

E. I. DU PONT DE NEMOURS & COMPANY
KREBS PIGMENTS DEPARTMENT
256 VANDERPOOL STREET
NEWARK, NEW JERSEY

NEWARK PLANT
PIGMENT COLOR RESEARCH REPORT

MARK TOLUIDINE TONER, RT-505-D, K-2240.
SEMI-WORKS AND PLANT DEVELOPMENT.

Period Covered: June 1945 to April, 1946.

FILE:

DATE: 10/16/46

KN-46-66

Serial No. KN-46966

Copy No. 1

Copy to:

- #1 - Numerical File
- 2 - Research Office (221.31)
- 3 - Library File (221.31)
- 4 - #10 Building File
- 5 - J. Chalapski - Plant Files
- 6 - Imperial Chemical Industries, Ltd.
- 7 - " " " "
- 8 - " " " "
- 9 - W. F. Spengeman, Newark.
- 10 - Extra

NEWARK PLANT

PIGMENT COLOR RESEARCH REPORT

Final Report

Title: Dark Toluidine Toner, RT-505-D, K-2240. Semi-Works
and Plant Development.

Period Covered: June 1945 to April, 1946.

SUBMITTED BY: O.J.C. KLEIN

APPROVED BY: J. C. MORRISON

DATE SUBMITTED: 10/7/46

DATE ISSUED: 10/16/46

N39965.01

DUP050150151

INTRODUCTION

A process for making a toluidine toner darker than RT-505-D standard was developed in the laboratory and semi-works, to match Imperial's "Toluidine Toner A-1865". The resulting formula was coded K-2154, and further development was carried out in the plant.

SUMMARY AND CONCLUSIONS

The present status of RT-505-D is as follows:

(a) RT-505-D was restandardized in the plant to the darker K-2154 type. Lot 46014, which was set up as standard, consists of about 60% K-2154 type, and 40% old RT-505-D. It is quite close tinctorially to a semi-works standard approved by the customer.

(b) A new, large-size (3.60 mols) formula, K-2240, was written based on K-2154, modified on the basis of plant experience, to give a match for the new standard. The new formula differs from K-1936, which it replaces, in batch size, in a reduced amount of HCl in the diazo, and a corresponding reduction of alkali in the base. An increase in MNPA over the K-1936 amount, used during development, was found unnecessary as plant experience increased, and was eliminated in the K-2240 formula.

(c) Plant supervision accepted the K-2240 process April 3, 1946.

EXPERIMENTAL DETAILS

Six batches and a mix were made in the semi-works, after which the K-2154 formula was written. Based on laboratory work with known toluidine variables, and starting with the K-1936 formula, reduction of HCl in the diazo, increase in batch size and concentration, elimination of para soap, and increase in MNPA were incorporated into the final formula.

The mix, lot 8316, ^{was} tested and approved by the customer.

During plant development, twenty-one batches on the K-2154 formula, and one shading batch on the old formula, were made. All plant batches on the K-2154 formula were dark, weak and blue, against the old RT-505-D standard. Three of the first four were mixed with old type RT-505-D, and the mix set up as a new standard. Subsequent production was varied to match the new standard by changes in the temperature of coupling, and finally by a decrease in the MNPA content from 15 to 13.5%.

The process was turned over to the plant on a trial basis, and the batch size increased from 2.0 to 3.6 mols, with generally satisfactory results. The present standard formula, K-2240, was then written, and the problem closed out.

Details of the semi-works and plant batches are filed in Development Section Notebook - 46-40.

REFERENCES:

Development Section Notebook 46-40.

Research Report KN-45-53. Laboratory and semi-works study.

K-2154, formula and notes.

K-2240, formula and notes.

GLOSSARY: RT-505-D: Meta nitro para toluidine, plus 11.4
mol % of Meta nitro-para anisidine, coupled
to Beta naphthol.

MNPT: Meta nitro para toluidine.

MNPA: Meta nitro para anisidine.

HCl; Muriatic or hydrochloric acid.