Aerosol Finishes

Convenient and easy to use, aerosols now offer better technology and more finish options

BY CHRIS A. MINICK

To doubt about it; I am a confirmed finishing junkie. My finishing arsenal consists of a bevy of expensive brushes, half a dozen spray guns and more cans of finish than I care to count. It may seem odd, given my well-stocked shop, that my weapon of choice for finishing small projects is usually the common and much maligned aerosol spray can.

Aerosol finishes aren't what they used to be. Gone are the days of sputtering low-tech paints. They've been replaced with professional-quality wood finishes in an amazingly broad array of types. A trip to your local home center will reveal spray cans of varnish, lacquer, stains, toners, water-based finishes and even precatalyzed finishes.

What about durability? It doesn't seem logical that an easy-touse finish should yield good performance results. To satisfy my curiosity, I started a long-term test a few years ago comparing aerosol lacquer and varnish with their brush-on cousins. The test results are impressive: I found that most of the aerosol finishes have essentially the same stain, scratch and solvent resistance as the brush-on variety, if applied in a thick-enough finish.

Before learning the few tricks that make finishing with aerosols effective and easy, it is best to start by learning how they operate.

A diluted solution is what makes aerosols work

When the spray-can nozzle (known as the actuator in spray-can lingo) is pushed down, a small valve opens, allowing the

CHOOSING AN AEROSOL FINISH



FINISH TYPE	SAMPLE BRANDS
ACRYLIC LACQUER	Sherwin-Williams Krylon All Pro Spray Clear Acrylic Master Water Clear Acrylic
NITROCELLULOSE LACQUER	Deft Behlen Rust-Oleum
OIL-BASED	Zar polyurethane Minwax spar urethane
WATER-BASED	Minwax polycrylic Behr polyurethane
SHELLAC	Zinsser Bulls Eye

A choice of finishes. Finishes available in aerosol cans include polyurethane, lacquer, water-based polyurethane, shellac and spar varnish.

head pressure in the can to force a mixture of finish resin, solvent and propellant up the dip tube and out of the nozzle. As the finish solution leaves the tip, a liquefied propellant instantly vaporizes, exploding the finish and solvent mixture into millions of droplets.

Because the dip tube and actuator orifice of a typical aerosol can are rather small compared with the similar parts of a spray gun, the liquid finish in the can must be very thin to spray properly. Consequently, most aerosol finishes contain less than half the solids and

significantly more solvent than the same volume of their non-aerosol cousins. A ratio of high solvent to low solids is a recipe for runs, drips and sags if ever I heard one. These problems are easily avoided, though.

Nozzle design makes the difference—Aerosol cans are not all created equal, especially when it comes to nozzle design. Some aerosols spray an evenly shaped tapered fan pattern similar to the best conventional spray guns, while basic aerosol nozzles produce a simple doughnut-shaped cone pattern. In my experience, aerosol nozzles that fan out the finish are easier to control and provide fewer runs than those that spray conical patterns (see the photos and drawings on the facing page).

When shopping for an aerosol finish, remove the



Spray gun vs. spray can. The left half of the panel received two coats of lacquer from a spray gun. The right half received two coats of lacquer from an aerosol can. The aerosol finish is only half as thick as the spray-gun finish.

cap and inspect the nozzle. Fan nozzles will be made from two pieces of plastic: a large button actuator with a small plastic disc inserted in the face. This easy-to-spot disc has a raised line running across the orifice. The disc can be rotated to produce either a vertical or horizontal fan, a handy feature when spraying large projects. Cone spray actuators, on the other hand, can be made from one or two pieces of plastic but have no line. While you are at the store, pick up a plastic trigger handle (see the top right photos on

> p. 60). This handle dramatically improves control and reduces finger fatigue, turning a simple spray can into a functioning spray gun.

You can't cover up poor preparation

Someone much wiser than me once said, "Cleanliness is next to godliness." I can't vouch for that, but I do know that cleanliness is a very important part of finishing, especially when you're using aerosol cans. Heavy-bodied brush-on finishes are more forgiving when it comes to dirt or grime: They tend to bridge over the offending contamination, whereas thin aerosol finishes often pull away from it.

Dust creates an uneven stippled look in the dry finish while oily or waxy residue results in a moon-cratered appearance on the dried surface.

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- Fast dry timeClear film
- Available as gloss, satin or flat
 - Easy to sand
 - Good leveling qualities
- Little solvent odor
- Nonyellowing cast
 - Fast dry time
 - Good adhesion on oily woods
 - Natural color
 - Easy to sand

- Pinholes are possible during hot weather
 - Medium dry time
 - Heavy solvent odor
- Slow dry timeDifficult to sandHard to repair
- Bluish tint on dark woodRaises grain on first coat
- Slow dry time in humid weather
 - Produces "fat edge" when applied in heavy coat

Make sure all surfaces to be finished are free of dirt and grease before you start because fixing the problem after the fact means sanding off the entire finish and starting over. Before starting the finishing ritual, I make it a habit to vacuum the sanding dust thoroughly from my projects, as opposed to wiping with a tack rag, which just moves around the dust.

Proper technique yields a flawless finish

The method for spraying with an aerosol can is quickly learned, but as with any new finishing technique or product, practice on some scrap until you are comfortable. Shake the can vigorously up and down for a minute or until any agitator balls inside are loose (these are not present in most clear finishes), then swirl the can for one minute to blend the ingredients. It is good practice to swirl the can occasionally during the finishing job to ensure that the ingredients stay well mixed.

I get better results if I start the spray pattern from the front portion of the project and work toward the back, but feel free to experiment. The distance you hold the can from the surface is a function of the spray-nozzle geometry, the amount and type of propellant in the can and the viscosity of the liquid, but in general the distance is anywhere from 6 in. to 12 in. Follow the manufacturer's recommendations on the side of the can. Trigger the aerosol can 2 in. to 3 in. off the edge of the piece and continue in one smooth motion across the entire width, finally releasing the

A choice of nozzles

Aerosol cans are equipped with one of two nozzle designs. The basic model sprays a cone-shaped pattern. A better design sprays an evenly shaped tapered fan pattern similar to that made by conventional spray guns.



BASIC

This nozzle's conical spray pattern makes it difficult to spray an even coat.





A fan of this can. The raised lines on both sides of the pin hole indicate that the nozzle can be rotated 90° to shift the spray pattern.



Adjusting the orientation. A pair of pliers may be used to turn the nozzle to get a vertical spray pattern.

BETTER This style of nozzle produces an adjustable fan-shaped spray pattern.

Cans with a horizontal fan nozzle produce a long, elliptical spray pattern.



With the nozzle rotated, the spray pattern becomes vertical, which makes it easier to get into back corners of projects.



APPLYING AN AEROSOL FINISH



Shaken, then stirred. Before being used, all aerosol cans should be shaken up and down (left) to dislodge any solids that have settled, and then swirled around (right) to combine the solids with the propellant and the solvent.





Instant spray gun. An accessory handle makes spraying any aerosol much easier and more precise.

trigger 2 in. to 3 in. past the other edge (see the drawings below). This method eliminates puddling at the beginning and end of the stroke. Spray in short bursts, stopping at the end of each stroke. Repeat the procedure, overlapping each successive swath about 50% until the entire surface is covered.

Turn the piece 90° and spray another light coat (called boxing in spray-finishing lingo). Avoid heavy coats. It is easier to spray on another coat than it is to sand out a run. Let the finish dry, then repeat the entire process until you are satisfied with the appearance.

The number of coats for maximum protection varies with the percentage of solids in the individual finish. As a crude rule of

thumb, for decorative projects I apply multiple coats until the pores on tight-grained wood are filled with finish. Projects that will see heavy use get two or three additional coats after that. In general, I use satin finishes because they hide defects that a gloss finish would highlight.

The technique for rubbing out an aerosol finish can be identical to that for any other kind of finish. However, because each coat of finish is so thin, it is possible to sand out any defects such as dust specks, apply a final show coat and buff that with a dry rag to give a silky smooth finish.

Always clear the nozzle after use by turning the can upside down

APPLY COATS IN BOTH DIRECTIONS

SPRAY TECHNIQUE

The secret to achieving even coverage is keeping your wrist locked. Keep the can a steady 6 in. to 12 in. from and parallel to the workpiece. Don't let your wrist move the can in an arc.



To avoid streaking and missed areas, overlap each pass by 50%.



Spray another coat perpen-

dicular to the first.

Watch it on the web For more on aerosol spraying techniques, go to www.finewoodworking.com.

A SIMPLE SPRAY BOOTH



A gentle breeze. A router speed control slows the fan driving air through the spray booth. Without this reduction, the force of air would bounce the overspray and vapors back into the operator's face.

and spraying on some scrap until nothing but propellant is coming from the nozzle. In this way the actuator won't be clogged with dried finish the next time you try to use it.

Don't spray when it's hot and humid

Most aerosol finishes perform best at temperatures around 75°F and low relative humidity, conditions rarely seen in most woodshops. With a conventional spray finish, the solvent can be manipulated to suit various atmospheric conditions, but because aerosol finishes come in a sealed pressurized can, you cannot adjust the solvent mixture to account for less-than-ideal conditions.

This means that some finishes will almost certainly blush when sprayed on a hot, humid day. Blush occurs when the rapid evaporation of the solvent from a finish cools the surface to below the dew point of the surrounding hot, humid air. Water vapor in the air then condenses into liquid water on the surface of this cool finish. This in turn forces some of the finish resin to crystallize into microscopic white specks of solid finish. Avoiding blush is fairly easy: Don't finish when both the temperature and the humidity are high.

If you do end up with blush on your project, all is not lost. It can usually be eliminated by waiting for the humidity to go down and then spritzing a light coat of the same finish over the entire project. The solvents in the fresh coat often will release the trapped moisture in the dried finish, eliminating the blush. You also can minimize the chances of blush if you can match your finish to the weather conditions. I've found through trial and error that aerosol acrylic lacquer finishes have fewer tendencies to blush than aerosol nitrocellulose lacquer finishes when it is hot and humid, while aerosol varnishes are virtually blushproof any time of year.

Aerosol cans require respect

Without a doubt, the ready-to-use, spray-it-and-forget-it nature of aerosol finishes makes them a valuable asset in any shop; however, this convenience comes with a price. The warnings on the cans of aerosol finishes read something like this: "Contains propane,



A makeshift spray booth. Made from a cardboard box and a furnace filter, this cheap and disposable spray booth is ideal for collecting overspray when using aerosols.

isobutane and petroleum distillates. Vapor harmful. Do not puncture or incinerate. Exposure to heat or prolonged exposure to sun may cause bursting." Pay attention to these important warnings. That innocent-looking aerosol can is really a little bomb.

A few precautions will prevent disaster. When I use an aerosol finish, I always open a window or a garage door and turn on a fan behind me that sweeps air across the project toward the outside. The flow of fresh air keeps the fumes away from my face. I wear a good organic vapor respirator, too (see *FWW* #155, pp. 117-118). While these precautions keep me from inhaling the vapors, they do nothing to keep the overspray from sticking to everything in its path. My solution is to spray small projects inside a large cardboard box fitted with a furnace filter (see the photo above). This easy-to-make, disposable filter collects overspray.

The shelf life of aerosol finishes varies: For lacquer and shellac it is almost indefinite, but with varnish the driers lose their effectiveness after about two years. With any can of finish of uncertain age, it is best to do a sample spray to make sure that it dries properly.

Chris A. Minick is a consulting editor.