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Ask Joe Powder

Breathe Right

Q Greetings Mr. Joe,

I am looking for the respiratory mask to be used for powder coating. What type of mask should we use and is there any standard that needs to be followed? Is there any classification, based on that I can choose the type of mask?

Girdhari S.

A Dear Mr. S.,

In the United States, our National Institute of Occupational Safety and Health recommend the use of a dust mask that is rated as "N95." This designation means the dust mask will remove 95 percent of particulate materials from the air that you breathe. It is essential to fit the mask carefully on your face. Thick beards and narrow bridges on one's nose can make fitting a bit of a challenge. In my laboratory we use a 3M model 8210. It's from a very reliable company; however, there are plenty of competitive products that I am sure will suffice. If a person has a thick beard, they may have to trim it for better fit. And if they have a small face, there are

other products available. Here is a link to the N95 page for NIOSH: www.cdc.gov/niosh/npptl/topics/respirators/disp_part/n95list1.html.

Please be aware that these masks are only good for protection from airborne particulates. If your operators handle cleaning solvents, then a respirator with an activated carbon filter is necessary. NIOSH provides information on respirators acceptable for handling acetone on this link: www.cdc.gov/niosh/npg/npd0004.html. Respirators can be fitted with particulate filters to protect from powders and solvents.

I hope that this helps.

Best regards,

- Joe Powder

(Editor's Note: Powder Coated Tough will be having a Safety and Regulatory Issue in 2018. In it, we will be covering this very topic. Stay tuned!)

In a Haze

Q Howdy Joe,

I am sorry if this email might cause you any inconvenience. At present, we are dealing with a finished powder coating issue that we really need help with.

So, let me describe the issue for you. We are powder coating our cabinets with black powder and experience that the surface of the side cabinet is not equally black. It has a band of slightly white color on it, instead.

The root cause we suspected was due to the heat distribution differentiation (after chemical washing oven process, just before entering powder coating process). The part's thicknesses are different.

The area where the part is 0.8 mm, the color looks just fine. However, the areas where the parts have additional reinforced plates, which make its thickness higher, have slightly white bands.

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So, I would like to seek your professional support to help me with the solutions that we can use to solve this troublesome issue.

I am looking forward to hearing from you soon, Joe.

And may you have a good day!

Thanks and best regards,
Nguyen V.

A Hi Nguyen,

Thanks for your question. From what you describe, this is a problem associated with cure of the powder coating. Can you tell me what the chemistry and gloss are? What I think is happening is the coating is experiencing much higher temperatures over the thin metal and much lower temperature and less cure at the thicker areas. If this is a polyester powder coating, the problem may be “blooming.” Some polyesters exude a hazy material when exposed to low oven temperatures. At higher temperatures, the material essentially sublimates into the oven atmosphere. If it is another



Is this what could happen if powder is not cured all the way?

chemistry it may involve a different gloss due to inconsistent cure.

Please let me know the coating chemistry and I can confirm what I think may be occurring.

And may you have a pleasant day as well.

— Joe Powder

Throwing Fade

Q Hey Joe,

I'm looking for a little help. Is this what could happen if powder is not cured all the way? (Please refer to the photo on the right.) Light premature fading?

Thanks so much and have a great day.
Jeff

A Hey Jeff,

That can happen from undercure of nearly any chemistry and/or the use of the wrong powder chemistry (e.g., hybrid instead of polyester). I would check with your powder coater and verify what product they used and if they have records from their oven operation. Furthermore, I would perform a solvent rub test on the affected part(s). If the coating is easily removed with less than 50 double rubs of a cloth soaked in acetone, then the coating is undercured.

— Joe Powder

Joe Powder is our technical editor, Kevin Biller. Please send your questions and comments to Joe Powder at askjoe powder@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 askjoe powder@yahoo.com... he doesn't bite. Maybe it'll end up in the next issue!