Pretreatment & Organic Finishing



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Misuse of Solvents Gives Unacceptable Finish

A utomated equipment is being used in more and more shops to increase production. More than ever before, it is important that we combine our own experience with that of others, to be able to accomplish more. Working together in this way could be called "automation of the minds."

Many facilities are now changing their painting operations to powder coating, high-solids/low VOCs, or waterborne coatings. These changes are being caused by new regulations and past experiences. Some shops that have changed to new processes are having problems that they did not have when spraying a standard solvent-based paint.

Process Changes

& Personnel Training

A few months back, a company that had started to use high-solids and waterborne paints began to have trash problems in the finished paint. The problems were sporadic and did not follow a pattern that could be identified.

A meeting was held with all personnel to discuss the problems. Management, supervisors, lead men, painters and maintenance personnel attended the meeting.

As the discussion progressed, it was determined the the biggest problem was small stringy spots in the finished paint that required sanding to re-paint. Rework sometimes took more than an hour, because of the time it took for painting, baking and inspection at the unloading station.

The paint supplier was present at the meeting. An investigation of production schedules and methods revealed the cause of the problem. One of the paint formulas was a highsolid polyester that could not be thinned with a 1:1 ratio of solvent, which was required with some of the paint formulas used prior to the change. A number of the painters were not aware that a 1:1 ratio of solvent could not be used. They were still doing what they had done with the prior system. Even though painters had received some training, the new paint guns, equipped with heaters to thin the high-solids, were not being operated correctly.

Using Solvents the Wrong Way One painter said he could not get the proper coverage by heating the paint, but could get a good coverage when the paint was thinned with solvent and sprayed with a higher air pressure. This practice had spread, and other painters were also using solvent to thin instead of heat.

Thinning with solvent made the resins in the paint act like strings of lint when applied with a high-pressure paint gun. The strings were not visible in a wet state, but they appeared as specks and strings in the finish when baked out. The higher solvent content also removed dried paint from the exterior of the needle and nozzle surface of the paint gun, causing specks that would not flow during curing in the oven. It sometimes looked as if lint was imbedded in the finish.

Solvent Thinning

Requires Special Handling Part of the problem was a military paint that did require solvent thinning and special handling. The process required using the old air spray guns to apply the paint, and the new heated guns to apply other paints. This also called for a new approach for training workers to learn from their own experience and the experience of others. A training program was started where all workers now get together every week for about 30 minutes to cover safety, health, environmental, quality and production practices. It took a lot of effort to wipe away the old ideas and get everyone working as a team with the new process—letting the paint and equipment do the work.

Never Stop Learning Experience is an important teacher when we can learn from our own and the experience of others. The columnists for P&SF are professionals in the surface finishing industry, and they have a lot of experience. If you have a problem with surface finishing, don't hesitate to call on them. **Pasf**

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