Tech Topic: Powder Coating at Home

Submitted by Bill Allard

Powder coating is a finishing technique that coats metallic objects with a nearly indestructible smooth, glossy plastic finish. However, this process normally requires specialized equipment; an electrostatic spray gun that applies an electrical charge to the polymer dust being sprayed and another to the object being coated. A difference in polarity between the two charges results in the "poly" being drawn onto the surface of the target object. Then the coated object is transferred to an oven, where the coating is baked at high temperature in order to melt the dusty surface into a smooth, hard finish.

The process is cost-effective for large items or large numbers of small items. But, what about the car owner who wishes to powder coat only a few small parts? Can this be done? Yes! One way is to buy a commercially-produced "home-model" powder coat system and convince your wife to let you "cook" coated parts in her oven.

Is there a third option? Yes, to a degree. Seeking an answer to the challenges noted above, I utilized the following alternate process which works fairly well….. given a few constraints. In photo #1, you see my "system." It's a clear plastic bucket with snap-on lid; able to hold a teaspoon of powder coat (it's the consistency of baking flour). The object to be coated is securely mounted at the end of a long deck screw extending through the lid. A part having a hole is easily attached and removed from the screw.

Instead of using an oven later in the process, I apply heat to the object first. Using a propane torch, I heat the object while attached to the deck screw, then quickly close the lid, sealing the hot object inside the plastic container. As the container is vigorously tumbled in all directions by hand, you can see the poly form a "dust cloud" and adhere to the hot object. No electrical activity is present; this is "contact-coating."

Obviously, time and heat become a factor; too much heat, the poly will be scorched. Too little and the dust won't adhere to the part. Too slow and the part will lose too much heat. Too much poly in the tub will result in a "glob" falling onto the part. The goal is to have a light cloud of dust stick to the heated object and bake to a smooth, hard surface. If the poly surface turns-out rough it can be smoothed by carefully heating later with the torch.

Closing thoughts: The object needs to be rigidly suspended in the container. If it touches anything the job's ruined. And remember, cured "poly" is tough and difficult to remove. Starting-over requires cleaning down to bare metal! Also, a too-large mounting screw/bolt will quickly draw heat from the object, rendering that area too cool to hold and cure the poly. Lastly, I strongly recommend getting the "feel" for this process by first coating several "test items." (Note: Powder coat powder in various colors is available retail and online).