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APPLICATION OF METHODS FOR CONTROLLING AND REDUCING YARN DEFECTS IN A SPINNING PLANT.

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Abstract: This article presents the fact that unevenness has negative properties of products produced in a spinning enterprise, often negatively affects the technical and economic indicators of the enterprise, as well as the physical and mechanical properties of yarn, the importance of testing and controlling unevenness of products in spinning production, and the causes and timing of unevenness are determined.

Keywords: Unevenness, yarn quality, Dispersion, quadratic inequality, geometric irregularity, quantitative structure of the product, unevenness index

Abstract: V dannoy state konstatiruetsya chto neravnomernost otritsatelnym priznakom produktsii na pryadilnom predpriyatii, it often has a negative influence on the technical and economic indicators of the predpriyatii, and also on the physical and mechanical properties of the pryaji, it is necessary to check and control the neravnomernost produktsii pryadilnogo proizvodstva, ukazyvayutsya chiny i vremya vozninoveniya predpriyatii.

Keywords: Irregularity, quality of yarn, Dispersion, quadratic irregularity, irregularity of geometric structure, quantitative composition of products, indicator of irregularity

Annotation: In this article, it is stated that unevenness is a negative feature of production products in a spinning enterprise, often negatively affects the technical and economic indicators of the enterprise, as well as the physical and mechanical properties of yarn, it is important to test and control the unevenness of products in spinning production, the reasons and time of causing unevenness are specified.

Keywords: Unevenness, yarn quality, Dispersion, quadratic unevenness, geometric structure unevenness, quantitative structure of the product, unevenness index.

Unevenness is a negative property of products produced in a spinning enterprise, often negatively affecting the technical and economic performance of the enterprise, as well as the physical and mechanical properties of the yarn. Testing and

controlling the unevenness of products in spinning production is of great importance, determining the causes and timing of unevenness.

The more yarn breaks during winding and forming in spinning machines, the higher the yarn unevenness. As a result of the increase in yarn breaks, the labor supply of workers increases, and the productivity of the machines decreases. In carding machines, the unevenness of the nature of the processing, that is, the degree of cleaning and separation of the fiber, is not the same. In addition, an unevenly combed wick is formed. If a product with uneven structure or linear density enters the stretching device of various machines, the area of the stretching force and friction force changes. If the unevenness of the yarns cooked in linear density is high, defects are formed in the appearance and structure of the fabric, as a result, the surface of the fabric becomes striped, chipped, mohair or frame-like. These defects can also be observed in knitted fabrics. If the yarns have high unevenness in terms of strength and other properties, then the woven and knitted fabrics will have high unevenness in terms of strength, elongation and elasticity. Unevenly spun yarns in terms of linear density lead to the formation of specific defects in production. Therefore, it is important to study and control the unevenness of spinning products under production conditions in accordance with the above factors. Control of the unevenness of the product in terms of linear density. The conditions imposed on the quality of spinning products are called unevenness.[1]

The analysis of the unevenness of spun products is very complex. There are many types of unevenness for spun products: those that are formed in the first stage of spinning, and those that change in the subsequent stages and add new types of unevenness to them. Yarn unevenness combines several components and affects the unevenness of different stages of spinning production. Different types of unevenness are interconnected. The above factors make it difficult to distinguish the causes of unevenness. The following types of irregularities are determined by the change in specific properties along the length: linear density, unevenness in the number of fibers in the product section or unevenness in the weight of the section of different lengths, unevenness of the product in terms of its bulk density (density), unevenness in the physical and mechanical properties of the product (strength, elongation, elasticity, moisture, air permeability, electrical resistance, size of electric charges, etc.). The change in the structure of the product along the cross-sectional area and length characterizes the arrangement of elements in the product and changes in its

properties and determines two groups of structural irregularities: qualitative structural and geometric structural irregularities. The distribution of irregularities based on the type, color and other properties of the fibers along the cross-section of the product. The quantitative assessment of this type of unevenness is carried out by determining the sectoral and radial unevenness, as well as the fiber migration coefficient. The second group includes geometric structural irregularities, which are divided into the following forms: Ply, i.e. a dense arrangement of fibers of one type and color, passing along the cross-section and the entire length of the product. This form of irregularity is formed in the form of pile obtained from fibers of different types and colors on pile machines. The quantitative structure of the product, i.e. the quantitative arrangement of fibers in the pile in a large number of successive degrees of flattening and straightening, is formed in the form of structural irregularities. The arrangement of fibers in groups, i.e. the uneven arrangement of the fiber layer of different groups in terms of fiber size along the cross-section and length of the product, is manifested in the form of uneven structure, layer, warp and weft of spinning products and in the form of fiber layers on the inter-machine and inter-machine. During the stretching of fibers located in groups, a new type of irregularity in linear density is created.[2]

Structural irregularities of various types of products and their properties have different characteristics. Depending on the nature, the nature of the change in the structure and properties of the product is: periodic, random, functional, that is, a one-sided increasing deviation (quality indicators constantly increase or vice versa); local (random, a sudden increase in the linear density of the product); combined (a combination of several types of irregularities). The size and nature of the product's unevenness depends on the production conditions and the type of machinery. The unevenness is distinguished as follows:

-internal-intrinsic unevenness of the packaging during production;
-outer-between the average values of the product in all packages unevenness;
-general-unevenness in the entire package. [3]

SuchThe division of unevenness is determined in the working parts of the machine, and a product with high unevenness is produced. Unevenness by linear density is one of the main indicators of the quality of spun yarns and other products of the spinning process. Unevenness index and degree. In technological processes,

namely, combing, mixing and carding, operations are carried out. Therefore, a "random" arrangement of fibers is assumed in the layer or pile. Sometimes, the actual arrangement of fibers differs from random.

The product unevenness of the real fibers is always higher than the unevenness of the randomly arranged fibers. Therefore, the Poisson distribution is assumed for the distribution of the number of fibers in the cross-section of the high-level product, and the squared unevenness of the product over its cross-sectional area is determined by the following formula.[4]

$$C_g = \frac{100}{\sqrt{m_{yp}}}\sqrt{1+4\left(\frac{C_d}{100}\right)^2} \quad (1.1)$$

where: myp -number of fibers in the product cross-section; Cd -squared unevenness of the fiber along the diameter. The above formula can be written in abbreviated form as follows:

$$C_g = \frac{100 \cdot K_0}{\sqrt{m_{yp}}} \quad (1,2)$$

where: K0 is a coefficient depending on the type of fiber, which is 1.06 for cotton fiber, at C≤ 35 percent; 1.1 g for wool fiber at C≤50 percent; 1.02 for viscose fiber; and 1.3 for flax fiber; Cr is the high degree of product unevenness. [5]

The unevenness index is the ratio of actual product unevenness to the maximum product unevenness, which is determined using the following formula:

$$I = \frac{C_g\sqrt{m_{yp}}}{100 \cdot K} \quad (1.3)$$

In this

$$K = \sqrt{1+\left(\frac{C_g}{100}\right)^2} \quad (1.4)$$

As the actual product becomes more uneven, the unevenness index also increases. The unevenness index proposed by G.M. Barnet serves to compare the unevenness of yarns of different linear densities.[6]

$$L = \frac{C_g \sqrt{M}}{100 \cdot K} \quad (1.5)$$

where: M is the average number of fiber groups in the cross section of the yarn, which is determined using the following formula:

$$M = \frac{m_{yp}}{m_{yp\text{ep}}} \quad (1.6)$$

The final formula proposed for determining the unevenness of a spun yarn is as follows:

$$L = \frac{C_g \sqrt[3]{M}}{50 \cdot K} \quad (1.7)$$

This formula is only used for fibers with a cross-section of m. If the number of fibers is 64<m, then the unevenness index is used. GMBernet developed a value for the degree of unevenness of a spun yarn to assess the unevenness.[7]≥ 64

Notekislik bahosi	Karda ip	Taroqli ip	Viskoza va atsetat ip
A'lo	1,7 dan kam	1,4 dan kam	1,5 dan kam
Juda yaxshi	1,7-2,0	1,4-1,6	1,5-1,7
YAxshi	2,0-2,3	1,6-1,8	1,7-1,9
Qoniqarli	2,3-2,6	1,8-2,0	1,9-2,1
YOmon	2,6 dan yuqori	2,0 dan yuqori	2,1 dan yuqori

In conclusion, the structural unevenness of different types of products and their unevenness in terms of their properties will have different characteristics. The unevenness of different sizes and characteristics of products will vary depending on the production conditions and the type of machines. The product unevenness of real fibers is always higher than that of randomly arranged fibers, and the unevenness of yarns will be affected by the unevenness of different stages in the spinning process, adding several components to it. The unevenness of different types will be related to each other.

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