Paint models with latex

Model Airplane News, Nov 2003 by Vaillancourt, Roy

More information on this great technique

Not only is latex paint non-toxic, easy to clean up and environmentally friendly, but a paint-supply store can also exactly match it to a color chip or other scale documentation. I first detailed how to paint with latex in the April 2001 issue of Model Airplane News, and since then, many modelers have written to ask me questions or to report their success. It seems that many of you still have questions about this process, and even those folks who have had pleasing results have followup questions. In this article, I answer some common questions and share a few tricks and tips that I learned since I wrote the last one. Editor's note: to see Roy's original how-to article, take the Click Trip at modelairplanenews.com.

Q CAN YOU USE LATEX PAINT ON A NITRATE OR BUTYRATE DOPE WITHOUT A PRIMER?

A Yes, but the key is to make sure that the dope is fully cured. Most dopes release gas for a fairly long time-sometimes for three to five weeks, depending on the temperature and humidity. To test it, sniff the surface; if you can still smell the dope, it isn't fully cured. If you paint over the dope before it is cured, you trap the gas, and it will eventually dissolve the latex or lift it. (This also happens if you put epoxy, primer, or other paint over dope before it's fully cured.)

In most cases, you don't need to use a primer over the dope. If you want to use a primer, solvent- and water-based ones will work. If you use a solvent-based primer, confirm that it is fully cured before you apply the latex. In any case, give the latex something to adhere to: sand the surface with 280- to 300-grit sandpaper.

Q WHAT ABOUT UNPRIMED FIBERGLASS OR PLASTIC PARTS?
A You can put latex directly on raw fiberglass, but first fill all of those little dents, pinholes and such. The best method is to sand the fiberglass first and then shoot two coats of primer over it. Next, sand the primer almost off to leave a faint gray area to show you where your plane needs a little more work. Fix these areas, and apply just enough primer to cover the repair. Sand the area again lightly. Try to maintain a light shade of gray. When I sand off all the primer before I apply the latex to the raw fiberglass, I get a great finish without the added weight of the primer. You can also apply latex directly to unprimed plastic parts and be sure of great results. Whether you paint fiberglass or plastic, the key is to make sure that the surface has enough "bite" for the latex to bond; 280- to 320-grit sandpaper works best. Don't make the parts too smooth, or the paint won't stick well to the surface.

Q WHAT ABOUT UNPRIMED FABRIC AND PLASTIC FILM?

A I have painted fabric-covered aircraft and those with only fabric-covered control surfaces without priming the fabric. I applied the latex to "raw" Super Coverite. The latex took to the Coverite as if it had been made especially for it-great! When the fabric sags or becomes "dented," you can apply heat to reshrink it, and the paint just goes along for the trip. This technique can also be used on any iron-on fabric covering. I also discovered that latex paints don't crack because of vibration or when parts shrink or expand. Remember, latex is rubber!

You can also paint over plastic film, but you need to roughen it first. Remember: latex needs to bond mechanically with the surface. Steel wool will work well to roughen plastic film. The finer-steel wool "grits" are graded in an "aught" scale: 0, 00, 000, 0000. The more 0s, the finer the steel wool. For most plastic films, "triple aught" (000) or "four aught" (0000) works best. You should always test a piece of scrap material first; if the latex paint you apply peels off, you need to use a coarser steel wool.

Q WHICH KIND OF PRIMER IS BEST?

A When I use a primer, I usually choose automotive lacquer (solvent-based); I only recently tried others. Some water-based primers work very well and "sand" just like the lacquer, but I've found that they take longer to dry than solvent-based primers; both work well to fill those little nicks and dings. I prefer to use a light gray or white primer because the colors show the surface imperfections a bit better than other colors after filling and resanding, and they provide a better base for any subsequent top color.

Q CAN I USE A HIGH-VOLUME, LOW-PRESSURE (HVLP) SPRAY GUN?

A You should be able to use any HVLP guns on the market today. You'll need to play with the air pressure and the quantity of thinner you use. Don't be afraid to experiment; latex paint varies with the manufacturer. You will also find that using a different color can require you to change your settings and technique. just go easy, and change only one setting at a time.

Q MUST I CLEARCOAT LATEX TO FUELPROOF IT?

A This depends on the kind of fuel you use. If you use a gas engine, you don't need to clearcoat the latex. It withstands exposure to gasoline very well after it has cured. If you use a glow engine, however, you will need to clearcoat; latex turns into a gooey mess when glow fuel gets on it.
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Q WHAT’S THE BEST CLEARCOAT METHOD?

A Clear epoxy and polyurethane work well, but again, you must wait until the latex has fully cured. Also, be careful not to flood the surface with the clearcoat. If you plan to use water-slide or vinyl, pressure-sensitive decals, let the latex fully cure before you apply the decals. When everything is fully cured (after about a month or so), you can add a top coat. The key is to apply light coats; don't get the latex too wet. You'll need only a little more than a misting of clear.

Keep in mind that some epoxy and polyurethane paints use a toluene-based thinner that attacks latex. Check the can! Water-based polyurethane and epoxy work fine.

I have top-coated latex many times and prefer to use K&B's clear Hobby Poxy. On my military planes, I mix the clear with "satinc hardener, and I sometimes add talcum powder to the mix. Some modelers don't like to clearcoat because it can "yellow" over time, but my old WW II birds get better-looking with this "aging" process. On sport models, I use a glossy clearcoat and a few coats of auto wax from time to time to prevent UV rays from turning the clearcoat yellow.

I have never used a polyurethane color coat. I don't like to work with these paints because they are too heavy and messy. They are also very difficult to match if you need to repair your plane. If you want to try clear polyurethane, I suggest that you test a few samples first. Spray a piece of glass and let the polyurethane cure for about a week. Then apply raw fuel, and note the results.

Q HOW DO YOU MASK COLORS AND PREVENT BLEED-OVER?

Go to your local auto-body-supply shop and buy masking s tape. Use the good 3M stuff; the blue, low-tack type works best. Don't use cheap stationary-store masking tape. After you've covered all of the areas that you don't want to paint, spray the paint lightly along the taped
edge, and gently dry it with a heat gun. Repeat this twice (three times total) before doing the entire area.

After you've applied the last coat, partially force-dry the paint near the tape, and then remove the tape and allow the paint to cure fully.

Q WHICH THINNERS AND/OR ADDITIVES WORK BEST?

A Naturally, most people expect me to say "water." Some guys suggest regular tap water; others use distilled water. Both work well, but I prefer to thin latex with an alcohol/water mix or-better yet!-windshield-washer fluid. Yep; windshield-washer fluid. You can use any brand, including the cheap blue stuff. Don't worry about the blue tint; it doesn't change the paint's color. The interesting thing about them is their soap content; they all have soap, and it slows drying to allow the paint to "flow" more and produce a better finish on almost any part. Once it has fully cured, latex thinned with windshield-washer fluid can be weathered just like epoxy and lacquer-really neat!

The only material I add to latex is Floetrol; it allows the latex to flow out without running. It also lubricates spray guns, and slightly reduces latex's sheen. (Latex dealers will tell you it doesn't, but it does.) You can get Floetrol from stores that supply professional house painters who use it when they roll and spray paint. Add about 2 ounces of Floetrol to a quart of paint before you do anything else. This is the only time you'll add this stuff, so you won't need to buy much.
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Q WHICH TEMPERATURE AND HUMIDITY CONDITIONS ARE IDEAL FOR PAINTING?

A Weather doesn’t matter when you paint with latex. I usually paint in my basement during midwinter, and the temperature in my shop is typically around 55 degrees. (I like it cool!) You can spray latex on a rainy, cold, damp day, and you’ll get the same or better results as you would on a sunny day. In fact, it’s easier to work with latex on cold, damp days. I use a heat gun to accelerate the drying time between coats. I spray the first coat on just enough to see coverage; then I dry it with the heat gun. I let the second coat go on just a bit wetter, and again, dry it with the heat gun. After I’ve applied a third coat, I leave the model to dry overnight. just to make sure that the latex has cured, I go over the painted area with the heat gun again, and then I’m ready to mask for the next color.

TIPS AND TRICKS

When it comes to curing latex (or any painting process), time is the most important ingredient. Sunlight seems to hasten the process, so after I’ve finished a plane, I set it out on the patio table every day that weather permits. If you put a plane together on a hot day before the latex has hardened, the wing and fuselage may stick together. To avoid this, I put baby powder on the wing saddle the first few times I assemble a plane.

Another really neat thing about latex is that if you don’t like the paint job or you have runs, splatters, or dog hairs in it, you can just wash it off with a damp rag, dry the surface with a heat gun and paint it again. If a dog hair or bug gets in a part that’s still nice and wet, just pick out the offending object with some tweezers and leave the paint alone (don’t force-dry it). By the next morning, the latex will have flowed to cover the spot you touched.

I hope I have answered most of the questions that lingered after my previous article on this subject. You will find that the first few times you try to use latex, a bit of trial and error is required. Practice on a scrap piece of glass. And remember: if you don’t like the first shirt, just wash it off and have another go! Good luck. Don’t be afraid to experiment with materials and procedures, it just takes a little practice and experimentation to get great results.