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NEWARK PLANT
PIGMENT COLOR RESEARCH REPORT

LABORATORY DEVELOPMENT OF K-2413
5-Nitro-2-Amino-Anisole → "Naphthanil" ASD

Period Covered: June 1946 to June 1947.

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FINAL REPORT

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5-Nitro-2-Amino-Anisole - "Naphthanil" ASD

PERIOD COVERED: June 1946 to June 1947

CHARGE: A-IC-40

SUBMITTED BY: A. D. MILLS

DATE SUBMITTED: 1/27/49

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INTRODUCTION

RT-551-D (A), [K-2292, 5-nitro-2-amino-anisole ~ H-ASD], was returned to the laboratory for further study in an attempt to eliminate reactivity in alkyl. During the course of the study, many coupling and development variables were tried on the RT-551-D (A) formula. Several of these led to a process which realized a savings of approximately 20 cents per pound on ingredient costs, although the product was lighter than RT-551-D and showed no advantage in reactivity. This economy formula was coded K-2413.

SUMMARY AND CONCLUSIONS

The cost economy formula, coded K-2413, gave a lighter, stronger product, slightly superior in lightfastness to RT-551-D (A). The process differs from K-2292 [RT-551-D (A)] in the following ways.

1. Reduction in HCl of 0.8 mol.
2. Elimination of sodium bicarbonate.
3. Cutting of the sodium hydroxide 0.5 mol.
4. Reducing the coupling volume to 1/4 of the K-2292 formula.

Several variables were run on the K-2413 process including temperature of coupling and development, and simultaneous and reverse coupling procedures but none gave any advantage. This process was filed for possible future reference since there was no immediate interest in it.

GENERAL DISCUSSION

Reducing the hydrochloric acid in the diazo necessitated a corresponding cut in the alkali in the coupling. All the sodium bicarbonate was eliminated in addition to a cut in caustic soda. However, without the buffering action of the bicarbonate, the pH of coupling rose to 11.0. Further decreases were made in the alkali to bring the pH to normal. The lack of buffer caused the coupling pH to be very sensitive and small quantities of caustic soda gave wide variations.

Concentrating the slurry to 1/4 the volume increased the depth of product slightly but this effect was desirable in K-2413.

Increases in the temperature of coupling increased the depth of the pigment also, with boiling giving the maximum depth. The reactivity is increased slightly too.

Another variable for increasing the depth is increasing the temperature of coupling. One at 35°C actually showed a little superiority over 30°C.

Two attempts were made at the reverse coupling technique but nothing of practical value was obtained. The developed samples were no better than K-2292, whereas the undeveloped ones were superior in reactivity but very light in color.

The simultaneous coupling of the diazo and base into a water bath gave products lighter than standard and more intense but with no reactivity advantage.

K-2413 was evaluated with RT-571-D and gave results equal to or slightly inferior to blends made with K-2292. All the experimental samples prepared were tested in blends as well as individually.

EXPERIMENTAL DETAILS

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REFERENCES

KN-49-12	Semi-Works Development of K-2413
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KN-49-6	Reactivity of RT-551-D