

A Beginner's Guide to Spray Finishing

by Zach Etheridge

IT TAKES ONLY one or two successful forays into spray finishing to understand why spraying is the popular choice everywhere from the basement shop to the factory floor. It's a fast, efficient and reliable way to lay down smooth, uniform coatings that adhere well, dry predictably, and require minimal further processing. It also turns out that spraying is easy to learn and not hard to do well. Over the past few years we've taken hundreds of calls for help from customers just learning to spray or having problems with finishes or equipment — it's been a great way to learn. When the guy on the other end of the phone has just bombed a whole kitchen's worth of cabinets or watched his wife's heirloom table turn into an alligator, he wants answers! What we've learned is that there are just a few basic causes for most problems, and that a few basic techniques solve most of them without recourse to high-tech hardware, complex chemicals or esoteric expertise.

When I began spraying finishes about six or seven years ago, Highland Hardware had just acquired the EagleSpray line of HVLP sprayers, so that's the equipment I used. We had also become a dealer for Hydrocote water-based finishes, so that's what I sprayed. Not that I could have sprayed anything else; with no spray booth and no experience, I'd probably have blown up the warehouse if I'd tried anything less benign than Hydrocote. I was in the unusual position of learning to spray because I needed to know the subject, not because I needed to finish a project. That's probably the only thing that saved me from making the most common mistake of all, one that has nothing to do with technique, but which plenty of other less fortunate neophytes have convinced me is the worst mistake in the book.

Do Not Practice on Your Mother-in-Law's Museum Piece

(Or a customer's most cherished possession, or anything else of any value whatsoever.) Being a beginner for a little while is hard enough without all the added pressure of unrealistic deadlines and unrealistic expectations (you're going to finish that thing before Christmas, and it's going to be perfect, right?) Learning is just that: it's *learning*, and it shouldn't have anything to do with that big project that was your excuse for buying a



new spray system. Sand a bunch of worthless scrap and shoot finish on it until you know what you're doing. The difference between what you think ought to happen when you pull the spraygun's trigger and what actually happens can be downright startling, so for heaven's sake don't start on a real finishing job until you *know* how it's going to turn out. If a couple of days' playing around on scrap gives you guilt feelings, just remember that you could be stripping, sanding, re-staining and refinishing some heinously difficult piece of furniture instead.

The next problem is one with which I'm intimately familiar, so I empathize acutely with the hundreds of finishers who've learned the same rude lesson:

It Ain't the Finish

(Bad news: this means you.) Master of denial that I am, I almost always blame the finish for everything that goes wrong. Occasionally, however, I realize how unlikely it is that the one quart of finish I picked up could be totally worthless while the other 19,999 quarts from the same production batch worked just fine—for other finishers, of course. To be sure, over the years we've had a few honest-to-gosh cases of isolated product failure, but if the finish that just malfunctioned on you doesn't have the texture of tapioca pudding or the aroma of old dog's breath (and if the manufacturer hasn't just received a few thousand other complaints), the odds are that blaming the finish isn't going to solve your problem. That leaves only a few other places to point the finger of responsibility: the weather, the spraygun, or your technique. The downside to these scapegoats is that you're responsible for all of them.

Of course you're not responsible for the weather—that's the weatherman's job—but you are responsible for what understanding what it does to the finishing process. Changes in temperature, relative humidity and atmospheric pressure can affect finishes in many ways, from

flow-out rate and drying time to the behavior of the finish as you pour it into the spraygun cup. There aren't any secrets about all this. All you have to do is:

Know Your Stuff

First, get a viscosity cup, and use it every time you pour finish into the spraygun cup. If you learn to shoot successfully with the finish running at 16 seconds, for instance, you shouldn't be surprised by awful results when you try shooting the same finish running at 25 seconds a few days later. Thin it back to 16 seconds, and Bob's your uncle. Before long (if you spray regularly) you'll get an accurate feel for what the viscosity is doing as you pour the finish from its container, but until then, cheat: use a cup. And while you're measuring viscosity, do remember that it isn't the only weather-dependent variable. When the label tells you what the product's recoat and cure time is, it's assuming something like a perfect autumn day in Atlanta: low humidity, moderate temperature, gentle sunshine and a fragrant breeze. If you're spraying at 60°F, or if the relative humidity is 80%, you'll have to adapt to suit those conditions. Even quadrupling the time between coats sure is a lot easier than scraping off yet another triumph of hope over reason. When it's really beastly out, just do something else; finishing when it's raining or when ice is forming in your beard is a sure way to turn a bad weather day into a bad hair day.

Happiness is a Clean Gun

Sometimes a perfunctory rinse and cleanup will let you get by for days or weeks, but sooner or later you'll need to get serious. Some finishes can build layers of micro-thin film on fluid passage surfaces, leading so gradually to degraded spray performance that you don't even notice until the gun is hardly working at all. Here's a routine that works well with water based finishes. Unclip the cup and pull the trigger to drain the pickup tube. Empty the cup, rinse with clean water, and dump. Spray fresh water through the gun for 5-10 seconds, again draining the pickup tube when done. Now spray Brush & Gun Cleaner for a few seconds, wait a few minutes, and spray a few seconds more. Drain, rinse with water, and flush thoroughly by spraying fresh water for 10-15 seconds.

When using solvent-based finishes, clean with appropriate thinner followed by a rinse with solvent alcohol. Every now and then you might need to disassemble the gun and soak fluid passages in paint stripper to get everything completely clean. When switching from one kind of finish to another, rinse with appropriate solvent, wash with soap & water, then rinse with alcohol.

Do Not Close Your Eyes When You Pull the Trigger

It helps a fair bit to know what you're actually doing as you spray. The information you need is not secret; all you have to do is look closely at what's happening. You can't go around bobbing and weaving like an ostrich looking for reflections while you're spraying—take time to arrange good bright lighting that reflects directly off the surfaces you're spraying instead.

Spraying too much or too little material is a reliable way to get poor results. Too little is easy to diagnose: when you see speckles of finish all over a piece of bare wood, you can afford to put down a little more. Too much finish is also easy to diagnose: when a cured finish is so soft you stick to it days later, or when a top layer comes off in sheets while you're rubbing it out, or when your final coat ends up turning the whole mess milky and gross, you put down too much finish somewhere along the line.

With Hydrocote and many other water-based finishes, there's a fairly distinct wet-coat thickness that works well most of the time. It fully wets the wood, but there's still a bit of stippling or orange-peel texture to the wet film immediately after you've applied it. If you spray until there's a smooth standing wet lake of finish on the work, then you've hosed it on much too thick. If your water-based finish has a milky color in the container, spray as substantial a wet coat as you can without seeing any of that milkiness on the workpiece. If you see that you've overdosed a water-based finish, grab a wet rag and just wipe it off, then wipe the piece dry and start over.

When All Else Fails...

Sorry, boys & girls. I really am going to recommend reading the manual. Faced with my own nearly absolute ignorance of spray techniques, I tried it, and to my amazement I soon learned to spray fairly well. If the manual suggests holding the gun no more than six inches away from the work when shooting water-based finishes, try it — suddenly all that irksome orange peel you've been cursing at just goes away. When it tells you how to seal off a contaminated surface with shellac you'd better try it, because fooling with fish-eyes is a pain. When it says a larger atomizing set will prevent over-atomization and might eliminate pinholing, guess what? You should read some of this stuff; it's not bad.

If At First You Don't Succeed

Do not blame the finish, do look closely at what actually happened, do stick your head out the window for a weather check, and do peruse the troubleshooting section in your owner's manual. Review the basics, because that's where most problems originate. Then try again. After all, if this is all it takes to succeed at spray finishing, you're practically there already.