

# FACTS SHEET

## POLYCARBONATE PROFILED ROOF SHEETING

As a major supplier of Polycarbonate Profiled Sheeting to Builders and Roofing Contractors, it is in our interest to ensure that the performance characteristics of this product are fully understood by both Specifiers and Contractors.

There is quite often some confusion as to the suitability of polycarbonate sheeting for particular applications, and its general performance characteristics. The following information is provided to help you understand both its advantages, and limitations, according to how and where it is used.

1. Solasafe polycarbonate is available in lengths up to 8.1 metres in corrugated, greca and 5 rib profiles. The following table shows details:

#### SHEET LENGTHS – all grades & colours

##### CORRUGATED

1.8 m to 8.1 m – Clear, Opal, Light Bronze, Grey, Dark Tint, Pearl Ice, Silver Mist.  
1.8 m to 6.0 m – Wheat, Green, Smooth Cream, Mist Green.

##### GRECA

1.8 m to 8.1 m – Clear, Light Bronze, Grey, Dark Tint, Pearl Ice, Silver Mist.  
1.8 m to 6.0 m – Opal, Smooth Cream, Mist Green,

##### 5 RIB

1.8 m to 8.1 m – Clear, Opal, Grey.  
1.8 m to 6.0 m – Light Bronze, Dark Tint.

2. An 8.1 metre maximum length is well justified. This is because polycarbonate has a thermal co-efficient of  $6.75 \times 10^{-5} \text{ cm/cm } ^\circ\text{C}$  which equates to a linear expansion of 21.8 mm over 8.1 m (based on an overall 40° temperature variation).

3. Profiles available in Solasafe polycarbonate sheeting are limited to Corrugated, Greca and Trimdek. There are no decking profiles.

Maximum allowable spans, wind pressure up to 1 kPa:

Corrugated and greca profiles

nominal thickness 0-8 mm, Span 0.9 metre.

Trimdek profile (5 rib)

nominal thickness 0.8 mm, Span 1.0 metre.

As wind pressure increases, spanning capacity drops dramatically.

It should also be noted that the above spans are based on consideration of bending strength only; failure at fixing points can be expected to occur at substantially lower loads.

4. Polycarbonate is essentially a by product of the petro-chemical industry. In turn, polycarbonate is therefore susceptible to chemical reaction, especially to petro-chemical based products.

It is important to note, that even neutral cure silicone should not be applied to polycarbonate, as it weakens the sheet causing it to rip or fracture, sometimes within weeks of application. If sealing is necessary, use only a silicone sealant specifically made to be compatible with polycarbonate. Use of incorrect sealants voids the warranty.

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5. While polycarbonate has a very high impact strength when new, weathering degradation substantially lowers this strength. Caution is always required to ensure that the UV protective coating is facing the sun in accordance with the product label or marking.

6. Safety mesh is always required with polycarbonate roofing in installations over 3.0 metres in height. Polycarbonate is non trafficable and does not meet the requirements of AS/NZS 1562.3: 2006 Resistance to impact (sandbag) for roofing sheet materials.

7. The warranty on polycarbonate may vary slightly between suppliers but it is essentially (as given by Ampelite):

- (a) 5 years against hail damage fracture, (usually limited to hailstones up to 19 diameter in winds up to 75 km/hr).
- (b) 10 years against excessive yellowing of clear sheets.
- (c) 10 years against loss of light transmission exceeding 10%.

NOTE: Lifetime Warranties offered are always for domestic applications only.

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**CONCLUSION**

It is Ampelite's experience that polycarbonate has a number of limitations when used in Industrial/Commercial installations. The thermal co-efficient being a significant factor, also the relatively small spanning capacity, limited choice of profiles, and general UV deterioration. Clear polycarbonate has unmatched light transmission properties, but this also means very high heat transmission which in many applications is un-acceptable.

We have found that when polycarbonate sheeting is specified, for commercial or industrial applications it is usually because the specifier is seeking to select a product, which hopefully, will outperform the industrial grades of fibreglass roofing generally available.

However, Ampelite have made a significant advance with the introduction (in 1995) of 'Wonderglas GC' gel coated premium grade industrial sheeting that has a 25 year warranty. The gel coating and base sheet are still at the cutting edge of resin technology. UV resistance is so high, that loss of light transmission after 10 years is just 10%, with only minimal change in later years.

Wonderglas GC outperforms and outlasts other plastic roofing materials and is compatible in all respects to metal roofing. This is important especially considering spanning vs. wind pressure on larger projects. All current sheet/decking profiles and most superseded profiles are available in required lengths.)

Should you wish to discuss any of the above, view early and current installations of both polycarbonate and Wonderglas GC, or would like further technical information, please contact the Ampelite branch office in your state.