



Pilkington **Activ™**  
Self-cleaning glass range

# Self-Cleaning

NSG Group made a significant step in the glass industry with the development of Pilkington **Activ**<sup>™</sup> – the first dual-action self-cleaning glass. The unique dual-action of the Pilkington **Activ**<sup>™</sup> coating uses the forces of nature to help keep the glass free from dirt, giving not only the practical benefit of less cleaning, but also clearer, better-looking windows.

Pilkington **Activ**<sup>™</sup> also dries off faster leaving the glass cleaner – with reduced streaks which gives you beautifully clear views and makes it ideal for various applications, from building façades to conservatory windows. In installations where condensation is a problem, it reduces its visibility and helps it to evaporate more quickly.

The Pilkington **Activ**<sup>™</sup> coating works also on cloudy days and during the night. During dry spells the glass can be cleaned by simply hosing it down.

Glass used today in commercial buildings and offices, has to provide multiple functions. A technical profile of large glazed areas must meet requirements related to solar control, thermal insulation and noise control, as well as strict safety regulations. These requirements can now be combined with self-cleaning properties. Availability of dual coated products and laminating possibilities allow the manufacture of the glass products that ensure aesthetics, safety, comfort and cost-effective operation of modern buildings, allowing best cost-effective management of buildings.

Pilkington **Activ**<sup>™</sup> solar control range combines the benefits of self-cleaning with varying degrees of solar control performance to offer the ultimate range of solar control solutions for hard to reach places that are difficult to clean. Often overhead glazing is subject to high levels of solar gain and is difficult to access for cleaning.

## Benefits

### Pilkington **Activ**<sup>™</sup> is inspiring:

- Cleans naturally by rain and ultra-violet rays from natural daylight
- Immediately creates a clear view in the rain
- Maintains visibility even with external condensation
- Easy care

### Pilkington **Activ**<sup>™</sup> is economical:

- Reduces the need for conventional cleaning
- Saves effort and cleaning costs
- Long service: life expectancy is similar to that of standard safety and insulating glass

### Pilkington **Activ**<sup>™</sup> is sustainable:

- Nitrogen oxides are measurably degraded by the photocatalytic surface
- Less environmental impact due to reduced use of cleaning agents
- No waste of energy and drinking water as “cleaning water”

### Pilkington **Activ**<sup>™</sup> makes you feel good:

- Creates a feel-good atmosphere through constantly clean windows
- The cleaning of difficult to access glazing and the associated risk of accidents are reduced to a minimum

## How it works

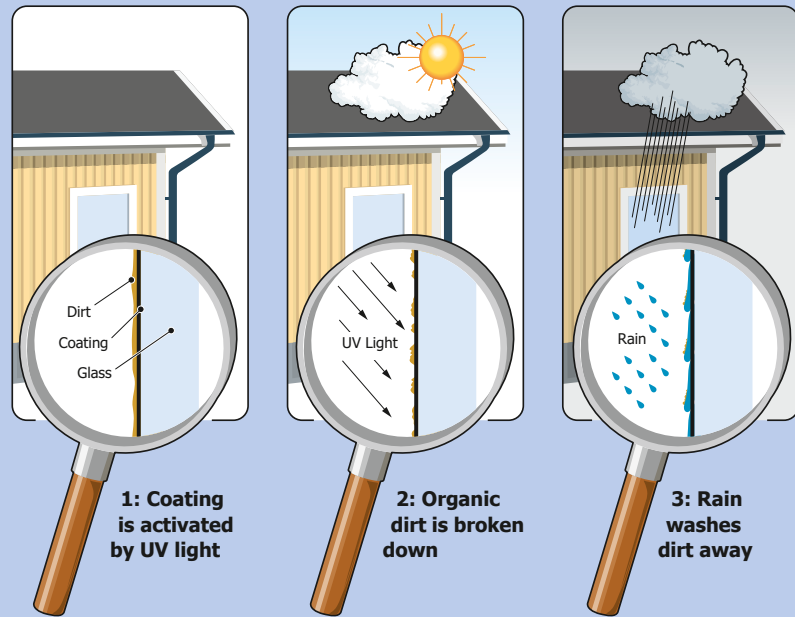
The Pilkington **Activ™** coating, located on surface #1 of the glass, works in two stages:

### Stage 1: Breaking down organic dirt

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

### Stage 2: Washing dirt away

The second part of the process happens when water hits the glass. Because Pilkington **Activ™** is 'hydrophilic', instead of forming droplets the moisture 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 and does not leave unsightly 'drying spots'.



After installation the special coating needs 5 to 7 days of exposure to activate fully.

The coating breaks down organic dirt and by doing so, reduces the adherence of inorganic dirt.

Water droplets spread down to form a "sheet". Dirt particles on the surface are picked up by water and washed off the glass – a remarkable difference you can actually see.



## Pilkington **Activ™** Clear

Pilkington **Activ™** Clear is an on-line coated self-cleaning glass with photocatalytic and hydrophilic properties.

Pilkington **Activ™** Clear 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.

Pilkington **Activ™** Clear & Pilkington **Activ™** Blue





Pilkington **Activ**™ Clear

## Features and benefits

- Self-cleaning properties reduce the need for manual cleaning, saving water and eliminating potentially harmful run-off from expensive detergents, also increasing personal safety.
- Works even on cloudy days and during the night.
- Highly durable pyrolytic on-line coating that lasts the lifetime of the glass, easy to handle and process.
- Can be laminated, toughened, bent and enamelled using standard techniques.
- Can be used in its monolithic form or incorporated in insulating glass units (coating on surface #1), and has an unlimited shelf-life.
- Can be combined in an insulating glass unit with a low-emissivity glass from the Pilkington **K Glass**™ or Pilkington **Optitherm**™ range for optimum self-cleaning and thermal performance.
- Available in a range of different sizes and thicknesses 4, 6, 8 and 10 mm.
- Pilkington **Activ**™ has been independently tested for self-clean performance to EN1096-5.



Pilkington **Activ**™ Clear



© Eric Sterens



Pilkington **Activ™** Blue

## Pilkington **Activ™** Blue

Pilkington **Activ™** Blue is a pyrolytic on-line coated body-tinted, self-cleaning and medium performance solar control glass, with an attractive blue colour. Its surface #1 self-cleaning coating has photocatalytic and hydrophilic properties. The blue colour helps to keep internal temperatures cool whilst still maintaining good light transmittance, low light reflection and high energy absorption.

Specially designed for the optimum roof unit, Pilkington **Activ™** Blue is perfect for use in conservatories and winter gardens. Its self-cleaning properties make it ideal for use in hard to reach places that are difficult to clean.

### Features and benefits

- Self-cleaning properties reduce the need for manual cleaning, saving water and eliminating potentially harmful run-off from expensive detergents, also increasing personal safety.

- Additional medium performance solar control properties, reducing solar heat entering the building, enhancing comfort and reducing the need for cooling the building.
- Attractive blue colour of the glass is perfect for roof glazing, enhancing the view from inside to outside.
- Good light transmission.
- Low exterior reflection, improving aesthetics of the building.
- Works even on cloudy days and during the night.
- Highly durable pyrolytic on-line coating that lasts the lifetime of the glass, easy to handle and process.
- Can be laminated, toughened, bent and enamelled using standard techniques.
- Can be used in its monolithic form or incorporated into insulating glass units (coating on surface #1), and has an unlimited shelf-life.
- Can be combined in an insulating glass unit with low-emissivity glass from the Pilkington **K Glass™** or Pilkington **Optitherm™** range for optimum thermal insulation performance.
- Available in a range of different sizes and thicknesses 4 and 6 mm.



### The Pilkington **Activ™** Blue appearance

Product	IGU construction (6 mm external pane – 16 mm – 4 mm Pilkington <b>Optitherm™</b> S1A)		
	Appearance in reflection (External view)	Level of reflection*	Appearance in transmission
Pilkington <b>Activ™</b> Blue	neutral/blue	medium	blue

\* Level of reflection: Low reflection < 15%, Medium reflection 15-25%, High reflection > 25%.





Pilkington **Activ SunShade™**  
Neutral

## Pilkington **Activ SunShade™**

Pilkington **Activ SunShade™** is a self-cleaning and medium performance solar control dual coated glass with a neutral or blue colour:

- surface #1 self-cleaning on-line coating with photocatalytic and hydrophilic properties,
- surface #2 off-line solar control coating, with medium light transmittance and high light reflectance.

Its unique solar control coating also helps keep internal temperatures cool whilst still maintaining excellent, neutral light transmittance.

There are two types available: Pilkington **Activ SunShade™** Neutral and Pilkington **Activ SunShade™** Blue tinted glass in which solar control is achieved through the combined benefits of the body tint with an off-line coating.

Specially designed for conservatories and large glazed areas, Pilkington **Activ SunShade™** is perfect for use in both the roof and verticals for domestic or commercial applications.

## Features and benefits

- Self-cleaning properties reduce the need for manual cleaning, saving water and eliminating potentially harmful run-off from expensive detergents, also increasing personal safety.
- Additional medium solar control performance properties, reducing solar heat entering the building, enhancing comfort and reducing the need for cooling the building.
- Works even on cloudy days and during the night.
- Neutral appearance in transmission and reflection, offering attractive aesthetics and making it ideal for use in roof or vertical glazing applications.
- Good light transmission.
- Durable dual coatings that last the lifetime of the glass, easy to handle and process.
- Can be laminated, toughened, and bent using standard techniques.
- Has to be incorporated into insulating glass units (self-cleaning coating on surface #1 / solar control coating on surface #2).
- Can be combined in an insulating glass unit with low-emissivity glass from the Pilkington **K Glass™** or Pilkington **Optitherm™** range for optimum thermal insulation performance.
- Available in a range of different sizes and thicknesses 4 and 6 mm.

## The Pilkington **Activ SunShade™** range and appearance

Product	IGU construction (6 mm external pane – 16 mm – 4 mm Pilkington <b>Optitherm™</b> S1A)		
	Appearance in reflection (External view)	Level of reflection*	Appearance in transmission
Pilkington <b>Activ SunShade™</b> Neutral	neutral	high	neutral
Pilkington <b>Activ SunShade™</b> Blue	neutral/blue	medium	blue

\* Level of reflection: Low reflection < 15%, Medium reflection 15-25%, High reflection > 25%.

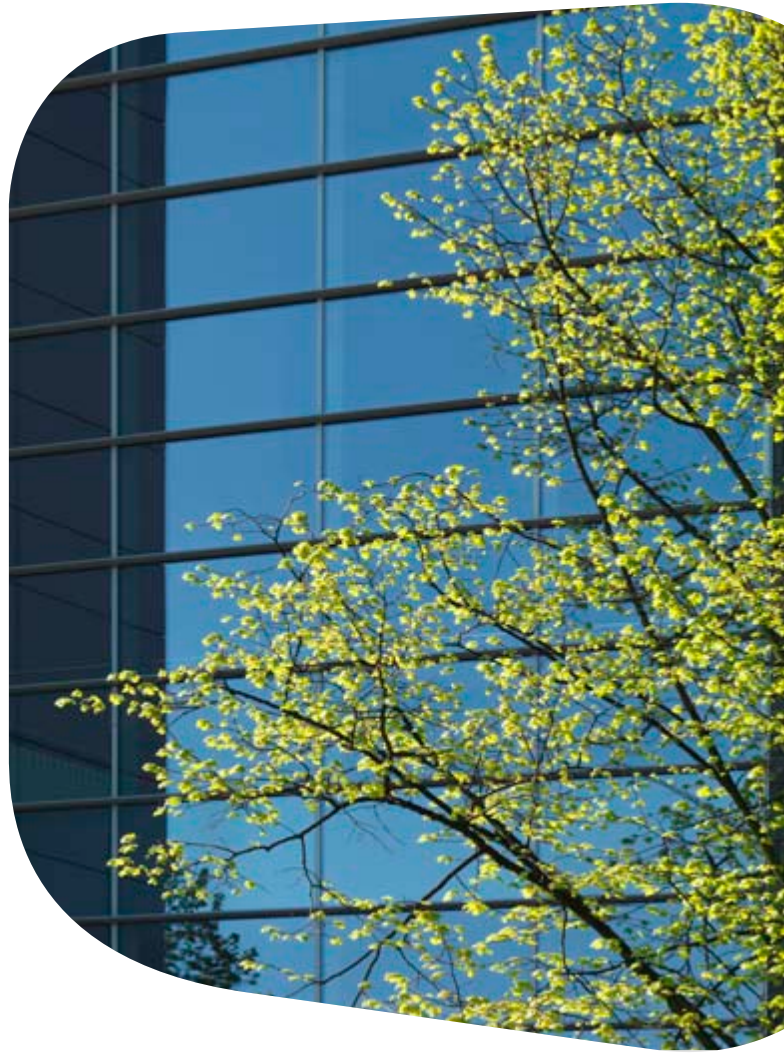
## Pilkington **Activ Suncool™**

Pilkington **Activ Suncool™** is a range of self-cleaning, superior solar control and thermal insulation performance dual coated glass:

- surface #1 self-cleaning on-line coating with photocatalytic and hydrophilic properties;
- surface #2 superior off-line solar control and low-emissivity coating, with high light transmittance, low, medium or high light reflectance and outstanding  $U_g$ -value (down to  $1,0 \text{ W/m}^2\text{K}$ ) in a double insulating glass unit.

Pilkington **Activ Suncool™** is available in a wide range of clear or neutral appearances and in three distinctive colours: blue, grey and silver.

Pilkington **Activ Suncool™** can only be used in insulating glass units. Designed to achieve optimum performance in large glazed areas, Pilkington **Activ Suncool™** is suitable for commercial and residential applications that demand high light transmission properties. Pilkington **Activ Suncool™** range helps to create a more comfortable environment year-round and can help to reduce the operating cost of a building. The building will stay warmer in the winter due to the excellent low-e properties and will remain cooler in the summer due to the high performing solar control properties, reducing or eliminating the need for air conditioning.



Pilkington **Activ Suncool™** 70/40



Pilkington **Activ Suncool™** 53/40





Pilkington **Activ Suncool™** 70/40

## Features and benefits

- Self-cleaning properties reduce the need for manual cleaning, saving water and eliminating potentially harmful run-off from expensive detergents, also increasing personal safety.
- Additional superior solar control property, reducing the need for cooling the inside of the building.
- Range of light transmission and reflection, reducing the need for lighting the inside of the building.
- Wide range of appearance and performance options, providing a solution for the most demanding designs.
- Superior low-emissivity, with  $U_g$ -values down to  $1,0 \text{ W/m}^2\text{K}$  in 6-16-4 standard constructions with argon (90%), making the products highly energy efficient, through reduced need for heating.
- Works even on cloudy days and during the night.
- Highly durable self-cleaning coating lasts the lifetime of the glass.
- Can only be used in insulating glass units (self-cleaning coating on surface #1 / solar control coating on surface #2), with argon gas for even better thermal insulation.
- Available in combination with Pilkington **Optilam™**, for impact resistance or increased security, or Pilkington **Optiphon™**, for improved noise reduction.
- Selection of harmonising spandrel panels available, allowing freedom in design of complete glass façades.
- Available in a range of different sizes and thicknesses 6 and 8 mm (10 mm is available on special request).



Pilkington **Activ Suncool™** 70/40





## The Pilkington **Activ Suncool™** range and appearance

Product	IGU construction (6 mm external pane – 16 mm – 4 mm Pilkington <b>Optifloat™</b> Clear)		
	Appearance in reflection (External view)	Level of reflection*	Appearance in transmission
Pilkington <b>Activ Suncool™</b> 71/39	neutral	medium	neutral
Pilkington <b>Activ Suncool™</b> 70/40	neutral	medium	neutral
Pilkington <b>Activ Suncool™</b> 70/35	neutral/blue	medium	neutral
Pilkington <b>Activ Suncool™</b> 66/33	neutral/blue	medium	neutral
Pilkington <b>Activ Suncool™</b> Grey 61/32	neutral/grey	medium	neutral
Pilkington <b>Activ Suncool™</b> 60/31	neutral	medium	neutral
Pilkington <b>Activ Suncool™</b> 50/25	neutral/blue	medium	neutral
Pilkington <b>Activ Suncool™</b> Blue 50/27	blue	medium	neutral
Pilkington <b>Activ Suncool™</b> Silver 50/30	silver	high	neutral
Pilkington <b>Activ Suncool™</b> 40/22	neutral/blue	medium	neutral
Pilkington <b>Activ Suncool™</b> 30/17	neutral/blue	high	neutral
Pilkington <b>Activ Suncool™</b> 30/16	neutral/blue	high	neutral

\* Level of reflection: Low reflection < 15%, Medium reflection 15-25%, High reflection > 25%.



Pilkington **Activ Suncool™** 50/25



Pilkington **Activ Suncool Optilam™** 50/25,  
 Pilkington **Activ Suncool Optilam™** 70/35 &  
 Pilkington **Activ Suncool™** 50/25

## Pilkington **Activ Suncool™** Pro T

Pilkington **Activ Suncool™** Pro T is a range of toughenable dual coated glass, with self-cleaning, solar control and thermal insulation performance. It complements the annealed Pilkington **Activ Suncool™** range offering additional safety and mechanical strength properties after toughening (Pilkington **Activ Suncool™** T).

Available in 6 and 8 mm, Pilkington **Activ Suncool™** 61/34 Pro T and Pilkington **Activ Suncool™** 45/27 Pro T when toughened are sympathetic to the appearance of Pilkington **Suncool™** 66/33 and Pilkington **Suncool™** 50/25 respectively.

The Pilkington **Activ Suncool™** range is suitable for both commercial and residential applications. It can be used in hard-to-reach roof glazing, or large vertical curtain wall facades.

Pilkington **Activ Suncool™** range enables specifiers and designers to control every aspect of the performance, from solar to thermal considerations, to the aesthetic appeal. The inner

pane of the IGU can be used to add additional functionality, such as Pilkington **Optiphon™** for improved noise reduction. Pilkington **Activ Suncool™** T offers additional safety performance and higher mechanical strength.



## The Pilkington **Activ Suncool™** Pro T range and appearance

Product	IGU construction (6 mm external pane – 16 mm – 4 mm Pilkington <b>Optifloat™</b> Clear)		
	Appearance in reflection (External view)	Level of reflection*	Appearance in transmission
Pilkington <b>Activ Suncool™</b> 61/34 T	neutral/blue	medium	neutral
Pilkington <b>Activ Suncool™</b> 45/27 T	neutral/blue	medium	neutral

\* Level of reflection: Low reflection < 15%, Medium reflection 15-25%, High reflection > 25%.



## An infinite number of combinations for multi-functional glass

In the commercial sector the glass often needs to provide additional protection features. To meet these requirements, NSG Group offers two product lines of laminated safety glass. Using laminated Pilkington **Activ Optilam**™ glass for façade elements and on glazed roof and sloping areas which are difficult to access, both safety and self-cleaning can be assured.

The same applies to the combination of the self-cleaning properties with noise control of the façade. Functional glass, such as Pilkington **Activ Optiphon**™ allows a significant decrease in costs of window cleaning, and at the same time, it has an increased sound reduction index ( $R_w$ ).

Pilkington **Activ Suncool**™ self-cleaning high performance solar control range is also available in laminated version Pilkington **Activ Suncool Optilam**™ for impact resistance or increased security, or as Pilkington **Activ Suncool Optiphon**™, for improved noise reduction.

Pilkington **Optitherm**™ S3 low-emissivity coating, usually used on surface #3 in insulating glass units, is sometimes difficult



Pilkington **Activ**™ Clear

or impossible to apply on some glass types. However, dual coated Pilkington **Activ Optitherm**™ S3 provides self-cleaning and good thermal insulation for insulating glass units with thick bullet resistant or textured glass.

## Pilkington **Activ**™ product combinations

Function	Product and combination
Self-cleaning	Pilkington <b>Activ</b> ™ monolithic, single-coated, used as single or in insulating glass units.
Plus solar control	Pilkington <b>Activ Suncool</b> ™ monolithic, dual-coated, used in insulating glass units.
Plus safety	Pilkington <b>Activ Optilam</b> ™ laminated safety glass, coated, used as single or in insulating glass units.
Plus noise control	Pilkington <b>Activ Optiphon</b> ™ sound insulating laminated glass, coated, used as single or in insulating glass units.
Plus thermal insulation	Pilkington <b>Activ Optitherm</b> ™ S3 monolithic, dual-coated, used in insulating glass units.

Apart from the above-mentioned combinations, other configurations are possible (e.g. Pilkington **Activ Suncool Optilam**™).



Pilkington **Activ Optilam**™

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The Declaration of Performance for each product, including declared values, can be found at [www.pilkington.com/CE](http://www.pilkington.com/CE)



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