

Technical Data - Leaded Window Oxidation

Like any natural lead product exposed to the environment, lead profile will undergo certain 'atmospheric' transformation. This is perfectly natural and it will eventually settle down to take on the traditional 'weathered lead' appearance that is so admired in old churches and the leaded windows of stately houses.

During this process however, especially in the early stages, some people may become concerned at the changes they see occurring.

Why do changes occur?

All Olympic Glass lead profiles are made from refined, almost pure lead and although this has been alloyed to improve performance, when it is exposed to the atmosphere for the first time it becomes subject to a process called oxidation.

When lead profile first comes into contact with the atmosphere, the surface gradually oxidises to form a natural protective film called patina, and it is this which eventually produces the familiar grey colour.

What changes are seen?

During the initial stages of patination the lead can appear to take on various colours such as blue, bronze, gold and green. This effect is purely optical and is usually due to the angle of light. The effect is similar to the colours seen when oil is spilled onto a wet road surface. Gradually, however these colours will fade away to eventually leave the final protective grey patina.

There is another side-effect of oxidation which can occasionally give rise for concern. When lead first comes into contact with moisture (rainwater or condensation) it may result in temporary discolouration, spotting and even the appearance of white powdery deposits (basic lead carbonate) which in wet weather can run onto the glass. Again this is perfectly natural and the blemishes will eventually disappear as the patination process continues.

The powder needs to be safely wiped off from time to time until the natural patination process is fully developed.

The process of patination

The chemical process leading to the formation of the protective patina film is as follows:

LEAD → **lead oxide** → **basic lead carbonate**
→ **normal lead carbonate** → **normal lead sulphite**
→ **normal lead sulphate** → **PATINATION**

The time required to complete this cycle will vary depending on the purity of lead, the location, time of year, environment, weather conditions and airborne impurities.

Powder deposits can still occur on natural lead profiles that have been pre-treated with darkening agents.

Please note that some oxidisation can also occur to coated lead ie. Antique, at the extreme edge of the lead profile, due to the slitting process during manufacture, exposing the base natural lead to weathering conditions.

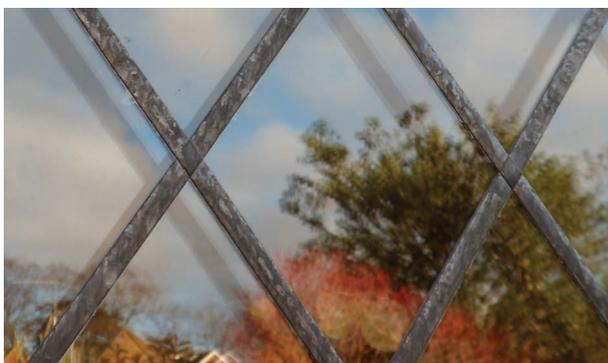
Treatment / Cleaning methods

There is no need to treat the lead profile with any further products, as the lead profile will gain a natural patina / protection over time.

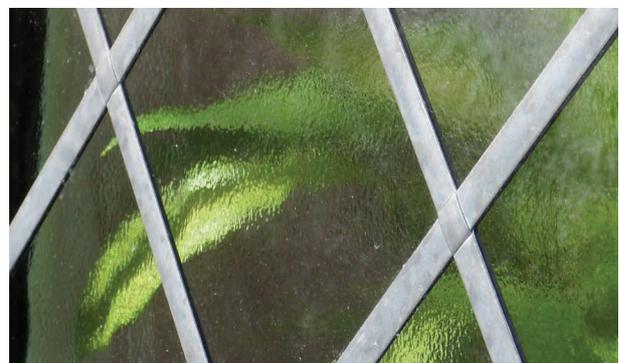
After installation, lead surfaces should be cleaned with warm soapy water and a soft cloth ONLY.

Care should be taken when cleaning coated leads. Don't use any abrasive cloths or cleaners.

When oxidation occurs please ensure that any residue is cleaned from the glass surfaces, as this will become stubborn to remove if left on the glass surface.



Oxidised/discoloured – After around 1 month install



Even patina – After around 1 year installation