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ijirset@gmail.com

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Deficiency of Cotton Fiber Detected by Different Methods and Changes of Mass Materials of Dirty Mixtures

Toyirova Tursunoy Abdugapirovna, Axmedov Baxodir Buriyevich, Orumbayeva Surayo Axmetjonovna, Akhmedova Mokhinur Fayzullo qizi, Rakhimov Dilbek Normahmad o'g'li, Taniberdiyev Farrux Rustamovich

Tashkent Institute of Textile and Light Industry (Uzbekistan)

Tashkent Institute of Textile and Light Industry (Uzbekistan)

Technological process optimization engineer of R&D Center "Technopark" LLC (Uzbekistan)

Tashkent Institute of Textile and Light Industry (Uzbekistan)

Tashkent Institute of Textile and Light Industry (Uzbekistan)

Tashkent Institute of Textile and Light Industry (Uzbekistan)

ANNOTATION: In this article, the mass fraction of defects and impurities of medium-fiber cotton varieties grown in JSC "Cotton Industry Scientific Center" in 2019 was determined by FM and AX analyzers and analyzed the changes in the mass fraction of deficiencies and impurities of cotton fiber detected in different ways.

KEYWORDS: cotton fiber deficiency and impurities, arithmetic mean, analyzer

I. INTRODUCTION

According to the Decree of the President of the Republic of Uzbekistan dated December 14, 2017 No PF-5285 "On measures to accelerate the development of the textile and garment industry" organization and development.

Cotton fiber is one of the main products of the textile industry. Over the past two years, our country has been paying serious attention to the creation of infrastructure based on advanced technologies in all areas, in particular industry, especially to support the cluster system in agriculture. In this regard, the head of state Shavkat Mirziyoyev on December 9, 2017 at the first celebration of the Day of Agricultural Workers in Kyzyltepa district of Navoi region acknowledged the cluster approach, which covers the stages from the cultivation of cotton to the production of finished products. Of particular importance are those who say that we see this system as the future of Uzbek cotton. Therefore, it is important to improve the quality of products in the ginning and spinning enterprises in the transition of enterprises to the cluster system.

One of the main indicators of cotton fiber is the amount of impurities in its composition. This is because the greater the mass fraction of cotton fiber defects and impurities, the more negatively it affects the quality of yarn and finished products.

II. METHODOLOGY

A number of works have been carried out on the development of state standard samples, ie defects in FM-30, AX analyzers and samples taken using a special method and the mass fraction of impurities were determined. Comparative analysis of the state standard type I with respect to 2.95 and UzDSt 632: 2010.

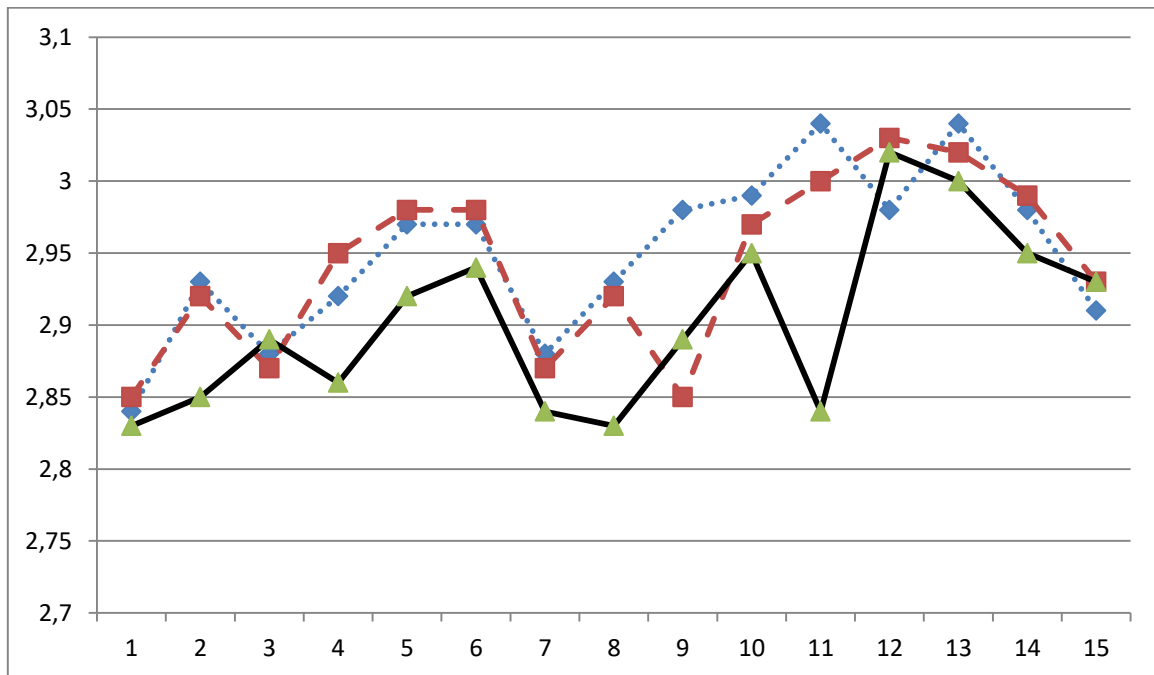
Defects of type I state standard samples and homogeneity of mass fraction of contaminants were studied by all methods, the results are given in Table 1.



Table 1
 Statistics on the results of cross-comparison of FM-30, AX analyzer and the uniformity of the mass fraction of defects and contaminants of the state standard samples of type I in the specially applied method

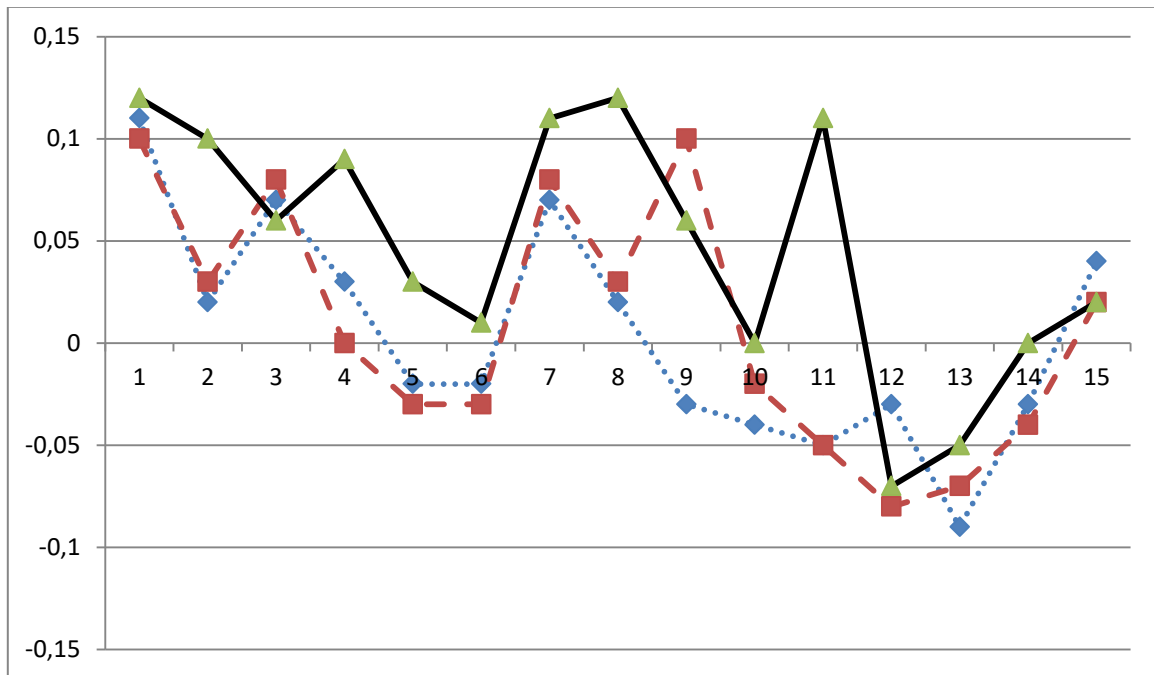
τ/p	$\Phi M-30$	O'zDSt 632:2010	AX	O'zDSt 632:2010	MY	O'zDSt 632:2010
1	2,84	0,11	2,85	0,1	2,83	0,12
2	2,93	0,02	2,92	0,03	2,85	0,1
3	2,88	0,07	2,87	0,08	2,89	0,06
4	2,92	0,03	2,95	0	2,86	0,09
5	2,97	-0,02	2,98	-0,03	2,92	0,03
6	2,97	-0,02	2,98	-0,03	2,94	0,01
7	2,88	0,07	2,87	0,08	2,84	0,11
8	2,93	0,02	2,92	0,03	2,83	0,12
9	2,98	-0,03	2,85	0,1	2,89	0,06
10	2,99	-0,04	2,97	-0,02	2,95	0
11	3,00	-0,05	3,00	-0,05	2,84	0,11
12	2,98	-0,03	3,03	-0,08	3,02	-0,07
13	3,04	-0,09	3,02	-0,07	3,0	-0,05
14	2,98	-0,03	2,99	-0,04	2,95	0
15	2,91	0,04	2,93	0,02	2,93	0,02
	2.95	0.00	2.94	0.01	2.9	0.05

Based on the results of the study, Figures 1 and 2 show a graph of the dependence of the state standard samples of type I state standard samples on the mass fraction of defects and contaminants.



1-AX; 2-маҳсул усул; 3-ΦM-30.

Figure 1. Defective state samples and changes in the mass fraction of contaminants.



1-AX; 2-максус усул; 3-ФМ-30.

Figure 2. Variation in the amount of deviation of the state standard samples on the mass fraction of defects and contaminants.

III. RESULTS AND DISCUSSION

The analysis of the results of the study shows that the arithmetic mean of the test results on the FM-30 cotton analyzer for type I state standard samples = 2.95 ha, the average arithmetic value of the test results on the AX cotton analyzer for type I state standard samples = 2.94 , traditional methods of testing cotton fiber on the basis of a small sample using a tool, in which the test sample is determined by a special method by repeatedly averaging and reducing the number of samples selected from different bales of cotton fiber or different parts of the tested pattern = 2, for type I state standard samples Was found to be equal to 90.

The difference between the arithmetic mean values of the AX, FM-30 cotton analyzers and the results of the special method compared to the test results of the special method for state standard samples of type I in the FM-30 analyzer = + 0.05, in the AX analyzer = +0 , Was found to be equal to 04.

The results of the tested methods showed that the standard deviation was 0.026.

From the results of the study, the difference between the arithmetic mean values in the AX, FM-30 cotton analyzer and the test results performed by a special method was considered to be within the allowable range for state standard samples of type I.

In addition, the uniformity of the mass fraction of defects and contaminants of state standard samples of type II was studied by all methods, the results are given in Table 2.

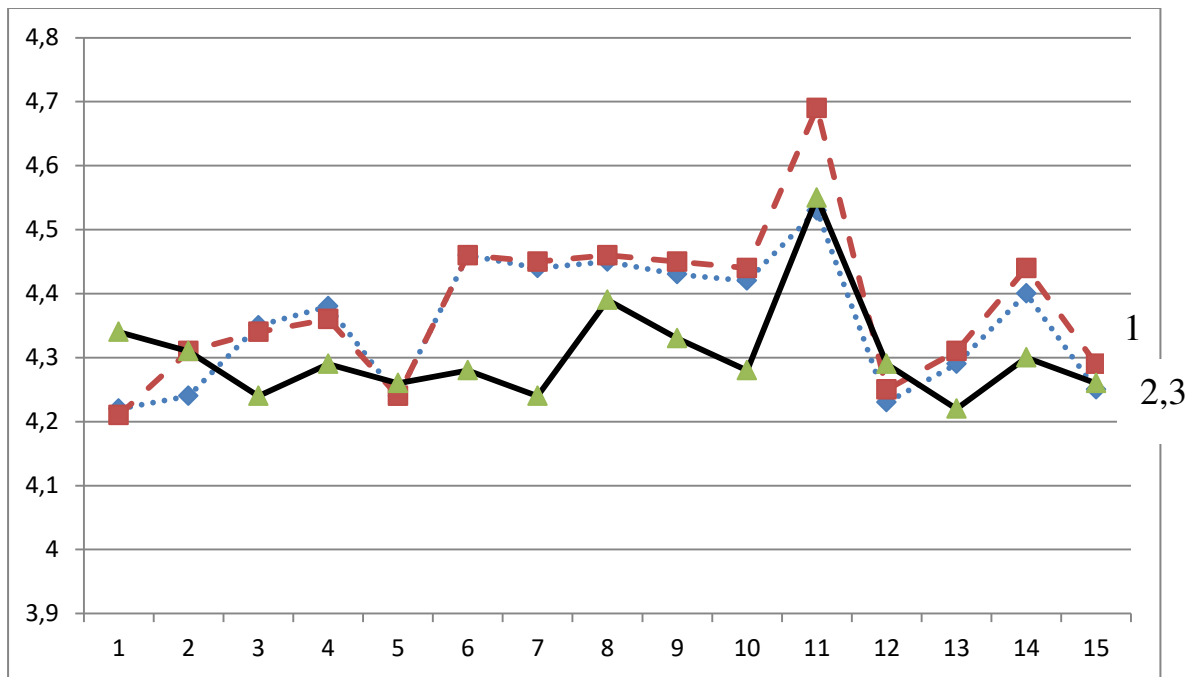


Table 2

Statistics on the results of cross-comparison of FM-30, AX analyzer and the method of special application of the state standard samples of type II with the same mass fraction of defects and impurities

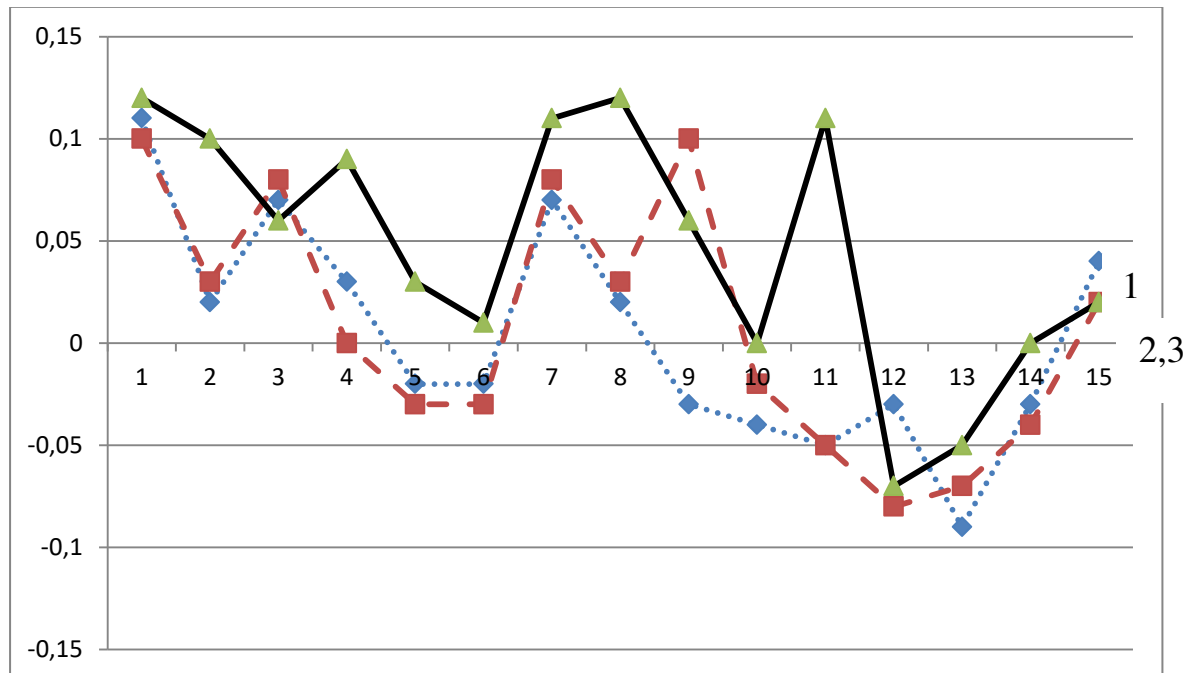
τ/p	$\Phi M-30$	O'zDSt 632:2010	AX	O'zDSt 632:2010	MY	O'zDSt 632:2010
1	4,22	0,14	4,21	0,15	4,34	0,02
2	4,24	0,12	4,31	0,05	4,31	0,05
3	4,35	0,01	4,34	0,02	4,24	0,12
4	4,38	-0,02	4,36	0	4,29	0,07
5	4,24	0,12	4,24	0,12	4,26	0,1
6	4,46	-0,1	4,46	-0,1	4,28	0,08
7	4,44	-0,08	4,45	-0,09	4,24	0,12
8	4,45	-0,09	4,46	-0,1	4,39	-0,03
9	4,43	-0,07	4,45	-0,09	4,33	0,03
10	4,42	-0,06	4,44	-0,08	4,28	0,08
11	4,53	-0,17	4,69	-0,33	4,55	-0,19
12	4,23	0,13	4,25	0,11	4,29	0,07
13	4,29	0,07	4,31	0,05	4,22	0,14
14	4,40	-0,04	4,44	-0,08	4,3	0,06
15	4,25	0,11	4,29	0,07	4,26	0,1
	4.36	0,00	4.38	-0,02	4.31	0,05

Based on the results of the study, Figures 3 and 4 show a graph of the dependence of the state standard samples of type I state standard samples on the mass fraction of defects and contaminants.



1-AX; 2-маҳсус усул; 3-ΦM-30.

Figure 3. Detective state samples and changes in the mass fraction of contaminants.



1-AX; 2-максус усул; 3-ФМ-30.

Figure 4. Variation in the amount of deviation of the state standard samples on the mass fraction of defects and contaminants.

The analysis of the results of the study shows that the arithmetic mean of the test results on the FM-30 cotton analyzer for type II state standard samples = 4.36 ha, the average arithmetic value of the test results on the AX cotton analyzer for type II state standard samples = 4.38 For traditional type II state standard samples = 4, when the test method is determined by a special method by multiplying the number of samples selected from different bales of cotton fiber or from different parts of the tested sample by averaging and reducing the number of samples many times averaging and reducing = 4, Was observed to be equal to 31.

The difference between the arithmetic mean values of the AX, FM-30 cotton analyzer and the test results of the special method is +0.05 for the FM-30 analyzer and +0.07 for the AX analyzer. was found to be equal to.

The results of the methods by which the tests were performed have a standard deviation of 0.036.

IV. CONCLUSION

The difference between the arithmetic mean values of the AX, FM-30 cotton analyzer and the test results performed by a special method was considered to be within the allowable range for the state standard samples of type II.

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