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NEWARK PLANT
PIGMENT COLOR RESEARCH REPORT

Final Report

EVALUATION OF COLORED PIGMENTS IN ASPHALT TILE

Period Covered: February 15 to October 15, 1945.

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EVALUATION OF COLORED PIGMENTS IN ASPHALT TILE

February 15 to October 15, 1945.

SUBMITTED BY:

A. J. Stratton 11/12/45
A. J. Stratton

DATE SUBMITTED: 10/18/45

APPROVED BY:

A. A. Brizzolara 11/12/45
A. A. Brizzolara

DATE ISSUED: 11/13/45

INTRODUCTION:

At the request of the Sales Department, a study has been made of the applicability of a selected group of colored pigments for the coloring of asphalt tile. Sales exhibits have also been prepared for promotional purposes.

SUMMARY AND CONCLUSIONS:

Subject to some qualification as to the effect of extremely high temperatures as used by some customers in processing tile, a property we have been unable to evaluate because of the limitations of our equipment, it is our conclusion that these colors already recognized as satisfactory for use in linoleum may also be used in asphalt tile. The properties of fastness to light, alkali and soap have been essentially the same in each field.

Where other properties are equal, it is probably desirable to recommend high strength colors for use in asphalt tile in preference to the extended colors often preferred in linoleum because of some tendency toward the embrittlement of tile with large amounts of fillers.

Sales exhibits have been prepared showing lightfastness, soap fastness and alkali fastness of a representative group of colors in full shade (or strong tint with "TI-PURE" R-200), pastel shades with "TI-PURE" R-200 and, in the reds and yellows, iron oxides toned with our colors. The various colors tested are considered in detail hereafter.

EXPERIMENTAL DETAILS:

A. Soap Fast Reds

RT-531-D and RT-539-D were examined together with the corresponding 25% lake RL-544-D and RM-545-D. In the yellower type, the toner and lake give equal color value at equal toner content and can be used interchangeably. However, RM-545-D appears to return substantially greater color value than RT-539-D and would appear to be the preferred color.

B. Non-Soap Fast Reds

RM-484-D and RT-455-D (Watchung Reds) return equal color value at equal toner content and we see no basis for choosing between them from a technical point of view. They have better lightfastness than the Soap Fast Reds above and surprisingly good fastness to alkali but very poor resistance to soap.

Pigment Scarlet Lake RL-211-D gives a very bluish shade with good lightfastness but with very poor resistance to alkali and soap.

C. Yellows

Benzidine Yellow YT-459-D has excellent money value and resistance to alkali and soap but is poor in lightfastness. YT-533-D is definitely inferior to YT-459-D for use in tile. YT-553-D

Chrome Yellow Y-434-D has excellent lightfastness whereas Y-469-D is only fair. Surprisingly Y-500-D is fully equal to Y-469-D, if not actually superior, but it has a less attractive color.

Molybdate Orange YE-421-D has excellent lightfastness and a very attractive color in the tile composition. As expected, however, all the lead chromate colors fail completely in alkali and have only fair resistance to soap.

D. Greens

Chrome Greens, such as G-605-D, have the expected good lightfastness but poor alkali and soap fastness. A substantially identical color to G-605-D can be made from YT-459-D and a "Monastral" Blue with excellent resistance to alkali and soap but the poor lightfastness of the YT-459-D appears as a pronounced change to a bluer shade on exposure.

Pigment Green B (as GT-646-D) has been suggested for tile because of its excellent resistance to alkali and soap but it also has poor lightfastness, particularly in weaker tints.

E. Blues

Iron Blue (B-216-D) has excellent color value but poor resistance to alkali and soap.

The "Monastral" Blues can be unhesitatingly recommended for use in tile but they are high in cost. Of our colors, BP-237-D is definitely poor in color value whereas BT-172-D, K-2169 and K-2215 show substantially equal color value on a toner basis. Thus, BT-172-D should be recommended as giving the best money value to the customer with K-2215 as the choice where there is objection to handling the more expensive color.

In evaluating resistance to agents, it should be borne in mind that the tile composition itself is affected by some agents, particularly by soap, and the results must be judged accordingly. Control exhibits have been prepared showing the uncolored composition, and composition containing only TiO₂ as well as composition colored with red iron oxide and with Ferrite Yellow. The composition used was obtained from the Thos. Moulding Corp., and we have no definite information as to its ingredients.

REFERENCES: N.B. 1140 - Many miscellaneous experiments.
N.B. 1176 - Expts. 1, 2, 3, 4, 5, 6, 7, and 9.