

Investigation of the structure and properties of flexible polymeric materials for integration with thin heat conductors

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ABSTRACT

Heat flow problem in a given soft wares areas of thin materials relevant to many technologies. These include the creation of clothing, shoes, gloves, covers and other. Heat conductors in the structure of textiles and other polymeric materials increase mobility and reduce the weight and volume of soft products that hold people and electronics away from the cold. The technology of integration of heat conductors takes into account the thermophysical characteristics of flexible polymer materials.

The paper presents the results of a study of the structure, thermophysical parameters and the influence of the thickness of Neoprene, genuine and imitation leather, silicone material on the heat-transfer coefficient.

The effect of the density of flexible polymeric materials on strength was established.

The technology of heat transfer is based on thin tubular polymeric conductors. They are connected to channels in the porous structure of the material.

The results of the experiments helped to obtain technological conditions for creating a channel in a porous material using laser engraving. The channel has the correct geometric characteristics for the integration of the heat conductor.

The elements of the technology for fixing the conductor of heat in the structure of flexible polymeric materials have been developed.

The proposed technology and the revealed properties of materials have expanded the basis for the design of thin warm mobile products.

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