

## Decoration Powder Coatings : Camouflage for Coated Surfaces



# Coatings in Disguise



Powder Coatings are usually seen in solid color or metallic shades, decorating metal parts (and sometimes wood, glass or plastic).

They provide a tough, anti-corrosive finish that protects and decorates the subject.

Sometimes you don't realise there is a coating at all though, because it is disguising the substrate as another material – making metal look like wood, or aluminum look like stainless steel... We call these Decoration Powder Coatings.

## Architecture – The Interpon D Series

AkzoNobel's **Interpon D** series of powder coatings have been in use since the 1980s on architectural metal. Designed to give an attractive finish over the long-term, **Interpon D** powders are available to suit every climate and building type. When applied by Approved Applicators, **Interpon D** powders also come with a guarantee of decorative performance.

## Furniture and Industrial Markets

AkzoNobel also offer specialised powders for other designed end-uses. Too numerous to mention here, they include anti-graffiti, soft-touch and corrosion resistant coatings.

## Decoration Powder Coatings

There are two established methods for disguising one material as another using powder coating:

- **The Sublimation process**
- **The Powder-on-Powder process**

There are also newer technologies allowing even greater flexibility in design. This leaflet explains these technologies in more detail. The most common use of such technologies today is to make aluminum windows and doors appear like wood, but they are also used to decorate children's furniture, surfboards, retail signs and more.



© Decotrans Alu



# Durable Digital Printing

Providing the same outdoor durability as conventional polyester powder coating decoration, the digital printing process is a recent development.

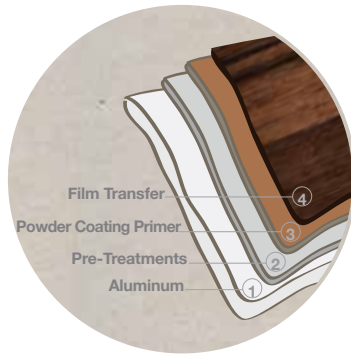
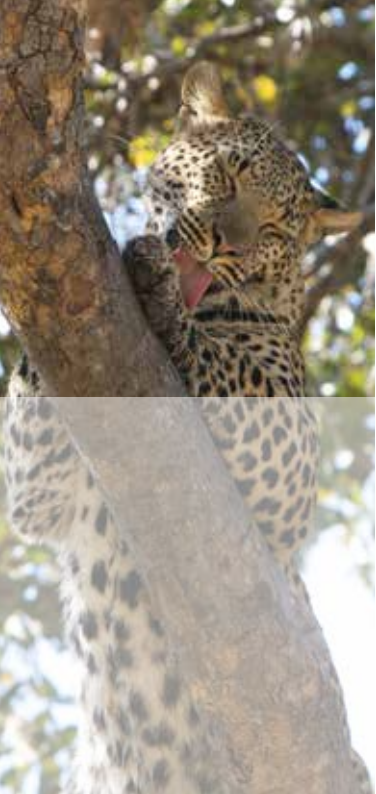
This process can decorate architectural and interior projects by “printing” precise patterns, images or pictures. Photographs and graphics can be utilised, along with images of marble, stone, plaster...and of course wood. The process is compatible with aluminum and steel substrates. The process normally comprises 3 steps:

- **First Layer powder coating**
- **Print (digital or screen print)**
- **Protective clear coating layer (liquid or powder)**

AkzoNobel has specialised primers and top coats developed for this application.



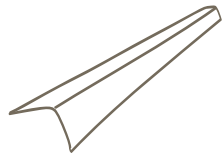
Powdered and decorated By COLORALU in FRANCE



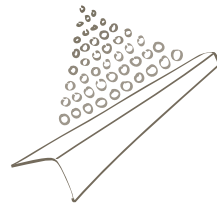
# Sublimation Technology

The sublimation process can apply almost any pattern onto a base coat of powder coating, transforming the appearance of the object.

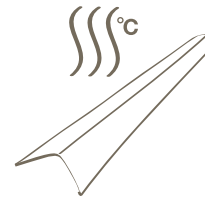
It is mostly used to transform the appearance of aluminum products to realistically look like wood. The aluminum wood grain finish is so realistic that it's almost undistinguishable from real wood, even from a close visual inspection. The process is shown in the diagram below.



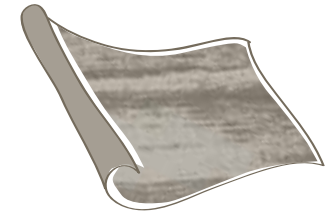
1. The substrate (either flat sheets or 3D parts)\*, which can be almost any shape you wish, is firstly cleaned and pre-treated to ensure good adhesion of the powder coating.



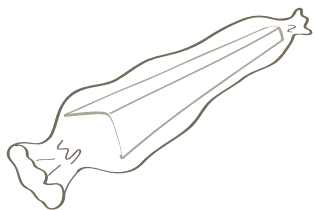
2. The substrate is then coated with an **Interpon STF** powder coating primer which has low opacity and cannot be used on its own.



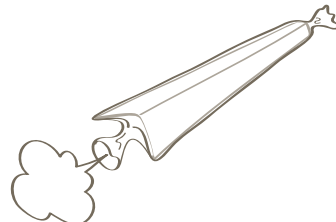
3. The primer layer is heat cured in readiness for the film application.



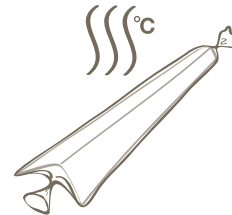
4. The transferrable film is pre-printed with almost any pattern you require. Wood grain is the most popular pattern for this process.



5. For 3D parts, the film is then wrapped around the pre-treated substrate and sealed at one end (for flat parts it is laid over the metal sheet).



6. A vacuum is used to suck out all the air enabling the transferrable ink on the film to come into contact with the pre-coated substrate.



7. The sublimation occurs in the oven (for flat sheets, a heated press is applied on top of the film), as the transferrable ink reproducing the wood pattern or special effect penetrates into the powder layer creating a fully opaque, decorated surface.



8. The film is removed.

\*For simplicity, this diagram demonstrates the 3D shape process only.



The finished substrate can be used for a myriad of products of almost unlimited shapes.

## Interpon STF

AkzoNobel were the first company to develop powders for sublimation, and our powders work with film from all the major suppliers. AkzoNobel's powder offer for the sublimation market is branded **Interpon STF (Sublimation Transfer Finish)**.

The key benefit of **Interpon STF** is to remove the constraints of wood:

- **Environmentally Friendliness – no solvent emissions**
- **Design flexibility – provides excellent edge coverage on conventional and multi-faceted pieces**
- **Consistent quality across and between the different parts**

**Interpon STF** powder coatings from AkzoNobel can be developed in both interior and exterior grades. Exterior grades for the architectural aluminum market are sold as **Interpon D STF** series coatings.

## Film and Equipment

We can connect you with suitable partners for the printed films and the equipment for applying the film pattern to the powder coating. There are many decorators who operate on a contracting business for those not ready to invest. Contact your local AkzoNobel office for information on partners.

Film is available in hundreds of patterns. Buying an existing pattern for which the supplier already has an engraved roller is usually much cheaper than having a bespoke pattern made. Prices are normally per linear meter and in the range €1-€2/m.

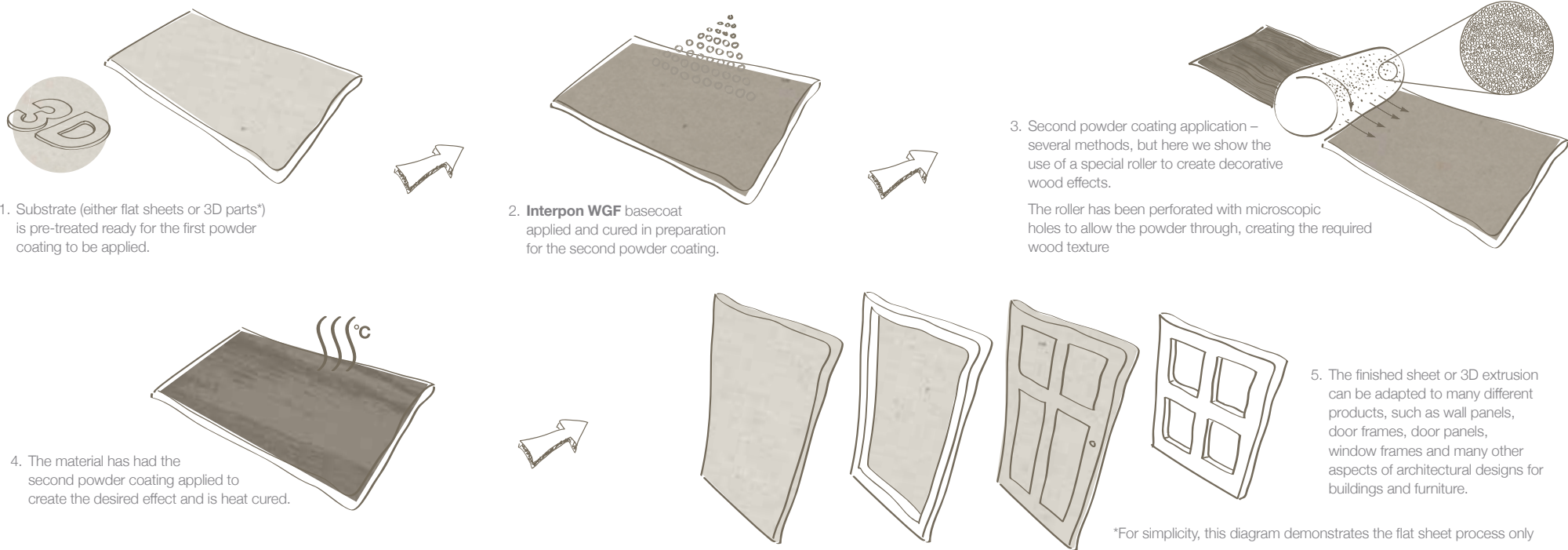
Cost of the sublimation equipment depends on size, speed and complexity. A simple machine to print flat sheets can be €30000 - €45000. Equipment to coat 3-dimensional profiles can be from €100000 - €500000. Speed can be from 40 to 350 profiles per hour.



# Powder-on-Powder Technology

This process is used almost exclusively to achieve wood-like effects. There are several processes to achieve the effect, but all use 2 layers of powder coating.

A schematic diagram of the typical process is shown below.



1. Substrate (either flat sheets or 3D parts\*) is pre-treated ready for the first powder coating to be applied.

2. **Interpon WGF** basecoat applied and cured in preparation for the second powder coating.

3. Second powder coating application – several methods, but here we show the use of a special roller to create decorative wood effects.

The roller has been perforated with microscopic holes to allow the powder through, creating the required wood texture

4. The material has had the second powder coating applied to create the desired effect and is heat cured.

5. The finished sheet or 3D extrusion can be adapted to many different products, such as wall panels, door frames, door panels, window frames and many other aspects of architectural designs for buildings and furniture.

\*For simplicity, this diagram demonstrates the flat sheet process only



## Interpon WGF

The powder coating for powder-on-powder processes needs to be specially manufactured. Key elements are to ensure:

- **Inter-coat adhesion between basecoat and the grain coat**
- **Correct particle size for the equipment being used**
- **Good electrostatic properties to ensure correct laydown film build of grain**

AkzoNobel's product offer for this technology has the Interpon brand suffix **WGF (Wood Grain Finish)**. This suffix is used in combination with an existing **Interpon D** brand, e.g. **Interpon D1036 WGF**.

## Equipment

Each equipment manufacturer has its own patented technique for applying the second layer. AkzoNobel can put you in contact with suppliers so you can evaluate the potential and costs of each process.



## Interpon is SMaRT

Interpon Powder Coatings are the only coatings company to receive the **SMaRT** (Sustainable **MA**terials **R**atings **T**echnology) third party accreditation. **SMaRT** looks at everything, from policies with suppliers to a product's after-life, verifying claims with tangible proof. Sustainability is at the heart of what we do, and we help our customers put sustainability at the heart of what they do.



For more information visit our website at [www.interpon.com](http://www.interpon.com)



You can now also follow us on Facebook

## Quality Assured

The quality label organisation Qualicoat has developed a special approval for decoration processes under the Qualideco specification, and where relevant our AkzoNobel powders hold this quality approval. Ask your representative for the latest approval status.



**Interpon**<sup>®</sup>  
powder coatings  
**EVERY COLOR IS GREEN**

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