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NEWARK PLANT
PIGMENT COLOR RESEARCH REPORT

RE-519-D and RE-325-D: SICK LIST STUDY

Period Covered: March - July, 1946

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Progress Report

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Period Covered: March - July, 1946

SUBMITTED BY: M. G. Taber

DATE SUBMITTED: 7/1/46

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INTRODUCTION

These products are extended P.T.A. pigments of the following compositions:

	<u>RE-325-D</u>	<u>RE-519-D</u>
PTMA toner of Rhodamine 6GDN	4.7%	4.9%
Barytes	81.7	70.7
Alumina Hydrate (anhyd.)	13.4	-
China Clay	-	23.5
Organic Agent		
Bindex	<u>0.2</u>	<u>0.9</u>
	100.0%	100.0%

Plant batches of RE-519-D have been very weak in tint, even with appreciable outs in extender. More recently the similar lake, RE-325-D, has been similarly substandard in quality. A sick list study was, therefore, requested, and was undertaken in the semi-works.

SUMMARY AND CONCLUSIONS:

RE-519-D

There is no apparent correlation between the strength (by brushout or rubout) of the lake and the strength of its toner. Nor is there correlation between strength of the lake by brushout and strength by rubout.

Better dry grinding was found to increase the strength of both RE-519-D and RE-325-D, especially the former. Addition of 5% of a treating agent, Blancol (or Leuhanol), in the grind gave an additional "pick-up" in strength for these colors. Greatest strengths, however, were gained by pulp mixing toner with extender and Blancol, using the Abbe Lenart mixer.

RE-325-D

Substandard RE-325-D was reground with and without Blancol treatment and results were obtained similar to those for RE-519-D. Regrinding alone brought strength up about 10%, while Blancol gave a product another 10-15% stronger. Preliminary plant and Semi-works regrinding experiments confirm results of regrinding.

DISCUSSION OF RESULTS

Study of Toner Quality

Five toner batches of RT-357-D (K-2172, except struck at 170°F.) were made in the semi-works. They were all strong by rubout vs RT-329-D and about equal in strength (±5%) to RT-357-D. Lakes from the above toners, made following exactly the RE-519-D formula, were all weak, though not as weak as recent plant material. Strengths of the lakes, whether by rubout or by brushout, showed no correlation with the toner strengths.

Standard lot 3582, RE-519-D is the lake of a toner made rather differently from K-2172 - the molybdate - tungstate ratio is much lower, volumes are higher (3X), and the toner is struck at a boil. Except for volume differences, the laking procedure for the old and new lakes are the same. A laboratory series, N.B. 1067465, was made comparing lake from K-2172 toner with lake from toner made as for lot 3582. The toners showed the expected strength differences; K-2172, struck at 170°F, was much stronger than pigment of the same formula struck at 180° or at a boil, and also was stronger than pigment made as for lot 3582. The lakes by rubout showed a reverse strength relationship, the lot 3582 type lake being strongest, the K-2172 type struck at a boil also being stronger versus the K-2172 type struck at 170°F. Brushouts of the lakes, however, indicated substantially equal strengths.

Comparison of RE-519-D and RE-325-D

From one lot of toner both RE-519-D (lot 8700) and RE-325-D (lot 8701) were made. RE-519-D is extended with barytes and China Clay, RE-325-D with barytes and alumina hydrate. Lot 8700 was weak versus both RE-519-D and lot 8701. Lot 8701 was very slightly stronger than it e standard, RE-325-D. (Standard RE-519-D is stronger than standard RE-325-D). Comparison of the pulps of lots 8700 and 8701 indicated that in pulp form 8700 is the stronger. These observations would indicate that the hydrate lake is more easily ground or else disperses more readily in a casein vehicle than the China Clay lake.

Study of laking procedure

In the RE-519-D formula, "Bindex" is added to decrease separation of toner and extender during formation of the presscake. Blancol serves this purpose equally well when substituted for Bindex and at the same time results in slightly increased strength. Doubling the amount of either Bindex or Blancol was of no benefit.

Pulp mixing of toner and extender in the Abbe Lenart mixer gave pigment equal or stronger than standard.

Grinding Study - RE-519-D

Pigments "dry ground" with 5% Blancol were much better in strength than untreated pigments. Smaller amounts of Blancol did not have nearly as marked and effect on strength. Bindex and Compound 56 were ineffective as grinding agents.

Blancol, unfortunately, has a marked effect on mastone. Pigment ground with as little as 2% Blancol was dark, dull and yellow in mastone. However, since RE-519-D is seldom used as a mastone color, Blancol can probably be used without causing complaints. Blancol does not affect the light fastness of the pigment. The cost of RE-519-D and of Blancol are about the same so that no expense would be incurred from its use.

A quantity of substandard RE-519-D was reground with and without Blancol. Even without treating agent a pick-up in strength of from 10-20% was obtained on regrounding the color. Regrounding with Blancol gave a further strength increase of 10-20%. Semi-works material is also improved by regrounding, but to a lesser extent

Grinding Study RE-325-D

Both the plant and semi-works reground a portion of a substandard lot, lot 48078. The plant reground material, lot 48365, brushed out 5-10% stronger than standard; the semi-works material, lot 4834, brushed out 3-5% weaker than standard although stronger than lot 48078.

Semi-works

Laboratory

DUP050150454

- 1067-63 RE-519-D: Pulp laking of semi-works toner in the Abbe Lenart.
- 1067-64 RE-519-D: Regrinding of plant sub-standard material with and without Blancol.
- 1067-65 RE-519-D: Comparison of K-2172 and lot 3582 toner formulas.
- 1067-67 RE-325-D: Regrinding of plant sub-standard material with Blancol.

References:

DSN 46-15
M.B. 1067-59-67.