Analysis of Fibrous Waste Generated in the Preparation Departments of Spinning Mills and Cotton Processing

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ABSTRACT: The article studied the composition and properties of the fibers in the fiber waste. For the study, the properties of fibrous waste from the equipment of the procurement department of "INDORAMA Kokand Textile" were analyzed on the analyzer AX-2 and laboratory equipment HVI-1000.

KEYWORDS: fiber, cotton, waste, shaving, spinning, cleaning, warfare, standard.

I. INTRODUCTION

Today, within the sectors of the economy, only a large share of the volume of production is accounted for by the products of the textile industry. The main raw material of the textile industry in Uzbekistan is cotton fiber. The main raw material for spinning Enterprises is obtained from cotton cleaning enterprises, the obtained cotton fiber is cleaned at the spinning enterprise, recycled, and the finished product is obtained from it. In the process of cleaning the fibers, due to the impact of force on the well-crumbled fibers, their shaking occurred, thereby ensuring the mandatory separation of all defects in it. In this case, defects separated from the fibers are separated into a special chamber by a grid or perforations in a special structure [1]. During the separation process, the fibers also come out of the camera. This reduces the output of the product from the raw material. The share of defective and dirty impurities in cotton fiber is 2-10%, while the yield of yarn from the fibers is 87-76%. These figures indicate, among other factors, the magnitude of the waste output during the fiber cleaning process. Given that the share of raw materials in the cost of textile products is large (around 80 percent), it seems important to reduce waste in the process of fiber cleaning. In addition to short fibers in terms of their properties, spinning fibers are also added to the waste. This has led to a slight increase in the cost of finished products produced at the enterprise.

The main purpose of studying this problem is to increase the opportunities for efficient use of raw materials. The research was conducted at "INDORAMA Kokand Textile" in Fergana region. The company currently produces yarn in the recycling system. The company is equipped with technological equipment from the Swiss company "RIETER". The first pass is taken on the SB-20 screening machine and Unilap E-32, the canvas is taken out of the prefabricated machine E-66, the short fibers are separated on the re-combing machine and returned to the wicker position. is brought and the RSB-D-45 is passed through a second-pass spinning machine, and the FL-200 is spun into a spinning machine. The yarn is spun on a K-45 spinning machine.

II. THE MAIN FINDINGS AND RESULTS

We analyzed the fiber waste separated from the plant's line of cleaning and scraping machines and re-scraping machines. In the enterprise, the standard-7 obtained from the combing machines is formed under the receiving, head and separating drums of the combing machine and the wool-combing machine.

It is obtained from standard-3 grinding and cleaning units, beating husk and down. It is a waste that is released during processing in treatment plants.

Waste from re-scraping is generated on standard-16 scraping machines, [2] in terms of purity; it does not contain impurities, but has a spinning property, short fibers in terms of fiber length. The main reason for this is that the short fibers are shredded during re-spinning, the main purpose of which is to obtain a thin and quality yarn with linear density.

The above fibrous waste is brought to the pressing department by pneumatic transport.

A. Location of equipment in the procurement department of "INDORAMA Kokand Textile"
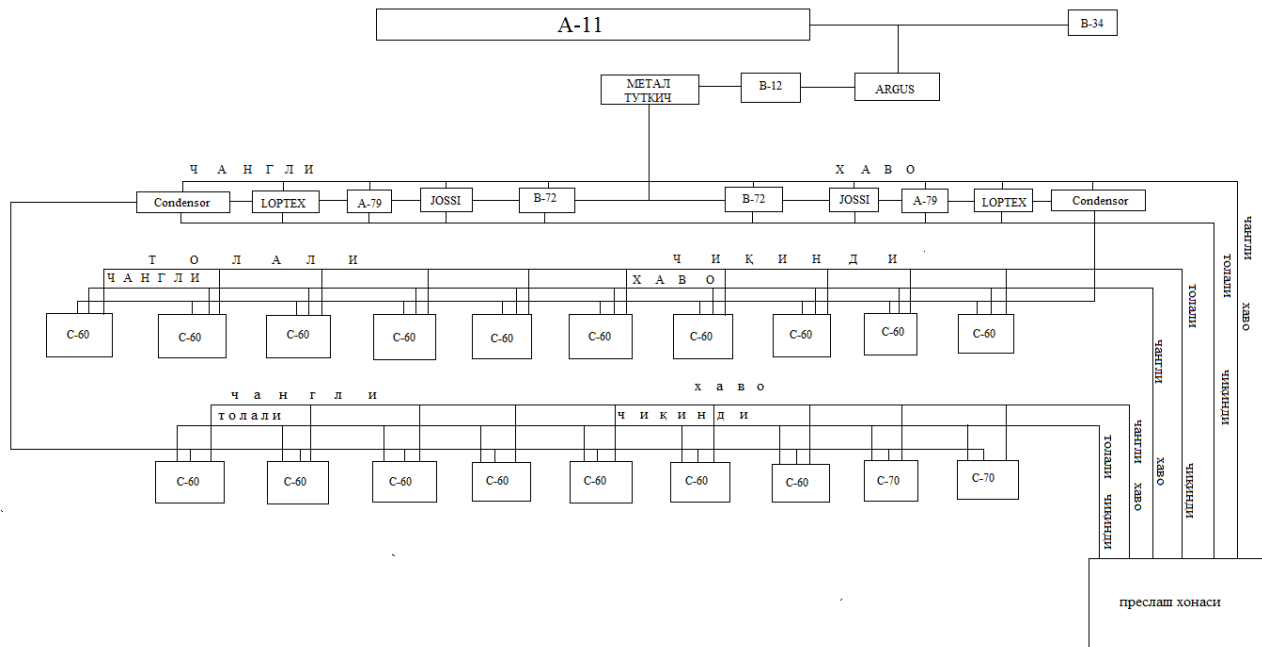
The AX-2 analyzer was used to determine the amount of fiber and impurities in the cotton fiber and the results are given in Table 1.

Table 1

B. Indicators of the amount of fibers and impurities in the cotton fiber in the analyzer AX-2

Naming	Sample weight		Invisible waste		Lint		The amount of waste		Residue	
	Gr	%	Gr	%	Gr	%	Gr	%	Gr	%
Ст-7	50	100	2.404	4.404	6.293	12.61	10.883	21.79	30.42	60.84
Ст -3	50	100	1.491	2.982	9.586	19.18	10.01	20.02	28.91	57.83

As can be seen from Table 1, it was found that the samples contained an average of 60 percent fiber. A sample from the AX-2 analyzer was detected on aUster HVI-1000 instrument in the company's laboratory at a humidity of 6.75% to 8.25%. The results obtained are shown in Table 2

Table 2

C. Indicators of the properties of the fiber tested on laboratory equipment HVI-1000.

Indicators	Ст-16	Ст- 3	Ст-7
Micronaire indicator (mic)	4.13	4.4	4.3
High average length UHML (mm)	20.47	25.47	25.9
Radiation coefficient Rd (%)	79.6	71.7	70.8
Yellowing rate + b (%)	10.1	9.6	9.9
Compare tensile strength Str (gf / tex)	28.5	28.2	29.5
Area of Dirty Compounds Area (%)	0.10	0.3	0.4
Number of dirty compounds Cnt	19	4	8
Elongation at break Elg (%)	6.1	6.4	6.4
Longitudinal uniformity index UI (%)	67.2	71.2	67.2
SFI (%) with a short fiber index less than 0.5 inches (12.7mm)	47.3	22.8	25.2
Twenty property SSI	43	75	77
Fiber class, sort level	11-3	11-3	11-3
Pollution area	1	1	1

III. CONCLUSION

As can be seen from the results obtained in Table 2, the content of separated wastes in the waste product in terms of their properties is considered to be considered to be suitable for harvesting: the index of thick fibers and the length of the fiber. The waste from the combing machines of the spinning enterprises can be cleaned in the wastewater treatment machines and used as a raw material for obtaining yarn in the Carda system, separating the fibers contained in it. In the pneumo-mechanical spinning machine of the enterprise received yarn in R-30, Russian spinning machine, mixing in an amount of 15% of the working mixture for spinning yarn, which is Nm=60, the properties of the yarn obtained from the spinning are presented in Table 3.

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