

# The Appearance of Haze in Glass Products.



## ***Purpose of this document.***

*The purpose of this document is to make the reader aware of one characteristic which may be present in glass products. This document should not be used alone to make an assessment or decision relating to the way any product should be used or any potential fitness for any purpose of any glass product.*

An enchanting property of glass is its transparency. Glass is a solid, strong, weather resistant substance which permits the passage of light through its solid body, largely without distortion. There are very few natural materials in the modern world which have this property of transparency.

The properties of glass can be adapted by combining it with other materials. This may be in the form of coating or lamination or double glazing. This permits a wide range of visible, solar, thermal and textural properties to be achieved.

Haze is a phenomenon caused by the scattering of some of the light as it travels through a medium. This medium for example might be the atmosphere. We are all familiar with standing on a lookout gazing at a spectacular view out over a long distance and noticing some haze or lack of clarity in the view. It is caused by a small amount of light being scattered as it strikes dust particles in the atmosphere.

Not all light which enters a piece of glass is able to pass directly through. Some of it is absorbed and some is scattered by components within the glass. If sufficient light is scattered then it will appear as a haze in the glass. The visibility of this haze will depend on the surrounding conditions.

If sunlight is striking the glass directly then this intense strong light source will require very little of the light to be scattered before it is bright enough to be visible as haze. If the glass is in shadow then it is subject to reflected light from the surrounding environment. As the light intensity is much lower than direct sunlight the haze is much less noticeable.

The brightness of the background also has an important impact on the visibility of any haze. A bright background will reflect a lot more light than a dark background. The brightness from a light background can be sufficient to drown out the haze which will make it appear less visible. A darker background will make any haze appear more visible.

A glass panel which is partially shaded may appear to show haze in the non-shaded region but not in the shaded region. The degree of light scatter in both regions is the same as a percentage of the light passing through the glass in each region but the light intensity in the non-shaded region is much higher than the shaded region so the haze is much more noticeable in the non-shaded region.

It is quite possible for a glass product to exhibit haze at one time of the day and not at another as it is possible for the same type of glass to exhibit haze in one building and not in another.

Haze is a characteristic which is a consequence of the materials used. It will not change. The products in our range which may exhibit haze under the right light conditions are.

EnergyTech™

SolTech™

EVantage™

ComfortPlus™

SmartGlass™

Enviroshield Performance

VLam™

DecorSatin™

DecorColour™

Seraphic™

And any products which are made up using these products as components, such as double glazing.

Be careful when selecting product which is being offered as having a particular haze level or less haze than a competing product. These arguments might seem compelling when trying to decide between products but it is superfluous because the product either has haze or it does not.

This can be illustrated as follows. Two products might be offered for use in a project with one having half the haze of the other. If they are compared side by side there will be a visible difference. When one or the other is used in a building it will exhibit haze so the difference is not important in the finished project because there is no longer a comparison between the two products. So your decision is, in reality, whether the project will be affected by the glass exhibiting haze or if it will not, not the degree of haze.

Haze is a consistent property in the glasses where it is present. So it is available to be used as an effective design property. It adds partial texture and presence to the product so it can be used with or instead of colour in a design.