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Changes in the Physical and Mechanical Properties of Shirt Fabrics

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ABSTRACT: In this article, in the enterprise "OSBORN TEXTILE" IP LLC 5% wool + 65% lavsan + 30% cotton fiber, 6% wool + 17% lavsan + 67% cotton fiber, 12% wool + 10% lavsan + 78% cotton fiber, Samples of yarns from 4-50% bamboo + 50% polyamide fiber 90% acrylic + 10% polyamide fiber and 40% acrylic + 60% bamboo fiber were twisted up to 500 br / m in the laboratory of the Department of Spinning Technology and Uster Tester Quality indicators of yarns were determined on tool -6. In the laboratory of the department of "Technology of textile fabrics" on a modern loom 100% cotton fiber and back yarn from "OSBORN TEXTILE" IP LLC were thrown on the loom.

Physical and mechanical properties of shirt fabrics with different fiber content were determined on modern equipment in the laboratory "CentexUz" of the Tashkent Institute of Textile and Light Industry.

KEYWORDS: shear force, quadratic inequality, elongation at interval, specific intermittent force, quadratic inequality at specific intermittent force

I.INTRODUCTION

Ensuring high and stable growth rates in the textile and clothing industry of the Republic, attracting and attracting foreign direct investment, production and export of competitive products, implementation of strategically important projects of modernization of new high-tech jobs Systematic work is being carried out to further deepen the restructuring of enterprises, technical and technological modernization of enterprises, the introduction of an advanced "cluster model". At the same time, a comprehensive analysis of the development of the textile and clothing industry, the changing world market conditions in the face of increasing competition requires government support for the industry, as well as the development and implementation of more sustainable and dynamic development mechanisms.

The textile industry is becoming one of the most powerful industries in the world. This is characterized by the availability of raw material reserves, which are the most important, decisive factor for the development of the industry.

In a market economy based on free competition, one of the main tasks facing textile enterprises is to produce high-quality, competitive and marketable shirts. In order for the produced fabric to be competitive and in demand, its quality indicators must be able to meet the requirements of the world market for this product, ie the requirements of world standards. At the same time, the cost of production should be low, the company should have advanced equipment and technology, high labor productivity should be achieved. In solving these problems, it is possible to increase labor productivity in textile enterprises, reduce labor costs, mechanize manual labor, take full advantage of internal resources, and implement the technology automatically through computer systems.

The mechanical properties of cotton fiber are important in the spinning process, ie its resistance to abrasion, compression, bending and interlocking fibers.

The length, strength and linear density of the fiber are important in the production of quality yarn in the spinning mill. The higher the quality of the fiber, the more demanding yarn can be produced from it. To do this, it is necessary to choose the right raw materials, as well as to create optimal conditions for the process of storage, drying, cleaning, separation of fiber from the fiber, fiber cleaning in ginneries.

The quality of the finished products largely depends on how smoothly the spun yarns are processed. If the roughness of the yarn is high, its specific tensile strength is reduced, which means that the strength of the fabric woven from it is also lower. One of the main reasons for the unevenness is that the amount of components in the fiber mixture is not constant, they do not mix well.

In spinning machines, the greater the breakage of the yarn during winding and forming, the higher the roughness of the yarn. Unevenness indicators have a negative impact on the physical and mechanical properties of spinning and weaving products. Many factors, such as the unevenness of the properties of raw materials, often occur as a result of the technological process and the design of the machine, the violation of the operating mode, as well as the distance of workers from the machine and repairs.

One of the main indicators of yarns is their quadratic unevenness, specific breaking strength, work done in breaking, etc.

II. METHODOLOGY

In order to study the factors affecting the quality of yarns, samples of yarns with different fiber content were taken and their physical and mechanical properties were determined.

Based on the results of the study, the following symbols were used to construct the graphs: 1-5% wool + 65% lavsan + 30% cotton fiber; 2-6% jun + 17% lavsan + 67% cotton fiber; 3-12% jun + 10% lavsan + 78% cotton fiber; 4-50% bamboo + 50% polyamide fiber; 5-90% acrylic + 10% polyamide fiber; Yarns made from 6-40% acrylic + 60% bamboo fiber blends.

The results of the study are presented in Table 1.

Table 1
Changes in the physical and mechanical properties of yarns with different fiber content obtained for shirt fabrics

No	Fiber content	Interruption power, gf	Quadratic inequality in terms of tensile strength, %	Elongation at break, %	Quadratic inequality in elongation at break %	Specific tensile strength, cN/текс	Quadratic inequality in terms of specific breaking strength, %
1.	15% wool + 65% lavsan + 30% cotton fiber	265,95	7,85	11,78	10,49	13,51	7,85
2.	6% wool + 17% lavsan + 67% cotton fiber	233,59	6,10	5,90	7,95	11,87	6,10
3.	12% wool + 10% lavsan + 78% cotton fiber	281,0	8,18	13,34	10,74	14,28	8,18
4.	50% bamboo + 50% polyamide fiber	423,49	5,17	11,57	4,11	21,52	5,17
5.	90% acrylic + 10% polyamide fiber	376,65	7,44	17,07	8,63	19,14	7,44
6.	40% acrylic + 60% bamboo fiber	214,34	8,22	12,24	16,19	10,89	8,22

III. RESULTS AND DISCUSSION

Comparing the test results with the performance of yarns from 5% wool + 65% lavsan + 30% cotton fiber, the quadratic inequality of yarns from 6% wool + 17% lavsan + 67% cotton fiber decreased by 9.0%, elongation at break increased by 47.0%, quadratic inequality in elongation at break increased by 17.2%, specific tensile strength increased by 9.0%, quadratic inequality in specific tensile strength increased by 12% wool + 10% lavsan + 78% yarns from cotton fiber blends quadratic inequality decreased by 9.0%, elongation increased by 47.0%, quadratic inequality increased by 17.2%, specific intermittent increased by 9.0%, quadratic inequality by specific gravity, 50 % bamboo + 50% polyamide fiber blends decreased the quadratic inequality in terms of tensile strength by 9.0%, increased elongation at break by 47.0%, quadratic inequality in tensile strength by 17.2%, specific tensile strength by 9.0%



increased, quadratic inequality in terms of specific tensile strength, quadratic inequality in yarns obtained from 90% acrylic + 10% polyamide fiber blends decreased by 9.0%, elongation at break increased by 47.0%, quadratic inequality in elongation by 17.2%, specific tensile strength increased by 9.0%, quadratic inequality in specific tensile strength, quadratic inequality in yarns obtained from 40% acrylic + 60% bamboo fiber blends decreased by 9.0%, elongation at break increased by 47.0%, the quadratic inequality in elongation increased by 17.2%, and the specific tensile strength increased by 9.0%.

IV.CONCLUSION

Analysis of the results of the study showed that the specific tensile strength of yarns is 50% bamboo + 50% polyamide fibers, 50% viscose + 50% modal fibers, 90% acrylic + 10% polyamide fiber blends are higher than other yarns. detected. In addition, 60% bamboo + 40% acrylic fiber yarn from 16.9% to 20% yarn from 50% cotton + 50% polyamide fiber and 50% acrylic + 50% wool fiber yarn Increased to 26%.

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