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NEW RANGE RESEARCH OF PHYSICAL AND MECHANICAL PROPERTIES OF KNITTED FABRICS

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Abstract:
In order to effectively use local raw materials in scientific work, research was conducted on the physical and mechanical properties of two-layer knitted fabrics with a new structure made of pan yarn.

Keyword : raw material, pan, knitting, flat needle machine, double layer, air permeability, deformation.

Due to the high demand for knitted garments in the world, special attention is being paid to the creation of new assortments of knitted products and the introduction of energy-efficient and highly productive machines[1]. A number of scientific studies have used double-layer knitted fabrics to improve the hygienic properties of knitted products.

The analysis of knitted fabrics allows not only to study the types of fabrics created, but also to expand the range of knitted products by creating various knitted fabrics with new structures.

This scientific work is based on the need to expand the scope of using local raw materials - yarns - in the textile industry, namely for the production of knitted fabrics and products. Studying the physical and mechanical properties of double-layer knitted fabrics from pan yarn and introducing them into knitted products manufacturing enterprises will help to improve product quality [2-6] .

In order to study the physical and mechanical properties of 10 samples of two-layer knitted fabrics, the “SENTEX-UZ” certification laboratory at TTESI was determined experimentally using modern equipment

The breaking strength of the two-layer knitted fabrics differs from each other in length, the breaking strength of the sample of the 1st basic variant obtained from the pan yarn is 23% lower than the sample of the 2nd variant, the breaking strength of the sample of the 3rd variant is 9% lower than the sample of the 1st basic variant, the breaking strength of the sample of the 4th variant is 6% higher than the sample of the 1st basic variant, the breaking strength of the sample of the 5th variant is 31% higher than the sample of the 1st basic variant, the breaking strength of the sample of the 6th variant is 12% lower than the sample of the 1st basic variant, the breaking strength of the sample of the 7th variant is 30% higher than the sample of the 1st basic variant, the breaking strength of the sample of the 8th variant is 7% higher than the sample of the 1st basic variant, the breaking strength of the sample of the 9th variant is 9% higher than the sample of the 1st basic variant and the breaking strength of the sample of the 10th variant is 10% higher than the sample of the 1st basic variant. It was found to be 20% less. Figure 1.

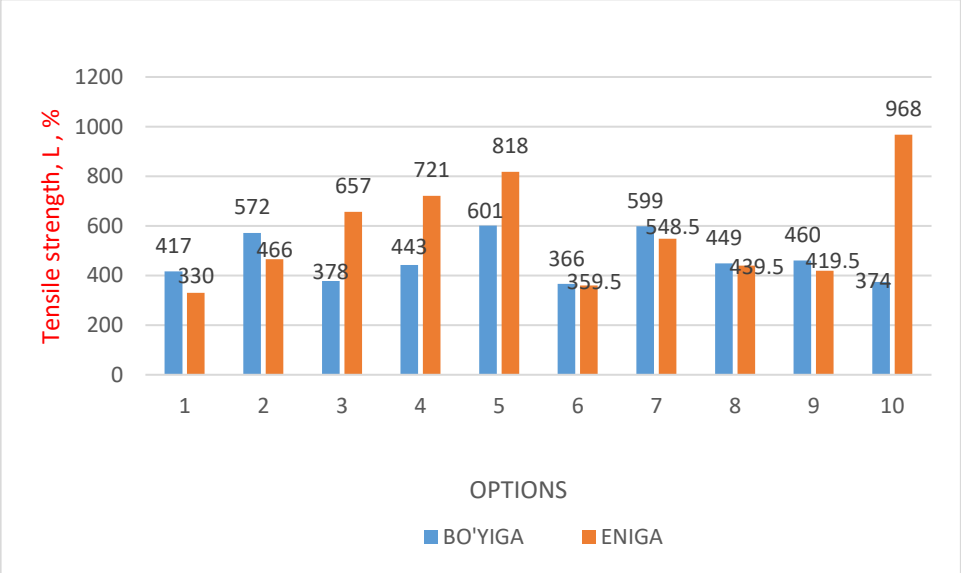

Figure 1. Variation in tensile strength of two-layer knitted fabrics.

Conclusion

1. The scientific research of new structured double-layer knitted fabrics made of cotton yarn creates the opportunity to use local raw materials on a large scale.

2. production of double - layer knitted fabrics on flat-needle machines increases the technological capabilities of the machine and expands the range of fabrics and products.
3. Newly developed double - layer knitted fabrics are recommended for upper knitted products.

List of references:

1. https :// market Publi she r s . ru / lists /11947/ news . html / .
2. Mukimov MM Kulirny plush knitwear. M: Legprombitizdat , - 1991.
3. Pospelov YE.P. Double layer knitwear. - M., Legkaya i pishevaya promishlennost, 1982,
4. Torkunova ZA Ispitania knitwear. -M.: Legkaya industriY. 1975 g. -S. 224-227.
5. Mirzarakhmetova DM Issledovaniye svoystv i strukturni nitrono-klopkovoy pryaji i kachestva virabotannogo iz neye trikotaja. Dis... cand. tech. science -Tashkent 1974 - S. 41-46.
6. GOST 16486-93. State standard. Looking for fabric for knitwear. Normi ustoychivosti k istiraniY. M.: Standartinform, -2005.31410-2009. State standard. Izdelia trikotajniye verkhniye for mujchin and malchikov. Obshiye technical conditions M.: Standartinform , 2011.