PRODUCT QUALITY CONTROL. STANDARDIZATION. ORGANIZATION OF PRODUCTION

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CONDUCTING A QUALITATIVE ASSESSMENT OF THE FUNCTIONAL PROPERTIES OF PARCHUTE LINES AT THE STAGE OF THE ORGANIZATION OF THEIR PRODUCTION

Mathematical modeling of the deformation properties of polymer parachute lines allows us to reveal the patterns of their dynamic behavior during the operation of parachutes, which is extremely important for a qualitative analysis and assessment of the functional and operational properties of the developed and existing parachute systems. On the basis of the indicated mathematical modeling, computer forecasting of the processes of stress relaxation and creep of the materials under study, fundamental in the theory of viscoelasticity, is also carried out.

Keywords: parachute lines, viscoelasticity, deformation, relaxation, creep, mathematical modeling

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FORECASTING OPERATIONAL PROCESSES OF FABRICS FOR PARACHUTE DOMES IN ORGANIZING THEIR PRODUCTION IN ORDER TO IMPROVE QUALITATIVE INDICATORS

Calculated prediction of deformation processes of polyamide fabrics used for the manufacture of parachute canopies is considered. The specificity of these processes is their transience. Computational forecasting is carried out using computer methods based on mathematical modeling of creep and integral constitutive relations of Boltzmann-Volterra.

Keywords: parachute canopies, polyamide fabrics, viscoelasticity, deformation, mathematical modeling, numerical prediction

MACHINES. AGGREGATES AND TECHNOLOGICAL PROCESSES

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PREDICTION OF DEFORMATION PROCESSES OF SPECIAL TISSUES OF DOUBLE AND PROTECTIVE PURPOSE

On the example of technical fabric used as the inner layers of protective helmets to protect the human head from injury, the process of predicting the deformation process is considered. The given technique is based on mathematical modeling of the creep process and allows predicting the deformation processes of sewing materials, including deformation-recovery processes of any complexity, with a sufficient degree of accuracy, which gives rise to the technological selection of fabrics that have the specified shock-protective characteristics even at the stage of product design.

Keywords: deformation, creep, viscoelasticity, sewing materials, prediction, recovery processes, technical fabrics.

METHODS FOR SYSTEM ANALYSIS OF FUNCTIONAL PROPERTIES OF PARCHUTE LINES

To conduct a comprehensive study of the deformation properties of polymer parachute lines, a system analysis is required based on mathematical modeling of the relaxation and deformation processes of these materials. Polymer parachute slings belong to the class of textile materials, because are ribbons and cords made of synthetic threads. The system analysis carried out is based on the main provisions of the theory of viscoelasticity of polymers.

Keywords: parachute lines, viscoelasticity, deformation, relaxation, creep, mathematical modeling, system analysis

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CONDUCTING SYSTEM ANALYSIS OF RELAXATION AND DEFORMATION PROCESSES OF TISSUES FOR PARACHUTE DOME

The article discusses methods for conducting a systematic analysis of the relaxation and deformation properties of polyamide fabrics used for the manufacture of parachute canopies. System analysis is carried out on the basis of mathematical modeling and computer forecasting of the specified properties. A comprehensive systematic analysis of the relaxation and deformation properties of polyamide fabrics used for the manufacture of parachute canopies makes it possible to select materials according to the criteria of the best fit for their functional purpose.

Keywords: parachute canopies, polyamide fabrics, viscoelasticity, deformation, mathematical modeling, numerical prediction, system analysis

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DEVELOPMENT OF METHODS FOR SYSTEM ANALYSIS OF OPERATIONAL PROCESSES OF MINING AND FIRE-RESCUE ARAMID CORD

The article deals with the development of methods for the system analysis of the operational processes of textile aramid cords used in rescuing people in case of fires, in the mountains and in mines. These materials have both increased strength and high resistance to temperature effects. A systematic analysis of the deformation properties of aramid cords is carried out on the basis of mathematical modeling of relaxation and creep processes, as well as using computational technologies.

Keywords: aramid materials, mine rescue equipment, fire rescue equipment, viscoelasticity, deformation, mathematical modeling, numerical prediction

TECHNOLOGY AND PROCESSING OF SYNTHETIC AND NATURAL POLYMERS AND COMPOSITES

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HEAT TRANSFER WITH AN UPDRAFT OF BOILING FOAM SOLUTIONS IN PIPES OF VAPORATORS