Analysis of IP Sustainability and Efficiency Coefficiency

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ABSTRACT

This paper examines the compactness of yarn and the coefficient of friction. Namangan - 77 cotton varieties to study the possibility of producing compact yarn in the system of snow and re-spinning. The physical and mechanical properties of the compact snow and re-spinning yarn were also compared with the Uster statistical 2018 quality indicators.

KEYWORDS: *ring spinning machine, compact device, snow and re-spinning system, physical and mechanical properties of yarn, fluff*

In the case of weaving or knitting, only specific quality indicators (e.g., unevenness and tufting) are lacking in describing the type of yarn (Figure 1). Only a combination of different quality criteria (eg, unevenness and fluffiness) allows a reliable conclusion to be drawn. The surface index SPI leads to the addition of these quality indicators and allows the user to control the quality in a simple way.

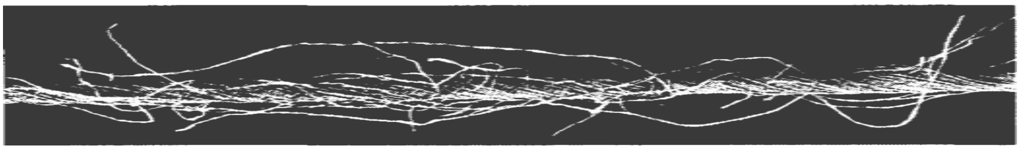

Figure 1.

The surface index SPI allows you to see a poor quality tube (e.g., randomly occurring thinness and thickness may be within acceptable limits, but may have a negative effect on the fabric structure in terms of quantity) and opportunity it is necessary to eliminate these defects in the yarn during the rewinding process.

The most important parameters used to determine yarn quality are linear density, formation properties, and fiber composition. An example of a tape configuration is shown in Figure 2:

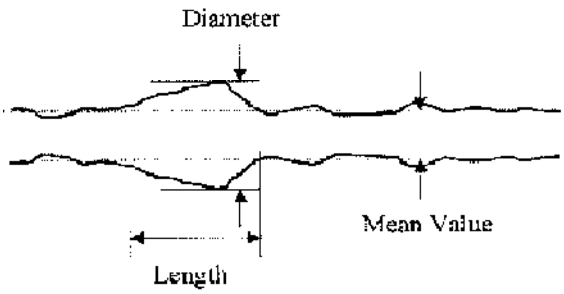

Figure 2. Thread configuration

The number of defects and mass measurements allow to assess the quality of the product. There are three types of yarn defects (Figure 3):

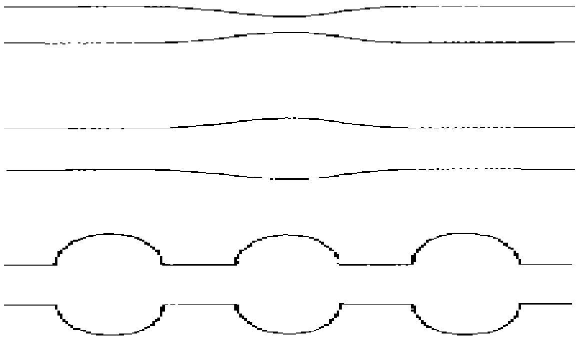

Figure 3. Thread defects

1. Thin areas
2. Thick areas
3. Neps

Thin areas - a decrease in mass of short length (4 mm).

Thick areas - an increase in mass, usually less than 100% and extending more than 4 mm.

Neps - a large mass of yarn of short length (usually from 1 mm to 4 mm)

As mentioned above, another important feature of yarn is hair. Figure 4 depicts the hairiness of the yarn.

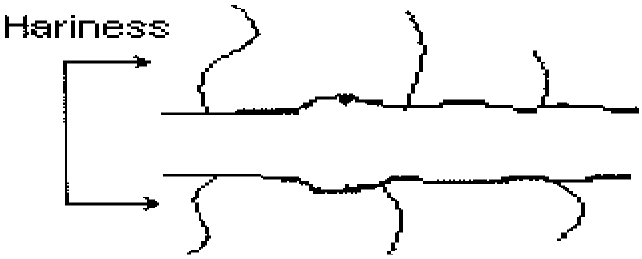

Figure 4. Yarn hair

Hair is usually determined by standard deviation, similar to CV (%). However, other parameters (U, DR, IDR) can also be considered.

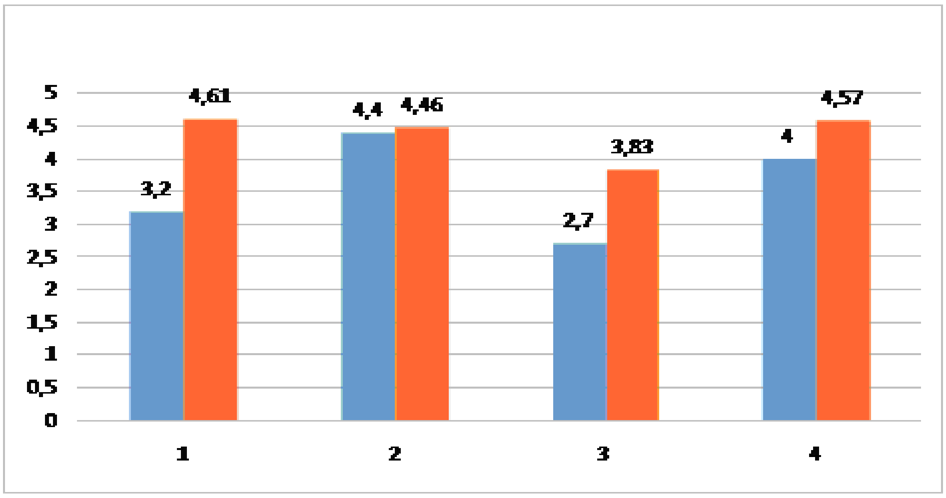

Figure 5. Yarn hair size (Neps 200 / km)

(Ne = 30) Uster Statistic 2018 Indicators for the rewind compact strip

(Ne = 30) IndoramaKokandTextile
(Ne = 30) Uster Statistic 2018 figures for a compact strip of snow
(Ne = 30) Indorama Kokand Textile, a compact yarn in the snow
(Ne = 40) Uster Statistic 2018 figures for a compact strip of snow
(Ne = 40) Indorama Kokand Textile, a compact yarn in the snow
(Ne = 40) Uster Statistic 2018 Indicators for the rewind compact strip
(Ne = 40) IndoramaKokandTextile

Indorama Kokand Tekstil compared to Uster Statistics 2018 in terms of hair yield (Ne = 30) by 1.41% on compact yarn, (Ne = 30) by 0.06% on compact yarn, (Ne = 40) in the snow compact yarn is 1.13% higher, and in the compaction yarn (Ne = 40) it is 0.57% higher. Looking at the results, we can see that the compact strip in the snow (Ne = 30) is very close to the Uster results, and the compact strip

in the snow (Ne = 40) is the lowest in terms of hair density (3.83).

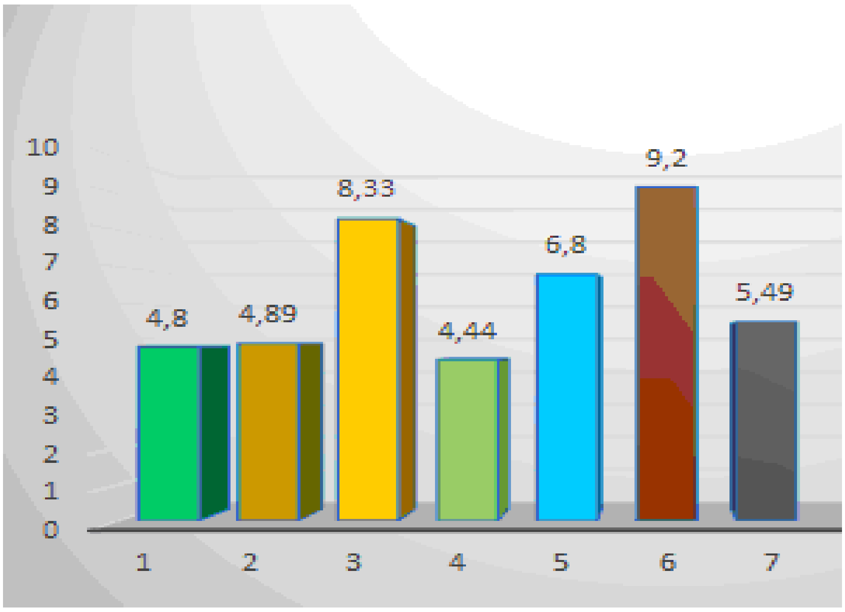

Figure 6. The fluff of the rope

	(Ne = 30) re-combing compact yarn “Indorama Kokand Textile”
	(Ne = 27) snow thread “Artsoft Tex Spinning”
	(Ne = 32/2) ArtsoftTexSpinning
	(Ne = 30) snowmobile mechanical thread “Indorama Kokand Tekstil”
	(Ne = 30) snowmobile pneumatic thread "Artsoft Tex Spinning"
	(Ne = 40/2) Snow-baked yarn Artsoft Tex Spinning
	(Ne = 34/2) Snow-baked yarn Artsoft Tex Spinning

The diagram above shows an analysis of the fineness of yarns obtained for testing from Indorama Kokand Textile and Artsoft Tex Spinning. Analyzing the results, Indorama Kokand Tekstil (Ne = 30) has the lowest snow pneumo-mechanical yarn in hair (4.44%), while Artsoft Tex Spinning (Ne = 40/2) has the lowest snow-baked yarn. high (9.2%) and 4.76% higher.

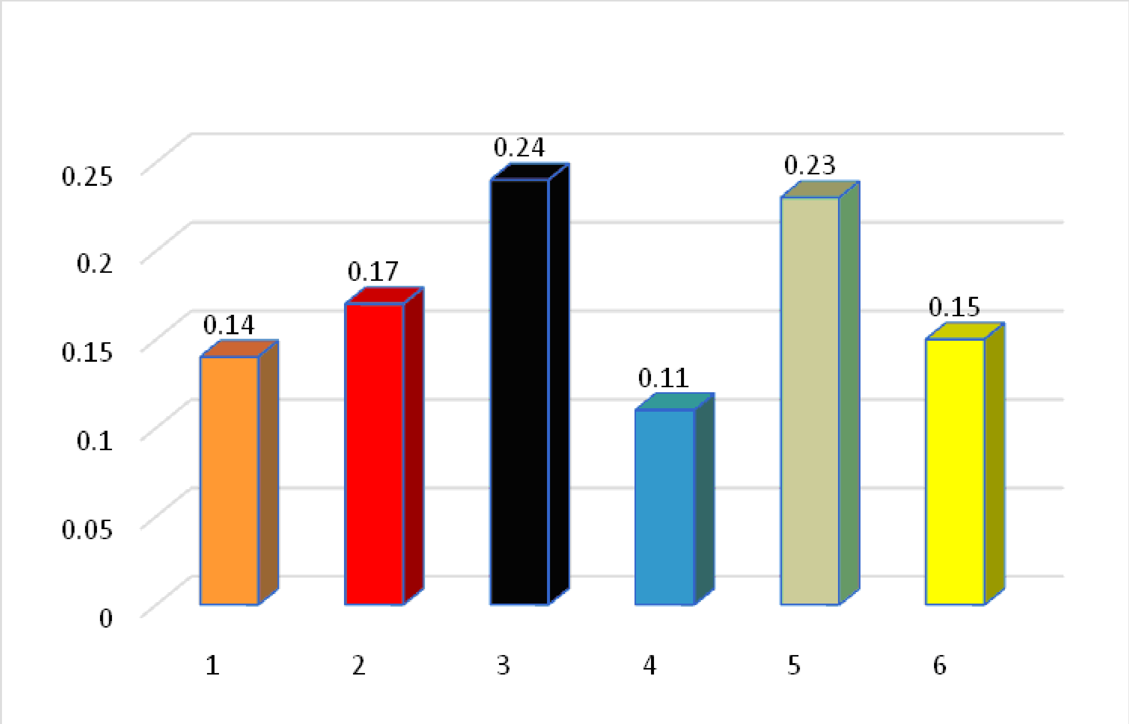

Figure 7. Friction coefficient

(Ne = 30) snowmobile mechanical thread “Indorama Kokand Tekstil”
(Ne = 30) re-combing compact yarn “Indorama Kokand Textile”
(Ne = 30) card compact yarn “Indorama Kokand Tekstil”
(Ne = 40) card pneumomechanical thread “Indorama Kokand Tekstil”
(Ne = 40) snow compact yarn “Indorama Kokand Tekstil”
(Ne = 40) re-combing compact yarn “Indorama Kokand Textile”

According to the results of the friction coefficient obtained from Indorama Kokand Tekstil, (Ne = 40) is the lowest (0.11) in the pneumatic mechanical yarn in the snow and the highest (0.24) in the compact yarn (Ne = 30). we will see.Analyzing all the above results, we can see that the yarn spun in the compact method of re-spinning is superior to the remaining yarns in all respects. And the degree to which the external quality and fluff of the yarn depends on the spinning technology.It should be noted that in the past, the pneumatic compact device had the following disadvantages:

1. When the stretching pair comes out of the front roller clamp, the width of the down is maintained in the normal way.
2. The pneumatic device would not work as a result of the short fiber being sucked out of the suction device.
3. It was impossible to tell if the short fibers were stuck in the hole in the suction device.

A series of studies have now produced 4 generations of pneumatic compacts to overcome these shortcomings, with a special indicator that illuminates a red light when short fibers are stuck in the groove of a suction device. This, in turn, will address the above shortcomings. As a result of our research, we also conducted experiments on this compact device at the Indorama Kokand Textile JV. And we've seen how this device works.

Conclusions:

1. The physical and mechanical properties of the yarn spun at the Indorama Kokand Textile JV were found to be in line with Uster Statistics-2018.

2. The yarn spun at the Indorama Kokand Textile JV was found to be inferior to the yarn spun from Artsoft Tex Spinning.

3. In terms of friction, Indorama Kokand Tekstil (Ne = 40) had the lowest value (0.11) in the snow pneumo-mechanical yarn and the highest (0.24) in the compact yarn (Ne = 30).

4. In the compact method of re-spinning, it was determined that the spun yarn was superior to the remaining yarns in all respects.

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