

An Article on Bleed Through and Yellowing of Bright White Paint

All bright white paint will yellow slightly with time, with or without topcoat. Water-based topcoats are reactive and more likely to draw out substances in the wood such as tannins or unknown substances in existing finishes causing the topcoat to yellow. This is an industry-wide issue regardless of the paint brand.

There is no way to reliably predict yellowing ahead of time. Sometimes yellowing occurs, sometimes it does not. Every existing finish is different and people rarely know what the existing finish is on a surface. Every tree is different and every piece of wood is unique. Wood can bleed tannins immediately after the topcoat dries or months later with a change in temperature that comes with a change in seasons. Oak, Pine, Mahogany, and Douglas Fir are particularly prone to bleed-through.

As is true of most "water-white" topcoats, General Finishes High Performance Topcoat is a clear drying finish over a non-reactive substrate such as plastic. When white paint sealed with a water-white topcoat is applied to something as unpredictable as wood, all bets are off and the reason is often unknown. Yellowing can be caused by the top coat activating the tannins in raw wood or aniline dyes, stains or contaminants in a pre-existing finish. This is most evident when using BRIGHT WHITE paint and most prevalent in the sculpted details of furniture, where the topcoat can collect, intensifying the color change to an unacceptable level.

To add to this issue, all bright white paint will yellow slightly with time, with or without topcoat. You have probably tried to touch up white woodwork in your home after several years and noticed that the new paint is brighter.

SUMMARY:

- Whites have a lower "hide" quality and are more transparent than most other colors. Most bright whites require additional coats to achieve the desired color and minimize color variation. This can increase the cost of paint finishing.
- Bright white paints can yellow over time with or without topcoat.
- The underlying finish or wood species can affect the final color of light paint.
- Details and inside corners are difficult to cover with any paint color, but this property tends to be more noticeable with whites. This is a naturally occurring phenomenon in paint application and does not necessarily constitute a defect in the paint finish or your technique.
- The more porous the paint (chalk paint vs. an acrylic paint), the more likely that yellowing will occur. The topcoat is actually seeping through the spaces caused by the larger particles of filler that give chalk style paints their texture.



TIPS FOR PREVENTING BLEED THROUGH AND YELLOWING

1. Use a softer white such as Antique White or Linen. Or, use a paint product with a topcoat already built in, like General Finishes Brushable White Enamel.
2. Be prepared to apply extra coats of paint. This translates to extra costs for time and materials.
3. If it is a low use project, use a premium white paint that is self-sealing and does not require a topcoat. A clear top coat is not required on GF Milk Paint for increased durability, as it is a self-sealing, exterior rated coating with very high durability and performance properties. However, top coats provide a smoother surface that is easier to clean and boost durability for high use projects such as table tops and kitchen cabinets.
4. Tint your topcoat! Add 10-15% of the paint you are using to the first application of topcoat. The last two layers of topcoat should NOT have paint in it to maintain durability. This technique can be used with any color (not just white) and it really boosts bright colors.
5. Use a coat of light gray over a primer before applying white paint. General Finishes has good reports of this technique from customers, but GF has not tested this technique in their lab.
6. Use 2 coats of GF's Stain Blocker to help seal surfaces and increase protection against bleed through. Another recommended primer is BIN Shellac Based White Tinted Primer. (Note, this is NOT the liquid shellac topcoat that is yellow and thin in consistency.)
7. Always test your project's ENTIRE finishing schedule (from cleaning to topcoat) on an inside door or a more hidden area of the piece. This does not help if the yellowing occurs later but you will at least know if there is an immediate problem.
8. Always apply a stain blocking primer under white or light-colored paint such as GF Stain Blocker or a shellac based primer. Always let any primer dry overnight. Some of the primers GF's has seen suggest a 3-hour dry time and that is not enough.
9. If you are working on period pieces, such as 1930-40's mahogany, which were often finished in stain containing aniline dyes that cast a pinkish bleed through under light paint, **stay away from light colors**. Not every piece of furniture is suitable for upcycling with a light paint color. Pine, Mahogany, and furniture of the 1940's and 50's are major red flags.
10. Last, not all manufacturer's topcoats are compatible with other finishes and may react in the form of a color change. Always follow best practices by not rushing and testing to your satisfaction first.

