

QUARTERLY RESEARCH REPORT
PAINT, VARNISH & LACQUER LABORATORIES
THE GLIDDEN COMPANY
(APRIL, MAY, JUNE, 1956)

SYNTHETIC
RESINS
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TRADE PRODUCTS
RESEARCH REPORT
APRIL 1956

SPRED GLIDE-ON

Our weathering tests are continuing on Glide-On as well as new versions of exterior latex paint. Two very disappointing house tests have been examined after a year of weathering. Our conclusions are that latex paint applied over peeling house paint will not retard the continued peeling of the old paint. By comparison a coat of Endurance Paint can effectively slow up continued peeling. There was no evidence of the latex paint itself peeling from the bare wood surface.

In a direct comparison of current Glide-On with our regular Endurance Exterior Basecoat for spot priming, a badly blistered house showed that there was very little difference between the two. Since the moisture which caused the original blistering is still prevalent, peeling of the spot primed areas, as well as the old painted areas, continues unabated. This is the first time that we have seen a Glide-On primed area show loss of adhesion under severe moisture conditions. However, we do know from our laboratory blister tests reported on last month that this failure was to be anticipated. As yet we have not seen any tests which would discourage us from releasing Glide-On as a quick drying spot primer for beneath Endurance House Paint.

Our efforts toward blister proof paints continue unabated. Mr. Southwick discussed our flat oil paints under his section of the report. However, a number of our latex systems continue to be of interest in this regard.

We are continuing our inspection of raw material suppliers' test fences and feel that the information correlates well with the bulk of our own exposure work. The new expanded exposure facilities at Cleveland is making possible many more exposures and in addition quite a number of the temporary test racks have been shipped to the various test areas for exposure.

As a result of our exposure tests in Florida and the many structural tests across the country, we are reformulating two colors in Glide-On to be made in part with a new vehicle made by our own emulsion research laboratory. Mr. Euchner has done a fine job in preparing these new vehicles. In order to facilitate our work with the South American licensees, one of these colors in the Florida area alone will be made with a copolymer type of vehicle from Dewey and Almy, Division of W. R. Grace Company. As soon as possible, the other shade in Florida will be made with Glidden's own copolymer for direct comparison on durability. While we are accepting a certain amount of risk in the adoption of these new formulations with only 14 months' experience we believe that it is a necessary move because of the excess chalking being experienced with these two shades of Glide-On at the present time.

P. C. Herzog

HOUSE PAINTS

We have just completed evaluating all of our exposure panels on the roof, in the backyard and in Medina County. We are particularly interested in formulations that have equal durability to our standard house paint formulation at lower cost. Among the possibilities that look interesting for cost reduction are lead silicate (45X), leaded zinc (18M), titanium calcium and calcium carbonate type formulations. Our plans are to weigh these possible changes in formulations and come up with formulas that will save money at equal or better durability and can strengthen Glidden's position in the house paint field.

GLD37070

PROFESSIONAL EGGSHELL ENAMEL

Considerable work has been done this month on an eggshell enamel designed for the painters' needs. Our primary interest in the new formula which we feel the painter needs is easy brushing, excellent hiding and good viscosity. We have worked on a formula that is patterned after the San Francisco SF12685 which has had good success. A gallon of our new product is to be sent to the Greenbrian Hotel in White Sulphur Springs as a field test.

ALL PURPOSE ENAMEL

This past month we have been working on an "All Purpose" Enamel along the line of S.W. Kem Lustral. We are using this material as a guide but hope to have better exterior durability. The performance requirements are good brushing, spraying, dipping, 3-4 hours air dry, and force drying at low temperatures. The qualities that we have under test are Japalac, Sign and Background, Spedene, Aircraft, VulCote and VCM. Our tests show that VCM is very superior in speed of dry and force drying. All the enamels are on exposure at Florida and Cleveland. At present we favor the VCM quality but more testing is necessary.

J. E. Southwick

EMULSION PAINTS

A new program is being launched for evaluating numerous latexes and body agents for use in Satin, Flat, Exterior and Gloss. This involves a study of approximately ten different latexes in the PVA, acrylic and modified forms of polymers. Each group will be checked with approximately 20 different body agents or colloid systems including protein and synthetics.

From this study information should be obtained which will add to improving present products or to provide for new ones. Up to now there has not been much concentration along these lines but the present trend toward new latexes and polymers and lower costs plus the information and background we would like to obtain on our own manufactured latexes, makes it desirable to do this work. Due to the newness of some of the work it may be several months before any predictions can be made.

DRAMATONE

Work is continuing toward improving working properties of some of the troublesome colors but progress is slow due to the lengthy testing required before any changes can be made. Different metal containers with and without liners have to be checked before obtaining proper package stability as each formula is checked. This work is done here and by various tube supplying companies but in either case a time factor is involved for proper evaluation and no satisfactory results have been obtained for assurance of foolproofness.

J. G. Kingston

lms
5/1/56

GLD37071

TRADE PRODUCTS
RESEARCH REPORT
MAY 1956

SPRED GLIDE-ON

Our blister tests in the laboratory have been continued in an attempt to duplicate results of the test jobs that have been examined this Spring. We feel that we are gradually adding to our fund of knowledge as to how to control this all important property. Attempts are being made to accumulate field information on actual use of Glide-On as a spot primer for under Endurance Paint since the Sales Department would like to release this for Fall marketing. At the present time we have adequate experience for small scale spot priming beneath Endurance Paint but sufficient exposure data is lacking where entire houses have been primed with Glide-On beneath Endurance Paint.

Our first production batch of Aquamarine Glide-On made from Dewey & Almy's copolymer Latex Everflex BG has been completed. All of our tests here indicate that it should perform better than our current Glide-On formula, particularly in the Florida market. This batch will be used to repaint a hotel in Florida which has shown severe chalking failure of our present Aquamarine formula. Glide-On was applied one coat over a difficult surface under still more difficult conditions. Adaptation of the Glidden copolymer for field test work in Florida at the same time is continuing and a formula will be issued shortly for field trials. Examination of many new latexes proceeds at a high rate and many new colloid systems are being checked in order to determine the optimum types for future exterior formulations.

HOUSE PAINTS

An extensive evaluation of all of our exposure panels of our various products has been completed, as well as examining the test fences of the major raw material companies. All of these factors are being assessed as well as the need for reduced cost in light of our competitors' lowering of their quality in their first line products. Other people's exposures, as well as our own, show that Endurance Imperial and regular Endurance House Paints are amongst the very best. Examination of competitive products indicate that they have good initial appearance but sacrifice some longevity of the paint films in order to cut costs. Only one or two competitors are indicating a reverse trend toward higher hiding and better quality. At the present time, it is our feeling that the quality of Imperial and regular Endurance should be maintained or improved if possible without cost increases.

The fume and mildew resistant formula, Y-1850, formerly known as Titan-O-Zinc will be shifted to a quality commensurate with competition at some cost savings. The 1-W-118 will be kept as our lowest cost product in a quality in line with our competition.

An improvement in our house paint primer from the application standpoint is planned but we hesitate to do anything which will reduce its quality from the peak level at which it is now maintained. There are a few other available primers that approach the performance of this product.

A great deal of time has been devoted to the development of blister resistant type of paints. The use of dead flat paints is being spurred by the entry of several major houses into this field. Preliminary tests on their products indicate that they have very serious shortcomings which we believe will limit their salability in a relatively short period of time. Until we can prove out our formulations as being acceptable we are recommending that two coats of Y-1851 be applied in lieu of flat paint. By a slight change in inert content Y-1851 can be made to be even flatter without loss of durability.

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ALL PURPOSE ENAMEL

Efforts are being spent toward the development of an All Purpose Enamel for sale in those regions where low volume industrial accounts need a product which can be applied under a variety of drying conditions as well as application methods. To date no one quality has proven satisfactory and we are continuing our search.

SPRAY CONTAINERS

Evaluation tests on Japalac continue to look very good as far as our potential entry into the spray can field is concerned. It worked so well that one private label customer is interested in the procurement of our product for his own containers. This could be a very large volume item for us.

EMULSION PAINTS

Our first production runs at Reading based on the use of modified Firestone PL-13 Latex have been completed. Some important differences have been noted from our laboratory evaluations but it is felt that the differences are not necessarily detrimental. We are taking time to make certain that no unforeseen properties have been disturbed as the result of such changes. A considerably higher body was obtained with this production lot than had been anticipated and as a result the flow and some of the working characteristics were not quite perfect. A decision on the ordering of more production lots will be made soon.

Work on the use of new latexes for greater water resistance in our paints continues. During the past month we have run into a rather serious discrepancy in our test methods. We now find that each latex has a specific glossy surface over which it looks better than others. By changing the substrate slightly, major differences in the ratings of our products occur. The search for the combination which will give us the greatest over-all improvement will continue. Several of the combinations have very unique and interesting properties.

DRAMATONE

Additional improvement work on some of our troublesome colors has been done. At the present time, settling of our older tubes of Umber Brown, Chrome Yellow and Ferrite Yellow seems to be the most important. Since no entirely satisfactory formula has been evolved we have commenced comparisons with products in the field which are reported to be satisfactory. Most of these are either not universal in character, capable of addition to either oil or water thinned products, or they do not show the depth of color possible with our system, or they do not show the tinting strength of our system. While this reduces the difficulties to a major degree, it also decreases the utility of the system. It is felt that we would like to stay with the present system and solve our difficulties.

P. C. Herzog

PCH/lms
6/1/56

GLD37073

Mr. Bowell reports on his work with the Glidden PVA copolymer #65. A vast number of batches have been made at varying pigmentations and at varying PVC's, and on various substrates. Geon 450X127 has been investigated in a similar series of paints. Exposures have not been out long enough to permit comment.

Semi-Urethane oils (LM6067) have been evaluated as having good possibilities as an emulsified primer composition. Emulsion stability is difficult to obtain.

Butoxy materials also look very interesting as primers. Also being tried as primers are the old T1279 Camouflage paints which were either oil or water reducible.

The properties that Dow X2647 shows indicates a continuing interest for exposure work.

Mr. Heideloff reports on a variety of pigmentary changes in Dramatone to hold settling which is characteristic of four of the Dramatone shades. He is also trying to replace Methocel from Black and Ruby Red formulations as a potential source of the lack of uniform color dispersion. He is also examining various anti-settling combinations to prevent caking in the tube which is being found on our older stocks.

P. C. Herzog

TRADE SALES REPORT

Y-1850 Endurance Fume Proof -- Our aim has been to develop a fume resistant durable, lower cost paint that will also have good brushing. To accomplish this we have made the following changes. Zinc oxide, W-33, dropped from 5 pounds to 3 pounds 12 ounces; the use of titanium calcium, W-179, and anatase titanium dioxide, W-91, gives lower cost titanium content; the use of small amounts of blown soya (C-52) to improve the flow and gloss; and Advance Puffing Agent to improve the brushing. A 100 gallon batch has been made in the plant. The cost reduction is from \$2.27 to \$2.12 in 500 gallon batches.

Y-1880 Endurance -- Work is progressing on Y-1800 to lower the cost without sacrifice of durability. We are planning to replace leaded zinc oxide, W-6, with zinc oxide, W-33, and lead carbonate, W-104. Our cost savings will come by dropping the W-33 2 ounces per gallon and the W-104 10 ounces per gallon. We are also working with puffing agents to improve the brushing.

New Endurance Colors -- Two new colors have been sent through; Y-1889 Cocoanut Brown and Y-1890, Pinehurst Green, which match Glide-On Y-3511 Desert Brown and Y-3505 Timberline respectively. Both formulas are made on the titanium calcium, calcium carbonate, lead-free type formula which has excellent color retention. Chromium oxide is used as the basic color pigment in Y-1890. Umber brown is the basic color pigment in Y-1889. Our weatherometer tests look very good.

House Paint Primers -- 45X has been under evaluation in both Y-1851 Endurance Basecoat and Y-5051-C Professional Primer. Blister cabinet tests show that full replacement of W-104 with 45X gives more blisters. One-half replacement is equal to straight W-104. In Y-5051-C a lower cost alkyd vehicle with the use of 45X gives us a lower cost for the painter use. Blister resistance, however, is not as good as Y-1851. RL-80 is used as a puffing agent and brushing aid. We expect good painter acceptance with this formula.

J. E. Southwick

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Florenamel -- Our aim is still to include an Epon resin with our long oil alkyd. The varnish laboratory is actively working on this problem, but as yet have produced nothing in the Epon line compatible with V-869. Although the use of strong solvents will produce a clear solution, the dry film is not clear, and would not make a suitable finish where gloss and durability are important.

Flat House Paint (Also Shingle and Shake) -- This problem has been brought to a decision by pressure from competition and as the natural reaction of our Sales Department. We have what we think is a suitable White Flat based upon a formula originated by the Eagle-Picher Company. Reading has also furnished us with a similar flat and a system for making colors from an inert base and colors in oil. Because of sheen requirements, we would prefer the Eagle-Picher formula, but we would probably adopt the Reading system for making colors. We have a 100 gallon batch of White now on test for customer comment regarding application and appearance.

Although we can move rather fast on this problem if necessary, there is still a large element of risk involved.

J. W. Watson

lms
7/3/56

GLD37075