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PROCESS FOR OBTAINING COLORED DISCHARGE EFFECTS ON DYEINGS

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It is known that the dyeings produced by means of certain vat dyestuffs can be discharged by printing them with such oxidizing agents of which the oxidizing effect takes place in an alkaline medium, and by treating the prints with alkalies in the heat. Such dyeings are for example the dyeings produced with indigoid dyestuffs. Oxidizing agents of which the effect takes place in the alkaline medium are for example salts of ferric hydrocyanic acids.

Further, in U. S. applications Serial No. 92,244 filed July 23, 1936, and No. 92,245 filed July 23, 1936, there have been described new derivatives of insoluble to sparingly soluble dyestuffs containing at least one hydroxyl group, which are obtained by treating these dyestuffs with acylating agents which, in addition to the acylating group, contain at least one substituent which, if necessary after a suitable transformation, renders the dyestuff soluble, or increases its solubility.

It has now been found that the ester-like, water-soluble products obtainable according to the above mentioned applications Serial Nos. 92,244 and 92,245, insofar as they are derived from water-insoluble dyestuffs and therefore correspond to the general formula

$$R_1—O—R_2$$

in which R_1 represents the radical of a water-insoluble dyestuff containing at least one hydroxyl group, and R_2 represents an acyl radical containing at least one water-solubilizing group, such as a sulfo group, a carboxyl group, or a quaternary ammonium group are excellently suited for obtaining colored discharge effects according to the method described above. This for the reason because they are stable towards the oxidizing agents mentioned above, and because the dyestuffs may be regenerated from these products by agents having an alkaline effect. The process may be carried out in such a manner that the named products are printed, for example with potassium ferricyanide or potassium chlorate onto the goods dyed with vat dyestuffs capable of being discharged with potassium ferricyanide or with another oxidizing agent having a like effect, and that after drying and if necessary after steaming the goods are passed through alkalies. Discharge of the vat dyestuff capable of discharge, formation of dyestuff by splitting of the printed acylating radical R_2, and formation of the insoluble dyestuff of the general formula R—OH taking place thereby. This method of working makes it possible to combine colored and white discharge effects. The new process has the further advantage that the undischarged places are not blurred by preparations, as is for example the case if alkaline oxidizing discharges are printed onto goods which have been dyed with vat dyestuffs and then naphtholized.

The following examples illustrate the invention:—

Example 1

Cotton is dyed a medium blue with Ciba Blue 2B (Colour Index No. 1184). The material thus dyed is then printed with the following two printing pastes:—

1. *White discharge.*—

	Grams
Potassium ferricyanide	150
Neutral starch tragacanth thickening	600
Water	250
	1000

2. *Red discharge.*—100 grams of the condensation product from diazotized 2:5-dichloroaniline and the ortho-anisidide of the 2:3-hydroxynaphthoic acid with 2 moles of sulfobenzoic acid chloride.

	Grams
Thiodiglycol (HO—C_2H_4—S—C_2H_4—OH)	150
Water	150
Neutral starch tragacanth thickening	400
Potassium ferricyanide	100
Zinc oxide	100
	1000

The printed material is passed through a bath of 50° C. containing caustic soda solution of 13° Bé., and 10 cc. of bisulfite, and after about 1 minute the goods are washed, acidified, and soaped. There are obtained white and scarlet-red effects on a blue ground.

Example 2

Cotton is dyed a medium blue with Ciba Blue 2B (Colour Index No. 1184) and printed with the following discharge color:—

1. *White discharge.*—

	Grams
Potassium ferricyanide	150
Starch tragacanth thickening	600
Water	250
	1000

2. *Red discharge.*—80 grams of the condensation product of the azo-dyestuff from diazotized meta-chloroaniline and the anilide of the 2:3-hydroxynaphthoic acid with 2 moles of sulfobenzoic acid chloride.

	Grams
Thiodiglycol ($HO—C_2H_4—S—C_2H_4—OH$)	150
Water	170
Starch tragacanth thickening	400
Potassium ferricyanide	100
Zinc oxide	100
	1000

The printed material is treated with a caustic soda solution, washed, acidified and soaped, as described in Example 1. There are obtained orange and white effects on a blue ground.

The process is similar with the other products described in applications Serial Nos. 92,244 and 92,245. Thus, for example with the condensation product of the azo-dyestuff from tetrazotized 2-methyl-4:4'-diamino - 5 - methoxy-azobenzene and 2-hydroxynaphthalene and subsequent esterification with 4-chloromethyl benzoylchloride in pyridine solution there are obtained brown effects on a blue ground.

Colored effects can also be obtained with dyestuffs which do not belong to the azo-series. Violet discharge effects are for example obtained with aid of the product obtained by the action of the 3:5-benzoic acid disulfochloride on 1:5-dibenzoyldiamino-4:8-dihydroxyanthraquinone.

Similar effects are obtained if instead of Ciba Blue 2B indigo or monochlorindigo or monobromindigo are used.

What we claim is:—

1. Process for obtaining colored discharge effects on vat dyeings capable of being discharged by means of oxidizing agents of which the oxidizing effect takes place in an alkaline medium, by printing these dyeings with such oxidizing agents and developing them with alkalies, comprising applying a discharge paste containing an alkaline oxidizing agent and an ester-like, water-soluble product of the general formula

$$R_1—O—R_2$$

in which R_1 represents the radical of a water-insoluble dyestuff containing at least one hydroxyl group, and R_2 represents an acyl radical containing at least one water-solubilizing group.

2. Process for obtaining colored discharge effects on vat dyeings capable of being discharged by means of oxidizing agents of which the oxidizing effect takes place in an alkaline medium, by printing these dyeings with such oxidizing agents and developing them with alkalies, comprising applying a discharge paste containing an alkaline oxidizing agent and an ester-like, water-soluble product of the general formula

$$R_1—O—R_2$$

in which R_1 represents the radical of a water-insoluble dyestuff containing at least one hydroxyl group, and R_2 represents an acyl radical containing at least one sulfo group.

3. Process for obtaining colored discharge effects on vat dyeings capable of being discharged by means of oxidizing agents of which the oxidizing effect takes place in an alkaline medium, by printing these dyeings with such oxidizing agents and developing them with alkalies, comprising applying a discharge paste containing an alkaline oxidizing agent and an ester-like, water-soluble product of the general formula

$$R_1—O—R_2$$

in which R_1 represents the radical of a water-insoluble azo-dyestuff containing at least one hydroxyl group, and R_2 represents an acyl radical containing at least one sulfo group.

4. Process for obtaining colored discharge effects on vat dyeings capable of being discharged by means of potassium ferricyanide by printing these dyeings with potassium ferricyanide and developing them with alkalies, comprising applying a discharge paste containing potassium ferricyanide and an ester-like, water-soluble product of the general formula

$$R_1—O—R_2$$

in which R_1 represents the radical of a water-insoluble azo-dyestuff containing at least one hydroxyl group, and R_2 represents an acyl radical containing at least one sulfo group.

5. Discharge pastes comprising alkaline oxidizing agents which are used for discharging goods dyed with vat dyestuffs, and an ester-like, water-soluble product of the formula

$$R_1—O—R_2$$

in which R_1 represents the radical of a water-insoluble dyestuff containing at least one hydroxyl group, and R_2 represents an acyl radical containing at least one water-solubilizing group.

6. Discharge pastes comprising alkaline oxidizing agents which are used for discharging goods dyed with vat dyestuffs, and an ester-like, water-soluble product of the general formula

$$R_1—O—R_2$$

in which R_1 represents the radical of a water-insoluble azo-dyestuff containing at least one hydroxyl group, and R_2 represents an acyl radical containing at least one sulfo group.

7. Discharge pastes comprising potassium ferricyanide and an ester-like, water-soluble product of the general formula

$$R_1—O—R_2$$

in which R_1 represents the radical of a water-insoluble azo-dyestuff containing at least one hydroxyl group, and R_2 represents an acyl radical containing at least one sulfo group.

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