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Ask Joe Powder

Masking Our Peelings?

Q

Hi Joe,

I live in Huntington Beach and would like to have my oven knobs painted red. But I want to keep the lettering (temp, high, low, etc.). Is that possible? I'm trying to find someone in my area who can do it.

Suzanne

A

Hi Suzanne,

I think red oven knobs would be a groovy addition to anyone's kitchen. Accomplishing this whilst maintaining the lettering will take some precision work. Let's talk about the coating first. Oven knobs will no doubt get splashed with food products and condiments so a tough coating is requisite. The knobs will require regular cleaning to ensure their spiffiness for your guests to admire. Hence, a powder with excellent chemical resistance is mandatory. I suggest either a polyurethane or an appliance quality hybrid. A garden variety polyester just won't do.

The surface of your knobs must be perfectly clean before powder application so I would recommend a thorough scouring with a reasonably strong solvent.

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 chasing cars down the boulevard, he loves to answer readers' questions. Go ahead and send him one at askjoepowder@yahoo.com... he doesn't bite. Maybe it'll end up in the next issue!

Acetone is a very good choice. You'll want to ensure that there is no residual grease or dirt on the surface. Make sure the solvent has completely evaporated before applying the powder.

As for maintaining the graphics on the knobs, this will require some precision masking with an appropriate tape. Two grades are commonly used—silicone based and polyimide based. I would use the polyimide type because it has higher heat resistance than the silicone types. The tape will have to be surgically sliced to the width of your lettering—no simple task. This will take patience and a steady hand. Make sure that the tape is completely adhered before proceeding to the powder application step.

I would apply the powder then gel it in the oven. This will take about 5 to 7 minutes at the recommended cure temperature. Remove the knobs from the oven, let them cool and then carefully detach the masking tape. You probably want to use a hobbyist knife (Exacto™ will do) to accomplish this. After the tape is removed, pop the knobs back into the oven and cure them fully per the powder manufacturer's recommendation. The reason for pulling the tape after the powder has gelled, but not cured, is because a fully cured powder will bridge and encapsulate the tape, making it impossible to remove. On the other hand, if you remove the tape while the powder is still in its powder state, the powder will fall back onto the graphics and negate the function of the masking.

I hope this helps you with beautifying your kitchen.

— Joe Powder

Suck It Up, Buttercup

Q

Hey Joe,

What is the proper way to dispose of waste powder, such as what is vacuumed up in the booth?

Vern S.

A

Hi Vern,

This is a good question and the answer varies by location. You appear to hail from North Dakota. The first place to start is your local trash hauler. Some of them are very well-versed in disposal regulations and can provide the quickest solution. In my neck of the woods our waste hauler instructed us to package the powder such that it would not break open during the landfill process. This means double bagging the

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powder and placing it into a durable package—fiber drums are preferred but sturdy boxes are OK as well. They recognize the relative non-toxic nature of powder coatings but want to avoid the creation of a “plume” if a powder container is penetrated. Plumes scare waste haulers.

If your waste hauler can't provide you with the proper information you can always check with the folks in Bismarck. They may be able to help you.

Best of luck.

— Joe Powder

M-m-m-my Corona

Q

Dear Sir,

Can you tell me please in a corona charging gun how powder will charge? Is it charged with an electrode? I mean flat jet nozzle or round jet nozzle?

Shahroz

A

Greetings Shahroz,

Your question is a good one. Basically, the electrostatic charge in a corona type powder spray gun is created by ionizing air. The high voltage at the gun tip electrode pulls electrons off air molecules (N₂, O₂, etc.), which results in a field of negative charge. This electric field converges on the earthed target.

Powder Coating Corona Charging

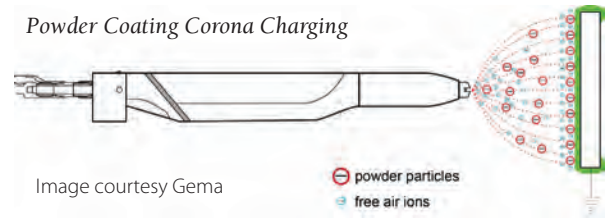


Image courtesy Gema

The deposition of powder is accomplished by passing a cloud of particles through the electric field. The particles pick up electrons as they traverse through the field. These negatively charged particles are attracted to the conductive surface if it is adequately connected to earth. As the negatively charged particles accumulate on the surface of the substrate, negative charge leaves the substrate to earth. The loss of negative charge at the surface creates a net positive charge at the interface. This positive face charge secures the negatively charged powder to the surface.

The nozzle type affects the manner in which the powder cloud exits the spray gun. It has only minimal effect, if any, on the charging characteristics of the powder.

I hope this helps answer your question.

— 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.