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NEWARK PLANT
PIGMENT COLOR RESEARCH REPORT

RT-571-D, SEMI-WORKS DEVELOPMENT
5-NITRO-2-AMINO-ANISOLE → "LITHOSOL" ACID BON, MANGANESE

Period Covered: August 1946 - May 1948.

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Final Report

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5-NITRO-2-AMINO-ANISOLE - "LITHOSOL" ACID BON, MANGANESE

Period Covered: August 1946 to May 1948.

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SUBMITTED BY: A. D. MILLS

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INTRODUCTION

RT-551-D (A), (K-2292, 5-nitro-2-amino-anisole → K-ASD) was returned to the laboratory for study in an attempt to eliminate the reactivity. In the course of the study, an additive (RT-571-D, 5-nitro-2-amino-anisole → BCN, manganese) was developed which, when blended in 10% amounts with 90 parts of RT-551-D (A) greatly reduced the reactivity. After a laboratory study on RT-571-D, a semi-works trial was warranted.

SUMMARY AND CONCLUSIONS

1. Twenty runs on RT-571-D were made in the semi-works covering from 35 pounds to 160 pound batch sizes.
2. A satisfactory RT-571-D formula was developed in the semi-works suitable for plant manufacture. This differed from the laboratory developed formula in two ways.
 - (a) A slight increase in caustic soda in the coupling (0.3 mol) to prevent the formation of a brownish type pigment.
 - (b) The development cycle was reduced from a 15 minutes boil to a development at 158°F. for 5 minutes. Over development causes the slurry to turn light red.

GENERAL DISCUSSION

Six semi-works runs were made increasing the batch size from 35 pounds to 160 pounds with satisfactory results when blended with RT-588-D (K-2292). The following run turned light red while pressing and became the first "flop" batch made. (A "flop" run is one in which the color is converted from a very dark, blue, weak product to a light, red strong type which is ineffective in reducing the reactivity).

After several runs were made in the laboratory, the study was returned to the semi-works with a modified formula in which the boiling period was cut to 5 minutes followed by flooding. This produced a satisfactory process (lot 9217).

A short variable study was made on the amount of caustic soda in the coupling. Reducing the amount approximately 0.3 mol per mol caused the product to be light and brown in shade which is not as effective in reducing the reactivity. Increasing it by 0.3 mol gave a product equal to previous standard but slightly superior in effectiveness with RT-588-D. This latter procedure (lot 9324) was adopted.

Two plant batches were made on the lot 9324 formula. The first was satisfactory but the second was a "flop" batch. The study was returned to both the laboratory and the semi-works for development work. Three runs were made in the semi-works as follows:

- (1) undeveloped, (2) developed at 158°F. (70°C) and (3) developed at 194°F, quenched to 158°F.

All three were satisfactory tinctorially and in effectiveness when blended with RT-588-D. However, the pressing times (10-1/2 hours for undeveloped and 4 hours each for both developments) indicate that a development temperature of at least 158°F. is necessary (lot 9421). The 158°F development was adopted and two check runs were made.

EXPERIMENTAL DETAILS

The semi-works lots were tested in blends with RT-588-D (K-2292) in the following experiments:

1197-44
1245-10, 26, 43, 45, 55
1264-20, 30, 43, 52, 60

REFERENCES

KN-49-8 Laboratory Development of RT-571-D
DSN-49-10 Semi-Works Development of RT-571-D