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U. S. DEPARTMENT OF COMMERCE
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Letter
Circular

LC 603

July 5, 1940.

OUTSIDE HOUSE PAINTING

This letter circular does not attempt to cover fully the subject of outside house painting, but is designed to answer average letters of inquiry on this subject. For more detailed information the references given in Letter Circular 574, "Publications on Paint, Varnish and Bituminous Materials", should be consulted. Letter Circular 574 also gives information as to how Federal Specifications may be obtained.

In general, one should remember that dark-colored paints are not only cheaper, but are also more durable than white or light-colored paints. For example, an iron oxide-linseed oil paint meeting Federal Specification TT-P-31, which is the kind of paint commonly used on barns, etc., will last much longer than any white linseed oil paint. Likewise tinted paints generally are more durable than white paints. If one wishes to paint in white or tints, paints containing the expensive white pigments must be used.

It is not possible to make any positive statement as to the relative merits of straight white lead-linseed oil paint, generally mixed by the painter on the job, as compared with commercial ready-mixed white or tinted paint. If one were called upon to decide between white lead and all brands of ready-mixed white paint, the answer would be that the white lead paint would be the safest to use. On the whole, while it is probably true that white lead paint mixed on the job averages better than any other white oil paint, this does not necessarily mean that straight white lead is always the best white pigment for oil paint. It is certainly in part due to the fact that painters know more about handling white lead paint than they know about mixed paints. In other words, it is more fool-proof. On the other hand, it is not entirely fool-proof and it is not at all uncommon for painters to use too much oil in mixing white lead. Federal Specification TT-P-156 covers ready-mixed, straight white lead-linseed oil paint for finish coat work. Formulas for mixing the priming and intermediate coats of paint are also contained in this specification. The National Lead Company, 111 Broadway, New York City, and the Eagle-Picher Lead Company, Temple Bar Building, Cincinnati, Ohio, issue booklets giving a great variety of formulas for mixing straight white lead paints.

Lead-zinc paint which will meet the requirements given in Federal Specification TT-P-36a will probably be as good as, and in some respects may be more desirable than the straight white lead paint. Certain mixed paints made of a pigment composed of titanium-barium (a composite pigment composed of about 30 percent titanium oxide and 70 percent barium sulfate), titanium-magnesium

(a composite pigment composed of about 30 percent titanium oxide, and 70 percent magnesium silicate), or titanium dioxide, zinc oxide and white lead also give excellent service. The white paint covered by Federal Specification TT-P-101a is of this type. A properly-made mixed paint with a pigment approximating that of this Federal Specification should give excellent service.

White lead paint dries to a soft film which frequently gets dirty in the first few months of exposure, but generally this dirt later chinks off. It decays largely by chinking, thus leaving an excellent surface for repainting. The addition of some zinc oxide to white lead makes the film harder, thus reducing the tendency to take up dirt. The addition of too much zinc oxide makes the film so hard that it cracks, leaving a bad surface for repainting.

It is frequently advisable, particularly at the seashore, to add a small amount of good exterior varnish to the last coat of paint. The amount of varnish added should be quite small - from a pint to a quart per gallon of paint. However, care should be taken in selecting a varnish which will mix properly with the paint, because some good spar varnishes will thicken some paints. The only practical thing to do is to try the varnish in the paint on a small scale and see that it mixes properly. It is not advisable to add the varnish to the undercoats of paints.

Quite recently, new types of quick-drying house paints have appeared on the market. They dry more quickly than the regular linseed oil type, and hold their luster and color better than the usual house paint. These new house paints frequently contain synthetic resins. Such paints usually contain high-strength opaque white pigments such as the titanium pigments. For solid colors, pure, high-strength pigments are preferred. Their use in the house painting field, particularly for trim colors, is growing. Great care is needed in their formulation.

Of equal if not greater importance than the paint is the condition of the surface on which it is applied. The surface should be dry, and any structural defects that will permit water to get in the wood back of the paint coating should be corrected before painting. Water back of a paint film will ruin the best paint. This is the most common cause of paint blistering.

Briefly summing up the question of outside painting in white and light tints, it is believed that with proper care in application good results can be had either with straight white lead or with ready-mixed paints, which comply with the requirements of the above-mentioned specifications.