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INFLUENCE OF THE COMPOSITION OF THE MIXTURE AND THE TYPE OF PROCESSED FIBERS ON THE PHYSICAL PROPERTIES OF FABRICS

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Annotation: this article presents the results of studies to determine the physical properties of fabric obtained from various fibers and recycled fibrous waste. For this purpose, in production conditions, a sliver with a linear density of 5000 tex was obtained on a JFA-226 carding machine, and in the laboratory of the Department of Spinning Technology, slivers were also obtained in three versions on an HSR-1000 brand draw machine. To produce a twill weave fabric on a picanol loom, the warp threads were mixed with yarn consisting of 100% cotton, and the weft thread was mixed with yarn consisting of recycled fibers and the physical properties of the fabric were studied.

Key words: resistance of fabrics to abrasion, influence of fibrous composition, thread performance, thread density, thickness or fineness of threads, supporting surface, crease resistance of fabrics

The textile industry is a complex of production of a wide range of products of the economy. The consumer market of textile products is very extensive, and its products are used for household purposes, in engineering and medicine, machine building, defense, space and automobile industry.

The main factor determining the cost of textile products is the consumption of raw materials. Therefore, it is an important and urgent issue to find all the possibilities of full and effective use of raw materials in the industry, to substantiate them scientifically and to determine the directions of their correct use.

Any technology, no matter how perfect it is, cannot eliminate the generation of waste. The possibility of reducing the amount of waste is limited. Because the generation of waste is an objective necessity and technological inevitability, and it is related to the essence of these processes. In practice, two main directions of product cost reduction can be distinguished. The first of them is to reduce the amount of industrial waste based on the improvement of technological processes. Such a technology can be called waste technology.

As the need for textile fibers increases, the volume of waste and secondary raw materials generated during their processing also increases.

The production of products from fiber waste in textile enterprises cannot be said to be at the level of demand. The technology of preliminary treatment of fiber waste in textile enterprises requires improvement. The research shows that the practically studied properties of yarn industry wastes are of high technological importance.

One of the promising directions for solving the global problem of reducing energy and material costs in the production of industrial products is the maximum use of secondary material resources. Therefore, it is important to introduce new resource-efficient technologies and scientific and technical achievements aimed at increasing the efficiency of the use of raw materials, new machines, low-waste and zero-waste technologies.

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The main task of scientific and technical progress in the field of effective use of secondary material resources should be considered to ensure the most complete processing of textile production and consumption waste into useful materials and products. This helps to save primary raw materials while eliminating the negative impact of secondary material resources on the environment and obtaining maximum economic efficiency.

At present, a large reserve of secondary material resources in fiber production has been created in textile, chemical and light industry, and the main part of them can be used. It should not be forgotten about the environmental factor that the effective use of textile secondary material resources significantly reduces the negative impact on the environment associated with the production of fiber raw materials and the elimination of secondary material resources. By making maximum use of secondary material resources in the production process, the risk of environmental pollution can be reduced, so that they allow the recycling of substances in nature.

Secondary material resources are waste in the textile industry in the process of processing raw materials, during the cutting of sewing and knitting products, and waste in the form of discarded worn-out products, which can be used as raw materials in the manufacture of industrial products.

One of the main properties of gauzes is their air permeability, water permeability, paint strength, permeability, etc. For example, gases have the ability to transmit air, water, gas, steam, dust, smoke, liquids, radioactive particles. Air permeability is the ability of the sample to pass air through it, which is estimated by the coefficient of air permeability. The coefficient of air permeability indicates the amount of air volume that passes through a certain surface in one second under conditions of a known difference in air pressures on the two sides of the sample.

Air permeability of gases depends on their density. The denser the fabrics are, the lower their air permeability. For this reason, the gas produced is produced seasonally.

Gauzes change their dimensions when they are washed, soaked, wet ironed, stored in air with high relative humidity. One such dimensional change is the introduction of gases, which often cause gases to shrink in size. The input in this case is called positive input. The dimensions of some gases increase. Such access is called negative access.

Water permeability of gases is understood as the ability to transmit water under the influence of a certain level of pressure. This property is evaluated by the coefficient of water permeability. The coefficient of water permeability indicates the amount of water that passes through the surface of the material equal to one square meter for one second.

Even when the fabric is wet-heated in weaving, its dimensions are reduced (inset ironing process) or increased (stretch ironing process). Annealing during wet heat treatment is called forced annealing.

With the help of forced introduction, the textile products are given a certain desired shape. With the help of forced introduction, the textile products are given a certain desired shape. Introductions other than forced introductions are negative indicators of emissions. As a result of the introduction of gasses, items and parts of items made from them may shrink and become deformed.

Research work was carried out to study the physical properties of gases. For him, 66.4% cotton fiber, 28.8% secondary fiber and 4.8% cotton fiber in 3 variants based on the scheme obtained from a mixture of 10% nitron, 60% cotton and 30% secondary fibers under production conditions and presented in the laboratory conditions on a carding machine. a mixture of nitron

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fibers was produced in a wick and a pneumomechanical spinning machine, and its physical properties were determined. The obtained research results are presented in Figures 1 and 2 below.

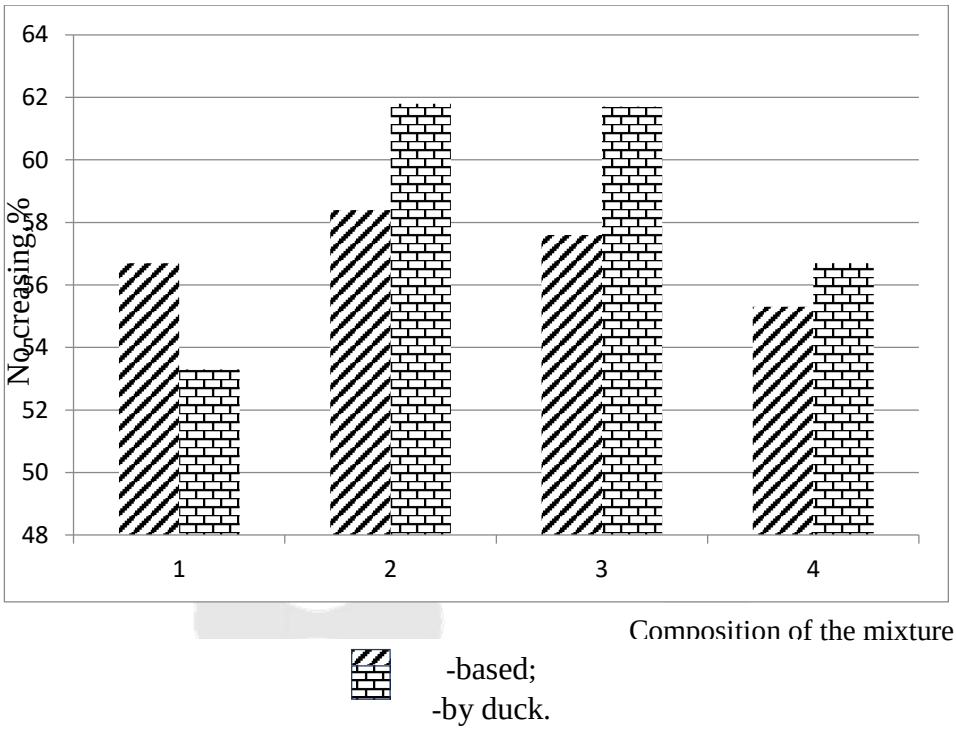

Figure 1. Changes in the non-creasing properties of gauze made from a mixture of different composition and processed fibers in the warp and weft direction.

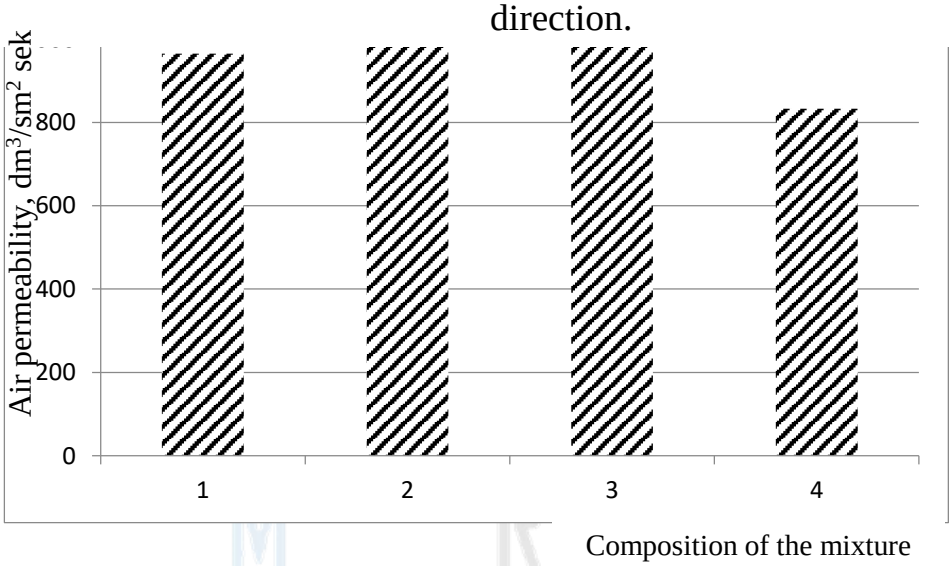

Figure 2. Changes in the air permeability of gas obtained from a mixture of different composition and processed fibers.

If we compare the results of the research with the parameters of the gauze obtained from a mixture of 10% nitron, 60% cotton and 30% secondary fibers under the conditions of production, the non-creasing of the gauze obtained according to the 1st option is 3.0%, the non-creasing of the gauze is 13.8%, the air permeability increased by 11.1%, the non-creasing of the fabric according to the 2nd option increased by 1.5%, the non-creasing of the fabric according to the rib by 13.6%, the air permeability of the fabric increased by 4.3%, the air permeability of the fabric according to

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the 3rd option increased by 1.5% the wrinkle resistance of the fabric decreased by 2.5%, the wrinkle resistance of the fabric increased by 6.0%, the air permeability of the fabric decreased by 13.7%. It can be seen that the wicking and air permeability indicators of the wicks produced from the wicks placed in the peripheral parts of the wicking machine according to the scheme and obtained under production conditions changed to a certain extent, that is, the quality indicators of the wicks produced from the wicks placed in the peripheral part of the wicking machine were found to be higher. The reason is that it is formed as a result of uniform distribution and parallelization of fibers from the outer part of the braiding machine.

How we add the pleats in the pleating machine does not affect the air permeability of the pleat, but it does affect the wrinkle resistance of the pleat.

As it can be seen from the analysis of the test results, compared to the parameters of the gauze obtained from a mixture of 10% nitron, 60% cotton and 30% secondary fibers in production conditions, the non-creasing of the gauze obtained in laboratory conditions is from 1.5% to 3.0%, the non-creasing of the gauze is 6, From 0% to 13.8%, it was found that the gas permeability increased from 4.3% to 13.7%.

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