Design Freedom Leads Furniture Manufacturer to Switch to Powder

By Greg Bocchi, Executive Director, The Powder Coating Institute

Decorative Veneer Inc. (DVI), Plainwell, MI, makes finished components and parts for furniture manufacturers in the office furniture, healthcare, and home furnishing markets, as well as for companies that manufacture display fixtures.

Many of these products are made from medium-density fiberboard (MDF), an environmentally friendly, wood-based composite material that is an alternative to hardwood, and other wood materials.

While MDF is considered a "green" product, it did pose a problem when it came to DVI's ability to use environmentally friendly finishing technologies, such as powder coatings. The traditionally higher temperatures needed to cure powder coatings were not suited for MDF.

There was, however, a bright spot on the horizon—ultraviolet (UV) technology. UV curable powder coatings have been successfully used in other markets. CD and credit card manufacturers, printers and beverage can suppliers were all benefiting from increased production speeds, improved properties and decreased air pollution through UV powder processes.

"We were impressed by the number of companies that were in the market supporting UV powder coating," says Mike Knoblauch, president and CEO of DVI. But, he didn't know if this technology was suited for DVI's own products.

Lower Curing Temperature Provided Opportunity for Coating on Wood

Because UV powder requires lower temperatures than other curing methods, it seemed like an option for heat-sensitive MDF. In June 2000, DVI began investigating the possibility of using UV powder technology. A year later, the company's first UV powder-coated MDF product rolled off the line.

The wood parts are hand-loaded on racks at the beginning of the cycle.

The boards pass through a pre-heat oven before entering the spray booth.

"The use of UV powder allows for a significant amount of design freedoms that are not achievable with other finishing materials. Rounded edges, rounded corners, recesses, cut-throughs, and bull-nosed or contoured edges are some of the design possibilities that can be incorporated with UV powder coating," says Knoblauch.

What helped DVI make the quick switch was support from all facets of the powder coating industry. On the equipment side, application equipment suppliers played key roles in the development and installation of DVI's spray gun and oven systems and curing system.

A large roster of companies on the materials side was also at the ready. "The list of UV powder manufacturers who are supporting the development of the market con-

Automatic spray nozzles are used to coat the wooden parts.

tinues to grow. Further up the supply ladder, powder coating raw materials suppliers have been key players in the development of UV powder resin and photoinitiators," said Knoblauch.

Technology Provides a High-quality Finish In Less Time Than Other Methods

UV powder technology gives DVI's finished products a performance and quality advantage in a competitive market where customers have specific needs and requirements. DVI's UV powder technology eliminates potential substrate defects and assures that each and every part is fully cured.

Finished wooden parts are ready to unload and assemble for office furniture.

"We were impressed with the quality of UV powder coating, as well as with the volume of product that could be finished with a UV powder system," Knoblauch said.

UV powder also gives DVI the freedom to offer customers unique finishes that not only look great, but are tough, too.

"Using UV powder coating, we can present the customer with a 'product performance package,' which incorporates color, texture, gloss and durability that is custom-designed to the customer's unique product requirements," Knoblauch added. "This is a value-added sale, not a generic off-the-shelf finish."

The use of UV photoinitiators ensures that DVI meets its high standards on each and every part DVI coats. Says Knoblauch, "The low temperature required in the pre-heat and gel and flow processes does not destabilize the wood substrate, and eliminates the significant potential of unseen substrate defects."

In addition, UV powder requires low film thickness (2.5-3.5 mils), which means DVI can pass along savings to its customers and ultimately help its own bottom line. "Powder equals cost. The lower the volume of powder on each part, the lower the parts cost," says Knoblauch.

"We believe that UV powder coating is the finish of the future," Knoblauch contends. "It is a big change in finishing technology." ***P&SF***