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# Virginity of Rops from Returnschange of Indicators

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**ABSTRACT:**In this article, in the manufacture of garments from materials in the garment industry, knitted yarns are processed and yarn is made from them, and in the laboratory of the Department of "Spinning Technology" yarns are given up to 400, 500 and br / m. 4 different variants obtained for testing, ie 30% cotton fiber + 70% cotton fiber returns, 45% cotton fiber + 55% cotton fiber returns, 20% cotton fiber + 80% cotton fiber returns and 50% cotton fiber + 50% cotton samples of yarns taken from fibrous loops were taken and their virginity was determined.

**KEYWORDS:**coefficient of growth, shape retention properties of the product, virginity index, cooking speed, friction force, strength

## I. INTRODUCTION

We have a task to ensure the annual growth rate of the country's GDP at a level not lower than the world average. In this regard, measures such as the establishment of large production facilities, the development of small business and private entrepreneurship, of course, increase the demand for energy consumption in the real sector of the economy. At the same time, population growth and a steady increase in their incomes will lead to an increase in the demand for products based on resource-saving technologies in everyday life.

The development of scientific proposals and practical recommendations aimed at improving the efficiency of the introduction of resource-saving technologies in the garment industry.

In recent years, the country has been working to reform the textile and clothing industry, in particular, to improve the system of public administration, the widespread introduction of market relations, the introduction of resource-saving technologies and the provision of textile and clothing manufacturers with modern equipment.

One of the main properties of yarn is its virginity. As the virginity of the yarns increases, the shape-retaining properties of the product become better. Increasing the virginity coefficient of yarns depends primarily on their growth.

The growth of the threads is determined by the number of twists per meter of length. As a result of the growth, the fibers, which are oriented along the axis of the product and are adjusted to a certain extent, are placed on top of each other like a screw line. The product is stretched due to swelling, the fibers, which are in the form of screws, are stretched, sticking to each other and trying to get closer to the axis. As a result, the yarn thickens, pressure builds up and the friction force provides a certain strength.

In practice, although the length of the fibers in the product is slightly elongated, the length occupied by them decreases as a result of their helical placement from a straight line position. In this way, the initial length of the product (yarn) is reduced due to the elongation, and this is called the elongation of the yarn.

The strength and other properties of the yarn are greatly affected by the technological process, the degree of elongation or the intensity of the yarn.

## II. METHODOLOGY

To increase the strength of the yarns and their resistance to multi-cycle deformations, they are twisted and baked by adding several twisted yarns. As the coefficient of growth of the threads increases, their virginity increases.



The virginity of the yarns has a negative effect on the production of the delicate product. The tightness of the threads is determined by the twisting pendulum KM-20-2M, invented by I.S.Pavlov.

The virginity of the rope is determined by the following formula:

$$C = \frac{K}{T_{yp}^2} \text{ or } C = \frac{72}{T_{yp}^2}$$

where:  $K$  -coefficient. Equivalent to KM-20  $K = 72$  .

Often virginity conditions are defined in units. In it, the period of oscillations for 100 s is taken as the unit of virginity. then,

$$C = \frac{10^4}{T_{yp}^2}$$

Table 1 below shows the virginity of some yarns (according to P.A. Rogov).

Table 1

τ/p	Typeofyarns	Lineardensity, teks	Virginity	
			$c \cdot cm^2 (\cdot 10^{-2})$	In a conditionalunit
1.	Cottonyarn	25	2,27	3,15
2.	Linenyarn	72	12,4	17,22
3.	Wool yarn	42	6,42	8,25
4.	Rawsilkyarn	2,5	0,03	0,75
5.	Viscoseyarn	9	0,07	0,99

The virginity of the yarns to be obtained depends, firstly, on the number of twists given to the yarns and, secondly, on the fiber content. The more twists are given to the threads, the greater its virginity.

Research has been conducted to determine the virginity of yarns with different number of twists. For this purpose, research work was carried out to determine the virginity of yarns with a number of twists of 400, 500 and br / m, and the test results are given in Table 2.

Table 2

Changes in the virginity of yarns

Samples	A mixture of secondary material resources in the yarn,%			
	30% cotton fiber + 70% cotton fiber return	45% cotton fiber + 55% cotton fiber return	20% cotton fiber + 80% cotton fiber return	50% cotton fiber + 50% cotton fiber return
The number of twists of the rope, 400 br/m				
1.	0,128	0,145	0,117	0,156
The number of twists of the rope, 500 br/m				
2.	0,137	0,167	0,125	0,174
The number of twists of the rope, 600 br/m				
3.	0,141	0,169	0,128	0,176

The variation of the yarns depending on the composition of the returns to the virginity values is shown in Figure 1 below.

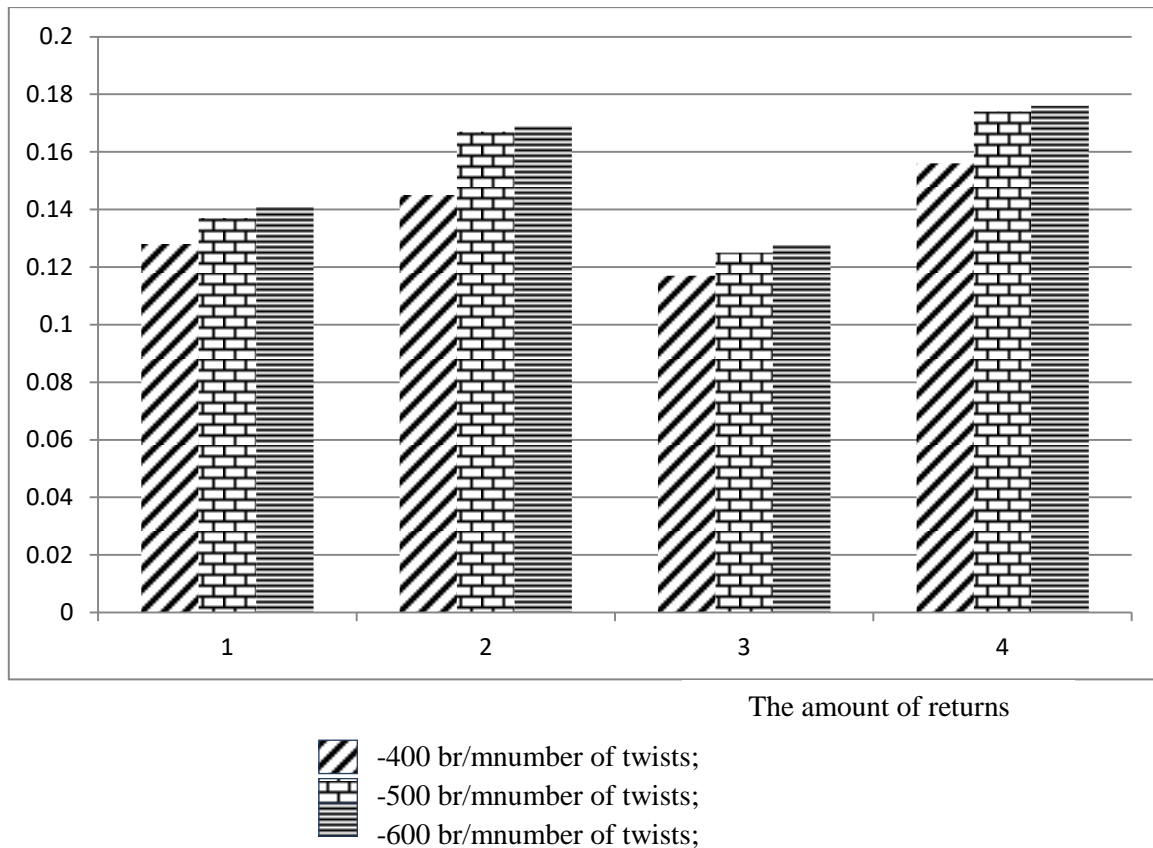


Figure 1. The effect of the amount of different turns on the virginity of the yarn.

Compared to the number of twists obtained on the basis of resource-saving technology, the yield of yarn from 30% cotton fiber + 70% cotton fiber yarn with 400 br / m, the virginity coefficient of yarn from 45% cotton fiber + 55% cotton fiber yarn increased by 11.7%, 20% cotton fiber + 80% cotton fiber return coefficient of virginity decreased by 8.6%, 50% cotton fiber + 50% cotton fiber return coefficient of virginity increased by 18.0%, 30% cotton with a number of twists 500 br / m compared to the performance of yarn from fiber + 70% cotton yarn, the virginity coefficient of 45% cotton fiber + 55% cotton fiber yarn increased by 18.0%, 20% cotton fiber + 80% virginity yarn from cotton fiber yarn 8, Decreased by 8%, 50% cotton fiber + 50% cotton fiber return coefficient of virginity increased by 21.3%, 30% cotton fiber with a number of twists 600 br / m + 70% cotton fiber return rate Compared to the previous year, the coefficient of virginity of 45% cotton fiber + 55% cotton fiber yarn increased by 18.8%, 20% cotton fiber + 80% cotton fiber yarn yield decreased by 9.2%, 50% cotton fiber + 50% The coefficient of virginity of yarn obtained from cotton fiber returns increased by 19.8%. Experimental analyzes have shown that as a result of twisting the yarns, especially when given 600 br / m, the virginity coefficient of the yarns decreases. It follows that it is possible to give a maximum of 600 br / m to yarns obtained from knitted fabrics.

Spinning is used only for yarns of the same thickness and density as the weaving intensity. The larger the diameter of the same twisted yarn, the larger the twisting angle.

By increasing the elasticity of the yarns, the yarn becomes smoother and more elastic. Bending angle is the angle of external inclination of the threads or fibers forming in the bent product along the longitudinal axis. The larger the twist angle, the more the yarns will be baked. For unbaked yarns, for example, the knitting angle will be zero. It is possible to compare the degree of maturation of yarns of different thicknesses according to the angle of inclination.

The growth of the threads has a great influence on their properties. As the degree of elongation increases, the fibers in the yarn become denser, their average density increases, and the diameter of the yarn decreases. The density of the fibers changes rapidly during the initial period of growth. The increase in the average density of the yarn decreases in proportion to the increase in the intensity of weaving, the diameter decreases. The increase in elongation has a positive effect on the strength of the yarn in the initial stage, after a certain amount it begins to decrease. The





elongation value of a rope with maximum strength is called its critical elongation. In excess of the critical elongation, the tension of the fibers that make up the yarn increases and begins to break down. The positive effect of baking on complex yarns is much lower than that of spun yarns. As the elongation rate of the yarns increases, their resistance to multi-cycle elongation deformation increases.

The shortening of the yarns in spinning is taken into account when calculating the efficiency of spinning and baking machines, the calculated baking coefficient, the nominal linear density and other parameters. In addition, the more twists we give to the yarn, the greater the stiffness at the beginning and the later it decreases, resulting in a critical twist.

#### **IV.CONCLUSION**

The analysis of the results of the study shows that the obtained yarn consists of 50% cotton fiber + 50% cotton fiber loops, the density of which is higher than that of other yarns. In addition, it has been observed that the less the amount of twists used in the yarn composition, the lower its virginity coefficient, and the more twists we give to the yarns, the higher their virginity coefficient.

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