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(54) Title: METHOD OF EFFECT CREATING FOR PIECE-DYED PRODUCTS

(57) Abstract: Invention relates to a method for creating effect on piece-dyed products comprising process steps of treatment of products with acid at the last step of piece-dyeing operation, treatment of acid treated products with breaking preventer, drying the products, treatment of dried products with powder acid, washing the products treated with powder acid with soap and treatment of washed products with stone enzyme.



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METHOD OF EFFECT CREATING FOR PIECE-DYED PRODUCTS

5 Technical Field

The invention relates to a method of creating effects developed to provide bleaching effect for piece-dyed products.

- 10 The invention particularly relates to a method eliminating use of pumice stone and potassium permanganate developed to provide creating effects onto products coloured by piece-dyed method in textile sector.

Prior Art

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In present applications the methods for creation of effects using pumice stone to provide particularly bleaching effect for fabrics and products are commonly used. In pumice stone effect providing method, potassium permanganate solution is absorbed by pumice stone and bleaching effects of various degrees subject to absorption rate are obtained.

- 20 Potassium permanganate is an agent accepted as harmful for human health and there are legal restrictions of use in textile applications. In addition, rate of wastes in methods of providing effects by use of pumice stone and potassium permanganate is too high. Before putting products into machine in application step, absorption of potassium permanganate by pumice stone causes extra workmanship and power consumption. Removing products
- 25 from machine in application step also requires high work force. In addition, use of pumice stone causes development of mud arising from stone dust.

- There are various applications developed as alternatives to pumice stone used to provide effects onto, particularly, piece-dyed products in textile sector. Some applications
- 30 encountered in the literature are as follows.

- The application numbered TR2019/18147 relates to piece-dyed acid flushing method used in textile washing sector. Said method comprises process steps of putting product into close drum machine, preparation of NW-4500 chemical to be used in giving effect
- 35 operation, giving effect to the products, turning drum machine to provide homogenous disperse of NW-4500 chemical and drying the washed products.

The application numbered TR2019/07343 relates to a bleaching composition for dyed textiles and bleaching method using the composition. The invention particularly relates to a composition for oxidization and/or bleaching of all textile products such as dyed yarn, fabric, clothing etc. dyed with indigo dye, sulphur dye or oxidizable dyes, and bleaching method using the composition. Bleaching composition thereof comprises various cyclic anhydrite derivatives and hydrated peroxide solvent activated by phosphate salines.

The application numbered TR2019/03932 relates to a method for bleaching cotton fabrics. It relates to a method for hot or cold bleaching of raw cotton or cotton fabrics in presence of hydrogen peroxide. The method is characterized by comprising process step of adding at least one glycol derivative composition in mixture with water dissolved X-COCH₃ into bleaching water comprising hydrogen peroxide and caustic in contact with raw cotton or cotton fabric to be bleached and said X group in X-COCH₃ structure is selected from at least one O-acetylene acetyl donor selected from salicylic acid, Acetic acid, Diacetin, Cellulose, Glucose and Sucrose.

The application numbered DE19636531(C1) relates to a method for obtaining stone washing effect on cotton fabrics by use of ground glass instead of pumice stone. Obtaining stone washing effect cotton fabric comprises processing dyed or not dyed cotton fabric containing water solution by means of ground glass and cellulose. Preferably ground glass of 0,01-10 um diameter is used in application.

The application numbered US5213581(A) relates an application for obtaining colour variations in fabrics particularly indigo dyed denims. The application of the invention provides achievement of appearances such as desired aged stoned etc. by means of only chemical effect of water treatment compositions without need for use of pumice stone used in washing processes. The method is defined as the process steps of contacting not sewed fabric or clothing with an essential amount of a solid inorganic composition selected from water, effective amount of cellulose enzyme, a carbonate, a phosphate, a tripolyphosphate, a silicate, a sulphate or a group consisting of them and a water solution with water composition comprising a buffer agent capable to hold optimum pH for pH enzyme.

As a result, due to above described disadvantages and inadequacy of existing solutions it has been necessary to make development in the related art.

Brief Description of the Invention

The present invention relates to method for creating effect onto piece-dyed fabrics meeting the needs mentioned above, eliminating all disadvantages and providing some additional advantages.

Primary purpose of the invention is to disclose a method for creating effects eliminating waste occurrence.

Another purpose of the invention is to disclose a method for creating effect reducing power consumption, minimizing work force use and reducing production costs related thereto.

A further purpose of the invention is to disclose a method for creating effect preventing occurrence of waste dust mud arising due to use of pumice stone.

In order to achieve above mentioned purposes, the invention relates to a method for creating effects for piece-dyed products. Said method comprises following process steps:

- a) Processing products with acid at final step of parts dyeing process,
- b) Applying breaking preventive operation for products treated with acid,
- c) Drying products,
- d) Treating dried products with powder acid,
- e) Soap washing the products treated with powder acid and
- f) Treating washed products with stone enzyme.

In order to achieve purposes of the invention, treatment with acid is realized at 60C with acid of 1 – 2 % and preferably 2 % and for 12 minutes.

In order to achieve the purposes of the invention, treatment with breaking preventer is realized at 2nd bath with preferably 1/5-1/8 flots rates.

In order to achieve purposes of the invention, treatment with breaking preventer is realized at 40-50 °C with acid of 4-6 % and preferably 4 % breaking preventer and for 10-20 minutes.

In order to achieve purposes of the invention, drying operation is continued until product is fully dried preferably at 70°C.

5 In order to achieve purposes of the invention, treatment with powder acid is realized with powder acid of 25 – 50 % and preferably 25 % subject to degree of effect desired to be created in the product, for 30 - 60 minutes.

10 In order to achieve purposes of the invention, washing operation is realized at 50 °C with soap of 1 – 2 % and preferably 2 % and for 10 minutes.

In order to achieve purposes of the invention, treatment with stone enzyme is realized with stone enzyme of preferably 2,5 – 5 % at 40 - 50 °C and for 30 minutes.

15 The structural and characteristics features of the invention and all advantages will be understood better in detailed descriptions with the figures given below and with reference to the figures, and therefore, the assessment should be made taking into account the said figures and detailed explanations.

Detailed Description of the Invention

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In this detailed description, the effect creation method developed for piece-dyed textile products of the invention has been described in a manner not forming any restrictive effect and only for purpose of better understanding of the matter.

25 In the method of the invention piece-dyed products are treated with acid, breaking preventer, powder acid, soap and stone enzyme. Effect giving method provides following process steps.

a) Processing products with acid at final step of parts dyeing process,
Acid provides balance of pH in piece-dyeing bath and provides pH value fixed on
30 the product. Keeping pH value constant helps providing effect impact as desired by means of increasing effectiveness of acidic operations to be applied during effect creating operation. During treatment with acid operation, products are treated with 1 – 2 % and preferably 2 % of acid for preferably 12 minutes in temperature 60 °C.

35 b) Applying breaking preventive operation for products treated with acid,

Breaking preventer provides flatness of effects in visual aspect by preventing occurrence of breaking on the product. For treatment with breaking preventer, the products are bathed with water of 1/5-1/8 flt in a 2nd bath. 2. In the bath products are treated at preferably 40 - 50 °C with 4 – 6 % and preferably 4 % of breaking preventer for 10 - 20 minutes.

In an alternative embodiment of the invention, serial wetting device can be used preferably instead of breaking preventer.

c) Drying products

Products treated with breaking preventer is dried fully preferably at 70°C.

d) Treating dried products with powder acid

Powder acid prevents waste occurrence by preventing wearing of the product while providing the effect creation and bleaching effect. The products are treated with powder acid of 25 – 50 % and preferably 25 % for preferably 30 - 60 minutes.

In an alternative embodiment of the invention, preferably acetic acid can be used instead of powder acid.

e) Soap washing the products treated with powder acid

After bleaching operation conducted with powder acid, washing with soap is made to clean surface of the product. At washing machine, the washing operation is made at preferably 50 °C with soap of 1 – 2 % and p preferably 2 % for preferably 10 minutes.

In an alternative embodiment of the invention, preferably detergent can be used instead of soap.

f) Treating washed products with stone enzyme

Stone enzyme provides homogenous appearance of effect intended to be given in the product. The products are treated with stone enzyme of 2,5 – 5 % of use rate at 40-50°C for 30 minutes.

The method of creating effect of the invention provides a method not having any risk in health terms, reducing power consumption and minimizing workmanship when compared to effect providing method provided by use of pumice stone and potassium permanganate.

In addition, method of the invention eliminates occurrence of waste. In line with all those advantages provided by it, the production costs are reduced and thus related method' is preferred more frequently.

CLAIMS

1. A method for providing effects to piece-dyed products characterized by comprising process steps of;
 - 5 a) Processing products with acid at final step of piece-dyeing process,
 - b) Applying breaking preventive operation for products treated with acid,
 - c) Drying products,
 - d) Treating dried products with powder acid,
 - e) Soap washing the products treated with powder acid and
 - 10 f) Treating washed products with stone enzyme
2. The method for providing effect according to claim 1 characterized in that treatment operation of said process step (a) being made with acid of 1 – 2 % and preferably 2 % and at 60 °C and for 12 minutes.
- 15 3. The method for providing effect according to claim 1 characterized in that treatment operation with breaking preventer of said process step (b) being made with water of 1/5-1/8 fl oz at 2. bath.
- 20 4. The method for providing effect according to claim 1 characterized in that treatment operation with breaking preventer of said process step (b) being made with breaking preventer of 4 – 6 % and preferably 4 % and at 40 - 50°C and for 10 - 20 minutes.
- 25 5. The method for providing effect according to claim 1 characterized in that drying operation of said process step (c) being continued at 70°C until product is fully dried.
- 30 6. The method for providing effect according to claim 1 characterized in that treatment operation with powder acid of said process step (d) being made with powder acid of 25 – 50 % and preferably 25% depending on desired effect degree to be made on the product for 30 - 60 minutes.
7. The method for providing effect according to claim 1 characterized in that washing operation of said process step (e) being made with soap of 1 – 2 % and preferably 2 % and at 50°C and for 10 minutes.

8. The method for providing effect according to claim 1 characterized in that treatment with stone enzyme operation of said process step (f) being made with stone enzyme of 2,5 – 5 % at 40 - 50°C and for 30 minutes.

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

D06M 16/00 (2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

D06M 16/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1021513 A1 (NOVO NORDISK AS [DK]) 26 July 2000 (2000-07-26) Description page 2	1-8
A	US 4954138 A (NORTON CO [US]) 04 September 1990 (1990-09-04) Whole document	1-8
A	US 4816033 A (EAST WEST APPAREL INC [US]) 28 March 1989 (1989-03-28) Whole document	1-8



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

“A” document defining the general state of the art which is not considered to be of particular relevance

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“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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