



## Blasted Cast Iron

**Q** Joe,  
I've contacted you before so maybe you can help me again.

I run a small to medium sized powder coating line at a metal fabrication facility in southern New Mexico. We have a five stage washer that utilizes an alkaline first stage and a zirconium-based 4th stage. All stages use RO (reverse osmosis) water. Stages 2, 3 and 5 are RO rinses. We have a partitioned drying/curing oven, so adjusting one without impacting the other isn't possible.

I'm told we are going to be painting lots of "ductile cast iron" parts in the near future. What do I need to know about painting these types of parts? I've read they can have outgassing and adhesion issues. If true, how do I avoid such issues?

Management wants us to coat them with "something" that will (I assume) fill in some of the casting imperfections giving the final product a more finished appearance. I've been told to find out about some kind of thick primer? I'm told we'd want a powder coating product that matches one of the colors we currently use, but in a rough texture that could "fill in" or hide the roughness of the casting surface.

What do I need to do or apply to obtain the desired outcome?

Alan R.  
Santa Teresa, NM

**A** Hi Alan,  
Here's where to start - blast the cast iron with a decent media; I recommend medium grit aluminum oxide. Then run the part through your pretreatment system, including dry off. Next, I would preheat the part to about 350 degrees Fahrenheit, allow it to cool to about 225-250 degrees Fahrenheit, then apply a reasonably thick coat (5 to 6 mils) of a good edge coverage (higher viscosity) powder coating.

Your choice of chemistry will depend on the service environment the part will experience and the expected durability. If a single coat doesn't work, then lightly abrade the first coat and apply a second coat of powder. You should undercure the first coat if you need to use two coats. This will ensure excellent intercoat adhesion.

Please let me know how things work out.  
Best regards,

- Joe Powder

## DIY Repair

**Q** Hi Joe,  
How can I repair a new bike rack that has a black powder coating? It has a damaged area about the size of a dime and is already bolted to a large concrete base. We would like to make the area rust proof. Is a patch the best bet or should a paint be applied to protect it from the elements?  
Thanks for your advice.

Norm M.  
Toledo, OH

**A** Hi Norm,  
Here is what I would suggest: Abrade and clean the bare area, making sure that you remove all oxidation, rust, oil, and dirt. I would abrade the adjoining powder coated area as well. Next, apply a phosphoric acid metal pretreatment per the instructions provided by the supplier. You can find these on Amazon and possibly at your local DIY or auto parts store. This type of metal pretreatment will retard corrosion and provide a bit of a chemical anchor for your primer.

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After the pretreatment dries sufficiently, mask off the area to be coated and apply a good aerosol epoxy primer. I would shy away from zinc-rich types because they are difficult to apply. After the primer dries, lightly abrade the primer with 400 grit automotive grade sandpaper and tack off the sanding dust. Next, apply a suitable aerosol topcoat. You can find these at a DIY or hardware store (if there are any left in this world).

This coating system will not be as durable as the original powder coating; however, if done carefully per the supplier instructions, it should last a couple years in a moderate climate.

Good luck,

- Joe Powder

## The Answer is Yes, But...

**Q** Is there a way to powder coat fiberglass?

Nathan  
Luna, NM

**A** Hello Nathan, I think you are inquiring about the possibility of applying and curing powder coating over glass filled composite, a.k.a. fiberglass reinforced plastic (FRP). If this is the case, the answer is yes, but with a rather specific process and materials.

You'll first want to clean and lightly abrade the surface to ensure good adhesion of the powder coating. Most FRP harbors residual styrene which will bleed out during the powder bake so it is wise to prebake the substrate before applying the powder. I would bake it to about 340 degrees Fahrenheit.

The next step involves applying the powder. You may get lucky and be able to hit the hot substrate with powder and get adequate film build. This is a big maybe and requires timing and finesse. If that doesn't work you can apply a conductive solution (I recommend checking with Chemical Technology, Warren, MI), letting it flash and dry, then applying the powder electrostatically as you normally would do.

That sounds pretty easy so far, but we're not done yet. You absolutely must use a very low temperature cure powder and bake it no higher than about 300 degrees Fahrenheit for the recommended time. Not all powder manufacturers carry these products, so you'll have to look around. You can use [powdercoating.org](http://powdercoating.org) to search for powder manufacturers if you need a resource.

I hope this helps and please let me know if you

have any further questions/ideas.

Warm regards,

- Joe Powder

## Take a Bow

**Q** Hey Joe, Are there established design guidelines for through holes and threaded holes on powder coated parts where plugging is not practical, and tap/ream after powder would rather be avoided? We manufacture Elite compound bows, etc. and have in-house powder coating processes. Thank you!

Mike L.  
Rochester, NY

**A** Hey Mike, You guys make some awesome bows. I took a look at your website - wow, very impressive. I think with such a high end product you undoubtedly take great care and time to make them perfect. I suggest that you bite the bullet (or maybe the arrowhead?) and consult with one of the high end masking/plug suppliers on the Powder Coating Institute website ([www.powdercoating.org](http://www.powdercoating.org)). These guys create amazing products custom designed for your exact application. I don't think you'll be sorry that you did.

If any of our erudite readers have another idea, please let us know.

Best regards,

- Joe Powder

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**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!