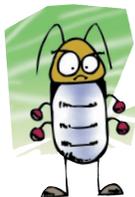


## COATER'S CORNER

Chris McKinnon *Aegis Industrial Finishing*

### Powder coating touch ups in the field? Yes, we can!



As powder coaters, we often work hard to distinguish ourselves from the world of liquid coatings from which we have evolved. We all know the advantages that powder has over liquid. Our environmentally sustainable, lower-applied-cost, more-durable coating system works well when applied properly and will outlast *most commonly used* liquid systems. Until it gets damaged in the field — then we have a problem.

This is where we as powder coaters need to develop an understanding and appreciation for how liquid coatings can bring benefits to powder coating.

### A common misconception

**“There is no way to touch up powder coating in the field.”**

When out working to build up our client base, we often hear the above statement as a complaint and reason not to use powder coating on a project. While it is true that you cannot bring an infrared or convection oven to the affected site and reapply powder, you can still touch up a damaged coating with a liquid system. This is an opportunity for the custom coater to educate and improve their standing with the concerned customer.

Photo 1 shows a fusion bonded epoxy (FBE) panel that has been primed



Photo 1

with self-etching epoxy primer and top coated in a liquid two-part urethane. After allowing the proper time for the two-coat system to cure, a pull off adhesion test was done, demonstrating that the liquid coat held on at up to 938 psi. For most applications, this result is more than sufficient. Furthermore, the failure that resulted was not in the FBE base coat but instead was between the self-etching epoxy primer and two-part urethane top coat.

Therefore, you **can** touch up powder coating with liquid in the field. The success of the touch up will depend on the following:

- Quality of liquid touch-up paint used
- Quality of surface preparation prior to coating application
- Ability of person doing touch up in the field

### Quality of the liquid system

The most immediately important attribute of the touch-up paint is going to be the color. This is also typically the easiest obstacle to overcome.

Most liquid paint suppliers are able to provide a custom color match when you supply them with a panel. I recommend doing this every time instead of submitting a RAL color code or an email with a photo. In both cases, there will likely be color variation between what you have sprayed and what is on a sample chart or computer screen. (It is a very bad idea to match to a computer screen for the following reasons: ambient lighting when photo was taken, quality of camera, representation of color on customer computer screen, and representation of

color on your computer screen. Plus, don't even get me started on printing color samples on your InkJet printer.) When done properly, you should see results in gloss and color accuracy, as represented in Photo 2. This photo shows a two-part urethane match to a super-durable polyester powder top coat.

Depending on what component requires touch up, you should specify whether you want the coating in an aerosol can or in a quart canister. The chemistry of the liquid coating will have a bearing on the price and method of application. In our company, there are four different chemistries that we commonly use:

**1. Speed enamel.** This is a low-cost and quick solution for touch up. The quality of speed enamel is not ideal, and should only be used when doing touch up in spot areas on products that are not going to be subjected to harsh environments. The benefit of this product is that even after the first use, it has a prolonged shelf life — we have some cans in our shop that are over a year old and they still spray.

**2. Two-part urethane.** Two-part urethane is a close equivalent to standard exterior-grade polyester powder coating. As the name implies, it has an A and B component that, when mixed together,



Photo 2

begins the cure process. Once this has begun, there is a limited window of application for the coating. Typically, this type of coating system comes in quart-sized containers; however, we have had great success with a two-component system in a spray can. Once activated, it is good for up to 48 hours — after which time, it will not spray cleanly from the can. If you have proper application equipment, then you can purchase it in the container size of your choosing and mix only the amount that you require.

**3. Functional epoxy.** When dealing with functional coatings, damage can occur on-site during installation. Epoxy repair kits can be purchased from most functional coating suppliers. When doing this kind of repair, the main concern on the project site is going to be ensuring that the coating will function — not necessarily look good. This type of repair job is generally applied using an epoxy melt stick or a thick epoxy paste. If the aesthetic requirements are important on this job, after the epoxy has been applied, a top coat (two-part urethane or speed enamel) can be applied.

**4. Self-etching epoxy primer.** While not a suitable top coat, this product is useful when doing a repair over an exposed and properly prepared substrate. This will seal the affected area and provide the best base for applying your top coat.

### Quality of the surface preparation

While there shouldn't be any mystery about how to properly prepare the surface for application, it can easily be overlooked when doing repairs in the field. Generally, this is due to the ability and understanding of the person who is tasked with taking on the job. The type of damage will determine the best method for touch up.

With so many different scenarios where touch up may be required, the following points are offered as suggestions (but not the rule):

### Considerations prior to surface prep

- To what points should you mask off? Look for natural breaks in the surface that will hide the area that you have to mask to. When doing major repairs, it is likely you will need to coat more surface area than just the damaged portion.
- Is temporary cover required to protect from the elements? Should drop cloths be used to prevent overspray in the area?
- Is it safe to use application equipment or should brush application be used? For example, some areas may not permit the use of electrical or aerosol equipment due to fears of explosions, fires, and similar disasters.
- Does time allow for this repair to be done from start to finish?
- Do I have all the equipment I need at hand?

### General guidelines for touch up

- Degrease the area to prepare for coating. Be sure that whatever you use does not leave an inhibitive film that will affect paint adhesion.
- Hand sand smooth the affected area. Be sure to use a 220 grit or finer sandpaper as you do not want to introduce marks that will show through your repair.
- Use a mild solvent on a new rag to remove any dust left over from the sanding.
- Use tack cloth to remove any dust and debris possibly left by the rag from solvent wiping.
- Apply your coating repair system.

### When bare metal is exposed

- Ensure that the surface is free of all oils, soils, and rust. A proper repair requires a clean substrate. As a guideline, use SSPC-SP1, SSPC-SP2, and SSPC-SP3 as references for surface preparation.
- Once the surface is clean, apply the correct primer (functional or self-etch). Allow the required amount of time to pass between base coat and top coat.

- When the surface is scuffed but base metal is not exposed, determine if the coating needs to be feathered out to provide a smooth transition between the liquid and powder.

### When the primer is exposed

- Will a brush suffice for the touch up?
- Does the coating need to be feathered out?
- Is additional primer required?

### Determining if it is a surface mark

- Can it be polished out with compound?
- Will a fine brush suffice?

### Ability and understanding of the applicator

Even if the above mentioned steps are observed, the person who will perform the touch up should have the following attributes: patient, detail oriented, and skilled with the mode of application (brush, aerosol can, spray gun). Whether you have to touch something up in your shop or if it is in the field, the person responsible should excel in these areas.

Liquid application is a different beast compared to powder application, and consideration must be given to the quality of the coating and surface prep as well as to the following factors:

- What is the relative humidity of the environment?
- If there is wind, is there danger of overspray landing on other surfaces which could result in expensive insurance claims?
- If multiple coats are required, what time should be left between recoats so as to not create sags or bubbles?
- What is the temperature of the substrate that is to be coated? Does it need to be preheated?
- What is the correct application technique that should be used for the repair?

- Are all of the required tools available: brush, tape, sandpaper, tack cloth, solvent, paint, masking paper, application equipment, respirator, safety glasses, gloves, etc.?

### A successful field-repaired finish

While a repaired surface will never perform as well as the area would have prior to the damage, when done correctly a field repair will perform as well as the combined coating system, surface preparation, and applicator's ability allow. The liquid coating will adhere to a powder coated surface, and a color match to a coated sample plate is possible. When speaking to your customer about options, be sure to demonstrate the ability of the coating to adhere to powder with a sample plate by performing a cross-hatch adhesion test. And if you are not going to be the one responsible for administering the touch up on-site, at least provide your customer with the recommended guidelines for

doing so. Rest assured, you **can** touch up powder coating in the field.

**PC**

### Editor's note

For further reading, see *Powder Coating* magazine's website at [www.pcoating.com](http://www.pcoating.com). Click on Article Index and search by subject category. To submit a question, click on Problem Solving, then scroll to Coater's Corner.

Chris McKinnon owns Aegis Industrial Finishing Ltd. with his father in Surrey, BC. As a third generation metal finisher (his grandfather started a plating company in 1948, and his father has worked in powder coating for more than 20 years), he is actively develop-



ing new markets for powder coating and providing those who will listen a greater appreciation for powder coating. He has an MA in Business Leadership, holds his NACE CIP Level 3 (#31504), and is a member of PCI's Custom Coater Steering Committee. His company is focused on providing powder coating and abrasive blasting to the local market and specializes in process-driven quality for pieces up to 38 feet by 9.5 feet by 10 feet and 7,000 pounds. If you would like to contact Chris, he can be reached at [chris@aegisfinishing.com](mailto:chris@aegisfinishing.com).

This column discusses problems encountered by powder coaters during the daily operation of their powder coating lines. These are in-the-field experiences from coaters. Its intent is to provide practical information to line personnel who coat all day to help them improve in their work. If you would like to contribute to this column, contact Alicia Tyznik, editor, at 651/287-5620 or [atyznik@cscpub.com](mailto:atyznik@cscpub.com).

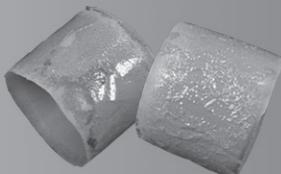
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