

## Mechanical Data for Polygal Sheets

Polygal Polycarbonate sheets demonstrate outstanding mechanical properties and behavior, maintaining high strength and stiffness even when exposed to elevated temperatures over a long period of time.

Due to the advanced surface protection of Polygal Polycarbonate sheets, optical and mechanical properties will not change noticeably during the service life of the sheet, even when exposed to constant direct sunlight or other harmful UV radiation sources, and temperatures ranging from -40°C to +120°C.

Identical long-term performances were obtained on applications unexposed to the above mentioned sources.

### IMPACT STRENGTH

Polygal Polycarbonate sheets have been tested according to the Falling Dart Impact Test (ASTM D-3029, BS 2782 and DIN 53443). The results shown in the following table were obtained with a 5mm tip dart:

Sheet Thickness	6mm	8mm	10m m	16mm
Weight (gr/m <sup>2</sup> )	1300	1500	1700	2700
Impact Strength (Joule)	2.10	2.00	2.32	2.80

Sheet Thickness	Titan 10mm	Titan 16mm	Thermogal 25mm	Thermogal 32mm	Thermogal 35mm
Weight (gr/m <sup>2</sup> )	1700	2700	3500	3800	4000
Impact Strength (Joule)	2.30	4.00	3.35	4.00	4.00

### TENSILE STRENGTH (MATERIAL)

Test	Results
Yield ASTM D638	63 N/mm <sup>2</sup>
Ultimate ASTM D638	67 N/mm <sup>2</sup>

### TENSILE MODULUS (MATERIAL)

Test	Results
ASTM D638	2430 N/mm <sup>2</sup>

### HAIL RESISTANCE

Polygal Polycarbonate Sheets have passed several international tests:

**United States:** ASTM E822- 87.

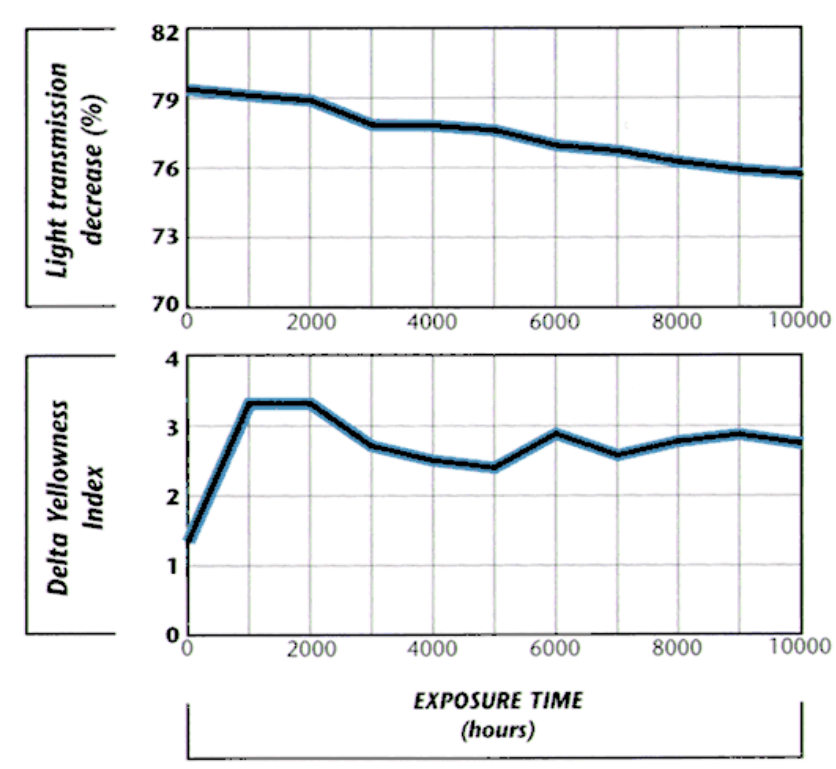
No visible damage at applied kinetic energy of 10 Joule on 6mm Polygal sheets.

**Switzerland:** successfully tested by EMPA according to SIA Norm 280 (1977)

**South Africa:** successfully tested by S.A.B.S., method 1307 and method 1022 that is identical to ASTM E822: Determining Resistance of Solar Collector Covers to Hail by Impact with Propelled Ice Balls.

## UV PROTECTION - WEATHER RESISTANCE

Polygal's Polycarbonate sheets feature a specially coextruded UV Absorption and Protection Layer, which provides long-lasting high stability against damaging UV radiation, protects against outdoor weathering and retains original color and light transmission, due to a specially coextruded UV ABSORPTION AND PROTECTION LAYER, as shown in the accelerated QUV weathering tests illustrated in Graph 1.



GRAPH 1: Accelerated weathering effects (QUV) on POLYGAL PCSS.

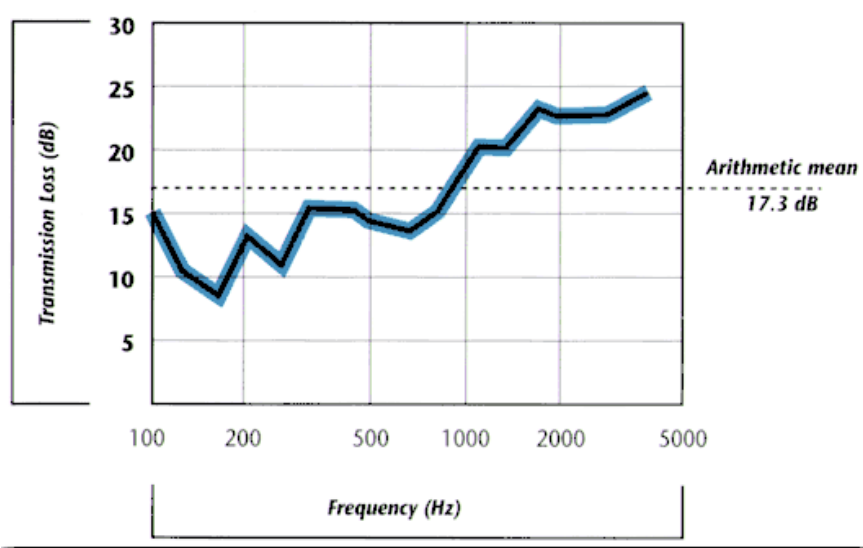
### IMPORTANT:

The protective UV layer is on one side of the sheet only and should be installed facing the exterior side. The protected side is clearly marked and easy to recognize. Proper transportation, installation and cleaning recommendations must be maintained to obtain optimal performance in any outdoor capacity.

## ACOUSTIC PROPERTIES

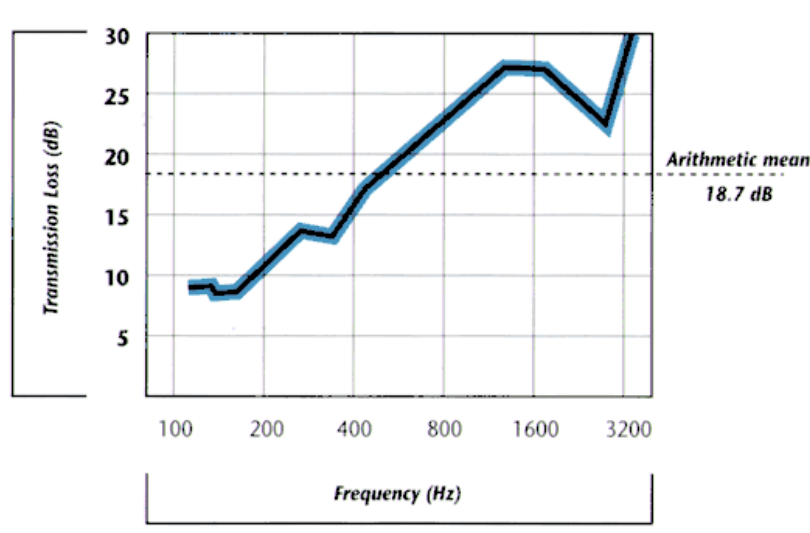
Some of the acoustic properties of Polygal sheets are shown in the following graphs:

Graph 3 shows the results of a laboratory test of Airborne Sound Transmission Loss in accordance with BS 2750:1956 and ISO R140-1960.



*Airborne Sound Transmission Loss of Polygal 6mm sheets.*

Graph 4 shows the result of ASTM E90-83 for POLYGAL PCSS 16mm.



*Airborne Sound Transmission Loss of Polygal 16mm sheets.*