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How To Look After Powder Coated Windows

What is Powder Coating?

Powder coating is a widely accepted process that can result in a more durable and superior finish for a variety of products. This includes façade cladding, windows and doors and is also widely used in other sectors such as the automotive industry.

But what is powder coating? Well, scientifically speaking, the process of powder coating involves electrostatically spraying pigmented powder onto say an aluminium or steel frame such that the powder sticks to the frame. The powder is then cured and literally baked onto the aluminium or steel at a temperature of circa 200°C.

The result is a powder coating finish in the selected shade that is incredibly durable, has very good and consistent coverage and achieves a robust and hard coating that is not only tough, but is resistant to the elements.

When it comes to sustainability, powder coating holds a distinct advantage over alternatives such as wet paints. The powder coating process uses no solvents in the application process thus reducing its impact on the environment.

Misconceptions & Truths

Despite a broad understanding that powder coating offers a low maintenance and durable protective finish and lasts for “decades” there is a misconception that there is zero maintenance required and once fitted can be left alone (i.e. “fit and forget”). A further misconception is that if the powder coating deteriorates, complete re-coating or renewal of the original finish is the only option.

These are common misconceptions and so to combat these misconceptions here are some simple truths:

- Renewal of a powder coating at the 20 to 25 years stage is highly unlikely.
- Modern powder coatings should not lose their adhesion to the metal unless damaged or where part of the factory powder coating process has failed.
- Unless it is absolutely necessary to re-paint / replace the powder coating, it is much better and more cost effective to refurbish / restore the original baked on coating.
- Powder coatings are generally repaired where damage has occurred and refurbished / restored where a lack of cleaning has led to a build-up of contaminants which have in-turn led to a fading, discolouration and / or chalking of the surface.
- The reasons for refurbishment and restoration would usually be for aesthetic reasons rather than in response to a failure of the adhesion / protection of the coating itself.
- For all the advantages of powder coating, it is not maintenance free.



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Maintenance & Cleaning

In the outdoor environment exposure to rainwater and ultra violet light are the two main factors that are most harmful to any coated surface. However, by carrying out some basic maintenance the life span of the coating can be extended considerably. Indeed, the UK's leading manufacturers of powder coated windows recommend that the windows are cleaned in a normal environment every 12-24 months. For more exposed environments the frequency of cleaning is increased.

Here are some basic pointers when considering cleaning powder coated windows and doors:

1. The use of solvents is a No Go!
2. Steer clear from products containing esters, ketones or chlorinated solvents. Such products may invalidate any warranty and will almost certainly shorten the coating life expectancy.
3. There is no need to over clean the windows and or apply excessive pressure or rubbing.
4. The cleaning process should comprise hand cleaning (with a cloth) and rinsing techniques with a small amount of warm clean water and detergent. Do not use neat concentrated solutions and never use aggressive alkaline or acid cleaners.
5. Avoid the use of abrasive steel wools, scourers and brushes - these can cause considerable damage to the powder coating finish.
6. If possible clean the metal when shaded - cleaning windows when the surface is hot (sun heated) will put the metal at risk to possible chemical reactions.
7. Similarly, avoid cleaning the windows in freezing temperatures or when the metal temperatures are cold enough to produce condensation.



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Extended Renovation

So what if the powder coating appears to have deteriorated beyond what could be resolved by simple cleaning? The types of surface deterioration may include excessive chalking and / or a significant dulling of the powder coated surface. This is when the window finish may look aged before it's time and a complete loss of the original gloss is evident.

The answer lies with the use of a non-abrasive, sacrificial system. There are a number of specialist manufacturers on the market but essentially the system comprises of the application of what might be termed a renovating or restoration cream or solution or a protective coating. This is not the same as re-painting but rather it is returning the look of the coating to almost new but importantly without adversely affecting the performance of the original protective powder coating.

Our basic advice when it comes to carrying out more extended renovation is as follows:

1. Choose a product that suits the situation – no two projects are the same.
2. Ensure that the nature and make-up of the existing powder coating is understood. For example, it is highly likely that the powder coating will be a polyester based system for windows and doors but the powder coating to cladding even on the same building might be different.
3. The application of the protective coating is very simple and comprises three stages; Cleaning; Preparation; Application.

It should not be any more complicated than this but always carry out a test area to be sure that the right product and process has been used.

4. When restoring powder coated windows take extra caution on any ridges or sharp corners where the existing coating may be thinner and more prone to wear from over-polishing.
5. The best and most effective products allow the removal of contaminants and dried out polymers from the surface of the existing coating whilst leaving a protective silicon or wax layer without reducing the micron thickness of the original powder coating.
6. The restoration solution should include a UV Blocker and contain Anti-Oxidant characteristics.



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Integrity, Longevity & Long Term Maintenance

The integrity of the powder coating finish would in most normal conditions expect to last in excess of 25 years and if maintained and cleaned properly in excess of 40 years with 60 years considered achievable. And when we talk of integrity we are referring to the adhesion qualities of the coating which in turn determines the level of protection given to the underlying metal.

The longevity of any powder coating is reliant on the adoption of a robust and structured approach to cleaning. It is however highly likely that between 25 years and the 45 to 60 year periods the powder coating will require more than just cleaning. Restoration and treatment using a restorative cream or coating should be expected post 25 years and allowances made in any future maintenance forecasting. The restorative products that we have described can be expected to last between 5 and 6 years and so from a cost and works forecasting perspective allowance should be made for such works to take place on a 5 to 6 year cyclical basis.

In terms of post 45 to 60 years complete renewal of the powder coating can be expected. At this point in time consideration would need to be given to options such as complete renewal of the windows versus the more difficult and less reliable and more disruptive process of applying in-situ paint. That's a subject for another day!

If you would like further information on any aspect of this datasheet or any other related matter please contact Shaun Harris directly.

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