

POWDER ON WOOD

Six common misconceptions about powder coated wood

Craig Martin *BTD Wood Powder Coating*

Although powder coated medium density fiberboard (MDF) has been around for several years, it is still the epitome of an emerging technology. It is common for industry observers to associate wood powder coating with traditional metal powder coating and assume the process will simply translate. Although both techniques involve an electrostatic charge to encourage adhesion, the similarities end quickly. Wood powder coating continues to evolve, and companies in the industry are learning by experimenting with different approaches to heating, coating, and curing. This advancing state of powder coated MDF has resulted in misconceptions that can be tied to early, inferior powder coated wood products.

Misconception #1: It's not as durable as other finishes

One of the most frequent questions we receive is a variation of: "How durable is powder coated MDF?" Durable means different things to different people and can take such forms as abrasion resistance, stain resistance, or impact resistance. Each client has different needs and different standards, but the bottom line is that powder coated MDF is one of the most durable wood finishes available. A quality powder coated wood finish has 5-7 mils of bonded coverage, depending on the style of the finish. The powder is bonded directly to the board without adhesives to fail or bubble. Further, custom powder can be readily formulated to meet customer needs such as ultraviolet (UV) or direct heat resistance.

We often ask prospective customers what exactly they mean by "durable." Many customers are considering powder coated wood as a replacement for laminate, which has a longstanding reputation as a very durable finish. When comparing powder with laminate, the first notable difference is that powder coated finishes have no edge banding to chip, peel, or crack. This edge banding is often the failure point on a product, regardless of how durable the laminate itself is—powder coated MDF is seamless and requires no edge banding, thus eliminating this failure point. Furthermore, recent testing has shown that powder coated wood is actually more abrasion resistant than laminate. Similar durability comparisons can be made with other finishes; for example, powder coating compares very favorably with liquid paint on wood. The powder coating will not chip or peel, and has been shown to be more stain resistant and more uniform than many liquid paint processes.

In the end, powder coated wood should be considered whenever there is need for a durable yet attractive finish. It combines the strength of powder coating with the beauty of a seamless painted look.

Misconception #2: There must be large runs of a single part to be cost-effective

The wood powder coating process is different from many manufacturing operations. The main difference boils down to the idea that a single powder formulation is an effective coat-

ing when sprayed onto virtually any shape in any order. Setup costs are most impacted by color changeovers, not part changeovers. The CNC routing equipment is capable of cutting various shapes on demand without major losses in efficiency; once the parts reach the spray booth, the powder adheres uniformly without regard to what shape is currently passing through.

The traits described previously mean that powder coating is well-suited for jobs with a wide variety of parts in the same color. "We have customers with thousands of SKUs that we can process sequentially," said Craig Fast, vice president of Operations at BTD Wood Powder Coating. "These customers love this capability because they are required to carry lower inventory levels of single parts. It also means that we can readily ship kits for assembly versus whole pallets of a single part."

Of course, MDF powder coating is also well-suited for the traditional large runs of a single matching part. Large runs give the ability to program the CNC equipment in order to minimize waste, reducing costs. Single part runs also give the ability to hang multiple matching parts from one hook to increase throughput in the powder coating spray booth.

Prospective customers are often surprised to hear that assorted part combinations are no problem for wood powder coating. Powder coating opens the door for projects that may not be cost effective in other finishes;

the process is an ideal candidate for these assortment runs as well as traditional high volume runs.

Misconception #3: There is a limited set of colors and gloss levels

There is virtually no limit to color possibilities; powder coating companies are able to work directly with their powder suppliers to create custom formulations based on customer need. This is different from veneers or laminates, for example, which frequently must be produced in large batches in order to be cost-effective. The manufacturing process of the powder itself allows individual customers to have their products made in a color that is unique to their products. Color matching for powder is quite straightforward and can be done by using a swatch, RAL, or PMS number. Similarly, it is possible to specify gloss levels that can be maintained consistently across a part run. The color match process means that specific parts, drawer fronts or accent pieces, can be made to match other components of a finished product.

Also of note is that, because powder coating provides coverage on all

sides of a part, there is no need to worry about color matching of edge banding or backing.

Misconception #4: Wood powder coating is easy to do

Quite often, we are asked if wood powder coating is like metal powder coating. The expectation (understandably) is that principles from established metal powder coating can directly translate to wood. Unfortunately, this is not the case; wood powder coating is as much art as it is science and requires an experienced team to implement correctly. There exists plentiful evidence of well-known manufacturers setting up a wood powder coating line and hiring an internal team, only to eventually outsource the process to experienced specialists.

Powder coating MDF is simultaneously a challenging and rewarding manufacturing process. There are many factors that contribute to a quality finish: some factors include board moisture content, wood preparation and sanding, and proper curing. Getting it right is nowhere near as simple as installing the equipment and turning it on.

Misconception #5: Wood powder coating is just another low-cost wood finish

This misconception most likely has its roots in the early powder coated wood products that hit the market. The finishes had surface imperfections and thin coverage, as some companies chose to market the product as a low-cost wood finish. These low-cost producers targeted melamine and other similar products; the truth about powder coated wood, however, is that it is not best served as a discount finish. It is actually a higher-quality, more durable, and more aesthetically pleasing finish that is more expensive to manufacture properly. Quality and environmental stewardship have a price, and the many benefits of the product can make it simultaneously more appealing but also somewhat more expensive to produce.

Broadly speaking, a high-quality powder coated wood product will usually be slightly more expensive than melamine and in the ballpark of a high-pressure laminate (HPL). It is often less expensive than higher-end finishes like liquid paint or veneers. Obviously, prices can vary substantially based upon volume,

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This popular style mixes a white painted look with natural wood accents. Powder coated MDF is an excellent choice for smooth, flat front cabinets and provides the painted look in a wide range of gloss levels.



Many office environments are moving toward a more open layout. Powder coated MDF tabletops can be made square or curved in design and can be combined to make a variety of shapes with no edge banding.

design, and many other factors—so it is a good idea to obtain quotes for powder coating in any project, as the many benefits of the finish are always worth consideration.

Misconception #6: All powder coated wood finishes are the same

Powder coated wood finishes are not all the same; in fact, the same powder applied by two different manufacturers may demonstrate noticeably different quality. This is partially due to the reasons listed in Misconception #4, as well as other reasons listed in this section.

First of all, the powder coating process can vary between manufacturers. Some implement thermal-only production, some use UV-only production, and some use a blend of both UV and thermal processes in order to gain the best of both worlds. Additionally, some wood powder coaters have the capability to cut and prepare the MDF for coating in-house. This in-house capability is critical to a quality finish because moisture content can be tightly controlled by minimizing the time between cutting and coating. Furthermore, experienced powder coaters are in the best position to properly sand and prepare the board for coating.

Some powder coated finishes are easier than others to coat correctly. For example, textured finishes hide board and coating flaws, and are thus the simplest in the powder realm. Smooth and metallic finishes

are much more difficult to produce properly and require prior research and development in order to maintain consistent quality. The next installment in this column will provide more detailed information on how to identify a quality powder coated wood finish.

Wrapping it all up

As an emerging technology, wood powder coating is subject to misconceptions based on traits exhibited by early finishes. New advances are being made every day, and powder coated MDF is the ideal solution for many wood finishing applications. Although it is difficult to perfect, a quality powder coated wood product represents a very compelling blend of beauty and durability. **PC**

Editor's note

For further reading on the problems discussed in this column, see *Powder Coating* magazine's website at www.pcoating.com. Click on Article Index and search by subject category. Have a question? Click on Problem Solving to submit one.

We'd like to thank Steve Couzens for sharing his expertise about powder coating on wood with us for these past several years. Steve, who was with RadEx UV Powder Coating, London, Ontario, has retired after a long career in our industry. We'll miss his insight, humor, and generosity, and wish him the best.



We welcome Craig Martin, who has agreed to continue the column. Craig is president of BTD Wood Powder Coating, Brainerd, Minn. He received his MBA from the Carlson School of Management at the University of Minnesota. He has worked extensively in the wood and metal manufacturing industries; during the growth period of metal powder coating in the 1980s, he learned firsthand the benefits of metal powder coating over liquid paint in the store fixture industry. He is now an innovator of powder on wood.



Clint Ellenberg, who works in Business Development at BTD Wood Powder Coating, will collaborate with Craig on the column. Clint received his MBA from the University of Texas and his undergraduate degree from Vanderbilt University. Clint's background is in consulting, where he focused on project management and process improvement in healthcare facilities.



With all operations in Minnesota, BTD is a technology leader and manufacturer of high-quality powder coated wood components. The company's website is www.btdwoodpowdercoating.com and representatives can be contacted at info@btdwoodpowdercoating.com or 855/272-1002.

You can also submit a question to Peggy Koop, editor, at 651/287-5603; fax 651/287-5650; e-mail pkoop@cscpub.com. Or go to www.pcoating.com and click on Problem Solving. You can submit a question for this column in a few keystrokes.



Flat front cabinet doors look great in powder coated MDF. Both bright and neutral colors benefit from the uniform, tough finish.



Powder coated wood is ideal for creating a sleek, modern feel with door fronts incorporating integrated pulls. The custom shapes and colors available with powder coating can really make furniture stand out from the crowd.