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PROBLEMS RELATED TO THE QUALITY OF TEXTILE MATERIALS IN THE AUTOMOTIVE INDUSTRY

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Abstract: The article is devoted to the analysis of the factors affecting the quality of textile materials used in the automotive industry, the causes of their deterioration, and the scientific research carried out to eliminate them.

Keywords: Textile materials, quality, factors affecting quality, types of factors, causes of wear, problems in elimination.

When addressing issues related to the quality of textile materials in the automotive industry, it is possible to directly target them in accordance with the “Requirements for Coated Textile Materials” [1], assess their suitability for meeting needs by using a set of initial indicators for textile materials or by evaluating their changes during use.

During use, textile materials are primarily exposed to various environmental factors, as a result of which their properties are constantly deteriorating [2]. The process by which the use of textile materials leads to a change in their quality indicators over time is called aging, and its final result is wear. The ability of textile materials to resist the effects of external aging factors, that is, to maintain their initial parameters within certain limits, characterizes the wear resistance of textile materials.

This definition fits well with the term "reliability". Product reliability is the ability to maintain or slightly change its quality over time [3]. Therefore, assessing the resistance to wear of textile materials essentially determines their reliability.

There are several classifications of factors that lead to tissue aging. The most common classification of causes and factors of aging by type of impact proposed by Prof. HA Solovyov [4]:
1. Physical-chemical-light, atmosphere, water, sweat, washing liquid, etc.;
2. Mechanical fatigue, fatigue from repeated deformations, wrinkling, etc.;
3. Biological - destruction by microorganisms and damage by insects;
4. Combined - mild weather, washing, fatigue, friction, etc.

As a rule, during fatigue (or wear) textile fabrics are affected not by individual mechanical factors, but by their combination. At the same time, all researchers who have analyzed the wear of textile materials consider friction to be the most important of all mechanical factors.

Literature analysis [4] has shown that the general wear resistance, especially the resistance to tearing of textile materials, is a complex and important process.

Many scientists are studying the mechanical factors of wear, in particular, the abrasion resistance of various textile fabrics:

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The next most important type of mechanical effects are repeated valence and compressive forces. This fact was also noted in the early works on the wear of textile materials [5], N.E. Retrov wrote: "The main and most important factor in the wear of textile materials is friction. If friction is simultaneously combined with an increase in tension or pressure, local wear increases. "The studies of G. N. Kukin [2.] "Showed that fatigue (from friction) is a factor of destruction for most textile materials."

Soloviev A.N. confirms [4]. The main cause of wear of textile materials is friction and fatigue. Meos A.I. and a number of authors show that "the wear of fibrous materials is explained not only by external friction, but also by their destruction from repeated loading."

In addition to mechanical factors, fatigue of textile materials is caused by physical and chemical factors: light, light weather, temperature increase during washing and ironing, chemical reagents during washing, etc. [6].

Physicochemical factors of aging cause complex changes in the structure of polymers that make up textile fibers and yarns [6]. The result of these changes is a significant deterioration in the properties of textile materials, which reduces the efficiency of using products made from them and, in some cases, makes it impossible to use the products for their intended purpose.

A.I. Meos summarized research on wear in 1951. He found that the wear of textile materials is the result of combined mechanical, chemical, physical and biological effects. Aging of textile materials is a multifactorial process.

Depending on the type of textile material, its wear can occur as a result of simultaneous or sequential wear, repeated stretching or bending, solar radiation, washing, and so on.

The role and purpose of each factor is primarily determined by the purpose of the textile material. Thus, factors that determine material destruction for some materials and operating conditions may not be significant for other materials and operating conditions.

Analyzing the literature, it was found that the wear of textile materials is a complex process that depends on many parameters: fiber production technology, raw material composition, fiber structure,

When yarns and textile products, textile and clothing production technology, and various wear factors are combined, working conditions manifest themselves in different ways, depending on the mechanical, physical, and biological working conditions, affecting the wear resistance of various textile products.

Therefore, when selecting the main factors of wear of textile materials, it is always necessary to take into account that these factors are not the same for textile materials for different purposes and are related to their operating conditions.

An analysis of domestic and foreign literature sources has shown that the wear resistance of textile materials used as coatings in the automotive industry has been practically not studied, but information about the behavior of materials in operating conditions is of great importance for the manufacturer, as it allows him to successfully sell his products and avoid consumer claims.

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