



## Agonizing Reprise

**Q** Good Morning Joe,  
I just read “Agonizing Over Anodizing” in the September/October issue of *Powder Coated Tough* and I might be able to help a little in this area. The company I work for manufactures firefighting equipment. A good portion of our product is used in the industrial and refinery world which means some of those products are subjected to extreme environments such as heat, cold, desert sun, and chemicals. We rely heavily on powder coating to protect those products. 90% of what we powder coat is anodized aluminum, most of which is cast aluminum, but we do some extrusions as well, and we’ve been doing this for over 25 years.

One benefit we have here is that we anodize our own parts (last 5 years) so we have a bit more control over our anodizing quality, but a reputable anodizer should be able to supply the same quality of product. Anodizing can come sealed or unsealed, which makes a huge difference when it comes to adhesion. A sealed surface is better for corrosion resistance but is the worst surface to powder coat over. It’s a lot like powder coating over Teflon™. An unsealed surface is much better for powder coating over, but if the item is to be used outside and has some exposed unsealed surfaces, then they’ll have corrosion issues.

What we do is seal our anodized parts, but then run them through a slight etch to roughen the surface; this has served us well for many years. We get the corrosion resistance for exterior use and the bite needed for adhesion. I won’t lie, we’ve run into some adhesion issues in the past, most

of which were from a processing error during anodizing, but for the most part we have it nailed down. Also, if parts are anodized correctly, they should be about as clean as you can get and ready for powder coating if handled correctly. This is extremely important.

If Alan R. wants better success at powder coating over anodizing, he needs to do the following: Ask his customer if they need a sealed anodized surface. If so, he or his customer needs to contact the anodizer and let them know the parts are going to be powder coated, specify that the parts need a slight etch (if sealed), and that they need to be handled with gloves and wrapped in clean paper. They’ll pay extra for those requests, but they’ll have better luck with adhesion.

P.S. Another couple options that we’ve found to work well is powder coating over an anodized unsealed surface, then sending the parts back to the anodizer for post sealing. Or powder coat over an un-anodized part, then send it to the anodizer for anodizing. Polyester powder goes through the anodizing line without any ill effect.

I hope this helps. It’s worked for us for years.

Take care,  
Dale P., Valparaiso, IN

**A** Wow, Dale, this is great information and advice. I think you really nailed down the process(es) to make this work. Part of the challenge with finishers is that they anodize lots of parts (or have their vendor anodize lots of parts) then only powder coat some of them or partially powder coat them, leaving some surfaces anodized but not powder coated. Your idea on using an etch is perfect as you can tell with the performance you see in the field.

It’s great when someone like you joins in the conversation adding your insight and experience to help the rest of the finishing community. So, thanks a million.

Best regards,

— Joe Powder

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## Exhausted

Q

Dear Joe,

We encountered haziness when curing our profiles with a batch oven; the same powder works well with a conveyor oven. The powder supplier has reformulated the powder with antioxidants, as was suggested. However, no improvement was observed with the reformulated version.

What could be the root cause of the above? The powder is an outdoor, TGIC, high-gloss white.

Thanks in advance,

Lee Hwa G., Singapore

A

Hi Lee Hwa,

Thanks for the question. This has to be frustrating. Here are my thoughts and questions:

How good is the exhaust in your batch oven? When you open the batch oven door is there a hazy cloud? If there is inadequate exhaust, byproducts of combustion may be accumulating in the oven. You should also be aware that nearly all powders emit a small percentage of volatiles (0.5-1.0%) at elevated oven temperature.

Another possibility is "blooming." Some polyester

powders emit a hazy surface film at certain bake conditions. It usually occurs with long low temperature bakes (e.g. 150°C or below). If this is the case, then increase the bake temperature 10 or 15°C and see if the problem is eliminated.

The use of an antioxidant usually does not improve a hazy film surface. Antioxidants are used to minimize color shifts due to polymeric degradation.

Please let me know if any of these suggestions help.

Best regards,

— Joe Powder

Joe Powder™ is trademarked and owned by Kevin Biller, technical editor for Powder Coated Tough. Please send your questions and comments to Joe Powder™ at [askjoepowder@yahoo.com](mailto:askjoepowder@yahoo.com).

**Editor's Note:** Letters to and responses from Joe Powder have been edited for space and style.

### Not Your Average Joe...

Each issue, we take the padlock off the PCI® Test-Lab door for a few minutes so our favorite technical editor and "powder guru" Joe Powder can run in the yard. When he's not gnawing on a rawhide bone, he loves to answer readers' questions. Go ahead and send him one at [askjoepowder@yahoo.com](mailto:askjoepowder@yahoo.com)... he doesn't bite. Maybe it'll end up in the next issue!