



Cleveland

March 28, 1951

CITY

FEBRUARY PRODUCT DEVELOPMENT REPORT

FOR Mr. H. W. Dell

Cleveland

SUBJECT

ANSWERING LETTER OF

Raw material replacement work and government specifications continue to require a great deal of laboratory time which is to be expected under present conditions. The Cleveland Section outlines the work on replacement of wood oil which is being done on standard trade sales items and the Reading Section covers their work on Syndicate vehicles.

This report contains specification work which is being done by the various laboratories and provides an excellent means to keep up-to-date on specification changes at the various laboratories. Industrial business will require tailor made specification formulations. Just as in the last war it is necessary to adjust specification formulas to meet individual industrial customer requirements. This is a service which sales, laboratory and plant can render to our customers and takes specifications out of the simple price or quotation class. There are some specifications such as MIL-10687 on which we are going to be required to use exactly the same ingredients as used in the formula on which we obtained approval. Therefore, formulas which require prior approval will have to be watched closely.

In regard to transferring of specification formulas from one plant to another, it will be necessary for the local laboratory to check the formula before it is put in the plant. If the laboratory has any questions on adjustment of formulas they should get in touch with the laboratory which originated the formula sending a copy of the correspondence to me.

Under the New Orleans Section there is an informative article on mildew written by William Clark. Technical personnel interested in trade sales should review this article carefully.

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TRADE SALES LABORATORY PROGRESS REPORT
FEBRUARY 1951

House Paints

Puffing agents: Troykyd 21-B-A vs. O-325 for use in House Paint body control. Paints have aged one year and viscosity readings were taken at intervals.

	<u>Control</u>	<u>O-325</u>	<u>Troykyd 21-B-A</u>
1-9-50	91 KU	95 KU	97 KU
1-20-50	90 KU	95 KU	98 KU
1-27-50	91 KU	96 KU	99 KU
2-7-50	91 KU	95 KU	99 KU
6-2-50	90 KU	94 KU	93 KU
8-21-50	88 KU	95 KU	93 KU
10-19-50	90 KU	95 KU	90 KU
1-31-51	89 KU	95 KU	90 KU

Conclusions: Although the Troykyd shows good initial puffing properties upon standing for one year, it tends to thin out. The O-325 shows good initial puff and retains this property.

Enamels

Work has been confined mainly to varnishes and oil replacements. A laboratory formula for V-705 has been approved and we are waiting for the first plant production. This varnish is used in the Speedwall Flat Line and in a number of other formulas where a neutral varnish is required.

An endeavor has been made to make V-872 with a partial replacement of P.E. with glycerine. GRV-2123 with a 10% replacement was found satisfactory. Experimental formulas in which 20% and 50% replacements were tried proved to be not only slower drying but the varnishes did not produce enamels with as white a color as the regular V-872.

Improvement of Speedwall Gloss Y-4500 for non-yellowing properties is being worked on. It is not possible to go to an alkyd vehicle at this time. The work is along the lines of replacing the V-357 in the present formula with a varnish such as V-318.

French Ripolin: Our French associates submitted samples of pigments and oils used for manufacture of E.L.T. Ripolin for our comments. An enamel was made according to their formula. The initial brushout showed the enamel to have fair brushing qualities, some ropiness, but no sagging. After aging two months, the enamel was brushed out again. The brushing was still only fair, the leveling was very good but the enamel sagged badly on vertical surfaces. This is due to the benzoic acid content. Apparently a great deal of care is needed in using benzoic acid to control flow.

Driers

Replacement of Naphthenate and Octoate Driers with Linoresinate or Tallate Driers: Samples were obtained from the following suppliers.

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1. Nuodex
2. Harshaw

3. McGean
4. Ferro

These driers were tested in a Black Enamel (5-B-4-C) and a Gray Florenamel. Drying tests were made initially and then after aging periods of 5 days and 7 weeks.

The following conclusions can be made after the seven week period:

1. The linoresinate type of driers can be used in place of D-29 and D-75 without affecting the viscosity or package stability.
2. The linoresinate driers from Nuodex show the best results and would be our number-one choice.
3. The driers from McGean and Ferro would be our choice as second sources of supply.
4. The enamels using the Harshaw driers held their tack considerably longer than the controls or the enamels containing the Nuodex driers.

Substitution of Lead Driers with Various Organic Compounds: The use of these organic compounds is dependent upon the presence of manganese drier such as D-68. The enamels using salicylaldehyde, anisaldehyde and Activ-8 as lead drier replacements have aged for a period of eleven months. The enamels show good package stability. No skinning was noted in any of the enamels using the various replacements. The drying time of these white enamels were as follows.

	<u>Color</u>	<u>Set-Up</u>	<u>Tack Free</u>
#1 Control (D-75 & D-15)	White	4 hrs, 15 min.	6 hrs, 15 min.
#2 Activ-8 1/2 oz.) D-68 1 1/2 oz.)	Sl staining	5 hrs, 20 min.	7 hrs, 30 min.
#3 Activ-8 1/2 oz.) D-68 3/4 oz.)	White	4 hrs, 15 min.	6 hrs, 30 min.
#4 Anisaldehyde) plus D-68 & D-75)	White	5 hrs, 15 min.	8 hrs.
#5 Salicylaldehyde) plus D-68 & D-75)	Sl staining	4 hrs, 45 min.	7 hrs.

These enamels all had hard overnight dry. The odor of the enamels using the aldehydes was quite pronounced and irritating. We believe these compounds are objectional for use in interior enamels. Activ-8 used in conjunction with D-68 is not too satisfactory for color since D-68 does have definite staining properties.

When this work was started, we were primarily interested in the replacement of lead. We are now investigating the possibility of the replacement of cobalt or at least a portion of the cobalt with these or other organic compounds.

Glidcol WW vs. CH-243 as Anti-Skinning Agents

Further study of these materials were made in conjunction with a phenolic spar varnish such as V-756 which is considered to skin badly when left in a partly filled can. Tests made using 1/4 oz. per gallon of varnish. It was noted that CH-243 imparts a darker color to the varnish than the Glidcol WW. The CH-243 shows better non-skinning but also tends to show slower dry. The Glidcol WW shows slightly more bodying effect than the CH-243.

Factory Letters

Chartruese Machinery Enamel, GL-60415, was formulated for Cincinnati Water Works in E.Z.C. quality.

Flat White Undercoater, GL-60431, was formulated for Thompson Boat Company for use on wood boats. Applies full body or may be reduced 5:1 with S-138 for spraying. Superior Spedene Enamel, Y-901, was recommended for the finish coat.

Gray Burial Vault Paint 7-E-15-C was reformulated so as to be made in pebble mill. It is now of brushing consistency instead of semi-paste.

Red Exterior Paint, GL-60473, and Orange Exterior Paint, GL-60438, were formulated for St. Mary's Packing Company for painting their buildings. Both paints are in general quality of Y-500.

Special Aqua Plinamel, GL-60328, was formulated on a 400 gallon order for F. A. Gray Company. It is general Plinamel quality.

Cream Plinamel, GL-60498, was formulated for Progress Manufacturing Company in regular Plinamel quality to match Y-1218 for color.

Maintenance Paints

We have had the following colors approved by Veteran's Administration Bureau at Washington: V-12, V-14, V-16, V-24, V-28, V-41, V-49, V-52, V-56, V-60, V-70, V-74, V-80, and V-84. Anyone supplying any of these materials should obtain the latest color chips from Mr. Summerell at the Cleveland office.

Competitive Products Examined

Sherwin-Williams' 583 Craft Gloss White is a painters' product. Report received from the field that it was a quality product in a class with Dulux. We found that it is not in a class with Japalac, Y-5045, 40-W-1003 (Sani-giene), or Dulux, but is an oleoresinous type of enamel more like Speedwall Gloss Y-4500. It has higher hiding than Y-4500 but has less sheen and poorer gloss retention.

Pratt & Lambert Lytall Double-Duty Primer: Comparison is shown against Y-4516, Interior Base Coat.

	<u>Y-4516</u>	<u>Lytall Primer</u>
Color	White	Whiter
Viscosity	98 KU	79 KU
Settling	Soft	Soft
Brushing	Good	Fair-good
Hiding	Fair-good	Same
Holdout	Good	Same
Dry	Hard overnight	Slightly softer
	Eggshell	Same

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Lytall doesn't dry with as tough film as Y-4516. Y-4516 will take an 8:1 reduction and shows a body of approximately 74 KU.

Graphic Arts

Bulletin Colors

Some of the critical pigments have necessitated reformulation of several of the formulas. Four special colors have been made to use on exterior signs where the Day-Glo colors would be desirable but not practical. It should be emphasized that these Bulletin Colors are not as bright as the Day--Glo colors but are very bright when contrasted.

GL-60432	Yellow Bulletin Color	GL-60434	Green Bulletin Color
GL-60433	Orange-Red Bulletin Color	GL-60435	Orange Bulletin Color

Process Colors

The Flat Process Colors are as follows:

Primrose Yellow	GL-60041	Bright Red	GL-60034
Poppy Orange	GL-60032	Emerald Green	GL-60037
Turquoise Blue	GL-60036	Cerise	GL-60030
Lemon Yellow	GL-60042	Magenta	GL-60031
Bottle Green	GL-60033	Maroon	GL-60035
Vermilion Red	GL-60033	Dark Blue	GL-60040
Med. Chrome Yellow	GL-60043	White	GL-60044
Ultramarine Blue	GL-60039	Black	GL-60045

These materials all screen full body or may be reduced with S-43 if necessary. They dry in 20-30 minutes to touch. Colors of this type are used on card advertising and are to be used only on interior exposure.

H. G. Hayward

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RAW MATERIALS REPORT
FEBRUARY 1951

Milmar Company: Ultramarine Red #37 - closely resembles Manganese Phosphate type. It is very weak.

Milmar Company: Ultramarine Red #147 - Not as red as #37 but more like a violet color. It is very weak and its use would be very limited.

Pacific Graphite: #85 Graphite - Much grayer and more gritty than Cummings-Moore #4 Graphite.

J. Lee Smith: #163 Raw Umber - Deeper in both top and undertone than 775 Raw Turkey Umber.

Mo Chola Jezzi: Italian Lithopone - Not quite as white and about 10-15% weaker than W-69. Same light fastness as W-69.

35% Leaded Zinc (German Make): Very dirty in both top tone and undertone than W-6.

Amsco Naphtholite Code 19 - American Mineral Spirits: Initial point higher than S-42. From 40% to End Point are lower. Appears to be satisfactory for S-42.

Reichard Coulston: Super Aetna Crimson Oxide - Satisfactory for R-18.

C. K. Williams: 2425 Venetian Red - Satisfactory for R-16.

Mineral Pigments: Permanent Green M-2339 - About 20% stronger than G-54. Oil absorption lower.

H. A. Hirsch

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