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## How does Pilkington Activ™ Self Cleaning Glass work?

Self-cleaning glass is actually conventional float, annealed, or plate glass – in layman’s terms, perfectly flat, clear glass – but with one important difference. A thin – in fact, microscopically thin – layer of photo-catalytic material is chemically bonded to the external surface of the glass, and accelerates the reaction between dirt, grime and ultraviolet radiation from the Sun. This effectively means that organic soiling – bird droppings, tree sap, and the like – are broken down, and loosened, without detergent, and can easily be washed, or wiped away, by rainfall, a hosepipe, or a damp cloth.

### **Pilkington Activ™ Self Cleaning Glass**

Pilkington Activ™ – the unusual name is the result of the difficulty in filing “Active” as a trademark, rather than a typographical error – was the world’s first self-cleaning glass. Pilkington Activ™ employs a coating of titanium dioxide (TiO<sub>2</sub>), just 15 nanometres (15 x 10<sup>-9</sup> metres) thick, and appears for the entire world to be normal plate glass. Titanium dioxide, however, is not only photo-catalytic but also hydrophilic – that is, it has a strong affinity for water – which means that when water falls on or is applied to the surface of the glass the individual droplets of water coalesce to form a sheet. This, in turn, means that water flows down the entire surface of the glass removing grime as it does so rather than forming rivulets that leave the glass streaked with dirt.

Pilkington Activ™ is suitable for almost all exterior applications – windows, conservatories, etc. – and may be particularly useful for applications that are ultimately difficult, or impossible, to access – skylights, for example – but, nevertheless, need to be kept clean. The use of self-cleaning glass for these applications means that human intervention is rarely, if ever, required so personal safety issues are reduced or eliminated completely. Furthermore the absence of detergents and other chemical cleaning products means that any associated environmental issues are similarly eliminated. Pilkington Activ™ self-cleaning glass does come at a premium – up to 20% or so – when compared with standard plate glass, but because the active coating lasts for the lifetime of the glazing itself and never needs to be replaced or replenished, the extra initial cost can easily be recouped over that period.

Some key facts relating to Pilkington Activ™ self-cleaning glass are as follows:

- Cleans itself using sunlight and rain or can be hosed, or wiped, down during dry spells.  
(**DO NOT** use any type of glass cleaner or any cleaning products.)
- Dries without streaky marks, spots, etc.
- Saves time, or the cost of window cleaning, and eliminates potential accidents
- Can be used for any external application in place of standard plate glass
- Requires approximately 3 months after installation to become “active”
- Activ™ coating does not wear out and cannot be washed or rubbed away
- Operation may be inhibited by the build-up of thick grime – airborne pollution from traffic etc. – that prevents sunlight from falling directly on the surface of the glass

