

CLEVELAND

NUBIAN

PRODUCT DEVELOPMENT REPORT

PAINT, VARNISH & LACQUER LABORATORIES
A. J. K.

AUG 5 1959 JUNE, 1959

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PRODUCT DEVELOPMENT REPORT

JUNE, 1959

OUTSTANDING SALES DEVELOPMENTS

Reading - Thomasson of Pa. ordered a total of 203 drums of five Aerosol Lacquers. This has become a very large volume business.

(Reading Products Approved & Sold, also R-2221)

5000 gallons of Specification MIL-E-10687-A - Quick Drying Lustreless Enamel - RGL-29332-B - were ordered by G.S.S.O.

(Reading Products Approved & Sold, also R-2216)

Toronto - Hunter-Douglas Corporation - White Roller Coat Enamel - TGL-9907-B. A 16 drum trial batch has been made. This coating is applied to coil strip which is subsequently formed into venetian blinds. We have been striving for some time to obtain an approval at this account.

(Mr. Steele's Comments, and T-1)

Nubian - #6966 Gray Flocoat Primers - Whirlpool Corp. - Marian, Ohio. An order for 300 drums was received. This formula is an improvement over that which we previously supplied, and yet is approximately 20¢ per gallon less in material cost.

(Nubian N-7)

ITEMS OF UNUSUAL INTEREST

Pink Primer Surfacer - GL-69910-A

Used on caskets by Hillenbrand Associates. Better hardness and sanding properties while warm. Ten drums were shipped. (Cleveland C-4)

Metallizing Basecoat and Topcoat

Cleveland has an emulsion basecoat XM-59887, and a solvent type topcoat GP-5970 which may be of interest to other Regions. (Cleveland C-2)

Wetting Oil Primer Test

Results of a large scale survey showed:

- (1) Our wetting oils improved the coatings.
- (2) None of the competitive primers tested came close to matching the Glidden coatings. (Cleveland C-8)

Seed Testing in Japalac

The seeding of Japalac has been traced to the reaction of zinc oxide with saturated fatty acids of soya oil in the presence of moisture. Five definite conclusions on this phenomenon are given. (Cleveland C-15)

The Japalac line with the exception of Black (Y-1207) has been revised to lead-free pigmentation. (Cleveland C-15)

GRV-3160-A Melamine was used to replace MX-61 (VM-716) in a large production batch of 44-E-9006-A - Gray Flowcoat Primer for Whirlpool, Clyde. No problems were encountered in manufacturing the resin or the primer. (Nubian N-7)

TME Alkyd NRV-5079 with MM-47 melamine gave greatly improved detergent and salt spray resistance, and lower cost than earlier formula 92-W-9255 in a White Nubelite for Whirlpool, Clyde. (Nubian N-8)

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The Varnish Laboratory's report by Mr. Oertling relates the work done to date on the standardization of varnishes. Special attention should be paid to Mr. Oertling's comments on detailed calculation of the remaining vehicles so that an intelligent reformulation job may be done. The present status of a metallizing basecoat and topcoat is discussed. The work on clear pipe coating vehicles, as well as a label coating varnish is also reported.

Mr. Seguin reports for Industrial Laboratory #2 a Pink Primer Surfacer, GL-69910A formulated for Hillenbrand Associates, of which a ten-drum shipment has been made. Two Red Oxide Primer samples, one of which contained our Rustmaster liquid and the other being the regular, was submitted to Stran Steel for their evaluation and approval. The potential business volume of this material if approved will run approximately 60,000 gallons annually.

The Industrial Metal Emulsion Laboratory's report by Mr. Ruecke states that our Underbody Dipping Primer, XM 59867, was approved by Chrysler after successful salt spray resistance tests. He has also reported on our exterior automotive enamel program work to date. Special note should be made of this laboratory's work on the use of amines in emulsions or solution systems with regards to color and cure.

Mr. Metzger's report for the Non-Metal Emulsion Laboratory relates the formulation of an emulsion finish coat for use on baseball bats.

Industrial Maintenance Laboratory's report by Mr. Hood gives the conclusions of our wetting oil primer test where two pre-rusted and two cold rolled steel panels were used. None of the competitive primers tested came close to matching the Glidden materials in any of the specific tests.

Mr. Throne's report for the Polyester Laboratory shows the work involved in reformulation of Glidpol 1017 to employ a vinyl toluene resin. This work was undertaken for the development of a flooring compound for United States Stoneware Company. A clear polyester resin was formulated for the D.E.K. Manufacturing Company having an extended gel time.

Mr. Southwick's section of the Trade Products Laboratory report describes his work on determining the cause of seeding in Japalac Y-1217. It should also be noted that the entire Japalac line has been changed to lead-free pigmentations except for Black Japalac Y-1207. The Speedenamel line is presently being revised to improve our standard farm and implement colors. The Spread Products section of this report states the development of an emulsion-type lawn paint, XM 59044. The development of this material was required in order to meet competitive ("Green Stuff") lawn paint being marketed by Krieger Color and Chemical Company. This type finish is primarily being sold in dry areas such as Texas. A report on comparative tests of various spackling compounds versus our Spread Patch is also reported.

T. A. NEUHAUS

PRODUCT DEVELOPMENT REPORT
INDUSTRIAL MAINTENANCE LABORATORY
JUNE 1959

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WETTING OIL PRIMER TEST

Two pre-rusted and two cold rolled steel panels were prepared. One of each type steel was exposed in salt spray,* and one of each type was exposed in humidity.** The following is the summary and conclusions of those tests.

Conclusions:

1. In general, the wetting oils improve the properties of the materials tested. In some instances the improvement is slight; in others it is quite marked.
2. The best example of the improvement in a specification material is in the Shell Oil formulations GL-67187 with no wetting oil, and GL-70211 with CH-358.
3. The 894-6, as compared to CH-358 could be considered an equal from these tests; however, more extensive work would have to be done comparing the two wetting oils in a variety of vehicles before it could be used as a substitute for CH-358.
4. None of the competitive primers come close to matching the Glidden materials.
5. GL-69471-D Red Lead Alkyd-Phenolic with wetting oil was prepared in a conventional pebble mill grind and also was prepared by high speed agitation with no pebble mill grind. It is noted that the material made by agitation performed slightly better than the pebble mill grind.

Ten Best Overall Materials in Order:

Average Rating

1.	GL-70211	Shell Oil Red Lead Epoxy Ester modified with CH-358	6.375
2.	GL-69473-D	LIA 2612 Alkyd Phenolic Chromatized Red Lead with CH-358	5.125
	GL-69471-D	Alkyd Phenolic Red Lead with CH-358 MADE by agitation	5.125
3.	GL-69471-D	LIA 2614 Alkyd Phenolic Red Lead with CH-358	5.000
	GL-69471-D	Substituting 894-6 for CH-358 in equal volumes	5.000
4.	99-R-94-D	Alkyd Phenolic Chromatized Red Oxide with CH-358	4.875
5.	RGL-21255	TTP-86a Type I Linseed Oil, Red Lead	4.625
6.	GL-67187	Shell Oil Spec Red Lead Epoxy Ester	4.125
7.	99-R-94	Alkyd Phenolic Chromatized Red Oxide; no wetting additive	3.875
8.	99-R-94	Alkyd Phenolic Chromatized Red Oxide using 794-26 wetting oil	3.750
9.	286-Y-200	Metallite Nu-Pon Primer	3.625
10.	RGL-19519	Alkyd-Linseed Oil Chromatized Red Oxide modified to use CH-358	3.500

* 500 Hours, 5% cabinet @ 15° from vertical

** 1,000 Hours @ 95° F and 95% relative humidity

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PRIMER	TOP COAT	AVERAGE RESULTS OF SALT SPRAY & HUMIDITY ON RUSTY STEEL	AVERAGE RESULTS OF SALT SPRAY & HUMIDITY ON CLEAN COLD ROLLED STEEL	OVERALL AVERAGE
Y-4570; Alkyd Chromatized Red Oxide	92-W-112-C	1.0	4.25	2.625
RGL-19519; Alkyd Linseed Oil Chromatized Red Oxide	92-W-112-C	1.0	4.0	2.5
RGL-19519 + 5% Total Wt. CH-358	92-W-112-C	1.5	5.5	3.5
RGL-21255; TTP-86a Type I Red Lead Linseed Oil	92-W-112-C	2.25	7.0	4.625
GL-69467; TTP-86a Type I Modified with CH-358	92-W-112-C	1.5	2.25	1.875
RGL-21193-A; TTP-86a Type II Red Lead Mixed Pigment Alkyd Linseed Oil	92-W-112-C	1.25	1.5	1.375
GL-69468; TTP-86a Type II Modified with CH-358	92-W-112-C	.25	1.0	.625
GL-59122; TTP-86a Type III Red Lead Alkyd	92-W-112-C	1.0	5.25	3.125
GL-69469; TTP-86a Type III Modified with CH-358	92-W-112-C	2.25	4.0	3.125
GL-57620; TTP-86a Type IV Red Lead Mixed Pigment Phenolic	92-W-112-C	2.5	.5	1.5
GL-69470; TTP-86a Type IV Modified with CH-358	92-W-112-C	2.0	2.5	2.250
RGL-20837; Alkyd Zinc Chromate	92-W-112-C	.25	.5	.375
RGL-20837 + 5% CH-358	92-W-112-C	.50	1.5	1.000
LIA-2617; Alkyd Phenolic Basic Lead Silico Chromate with CH-358	92-W-112-C	.25	1.0	.625
Pittsburgh Fractionated Oil	92-W-112-C	1.5	2.25	1.875
Tropical ABC	92-W-112-C	1.0	2.0	1.5
LIA-2609; Alkyd Linseed Oil Basic Lead Silico Chromate	92-W-112-C	1.0	.75	.875
LIA-2610; Same as above modified with CH-358	92-W-112-C	0	0	0

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TRADE PRODUCTS LABORATORY
JUNE 1959

Seed Testing in Japalac -- Extensive testing in Japalac Y-1217 has been done in order that we may determine the cause of zinc stearate seeding. It has been pretty well determined that the seeding is caused by a reaction of zinc oxide and the saturated fatty acids of soya oil under certain conditions. From our testing we arrived at the following conclusions:

1. Zinc oxide and water must be present to obtain seeds.
2. High acid V-869 shows more seeding than low acid V-869.
3. Aging and temperature change accelerates seeding.
4. Bentone has no effect on seeding.
5. There probably is a relationship between poor dry and seeding.

We were not able to produce seeds on every grind of V-869 or GRV-3191; however, when water was introduced to these grinds seeding always occurred. The higher the acid number of the alkyd, the bigger and more plentiful were the seeds. It made no difference if the water was added to the bentone, zinc oxide or other pigments, or whether the water was added to the alkyd. In all cases with water present seeds were produced. We also noted that when seeds were produced, the paint lost much of its drying properties. It is an opinion that much of our water enters our paints through condensation in our S-43 tanks as it does in every type of gasoline or other solvent storage units.

Speedenamel Colors -- The Speedenamel line is being revised to include standard farm and implement colors. John Deere and International Red will replace Y-4555 Garnet Red. Deep Green, Y-4553 will be replaced by John Deere Green. Caterpillar Yellow will be added. School Bus Yellow will be shown on the card as an intermix. Allis Chalmers Orange will be added. A decision to make John Deere Yellow an intermix instead of a ready mix color has been made recently. Medium Gray Y-4562 will be altered slightly to match 7B Standard Machine Gray. Production on these colors will start in August or September.

Silicone Enamel -- GL-70535 Silicone Marine Enamel has been made and shipped to all regions for comment and testing. We will be waiting your comments.

Japalac Lead-Free Color Changes -- The entire line has been changed to lead-free pigmentations, excepting the Black, Y-1207. Some colors such as Y-1252 Orange, Y-1230 Golden Yellow, Y-1254 Empire Green will be dropped from the line. Y-1270 Lemon Yellow and Y-1271 Greenbriar have been added to the line because they are more economical than the lead-free version of Y-1230 and Y-1254. It was felt that Orange was not needed since it is now available in the Speedenamel line.

Japalac Spray Enamel (Aerosol) -- Work has begun to make our aerosol line lead-free. Y-4551-C Speedenamel has already been approved for the Black. The greens and yellows will be changed to lead-free pigmentation similar to Y-1212, Y-1270, Y-1271 in the Japalac line. The Vermillion Red, Y-4006, must also be changed.

J. E. Southwick

JES/lms
7/3/59

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PRODUCT DEVELOPMENT REPORT

SAN FRANCISCO.

JUNE, 1959

- GLIDPOL SECTION -

Oronite Chemical Company, in their efforts to find uses for isophthalic acid, approached the Glidden Company on the possibility of making exterior tank coatings using isophthalic polyesters. Oronite assured us that any coating that looked promising would be field tested on an oil storage tank at the Richmond, California refinery of Standard Oil of California.

The following coatings were developed; and with the urging of Oronite, we made 25 gallons of each coating.

SF-15337: RED LEAD ISOPOLYESTER PRIMER.

R-313	300#
W-216	10#
CR-19583	30 gallons
DC-840	0.5 gallons
Grind over roller mill, then add:	
CR-19583	15 gallons
E-9RP-2603-E	15 gallons
CH-308	30 gallons

SF-15338. DESERT SAND ISOPOLYESTER ENAMEL.

W-170	125#
W-216	25#
RCR-4024	30 gallons
CH-308	10 gallons
DC-840	1 gallon
Grind over roller mill, then add:	
RCR-4024	35 gallons
CH-308	15 gallons
CL-30146	3 gallons
SF-12780	14#
294-B-700	2.5#

SF-15339. DESERT SAND ISOPOLYESTER ENAMEL.

W-170	125#
W-216	20#
RCR-4024	30 gallons
CH-308	10 gallons
DC-840	1 gallon
Grind over roller mill, then add:	

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