ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 06,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

IMPROVEMENT OF CONSUMER PROPERTIES OF SILK DRESS FABRICS

Farida Abduhalimovna Ahmedjanova
Associate Professor. Samarkand Institute of Economics and Service

Abstract: The article studies consumer properties of silk fabrics from various fibrous compositions the indicators of the fabric structure and its hygienic properties were established. In addition, the The study showed that air permeability, vapor permeability and hygroscopicity of fabrics depend on both the structure of the fabric and the type of fibers used. Regression dependencies between influence of aesthetic characteristics on the perception of fabric quality by consumers was analyzed. The findings highlight the need to consider both hygienic and aesthetic factors when developing and producing fabrics, especially in dry and hot climates. Recommendations are given for the use of innovative technologies and expansion of the range of fabrics depending on climate conditions and consumer preferences.

Key words:hygienic properties of fabrics, air permeability, hygroscopicity, fibrous composition, fabric structure, aesthetic properties, textiles, regression analysis, fashion, consumer preferences.

Introduction: Fabrics made from threads and yarns of different fiber composition, weave structure and finish differ significantly in their properties. Each property of a fabric is characterized by one or more indicators that determine its properties during operation. One of the most important criteria for assessing the quality of fabrics is their hygienic properties, since they largely determine the comfort of wearing textiles, especially in hot and dry climates.

The indicators of hygienic properties of fabrics are directly dependent on the characteristics of the fibers and threads used, the weave structure, and finishing methods. Such indicators include hygroscopicity, vapor and air permeability, thermoregulation ability, and other parameters that directly affect the microclimate of the underlayer of clothing. The requirements for fabrics prefer not only high performance characteristics, but also compliance of aesthetic indicators with consumer needs.

In this regard, a comprehensive study of the relationship between the fibrous composition, structural features of fabrics and their hygienic and aesthetic properties is particularly relevant. This work is aimed at identifying the factors that determine the quality of fabrics, as well as developing recommendations for the production of fabrics that best meet the climatic, functional and national characteristics of consumer demand.

Literature analysis: The dependence of the qualitative indicators of the consumer properties of fabrics on the fabric structure and fiber composition was studied by foreign scientists: V.P. Sklyannikov, I. Sh. Dzakhmisheva, D. N. Myasichenko, SANTIS, Sandra Helena. In Uzbekistan, research aimed at improving the quality of textile products was carried out by researchers R.K. Akhmedov, R. Abdullaev, M. R. Boltaboev, Z.D. Odilova.

According to their research, the air and vapor permeability of fabrics depends on the content of fibers and the structure of the fabric. Fabrics made from natural yarns have high hygroscopicity and vapor permeability due to a high degree of absorption, while the hygroscopicity and vapor permeability of artificial and synthetic fabrics are low due to the low absorption rate of artificial and synthetic fibers. It has been investigated that fabrics with different fiber content are able to absorb moisture at different rates and in different amounts.

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 06,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

V.P. Sklyannikov [1] investigated the dependence of hygroscopicity and vapor permeability of fabrics not only on the content of fibers in the fabric, but also on its structure. The denser the fabric, the higher its hygroscopicity and vapor permeability.

The breathability of a fabric is important for assessing the quality of a fabric. A number of researchers have shown that the air permeability index depends more on the structure of the fabric than on the content of fibers in it. However, the researchers did not analyze the dependence of tissue quality on complex quality indicators.

Research methodology: When assessing the quality of fabrics, objective measurement methods were used: physicochemical; heuristic assessment methods: organoleptic, expert and sociological; analysis and synthesis; logical approach; The methods of correlation and regression analysis were used.

Results of the study: The results of the assessment of the hygienic properties of the tissues showed that the hygroscopicity of the investigated tissues is about 10-35%. The highest hygroscopicity was 26-35% for natural silk fabrics, natural silk and artificial viscose fibers, while the lowest hygroscopicity made up 10-12% for fabrics woven from synthetic and acetate yarns.

The hygroscopicity of fabrics depends not only on the fiber content, but also on the structure of the fabrics. The hygroscopicity of fabrics, as well as the structural indicators of fabrics that affect it, can be expressed by the following correlation equation.

$$\Gamma_{hygroscopic} = -64{,}182 \times H_T^{3{,}404} \times (P_T+P_a)^{-1{,}03} \times E_{oy}^{10{,}67} \times T_T^{-0{,}472} \qquad (R=0{,}8)$$

where:

$\Gamma_{hygroscopic}$ - is the hygroscopicity of the fabric;

H_T -fabric surface surface filled with fiber;

P_T+P_a - fabric density (number of warp and weft threads per 10 cm^2)

E_{oy} - is the ratio of basic and weft threads;

T_T - linear density of threads (tex)

Indicators that largely affect the hygroscopicity of tissues are the thickness and density of the tissue. However, the thickness and high density of the fabric negatively affects the breathability of the fabric. The denser the warp and weft threads, the lower the breathability of the fabric due to the lower amount of through porosity.

The relationship between the air permeability (W) of the fabric and the density of the fabric (P_T+P_a) acting on it can be expressed by the following regression equation:

$$W = -71{,}43 + 215277{,}77/(P_T+P_a) \qquad (R=0{,}8)$$

This means that the higher the density of the fabric, the fewer the pores in the fabric and the lower the air permeability, but the higher the hygroscopicity and vapor permeability.

The air permeability of the fabric also depends on its fiber filling. The higher the saturation of the fabric with the fibers, the lower its air permeability, because the fibers prevent the passage of air by filling the pores present in the fabrics.

The relationship between the air permeability (W) of a fabric and its fiber filling (H_T) can be expressed by the following equation.

$$W = 141{,}08+6363{,}63/H_T \qquad (R = 0{,}8)$$

Conclusion: According to the research results, it can be concluded that the indicators of the hygienic properties of fabrics depend not only on the fibrous composition of fabrics, but also on the structure of the fabric: density, fabric thickness, type of weave used, softness and smoothness of the yarn. Therefore, manufacturers must take into account not only the fiber

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 06,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

content in the fabric, but also its structure, depending on the functional purpose, when developing and producing new fabrics.

It is recommended that silk fabrics for hot and dry climates be made primarily of natural silk and rayon silk. To improve the hygienic properties of fabrics with the addition of acetate and synthetic yarns, it is necessary to use fine, smooth, crepe single and complex yarns.

It is known that one of the most important characteristics for consumers is the aesthetic properties of fabrics. V.P. Sklyannikov[1] and .D. N.Myasichenko.[2] created a model of the dependence of the aesthetic properties of tissues on the physico-morphological and calculated indicators.

Consumers, judging the quality of fabrics, can appreciate the aesthetic properties, even if they cannot assess the hygiene and reliability. Although aesthetic properties are one of the most important characteristics for consumers, the researchers did not take into account the indicators of aesthetic properties in a comprehensive assessment of fabrics.

The aesthetic properties of fabrics depend on the analyzed physical and morphological indicators (finish, color and pattern, drape, transparency, surface texture) and estimated indicators (purpose, compliance with fashion, fabric novelty).

Research (sociological and expert surveys) has shown that consumers pay more attention to the aesthetics of fabrics, their color, pattern, transparency, purposeful use of the fabric and its conformity to tradition.

The results of the assessment of the complex aesthetic indicators (Em) of the tissues showed that -37.5% of the tissues were rated "excellent" (Em = 0.76 - 1); 62.5% of tissues were rated “good” (Em = 0.51–0.75). The results of the study showed that there is a correlation dependence between the physico-morphological and evaluative indicators of aesthetic properties.

This means that consumer demand for fabrics can be determined by their aesthetic properties, which they can appreciate. When assessing the aesthetic properties of fabrics, consumers pay great attention to the finishing of fabrics (color-pattern), transparency, decoration of the fabric, its functional purpose, adherence to traditions and fashion. Therefore, in the production of fabrics, enterprises should take into account the hygienic properties of fabrics and indicators of aesthetic properties, which are of great importance to consumers.

Conclusions and recommendations: based on the results of our research, in order to fill our markets with quality and affordable fabrics from local manufacturers that are consistent with climatic conditions, traditions, prevailing fashion and consumer requirements, we recommend the following:

• taking into account the growing demand of the population for textile products, to expand the production of fabrics with high hygienic properties, which are aimed at fully meeting the demand in accordance with dry hot climate;

• apply the widespread introduction of advanced information and communication technologies, allowing to receive reliable and timely information on the state and development trends of the domestic and foreign markets of the textile industry, conduct a systematic and comprehensive analysis to determine the development priorities of the industry;

• widespread introduction of advanced innovative technologies, know-how, design developments in the production process, localization of production of modern samples in order to expand production and export of high-quality finished textile products, promote national brands to world markets;

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 06,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

• when manufacturing fabrics, take into account indicators of aesthetic properties that are important for the consumer: color, pattern, surface texture, compliance with national traditions, fashion;

• in order to increase the consumption of fabrics produced by enterprises expand the range of fabrics for consumers of different categories and nationalities.

List of used literature:

1. V.P. Sklyannikov. The structure and properties of fabrics - M .: “Economics”
2. Dzakhmisheva I.Sh. Merchandising of clothing, knitwear and textiles: Moscow: “Dashkov and K” 2012.
3. D. N. Myasichenko. Assessment of the quality of fabrics. - Moscow: "Economics", 2012.
4. ANTIS, Sandra Helena da Silva de. Textile quality management: controls and measures to increase the quality of the processes of a small industry. Universidade Sro Paulo, Sro Paulo (Brasil). 2020.
5. F.A. Ahmedjanova., G. Nematov. (2021). Commercial expertise of an assortment of ceramic products. TJE - Tematics journal of Social Sciences. Vol-7-Issue-3 2021.http://thematicsjournals.in
6. Ahmedjanova, F. A. (2022). The Need to Analyze the Assortment and Improve the Quality of Cosmetic Products for Consumers in Hot Climates. Mathematical Statistician and Engineering Applications, 71(4), 8769-8774.