

SOLAR CONTROL

In winter, the fact that glass allows the sun's heat as well as light into a building can be beneficial but in summer months, without solar control it can become uncomfortably hot.

Glass controls solar radiation by reflectance, transmittance and absorptance. For solar control purposes and assuming solar radiation at near normal incidence, these are defined as:

Reflectance – the proportion reflected back into the atmosphere

Absorptance – the proportion absorbed by the glass

Direct Transmittance – the proportion transmitted directly through the glass

Total Transmittance – the proportion transmitted through the glass by all means (also known as g value or solar factor)

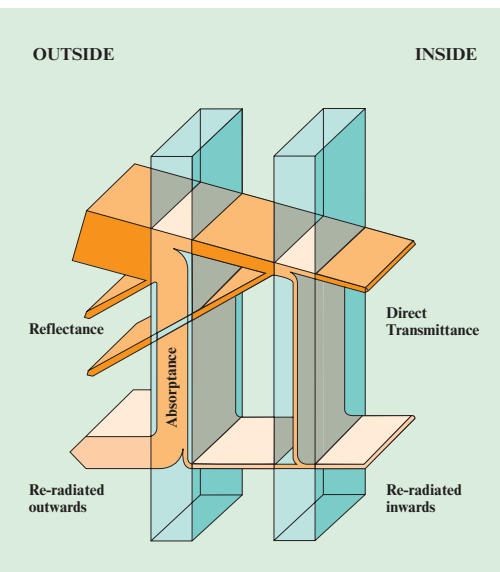
How glass can provide solar control

Solar control can be achieved in a number of ways including body-tinted glass, coated glass, laminated glass with tinted interlayers and insulating glass units incorporating blinds.

Specifying solar control glass

Today's increased use of glass in architecture makes it imperative to consider the comfort of a building's occupants. In hot climates solar control glass can be used to minimise solar heat gain and help control glare whilst in temperate regions it can be used to balance solar control with high levels of natural light.

Solar control glass can be specified for any situation where excessive solar heat gain is likely to be an issue, from large conservatories to glass walkways and building façades to atria. The Pilkington solar control glass range offers performance options to suit almost every need with each product available in toughened or laminated form.





Pilkington **Suncool™** High Performance is a range of off-line coated, energy management glass combining high light transmission with solar control performance. It is always used as part of an insulating glass unit – or a Pilkington **Planar™** system – where its coating also provides the highest level of thermal insulation. A range of colours including clear, neutral, silver and coloured tints is available, as well as a self-cleaning version – Pilkington **Activ Suncool™**.

Other solar control options

Pilkington **Optifloat™** Tinted

A range of low to medium performance, body-tinted glass manufactured using the standard float glass process. Solar control and colour densities vary with thickness. Available in Bronze, Grey, Green, and Pilkington **Arctic Blue™**.

Pilkington **Insulight™**

with **LUXACLAIR®** blinds

A special micro-venetian blind integrated within a Pilkington **Insulight™** unit, offering adjustable solar control combined with other unique benefits.

Pilkington **Suncool™** Benefits summary

- Reduces solar heat gain
- Low emissivity for thermal insulation
- Range of solar control performance options
- Choice of high to low light transmittance
- Wide range of colours and appearances
- Available in toughened or laminated
- Now available in Pilkington **Planar™** architectural glazing systems
- Range of harmonising Pilkington Spandrel Glass available (separate data sheet available)

Pilkington **Optifloat™** Tinted

Benefits summary


- Range of solar control performance options
- Range of colours
- Low reflection
- Can be toughened or laminated
- Can be used in both single glazing and insulating glass units

Pilkington **Insulight™** with


LUXACLAIR® blinds Benefits summary

- Precise light control
- Adjustable sun shading and thermal insulation
- High reliability and durability
- Hygiene and low maintenance
- Proven design
- Privacy







Colour: Grey
Code: 25/24
Light transmission: 25%
Total solar heat transmission: 24%
Reflectiveness (outside-in): 10.7%
Reflectiveness (inside-out): 37.3%
Colour (outside-in): Grey
Reflection (outside-in): Low
Colour (inside-out): Grey
Reflection (outside-in): Medium




Colour: Bronze
Code: 28/24
Light transmission: 28%
Total solar heat transmission: 24%
Reflectiveness (outside-in): 12.3%
Reflectiveness (inside-out): 37.4%
Colour (outside-in): Grey bronze
Reflection (outside-in): Low
Colour (inside-out): Grey bronze
Reflection (outside-in): Medium




Colour: Blue
Code: 30/23
Light transmission: 30%
Total solar heat transmission: 23%
Reflectiveness (outside-in): 13.6%
Reflectiveness (inside-out): 37.4%
Colour (outside-in): Blue Green
Reflection (outside-in): Low
Colour (inside-out): Blue Green
Reflection (outside-in): Medium




Colour: Brilliant
Code: 30/17
Light transmission: 30%
Total solar heat transmission: 19%
Reflectiveness (outside-in): 27.4%
Reflectiveness (inside-out): 16.9%
Colour (outside-in): Grey
Reflection (outside-in): Medium
Colour (inside-out): Grey
Reflection (outside-in): Low




Colour: Green
Code: 43/29
Light transmission: 43%
Total solar heat transmission: 29%
Reflectiveness (outside-in): 22.7%
Reflectiveness (inside-out): 37.8%
Colour (outside-in): Grey Green
Reflection (outside-in): Low
Colour (inside-out): Grey Green
Reflection (outside-in): Medium




Colour: Emerald
Code: 43/24
Light transmission: 43%
Total solar heat transmission: 24%
Reflectiveness (outside-in): 26.6%
Reflectiveness (inside-out): 30.7%
Colour (outside-in): Green
Reflection (outside-in): Medium
Colour (inside-out): Grey Green
Reflection (outside-in): Medium




Colour: Olive
Code: 45/29
Light transmission: 45%
Total solar heat transmission: 29%
Reflectiveness (outside-in): 6.6%
Reflectiveness (inside-out): 16.4%
Colour (outside-in): Grey Green
Reflection (outside-in): Low
Colour (inside-out): Grey Green
Reflection (outside-in): Low



Colour: Activ Silver
Code: 50/30
Light transmission: 48%
Total solar heat transmission: 30%
Reflectiveness (outside-in): 38.0%
Reflectiveness (inside-out): 32.7%
Colour (outside-in): Pale Straw
Reflection (outside-in): Medium
Colour (inside-out): Pale Straw
Reflection (outside-in): Medium



Colour: Activ Neutral
Code: 53/40
Light transmission: 50%
Total solar heat transmission: 39%
Reflectiveness (outside-in): 13.2%
Reflectiveness (inside-out): 20.7%
Colour (outside-in): Pale Grey
Reflection (outside-in): Low
Colour (inside-out): Pale Grey
Reflection (outside-in): Low



Colour: Brilliant Blue
Code: 50/27
Light transmission: 50%
Total solar heat transmission: 28%
Reflectiveness (outside-in): 19.7%
Reflectiveness (inside-out): 14.7%
Colour (outside-in): Blue Green
Reflection (outside-in): Low
Colour (inside-out): Blue Green
Reflection (outside-in): Low



Colour: Brilliant
Code: 50/25
Light transmission: 50%
Total solar heat transmission: 27%
Reflectiveness (outside-in): 17.1%
Reflectiveness (inside-out): 14.9%
Colour (outside-in): Light Grey
Reflection (outside-in): Low
Colour (inside-out): Light Grey
Reflection (outside-in): Low



Colour: Neutral
Code: 51/37
Light transmission: 51%
Total solar heat transmission: 39%
Reflectiveness (outside-in): 18.3%
Reflectiveness (inside-out): 10.0%
Colour (outside-in): n/a
Reflection (outside-in): Low
Colour (inside-out): n/a
Reflection (outside-in): Low



Colour: Silver
Code: 50/30
Light transmission: 51%
Total solar heat transmission: 31%
Reflectiveness (outside-in): 38.2%
Reflectiveness (inside-out): 29.8%
Colour (outside-in): Light Grey
Reflection (outside-in): Medium
Colour (inside-out): Light Grey
Reflection (outside-in): Medium



Colour: Neutral
Code: 53/40
Light transmission: 53%
Total solar heat transmission: 41%
Reflectiveness (outside-in): 7.8%
Reflectiveness (inside-out): 19.5%
Colour (outside-in): Light Grey
Reflection (outside-in): Low
Colour (inside-out): Light Grey
Reflection (outside-in): Low



Colour: Jade
Code: 55/31
Light transmission: 55%
Total solar heat transmission: 31%
Reflectiveness (outside-in): 16.6%
Reflectiveness (inside-out): 16.8%
Colour (outside-in): Green
Reflection (outside-in): Low
Colour (inside-out): Green
Reflection (outside-in): Low



Colour: Clear
Code: 65/41
Light transmission: 65%
Total solar heat transmission: 44%
Reflectiveness (outside-in): 23.4%
Reflectiveness (inside-out): 18.4%
Colour (outside-in): Light Grey
Reflection (outside-in): Low
Colour (inside-out): Light Grey
Reflection (outside-in): Low



Colour: Brilliant
Code: 66/33
Light transmission: 66%
Total solar heat transmission: 36%
Reflectiveness (outside-in): 17.1%
Reflectiveness (inside-out): 17.5%
Colour (outside-in): Pale Straw
Reflection (outside-in): Low
Colour (inside-out): Pale Straw
Reflection (outside-in): Low



Colour: Activ Neutral
Code: 70/40
Light transmission: 67%
Total solar heat transmission: 39%
Reflectiveness (outside-in): 12.6%
Reflectiveness (inside-out): 16.8%
Colour (outside-in): Pale Straw
Reflection (outside-in): Low
Colour (inside-out): Pale Straw
Reflection (outside-in): Low



Colour: Neutral
Code: 70/40
Light transmission: 69%
Total solar heat transmission: 41%
Reflectiveness (outside-in): 10.2%
Reflectiveness (inside-out): 11.2%
Colour (outside-in): Pale Straw
Reflection (outside-in): Low
Colour (inside-out): Pale Straw
Reflection (outside-in): Low

Table 1 – Performance Data Pilkington *Insulight*™ with 6mm Pilkington *Optifloat*™ Clear Inner Pane.

Product Description	Light		Solar Radiant Heat				Shading Coefficient			U value (W/m²K)	U value (W/m²K)	Sound Insulation		Mass	Unit Maximum Sizes†		Descriptive Code
	Transmittance	Reflectance	Direct Transmittance	Reflectance	Absorptance	Total Transmittance	Short Wavelength	Long Wavelength	Total	Air-filled	Argon-filled	R _m (dB)	R _w (dB)	(kg/m²)	Annealed (mm)	Toughened (mm)	
Pilkington <i>Insulight</i> ™ (with solar control coating on cavity face of outer panel and 16mm cavity unless otherwise stated)																	
Pilkington <i>Suncool</i> ™ High Performance																	
6mm 66/33 (Brilliant)	0.66	0.15	0.32	0.30	0.38	0.36	0.37	0.04	0.41	1.3	1.1	30	33	30	2400 x 3600	2000 x 3500	66/36
6mm 50/25 (Brilliant)	0.50	0.18	0.24	0.32	0.44	0.27	0.28	0.03	0.31	1.3	1.1	30	33	30	2400 x 3600	2000 x 3500	50/27
6mm 30/17 (Brilliant)	0.30	0.25	0.15	0.37	0.48	0.19	0.17	0.05	0.22	1.3	1.1	30	33	30	2400 x 3600	2000 x 3500	30/19
6mm 50/27 (Brilliant Blue)	0.50	0.20	0.25	0.35	0.40	0.28	0.29	0.03	0.32	1.3	1.1	30	33	30	2400 x 3600	2000 x 3500	50/28
6mm 70/40 (Neutral)	0.69	0.10	0.37	0.28	0.35	0.41	0.43	0.04	0.47	1.4	1.1	30	33	30	2400 x 3600	2000 x 3500	69/41
6mm 53/40 (Neutral)	0.53	0.08	0.35	0.15	0.50	0.41	0.40	0.07	0.47	1.5	1.3	30	33	30	2400 x 3600	2000 x 3500	53/41
6mm 51/37 (Neutral)	0.51	0.16	0.33	0.19	0.48	0.39	0.38	0.07	0.45	1.5	1.3	30	33	30	2400 x 3600	2000 x 3500	51/39
6mm 50/30 (Silver)	0.51	0.36	0.28	0.41	0.31	0.31	0.32	0.04	0.36	1.4	1.1	30	33	30	2400 x 3600	2000 x 3500	51/31
**6mm 30/23 (Blue)	0.30	0.14	0.15	0.11	0.74	0.23	0.17	0.09	0.26	1.4	1.1	30	33	30	2400 x 3600	2000 x 3500	30/23
**6mm 28/24 (Bronze)	0.28	0.12	0.15	0.17	0.68	0.24	0.17	0.11	0.28	1.4	1.1	30	33	30	2400 x 3600	2000 x 3500	28/24
**6mm 43/29 (Green)	0.43	0.23	0.19	0.16	0.65	0.29	0.22	0.11	0.33	1.4	1.1	30	33	30	2400 x 3600	2000 x 3500	43/29
**6mm 25/24 (Grey)	0.25	0.11	0.15	0.17	0.68	0.24	0.17	0.11	0.28	1.4	1.1	30	33	30	2400 x 3600	2000 x 3500	25/24
Pilkington <i>Activ Suncool</i> ™ HP																	
6mm 53/40	0.50	0.13	0.33	0.21	0.46	0.39	0.38	0.07	0.45	1.5	1.3	30	33	30	2400 x 3600	2000 x 3500	50/39
6mm 50/30	0.48	0.38	0.26	0.45	0.29	0.30	0.30	0.04	0.34	1.4	1.1	30	33	30	2400 x 3600	2000 x 3500	48/30
6mm 70/40	0.67	0.16	0.35	0.33	0.32	0.39	0.40	0.05	0.45	1.4	1.1	30	33	30	2400 x 3600	2000 x 3500	67/39

Table 2 – Performance Data Pilkington *Insulight*™ with 6mm Pilkington *Optitherm*™ SN Inner Pane.

Product Description	Light		Solar Radiant Heat				Shading Coefficient			U value (W/m²K)	U value (W/m²K)	Sound Insulation		Mass	Unit Maximum Sizes†		Descriptive Code
	Transmittance	Reflectance	Direct Transmittance	Reflectance	Absorptance	Total Transmittance	Short Wavelength	Long Wavelength	Total	Air-filled	Argon-filled	R _m (dB)	R _w (dB)	(kg/m²)	Annealed (mm)	Toughened (mm)	
Pilkington <i>Insulight</i> ™ (with 6mm Pilkington <i>Optitherm</i> ™ SN inner pane coating to cavity face and 16mm cavity – unless otherwise indicated)																	
Pilkington <i>Optifloat</i> ™ Clear																	
*4mm	0.79	0.12	0.53	0.23	0.24	0.63	0.61	0.11	0.72	1.4	1.2	29	31	20	2400x1300	1500x2200	79/63
6mm	0.78	0.11	0.50	0.21	0.29	0.61	0.57	0.13	0.70	1.4	1.2	30	33	30	2400x4000	2000x4000	78/61
Pilkington <i>Optiwhite</i> ™																	
*4mm	0.81	0.12	0.57	0.28	0.15	0.68	0.66	0.12	0.78	1.4	1.2	29	31	20	2400x1300	1500x2200	81/68
6mm	0.80	0.11	0.55	0.27	0.18	0.67	0.63	0.14	0.77	1.4	1.2	30	33	30	2400x4000	2000x4000	80/67
Pilkington <i>Optifloat</i> ™																	
6mm 75/59 Green	0.66	0.09	0.33	0.08	0.59	0.41	0.38	0.09	0.47	1.4	1.2	30	33	30	2400x4000	2000x4000	66/41
6mm 49/58 Bronze	0.43	0.06	0.28	0.10	0.62	0.36	0.32	0.09	0.41	1.4	1.2	30	33	30	2400x4000	2000x4000	43/36
6mm 43/58 Grey	0.38	0.06	0.27	0.11	0.62	0.36	0.31	0.10	0.41	1.4	1.2	30	33	30	2400x4000	2000x4000	38/36
Pilkington <i>Arctic Blue</i> ™																	
6mm	0.46	0.07	0.25	0.07	0.68	0.32	0.29	0.07	0.36	1.4	1.2	30	33	30	2400x4000	2000x4000	46/3

Determined in accordance with BS EN 410 and BS EN 673

U values for argon gas-filled cavities based on 90% gas fill. U values for other % gas fills are available on request.

* with 4mm inner pane

** with 6mm Pilkington *Optifloat*™ Tinted outer pane and 6mm Pilkington *Suncool*™ HP Silver 50/30 inner pane.

† Maximum sizes are for guidance only, please consult with processor for details. These are **not** recommended glazing sizes.

For performance figures relating to other Pilkington products, for example fire-resistant glass or Pilkington **K Glass**, please refer to our product specific literature.



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