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MODEL AIRPLANE NEWS
HOW TO

Paint models with latex

An inexpensive, safe finishing alternative

by ROY
VAILLANCOURT

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Roy Vaillancourt's beautiful warbirds all have one thing in common: they're finished with household latex paint!

Environmental concerns increase daily, and we now know that many materials we use are not environmentally friendly. Many solvent-based paints are high on the list. As the EPA and other agencies have removed these substances from the store shelves, we must find suitable alternatives. Latex paint is non-toxic, allows your spray equipment to be cleaned up with ordinary soap and water rather than harsh chemicals and is much better for the environment than solvent-based paint.

Compressors and Spray Guns

I use an old Sears, Roebuck and Co. 1/2hp compressor. It provides plenty of air pressure and keeps up nicely with my gun's requirements. Even some of the better diaphragm compressors will work well. Just be sure your equipment can supply enough air to properly feed your gun. Make sure your compressor has a water and oil trap; oil in the paint will cause "fisheye" blemishes. Also, use an air-pressure regulator so you can control the airflow through the spray gun. This allows you to vary the amount of paint applied when you pull the trigger. I use several types of spray guns. Try to match the size of your spray gun to the size of the paint job. For big areas such as wings and fuselages, I apply the base colors with an automotive "touch-up" gun that has a medium needle and orifice. For finer work, I use an airbrush. All types of spray guns will work with latex paint.



Several types and sizes of spray guns can be used with latex paint—from the smallest airbrush to the largest, heavy-duty automotive touch-up gun.

I began to use latex to finish my airplanes in 1983. After a mishap with my P-47 Thunderbolt, I needed to repair and repaint it. At the time, I was using K&B SuperPoxy paint, but when my Benjamin Moore paint dealer told me he could match all my scale colors perfectly—for about an eighth of the cost—I had to give it a try!



Left: latex sticks to fabric covering as if it were made for it. You can also apply light coats over dark coats with no problem.



Right: the author has also used latex on unprimed, fiberglass-covered models such as his L-19. Scuff-sanding the surface really makes latex stick! Here, the model is completely finish-painted with all its markings added. Epoxy paint can be applied over the latex finish, but it must be added in light coats. Using solvent-based paints over latex can harm the finish.



Here, the base color coat has been applied to the wing. Try to match the size of your gun to the size of the painting job you're doing. A touch-up gun is perfect for large surfaces. here, the base color coat has been applied to the wing. Try to match the size of your gun to the size of the painting job you're doing. A touch-up gun is perfect for large surfaces.

After making the repairs, I did all the usual panel lines and rivet detail as before, and I repainted my Thunderbolt in the same scheme. I applied the latex over conventional automotive primer. Most surprising was that the plane lost weight after the process. In all, my 92-inch-span Jug weighed 41/2 pounds less than before. Whoever heard of a model losing weight during a repair?

When you use it, latex feels thick and heavy compared with other paints; actually, it produces a lighter finish once it has dried, and it generates very little overspray. Latex doesn't like to be wet-sanded; it will begin to roll up if it gets wet for too long. I found that, with some practice, I could sand a latex finish successfully to a fine, feathered edge. Latex can also be applied directly to unprimed, fabric-covered areas. I use SuperShrink Coverite; latex sticks to it as though it was made especially for it. The nice thing is that even if the fabric sags or gets dinged, you can simply reapply heat and shrink the fabric tight again without affecting the paint. Since it's a rubber-based paint, latex does not crack because of vibration or the expansion and shrinkage of parts.

We have all been taught that you're supposed to apply light colors first, followed by darker ones, but with latex, this is not necessary. When I painted my fabric-covered, Stinson L-5, I first painted the whole model Olive Drab (OD), then added the light gray underside colors over it. I did this so the inner surfaces of the cockpit would match the outside color, and the OD latex showed through the fabric very nicely. The plane required three coats to cover, and the light gray required two coats to cover the OD areas. Talk about breaking all the rules! Latex also holds up very well when it's applied to fabric; after 10 years of flying, the plane looks as good as the day it first left the shop.

I have also used latex over unprimed, fiberglassed surfaces with good success. For my L-19 Bird Dog, I sanded all the primer off except where panel lines and hatches were. I scuff sanded the glassed surfaces with 280- and 320-grit sandpaper, and the paint stuck as if it were welded on! Epoxy paints used for aircraft markings can be applied over a latex finish if you don't flood the epoxy paint on. If you saturate latex with anything containing acetone or toluene solvents, it will turn it into a rubber-cement-like goo.





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Applying Latex

When it's time to paint, be ready to play with the air pressure. For either a touch-up gun or an airbrush, I start with about 20psi of air pressure, although this can vary by 5psi depending on the brand of paint and how much pigment it contains, the amount of thinner added and even the color being used.

I start by adding about 20 percent thinner to just a bit of paint; then I test-spray it onto a piece of glass. If it doesn't flow properly, I increase the air pressure a bit. If it still doesn't flow through the gun, I put the air pressure back to where it was and add thinner. If the paint "spits," I add more thinner. If it comes out wet and runny, I add some more paint. The idea here is to use a small jar of paint to find the correct mix ratio for that color. Adjust your gun for low paint flow. If you get runny stuff even at low-flow settings, then you have added too much thinner. If it comes out dry-looking, increase the flow of paint or add thinner. Very rarely will you use less than 15psi of air pressure. Do not spray paint with more than 30psi air pressure; this will cause too much overspray.



When you use latex, the weather doesn't matter. I usually paint in my basement shop in the winter; the temperature there is usually about 55 degrees (I like it cool). I have sprayed latex on rainy, cold and damp days, and results are the same as on sunny July days. In fact, latex seems to be easier to work with on cold, damp days. I just keep a heat gun around to accelerate the drying time between coats.



On cold days, I spray the first coat on just heavily enough to barely see some coverage. I then dry it with the heat gun and spray the second coat on just a bit wetter. After drying that coat, I spray the third coat then go upstairs and let the paint dry overnight. The next day, I go over everything with the heat gun once more just to make sure it's completely dry.

Top: when you apply latex, spray on the first coat very lightly, then speed its drying time

with a heat gun. Apply two more coats, drying each, and then let the paint dry overnight.

Middle: here, the next color is being applied to the fuselage. Note that all the panel lines and rivets have been added, and the latex is being applied in light coats to avoid covering the fine details.

Bottom: Here, the model has been completely painted and awaits the addition of scale markings. Don't put your model together too soon after painting on warm, sunny days; the parts can stick together if the paint hasn't fully dried.



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Here, the model is completely finish-painted with all its markings added. Epoxy paint can be applied over the latex finish, but it must be added in light coats. Using solvent-based paints over latex can harm the finish.

Masking

Use good, low-tack 3M masking tape. Don't use cheap stationery-store-grade masking tape, or you'll get poor results. After masking and covering all the surrounding areas, lightly spray along the taped edge. Dry this coat with the heat gun and repeat the process two more times before doing the rest of the painted area. Dry the paint again with the heat gun and be sure to thoroughly dry the area next to the tape. Remove the tape and call it a day so the paint can continue to dry overnight.

Types of Paint

I have used high-gloss, flat- and satin-finish paints, but I have had the best results with Benjamin Moore's semi-gloss, exterior-grade paint. Whichever brand you choose, be sure to use exterior grade. Interior paints don't hold up well to the abuse we modelers can dish out. Latex will be dry to the touch in about 15 minutes and can be masked over in about 6 hours. A nice feature of the paint is that its drying time can be accelerated with a heat gun. After 6 hours, if you press on the surface with your fingers, you'll leave small prints on the surface. This is not a problem, as they will disappear in about 12 to 24 hours. After two or three months, however, this characteristic disappears, and the paint becomes as stable and as tough as epoxy or lacquer while still remaining flexible on fabric.

If you are going to use a gas engine, latex doesn't need a clear top coat; after it has fully dried (24 hours), it's completely compatible with gasoline. If, however, you are using a glow engine, you'll need to protect the finish with a clear epoxy or polyurethane top coat after it has dried fully.

Where do you get custom colors mixed? I take the color chips from my scale documentation package and give them to the guy at the local paint store. To match the colors, he places them in front of an optical spectrometer. This neat, computer-controlled device shines a light on the chip to analyze it. In a few minutes, the machine produces a formula for mixing the paint. The paint guy mixes it up, and I'm on my way. One quart of custom-mixed paint generally costs between \$8 and \$14 and is enough to paint about five planes!



Latex paint is non-toxic and very inexpensive. You can get any custom color mixed at a paint store.

Thinner

Naturally, you would expect to use water as a thinner, and it works OK. I use an alcohol/water mixture that's better known as "windshield-washer fluid"! That's right; even the cheap stuff from a gas station works great. This fluid has detergent in it, which "thins" the water (breaks its surface tension) and slows the drying process. The alcohol evaporates quickly and leaves the detergent, water and paint behind. The water evaporates next, leaving the detergent and paint. Slowing the drying time a bit gives the paint more time to flow out and cover the surface more evenly. Once fully cured, latex can be weathered and treated just like lacquer paint.

The only additive I use is one called Floetrol. This is a latex paint conditioner that helps the paint flow without running and acts as a lubricant for spray guns. It slightly reduces the sheen of the paint, but this is not a concern. A little goes a long way, so use only 2 ounces of conditioner for each quart of paint.

Time is the most important ingredient for the paint to completely dry, though sunlight does seem to speed the "hardening" process. When I have finished painting a model, I set it out in the sun to help "cure" the paint. One note here: if you assemble your plane too soon after painting it on a hot day, the wing and fuselage may stick together. To prevent this, I use baby powder on the wing saddle the first few times I assemble the model.



Left: When masking parts, use a good-quality, low-tack masking tape. Bargain-brand tape gives poor results. Right: Once fully dried, latex can be weathered and sanded just like any other paint. Simply allow the finish to dry fully, and take your time. Don't use too much water when wet-sanding.

Another really neat thing about latex is that if you don't like your paint job, you can wash it off with a damp rag before it dries. You can then dry the model with your heat gun and start over. Also, if some hair or a bug gets stuck on it, you can carefully pick out the offender with some tweezers without harming the paint. In the morning, the paint will have spread to cover the spot you touched.

To sum up, latex is not just for houses! It is a very good, inexpensive and non-toxic paint for our models as well. If you want to

try latex on your next model but have a few questions, contact me c/o Model Airplane News. I'll be glad to help you out.

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