

**Performance Data: Pilkington Suncool™ High Performance Double Glazed units with a 16mm Argon-filled cavity and 6mm Clear Inner Pane**

The Chart below offers performance data of double glazed units from Pilkington glass with a selection of different external panes of high performance solar control super low e glass combined with an inner pane of 6mm thick glass. All of these options will decrease the overall light transmission percentage of the product to some extent in comparison to traditional clear glass, but with the added benefit of significantly reducing the total heat transmission percentage value.

Pilkington Suncool™ High Performance Outer Panes												
Product Description	Light		Solar Radiant Heat				Shading Coefficient			U Value (W/m²K)	Sound Insulation	
	Transmittance	Reflectance	Direct Transmittance	Reflectance	Absorption	Total Transmission	Short Wavelength	Long Wavelength	Total		Argon-Filled	Rm(dB)
6mm 66/33 (Brilliant)	0.66	0.15	0.32	0.30	0.38	0.36	0.37	0.04	0.41	1.1	30	33
6mm 50/25 (Brilliant)	0.50	0.18	0.24	0.32	0.44	0.27	0.28	0.03	0.31	1.1	30	33
6mm 30/17 (Brilliant)	0.30	0.25	0.15	0.37	0.48	0.19	0.17	0.05	0.22	1.1	30	33
6mm 50/27 (Brilliant Blue)	0.50	0.20	0.25	0.35	0.40	0.28	0.29	0.03	0.32	1.1	30	33
6mm 70/40 (Neutral)	0.69	0.10	0.37	0.28	0.35	0.41	0.43	0.04	0.47	1.1	30	33
6mm 53/40 (Neutral)	0.53	0.08	0.35	0.15	0.50	0.41	0.40	0.07	0.47	1.3	30	33
6mm 51/37 (Neutral)	0.51	0.16	0.33	0.19	0.48	0.39	0.38	0.07	0.45	1.3	30	33
6mm 65/41 (Clear)	0.65	0.21	0.39	0.31	0.30	0.44	0.45	0.06	0.51	1.1	30	33
6mm 50/30 (Silver)	0.51	0.36	0.28	0.41	0.31	0.31	0.32	0.04	0.36	1.1	30	33
**6mm 30/23 (Blue)	0.30	0.14	0.15	0.11	0.74	0.23	0.17	0.09	0.26	1.1	30	33
**6mm 28/24 (Bronze)	0.28	0.12	0.15	0.17	0.68	0.24	0.17	0.11	0.28	1.1	30	33
**6mm 43/29 (Green)	0.43	0.23	0.19	0.16	0.65	0.29	0.22	0.11	0.33	1.1	30	33
**6mm 25/24 (Grey)	0.25	0.11	0.15	0.17	0.68	0.24	0.17	0.11	0.28	1.1	30	33
6mm 55/31 (Jade Green)	0.55	0.17	0.27	0.12	0.61	0.31	0.31	0.05	0.36	1.1	30	33
6mm 45/29 (Olive Green)	0.45	0.07	0.23	0.07	0.70	0.29	0.26	0.07	0.33	1.3	30	33
6mm 43/24 (Emerald Green)	0.43	0.27	0.19	0.17	0.64	0.24	0.22	0.06	0.28	1.1	30	33
6mm Activ 53/40 (Neutral)	0.50	0.13	0.33	0.21	0.46	0.39	0.38	0.07	0.45	1.3	30	33
6mm Activ 50/30 (Silver)	0.48	0.38	0.26	0.45	0.29	0.30	0.30	0.04	0.34	1.1	30	33
6mm Activ 70/40 (Neutral)	0.67	0.16	0.35	0.33	0.32	0.39	0.40	0.05	0.45	1.1	30	33

## Performance Data: Interpane Ipasol™ High Performance Double Glazed units with a 16mm Argon-filled cavity and 6mm Clear Inner Pane

The Chart below offers performance data of double glazed units from Interpane glass with a selection of different external panes of high performance solar control super low e glass combined with an inner pane of 6mm thick glass. All of these options will decrease the overall light transmission percentage of the product to some extent in comparison to traditional clear glass, but with the added benefit of significantly reducing the total heat transmission percentage value.

Interpane Ipasol™ High Performance Outer Panes												
Product Description	Light		Solar Radiant Heat				Shading Coefficient			U Value (W/m <sup>2</sup> K)	Sound Insulation	
	Transmittance	Reflectance	Direct Transmittance	Reflectance	Absorption	Total Transmission	Short Wavelength	Long Wavelength	Total		Argon-Filled	Rm(dB)
6mm 50/25 (Neutral)	0.50	0.10	NS	NS	0.54	0.25	NS	NS	0.34	1.1	30	33
6mm 73/39 (Neutral)	0.73	0.10	NS	NS	0.32	0.39	NS	NS	0.53	1.1	30	33
6mm 68/34 (Neutral)	0.67	0.10	NS	NS	0.32	0.34	NS	NS	0.46	1.1	30	33
6mm 67/34 (Natura)	0.66	0.11	NS	NS	0.34	0.34	NS	NS	0.46	1.1	30	33
6mm 52/29 (Neutral)	0.52	0.10	NS	NS	0.46	0.29	NS	NS	0.39	1.2	30	33
6mm 47/28 (Platin)	0.46	0.40	NS	NS	0.26	0.28	NS	NS	0.36	1.1	30	33
6mm 40/23 (Blue)	0.40	0.10	NS	NS	0.52	0.23	NS	NS	0.30	1.2	30	33
6mm 56/45 (Silver)	0.56	0.34	NS	NS	0.11	0.45	NS	NS	0.59	1.2	30	33
6mm 55/27 (Green)	0.55	0.09	NS	NS	0.66	0.27	NS	NS	0.35	1.1	30	33

### Basic Principles

Glass transmits solar radiation from the sun by three mechanisms, reflection, transmission and absorption, which for solar control purposes are defined in terms of the following parameters:

#### Reflectance:

The proportion of solar radiation at near normal incidence which is reflected by the glass back into the atmosphere.

#### Absorptance:

The proportion of solar radiation at near normal incidence which is absorbed by the glass.

#### Direct Transmittance:

The proportion of solar radiation at near normal incidence which is transmitted directly through the glass.

**Total Transmittance:**

The fraction of solar radiation at near normal incidence that is transferred through the glazing by all means. It is composed of the direct transmittance, also known as the short wave component, and the part of the absorptance dissipated inwards by long wave radiation and convection, known as the long wave component. The proportions of the absorbed energy which are dissipated either inside or outside depend on the glazing configuration and the external exposure conditions (see above diagram).

All solar radiant heat properties are angle dependent.

**Shading Coefficient:**

The solar radiant heat admission properties of glasses can be compared by their shading coefficients. The shading coefficient is derived by comparing the properties of any glass with a clear float glass having a total solar heat transmittance of 0.87 (such a glass would be between 3 and 4mm). It comprises a short wavelength and long wavelength shading coefficient. The short wavelength shading coefficient (SWSC) is the direct solar heat transmittance divided by 0.87. The long wavelength shading coefficient (LWSC) is the fraction of the absorptance released inwards, again divided by 0.87.

Shading coefficients are calculated for radiation at near normal incidence. For other angles of incidence, the glass is compared with clear glass in the same situation. As a result, the shading coefficients are substantially constant at all angles of solar radiation.