

METHODOLOGICAL ASPECTS OF EXPERTISE OF TEXTILE MATERIALS MANUFACTURED BY INNOVATIVE TECHNOLOGIES

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Abstract: *The methodological aspects of examination of textile materials produced by innovative technologies are considered. The algorithm of the process of examination of technological innovation of textile production - emulation of yarn, using computerized complexes of measurement and color calculation is offered. The method of conducting examination of textile materials produced on the basis of innovative technologies is developed, which consists in the coloring of materials and the evaluation of colored textile materials by a certain generalizing indicator - the general color difference.*

Keywords: *medology, examination, textile materials, innovative technologies.*

Expertise is a specific activity based on scientific and practical knowledge, its methodology can be either general, or selective, specific.

The analysis of scientific and technical literature and experience of the enterprises testifies that at present the object of application of scientific achievements of scientists is actively beginning to become innovative technologies of production of textile materials.

Achieved at this level of research in the area of expertise of textile materials produced by innovative technologies, it still does not provide the opportunity to form a unified scientific theory and approach to solving the objective definition and evaluation of such materials.

In the current state of the textile industry, it was advisable to consider the methodological aspects of the examination of textile materials produced by innovative technologies.

One of the traditional ways to improve the technological and consumer properties of yarns is emulsion. At the Department of Expertise, Technology and Textile Design of Kherson National Technical University, an innovative processing technology has been developed, which involves the use of new modern emulsifiers [1].

Based on the analysis of studies and publications, one can conclude that the field of research where there are potential opportunities for improving the examination of textile materials is the methodology for defining the characteristics of textile materials produced by innovative technologies. One of the most important characteristics of textile materials is their spectral characteristics [2].

The subject of research was yarn, which was processed using innovative emulsion technologies.

The spectral characteristics of the subject of research are obtained using a computerized system for measuring and reproducing color, which includes: Spectrophotometer "Spektra Scan 5100" f. Premier Colerscan, a computer and application suite that allows you to solve the problems of production colourism. Color is estimated at standard radiation. In this paper, the characteristics of radiation D-65/10 are given. The color differences are calculated in the system CIEL * a * b *.

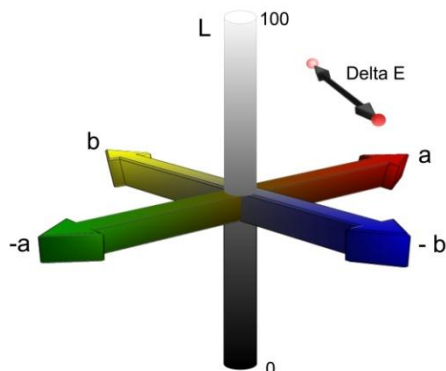
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The influence of the innovative emulsion technology on the spectral characteristics of the yarn is given in the table.

Table
Changing the spectral characteristics of yarn treated with innovative technologies and colored by Vofalan Bordo 3VL

Number of emulsifier, %	Light, dL	Coordinate color, da*	Coordinate by color, db*	Purity color, dC	Color tone, dH	General colored difference, dE
1	0,181	4,602	-0,821	4,549	-1,070	4,677
3	0,521	7,198	-0,579	7,150	-1,01	7,240

Analyzing the data presented in the table, it is noted that the presence on the samples of innovative emulsifiers leads to a significant change in the overall color difference dE (the physical nature of dE is shown in the figure) when colored with Vofalan Bordo 3VL dye.



Drawing. Physical nature of the value of dE

When measuring small color differences, it is necessary to take into account that the value of dE is related to the so-called threshold color difference. The threshold of color variation is the least distinct visually color difference for a given group of samples of a certain color and lightness.

In the conditions of our experiment, there are grounds for proposing the use of the dE characteristic to identify an innovative emulsifier on the textile material when coloring the material with a Vofalan Bordo 3VL dye.

Threshold color variation for each color has its meaning. For the selected sample, the threshold value is 0.8. The overall chromaticity variability of the samples under study differs significantly from the threshold value of the color difference established for the samples of this color, which means that the samples differ significantly in color, even to such an extent that they can be distinguished visually.

Conclusion

When solving methodological problems necessary for the examination of textile materials produced by innovative technologies it is advisable to focus attention on the application of a certain generalizing indicator. It is shown that for the examination of textile materials produced by the innovative emulsion technologies it is expedient to use the values of the value of the total color difference.

References

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