

## Ask the Experts

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Your questions answered by  member experts.

*You have questions, we have answers. In each issue of PCT, our extensive network of powder coating experts provides information to help you with your powder coating challenges. Let us know what's keeping you awake at night, and we'll do our best to help you get a good night's sleep!*

### Where There's Wood There's a Way

**Our company specializes in cabinet manufacturing and interior decoration. We are investigating what is needed to launch a powder coating line for medium-density fiberboard (MDF) panels.**

**I would greatly appreciate it if you could share any technical articles or guides related to powder coating on MDF, recommended standards for conductive primers, topcoats, and curing processes, and suggestions for reputable manufacturers of MDF-compatible powder coatings.**

There are a growing number of companies that successfully powder coat MDF. Here are some basics as you begin your journey to understanding this unique process.

- Use furniture-grade MDF with a homogeneous surface and consistent density. Avoid low-quality or wet/green MDF that still contains significant moisture.
- Sand to a fine finish (perhaps 220 grit) and break sharp edges. Remove dust and other residue that occurs from the sanding process with compressed air or antistatic cloth.
- Depending on your substrate, preheat with infrared to 104°F to 140°F prior to applying powder to bring the moisture from the wood to the surface, which will act as the electrical grounding of the powder.
- Use specially formulated low-cure powders to reduce heat stress on the wood.
- Testing and validation are critical to success.

Several PCI powder producer members manufacture UV-curable powders designed for wood and MDF. You can use the member directory advanced search feature on the PCI website to locate manufacturers of low-cure powders.

In addition, check out the Powder Coating on Wood page on the PCI website for more in-depth information about the process, equipment, and quality control testing. There are also two free webinars in the Store that explain the process in more detail.

Finally, consider attending the International Woodworking Fair in August 2026 or FABTECH in October 2026, where a number of powder-on-wood suppliers will be available to speak with.

### Moving On

**We are moving our powder coating shop to a new location, which means we must move our large 24-foot curing oven. Our shop is 15 miles away, so we want to make sure the oven survives the trip. Do you have any tips on how to move it successfully?**

Moving a powder coating shop can be a logistical challenge, and it is important to take steps to ensure a safe move. First, disconnect utilities, and tag electrical, gas, and control lines before moving. It is critical to identify these field electrical connections to ensure that they are reconnected correctly at the new location. If using new electrical wiring, the drawings of the control panel should be identified correctly. Remove fragile controls and ship them separately.

The heater box is typically assembled as a unit, so it should be able to be disconnected and shipped. However, consider removing the burner, gas train, and fan to ship separately to avoid damage. The exhaust fan and exhaust duct will need to be removed. Depending on the new facility, it might be necessary to purchase new exhaust ductwork.

It is recommended that any ductwork inside the oven be removed in the largest sections possible and tagged for their location. Each duct, wall panel, or corner flashing must be labeled so they know where they should be reinstalled. Developing a list or a simple drawing showing the location of each panel is helpful.

Unfortunately, most oven panels used for the floor, walls, and roof are installed individually. So, unless the oven is designed with a base that has either forklift slots or lifting lugs, the oven panels will need to be broken apart carefully, as they might have oven cement between them. First, unscrew the oven flashing and mark the panel locations. The panels

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can be broken down, keeping some of them together (i.e., in 6- or 9-foot sections rather than the 3-foot oven panel width). The maximum width would be what can be shipped on a truck bed. When the panels are reinstalled, oven caulk will need to be used between the panel connections. The corner flashings will then need to be reinstalled using new corner insulation, oven caulk, and screws.

Before integrating at your new location, confirm floor load capacity, alignment with exhaust and utility penetrations, and ensure required clearances for airflow so service can be maintained before reconnecting and commissioning. Perform a full inspection and functional test of burners, fans, controls, and seals. Remember to have the local authority perform their safety audit to confirm everything has been done properly before returning the oven to production.

## True Colors

***Customers sometimes request that we match a liquid paint in a powder coating. What is the best way to ensure an accurate color match when converting a paint color to a powder coating?***

First, prepare your customers to potentially accept compromises. Some liquid formulations contain pigments, pearlescent, or transparent toners that do not translate exactly into standard powder resin chemistries, and special pigments or pearl/mica concentrates for powder may be required to duplicate effects.

To ensure an accurate color match when converting liquid paint to powder coating, start by supplying an accurate physical sample (sanded, fully cured, and shown under the lighting conditions where it will be viewed) for proper spectrophotometric measurement and visual evaluation. Spectral data plus a physical sample are both required because powder pigments and resin systems interact differently than liquid systems, and visual approval under the actual illumination is essential.

Use an experienced powder formulator that offers custom color matching. Also, ask for a lab-sprayed or electrostatically applied test panel that is cured using the same oven profile your parts will see. Small differences in resin, cure temperature, clearcoat, texture, and film thickness can shift the perceived color and gloss, so test panels are a reliable verification step. Specify the target gloss, texture, and substrate finish because color measurement must be paired with gloss measurement and texture control for an acceptable match. Provide viewing conditions (D65, TL84, or shop lighting) and pass/fail tolerances in Delta E or visual acceptability criteria.

If the color is critical, require a run of production-representative panel from the powder supplier using your exact cure schedule and request spectrophotometer readings and a visual sign-off before full production. You should keep a written record of the powder batch, pigment lot, and cure profile for quality control and future runs.

Finally, consider formulation limitations and cost: special effect pigments and low-cure or ultraviolet (UV)-cured powders increase price and might change performance, so confirm that any tradeoffs in durability or processing are acceptable before final approval.

## Cut to the Chase

***I've had cutting oil that has caused issues with our powder coating. Are there oils that are better than others? When we blast, we sometimes experience issues in the threaded holes or edges. I have noticed when digging for information that some metal fabricators change oils periodically. Do you have any recommendations on specific ingredients that are better when choosing oils for the powder coating world?***

In general, use non-silicone, low-residue, water-soluble (synthetic or semi-synthetic) metalworking fluids or specially formulated neat oils that leave minimal organic/film residues. Avoid oils and additives that contain heavy mineral hydrocarbons or persistent extreme-pressure (EP) chemistries that are hard to remove before pretreatment.

When possible, use products marketed as “non-soiling” or “powder coating compatible.” Avoid heavy mineral oils or insoluble neat oils that leave persistent films, chlorinated, or highly sulfurized additives that can form residues or high levels of fatty oils or soaps that polymerize or carbonize during curing.

You should also be able to request nonvolatile residue (NVR) data at your working concentration from your supplier for additional confirmation. If issues continue, you may need to consider washing and rinsing the part to remove the oils prior to blasting.

Have a question for our powder coating experts? Send it to [asktheexperts@powdercoating.org](mailto:asktheexperts@powdercoating.org).