

1

3,730,676

DYE TRANSFERRING METHOD

Geoffrey Allan Smith, Melrose, England, and Alan James Laidlaw, Selkirk, Scotland, assignors of fractional part interest to Joseph Dawson (Holdings) Limited, Bradford, England

No Drawing. Filed May 10, 1971, Ser. No. 141,970
Claims priority, application Great Britain, May 11, 1970, 70/22,689

Int. Cl. D06p 3/16

U.S. Cl. 8—2.5

2 Claims

ABSTRACT OF THE DISCLOSURE

A method of transferring coloured dyes from a printed paper transfer onto a textile fabric or material particularly when it is comprised of animal fibres. The fabric is padded with a chemical mixture having an aqueous phase and a printing paste thickener. A press applies heat and pressure to the fabric which is in contact with the printed paper transfer, for a period not exceeding ten minutes. The printed fabric is then removed from the press, washed and dried.

This invention relates to a method of transferring dyes from paper on to textile fabrics comprised of animal fibres.

It has already been proposed by the so-called "Sublimatic" process to transfer a paper print on to fabrics or garments made from synthetic fibres. Such a process operates on the transfer principle using disperse type dyes on paper prints. These dyes sublime on to synthetic fibres at temperatures in the region of 200° C. and the printing is carried out in a press, heated on one side only, for a period of about 10 seconds. Under these conditions the dye is transferred in a vapour or sublimed state from the paper on to the fabric. This method and type of dye is however, not suitable for printing on to fabrics made from animal fibres.

A method of transferring dyes in accordance with the present invention comprises transferring coloured dyes from a paper roll on to a padded textile fabric or material from a heated press at a temperature between 80° to 120° C., at a pressure of up to 10 lbs. per square inch, and for a period not exceeding 10 minutes, the printed fabric or material being then removed from the press, washed in water and dried. It is found that coloured dyes so transferred are all of a similar fastness to those obtained by conventional dying processes using the same dyes.

Furthermore the textile material is padded with a mixture comprising a liquid phase and a printing paste thickener which is stable under acid conditions.

One particular and at present preferred mode of performance of the method according to the invention for use with wool fabrics comprises the following stages:

(1) A roll of paper is printed by a conventional roller printing process with up to six colours using wool dyes. This paper can be stored indefinitely without deterioration.

(2) The fabric or material is padded in a print thickener such as a locust bean gum derivative together with acetic acid. The viscosity of this can be changed depending on the type of fabric or material to be printed. The fabric is then squeezed through a padding mangle, leaving between 100–300% take up.

(3) This padded fabric or material is then placed in a suitable steam or electrically heated press, the transfer paper is placed on the fabric or material, and heat is applied for up to 10 minutes.

(4) After the steaming, the fabric or material is washed off and dried.

2

In reference to stage 2 mentioned above, it is essential since wool dyes do not sublime that the transfer from the paper to the fabric should be carried out in the liquid phase. However, steam and water only are not sufficient and the use of acetic acid or more specifically, sulphamic acid and chemicals given in the following examples will increase the affinity of the dyes for wool.

The use of a printing base thickener serves two purposes, namely;

(1) It allows sufficient moisture to be spread and held thinly over the surface of the fabric.

(2) During transfer it prevents the print spreading and the outline blurring.

Any commercially available thickener may be used providing it is stable under acid conditions. Locust bean starch derivatives are among the most suitable for this purpose.

The viscosity must be altered for different fabrics. Lightweight fabrics require a thicker paste and a greater weight of paste on the fabric, than do heavier fabrics.

For large bulk printing, roller printing is the most economical method of producing the paper transfers. For small motifs, badges and so forth on the front of a garment, especially if a small number of prints are required, paper transfers can be made equally well and more economically by a small flat bedblock or litho printing machine.

The medium for padding the garments to allow transfer to take place, can be supplied in two forms, either as a paste ready for use, or as a powder to be mixed with water prior to use.

EXAMPLE 1

Paste ready to use consists of a suitable thickening agent, acetic acid and a solvent dye assistant respectively in the following proportions by weight:

	Parts
Diaprint REG (manufactured by Diamalt) -----	4
Acetic acid 80's -----	1
Benzyl alcohol -----	1
Water -----	94

Garments are evenly impregnated with this paste in the proportion of 2.5 parts to 1 part of fabric.

EXAMPLE 2

Supplied as a powder, the padding medium consists of a suitable thickener, and sulphamic acid in the following proportions by weight:

	Parts
Diaprint REG -----	10
Sulphamic acid -----	1

To prepare for use, mix 4.4 parts powder with 95.6 parts water at 60–80° C. Cool to room temperature before impregnating garments in the same way as Example 1.

EXAMPLE 3

To accelerate the dye fixing process and absorption when required the make-up of the paste would be as follows:

	Parts
Diaprint REG -----	4
Sulphamic acid -----	1
Thymol-3 hydroxy-4-isopropyltoluene* -----	0.2
Emulsifier -----	0.2
Water -----	94.6

* Or para amino benzoic acid, cresols, phenols.

and similar aromatic hydroxy derivatives. Garments can be printed in the greasy state i.e. before scouring and milling provided that the spinning oil, used in yarn manufacture is of suitable type.

3

What is claimed is:

1. In the method of printing wool textile fabric with wool dyes, wherein said fabric is padded, contacted with a wool dye printed paper roll, and subjected to heat and pressure to transfer said wool dye from said paper to said fabric, the improvement comprising including in the padding composition a member selected from the group consisting of acetic acid and sulphamic acid, and effecting said transfer at a temperature of from 80 to 120° C. and a pressure of up to 10 pounds per square inch for a period of up to 10 minutes.
2. The method of claim 1 wherein said fabric is padded with an aqueous paste of a locust bean gum derivative.

4

References Cited

UNITED STATES PATENTS

2,911,280 11/1959 Cicogna ----- 8—2.5

OTHER REFERENCES

Exparte Schoeneberg et al.: Decision of the Board of Appeals, Pat. No. 3,190,718, Paper No. 27, 4 pages.

Exparte Schoonover et al.: Decision of the Board of Appeals, Pat. No. 2,743,991, Paper No. 23, 6 pages.

MAYER WEINBLATT, Primary Examiner

T. J. HERBERT, Jr., Assistant Examiner