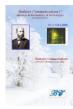


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Analysis of consumer characteristics of a three-layer spunmelt material after radiation sterilization

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Abstract

For the production of nonwovens of medical value and clothing from them, one of the most pressing problems at the present time is the development of materials with improved consumer characteristics. The rapid development of the clothing market requires domestic manufacturers to create competitive products not only through new products and technologies, but also new sensations for the consumer, provided that the price is competitive. According to medical professionals, disposable surgical gowns based on spunmelt materials cause discomfort during use. Since a large number of medical clothes and linen are currently sterilized by radiation, and also taking into account the prospects for the development of nonwoven materials, an urgent task is to assess the effect of radiation sterilization on the consumer properties of nonwoven materials for medical purposes.

The object of the study was a 3-layer *CMC* nonwoven fabric (manufactured by *Avgol Ltd*, Israel) with a surface density of 35 g/m². Analysis of the results of experimental data showed that radiation sterilization (exposure to an absorbed dose of 60 kGy) leads to a change in the structure of the material, namely, a decrease in the size of large and medium pores and an increase in small pores. Due to these changes, the hygroscopicity of the material increases by 30%. The studies carried out also made it possible to establish that the treatment of nonwoven material by radiation sterilization leads to an increase in electrification by almost 2 times. It should be noted that the values of electrification are within the normal range established by GOST 32995 "Textile materials. Methods for measuring the strength of the electrostatic field. "It is shown that after the treatment with radiation sterilization, a significant (by 44%) increase in the rigidity of the material is observed.

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