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PIGMENT COLOR RESEARCH REPORT

Final Report

MISCELLANEOUS LABORATORY STUDIES ON PARA REDS

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NEWARK PLANT

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Final Report

MISCELLANEOUS LABORATORY STUDIES ON PARA REDS.

February 23, 1944 - January 30, 1945

SUBMITTED BY: *JH Cooper*
J. H. Cooper

DATE SUBMITTED: 2/20/45

APPROVED BY: *ASiegel*
A. Siegel 3/12/45

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INTRODUCTION:

This report covers the work carried out in the laboratory in response to two requests, namely:

1. Service to Research Request 912 : High Gloss Para Red B & Y for I.P.I., Chicago.
2. Economy study of Para Red B, RT-442-D, requested by the Cost and Economy Committee.

SUMMARY & CONCLUSIONS:

Service to Research #912

The most promising method of modifying our Para Red B and Y (RT-442-D and RT-435-D, respectively) to increase the gloss of ink proofs thereof appeared to be that based on the introduction of an insoluble rosinate in the color. Accordingly, two experimental products were set up for submittal to the customer, namely:

K-2020 : High Gloss Para Red Y, and

K-2021 : High Gloss Para Red B.

In both cases rosination resulted in significant alteration of the hue, both rosinated pigments being much yellower than their non-rosinated counterparts. However, the magnitude of tinctorial difference between the two rosinated products is fully as great as between the two parent standards. It is interesting to note that rosination was not detrimental to strength, even though increased yield, and consequently lower cost, resulted therefrom. In the case of K-2020, a product stronger than the parent standard (RT-435-D) was obtained.

Economy Study of Para Red B, RT-442-D

The standard making formula for RT-442-D is quite complicated, and it was the purpose of this study to determine if all of the more expensive ingredients specified are essential. It was found that certain modifications, which when combined might lead to ingredient savings of more than 3¢ per lb., may be possible. These are summarized below:

<u>Modification</u>	<u>Estimated R.M. Savings per 100 lbs.</u>
1. Omit addition of ice to beta-naphthol solution before coupling	\$ 0.83
2. Omit addition of ice to pigment slurry before adding barium rosinate	0.56
3. Decrease Mono Acid F 20%	0.92
4. Omit phenyl methyl pyrazolone	<u>1.51</u>
5. Maximum savings	\$ 3.82

It is doubtful if the savings in modification (1) will be fully realizable in practice, since heat losses through radiation in vats are very much less than through the glass equipment of the laboratory. On the basis of several semi-works trials it is clear that the major portion of these indicated savings will be realizable in practical plant performance.

Paint Laboratory tests of K-2021 (c.f. supra) revealed that this product was too low in opacity and much poorer in texture to be considered a potential low cost substitute for RT-442-D. Since the major portion of Para Red B consumption is by the paint trade, this product was ruled out as a solution to the economy problem.

During the course of the work on RT-442-D, a number of accessory agents other than the Mono Acid F were investigated. None of these appeared to be of any interest with one possible exception, namely Chromotropic Acid. In one experiment a sample of RT-442-D prepared without the use of Mono Acid F and with only a very small amount of Chromotropic Acid as accessory agent, gave a product remarkably close tinctorially to RT-312-D, a special Para Red B prepared by re-slurrying and washing RT-442-D. Obviously this lead was of special interest, because it appeared to indicate a method of preparing RT-312-D in a more economical manner, permitting the elimination of the very expensive two-cycle practice now used. However, all attempts to repeat this preparation were unsuccessful, a marked tendency toward very dark, dull masstones being noted even when extremely minute amounts of Chromotropic Acid were used. In view of the poor duplicability of the process, further attempts to prepare a more economical RT-312-D by the use of Chromotropic Acid were abandoned.

EXPERIMENTAL DETAILS:

<u>Notebook No.</u>	<u>Experiment No.</u>	<u>Page</u>
537	70 - 72	178-191
986	27 - 33	106-141
1118	1 - 17	10-85

The work on the high gloss Paras is covered in Notebooks 537 and 986; that on the economy studies is in Notebook 1118.

JHC:MPH