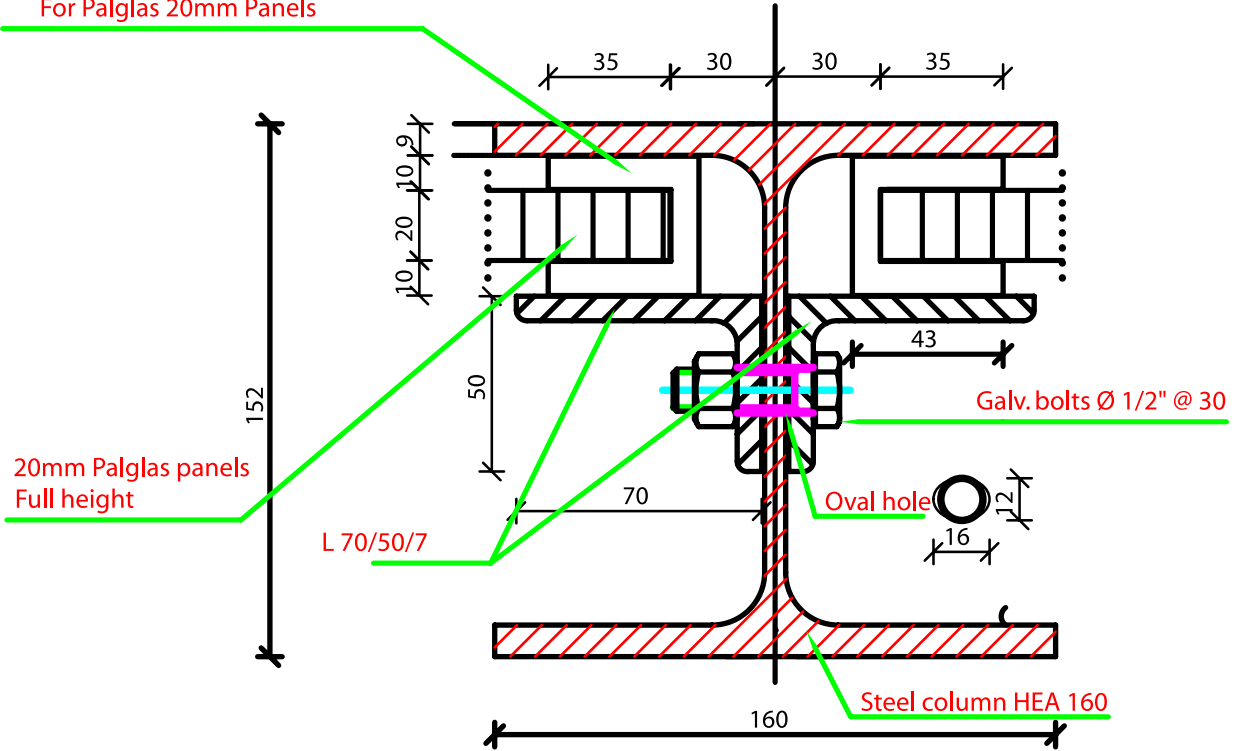
Project: Kowloon Bay MTR (Metro Station) - Hong Kong, China (2008) | Barrier Glazing: PALGLAS® 20mm Grey



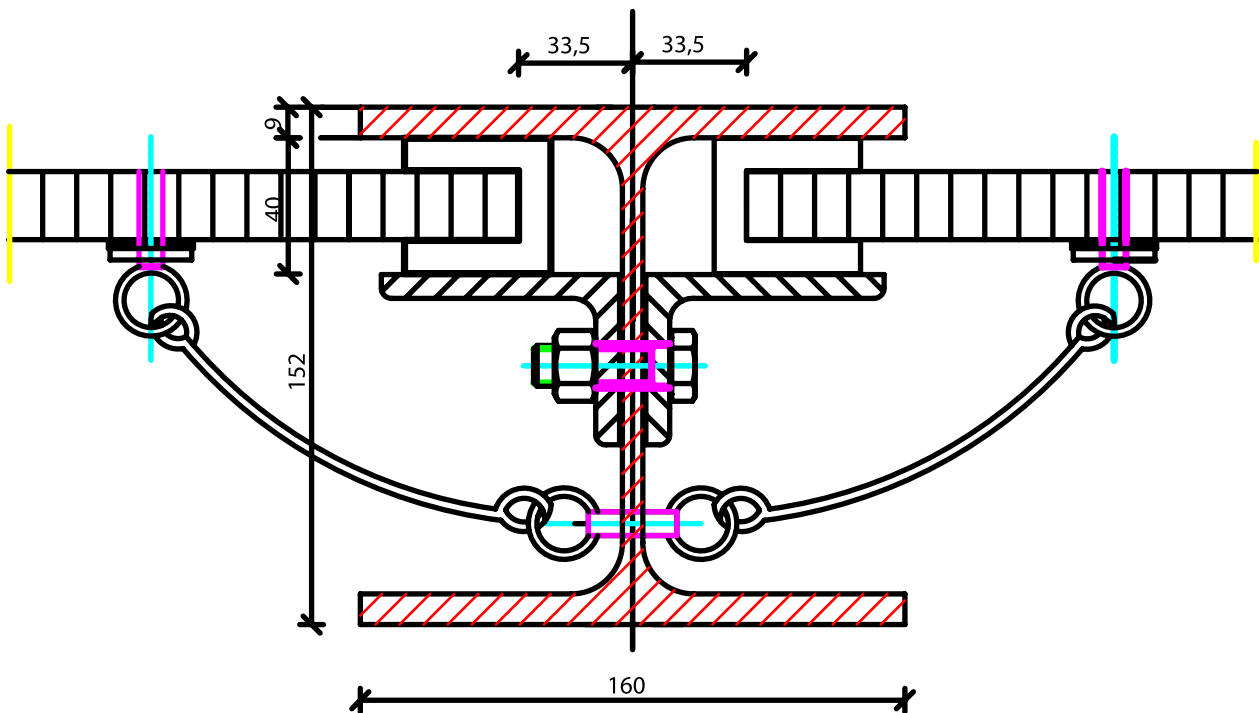
# Typical Installation Details

## Typical PALGLAS® Connection Detail

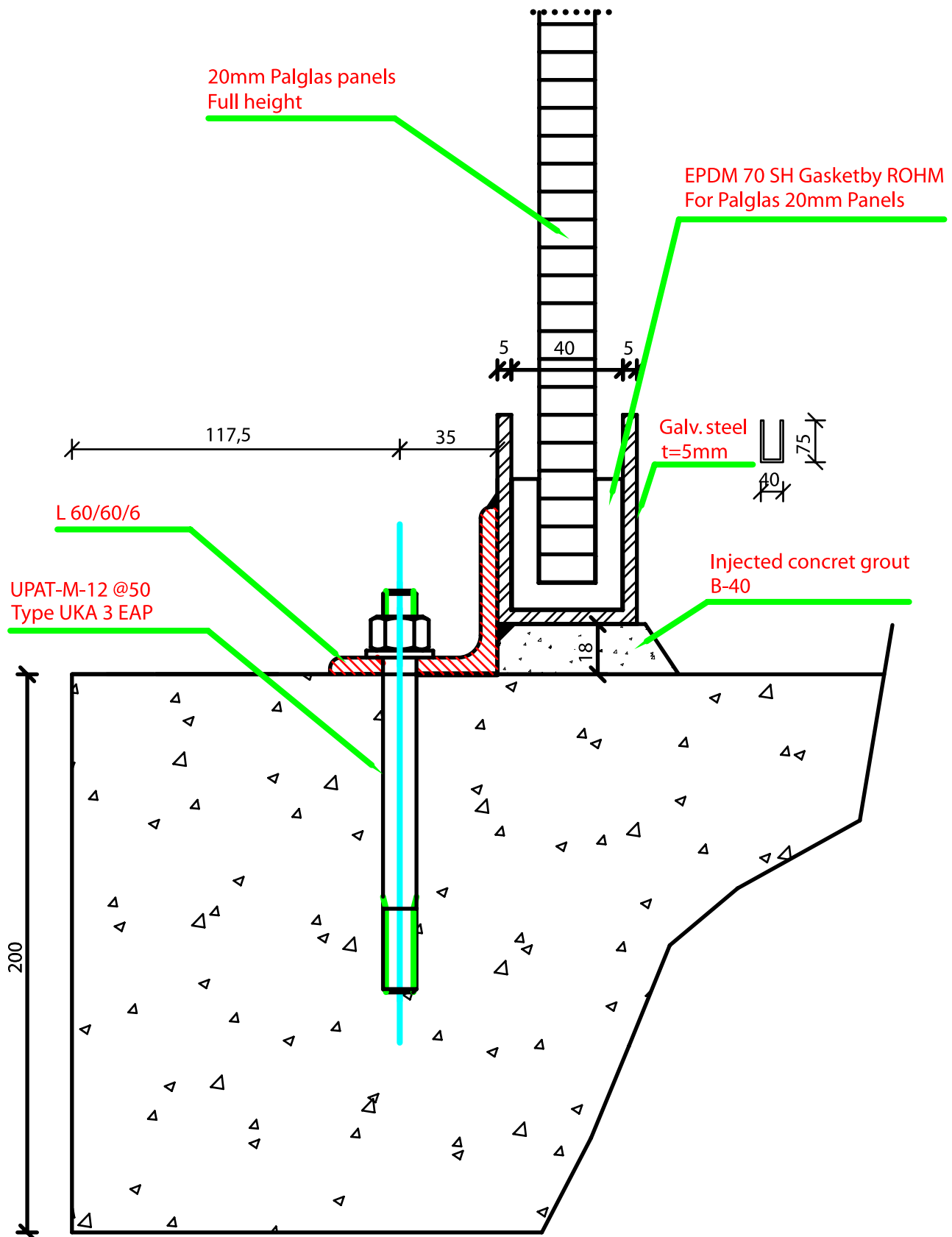
EPDM 70 SH Gasketby ROHM  
For Palglas 20mm Panels



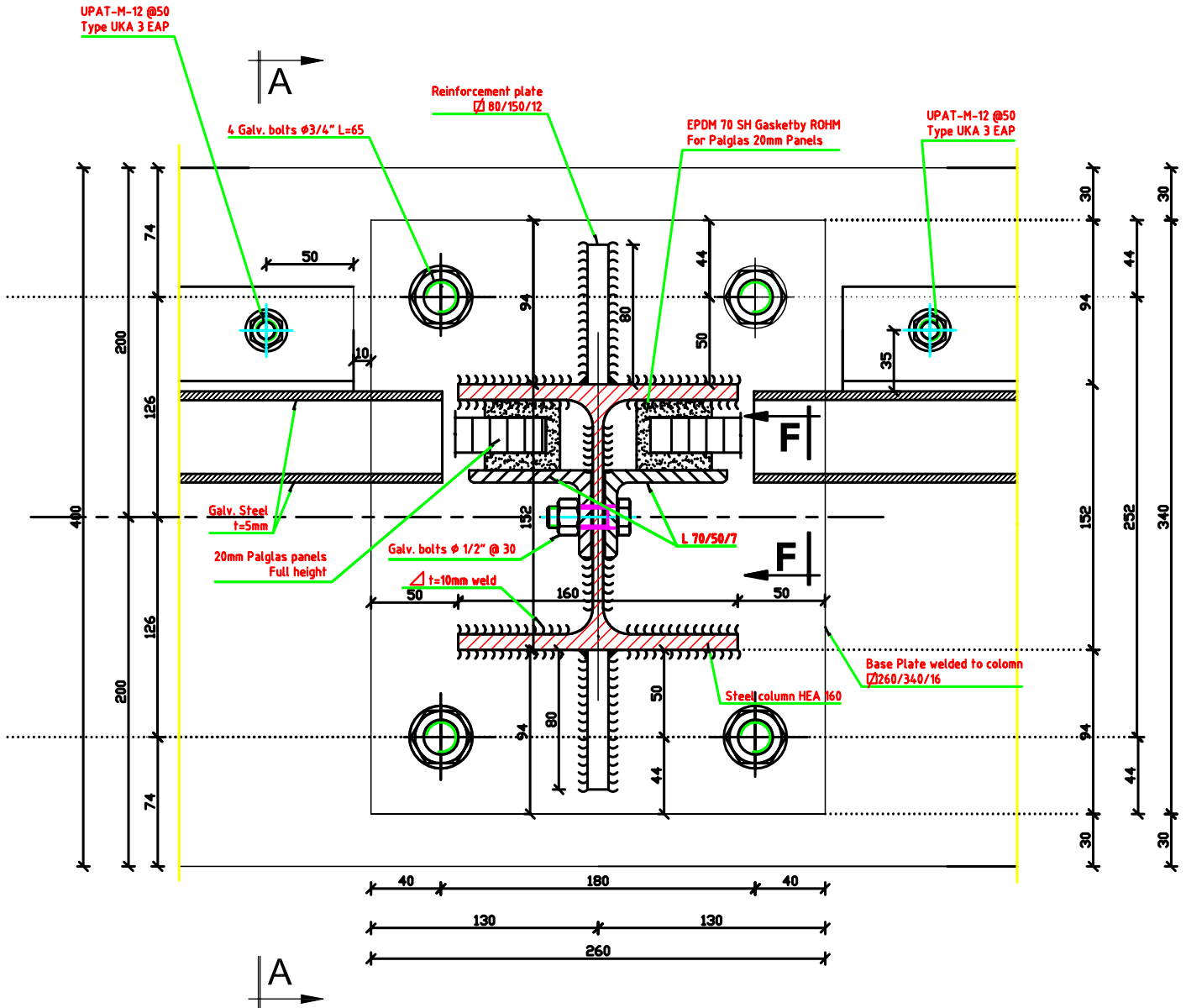
## Acoustic Wall Safety Wire



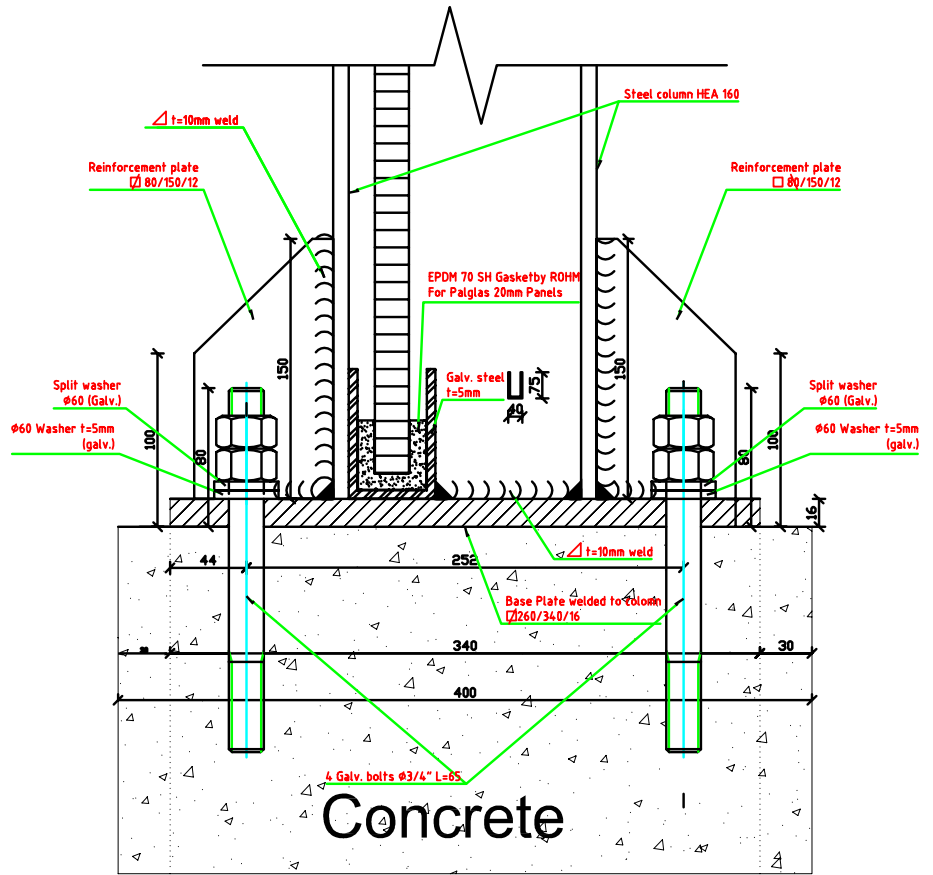
PALGLAS® Lower Fixing to Concrete Detail



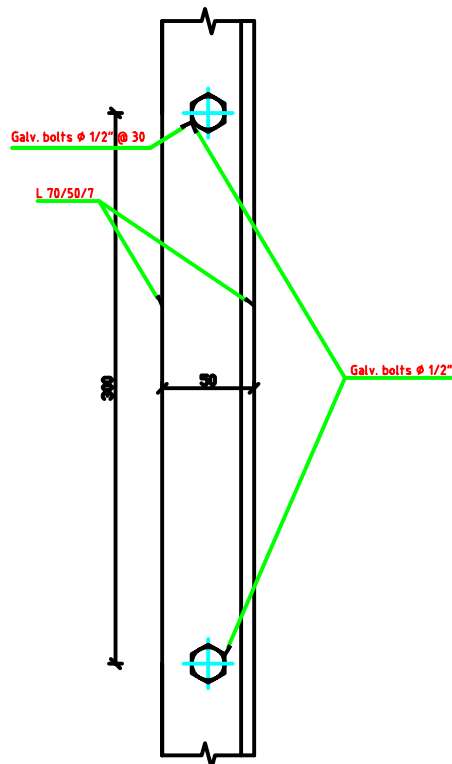
Steel Column Detail



Steel Column Detail - Cross Section AA



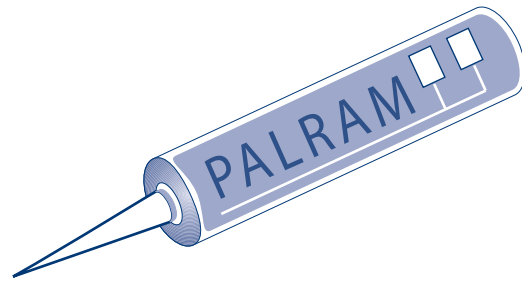
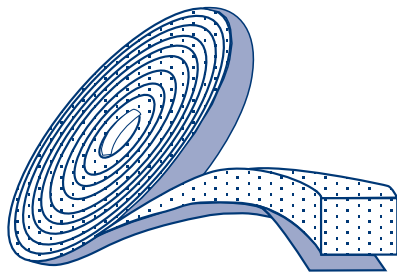
Steel Column Detail - Cross Section FF



# Recommended Adhesives and Sealants for Polycarbonate Products



Palram Technical Support Department



The information in this leaflet is based on testing carried out in our laboratory or information obtained from a variety of sources over the years. The Palram laboratory will test the compatibility of materials as a service to our customers.

Note that since in general products composition might change in time, PALRAM Industries is not responsible for the results obtained when using these materials.

It is imperative that the manufacturer's instructions be strictly followed. This includes following the required safety procedures. Some products contain organic solvents which have the potential to damage the health of the user if proper safety procedures are not followed.

If you have any comments or questions, feel free to contact your PALRAM distributor.

	Product	Manufacturer	Material Type
Adhesives	AX 9330 No. 1	Apollo	Blue – PU adhesive
	HE 1908	Engineering Chemicals	2 component PU
	HE 17017	Engineering Chemicals	2 component PU
	Extru-Fix	EVO-PLAS / EVODE	solvent
	Tensol 12	EVO-PLAS / EVODE	solvent
	Evo-Tech TU 1908	EVO-PLAS / EVODE	2 component PU
	Plio-Grip 6000	Goodyear	
	55	IPS WELD-ON	2 component PU
	4	IPS WELD-ON	solvent
	16	IPS WELD-ON	solvent
	MA 3940	ITW Plexus	2 component
	MA 3940LH	ITW Plexus	2 component
	3054 BN 811767	Loctite	transparent-fast adhesion
	Dichloromethane (Methylene Chloride)	most chemical suppliers	solvent
	Bison PUR	Perfecta	1 component PU
	Acrifix A-118	Rohm	solvent mixture
	Acrifix A-190	Rohm	solvent mixture
	Scotch weld DP 110	3M	Hot melt
	Scotch weld DP 190	3M	Hot melt
	Jet Melt 3736	3M	Hot melt

Silicone Sealants	Product	Manufacturer	Material Type
	MS Clear	Soudal	Adhesive Sealant
	Multisil Translucent	GE Bayer Silicones	Sealant
	omosil 319109	Baden Chemie	Sealant
	Domostar 418299	Baden Chemie	Sealant
	Silicon N	Den Braven	Sealant
	Parasilico PL	DL Chemicals	Sealant
	3793	Dow Corning	Adhesive Sealant
	Q3-7098	Dow Corning	Adhesive Sealant
	Q3-7099	Dow Corning	Adhesive Sealant
	795	Dow Corning	Adhesive Sealant
	791-P	Dow Corning	Sealant
	Silicon 794	Dow Corning	Sealant
	6100	Eurolastic	PU Based-sealant
	Mirror adhesive	Evode	Adhesive Sealant
	Ultra-clear sealant	Fuller	Sealant
	Silglase II	GE	Adhesive Sealant
	Silglase N	GE	Sealant
	Contractors	GE	Sealant
	Contraction	GE	Sealant
	Siliconen AZP	Hercuseal	Sealant
	Silpruf	IGE - India	Sealant
	Novasil S-64	Otto Chemie	Adhesive Sealant
	Novasil S-10	Otto Chemie	Sealant
	Sika 952	Sika	Sealant
	BSR 50-02	SIMSON BV	Sealant
PUR FLEX	Stag / UK	Sealant	
All Flex 101	Tremco	Adhesive Sealant	
Tremasil 100	Tremco	Sealant	
Bostik Pro MS106/MS107	Bostik	Adhesive Sealant	

Adhesive & Sealing Tapes	Product	Manufacturer	Material Type
	4390	3M	Two Sided Adhesive Tape
	VHB Series Tapes	3M	Two Sided Adhesive Tape
	9473	3M	Two Sided Adhesive Tape
	AFT Series Tape	Scapa	Two Sided Adhesive Tape
	VI 05	Arta	Two Sided Adhesive Tape
	VT 16 + filter	Filta Flo (UK)	Sealing Tape & Breathing Filter For Adhesion Of Multiwall Polycarbonate Sheets
	Aluminium adhesive tape	Filta Flo (UK)	Aluminium Tape For Adhesion Of Multi-wall Polycarbonate Sheets
	AFT 701	Hardcastle -Carlisle	Two Sided Adhesives
	Duplomont LO 918	Lohmann	Two Sided Adhesive Tape
	SR 321	Multifoil	
	SW 321	Multifoil	
	IDL 311 L	Sellotape	Butyl Rubber Sealant
	310	Sellotape	Two Sided Adhesive Sealant Tape
	PS-18	Velcro	
	1163	Venture Tape	Two Sided Adhesive Tape
	921	Venture Tape	Two Sided Adhesive Tape
	Super Fix Montage Tape	Bison	Two Sided Adhesive Tape
	Car Tape	Bison	Two Sided Adhesive Tape

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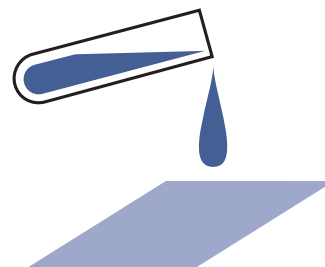
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# Chemical Resistance of Polycarbonate Products



## Palram Technical Support Department

The mechanism of chemical attack on thermoplastic sheets differs significantly from the mechanism of corrosion of metals. Corrosion of metals results in a gradual loss of surface material as a result of electrolytic action by the relevant chemicals. In the cases where chemical attack on polycarbonate sheet occurs, all or a portion of a range of effects can be observed. Ethylene chloride, chloroform, tetrachloroethane, m-cresol, pyridine and other chemicals can cause partial dissolution of polycarbonate. Swelling agents include benzene, chlorobenzene, tetralin, acetone, ethyl acetate, acetonitrile and carbon tetrachloride. Additional effects include color change and/or whitening. These effects may not always lead to product failure, especially for non-loaded sheets. Nevertheless, the level of measured mechanical properties will be reduced. The most critical effect of chemical attack is stress cracking or crazing, which may range in size from being visible to the naked eye to being only observable under a microscope. Stress cracks will always result in sheet failure, which will develop from areas of greatest stress (screws, fixings, bends, etc.)

Polycarbonate sheets are generally not recommended for use with acetone, ketones, ethers, and aromatic and chlorinated hydrocarbons in addition to aqueous or alcoholic alkaline solutions, ammonia gas and its solutions and amines.

Polycarbonate is resistant to mineral acids, many organic acids, oxidizing and reducing agents, neutral and acid salt solutions, many greases, waxes and oils, saturated, aliphatic and cycloaliphatic hydrocarbons and alcohols, with the exception of methyl alcohol. The resistance of polycarbonate to water may be described as good up to approximately 60 °C. At higher temperatures, degradation occurs, the extent of which depends on time and temperature. Polycarbonate should therefore not be exposed for long periods of time to hot water. However, brief contact with hot water has no effect. For example, polycarbonate tableware can be washed over 1000 times in a dishwashing machine with no adverse effects being observed.

The table that appears in the following pages lists the resistance of polycarbonate sheets to a number of commonly encountered chemicals and other corrosive media at room temperature. (Information on chemical resistance at higher temperatures will be supplied upon request). Where the chemical resistance varies with concentration, the results of tests at different concentrations is presented. (Note that information on compatible adhesives and sealants can be found in a separate leaflet which will be supplied upon request) It serves as a basis for recommendation. PALRAM does not guarantee chemical resistance, unless specific tests are carried and separate documentation is supplied.

For chemicals and corrosive media not mentioned in the list, please contact your PALRAM representative. He will place you in contact with the PALRAM R&D & Technology Department.

The table on the following pages uses the following key:

R - Resistant

LR - Limited Resistance (gradual attack over time may occur)

N - Not Resistant (rapid attack or attack over short time period will occur)

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# Chemical Resistance of Polycarbonate Products at Room Temperature



Chemical	Concentration %*	Resistance	Chemical	Concentration %*	Resistance
Acetaldehyde		N	Butane		R
Acetic Acid	10	R	Butter		R
Acetic Acid	25 (concentrated)	LR (N)	Butyl Acetate		N
Acetone		N	Butyl Alcohol (Butanol)		R
Acetylene		R	Butylene Glycol		R
Acrylonitrile		N	Butyric Acid		N
Ajax Detergent		R	Calcium Chloride	Saturated	R
Allspice		N	Calcium Hypochlorite		R
Allyl Alcohol		LR	Calcium Nitrate		R
Alum (Aluminum Ammonsium Sulfate)		R	Calcium Soap Fat		R
Aluminum Chloride	Saturated	R	Camphor Oil		N
Aluminum Oxalate		R	Carbolic Acid		N
Aluminum Sulfate	Saturated	R	Carbon Bisulfite		N
Ammonia (Gas)		N	Carbon Dioxide Gas (Moist)		R
Ammonia (Aqueous)		N	Carbon Disulfide		N
Ammonium Carbonate		LR	Carbon Monoxide		R
Ammonium Chloride		R	Carbon Tetrachloride		N
Ammonium Fluoride		N	Castor Oil		R
Ammonium Hydroxide		N	Catsup (Ketchup)		R
Ammonium Nitrate		R	Caustic Potash (Potassium Hydroxide)		N
Ammonium Sulfate	Saturated	R	Caustic Soda (Sodium Hydroxide)		N
Ammonium Sulfide		N	Chlorine Gas (Dry)		LR
Amyl Acetate		N	Chlorine Gas (Wet)		N
Amyl Alcohol		LR	Chlorobenzene		N
Aniline		N	Chloroform		N
Antimony Trichloride	Saturated	R	Chocolate		R
Aqua Regia (3 parts HCl:1 part HNO <sub>3</sub> )		LR	Chrome Alum	Saturated	R
Arsenic Acid	20	R	Chromic Acid	20	R
Automatic Switch Grease		R	Cinnamon		R
Automotive Waxes		LR	Citric Acid	10	R
Baby Lotion		R	Cloves		N
Bacon Fat		R	Coal Gas		R
Barium Chloride		R	Coca Cola		LR
Battery Acid		R	Cocoa		LR
Beer		R	Cod Liver Oil		R
Beet Syrup		R	Coffee		LR
Benzaldehyde		N	Cooking Oil		R
Benzene		N	Copper Sulfate	Saturated	R
Benzoic Acid		N	Cresol		N
Benzyl Alcohol		N	Cupric Chloride	Saturated	R
Betadine		R	Cuprous Chloride	Saturated	R
Bleach (Clorox)		R	Cyclohexane		R
Blood and Blood Plasma		R	Cyclohexanol		LR
Borax		R	Cyclohexanone		N
Boric Acid		R	DDT		R
Brake Fluid		N	Dekalin		R
Bromine		N	Detergent (most)		LR or R
Bromobenzene		N	Developing Solutions		N or LR

"Entries indicate the following: R - resistant, LR - limited resistance, N- not resistant"  
 \*concentration of aqueous solution except where noted

# Chemical Resistance of Polycarbonate Products at Room Temperature



Chemical	Concentration %*	Resistance	Chemical	Concentration %*	Resistance
Diamyl Phthalate		N	Kerosene		N
Diesel Fuel		R	Lactic Acid	20	R
Diethyl Ether (Ethyl Ether)		N	Lacquers and Thinners		N
Dimethyl Formaldehyde (DMF)		N	Laundry Detergents (Most)		LR or R
Dimethyl Sulfoxide (DMSO)		N	Ligroin (Hydrocarbon Mixture)		R
Dinonyl Phthalate (plasticizer)		LR	Lime Solution (2%) or paste		R
Doctyl Phthalate (plasticizer)		LR	Liquors or Liqueurs		R
Dioxane		N	Linseed Oil		R
Diphyl 5,3		LR	Loctite		N
Ethanol (Ethyl Alcohol) and Water	96	R	Lubricating Oils (Most)		LR or R
Ethanol (Ethyl Alcohol)	Pure	LR	Machine Oils (Most)		R
Ethyl Amine		N	Magnesium Chloride	Saturated	R
Ethyl Acetate		N	Magnesium Sulfate	Saturated	R
Ethyl Bromide		N	Manganese Sulfate	Saturated	R
Ethylene Chloride		N	Margarine		R
Ethylene Chlorohydrin		N	Mayonnaise		R
Ethylene Dichloride		N	Meat		R
Ethylene Glycol (Antifreeze)		LR	Mercuric Chloride	Saturated	R
Ferric Chloride	Saturated	R	Mercury		R
Ferrous Sulfate		R	Methane		R
Fish and Fish Oils		R	Methanol (Methyl Alcohol)	Pure	LR
Floor Polish		R	Methylamine		N
Formalin	10%	R	Methylcellulose		N
Formic Acid	10% (30%)	R (LR)	Methylene Chloride		N
Freon TF		R	Methyl Ethyl Keton (MEK)		N
Freon (all others)		N	Methylmethacrylate		N
Fruit Juices and Pulp		R	Milk		R
Gasoline		N	Mineral Oil		R
Gear Oil		R	Motor Oils (Most)		LR or R
Glazers Putty		R	Mustard		R
Glucose		R	Naphtha (Stanisol)		N
Glycerine		R	Nickel Sulfate		R
Glycerol		R	Nitric Acid	20	R
Glycols		R	Nitrobenzene		N
Glutaraldehyde	50%	R	Nitropropane		N
Grease, Automotive (Most)		R	Nitrous Oxide		N
Heptane		R	Nutmeg		N
Hexane		R	Oleic Acid		R
Hydrazine		N	Onions		R
Hydrochloric Acid	20 (Concentrated)	R (N)	Oxalic Acid	10	R
Hydrofluoric Acid	20	R	Oxygen		R
Hydrogen Peroxide	30	R	Ozone		N
Hydrogen Sulfide		R	Paprika		R
Iodine (aqueous solution)	5	R	Paraffin		R
Iodine		N	Pentane		R
Inks (Most)		R	Pepper		R
Isoamyl Alcohol		LR	Perchloric Acid	10 (concentrated)	R (LR)
Isopropyl Alcohol		R	Perchloroethylene		N

"Entries indicate the following: R - resistant, LR - limited resistance, N- not resistant"

\*concentration of aqueous solution except where noted

# Chemical Resistance of Polycarbonate Products at Room Temperature



Chemical	Concentration %*	Resistance	Chemical	Concentration %*	Resistance
Petroleum		LR	Sodium Sulfide		N
Petroleum Ether		LR	Sodium Thiosulfate		R
Petroleum Oil (Refined)		R	Spindle Oil		R
Phenol		N	Stannous Chloride		R
Phosphoric Acid	10	R	Starch		R
Phosphorous Oxychloride		R	Styrene		N
Phosphorous Pentoxide	25	LR	Sugar	Saturated	R
Phosphorous Trichloride		N	Sulfur Dioxide (Gas)		R
Polyethylene		R	Sulfuric Acid	<50 (50<70)	R (LR)
Polyethylene Glycol		R	Sulfurous Acid	10	N
Potassium Acetate		LR	Sulfuryl Chloride		N
Potassium Aluminum Alum (Sulfate)	Saturated	R	Tapping Oil		R
Potassium Bichromate		R	Tartaric Acid	30	R
Potassium Bromate		R	Tear Gas (Chloracetophenone)		LR
Potassium Bromide		R	Terpineol		N
Potassium Chloride	Saturated	R	Tetrahydrofuran		N
Potassium Cyanide		N	Tetralin		N
Potassium Dichromate	Saturated	R	Thiophene		N
Potassium Hydroxide		N	Thyme		R
Potassium Metabisulfite	4	R	Titanium Tetrachloride		R
Potassium Nitrate	Saturated	R	Tobacco		R
Potassium Perchlorate	10	R	Toluene		N
Potassium Permanganate	10	R	Transformer Oils		R
Potassium Persulfate	10	R	Transmission Fluid		R
Potassium Rhodanide	Saturated	R	Trichloroacetic Acid	20	LR
Potassium Sulfate	Saturated	R	Trichloroethylamine		N
Propane		R	Trichloroethylene		N
Propargyl Alcohol		R	Trichloroethylphosphate		LR
Propionic Acid	20	R	Tricresylphosphite		N
Propionic Acid	Concentrated	N	Trisodium Phosphate		R
Propyl Alcohol (1-Propanol)		R	Turpentine		LR
Pyridine		N	Urea		R
Salad Oil		R	Vacuum Pump Oil		R
Salt		R	Vanilla		R
Silicofluoric Acid	30	R	Vanillin		R
Silicone Grease		R	Varnish		N
Silicone Oil		R	Vaseline		R
Silver Nitrate		R	Vegetable Juices		R
Soap (Ivory)		R	Vegetable Oils		R
Sodium Bicarbonate	Saturated	R	Vinegar		R
Sodium Bisulfate	Saturated	R	Water (Demineralized or Sea)		R
Sodium Bisulfite	Saturated	R	White Spirit		N
Sodium Carbonate	Saturated	R	Wine, Whiskey, Vodka, Rum, Cognac		R
Sodium Chlorate		R	Witch Hazel		R
Sodium Chloride	Saturated	R	Worcester Sauce		R
Sodium Chromate		R	Xylene		N
Sodium Hydroxide		N	Zinc Chloride		R
Sodium Hypochlorite	5% Chlorine	R	Zinc Oxide		R
Sodium Nitrate		N	Zinc Stearate		R
Sodium Sulfate	Saturated	R	Zinc Sulfate		R

"Entries indicate the following: R - resistant, LR - limited resistance, N - not resistant"

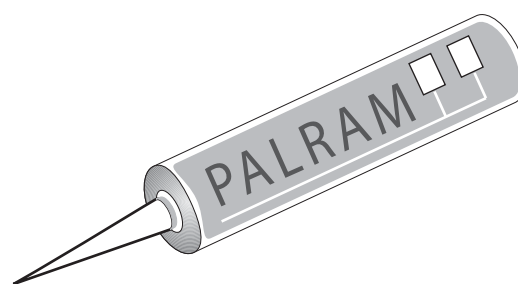
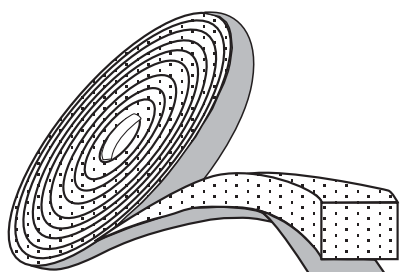
\*concentration of aqueous solution except where noted

The chemical resistance information in this table is based on our research and experience and may be considered solely as a basis for recommendation, but not as a guarantee, unless specifically furnished as such by PALRAM.

# Recommended Adhesives and Sealants for PVC Products



Palram Technical Support Department



The information in this leaflet is based on testing carried out in our laboratory or information obtained from a variety of sources over the years. The Palram laboratory will test the compatibility of materials as a service to our customers.

Note that since in general products composition can change in time, PALRAM Industries is not responsible for the results obtained when using these materials.

It is imperative that the manufacturer's instructions be strictly followed. This includes following the required safety procedures. Some products contain organic solvents which have the potential to damage the health of the user if proper safety procedures are not followed.

If you have any comments or questions, feel free to contact your PALRAM distributor.

	Product Name	Manufacturer	Material Type
<b>Adhesives</b>	TANGIT for PVC-U (rigid)	Henkel	Solvent mixture
	PVC Kit	Bison	Solvent mixture
	700, 702, 704, 705, 710, 711, 717, 719, 1001, 1007, 1784, 1909, 1910, 2007	IPS Weld-on	Solvent mixture
	Acrifix A-117	Rohm	Solvent mixture
	Acrifix A-190	Rohm	Solvent mixture
	HE 1908	Engineering Chemicals	2 component PU
	3054	LOCTITE	Cyanoakrylate
	MA3940, MA3940LH	ITW Plexus	2 component methacrylate
	Black Max 380	LOCTITE	Cyanoakrylate
	Super Bonder 414	LOCTITE	Cyanoakrylate
	Depend 330	LOCTITE	Two part / Acrylic
	3105	LOCTITE	Light Cure Acrylic
	EVO-PLAS PLUSBOND 3019	EVODE	Solvents & PVC
	EVO-PLAS EVO-STIK 613	EVODE	Polymer/Polychloroprene
EVO-PLAS EVO-TECH TU 1908	EVODE	Polymer/Polyurethane	

# Chemical Resistance of PVC Products at Room Temperature



Chemical	Concentration %*	Resistance	Chemical	Concentration %*	Resistance
Acetaldehyde	100	N	Bromobenzene		N
Acetic Acid	80	R	Butadiene		N
Acetic Acid	100	LR	Butane		N
Acetic Anhydride		N	Butyl Acetate		N
Acetone		N	Butyl Alcohol		R
Acrylonitrile		N	Butyl Stearate		R
Acetylene		R	Butyric Acid		N
Ajax		R	Calcium Chloride	Saturated	R
Allyl Alcohol		LR	Calcium Hydroxide		R
Aluminum Chloride	Saturated	R	Calcium Hypochlorite		R
Aluminum Fluoride		R	Calcium Nitrate		R
Aluminum Hydroxide		R	Calcium Sulfate		R
Aluminum Sulfate	Saturated	R	Camphor		R
Ammonia (Gas)		R	Carbon Dioxide Gas (Moist)		R
Ammonia (Liquid)		N	Carbon Disulfide		N
Ammonium Acetate		R	Carbon Monoxide		R
Ammonium Bifluoride		R	Carbon Tetrachloride		N
Ammonium Bisulfate		R	Castor Oil		R
Ammonium Chloride		R	Caustic Potash (Potassium Hydroxide)	50	R
Ammonium Fluoride	25	LR	Caustic Soda (Sodium Hydroxide)	50	R
Ammonium Hydroxide	28	R	Chlorine Dioxide	15	R
Ammonium Nitrate		R	Chlorine Gas (Dry)		N
Ammonium Sulfate	Saturated	R	Chlorine Gas (Wet)		N
Ammonium Sulfide	Saturated	R	Chlorine Water	2	R
Amyl Acetate		N	Chloroacetic Acid		R
Amyl Alcohol	Pure	LR	Chlorobenzene		N
Aniline		N	Chloroform		N
Antimony Trichloride		R	Chrome Alum	Saturated	R
Aqua Regia (3 parts HCl:1 part HNO <sub>3</sub> )		N	Chromic Acid	10	R
Arsenic Acid	80	R	Citric Acid	Saturated	R
Barium Chloride		R	Copper Fluoride		R
Barium Hydroxide		R	Copper Nitrate		R
Barium Sulfate		R	Copper Sulfate		R
Barium Sulfide		R	Corn Syrup		R
Beer		R	Cottonseed Oil		R
Beet (Sugar Liquor)		R	Cresol		N
Benzaldehyde		LR	Cresylic Acid	50	R
Benzene		N	Cupric Chloride	Saturated	R
Benzoic Acid		R	Cuprous Chloride	Saturated	R
Benzyl Alcohol		R	Cyclohexane		N
Bleach	12% Chlorine	R	Cyclohexanol		N
Boric Acid		R	Cyclohexanone		N
Brake Fluid		LR	Dextrose		R
Brine		R	Detergent (most)		R
Bromic Acid		R	Diesel Fuel		R
Bromine (Liquid)		N	Diethyl Ether (Ethyl Ether)		R
Bromine (Water)		LR	Dimethyl Amine		N
Bromine (Vapor)	25	R	Diocetyl Phthalate		N

Entries indicate the following: R - resistant, LR - limited resistance, N - not resistant  
 \*concentration of aqueous solution except where noted

# Chemical Resistance of PVC Products at Room Temperature



Chemical	Concentration %*	Resistance	Chemical	Concentration %*	Resistance
Dioxane		N	Linseed Oil		R
Ethanol (Ethyl Alcohol) and Water	All	R	Lithium Bromide		R
Ethanol (Ethyl Alcohol)	Pure	R	Lubricating Oil		R
Ethyl Acetate		N	Magnesium Carbonate		R
Ethyl Chloride		N	Magnesium Chloride		R
Ethylene Chlorohydrin		N	Magnesium Hydroxide		R
Ethylene Dichloride		N	Magnesium Sulfate		R
Ethylene Glycol		R	Maleic Acid		R
Fatty Acids		R	Malic Acid		R
Ferric Acetate		R	Manganese Chloride		R
Ferric Chloride	Saturated	R	Manganese Sulfate		R
Ferric Hydroxide		R	Mercuric Chloride		R
Ferric Nitrate		R	Mercuric Nitrate		R
Ferric Sulfate		R	Mercuric Sulfate		R
Ferrous Chloride		R	Mercury		R
Ferrous Hydroxide		R	Methanol and Water	All	R
Ferrous Sulfate		R	Methanol (Methyl Alcohol)	Pure	R
Fluorine Gas		LR	Methyl Chloride		N
Fluorine Gas (wet)		R	Methyl Ethyl Ketone (MEK)		N
Fluoroboric Acid		R	Methylmethacrylate		R
Formaldehyde		LR	Methyl Sulfate		LR
Formic Acid		R	Methyl Sulfuric Acid		R
Freon 11, 12, 113, 114		LR	Methylamine		N
Fluosilicic Acid		R	Methylene Bromide		N
Fruit Juices and Pulp		R	Methylene Chloride		N
Gasoline		R	Methylene Chlorobromate		N
Glucose		R	Methylene Iodide		N
Glycerine		R	Milk		R
Heptane		R	Mineral Oil		R
Hexane		N	Motor Oil		R
Hydrazine		N	Naphtha		R
Hydrobromic Acid	20	R	Naphthalene		N
Hydrochloric Acid	35	R	Nickel Chloride		R
Hydrofluoric Acid	70	LR	Nickel Nitrate		R
Hydrogen		R	Nickel Sulfate		R
Hydrogen Peroxide	50	R	Nitric Acid	60	R
Hydrogen Sulfide		R	Nitrobenzene		N
Iodine		N	Nitroglycerine		N
Kerosene		R	Nitrous Oxide		R
Ketones		N	Oleic Acid	Saturated	R
Lactic Acid	20	R	Oxalic Acid		R
Laurel Chloride		R	Oxygen		R
Lead Acetate		R	Ozone		R
Lead Chloride		R	Palmitic Acid		R
Lead Nitrate		R	Paracetic Acid	40	LR
Lead Sulfate		R	Perchloric Acid	70	LR
Linoleic Acid		R	Phenol		N
Linoleic Oil		R	Phosphoric Acid	85	R

Entries indicate the following: R - resistant, LR - limited resistance, N - not resistant  
 \*concentration of aqueous solution except where noted

# Chemical Resistance of PVC Products at Room Temperature



Chemical	Concentration %*	Resistance	Chemical	Concentration %*	Resistance
Phosphorous (Yellow)		R	Sodium Ferricyanide		R
Phosphorous Pentoxide		R	Sodium Ferrocyanide		R
Phosphorous Trichloride		N	Sodium Fluoride		R
Photographic Chemicals		R	Sodium Hydroxide	50%	R
Picric Acid		N	Sodium Hypochlorite	16% Chlorine	R
Plating Solutions		R	Sodium Nitrate		R
Potassium Bichromate		R	Sodium Nitrite		R
Potassium Bromate		R	Sodium Perchlorate		R
Potassium Bromide	Saturated	R	Sodium Peroxide		R
Potassium Chloride		R	Sodium Sulfate		R
Potassium Chlorate		R	Sodium Sulfide		R
Potassium Chromate		R	Sodium Sulfite		R
Potassium Cyanide		R	Sodium Thiosulfate		R
Potassium Dichromate		R	Stannic Chloride		R
Potassium Ferricyanide		R	Stannous Chloride		R
Potassium Fluoride		R	Stearic Acid		R
Potassium Hydroxide	50	R	Succinic Acid		R
Potassium Nitrate		R	Sugar	Saturated	R
Potassium Perborate		R	Sulfur Dioxide (Dry Gas)		R
Potassium Perchlorate		R	Sulfuric Acid	<80 (>80)	R (LR)
Potassium Permanganate	10	R	Sulfurous Acid		R
Potassium Persulfate		R	Tannic Acid		R
Potassium Sulfate		R	Tanning Liquors		R
Propane		R	Tartaric Acid		R
Propyl Alcohol (1Propanol)	100	R	Tetraethyl Lead		R
Propylene Dichloride		N	Tetrahydrofuran		N
Propylene Oxide		N	Tetrasodium Pyrophosphate		R
Pyridene		N	Thionyl Chloride		N
Pyrogallic Acid		R	Titanium Tetrachloride		R
Salad Oil		R	Toluene		N
Salicylic Acid		R	Trichloroacetic Acid		R
Selenic Acid		R	Trichloroethylene		N
Silicic Acid		R	Triethanolamine		R
Silver Cyanide		R	Triethylamine		N
Silver Nitrate		R	Trimethylamine		LR
Silver Sulfate		R	Trisodium Phosphate		R
Sodium Acetate		R	Tuepentine		LR
Sodium Benzoate		R	Urea		R
Sodium Bicarbonate		R	Vasilene		N
Sodium Bichromate		R	Vegetable Oils		R
Sodium Bisulfate		R	Vinegar		R
Sodium Bisulfite		R	Vinyl Acetate		N
Sodium Carbonate		R	Water (Demineralized or Sea)		R
Sodium Chlorate		R	Wine or Whiskey		R
Sodium Chloride		R	Xylene		N
Sodium Chlorite		N	Zinc Chloride		R
Sodium Cyanide		R	Zinc Nitrate		R
Sodium Dichromate		R	Zinc Sulfate		R

Entries indicate the following: R - resistant, LR - limited resistance, N- not resistant

\*concentration of aqueous solution except where noted

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