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Latex Enamel

Problems & Solutions

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Proper substrate preparation and good application technique are the keys to a durable finish

If you listen to the paint advertisements on TV, you might think all you have to do to get a good, long-lasting latex enamel coating is to brush it on. The truth is, it takes knowledge and a lot of experience to produce durable and attractive work with latex enamels. There are many factors that can cause a latex coating to fail. Here are some of the most common, along with their solutions.

Paint Doesn't Stick

Causes:

- ☑ Inadequate substrate preparation; no primer used.
- ☑ Paint applied over a glossy, too-hard, or too-soft surface with no primer used.
- ☑ Paint applied over dusty, chalky, oily, or greasy surface.
- ☑ Inadequate cure time before exposure to moisture, heat, or cold.

Solutions:

- ☑ Wash/etch substrate with TSP solution and rinse.
- ☑ Sand/score with sandpaper.
- ☑ Use primers where recommended — porous surfaces, glossy surfaces, or new wood, plaster, or stucco.
- ☑ Allow adequate curing for each coat, and only apply paint in proper weather conditions.

Uneven Sheen

Causes:

- ☑ Inadequate sealing of surfaces with varying porosity.
- ☑ Too much variation in film thickness due to uneven application.
- ☑ Exposure to moisture before paint fully cured.
- ☑ Temperature too high or too low during application; extreme temperature variation during curing.

Solutions:

- ☑ Use quality primers on porous surfaces and all repairs, or multiple finish coats where practical.
- ☑ Use quality tools to apply paint methodically and evenly.
- ☑ Allow for proper cure time without interference from moisture.
- ☑ Be mindful of application temperatures and anticipated drying conditions.

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Bare wood must be primed with a high-quality primer — either latex or oil-based — before application of the finish latex enamel coat.

Color Bleed-Through

Cause:

- ☑ In woods, moisture will carry water-soluble color extractives (tannic acid) through the paint film. Most tannic acid staining occurs within seven days of the first-coat application.

Solutions:

- ☑ Use quality primers specially formulated to block staining agents.
- ☑ Allow at least 48 hours for the first prime coat to cure before applying finish coats. If brownish spots or rings begin to appear, reprime the whole area.

Paint Doesn't Hide Substrate

Causes:

- ☑ Extreme color changes such as white over black.
- ☑ Failure to thoroughly mix paint.
- ☑ Didn't apply a thick enough coat.
- ☑ Underlying substrate too porous.
- ☑ Overthinning of paint.

Solutions:

- ☑ Use multiple finish coats or a tinted primer coat. Some paint colors (pale yellows and off-whites) have very little pigment and do not cover well.
- ☑ Make sure your product is thoroughly mixed or stirred prior to application.
- ☑ Use top-quality tools that are correctly suited to the surface you are painting.
- ☑ Prime/seal porous surfaces before using finish materials.
- ☑ Follow manufacturer's guidelines for thinning or extending paint.

Drips, Sags, and Runs

Causes:

- ☑ Application of paint over a hard or glossy surface.
- ☑ Painting over residual films, surfactants, or washing compounds.
- ☑ Applying a too-thick coat of paint.
- ☑ Overthinning of paint.
- ☑ Surface too cold to be painted or relative humidity too high.
- ☑ Paint too cold to apply and overly thick.

Latex Tips

Surface Prep

Proper preparation is essential to achieving a good-looking, long-lasting finish, whether it is on new wood or previously painted surfaces. New wood and walls must be primed before painting. Use a special stain-blocking primer for redwood and cedar, which tend to bleed tannin through the paint. Prime coats should not be brushed or sprayed on carelessly; treat them just like a finish coat. Following the prime coat, the wood should be lightly sanded, then spackled and caulked.

Previously painted surfaces, such as wood trim and kitchen and bathroom walls, should be washed thoroughly with TSP (trisodium phosphate) or a similar degreaser, rinsed carefully, and lightly sanded to assure adhesion of the new paint to the old.

Consistency

When applying latex enamels, the consistency should not be so thick that the paint dries with excessive brush or roller marks, and not so thin that it runs, sags, or fails to cover. Two thin coats will look better and apply easier than two heavy coats (with many colors, two coats are required). Many painters use additives such as Floetrol to give their paint the proper working consistency.

Application temperature is critical. Here, a painter working in the winter primes and paints exterior trim in a heated basement.

Quality Counts

All paints are not alike, and unfortunately, you can't always judge the quality by the cost. Usually you get what you pay for, but there are expensive latex enamels that do not compare in quality.

The quest is always to find latex enamels that will provide the same look and durability as oil-based paints. A favorite of painters is Fuller O'Brien's AA Pro Line interior enamel. Lately, we've had success with Benjamin Moore's alkyd-modified exterior latex paint, which bridges the gap between oil and acrylic products. Our goal is a paint that will brush on easily, lay out smoothly, and dry hard.

Best Conditions for Application

Latex enamels, like their oil-base predecessors, need to be applied in clean, dry, warm environments and should not be subjected to cold or damp conditions until they have cured. Similarly, dust and debris must be controlled carefully or they will get in the drying paint and ruin the finish.

Paint applied at temperatures around 50˚F or lower will dry very slowly and may look blotchy when dry. But if it is too hot, say 98˚F, the paint will dry too fast and will not properly adhere to the substrate. Wind or air movement of any kind will accelerate drying time.

Spray vs. Brush and Roller

To approximate the look and feel of traditional oil-based enamels, we occasionally apply latex enamels with spray equipment. This eliminates unsightly brush marks, which are difficult to make look nice unless you're a master brush technician. Still, most latex enamel is put up with a brush and a roller.

Use a good-quality nylon polyester brush, the right size and shape for the job (we favor Purdy brushes). Paint one board or section at a time. Lay off your brushstrokes with the grain of the wood, and always keep a wet edge, or you'll have a difficult time feathering in the next course. We often use a roller to quickly apply the paint to a surface and then lay it off with a brush to give it a finished look.

Sheen

Generally speaking, the rougher the surface, the flatter the sheen should be. A high-gloss finish on a pock-marked old wall can look terrible, even if the color is perfect.

Semigloss and satin sheens are most commonly used on wood trim, with high-gloss used sparingly on exterior trim and fine cabinetry. However, one manufacturer's semigloss may have the sheen of another's high-gloss, so experiment a little before you make your final product decisions.

Cleanup

While easy cleanup makes latex paints popular (running water, a little soap, and you're all set), just remember to do it in a sink. Even the ingredients in latex paints are harmful to the environment. In many areas of California, it is against the law (subject to a $5,000 fine) to clean latex brushes or rollers in backyards or storm drains. Cleaning brushes and rollers in sinks that drain into sewer systems keeps the residue from getting into creeks and watersheds.

Solutions:

- ☑ Wash/etch glossy/contaminated surfaces with TSP or equivalent and rinse well, then sand thoroughly and dust.
- ☑ Check manufacturer's recommended spreading rate and use the correct roller nap or spray tip for the surface and paint.
- ☑ Follow manufacturer's recommendations on thinning or extending the paint.
- ☑ If surface is cold to the touch, don't apply paint. Do not paint when humidity exceeds 85%.
- ☑ If paint has thickened due to coldness, place the paint can in a container of warm water to restore its optimum consistency. Strain before using.
- ☑ For drips, if the paint is still workable, back-roll or dry-brush using upward, even, light-pressured strokes, wiping the brush frequently. If paint is not workable, wait until it is completely dry, then carefully "shave" off the tops of the drips with a razor blade and sand with a light-grit sandpaper or a sanding sponge (3M recently introduced a sandpaper line designed specifically for sanding acrylic latex paint). Spot-prime and recoat.

Paint Crawls

Causes:

- ☑ Applying a second coat before the first has adequately cured.
- ☑ Painting in direct hot sun.
- ☑ Painting on a surface that is too cold.
- ☑ Painting over a glossy surface without proper preparation.
- ☑ Applying a hard-drying material over a softer coating without priming first.
- ☑ Applying too thick of a film.

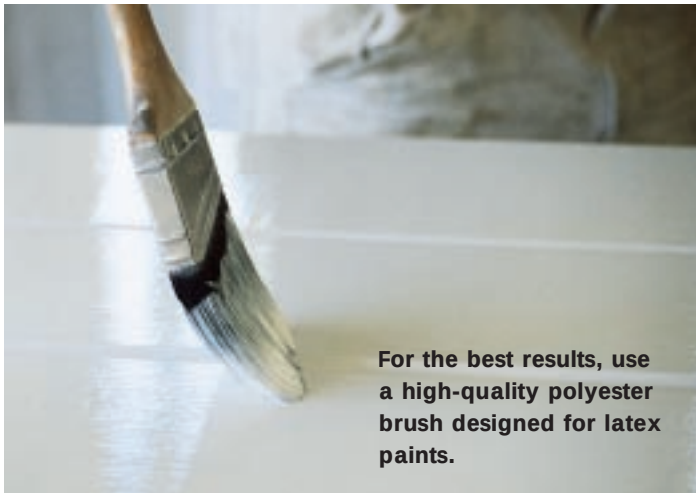
Solutions:

- ☑ Remove paint layers that have crawled. If the paint is still soft underneath, scraping alone may work; if not, use a chemical stripper or, after the film has dried, remove with a torch or heat gun. Areas stripped to bare wood should be primed and allowed to dry completely before applying finish coats.
- ☑ To avoid crawling, apply and lay off each coat thoroughly and allow each coat to cure completely before applying the next coat.

Vivid Brush Marks or Roller Ridges

Causes:

- ☑ Paint film dries too rapidly.
- ☑ Overbrushing, dry-brushing.
- ☑ Not allowing proper cure time between coats.
- ☑ Poor-quality tools.
- ☑ Poor technique.



For the best results, use a high-quality polyester brush designed for latex paints.

Solutions:

- ☑ Use latex sandpaper to sand out roller ridges and brush marks.
- ☑ Avoid painting in direct hot sunlight or on very hot days.
- ☑ Don't overthin paint.
- ☑ Don't overwork the paint.
- ☑ Always allow each coat to dry before applying the next one.
- ☑ Use high-quality tools. That means properly flagged, tipped, and tapered brushes and beveled roller-cover ends.
- ☑ When brushing, knit strokes together to form a membrane coating with each brush load "melting" into the last.
- ☑ To avoid roller ridges, lay some material off of both ends of the roller cover prior to your stroke, right in your stroke path. Then stroke so each roller fully overlaps the last, with the beveled ends feathering the material in instead of leaving a ridge or uneven buildup.

Saponification in Bathrooms

Cause:

- ☑ Saponification is the reaction that occurs when the alkyd resins in the paint come into contact with alkaline films that tend to form on bathroom walls and ceilings from soapy spray water. This results in poor adhesion and a soft paint coat.

Solution:

- ☑ Remove the damaged coating by scraping or with chemical strippers. The affected areas should be washed with a strong solution of TSP or a 10% phosphoric acid solution. Allow the area to dry for 48 to 72 hours and apply an alkali-resistant primer before repainting. ■

The authors are partners in PaintCraft Associates of Walnut Creek, Calif., an association of contractors in painting-related fields. Visit their Web site at www.paintcraft.com.