



Pilkington Activ™
The world's first self-cleaning glass.

*With advanced **dual action** for superior results*



PILKINGTON

The benefits of Pilkington **Activ**[™]



*The Vistas, Cheshire.
Countryside Properties.*

- The world's first self-cleaning glass.
- Unique coating breaks down and loosens even heavy soiling.
- Continues working on cloudy days and during the night.
- Reduces cleaning and maintenance costs, and gives windows a better appearance for longer.
- The ideal choice for situations where cleaning will be difficult or costly (e.g. high rise buildings, conservatories and roof lights), or where good visibility is important (e.g. sports stadiums).
- Unique coating cannot be worn away or rubbed off – lasts the lifetime of the glazing itself in normal use.
- Easily cleaned during dry spells by hosing down or wiping with a soft cloth and warm soapy water.
- Created and manufactured by the world's leading glass producer – Pilkington.
- Can be combined with other Pilkington glass products to offer a wide range of additional benefits.

All you need to know about self-cleaning glass

Pilkington **Activ**[™] is effectively the same as conventional glass but with a specially developed coating on the outside that has a unique dual action. Once exposed to daylight, the coating chemically reacts in two ways. Firstly, it breaks down any 'organic' dirt deposits – such as bird droppings and tree sap – and secondly, rainwater 'sheets' down the glass to wash the loosened dirt away.

How can I be certain Pilkington **Activ**[™] will work?

Self-cleaning glass has long been seen as an impossible dream. However, as you'd expect with any new product from Pilkington, it has been extensively developed and tested over a number of years to make absolutely sure that any claim we make is true. And our reputation for reliability and quality makes sure it will go on working, too.

How does this 'dual action' work?

The secret of Pilkington **Activ**[™] lies in the special coating, which works in two stages:

Breaking down organic dirt

Using a 'photocatalytic' process, the coating reacts with ultra-violet rays present in natural daylight to break down and decompose organic dirt.

Washing dirt away

The second part of the process happens when rainwater hits the glass. Pilkington **Activ**[™] is 'hydrophilic' which means that instead of forming droplets, the water spreads evenly over the surface and as it runs off takes the dirt with it. Compared with conventional glass, the water also dries off very quickly reducing unsightly 'drying spots'.

*Museum of the Earth,
New York.*



Does Pilkington Activ™ work straight away?

Pilkington Activ™ takes about five to seven days to activate itself following installation, after which it works continually with dirt being washed away whenever it rains. The coating only needs a small amount of UV radiation to work, so it continues to break down and remove dirt even on overcast days.

Will Pilkington Activ™ windows ever need cleaning?

Cleaning will be needed much less frequently. In certain circumstances, such as during prolonged dry spells, the windows can be washed off either by hosing to replicate rain, or with a soft cloth and warm soapy water.

Cleaning may also be necessary to remove inorganic deposits (i.e. man-made deposits such as paint or ink) from the glass.

What effect does the coating have on the glass?

Its appearance is similar to any other glass. The special coating has no effect on its strength, it only reduces the amount of light and energy that passes through by a very small amount and gives the glass an attractive slight blue tint.

Can it be scratched or rubbed off?

The coating on Pilkington Activ™ is an integral part of the glass – so it can only be affected if the surface itself is damaged; for example, by pointed objects, abrasive cleaners or steel wool. Our tests have also shown it won't flake off or discolour.

How long will it last?

Tests on Pilkington Activ™ have shown that the coating will last as long as the glass itself.

Is it environmentally friendly?

Yes. The coating contains harmless chemical substances already found in the home, in such things as bath oils and toothpaste. In fact, with only small amounts of cleaning agents needed, Pilkington Activ™ is kinder to the environment than ordinary glass.

Designing with Pilkington Activ™

Available in 3, 4, 6, 8 and 10mm thicknesses, Pilkington Activ™ is suitable for almost every commercial application, proving particularly useful in situations where cleaning would be difficult or costly. It can be single glazed or incorporated into an insulating glass unit, with the self-cleaning coating positioned on the outside of the building, facing the weather.

If Pilkington Activ™ is to be installed where rainwater will not reach it – for example, beneath an overhang – dirt deposits are less likely to be washed away. In such circumstances, these windows may need more regular hosing. The minimum recommended angle is 10 degrees from horizontal, so that rainwater can flow over the glass properly.

Pilkington Activ™ Blue is now available, combining self-cleaning properties with solar control performance.

Considerations

Glazing and framing

- It is essential not to use silicone lubricants in both single glazed and insulated glass unit applications.
- EPDM, TPE, foam, vinyl and some rubber-based gaskets are all generally compatible with Pilkington Activ™ when used without a lubricant. Refer to www.pilkington.com for full details.
- If a lubricant is necessary, an alternative to silicone oil – such as glycerine oil – should be used.



*Domestic conservatory,
Whitby.*

Pilkington is continually working with manufacturers to test the compatibility of Pilkington **Activ™** with various glazing systems. When considering its use in a particular project, it is therefore advisable to check the details on www.pilkington.com or talk to our technical experts at the earliest opportunity for the latest information and advice.

Handling and maintenance

The handling, transportation and installation of Pilkington **Activ™** require the same degree of care to be taken as any coated glass product.

- After building work is completed Pilkington **Activ™** should be cleaned as soon as possible by rinsing with water to remove all traces of dust, abrasives, etc. which may have accumulated during construction.
- In areas with very 'hard water', cleaning Pilkington **Activ™** by hosing may result in white marks or milky appearance to the coated surface (due to the mineral residues in the water). Here, it is recommended that a solvent-free detergent be added via a suitable applicator to minimise the effect.
- Spraying should be conducted during the coolest part of the day and not in direct sunlight. It is best to spray from the top to the bottom in a zig zag pattern.
(Note: pressure washers should not be used).

- The white marks can be minimised by avoiding hosing the glass at the hottest time of the day.
- If the water quality is very hard (i.e. greater than 180ppm combined content of calcium carbonate, CaCO₃ and magnesium carbonate, MgCO₃) then rinsing water should be softened through a domestic water softener or through the addition of a couple of drops of detergent (dishwashing detergent suffices) to a litre of water.
- Under no circumstances should any metal objects or harsh chemical cleaners be used to clean or otherwise come into contact with the coated surface, as they may cause scratching and lead to permanent damage of the coating.

For detailed information on any aspect of handling and processing Pilkington **Activ™**, refer to our range of technical guidelines, visit www.pilkington.com or contact our Technical Advisory Helpline on **01744 692000**.



Britomart Transport Centre, Auckland.



Combining with other Pilkington products for added versatility

Although its special coating is applied during manufacture, Pilkington **Activ**[™] can be toughened – making it five times stronger than ordinary glass – laminated with other types of glass, dual

coated with a second coating on the reverse side or installed into insulating glass units (IGU) to provide a wide range of properties. The table below shows these in more detail.

<p>Energy management</p>	<p>For thermal insulation, Pilkington Activ[™] can be incorporated into IGUs, such as Pilkington Insulight[™], with Pilkington K Glass[™] or Pilkington Optitherm[™] SN as the inner pane.</p> <p>If it is necessary to have another glass as the inner pane of the IGU then Pilkington Activ Optitherm[™] SN is also available, a dual coated product with Pilkington Optitherm[™] SN on the reverse side to Pilkington Activ[™].</p> <p>For solar control, Pilkington Activ Suncool[™] HP 50/30, HP 53/40, HP 70/40 or HP 30/17 can be incorporated into an IGU. These are again dual coated products, with Pilkington Suncool[™] on the reverse side to Pilkington Activ[™].</p> <p>Pilkington Activ[™] Blue combines dual-action, self-cleaning properties with solar control performance. For optimum self-cleaning and thermal performance, combine Pilkington Activ[™] Blue with Pilkington K Glass[™] or Pilkington Optitherm[™] SN in an IGU.</p> <p>Solar control products are also available in laminated form, either using tinted PVB interlayers or tinted glass laminated to Pilkington Activ[™].</p>
<p>Safety and security</p>	<p>In toughened form Pilkington Activ[™] is up to five times stronger than ordinary glass. It achieves Class A impact safety performance to BS 12600 (EN 12600 Class 1), and if it does break, it does so into small particles reducing the risk of personal injury.</p> <p>Pilkington Activ[™] can also be laminated, i.e. combined with another glass product with PVB interlayers to produce a range of properties. The majority of laminated products (those of 6.4mm thickness and greater) provide at least BS 6206 Class B (EN 12600 Class 2) performance against risk of accidental injury.</p>
<p>Noise control</p>	<p>Pilkington Activ[™] can be included in an IGU with an acoustic laminated glass, such as Pilkington Optilam[™] Phon, for added noise control.</p>
<p>Decoration</p>	<p>Pilkington Activ Stippolyte[™] laminated glass can be produced combining Pilkington Activ[™] and Pilkington Stippolyte[™] – one of the Pilkington Texture Glass range. This could be incorporated with Pilkington K Glass[™] in an IGU for use in areas which require obscuration and a low emissivity glass in order to meet Part L.</p> <p>For a coloured effect, Pilkington Activ[™] can also be combined in a laminated glass using either tinted interlayers or tinted glass.</p>
<p>Fire protection</p>	<p>For Pilkington Activ[™] applications that require the use of fire-resistant glass, please contact our technical experts for advice.</p>



Museum of the Earth, New York.

Examples of Pilkington **Activ**[™] in use

Pilkington **Activ**[™] is the perfect choice for situations where cleaning is difficult or costly, such as high-rise buildings, glass roof structures or conservatories and atria, or in housing for use by elderly residents. It is also ideal where good visibility is important, for example, in sports stadiums, commentary boxes, airports and external walkways.

Several examples of how Pilkington **Activ**[™] has been incorporated into buildings are included here.

A design feature of this private home near Chester, the atrium style roof to the central family room allows maximum light inside and offers stunning views from the galleried landing. By specifying Pilkington **Activ**[™], the architect ensured that the glass always looks at its best, especially as cleaning access is so restricted.

The Vistas, Wychwood Park. Countryside Properties 01270 821 0830.



When the Flevoland Golf Club at Lelystad in the Netherlands built its new clubhouse, the glass façade was designed to give panoramic views over the new course, with Pilkington **Activ**™ the obvious choice. The owners have been extremely pleased with how good the glass looked straight from fitting, with fantastic clarity – even immediately after a rain shower.



Bourgogne, France.

Appearance

Pilkington **Activ**™ appears just like any other glass and the coating only reduces the amount of light and energy that passes through by a small amount. From certain angles it also has a slight blue tint. It is important to bear this in mind when Pilkington **Activ**™ is used alongside other types of glass.

Transport and Storage

During transportation and storage, the coated surface can be covered with plastic wrap for additional protection. Care should be taken when choosing the protective film, especially where the film may be adhered to the glass for long periods of time. Care should also be taken that the edges of the glass are not damaged during transport, storage and insulation. Damaged glass should not be glazed. Glass should be stored in dry conditions and out of sunlight, stacked upright and fully supported in a manner which prevents the glass from sagging. It should be stood on edge on strips of wood, felt or other relatively soft material.

Decorative Effects

For advice on the compatibility of decorative leads, colour overlays and Georgian Bars, please refer to the Technical Update on our website or contact our Technical Advisory Helpline on 01744 692000.

Recycling

Pilkington **Activ**™ can be recycled as float glass. Nevertheless, National regulations should be followed for the disposal of glass.

Thermal Safety

The possibility of excessive thermal stress being developed in the glass owing to solar radiation should be considered at all stages of design and construction. It is the responsibility of the customer or specifier to ensure that annealed glass is thermally safe for each application.

The information contained in this document provides general guidance as to best practice with regard to the handling, processing and glazing of Pilkington **Activ**™.

It does not, however, constitute any representation or warranty with respect to the product, its performance or its suitability for any application.

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Contractor: Entropal B.V., Geldermalsen.

One of the more unusual domestic applications for Pilkington **Activ**™ is this swimming pool cover in Bourgogne, France. Every pane had to meet safety regulations, and the owners have been delighted with the effectiveness of the self-cleaning process and the transparency of the glass.

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The CE marking label for each product, including declared values, can be found at www.pilkington.com/CE.



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Pilkington **Activ**[™] Technical Information Datasheet

Performance Data Pilkington **Insulight**[™]

		Light		Solar Radiant Heat				Shading Coefficient			U value W/m ² K		Sound Insulation
		Transmittance	Reflectance	Direct Transmittance	Reflectance	Absorptance	Total Transmittance or g value	Short Wavelength	Long Wavelength	Total	Air	Argon	
Outer pane	Inner pane	Based on 16mm air filled cavity											R _w (C; Ctr)
4mm Activ [™]	4mm K Glass [™]	0.70	0.23	0.58	0.21	0.21	0.69	0.67	0.13	0.80	1.7	1.5	29 (-1; -4)
6mm Activ [™]	6mm K Glass [™]	0.69	0.22	0.53	0.20	0.27	0.77	0.62	0.15	0.77	1.7	1.5	31 (-1; -4)
8mm Activ [™]	6mm K Glass [™]	0.68	0.22	0.51	0.19	0.30	0.73	0.59	0.14	0.73	1.7	1.5	35 (-2; -6)
10mm Activ [™]	6mm K Glass [™]	0.67	0.22	0.49	0.18	0.33	0.61	0.57	0.14	0.71	1.7	1.5	35 (-1; -3)
4mm Activ [™] Blue	4mm K Glass [™]	0.49	0.19	0.33	0.16	0.51	0.41	0.38	0.10	0.48	1.7	1.5	29 (-1; -4)
6mm Activ [™] Blue	6mm K Glass [™]	0.40	0.17	0.24	0.14	0.62	0.32	0.28	0.09	0.37	1.7	1.5	31 (-1; -4)
8.5mm Activ Stippolyte ^{™*}	4mm K Glass [™]	0.66	0.21	0.47	0.15	0.38	0.56	0.55	0.11	0.66	1.7	1.5	35 dB R _w ^{**}
4mm Activ [™]	4mm Optitherm [™] SN	0.74	0.17	0.50	0.29	0.21	0.60	0.58	0.12	0.70	1.4	1.2	29 (-1; -4)
6mm Activ [™]	6mm Optitherm [™] SN	0.72	0.17	0.47	0.27	0.26	0.58	0.55	0.12	0.67	1.4	1.2	31 (-1; -4)
8mm Activ [™]	6mm Optitherm [™] SN	0.71	0.17	0.45	0.25	0.30	0.56	0.52	0.13	0.65	1.4	1.2	35 (-2; -6)
10mm Activ [™]	6mm Optitherm [™] SN	0.71	0.17	0.44	0.23	0.33	0.54	0.51	0.12	0.63	1.4	1.2	35 (-1; -3)
4mm Activ [™] Blue	4mm Optitherm [™] SN	0.51	0.17	0.30	0.17	0.53	0.38	0.35	0.09	0.44	1.4	1.2	29 (-1; -4)
6mm Activ [™] Blue	6mm Optitherm [™] SN	0.42	0.15	0.23	0.14	0.63	0.30	0.27	0.08	0.35	1.4	1.2	31 (-1; -4)
6mm Activ Suncool [™] HP 53/40	6mm Optifloat [™] Clear	0.49	0.14	0.33	0.21	0.46	0.39	0.38	0.07	0.45	1.5	1.3	31 (-1; -4)
6mm Activ Suncool [™] HP 50/30	6mm Optifloat [™] Clear	0.47	0.42	0.26	0.46	0.28	0.30	0.31	0.04	0.35	1.3	1.1	31 (-1; -4)
6mm Activ Suncool [™] HP 30/17	6mm Optifloat [™] Clear	0.28	0.30	0.15	0.40	0.45	0.18	0.17	0.04	0.21	1.3	1.1	31 (-1; -4)
6mm Activ Suncool [™] HP 70/40	6mm Optifloat [™] Clear	0.66	0.15	0.36	0.32	0.32	0.40	0.41	0.05	0.46	1.4	1.1	31 (-1; -4)
6.4mm Activ Optilam [™] Brown*	4mm K Glass [™]	0.41	0.15	0.34	0.14	0.51	0.44	0.40	0.11	0.51	1.7	1.5	35 dB R _w ^{**}
4mm Activ Optitherm [™] SN	4mm Optifloat [™] Texture*	0.72	0.18	0.47	0.28	0.25	0.54	0.55	0.08	0.63	1.4	1.2	29 (-1; -4)
6mm Activ Optitherm [™] SN	6mm Optifloat [™] Texture*	0.69	0.14	0.43	0.30	0.27	0.51	0.50	0.09	0.59	1.4	1.2	31 (-1; -4)

Determined in accordance with BS EN 410 and BS EN 673

* Not CE figures

** Predicted figures

Texture figures are the average for the product range and do not represent any individual design.

6.4mm Pilkington **Activ Optilam**[™] Brown based on light brown interlayer.

Pilkington **Activ Optilam**[™] Phon, R_w (C; Ctr) is determined in accordance with EN ISO 717-1. For other configurations,

R_w (C; Ctr) based on generally accepted values given in EN 12758. These represent conservative values which may be adopted in the absence of specific measured data.

Pilkington **Activ Optilam**[™] Phon is available in a range of thicknesses. Pilkington **Activ**[™] is also available as Pilkington **Activ Optilam**[™] Clear.

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