

Gunnison Housing Corp.
Prefabricated Housing
Primer for Wood
Primer for Plywood
Primer for Houses

Arco
Sherwin Williams
O'Neal Paint Co.
NuAct

Mr. C.R.E. Merkle, "
Mr. Stuart Graves, "

Philadelphia Laboratory
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QUICK DRYING PRIMER FOR PREFABRICATED HOUSES

REVIEW OF WORK BY L. B. DARRALL

As a preliminary to active work in developing a quicker drying primer suitable for plywood in the construction of prefabricated houses, the experimental work carried out by L. B. Darrall in 1942 and 1943 has been reviewed. The data are gathered here for future reference.

The result of Mr. Darrall's work was the development of an alkyd primer coded P-87-N-85759. This has RC-111 as a vehicle. It was designed to meet the drying schedule in use at Gunnison Housing Corp. and had to match a competitive primer made by Arco. Subsequent trial of this primer revealed that it did not dry fast enough to meet the requirements of Gunnison Housing Corp. because they apply a much thicker film than normal.

Table I presents the drying time for the Arco primer and several duPont primers. All the primers in this test are slower than the Arco material, but the primer with RC-111 as vehicle seems to be somewhat quicker than the others. This primer was subsequently improved by removing a proportion of VM-1792 aluminum stearate which had been incorporated in the first batch. A comparison in drying with the Arco primer is shown in Table II. In this test, apparently, the alkyd duPont primer dried more rapidly than the Arco primer.

A further improvement in drying could be made by incorporating 1% of NuAct. The effect of this material is shown in Table III. It is apparently most effective when added in the let-down and its chief effect is to prevent loss of drying on storage.

Because it was expected that better durability would be obtained from primers with a straight oil vehicle, many variations of the oil primer 347-833 were investigated. These included drier variations, the use of VC-810 Varnish, the use of VO-2882 and H-410 heavy bodied linseed oil, dehydrated castor oil, Pittsburgh Oil and Kellin Oil. None of the modifications were as quick drying as the primer with RC-111.

A number of the experimental primers will be found on exposure in Series 7201 and 7603. The latter contains two other competitive products, Sherwin-Williams Prefab Primer and O'Neal's Primer. The latter dries very rapidly. The two competitive primers have been found inferior in durability to primers of the type of P-87-N-85759 or to the Arco primer. In fact, P-87-N-85759 has shown better durability than straight linseed oil primers in these two exposure series. This leads to the possibility that quicker drying alkyd primers might be satisfactory for the purpose, and an investigation to determine the durability of quicker drying vehicles is now in progress.

Notebook References: #2316, pp. 98-115
#2348 pp. 50-73
" pp. 110-111
" pp. 160-161
#2497 pp. 18-25
" pp. 44-53

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TABLE I
DRYING OF ALKYD AND ORTHODOX PRIMERS VS. ARCO
NOTEBOOK 2316, PP. 112-113

Code	Paint	Tack-free - hours	
		77°F.	120°F.
SR-40384	Arco	1	1
P-347-N-70830	347-817 Brush Primer	3	1
-N-70831	347-833 Spray Primer	4	1
-N-70834	Alkyd RC-121	2	1
-N-70835	Alkyd RC-111	3	1

TABLE II
ALKYD PRIMER (NO ALUMINUM STEARATE) VS. ARCO
NOTEBOOK 2348, P. 160

P-347-N-78125	RC-111 - no aluminum stearate VM-1792	Tack free - hours
SR-40384	Arco	

TABLE III
EFFECT OF NU ACT IN ALKYD PRIMER
NOTEBOOK 2497, P. 52

Code	Description	Tack free - hours		
		Initial	6 weeks	7 months
P-67-N-90340	Control	1	2	1 1/2
-N-90341	1% NuAct in letdown	1/2	1	1
-N-90342	1% NuAct in grind	1/2	2	1 1/2