

UNITED STATES PATENT OFFICE.

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PROCESS OF DYEING AND PRODUCT THEREOF.

961,368.

Specification of Letters Patent. Patented June 14, 1910.

No Drawing.

Application filed January 6, 1909. Serial No. 470,946.

To all whom it may concern:

Be it known that I, RENÉ OTT, chemist, citizen of the German Empire, residing at Elberfeld, Germany, Kingdom of Prussia, have invented new and useful Improvements in Processes of Dyeing and Products Thereof, of which the following is a specification.

I have made the surprising discovery that the dianthraquinonylamin obtainable by the action of 2-chloro-anthraquinone on 1-aminoanthraquinone can be used as a valuable vat dye. It yields with alkaline reducing agents a vat which dyes vegetable fiber an orange shade of excellent fastness.

In order to illustrate my new process more fully the following example is given, the parts being by weight: Stir up 20 kilos of the dianthraquinonylamin (10 per cent. paste) with 50 liters of warm water, add to this mixture 40 liters of a hydrosulfite solution 20° Bé. and 6 liters caustic soda lye 30° Bé. After a short time the color is completely dissolved. Prepare a dye-bath which should contain 1800 to 2000 liters water, $\frac{1}{4}$ liter caustic soda lye 30° Bé. and 2 liters hydrosulfite solution and add to this cold bath the dye solution prepared from dianthraquinonylamin as above indicated, through a sieve, and then add a solution of 40-60 kilos Glauber's salt. Stir the bath well, let stand during some minutes, enter 100 kilos well wetted-out cotton and work for $\frac{3}{4}$ to 1 hour in the cold bath. After dyeing, squeeze out well, rinse, and acidulate the goods in a bath containing 2 ccm. sulfuric acid of 66° Bé. per liter, rinse and finally soap. A very fast clear orange shade is thus obtained.

The printing is carried out in an analogous manner. The dye is *e. g.* printed on the fabric with tin crystals, copperas powder, tartar powder and tragacanth. After printing, run through soda lye 18° Bé. at 85° C., acidulate, rinse and soap at 60° C.

Having now described my invention and in what manner the same is to be performed,

what I claim as new and desire to secure by Letters Patent is:—

1. The process of treating vegetable fiber consisting in reacting on the hereinbefore defined dianthraquinonylamin with suitable reducing agents to form a solution, applying the leuco compounds thus produced to the fiber and then oxidizing these leuco compounds, thus producing an orange shade.

2. The process of treating vegetable fiber consisting in reacting on the hereinbefore defined dianthraquinonylamin with alkaline hydrosulfites to form a solution, applying the leuco compounds thus produced to the fiber and then oxidizing these leuco compounds, thus producing an orange shade.

3. The process of treating vegetable fiber consisting in reacting on the hereinbefore defined dianthraquinonylamin with hydrosulfite and caustic soda lye to form a solution, applying the leuco compounds thus produced to the fiber and then oxidizing these leuco compounds, thus producing an orange shade.

4. As a new article of manufacture orange colored vegetable fiber impregnated with the oxidation products of the leuco compounds of the hereinbefore defined dianthraquinonylamin which treated fiber upon boiling with hydrochloric acid containing 10% of HCl remains practically unchanged in color and upon treatment with sulfuric acid of 90% changes from orange to darkbrown to black and which upon being touched with a watery solution containing 0.4% of anhydrous hydrosulfite of sodium and 0.8% of caustic soda changes its color of orange to redbrown which on exposure to air again assumes its original color.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

RENÉ OTT. [L. s.]

Witnesses:

OTTO KÖNIG,

WALTER E. MILHAMP.