International Journal of Culture and Modernity
ISSN 2697-2131, **Volume 32 | Sep-2023**
https://ijcm.academicjournal.io

# The Effect of Mixtures of Different Compositions and Recycled Fibers on the Physical Properties of Gases

**Rajapova Umida Baxtiyarovna, Mengnarov Shuxrat Soatovich, Ochilov Tulkin Ashurovich**
Tashkent Institute of Textile and Light Industry (Uzbekistan)

## ANNOTATION

in this article, 5000 tex pelts were made on the JFA-226 carding machine at the production enterprise, 3 types of pelts were made on the HSR-1000 type pelting machine in the laboratory of TTESI under the "Spinning Technology" department, JAT of the Japanese company "Toyota" in the laboratory under the "Textile Fabric Technology" department On the 810 loom, yarn made of 100% cotton fibers was thrown into the warp thread, and yarn mixed with secondary fibers was thrown into the loom yarn.

**KEYWORDS:** tissue, lining, intermediate and heating layer materials, torn, thread ends, expired cotton wool, scraps, inter-spun waste, non-spun cotton fabric scraps as wiping cloth or production of sound and heat insulation, air permeability, water permeability of gauzes, induction ironing process.

## I. INTRODUCTION

The development of scientific and technical progress and the increase in the volume of production of various types of materials lead to an increase in the amount of consumer waste, and sometimes in production, therefore, the relevance of recycling of secondary material resources (IMR) is constantly increasing, and it is becoming more and more important in the national economy of the country. At the same time, the need for raw materials and the creation of new low-waste technologies is increasing significantly. First of all, this problem should be solved in the most materially demanding sectors, in particular, in the textile industry. The use of such raw materials for the production of consumer goods leads to a decrease in the cost of finished products, contributes to the smooth operation of the enterprise and more rational use of expensive fiber raw materials.

Various types of gauze, lining, intermediate and heating layer materials are used in the sewing enterprise. A large amount of waste is generated in the production of products from these materials. The problem of using sewing waste is urgent today, and there is a need to solve it.

Clothing is a necessity for every person. Recycling or other disposal of obsolete items is recommended. Recycling clothes frees owners from unnecessary items and allows reuse of textiles.

Sewing scissors are divided into four categories:

- spun (spun, yarn ends, fibers) goes to the production of new yarn;
- cotton wool (blanket, pillow, mattress, expired cotton wool) is processed into furniture or technical cotton wool, coarse fiber;

International Journal of Culture and Modernity
ISSN 2697-2131, **Volume 32 | Sep-2023**
https://ijcm.academicjournal.io

- spent on non-woven materials;
- non-spun cotton fabric scraps are used as wiping cloths or in the production of sound and heat insulation.

Fiber obtained from residues of cotton products. Residues of new cotton fabrics are sorted according to the type of fiber - cotton residues and a mixture of cotton and chemical fibers, fluff gauzes, knitted fabrics, non-woven materials and scraps of textile products; heavy fabrics (shoe fabric, tarpaulin, etc.) and medium weight and light fabrics (flannel, cotton, mitkal, etc.) - according to the method of production and cutting; according to the color of the cuttings - white (bleached), raw and chestnut-colored.

Garbage industry wastes and losses at various stages of production make up 25% of the raw materials used. The rational use of materials is influenced by many interrelated factors: production technology and organization, characteristics of raw materials, level of technological discipline, technical equipment.

Increasing the standard of living of the population is achieved by the exponential increase of the gross domestic product at the expense of non-renewable natural resources. Only 2% of them are used as ready-to-consume products, and the remaining 98% pollute the environment in the form of waste. Therefore, it is necessary to take drastic measures to repeatedly reduce the consumption of non-renewable resources and environmental pollution.

One of the main properties of gauzes is their air permeability, water permeability, paint strength, permeability, etc. For example, gases have the ability to transmit air, water, gas, steam, dust, smoke, liquids, radioactive particles. Air permeability is the ability of the sample to pass air through it, which is estimated by the coefficient of air permeability. The coefficient of air permeability indicates the amount of air volume that has passed through a certain surface in one second under the conditions of a known difference in air pressures on the two sides of the sample.

Air permeability of gases depends on their density. The denser the fabrics are, the lower their air permeability. For this reason, the gas produced is produced seasonally.

Gauzes change their dimensions when they are washed, soaked, wet ironed, stored in air with high relative humidity. One such dimensional change is the introduction of gases, which often cause gases to shrink in size. The input in this case is called positive input. The dimensions of some gases increase. Such access is called negative access.

Water permeability of gases is understood as the ability to transmit water under the influence of a certain level of pressure. This property is evaluated by the coefficient of water permeability. The coefficient of water permeability indicates the volume of water passing through the surface of the material equal to one square meter for one second.

Even when the fabric is wet-heated in weaving, its dimensions are reduced (inset ironing process) or increased (stretch ironing process). Annealing during wet heat treatment is called forced annealing.

With the help of forced introduction, the textile products are given a certain desired shape. With the help of forced introduction, the textile products are given a certain desired shape. Introductions other than forced introductions are negative indicators of emissions.

As a result of the introduction of gasses, items and parts of items made from them may shrink and become deformed.

International Journal of Culture and Modernity
ISSN 2697-2131, **Volume 32 | Sep-2023**
https://ijcm.academicjournal.io

## II. METHODOLOGY

Research work was carried out to study the physical properties of gases. For him, 66.4% cotton fiber, 28.8% secondary fiber and 4.8% cotton fiber in 3 variants based on the scheme obtained from a mixture of 10% nitron, 60% cotton and 30% secondary fibers under production conditions and presented in the laboratory conditions on a carding machine. a mixture of nitron fibers was produced in a wick and a pneumomechanical spinning machine, and its physical properties were determined. The results of the study are presented in Table 1 below.

Table 1. Changes in the physical properties of gases obtained from a mixture of processed fibers with different composition

| т/р | Indicators | Made from a blend of 10% nitron, 60% cotton and 30% secondary fibers received | A mixture of 66.4% cotton fiber, 28.8% secondary fiber and 4.8% nitrone fiber was obtained according to the scheme of placing wicks in the braiding machine | | |
|---|---|---|---|---|---|
| | | | 1 | 2 | 3 |
| 1. | Air permeability, $dm^3/sm^2$ sek | 965 | 1085 | 1008 | 833 |
| 2. | No creasing, % | | | | |
| | based on | 56,7 | 58,4 | 57,6 | 55,3 |
| | by duck | 53,3 | 61,8 | 61,7 | 56,7 |
| 3. | shrinkage, % | | | | |
| | based on | -7,5 | -7,5 | -6,5 | -7,5 |
| | by duck | -5,0 | -5,0 | -5,0 | -6,0 |

## III. RESULTS AND DISCUSSION

If we compare the results of the research with the parameters of the gauze obtained from a mixture of 10% nitron, 60% cotton and 30% secondary fibers under the conditions of production, the wrinkle resistance of the gauze obtained according to the 1st option is 3.0%, the wrinkle resistance of the gauze is 13.8%, the air permeability increased by 11.1%, the non-creasing of the fabric according to the 2nd option increased by 1.5%, the non-creasing of the fabric according to the rib by 13.6%, the air permeability of the fabric increased by 4.3%, the air permeability of the fabric according to the 3rd option increased by 1.5% the wrinkle resistance of the fabric decreased by 2.5%, the wrinkle resistance of the fabric increased by 6.0%, the air permeability of the fabric decreased by 13.7%. It can be seen that the wicking and air permeability indicators of the wicks produced from the wicks placed on the edges of the wicking machine according to the scheme and obtained under production conditions changed to a certain extent, that is, the quality indicators of the wicks produced from the wicks placed on the edge of the wicking machine were found to be higher. The reason is the uniform distribution and parallelization of the fibers from the edge of the braiding machine.

How we add the pleats in the pleating machine does not affect the air permeability of the pleat, but it does affect the wrinkle resistance of the pleat.

International Journal of Culture and Modernity
ISSN 2697-2131, **Volume 32 | Sep-2023**
https://ijcm.academicjournal.io

## IV.CONCLUSION

As it can be seen from the analysis of the test results, compared to the parameters of the gauze obtained from a mixture of 10% nitron, 60% cotton and 30% secondary fibers in production conditions, the non-creasing of the gauze obtained in laboratory conditions is from 1.5% to 3.0%, the non-creasing of the gauze is 6, From 0% to 13.8%, it was found that the gas permeability increased from 4.3% to 13.7%.

## REFERENCES

1. Frolova I.V. I.V. Frolova, V.V. Makarov // Izv. Vuzov. Technol. textile. prom. 1998. - No. 1. - S. 56-58.
2. Frolov V.D. Технологические условия разволокнения лоскута в зоне питающчего устройства Текст./ V.D. Frolov, M.D. Larionova // Izv. Vuzov. Technol. text, prom-sti. 1999. - No. 6. - S. 52-54.
3. Ivanova N.N., Misko N.N. K voprosu pererabotki otkhodov tekstilnykh materialov sveynogo proizvodstva// Pererabotka otkhodov tekstilnoy i light industry: theory and practice, Materialy dokladov Mejdunarodnoy nauchno-prakticheskoy konferentsii, 2016, Vitebsk, 47 p.
4. Selezneva I. I. Resursosberezhenie v shveynom proizvodstve / I. I. Selezneva, R. N. Filimonenkova, E. L. Kulazhenko // Materialy dokladov 43 nauchno-teknicheskoy conference of teachers and students of the university / UO "VGTU". -Vitebsk, 2010. -S. 230-231.
5. Kadnikova O.Yu., Shaldykova B.A. Upravlenie protsessom pererabotki otkhodov kak faktor ekologo-ekonomicheskogo razvitiya predpriyatiy sveino-trikotajnoy promyshlennosti //Mejdunarodnyi dvuyazychnyi nauchnyi journal "Nauka i Mir" No. 3 (31).-Volgograd, 2016. - S. 54 - 56.
6. Gerasimuk I.N., Zimina E.L., Kogan A.G. Ratsionalnogo ispolzovaniya otkhodov na shveynoy predpriyatiyax. Pererabotka otkhodov textile and light industry: theory and practice. Materialy dokladov Mejdunarodnoy nauchno-prakticheskoy conference. 2016, Vitebsk, 40 S.
7. Bashkov, A.P. Razrabotka resursosberegayushchih tekhnologii dlya proizvodstva netkanyx materialov teknicheskogo naznacheniya: monografiya / A.P. Bashkov, V.D. Frolov.-Ivanovo: IGTA.-2007.-288 p.
8. Kulmetov Mirpolat, Atanafasov Mukhiddin Rakhmonovich, Laysheva Elmira Talgatovna, Yuldasheva Mavluda Turamuratovna, Akhmedova Mokhinur Fayzullo qizi, “Effect of Rate Quantity on IP Quality” International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET), e-ISSN: 2319-8753, p-ISSN: 2347-6710, Volume 10, Issue 11, November 2021.
9. Atanafasov Mukhiddin Rakhmonovich, Ochilov Tulkin Ashurovich, Valieva Zulfiya Fakhritdinovna, Vliyanie kolichestvennogo soderjaniya otkhodov na kachestvennye kharacteristiki pryaji. Scientific magazine Izdaetsya ejemesyachno s December 2013 goda Yavlyaetsya pechatnoy versiey setevogo jurnala Universum: teknicheskie nauki, Vypusk: 2(95) February 2022 Chast 4.

**International Journal of Culture and Modernity**
ISSN 2697-2131, **Volume 32 | Sep-2023**
https://ijcm.academicjournal.io

10. Muxtarov Jo'rabek Reyimberganovich, Djumaniyozov Muxammadjon Baxromovich, Atanafasov Mukhiddin Rakhmonovich, Akhmedova Mokhinur Fayzullo qizi, "Virginity of Rops from Returnschange of Indicators", International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET), p-ISSN: 2347-6710, Volume 10, Issue 11, November 2021.
11. Atanafasov Mukhiddin Rakhmonovich, Ochilov Tulkin Ashurovich, Usmonova Shaxnoza Anvarovna, Yuldashyev Jaxongir Norquvvato'g'li, Hakimov Shahzod Husniddin o'g'li, Influence of Cotton Fiber of Different Composition and Secondary Material Resources on Single-Cycle Elongation Deformation of Yarns, International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET) p-ISSN: 2347-6710, Volume 11, Issue 2, February 2022.