Looking for an alternative to traditional MDF surface and edge treatments? We got the solution: Woodcote powder coatings Package, engineered exclusively for composite wood products! Woodcote provides increased possibilities: seamless Edges, no Delamination, no shape restriction, a wide range of colors...environmental compliance but that’s only part of the story!
Akzo Nobel is a multinational company that serves customers around the world with health-care products, coatings and chemicals. With headquarters in the Netherlands, the company has activities in more than 80 countries and employs over 62,000 people worldwide.

Akzo Nobel Powder Coatings is the global powder coatings market leader, with more than 20 factories on 5 continents. The worldwide activities of Akzo Nobel Powder Coatings are brought together under the global brand mark Interpon.

Interpon powder coatings products are supplied to eight key market sectors: Appliance, Architectural, Automotive, Functional, General Industry General Trade Coaters, IT and Furniture.

Interpon powder coatings offer the most comprehensive colour and product range for powder coatings in the market for metal and MDF substrates.
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04 8 KEY THINGS TO KNOW ABOUT POWDER COATINGS

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8 KEY THINGS TO KNOW ABOUT POWDER COATINGS

Take your knowledge a step further to learn about powder coatings, how they meet the challenge on MDF boards and their benefits. Once you know the fundamentals, you'll be ready to start creating custom palettes for your piece of furniture.

01 Dates and place of appearance
First appeared at the beginning 1960’s in United States and quickly became popular, especially in Europe.

02 Formulation
Powder coatings are made of 100% solid raw materials (a mixture of resin, crosslinker, pigments additives, fillers…) which means that 100% of the product can be used, compare to 50% for PVDF liquid (50% is solvent and goes in the air during curing).

03 Method
Powder coatings are electrostatically charged thanks to Corona or a Tribo gun and sprayed onto a surface to be coated. The charged particles adhere to the parts until heated and cured into a smooth or textured coating.

04 Curing
The process of powder coating can be done by two techniques which use different powder chemistries:
- UV powder coatings for UV curing systems
- Thermoset powder coating for thermal curing systems

05 Colour range
Available in a very wide range of colours, textures and gloss, satin or matt finish.

06 Environmental impact
Free of VOC – low impact on the environment
Recovery and re-use of over spray powder
High toughness and durability
One step finish process

07 Applications
- since 1960: powder coatings were mainly used on metal substrates used in the following sectors:
  ✓ Automobile: manufacturing, fitting,
  ✓ Shop fitting,
  ✓ Architecture: facades, urban furniture,
  ✓ Domestic appliances,
  ✓ Heating: air conditioning, electrical heating lighting,
  ✓ furnishing: office furniture, metal furniture
  ✓ Rolling stock

- during past few years: powder coatings are available for 3 dimensional MDF for furniture application

08 Meeting the challenge of MDF boards
Over the past few years, technological advancements in powder coatings technologies, application and curing methods have made powder coatings possible on engineered wood products, such as MDF.
Contrary to natural woods, MDF panels have homogeneous surfaces and sufficient moisture content to provide conductivity of the powder coatings.
Powder coatings are now used industrially for the finishing of 3-dimensional MDF boards for furniture application and PCV flooring… that were thought impossible just a few years ago!
POWDER COATINGS VS TRADITIONAL MDF FINISHING

The most widely used finishing techniques for MDF boards are liquid paint, High Pressure Laminates (HPL), PVC Vinyl Wrap, and Melamine – Low Pressure Laminate (LPL)

So how do powder coatings compare with these other common MDF finishes? Which one of them is the most attractive and environmentally friendly option? See the answer below which compares Powder coatings vs. Alternatives.

| Scoring: 1 = very bad | 5 = very good |

<table>
<thead>
<tr>
<th>Product</th>
<th>Powder Coatings</th>
<th>liquid paint</th>
<th>HPL</th>
<th>PVC Vinyl Wrap</th>
<th>Melamine (LPL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour &amp; gloss</td>
<td>A very wide range of</td>
<td>A very wide range of</td>
<td>Smooth, textured or</td>
<td>Customized colour and surface effects</td>
<td>Predominantly white.</td>
</tr>
<tr>
<td></td>
<td>colours, gloss, fine</td>
<td>colours and bright</td>
<td>patterned finish is</td>
<td>are possible but both expensive and</td>
<td>Appears similar to HPL with limited</td>
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<tr>
<td></td>
<td>and coarse finishes</td>
<td>metallic effects</td>
<td>achievable.</td>
<td>and limited</td>
<td>scope in colours or finish</td>
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<tr>
<td></td>
<td></td>
<td>Textured finish are</td>
<td>Overall colour range is</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>not achievable</td>
<td>generally confined to</td>
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<td>manufacturers stock hold</td>
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<td></td>
<td></td>
<td>or large made to specials</td>
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<td>3/5</td>
<td>4/5</td>
<td>4/5</td>
<td>2/5</td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td>Can be applied to a</td>
<td>Can coat a wide array of</td>
<td>Restricted to straight or</td>
<td>Only suitable for large volume and 2-D</td>
<td>Lack of flexibility</td>
</tr>
<tr>
<td></td>
<td>vast array of shapes and</td>
<td>shapes and sizes.</td>
<td>slightly rounded edges,</td>
<td>application</td>
<td>Little design freedom</td>
</tr>
<tr>
<td></td>
<td>sizes.</td>
<td></td>
<td>surface contours nor</td>
<td>Fast colour change are not</td>
<td></td>
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<td></td>
<td>3-D design are</td>
<td>3-D design are</td>
<td>openings.</td>
<td>achievable</td>
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<td></td>
<td>achievable</td>
<td>achievable</td>
<td>Only suitable for large</td>
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<td></td>
<td>5/5</td>
<td>5/5</td>
<td>volume and 2-D application</td>
<td>2/5</td>
<td>2/5</td>
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<td></td>
<td>High chemical resistance if</td>
<td>Bad to High chemical</td>
<td>Very high chemical</td>
<td>Medium chemical resistance</td>
<td>Similar to HPL but with lower</td>
</tr>
<tr>
<td></td>
<td>complete curing or</td>
<td>resistance, with regard to</td>
<td>resistance</td>
<td>resistance</td>
<td>performance properties</td>
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<tr>
<td></td>
<td>UV polymerisation</td>
<td>the nature of the liquid</td>
<td></td>
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<td></td>
<td>4/5</td>
<td>paint</td>
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<td></td>
<td>3/5</td>
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<td>Medium high heat resistance,</td>
<td>Low to high heat resistance,</td>
<td>Very good heat resistance</td>
<td>Low heat stability properties (so it is</td>
<td>Similar to HPL but with lower</td>
</tr>
<tr>
<td></td>
<td>depends if it a dry or a wet</td>
<td>with regard to the nature of</td>
<td></td>
<td>is used on cupboard doors or vertical</td>
<td>performance</td>
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<td></td>
<td>heat resistance test</td>
<td>the liquid paint</td>
<td></td>
<td>surface)</td>
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<td>4/5</td>
<td>4/5</td>
<td>5/5</td>
<td>2/5</td>
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<td>3/5</td>
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<tr>
<td></td>
<td>Good.</td>
<td>Excellent</td>
<td>Excellent</td>
<td>UV limitation: as direct Sun light can</td>
<td>Excellent</td>
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<td>3/5</td>
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<td>4/5</td>
<td>affect the colour of the film</td>
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<td>4/5</td>
<td>1/5</td>
<td>4/5</td>
</tr>
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<td></td>
<td>Solvent free process</td>
<td>Solvent based paint.</td>
<td>Rely on solvent based glue.</td>
<td>Rely on solvent based glue and have high</td>
<td></td>
</tr>
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<td></td>
<td>No VOC emissions</td>
<td>High VOC’s emission</td>
<td>High VOCs</td>
<td>VOC’s</td>
<td>Similar to HPL</td>
</tr>
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<td></td>
<td>5/5</td>
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<td></td>
<td>24</td>
<td>21</td>
<td>21</td>
<td>12</td>
<td>16</td>
</tr>
</tbody>
</table>

POWDER COATINGS BASICS
Powder coatings on MDF offer the opportunity other alternatives cannot provide!

Powder coatings on MDF offer the opportunity other finishing methods and laminating processes just can not provide as well as the good opportunity to replace these techniques.

Using this new technology results in a combination of interesting benefits:
OUR SPECIFIC POWDER COATINGS

Woodcote is a comprehensive package including specific powder coatings, technical guidelines and services especially dedicated to Medium Density Fibreboard (MDF). The Woodcote package helps furniture manufacturers, designers and powder coatings applicators transform the look of their furniture in ways they have never imagined!

The powder chemistry

This innovative powder offers two opportunities based on two different powder chemistry for outstanding MDF coatings:

- “Interpon LB” for thermal curing system
- “Interpon UV” for UV curing system

Woodcote opens up enormous possibilities for designers and furniture manufacturers and is ideal for indoor and/or outdoor application. Tab.1 represents the full range of Interpon products for engineered wood products.

The colour

Virtually any colour can be produced by Akzo Nobel Powder Coatings on a made to order basis. But you can contact us if you have a specific colour in mind, custom matching is also one of our speciality!

Texture

Woodcote specific powder coatings offer a wide variety of surface finishes and gloss range available on a Made To Order basis.

Please note, at this stage, Woodcote powder coatings are predominantly produced in a smooth, satin, matt, fine and coarse texture. For high gloss finish, we recommend you to contact directly our Interpon representative* to discuss new technology developments.

Table 1. Interpon Product Range for engineered wood products

<table>
<thead>
<tr>
<th>Application</th>
<th>Series</th>
<th>Chemistry</th>
<th>Curing condition</th>
<th>Finishes available</th>
<th>End uses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Interpon 100 LB</td>
<td>Pure Epoxy</td>
<td>120°-140°C</td>
<td>Smooth, matt, fine and coarse texture</td>
<td>Indoor</td>
</tr>
<tr>
<td></td>
<td>Interpon 700 LB</td>
<td>Epoxy polyester</td>
<td>130-140°C*</td>
<td>Fine and coarse texture</td>
<td>Outdoor</td>
</tr>
<tr>
<td>UV</td>
<td>Interpon 340 UV</td>
<td>Unsaturated polyester</td>
<td></td>
<td>Fine and coarse texture</td>
<td></td>
</tr>
<tr>
<td>UV</td>
<td>Interpon 640 UV</td>
<td>Unsaturated polyester</td>
<td></td>
<td>Smooth, satin, matt, fine and coarse texture</td>
<td></td>
</tr>
</tbody>
</table>

* Curing conditions are achievable with powder coatings stored below 25°degree C

** Excellent outdoor resistance
**Design flexibility**

It is time to branch out from usual colour palette, surface and edge treatment! Try Interpon specific powder coatings on a engineered wood panel, such as MDF and your product can get a **trendy look** featuring:

A curvilinear shapes and soft bevelled edge

**Woodcote package** can accommodate contoured and corners shapes whereas the current lamination techniques that rely on edge banding method can not.

Edge coating

With our specific powder coatings, the whole board can be coated all around with the same optical effects and the same type of quality coating. Our specific powder coatings resist moisture and heat thus eliminating delaminating.

A wide range of colour and textures

We do offer seamless products in a variety of effects including smooth matt exclusively available at Akzo Nobel!

Personalized artwork even in very fine lines

**“With Interpon no more …”**

Edge banding methods and delaminating associated with decorative overlays that generally do not resist moisture and heat and cause delaminating.

Colour limitation associated to laminates and melamine.

Standard shapes such as squares and rectangles associated with decorative overlays and liquid coatings due to a low design flexibility.
OUR TECHNICAL GUIDELINES

We have developed Woodcote Package in conjunction with leading MDF board producers. Stringent testing and research are continuously made internally by our Akzo Nobel Powder Coatings laboratories, and externally by wood Association specialists to ensure that international Standards are achieved.

Meeting the standards
Woodcote specific products meet the international standard, such as FIRA for Furniture Vertical Surfaces. Tests results can be available on demand.

Technical Data Sheet
Technical Data Sheets are available to interested parties on request. Please contact your local agent to obtain a copy of them.

OUR SERVICES

Our testing facilities at your disposal
Akzo Nobel Powder Coatings have developed some state-of-the-art pilot plants in response to increasing interest among customers, manufacturers of MDF boards, quality cabinets, furniture and fittings. Our laboratories can run MDF parts in flat line orientation and cure UV-cured powder coating. Those facilities are available to anyone who is interested in testing their MDF panels. To book a powder coatings application, please contact your Woodcote expert at your local Akzo Nobel Agency.

Our expert technical support – at your disposal for visits
We provide assistance including visits to specifiers offices or productions sites to assist you during development tests and assessments. For more details, contact your local Agency.

Our laboratory flat UV-curing line at Dourdan - France
THE PROCESS

Take your knowledge a step further to learn about powder coatings, how they meet the challenge on MDF boards and their benefits.

Once you know the fundamentals, you'll be ready to start creating custom palettes for your piece of furniture.

There are some basic steps which will help optimize the finish process:

MDF selection
Some MDF panels may not be suitable to withstand the rigours of the powder coating process. The inherent properties of MDF can not be detected by the human eye, in addition the quality of MDF varies amongst manufacturers. Akzo Nobel Powder Coatings have tested many grades of MDF boards with Woodcote and recommend, for outstanding results, fibreboards that have the following principle properties:

- density min.750 kg:m3
- moisture content 8-10% (to maintain conductivity for powder adherence)

Other properties play a crucial role to provide good coating conditions, therefore we encourage MDF boards tests, before each industrial applications, to determine whether it suitable for powder coatings.

MDF preparation
The smoothness of the coated surface depends of the MDF smoothness. To obtain an appealing smooth coated final surface, additional preparation steps on MDF must be exercised, such

- blowing of the MDF, after sanding, with air to remove all sanding dust
- sanding of the edges by a mechanical sander. The more sanding that is administrated to the MDF, the smoother the final finish will be

For textured coatings: sanding may not be required
APPLICATION OF POWDER COATINGS

There are two different methods to apply Woodcote on MDF, which both offer excellent coating opportunities:

1. Thermal curing system
2. UV curing system

Thermal curing system

The process requires Interpon LB series and consists of the following stages:

1. Pre-heat – The MDF boards are pre-heated in both convection oven or IR to increase the surface conductivity. This pre-heat stage, enable the application of powder via the standard application techniques of Corona and tribo. The panels are normally heated to achieve a board surface temperature to 60-80°C at the powder application. The time for preheat is normally adjusted for different MDF thickness due to the rate of heat take up.

2. Application – The MDF boards are powder coated when their surface temperature has dropped to 60-70°C and this should give an even powder application on the faces and edges.

3. Cure – The MDF boards are heated under IR in order to achieve as soon as possible the curing temperature at the surface board and then placed onto a gas convection oven as normal.

4. Cooling tunnel (optional) – The boards are then placed through a cooling tunnel where they are unloaded.

Benefits and limits of thermal process

- Environmental compliance, (no VOCs or HAPs) due to the powder coatings technology
- Wide range of colours, textures and gloss possibilities
- 3D design achievability
- No cooling storage required: powder coated boards are immediately ready for packaging
- Indoor end-use only
- Low investment required for modifying existing powder coating line
The UV powder coating and curing process consists of following stages:

UV Curing process

1/ Pre-heat

2/ Application

3/ Flow out

4/ Curing

**Benefits and limits of the UV Curing process**

- Very fast curing
- Environmental compliance (no VOCs or HAPs) due to the powder coatings technology
- Small space required for line and equipment
- No cooling storage required: powder coated boards are immediately ready for packaging
- Very good stain resistance surface
- Very good chemical resistance
- No outdoor end-uses limitations: **Interpon 640 UV** is suitable for outdoor
- At this stage in the development of this technology, some colours can be difficult to match, (example certain bright yellows). For further information please consult with your local Akzo Nobel agency
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