

Exterior TRIM PAINTS

Trim paints and siding paints are, in almost all brands, not the same thing. While both have to stand up to the same ravages of weather, trim paints need an extra measure of toughness. Window sashes, frames and sills, as well as doors, will have to endure a lot more handling than your siding will. And trim—or at least a goodly part of it—is apt to be washed a lot more often.

But which brand fills your needs best? It's virtually impossible to say without knowing what color you want. An exterior trim paint's important features—its ability to withstand the rigors of weather and abuse in use—depend largely on its particular hue and on the ingredients used to produce that hue. Accordingly, we rated the paints in this project separately for all those characteristics that depend on the specific color.

On the other hand, the constituents of the paint's base are apt to be constant through all—or at least most—of the paints in the brand line. So, we have included, in our paint Ratings, judgments of a number of factors we think will hold true for all paints of the exterior-trim type in a company's line, whatever the color.

For this report, we tested alkyd (oil-based) and latex (water-based) trim paints in six of the most popular colors used for exterior trim work: white, green, brown, red, black and blue. Every paint was judged for color-related properties: hiding power and—after weathering—resistance to chalking, color change, loss of original gloss, mildew, and dirt collection. We also tested each paint for the brand-related properties of brushability, leveling, and resistance to sagging. The white and green paints only were laboratory-tested also for the brand-related traits of adhesion, drying time, uniformity of color and gloss from the first coat to touchup, resistance to blocking (sticking, as a door or window might, well after the dry-through time), ease of removing stains and dirt, and storage survival.

In all, we tested and rated 88 individual paints, 47 of the alkyd type and 41 of the latex. They are not evenly divided because, at the time we bought our samples last year, some brand lines were reformulating or, in the case of *Mary Carter's*, did not have latex trim paints available. Similarly, the *Pittsburgh* alkyd line and three other major brand lines are absent from the project because their paints would not have met the then-pending Federal requirement that now limits lead content to 0.50 per cent in dry paint film (see the box on page 509). Since all paints sold after the first of this year must comply with that standard, those particular paints would have been long off the store shelves by now. We also had to drop two other brand lines because they were undergoing major formulation changes.

Generally, there's not a wide variety of colors available in exterior trim paints, so we weren't able to get every color for every brand. Where possible we chose bright, "high chroma" colors. Otherwise we chose the closest color to that; we did not buy any pastel shades, available in some

of the custom-mix brand lines. The Ratings note those paints we considered outstandingly clean and bright.

Though CU's in-house paint experts made most of the judgments in the weather-resistance tests, the opinion of outside paint consultants is also incorporated in the final Ratings. The workload for all other testing was shared between CU's own experts and the paint consultants.

In all kinds of weather

We weathered one set of 8x12-inch painted pine panels for six months in Puerto Rico, whose extremes of heat and humidity would represent a considerably longer exposure in more northerly climes. Over the same period, we exposed a duplicate set of painted panels in the New York metropolitan area to test each paint's resistance to airborne dirt and other pollutants. The tests gave us a line on how gracefully the paints aged—in a number of respects:

CHALKING. A paint chalks when sun and water cause the paint film to deteriorate, exposing loose and powdery pigment on the surface. The problem is easy enough to detect—a hand rubbed on an aged paint with the defect will come away covered with a fine powder. (The powder will be white if the paint is white. But chalking is not confined to white paints, nor is the color of the chalk necessarily the color of the paint.)

With trim paints, even a slight degree of chalking is undesirable from an appearance standpoint, since it will cause the gloss to dull. Heavy chalking is particularly noxious—rain will often carry it down from woodwork onto siding beneath, leaving unsightly stains. Among the white alkyd paints, the *Sherwin-Williams* was poor in chalk resistance and the *Dutch Boy* and *Wards* were only fair; several other paints in other colors made similar showings. Two oil-based blue paints, the *Dutch Boy* and the *Mary Carter's*, showed slight evidence of bronzing—that is, of developing the bronze cast that sometimes appears on dark blue and red paints. Since bronzing rubs off, too, we've incorporated it into the chalk-resistance judgments. None of the black paints showed any evidence of chalking.

COLOR CHANGE. The sun's rays can also change a paint's color. Most colors simply fade (with black paints, termed a loss of jetness). White paints don't fade but can turn gray; and they sometimes tend to yellow where they are not exposed to the sun, as under an eave or porch roof (some of our white alkyds did, as a comparison of outdoor samples with a set of white painted panels kept indoors showed). Any paint the Ratings term excellent in resistance to color change was not affected at all.

GLOSS RETENTION. A comparison of the initial gloss of our test paints with the gloss measurement of each after weathering told us by how much each had been dulled by exposure. Only one paint out of the 88—the *Dutch Boy* black alkyd—scored excellent; that means that it retained at least 95 per

cent of its gloss. Two other black alkyds, the *Glidden* and the *Patterson-Sargent*, rated very good, having retained 80 per cent or more of their gloss. A number of paints, both alkyd and latex, rated as low as very poor; those retained anywhere from just under 5 per cent of initial gloss to none whatsoever.

MILDEW. Trim-painters living in areas such as Houston, New Orleans or Miami would do well to choose a paint we've rated high in resistance to mildew. That fungus grows on paints of all colors, and in hot, humid climates can ruin a paint film. Sometimes it's hard to distinguish mildew from dirt. When in doubt, wash the suspect areas with a 50-50 solution of household bleach and water—if the areas bleach out, you have mildew. The very poorest in mildew resistance was *Du Pont's* white alkyd; others rated poor were the *Glidden* and *Patterson-Sargent* white alkyds and the *Sherwin-Williams* green latex. We did not rate mildew growth on the brown and black paints.

DIRT COLLECTION. Some paint films tend to hold onto atmospheric dirt: some tend either to pick up less dirt or else to let it slough off in a rain, making the surface at least *look* cleaner. As with resistance to mildewing, we didn't rate dirt collection on the black and brown paints—we just couldn't distinguish any on those dark surfaces.

Adhesion and hiding

It makes relatively little difference how well a paint stands up to weather if the paint doesn't stick well to the subsurface. And if you have to prime a surface to get paint to stick to it, you essentially double your work—aside from adding the cost of primer to the price of the job. Unhappily, the good overall durability of the latex paints was pretty much undercut by their questionable adhesion to previously painted surfaces.

To see how tenaciously each paint would cling to a surface it was supposed to protect, our consultants brushed the white and green paints of each type and brand on three separate types of surfaces where trim paint might be applied. Some of our test panels had previously been covered with glossy paint, half of which had been sanded and half left alone; other panels bore chalked house paint and others a recent coat of primer. After all three sets of panels were dried hard, they underwent standard adhesion tests, first dry, and then soaked, as they might be after a heavy rain.

In all those tests, the trim paints tended to adhere better when dry. They stuck best to the recently primed surfaces and then, in descending order of tenacity, to the sanded glossy, the unsanded glossy, and the chalked panels. All but two alkyds earned a mark of excellent; the *Glidden* and *Sears* alkyds were close behind with adhesion judgments of very good.

The latexes? Only one, the *Sherwin-Williams*, rated as high as very good in adhesion. And three—*Pittsburgh*, *Fuller* and *Dutch Boy*—varied so widely in adhesion from sample to sample within a color that we couldn't assign them a firm score. (We can say, however, that those three adhered less well, overall, than any other latex in this project.)

A paint's hiding power, too, can affect the ease or troublesomeness of a job. Our index here was the ability of each of the 88 paints to cover a contrasting color band on primed



panels, and to cover standard black-and-white patterned test charts. We rated all colors on the same scale so that all hues of paint rated good, say, would have about the same hiding power.

The results? The darker hues, as a rule, hid better than the lighter. No white paint was judged better than good at hiding, and we believe they would all present problems in covering a darker color in just one coat; the browns, blacks and blues

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did very well, most of them excellently. In our opinion, those the Ratings note as excellent in hiding power would be able to cover almost any surface, even one involving an extreme change in color, with one coat.

Bear in mind that other factors could offset the importance of a paint's hiding power to your specific job. Even a good hider, if it's poorly applied or if it doesn't level well, may let the old color show through the low streaks in the brush marks. On the other hand, if you're not changing the color of your trim more than a little, you could probably get by with one coat, even with a paint judged poor in hiding.

Application and after

BRUSHABILITY, LEVELING, SAGGING. All the samples brushed on well and produced a uniform coat. In general, the latexes went on a little more easily than the alkyds. However, the alkyds on the whole did better in leveling. We could score none of the latex paints better than good in leveling; two, *Dutch Boy* and *Sherwin-Williams*, were merely fair. Sagging presented no problems; the *Patterson-Sargent* alkyd and the *Du Pont* latex received the lowest grade (good).

CRAWLING. Latex paints may not soak into, or "wet," a surface being painted as well as alkyds—any slight oily film or chalky residue from previous paint may affect the ability of a wet latex to coat a surface uniformly. The oil or chalk may make the latex form "beads" (and so fail to provide a continuous paint film) or may make the paint "crawl," or tend to retreat from edges. At best, such shortcomings make brushing more time-consuming and difficult. One sample each of the *Fuller*, the *Patterson-Sargent* and the *Pittsburgh* latexes tended to crawl on old glossy surfaces. Even after we sanded the surfaces to give a better "bite," the *Fuller* sample still crawled.

DRYING SPEED. You're apt to want to handle painted trim areas such as doors and windows relatively soon, so drying times for exterior trim paints should be fairly short. In that respect, the latex paints had it all over the alkyds. Our consultants judged paints excellent when they dried tack-free—no longer sticky to a tentative touch—in less than two hours. The same mark went to paints that dried hard enough to withstand moderate pressure without damage in less than six hours. The Ratings' drying-speed judgments are composites of our tack-free and dry-hard findings.

Only one latex scored as low as good—that is, took as long as six to 12 hours to dry tack-free and 12 to 24 hours to dry hard; most did considerably better. The *Sherwin-Williams* latex, indeed, dried tack-free in a half hour. But good was the best the speediest alkyds (the *Mary Carter's* and the *Patterson-Sargent*) could muster; all the rest were judged poor (tack-free, 18 to 24 hours; dry-hard, 36 to 48 hours) or very poor (more than 24 and 48 hours, respectively). For that matter, many of the oil-based paints still had some residual tack even after being judged dry-hard.

BLOCKING. Some doors and windows seem to stick shut forever after they're painted—especially in warm weather—because of a characteristic called blocking. To determine each test paint's resistance to that trait, CU's consultants thoroughly covered two surfaces with each green and white paint, let them dry for a month and then put each twin paint-face to paint-face and weighted them down. At room tem-

perature block resistance ranged, in the alkyd type, from excellent (the *Mary Carter's*) to fair (the *Glidden*); in the latex type, *Fuller* and *Sherwin-Williams* were excellent and *Pittsburgh* was poor.

GLOSS. Exterior trim paints usually have a degree of gloss that will set them off from the larger wall areas of the rest of the house. (*Sherwin-Williams* is the only tested brand that markets its standard, flat latex house paint as a trim paint as well. But that brand's alkyd does offer a choice of gloss; we chose the alkyd with a degree of sheen.) Virtually without exception, the alkyd paint in each brand line had a higher gloss than the latex, as the *initial gloss* column of the Ratings shows. And the two glossiest latex brands were flatter than the duldest of the alkyds. Thus, alkyd is the type for you if you want a high shine on your trim.

A week after we had applied the paints for our initial-gloss judgments, our test panels received a partial second coat. Any differences our consultants found between the initial coat and those of the second coat gave us a measure of *uniformity* of color and of gloss. Those considerations become important should you have to touch up certain areas with skips, overlap previously painted sections or repaint entirely.

Fortunately, color uniformity was excellent or very good for all but two paints; the *Glidden* alkyd and the *Patterson-Sargent* latex, which did a bit less well.

Gloss levels were nowhere near so uniform. Variations in sheen were noted particularly with the *Du Pont*, *Dutch Boy* and *Patterson-Sargent* latexes, as well as with the alkyds of *Sherwin-Williams* and *Glidden*. Oddly, the latter brand's white *dropped* significantly in gloss on recoating.

EASE OF STAIN REMOVAL. Scrubbing a painted surface often takes off some of the gloss along with stains and dirt. Our Ratings determinations in this category represent a composite of judgments of the ease of washing off stains with a detergent solution and of the appearance of the washed area thereafter. The relatively glossy alkyd paints came clean with relative ease, but the cleaned areas were noticeably flatter. Being relatively dull to start with, all the latex paints shed stains with less visible loss of gloss.

BRUSH CLEANUP. Soap-and-water cleanup has always been one of latex paint's touted virtues—no need to use turpentine or other flammable, expensive solvents. However, that virtue has become a little tarnished, we found. Among the latexes, only the *Fuller* was excellent in ease of brush cleanup with detergent solution; the rest ranged from very good to *Du Pont's* poor. Using the proper solvents, we had no problems cleaning brushes soaked with the oil-based alkyds.

Keeping well in the can

After checking their as-received stability, viscosity and general condition, CU's consultants stored samples of each green and white paint for six months at room temperature. Then they were checked again to see how the storage had affected their painting properties. Other samples were stored for a week at a hot, 120°F temperature to accelerate the effects of aging.

All but a few of the paints survived both storage stability tests in usable condition; the latex paints showed a slightly better viscosity stability than the alkyds. Some paints let most of the pigment settle to the bottom, but that was not

How much lead? Mercury?

Not so long ago, there was no limit to the amount of lead a manufacturer could add to his oil-based paints as a pigment or a drying agent. The hazards of such practice have recently become all too well known (see, for example, *CONSUMER REPORTS*, October 1972). While the Federal Food and Drug Administration now sets a legal limitation of 0.50 per cent of lead in dry paint film, that limit didn't take effect until the first of this year. And we had to buy our trim paints before then to get samples in time for testing. We wondered about lead content.

The manufacturers assured CU that the paints that we did buy would meet the FDA requirement. And laboratory test reports brought back good, but not perfect, news—all our white paints received a clean-of-lead bill of health. The same was true for all but two of the green paints: the *Patterson-Sargent* alkyd failed compliance with an 0.89 per cent lead content; the *Du Pont* alkyd flunked with 0.72 per cent.

Mercury is another harmful element, and one that we believe can work its way back into the environment from

paint films. Routinely used in water-based latex formulations to inhibit bacterial growth, mercury also goes into latex and alkyd paints as an antifungus and anti-mildew agent. We had all our brands tested by a procedure whose lower detection limit was 0.005 per cent.

The results raised certain questions: Almost all the alkyd paints showed no detectable mercury in the test. The makers of the *Wards*, though, found it necessary to use 0.042 per cent. Why?

Conversely, all the latex paints but the *Sherwin-Williams* contained detectable amounts of mercury. Yet the mildew resistance performance of the *Sherwin-Williams* was nearly as good as the *Dutch Boy's*, which had the highest mercury content in the paint film—0.35 per cent—of all the latexes tested. Why?

Obviously, the makers of the *Sherwin-Williams* used something other than mercury to inhibit bacterial growth in the can and to keep fungus and mildew from making inroads on the dried film. We believe other manufacturers should do the same.

counted against them as long as they could be remixed satisfactorily. Only the *Du Pont* green latex turned out to be difficult to remix after storage. After the 120° aging test, the *Sears* alkyds dried much slower and had a low gloss, the *Sherwin-Williams* and *Wards* alkyds lost some gloss, and the *Dutch Boy* green latex changed color slightly.

It's not a good idea to leave your paints where they can freeze, even though most will manage to thaw out unimpaired. In a standard freeze-thaw test, at 10°F, none of the oil-based alkyds would freeze to begin with, thanks to the solvents in their makeup. The water-based latexes did freeze, but only one, the *Fuller* green, thawed out coagulated and unusable. Be sure to check any latex as soon as you buy it—the paint may have frozen at some point in the distribution chain. If it's jellied or coagulated, get your money back.

Their solvents may protect alkyd paints from freezing, but they also make the alkyds smellier than the latexes. Those alkyds that smelled strongest of solvents were the *Fuller*, *Wards*, *Mary Carter's*, *Patterson-Sargent* and *Sherwin-Williams*. As far as the nose is concerned, the latex paints are pleasanter to work with, but one of our test brands, the *Patterson-Sargent*, gave off a fairly strong ammonia odor.

Choosing your paint

We think a decision between alkyd and latex is your wisest first step. The latex paints withstood weathering better than the alkyds, and so should allow you to extend the time between trim-painting sessions. The latexes dried fast, another distinct advantage—your work is less likely to be undone by a sudden rainstorm. Latexes also proved to have the edge over the alkyds in ease of brushing, storage stability and ease of stain removal.

Weigh those plus factors against the latex paints' generally questionable adhesion to previously painted surfaces. If a paint doesn't stick well to begin with, it won't matter how well it might weather. By comparison, the oil-based alkyds

we tested generally scored very high in adhesion. The alkyd paints also leveled better—so you're not so apt to see brush marks—and, as a class, offer a range of paints with a full, high gloss. Further, almost all the alkyd paints had far lower contents of mercury than did the latexes (see the box at the top of this page).

On balance, we believe most people would do better to choose an alkyd. But if you prefer a latex exterior trim paint, follow the label instructions closely. And take realistic assessment of the surface you're planning to paint. If it is chalked, greasy or dirty, or if the previous paint still has a high gloss, wash it down with a trisodium phosphate household cleaner, rinse, allow to dry, and, if necessary, sand the surfaces. Never ignore those unweathered areas under the eaves and porch or breezeway ceilings. Our rule is: When in doubt, put on the recommended primer before using a latex exterior trim paint.

Having selected a paint type, you'll want to consider color. Turn to the Ratings of the type you've chosen, look at the section that deals with the color of interest, and check the performance of competing paints for the factors relevant to your climate and your specific job.

Before making a final choice, you'll want to see a sample of the paint you're buying. Fortunately, when CU's experts compared our painted panels with the manufacturers' color samples, they agreed that almost all were quite close to the color they were supposed to be. Only the *Sears* green paints might surprise you a bit if you were expecting the color you ordered from the sample—the alkyd green color match was rated fair and the latex good.

Sears may have other surprises in store for you, too. The blue and red alkyds we ordered came without any coloring at all. Those were custom, or store-mixed, colors and obviously someone forgot to add the color. We were able to resample the red in time for testing, but not the blue, which we dropped from the project.

Turn page for Ratings