Powder Coating Commentary

David O'Ryan
Advanced Technology & Marketing Group
5550 Edgar Rd.
Clarkston, MI 48346
248/620-1340 • FAX 248/620-5560

To Test or Not To Test?

In talking with dozens of companies over the past year about finishing systems and technology, it seems that one theme continues to play over and over. Before making a purchase, companies are asking: What type of testing is required to validate a piece of equipment or a process? The next question, of course, seems to almost always be: Is this testing really necessary? This is not an easy question—To test or not to test? There also is no easy answer, nor is there one that fits all potential equipment buyers' situations. So let's look at some scenarios, and then you can be the judge. All the categories won't fit into a single article, so stay tuned for future "Powder Coating Commentary" columns.

Buying a Powder Booth

Well, what exactly is a powder booth, anyhow? If you have experience in liquid, you probably bought something from a major manufacturer or a local fabricator over the years. Did it work well? Usually. Did the medium, either filters or water-wash section, collect most of the particulate? Yes. Did it send a great deal of particulate up the stack, and out onto the roof? Often. If the booth didn't draw well, could you turn the fan up or increase the size of the motor and draw more air? Yes. Okay, so a powder booth is like a liquid booth, only it collects powder, right? Wrong!

Similar to a liquid booth, a powder booth is a large industrial vacuum cleaner, of sorts. The fans draw air, and the idea is for the particulate to stay inside. If the draw is high enough, however, and the conditions around the booth are just right ... the booth will also draw into it floating objects from outside the booth. (Can you say *contamination*?) Unfortunately, the real advantage of testing a booth design before you buy it is not known to the buyer until well after the booth has been operating for awhile.

Here is the first question that needs to be answered: Is the booth going to keep the over-sprayed powder in it, or let drifts of powder exit the conveyor openings, end openings, etc.? The second question is: How do you know the booth design will let the application equipment optimally coat the parts? If you can answer these questions without testing, go ahead and buy it. And if, instead of testing, you visit an installation or two to see what you are thinking of buying, be sure to look for a few things, such as:

- Is there any powder on the booth roof or outside the booth?
- How do the floors look, as well as the walls of the environmental room?
- When one operator sprays from his/her opening, does over-sprayed powder leak out any opening?

Okay, you decided to run a test at an equipment vendor's facility and validate the equipment. Let's review our checklist of things and prepare for a meaningful test.

- ❑ Prepare sample parts of easy, medium-hard, hard, small, large and miscellaneous parts to be coated in the lab test. *Check.*
- ❑ Make sure that all the parts are sent pretreated off the line, bagged or covered prior to shipment. *Check.*
- ❑ Send along enough hangers and racks to let the tester process everything the same way you will in production. *Check.*
- ❑ Send along your current powder to be tested, in at least two colors. (Or, if buying a new system, have your two candidate companies send their versions of two colors so that each vendor gets a chance to validate its material in the same test. Does this mean twice the number of

parts and probably a test twice the length of time? Yes. Is this a problem for the equipment vendor? Probably. But this test is for both of you ... do it anyway.) *Check.*

- ❑ Prepare and send along the format for testing—what you want to see first, second, etc., how they need to be processed, what line speeds. *Check.*

So now we are running the test—the same one you are going to conduct at the other contenders who also want to sell you something. We need to develop our checklist of what to look for in this evaluation process.

- ❑ How well did the booth run overall? *Check.*
- ❑ How closely did the test unit resemble the design being quoted? *Check.*
- ❑ Were all the settings and values recorded **during** the test (not after)? *Check.*
- ❑ Was the testing done according to the script—line speeds, hanging arrangements, etc.? *Check.*
- ❑ Did the film builds and hiding required, along with finish quality, fulfill requirements? *Check.*
- ❑ Did the booth keep the powder in during the entire testing process? *Check.*
- ❑ Was the booth balanced, and could you adjust it easily? *Check.*

Reaping the Rewards

The fun part of validating this booth isn't going to be sitting around the lab waiting for the technicians to make the setups and adjust the settings necessary to validate the test. It isn't going to be eating lunch and dinner with well-meaning sales people who want to know how they are doing. Heck, it isn't even going to be the fun time of traveling to the various tests, and getting up early or staying up late. Nor will it be the documentation of what the tests did, or how they demonstrated—or didn't demonstrate—that the booth will meet the buying requirements.

No, the fun part of this process will be when the final order is set, the new booth gets installed in the new or modified facility, and you can watch it run exactly like it was supposed to ... exactly like it was demonstrated, performing and coating the parts exactly like the laboratory conditions under which the tests were run, while you watch the plant personnel marvel at how efficient and easy it is to optimize its performance. Yep, having the boss pat you on the shoulder and say, "Wow, this works great—we sure are glad the horror stories of other plants buying booths with all sorts of problems didn't happen on this project."

To test or not to test? That's an easy question. **P&SF**