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# Fabric Texture With Different Fiber Content Color Display Panel

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## ABSTRACT

Studies have been conducted to study the dyeing processes with different ratios of cotton, bamboo, polyester (PE) and polyacrylonityryl (PAN) fibers with active dyes. The coefficient of light reflection, wavelength, and color intensity of colored fabrics made of natural and chemical fibers are determined.

## KEYWORDS

Fiber, active substance, fabric, technological processes, assortment, coloring agents.

## INTRODUCTION

The production of innovative fiber-based fabrics in accordance with consumer demand, their chemical finishing is one of the main tasks facing the textile industry. In the implementation of finishing processes of mixed-fiber textile materials, technological processes are selected taking into account the properties of the organizers of natural and chemical fibers.

The assortment of fabrics made of bamboo fiber is wide, the scope of their use is changing. When non-woven fabrics are replaced by yarn fabrics used for technical purposes, the replacement of yarn products with chemical fibers is becoming popular. These developments are aimed at obtaining more clothimbop fabrics from bamboo fiber by cheapening the tannarch of the product.

Some negative properties of viscose fiber belonging to the category of artificial fibers, that is, the loss of its physico-mechanical properties under the influence of moisture and the inability to maintain sufficient shape, can not be manifested in bamboo fiber.

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Studies have been carried out on the study of the processes of dyeing fabric samples with different proportions of fibers of cotton, bamboo, Poly (PE) and polyacrylonitrile (PAN) in the composition. The process of coloring and color characteristics in a ring method with active coloring agents were studied. The light return coefficient, wavelength, color intensity indicators of dyed fabrics consisting of natural and chemical fibers of different proportions were determined.

The scheme of dyeing cellulose fibers with all active dyes is the same, it is carried out in two stages:

1. In the presence of electrolyte in neural conditions (30:70gl) 1:1,5 painting
2. In alkaline conditions (((Na2 CO3 , 2:10 g/l) 30 minutes again painting.

At the first stage, the active dye, which has a certain tendency to fiber, passes from the solution phase to the fiber phase, Sorbs into it, and between the cellulose fiber and the active coloring substance, intermolecular bonds occur. It is achieved by passing the coloring agent from solution to fiber, sorbing and evenly spreading in it. If the staining begins with an alkaline solution, the main part of the coloring substance is still in the solution and undergoes gasification. At the initial stage, the absorption of the dye from the neutral solution into the fiber can vary depending on the temperature and the reaction ability of the coloring agent. In the next process - after the coloring substance passes into the fiber, an alkaline agent ((NaOH, Na2CO3) is added to the painting bath - in the amount of 1-10 g/l. The temperature is held according to the first stage. Then the surface is washed with a cloth painted in an alkaline solution of the active substance. Such, a dye that does not bind covalently to the fabric, leaves the fiber [1].

**Color indicators of fabrics with natural and chemical fibers in different proportions**

| № | Fiber content of samples, % | Coefficient of light return R,% | Wave length, nm, λ | Color intensity, KS |
|---|---|---|---|---|
| 1. | Cotton / Bamboo /PE 57/20/23 | 12 | 630 | 3,41 |
| 2. | Cotton / PE - 80/20 | 15 | 620 | 2,91 |
| 3. | Cotton / PE – 85/15 | 13 | 622 | 3,2 |
| 4. | Cotton / PE- 88/12 | 14 | 617 | 3,1 |
| 5. | Cotton / PE -68/32 | 17 | 620 | 2,5 |
| 6. | Cotton /PE -70/30 | 15 | 621 | 2,6 |
| 7. | Cotton / PE/ PAN 57/33/10 | 14 | 624 | 2,9 |
| 8. | Cotton /PE /PAN 44/5/51 | 22 | 627 | 1,4 |

The results of the experiment show that the color intensities of samples with 57% cotton, 20% bamboo and 23% PE fibers were the highest compared to all other fiber-containing samples.

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While the Minimum intensity was observed to correspond to the sample containing cotton: PE:PAN – 44:5:51, the ratio of cotton and PE fibers in the composition was from 68:32 to 88:12, and the proportion of cotton fibers in the samples was 57% compared to the sample of mixed fibers. Theoretically, with the increased content of cotton fibers in the composition of the mixture, the color intensity of them should increase accordingly.

This situation can be explained by the fact that 1% of bamboo fiber is introduced in 20-th sample.

Bamboo is a gidratsellyulose fiber, and active coloring agents show a tendency to it, like raw cotton wool.

In continuous methods, at all stages of the painting process, an undissolved olda passes from one to another.

In the process of painting with active coloring agents, the factors affecting the color tone of the coloring agent and its quality are as follows:

1. Eksex be formed. To strengthen the color of the coloring substances, they can form O -, peri -, and azo-groups of molecules located in the o - position relative to each other in the two functional groups of the structure, which are removed in the metaleksex position or are formed in the bo'yex position during painting. If the atom that participates in the formation of theeksex is in the adjacent Aries system, the color will deepen, but on the contrary, the color will not change.
2. Competitive and intersecting adjacent Aries sistema effect. If the coloring substance is a competitive polar cystema in the molecule of light absorption is in two different areas of the spectrum, its color is clear and the sum of two colors. The color of the intersecting joint system coloring material is pale having a low value of the color intensities of 7 - and 8-samples, the composition of which is cotton and synthetic fibers of two types, is associated with the penetration of molecules of the dye into the internal structure of the PE and PAN fibers by cutting off their macromolecular bonds at high temperature, that is, at the bottling temperature. The color uniformity was evidenced by the fact that only cotton and bamboo fibers in the samples were stained with active dyes. PE and PAN fibers mixed fiber substrate is negligible for color intensity.

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