



e-ISSN: 2319-8753 | p-ISSN: 2320-6710

# IJIRSET

International Journal of Innovative Research in  
**SCIENCE | ENGINEERING | TECHNOLOGY**

# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 10, Issue 2, February 2021

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

**Impact Factor: 7.512**

9940 572 462

6381 907 438

[ijirset@gmail.com](mailto:ijirset@gmail.com)

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# On The Quality Indications of Bed Fabrics Evaluation and Analysis

Ashurov Khasan To'liqin o'g'li, Mirpolat Kulmetov, Ubaydullayeva Dilora Xamidovna, Ismoilov

Doniyor Abdulxamidovich, Usanov Mustafaqul Maxmud o'g'li

Department of Science of Textile Material, Tashkent Institute of Textile and Light Industry,  
Tashkent, Uzbekistan

Department of Science of Textile Material, Tashkent Institute of Textile and Light Industry,  
Tashkent, Uzbekistan

Department of Science of Textile Material, Tashkent Institute of Textile and Light Industry,  
Tashkent, Uzbekistan

Department of Science of Textile Material, Tashkent Institute of Textile and Light Industry,  
Tashkent, Uzbekistan

Department of Automation and control of technological processes and production, Tashkent Institute of Textile and Light Industry, Tashkent, Uzbekistan

**ABSTRACT:** In this article, the quality of bedding fabric obtained from a mixture of 100% cotton fiber waste and 70% rogoza plant fiber waste and 30% cotton fiber waste was evaluated and analyzed.

**KEYWORDS:** bedding fabric, longitudinal and transverse density, linear density of yarns, linear weight of fabrics, surface density, specific gravity, light and weather, dry and wet friction, distilled and sea water, soap and soda solutions, washing and ironing, sweat etc. resistance

## I.INTRODUCTION

A number of urgent tasks facing the textile industry today include re-equipment of enterprises, introduction of new technologies, ensuring the efficient use of raw materials, full use of secondary raw materials and fiber waste, increasing the range of new products, increasing exports. At the same time, the issue of increasing the production of non-woven fabrics and the range of products in the country is very important[1].

A number of urgent tasks facing the textile industry today include re-equipment of enterprises, introduction of new technologies, ensuring the efficient use of raw materials, full use of secondary raw materials and fiber waste, increasing the range of new products, increasing exports. At the same time, the issue of increasing the production of non-woven fabrics and the range of products in the country, as well as a comprehensive solution to the problems of efficient use of local raw materials play an important role in the development of light industry [2-3].

Key performance indicators of fabrics include air permeability, penetration, gyroscopicity, and dye strength.

The air permeability of fabrics depends on their longitudinal and transverse density, fiber content and finish. Depending on the purpose for which the fabrics are used, their density will also vary.

Air permeability is the air permeability of the sample itself, which is measured by the air permeability coefficient. the air permeability coefficient indicates the amount of air passing through 1 square meter of surface in one second under known conditions of air pressure on both sides of the sample [4].

During the tests, the difference in air pressure on both sides of the sample is equal to  $\Delta p = 5$  mm water column or 49 Pa. This difference corresponds to the difference between the air pressure under the garment and the surrounding air pressure[5].



A second property of fabrics is their hygroscopicity. Hygroscopicity - the relative humidity of the air is 98-100% and the humidity of the sample at a temperature of  $20 \pm 20^{\circ}\text{C}$  this property of the fabric depends on the fiber content and finish [6].

When washed, soaked, ironed, and stored in air with high relative humidity, the dimensions of the fabric change, and the change in dimensions is the introduction. In this process, the dimensions of the fabrics are often reduced. The input in this case is called the positive input. The dimensions of some fabrics increase. Such an introduction is called a negative introduction. In wet weaving, even when the fabric is wet-heated, its dimensions decrease (insert ironing process) or increase (stretching ironing process). The introduction during wet heat treatment is called forced-introduction. With the help of mandatory introduction, the textiles are given a certain desired shape. Interventions other than mandatory introduction are negative indicators of fabrics. As a result of the penetration of fabrics, the size and shape of the fabric and parts sewn from them can be distorted. If the base material, lining and layer of the garment are mixed differently, the appearance of the garment will deteriorate, causing wrinkles and creases. Therefore, special makeup is given to them [7].

During the use of fabrics, their original dyed color should not fade for a long time. According to the strength of the dye, linen fabrics are divided into groups that are strongly dyed and specially dyed. The remaining fabrics are divided into simple, durable and especially durable dyed groups[8].

Depending on what the fabrics are used for, their dye is resistant to various physicochemical effects: light and weather, dry and wet abrasion, distilled and sea water, soap and soda solutions, washing and ironing, sweat, etc[8].

The dye strength of dyed fabrics is evaluated by points. The sample to be evaluated is compared with the standards. Standards come in two varieties - gray and blue. Blue standards are used to assess the paint's resistance to weather and light. Gray standards are used to assess the paint's resistance to all other effects. In the blue standards, the strongest paint is rated with 8 points and the weakest paint is rated with 1 point. The gray standards are further subdivided into two. One is used to determine the degree of abrasion of the initial dye of the fabric as a result of physicochemical effects, and the other is used to determine the degree of dye liking of the white sample tested with the colored material. The degree of durability is determined by a fraction: the score is given to the photo to assess the degree of irritation of the original paint, and the denominator is given a score to assess the degree of liking of the white sample to the paint[8].

## II. METHODOLOGY

The durability of fabric dyes is of great importance in determining their variety. If the actual strength of the dye is below the established norm, the type of fabric is reduced.

Research has been conducted to determine the quality of upholstery fabrics. The test results obtained are presented in Table 1 below.

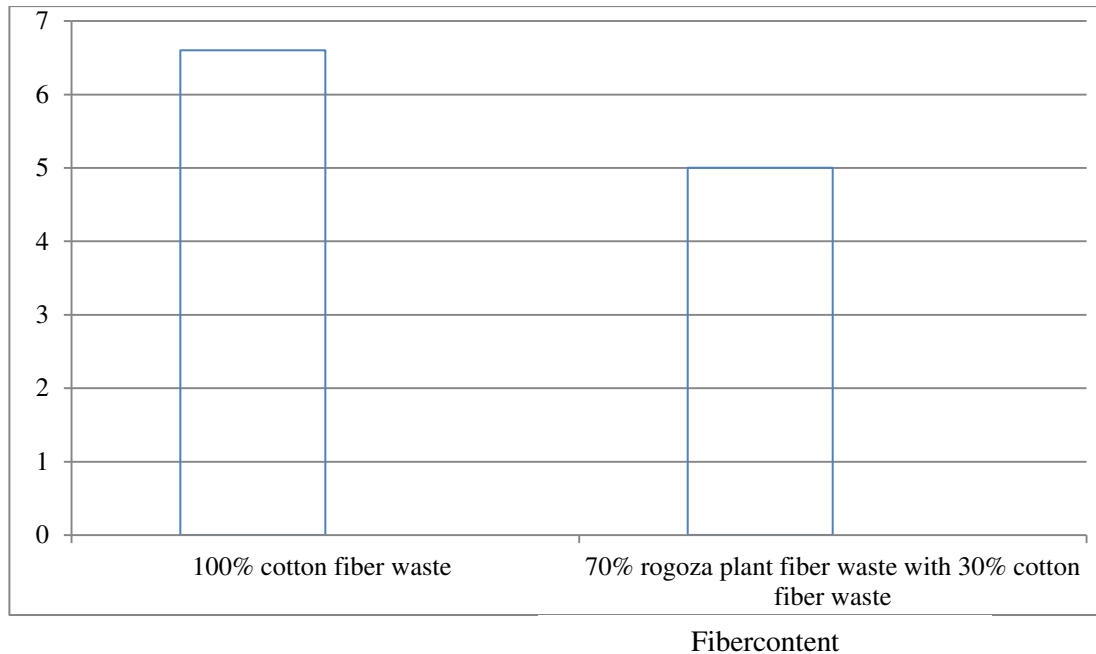
Table 1  
Changes in the quality of upholstery fabrics

T/p	From secondary material resources of different composition obtained fabrics	Air permeability of the fabric, $\text{sm}^3/\text{sm}^2\text{sek}$	Introduction, %		Hygrosco picity, %	Paint strength, score	
			section on	onthetransve rse		wet	dry
1.	100% cottonfiberwaste	48,3	-6,6	-2,0	7,32	4	3
2.	70% fiber waste from Rogoza plant and 30% cotton fiber waste	59,7	-5,0	-2,0	6,71	4	3

Based on the results of the study, in Figures 1 and 4, the secondary material resources are obtained from a mixture of 100% cotton fiber waste and 70% rogoza plant fiber waste with 30% cotton fiber waste with different air

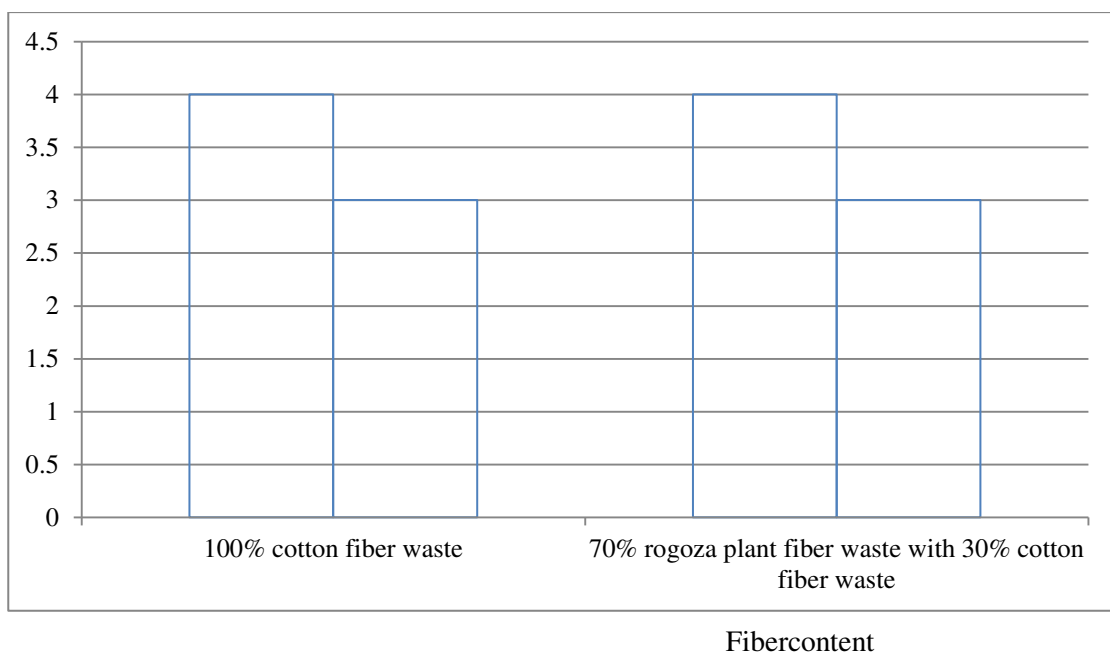


permeability, longitudinal and transverse penetration, gyroscopicity, wet and dry histograms of change in paint strength are given.



▨ -sectionon;  
 ▤ -on the transverse.

Figure 1. Changes in the longitudinal and transverse penetration of upholstery fabrics from various secondary material resources.



▨ -sectionon;  
 ▤ -on the transverse

Figure 2. Changes in the strength of dyes in the wet and dry state of upholstery fabrics obtained from various secondary material resources.

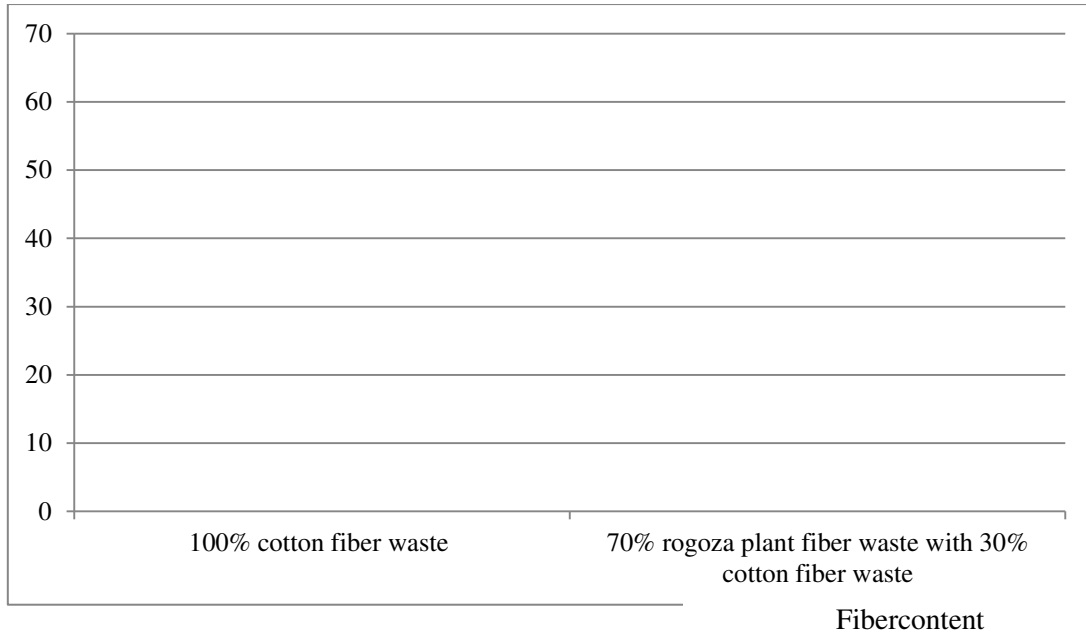


Figure 3. Changes in air permeability of upholstery fabrics obtained from various secondary material resources.

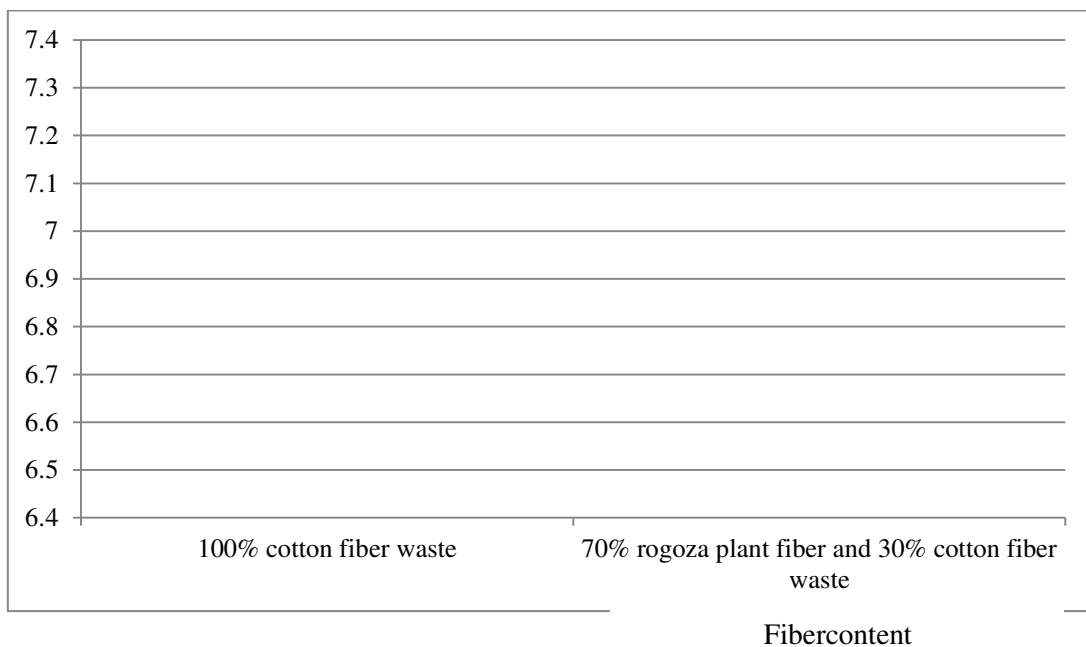


Figure 4. Changes in the hygroscopicity of bedding fabrics obtained from various secondary material resources.

### III. RESULTS AND DISCUSSION



The test results show that the air permeability of the lining fabric obtained from 100% cotton fiber waste is 48.3 cm<sup>3</sup> / cm<sup>2</sup>sec, longitudinal penetration -6.6%, transverse penetration -2.0%, gyroscopicity 7.32%, wet dye strength 4 points, dry dye strength 3 points, bedding fabric obtained from a mixture of 70% rogoza plant fiber waste and 30% cotton fiber waste air permeability 59.7 cm<sup>3</sup> / cm<sup>2</sup>sec, longitudinal penetration -5.0%, transverse penetration -2.0%, gyroscopicity 6.71%, wet paint strength 4 points, dry paint strength 3 points.

Comparing the results of the study with the performance of 100% cotton fiber waste with different secondary material resources, the air permeability of the fabric obtained from a mixture of 70% rogoza plant fiber and 30% cotton fiber waste increased by 19.1%, longitudinal penetration 24, Decreased by 3%, transverse penetration did not change, gyroscopicity decreased by 8.3%, wet paint strength did not change, dry paint strength did not change. It can be seen that the air permeability index has been proven to be higher than the mattress fabric obtained from a mixture of 70% rogoza plant fiber waste and 30% cotton fiber waste. In addition, the longitudinal penetration of the linen fabric obtained from 100% cotton fiber waste is higher than that of the fabric obtained from a mixture of 70% rogoza plant fiber waste and 30% cotton fiber waste, ie stretched when washed.

#### IV.CONCLUSION

According to the analysis of the results of the study, the air permeability of bedding made from a mixture of 70% rogoza plant fiber and 30% cotton fiber waste increased by 19.1%, longitudinal penetration decreased by 24.3%, transversely, compared to 100% cotton fiber bedding. It was found that the penetration did not change, the gyroscopicity decreased by 8.3%, the strength of the paint in the wet and dry state did not change.

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SJIF Scientific Journal Impact Factor

**Impact Factor:  
7.512**

**ISSN** INTERNATIONAL  
STANDARD  
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