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EFFECT OF SCREW CLEANER ON COTTON SPINNING

Tuychiev T.O., Turdiev H.E., Rozmetov R.I., Shorakhmedova M.D.

Abstract: The article presents the results of research carried out in production conditions to determine the effect of the 6A-12M1 small dirt cleaning equipment on cotton fiber fluffing and the effect of these blown cotton fibers on the change in the amount of fluffed cotton pieces when processed in the UXK small and large dirt cleaning equipment. According to the results of the research, 28.22% of the fibers of cotton pieces were blown in the 6A-12M1 cleaner, while the amount of blown cotton pieces was reduced to 11.46%, and the amount of unblown cotton was reduced to 88.54% when cleaning large impurities in the 2 saw drums and colosnic modules located in the UXK cleaning complex. So, it was found that in the presence of 2 sawing drums and a colosnic gid module in the UXK cleaning complex, it is possible to reduce the amount of cotton particles by up to 2.5 times when cleaning large impurities.

Keywords: cotton, spinning fibers, pile auger, small dirt, saw drum, colosnic gid.

Introduction. Cotton is divided into small and large impurities depending on the size of the impurities. Today's large pollution cleaning equipment is able to achieve 100% cleaning efficiency of large pollution. But as a result of the low efficiency of fine dirt cleaning equipment, small impurities are trapped in the fiber [1].

Fine-gained oligociclardan tozalash uskunasining Tozalash yuzasin modernized Ishida Research Center [2]Teshik ulchamlara 5x8x50 mm Tozalash samaradorlikka erishilgan

As a result of the research carried out on the creation of a continuous supply of cotton in one standard to the cleaning flow complex, an improved cleaning technology was recommended, in which the efficiency of cotton cleaning was achieved by an increase of 5-6% [3-5].

A research study on the improved 6A-12m equipment of screw conveyor piles [6] found that the efficiency of cleaning from minor impurities was 28.3% higher than that of the existing variant 6A-12m equipment.

The technology of drying-cleaning high-gade cotton with low humidity is recommended by giving hot air to the fine dirt cleaning pile Shnek cleaner [7-8].

A new technological process was proposed to increase the cleaning efficiency of the equipment in the cleaning technological process in the scientific research work [9] on increasing the efficiency of the cleaning process based on the alternative and uniform provision of the heat-humidity condition of the cotton, in which there is cleaning efficiency due to the increase of the heating temperature of the fiber and the improvement of the cleaning equipment. proven to be 7-8% higher than the process and equipment.

On the basis of improved technology for cleaning cotton from impurities [10] a new construction of cotton cleaning equipment was developed in the research work, and cleaning modes were recommended. In the proposed technology, it was determined that the quality indicators of cotton fiber are statistically higher than the quality indicators of cotton fiber obtained in the existing technology. In particular, the fiber length factor went from Type 5 to type 4, with a 0.62% decrease in the amount of short fiber, which in turn ensured that the spinning thread increased the amount of output.

Cotton cleaning enterprises use 1XK cleaners to remove minor impurities [11]. To this day, the cleaning efficiency of 6A-12m1 equipment, which is used in many cotton processing enterprises located in the Fergana Valley, is 60% [12], while the use of this equipment is decreasing, taking into account the fact that cotton fibers can be heard when processing high-humidity cotton. But theoretical and practical studies have not been studied on how much cotton processed in this equipment reduces the amount of cotton swabs worn when processed in an arrachali drum and a colosnik gid module.

Methodology for conducting experiments. The studies were carried out at the Rishton cotton ginning enterprise, owned by Kosta line holding LLC, at the 6A-12m equipment and the uxk cleaning complex, which removes minor impurities. In this technological process, the drying drum consists of two adjacent 6A-12m fine dirt cleaning equipment (one of these cleaners has been improved by pile shneks) and a small and large dirt cleaning complex of the uxk type. To reduce the error of the results of the study, experiments were carried out in three recurrences, and the average results were recorded. Samples were taken after cleaning on 6A-12m equipment and after the uxk cleaning line.

Three samples of recycled cotton from 100 g were taken on the 6A-12m equipment, which was cleaning from minor impurities. The resulting samples were separated by pieces of cotton that were heard, separated into species based on the number of seeds in the pieces, and measured in weight on the scales separately and in the general case. Also, in order to study the effect of the processed cotton in the 6A-12m cleaner on the change in the amount of the worn pieces after the saw drum and the colosnik module are cleaned, the amount of cotton in the uxk cleaning stream was determined after the processed cotton in the 6A-12m cleaner.

In experiments, wet - 77 was carried out in cotton raw materials with an initial moisture content of 7.8% and dirt of the selection variety 5.3%.

Results of Applied Research. The results of the research carried out to determine the degree of fluidity of cotton are presented in Tables 1 and 2. The 100 g taken was 71.20 g of unassisted cotton in sample 1 and 28.80 g of unassisted cotton in sample 2, 71.25 g of unassisted cotton in sample 2 and 28.75 g of unassisted cotton in sample 3, 72.89 g of unassisted cotton in sample 3 and 27.11 g of unassisted cotton.

Table 1. Results of a study to determine whether Cotton can be heard in a 6A-12M cleaner.

№	Number of seeds	Number and weight of tangled cotton lumps in samples (g)		
		Sample 1	Sample 2	Sample 3
1.	Seed cotton 2	8 (3,30g)	8 (2,57g)	5 (1,83g)
2.	seed cotton 3	4 (1,76g)	5 (2,56g)	2 (0,96g)
3.	seed cotton 4	8 (6,97g)	4 (2,50g)	3 (1,97g)
4.	seed cotton 5	2 (1,79g)	5 (4,06g)	3 (2,31g)
5.	seed cotton 6	3 (2,81g)	4 (3,94g)	6 (5,46g)
6.	seed cotton 7	4 (4,86g)	2 (2,48g)	-

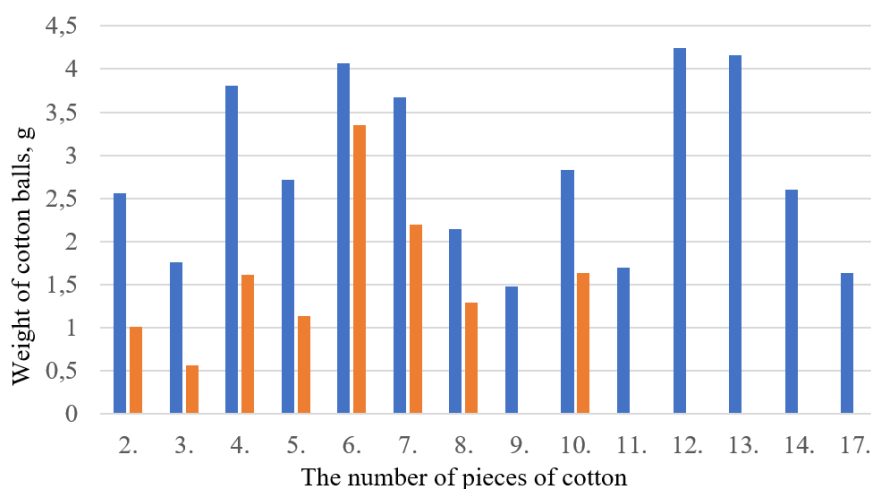
7.	seed cotton 8	-	1 (1,41g)	2 (2,87g)
8.	seed cotton 9	1 (1,48g)	-	-
9.	seed cotton 10	1 (1,74g)	3 (5,07g)	1 (1,68g)
10.	seed cotton 11	1 (1,70g)	-	-
11.	seed cotton 12	-	-	2 (4,24g)
12.	seed cotton 13	-	2 (4,16g)	-
13.	seed cotton 14	-	-	1 (2,60g)
14.	seed cotton 17	1 (2,39g)	-	1 (3,19g)

In the 1st sample of cotton after the UXK cleaning complex, the unspun cotton contains 88.66 g and the spun cotton 11.34 g. .50 g and cotton was 11.29 g.

Table 2. Changes in the amount of cotton pieces blown in the UXK cleaning complex.

№	Number of seeds	Number and weight of seed cotton pieces in the samples (g)		
		Sample 1	Sample 2	Sample 3
1.	seed cotton 2	1 (0,38g)	4 (1,28g)	2 (1,38g)
2.	seed cotton 3	2 (0,79g)	1 (0,38g)	1 (0,56g)
3.	seed cotton 4	1 (0,69g)	3 (1,96g)	3 (2,19g)
4.	seed cotton 5	2 (1,72g)	1 (0,96g)	1 (0,75g)
5.	seed cotton 6	5 (4,26g)	4 (3g)	3 (2,80g)
6.	seed cotton 7	3 (3,52g)	1 (1,20g)	2 (1,89g)
7.	seed cotton 8	-	1 (1,29g)	-
8.	seed cotton 9	-	-	-
9.	seed cotton 10	-	1 (1,57g)	1 (1,70g)

Analysis of the obtained research results. The amount of blown cotton particles in the cotton cleaned in the 6A-12M small dirt cleaning equipment is 2-seed cotton 2.56 g, 3-seed cotton 1.76 g, 4-seed cotton 3.81 g, 5-seed cotton 2.72 g, 6-seed cotton 4.07 g, 7-seed cotton seed cotton 3.67 g, 8-seed cotton 2.14 g, 9-seed cotton 1.48 g and 10-seed cotton 2.83 g, 11-seed cotton 1.70 g, 12-seed cotton 4.24 g, 13-seed cotton 4,16 g, 14-seed cotton was 2.60 g, 17-seed cotton was 1.635 g (Fig. 1).



■- pieces of unspun cotton; ■- blown cotton balls.

Figure 1. Histogram of changes in the amount of cotton particles blown in the UXK cleaning complex.

The amount of blown cotton pieces in the cotton cleaned at the UXK cleaning complex is 2-seed cotton 1.013 g, 3-seed cotton 0.57 g, 4-seed cotton 1.61 g, 5-seed cotton 1.14 g, 6-seed cotton 3.35 g, 7-seed cotton 2.20 g, 8-seed cotton was 1.29 g, 9-seed cotton was not detected, and 10-seed cotton was 1.635 g.

On average, 71.78% of unwoven cotton and 28.22% of woven cotton are formed in the cotton cleaned in the 6A-12M small dirt cleaning equipment. After processing in the UXK cleaning complex, these indicators are 88.54% of unspun cotton and 11.46% of spun cotton.

Conclusion. From the results of the study, it can be seen that 28.22% cotton swabs are heard on the 6A-12m equipment, while in the uxk cleaning complex there is a decrease in the amount of cotton swabs heard when cleaning from large impurities in the arrachali drum and kolosnik module, up to 11.46%. So, it turns out that cotton swabs, which are heard in the Arrach drum and colosnik grill module, can be reduced to 2.5 times when there is a 2-Arrach drum and a colosnik grill module in the uxk cleaning complex.

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