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The Study Of The Fineness Of Textile Materials In Small Manufacturing Enterprises

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ABSTRACT

The article is devoted to testштп the hardness of textile materials. To analyze and study samples were taken from various tissues of the linear density of the yarn and also with different type of fabric weave and density. To study the rigidity of textile materials the appliance is made and certain hardness of the test samples. On based of the results of the samples and methods for determining the stiffness can be concluded that stiffness is one of the basic properties of textile materials for garment production.

KEYWORDS

Stretching, bending, crushing, friction forces, Jacquard, Gauze indicators, sewing, and fabric quality indicators.

INTRODUCTION

At present, the sewing enterprises of the republic are being equipped with new high-efficiency, fast-adapting automatic motors, modern equipment and improving technological processes. Complex mechanization of technological processes continues by equipping this equipment with a variety of devices. Sewing machines that allow you to perform multiple processes in one go are widely used. Methods of laser beam, ultrasound, and high-frequency electric spark treatment are being introduced in garments.

Clothing can wear out mainly due to the effects of stretching, bending, crushing,

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friction forces. Therefore, the mechanical properties of the fabric - its resistance to various mechanical influences - play an important role in maintaining the shape of the garment and its durability. The mechanical properties of the fabric include toughness, elongation, abrasion resistance, shrinkage, draping, stiffness and other properties [1].

THE MAIN FINDINGS AND RESULTS

The high performance and quality of sewing products are inextricably linked with the body and back yarns in the fabric that make it up. One of the main indicators of raw materials - textile fabrics in the production of garments is the hardness or softness of the fabric. Knowing the abrasion resistance of a garment to a certain part, knowing the degree of fineness of the fabric, will lead to a longer life of the product and an increase in quality. In the production of fabric, the smoothness of the yarn in appearance, uniformity of thickness along the entire length, the orderly distribution of feathers ensures the quality of this product. The fabric is affected by external forces in the form of surfaces, arrows and dots. As a result of constant or periodic exposure, the appearance integrity of fabric or clothing parts changes. The body and back yarns of the produced fabric have a great influence on the resistance to longitudinal and forces.

One of the most pressing issues in the production of light industry products is the further improvement of tissue density, linear density of yarn, weaving report and fineness of the fabric produced. According to the scientific literature, the density of the tissue depends on the fineness of the garment produced [2].

In the study, the density of the tissue, the linear density of the body and back yarns, and the fiber content of the yarns were determined in determining the fineness of any tissue. It is known that the density of the fabric was counted by the number of threads per ten centimeters of the body and back threads of the fabric. The linear density of the yarn was found by the ratio of the weight of the yarn to the length. The fiber content of the yarns was determined by ash and odor during roasting (Table 1).

In determining the fineness of fabrics [3], the equipment was prepared, on the basis of which the fineness and other parameters of the fabric were determined and the results are given in Table 1.

Table 1
The results of the calculation of the performance of the fabric

№	Fabric performance	1- Test pattern Jacquard cropped suit top layer fabric		2- Test sample Cloth woven cardboard		3- Test sample Knitted knitted cardboard	
		Body	Back	Body	Back	Body	Back
1	Density of fabric, R, pcs	739	320	260	110	110	120
2	The fiber content of the yarn	Nitron	Chlorine, viscose	Chlorine	Chlorine	Acetate	Acetate
2	Linear density of yarn, T_{un}, textile	24,5	24,5	20	20	38	38
3	Length of the bent part of the measured sample, l	3,4	3,04	6,54	3,02	3,18	3,2

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	(cm)						
4	Bending length, L (m)	0,017	0,0152	0,0327	0,0151	0,0159	0,016
5	Weight of test sample, $em_{син}$ (mg)	2876,46	2901,26	1051,32	1053,06	930,9	930,6
6	Area of the test sample, $es_{\sin}$ (m^2)	0,012	0,012	0,012	0,012	0,012	0,012
7	weight of the sample relative to the surface, m, (mg / m^2)	239705	241772	87609,8	87755	77575,2	77550
8	Average fineness in the direction of the back and torso, $B_{ўр}$,($\mu H \cdot м$)	11,794	8,5	30,676	3,038	3,126	3,184
9	The fineness of the fabric, $B_{газ}$, ($\mu H \cdot м$)	10,01		9,65		3,16	

As can be seen from Table 1, when the density of the fabric changes, not only the average fineness - $B_{ўр}$ changes in the back and body direction, but also the stiffness of the fabric - $B_{газ}$ changes. Although the linear density of knitted and crocheted yarns is greater than the linear density of other yarns, the density (R) of knitted woven fabric is 2.3 times smaller than the linear density (R) of woven fabric. It was found that the output of ($B_{газ}$) canvases is 3 times smaller than the thickness of the fabric. In addition, the fineness process changed due to the weight of our test specimens and the fiber content of the body and back yarns. In the 1st test sample, the fiber content of the tan yarn was 1.4 times higher than that of the back yarn due to the nitrone fiber, due to the higher density of the nitron fiber than chlorine and viscose fibers.

The 1st and 2nd test samples and the 1st and 3rd test samples in Table 1 were attached for 18 seconds in presses with a temperature of 1450C and a pressure of 0.04Mpa. The degree of fineness was determined in the equipment [4, pp. 164-167] produced on the basis of the standard of the resulting folded fabrics, and the quality indicators of the fabric are shown in Table 2.

Table 2
Fabric quality indicators

№	Gauze indicators	Test sample 4 is a double-layered canvas		Test sample 5 - double-layered and knitted fabric	
		Body	Back	Body	Back
1	Length of the bent part of the measured sample, *l* (cm)	7.68	5.64	3.96	5.86

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2	Bending length, L (m)	0.0384	0.0282	0.0198	0.0293
3	The weight of the test sample, em_{cuh} (mg)	3837,9	3843,38	3981,46	4011,78
4	The area of the test sample, $es_{\sin}$ (m^2)	0,012	0,012	0,012	0,012
5	The weight of the sample relative to the surface,*m*, (mg/m^2)	320282	319825	331788	334315
6	Average fineness in the direction of the back and torso, $\hat{A}_{\text{¢ð},(\mu\text{Í}\ \cdot\ \text{ì}\ )}$	181.55	72.12	25.77	85.42
7	The fineness of the fabric, $\hat{A}_{\tilde{a}\grave{a}\varsigma,(\mu\text{Í}\ \cdot\ \text{ì}\ )}$	114.42		46.92	

When comparing the fabrics in the attached fabric, it was observed that the fineness of the fabric was 2.4 times higher than in the 5th test sample of the 4th test sample, as well as changes in mechanical properties, and the following were found:

- An increase in the degree of fineness due to the combination of yarns in four systems with glue due to the presence of yarns of four different systems in the two layers of yarn and body yarns in the fabric;
- Variation in the fineness of fabrics due to the fact that the weight of the test strip 4 of the test strip is greater than the weight of the test strip 5;
- Due to the law of gravity, the weight of the fabric increases relative to the surface and the bending length of the fabric decreases;
- Relative increase in the bending length of the joint relative to the calculation of the glue;

The degree of fineness due to the type of weaving of the stiffener fabric varies due to the main reasons why the 4th test sample differs significantly from the 5th test sample and due to the density of the tissue.

CONCLUSION

An important aspect of the research work is to determine the fineness of materials in the textile industry and present them to the seamstress. In the garment industry, the level of fineness of the purchased raw material is specified for which part of the garment or product to be used, and the role of fineness in the purchase of fabrics and in determining the quality based on customer demand. It can also be observed that the differential equations of yarns with linear deformation laws of linear and non-holonomic bonds remain nonlinear [5, pp. 82-85].

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