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NEWARK PLANT
PIGMENT COLOR RESEARCH REPORT

ROSINATED HANSA YELLOW G LAKE, YP-440-D
SEMI-WORKS AND PLANT PRODUCTION

Period Covered: October, 1943 - May, 1948

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NEWARK PLANT

PIGMENT COLOR RESEARCH REPORT

Final Report

Title: Rosinated Hansa Yellow G Lake, YP-440-D
Semi-Works and Plant Production

Period Covered: October, 1943 - May, 1948

Original Charge: 12-44-10
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INTRODUCTION

This report serves as a continuation of KN-43-130 and discusses Semi-Works and plant production of YP-440-D during the period October, 1943, through February, 1945, when the Production Division accepted supervision of manufacture. Also considered is Research assistance involved in the reformulation work done by the Production Division in February, 1946.

Because of the low sales volume on this color the Semi-Works standard, lot 25671, set up in 1938, has been retained.

SUMMARY AND CONCLUSIONS

Plant and Semi-Works production were continued intermittently as sales demand required. Semi-Works manufacture was only resorted to when plant equipment was not immediately available.

The normal plant batch size was set at double the Semi-Works standard, K-9590 or 270 pounds and the lithol red (Vat 310) and Toluidine (Vats 207 and 213) coupling vats were selected as giving satisfactory products.

The majority of the plant manufacture finished up on the dark, dull masstone, strong, green, intense tint side of the Semi-Works standard for YP-440-D, lot 25671. Strength on these batches was adjusted by dry mixing with alumina hydrate where necessary. Shipments were uniformly on the dark masstone, green, intense tint side of standard.

A formula based on the process in use during this period (October, 1943 - January 1, 1945) was issued in February, 1945, as the YP-440-D standard formula, K-1981 (subsequently designated the "A" process) and the Production Division accepted supervision of manufacture. Because of the considerable fire hazard involved with YP-440-D pulverization of this color was retained in the Semi-Works equipment.

Subsequently, in 1946, the Production Division requested Research to undertake the development of an increased batch size formula in a larger vat (Vat 206). Two dark, strong batches were made at 1-1/2 times the K-1981 standard batch size. Tints were redder than previous manufacture.

The Production Division set up a satisfactory grinding technique late in 1947 and issued the YP-440-D (B) formula based on the revised process in May, 1948.

DISCUSSION

Semi-Works production of YP-440-D was scheduled in February, 1944, for the first time since May, 1942, in order to supplement plant manufacture and fill rush order. Two batches made using the standard K-9590 formulation ground out light in masstone, slightly strong, green and intense in tint and more opaque versus the standard, lot 25671. A darker more transparent product was made by a very slight increase in coupling alkalinity and by an approximate 10% cut in the aceto acetanilide amount.

Plant production for the period reported was started in October, 1943, with the manufacture of one batch. The plant batch size was set at double the K-9590 process at this time. A normal dark, strong, green, intense product was obtained.

In subsequent plant manufacture during 1944 - 1945 (12 batches) the following variables were used for process control:

1. The aceto acetanilid excess was cut from about 6% to 1% in an attempt to get a product closer to standard in strength and tint. Although no definite decrease in strength and increase in redness of tint was obtained subsequent manufacture was based on the lowered second component excess for reasons of economy.
2. Difficulty with adjusting the volume of the aceto-acetanilid before coupling due to excessive foaming was corrected by adjusting the volume prior to addition of the sodium rosinate solution. There was no color effect noted as a result of this change.
3. Changing from coupling Vat 310 to Vat 207 apparently gave a somewhat darker and redder product. Vat 310 is normally not available for Hansa yellow manufacture as it is the coupling vat for the special Lithol red and Bordeaux maroon unit.

Four of the above batches were close to standard in strength and were shipped straight. The remainder were adjusted with alumina hydrate and were shipped on the dark, green side of standard.

A new YP-440-D standard formula based on the plant process was issued in February, 1945. This formula, K-1981 (subsequently designated the "A" process) differed from the Semi-Works procedure, K-9590, as follows:

1. The batch size was doubled.
2. The aceto acetanilid excess was cut from about 6.6% to 1%.
3. A change in technique involving adjusting the volume of the aceto acetanilid solution before instead of after adding the sodium rosinate solution was used. The final solution volume before coupling is not changed.

NOTE: Grinding of YP-440-D was retained in the Semi-Works because of the special set-up needed to decrease the considerable fire hazard on this color.

The Production Division accepted supervision of manufacture of YP-440-D on the above basis in February, 1945.

In January, 1946, the Research Division was requested to develop an increased batch size formula for YP-440-D. Two batches made in Vat 206 at a 50% batch size increase over K-1981 ground out dark, 10% strong and slightly intense in tint versus standard. These products were noticeably redder in tint than previous manufacture in Vats 207, 213 and 310. These variations in mass tone and tint associated with the use of different coupling vats are probably the result of the type of mixing being obtained during the diazo addition. Diazo excesses (even when local and temporary) are known to give darker, redder, and duller products.

PATENT SITUATION

There is no patent restriction in the manufacture of YP-440-D. It is not believed that this study has resulted in any patentable developments.

GLOSSARY

YP-440-D: A rosinated Hansa Yellow Toner (MNPT ~ AAA) containing approximately 74.5% toner and 25.5% metallic rosinates.

MNPT : Meta nitro para toluidine

AAA : Aceto acetanilide.

EXPERIMENTAL DETAILS DSN-49-17.