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HEURISTIC MODEL OF DURABILITY LYCHKOVANYH chipboard

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The article carried heuristic modeling durability lychkovanyh chipboard. As the heuristic process model resource loss durability lychkovanyh particle board, subject experimental research should be both internal and external factors that are associated with the peculiarities of operation and their interactions that affect the properties of particle board in lychkovanyh designs furniture.

Lychkovani particle boards, forecasting, durability, strength kinetic theory, heuristic model.

The main objectives of the study longevity lychkovanyh chipboard furniture in designs is to study the causes, mechanisms and patterns of resource loss durability

lychkovanyh chipboard furniture in designs during their design and operation to assess the durability of resources and optimize their designs. To manage the process of selecting the type lychkovanyh chipboard (SP), the size of parts and accessories Compounds in the construction of furniture should have an understanding of the kinetics of aging lychkovanyh joint venture in operation and aware of the opportunities to increase its durability.

The durability of us understood as time to complete destruction or destruction of one of the most important elements of the design, or the time during which formozminnist functionally important parameters such as deflection bookshelf, prevent you or inconvenience of using this product furniture.

The purpose of research- To examine the factors that affect the durability lychkovanyh chipboard furniture in designs and build a heuristic model of durability.

Materials and methods research. Based on the reviewed literature data we can say that the loss of life longevity lychkovanyh SP is complex and caused structural features lychkovanyh SP as composite material and operating conditions. The mechanism of this process is difficult to study and yet not fully disclosed. To solve this problem it is advisable to use a method of heuristic modeling process during its study. This method

is based on the hypothesis that the structure and function of the object is created mathematical model based on known literary quantitative data, qualitative hypotheses and assumptions about the possible links between internal and external factors [1]. This approach allows you to specify the tasks of experimental and theoretical studies and hypothetical model to bring real when you receive new experimental data [2].

The reason for the use of heuristic modeling may be the fact that the joint venture lychkovani have the ability to change its shape and internal structure under the influence of external factors, such such as load, temperature and humidity. [3]

Research results. Durability lychkovanyh JV generally defined as properties of the composite material and external factors related to the conditions of operation. We can assume that the phenomenon of loss of life longevity lychkovanyh SP directly depends on the properties of the main components, namely chips, and from v'yazuchoho and lychkivky, as well as their interaction influenced by external factors. This loss of life longevity is the result of the interaction of all three main materials are included in the composite. Therefore, in this case more convenient to consider internal factors in the form of generalized power characteristics that do not refer to each material, which are part of the joint venture, but as a body that has a generalized potential energy E and able to resist external factors and depends on the fundamental generalized internal audits, energy properties (1):

$$E = f\,(Uo, \gamma,\, Tm,\, \gamma_m) \qquad\qquad (1)$$

where E - energy potential; U0 - maximum destruction activation energy, kJ · mol; γ - structural and mechanical parameters, kJ / (mol · MPa); Tm - temperature limit being solid state (temperature degradation), K;γ_m - Minimum durability (period fluctuations of kinetic units - atoms, groups of atoms, segments), p.

Taking into account external factors heuristic model will have the following form:

$$\begin{cases} \tau = f(\sigma, T, W, E), \\ \sigma = f(P, V_{e\phi}, E), \\ E = f(\tau_m, U_0, \gamma, T_m). \end{cases} \qquad (2)$$

where in addition to the specified internal factors that determine the value of the energy potential, defined as external factors, namely: σ - stress, MPa; T - ambient temperature, K; W - humidity environment%; P - load, N; Vef - effective volume m3.

On the block diagram in Fig. 1 shows the most significant factors interaction which leads to loss of life longevity effect lychkovanyh JV in the construction of furniture.

However, to fully reveal the mechanism of the loss of life longevity lychkovanyh SP obviously must enter phenomenological hypothesis and conduct experimental research significance of some factors.

As the heuristic process model resource loss durability lychkovanyh joint venture, subject experimental research should be both internal and external factors that are associated with features of both operation and their interactions that affect the properties lychkovanyh JV in the construction of furniture .

Factors affecting the longevity lychkovanyh particle board within the overall mathematical model of durability solids by kinetic theory of strength Professor SM Zhurkova [4].

$$\tau = \tau_m \exp\left[\frac{U_0 - \gamma\sigma}{R}\left(T^{-1} - T_m^{-1}\right)\right], \tag{3}$$

where, тm, U0, γ and Tm - physical constants of the material: тm - minimum durability (the period of oscillation of kinetic units - atoms, atom groups and segments) s; U0 - maximum destruction activation energy, kJ / mol; γ - Structural and mechanical constant kJ / (mol · MPa); Tm - temperature limit being solid state (temperature degradation), K; - universalna R the gas constant, kJ / (mol · K) τ - Time to fracture (durability) s; σ - Stresses IPA; T - temperature, K.
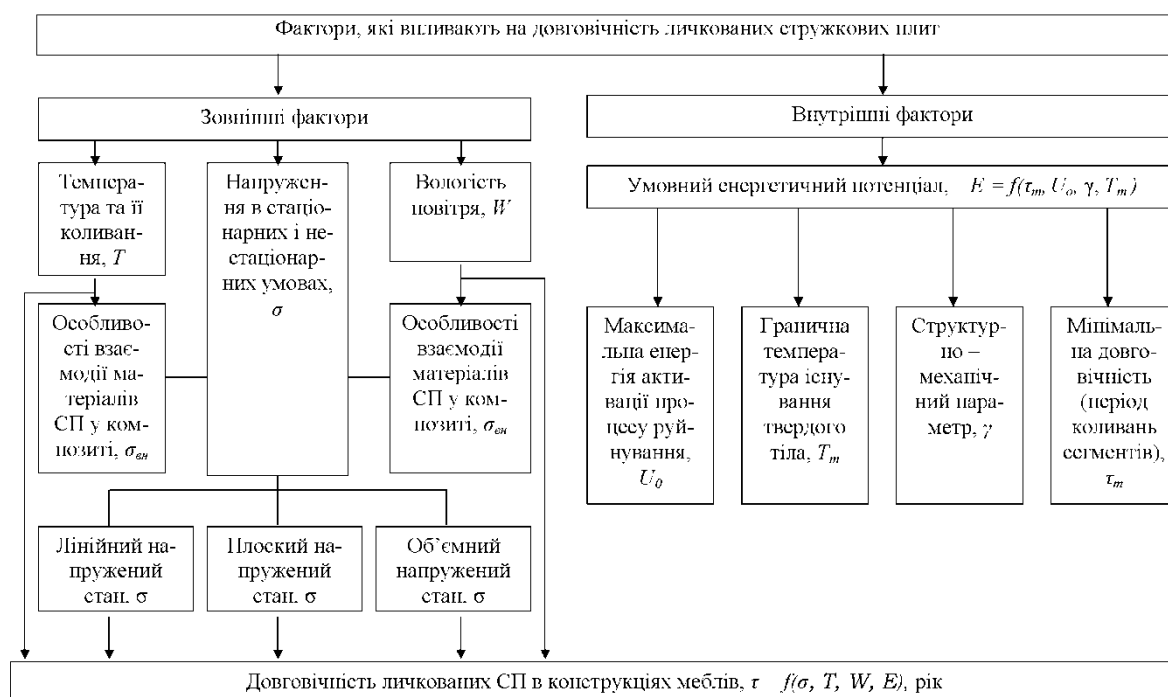

Fig. 1. Block diagram of resource loss durability lychkovanyh chipboard.

Model (3) determine the durability of the material dependence of

minimum durability, ie the period of oscillation of atoms in solids and relative activation energy in the process of destruction to the energy of one atom. Feature kinetic theory is that it takes into account the decrease in activation energy depending on the strain. Structure formula indicates that the contribution of stress fracture in bonds is the magnitude of the mechanical field $\gamma\sigma$ And the remaining part of performing thermal motion, the share of which is $U = U_0 - \gamma\sigma$.

Conclusions

The analysis of the literature shows that there are problems in the prediction of durability lychkovanyh chipboard furniture in designs that allowed the following conclusions:

1. At the moment there are no clear research methods durability lychkovanyh JV in the construction of furniture.

2. From the known methods the most reliable value durability of materials may be obtained using the kinetic theory of strength of solids, based on thermoactivated mechanism of destruction.

3. Based on the kinetic theory, in order to assess the durability necessary to know the parameters thermoactivated materials. Therefore, an important task to determine these parameters for materials that are commonly used in modern furniture manufacturing.

4. Analysis of the assessment of durability has shown that for a large class of materials that have been investigated, their longevity and thermoactivated parameters depend on the type of stress state. Since the type of stress state influences the nature of dissipative processes connected with the processes of deformation and fracture of solids, so you need to determine the effect of the type of stress state thermoactivated to change settings.

5. The standard method for calculating material formula Professor SM Zhurkova is true for steady state conditions when loading and temperature constant during the time of operation. Furniture products typically operated by non-stationary conditions, in addition to their longevity affects humidity. Therefore, it is important to study the impact of non-stationary and installation conditions, such as fluctuations in load, temperature and humidity durability lychkovanyh chipboard furniture in designs.

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In this article conducted эvrystycheskoe Modeling Durability oblytsovannыh drevesnostruzhechnyh plates. How sleduet IZ эvrystycheskoy process models the loss of resources Durability oblytsovannыh drevesnostruzhechnyh plates, the object of the study эksperymentalnoho dolzhnы bыt How vnutrennye well and External Factors kotorыe svyazanы with эkspluatatsyy Features How well a s interaction, kotorыe vlyyayut on properties oblytsovannыh drevesnostruzhechnyh plates in furniture constructions.
Oblytsovannыe drevesnostruzhechnye stoves, prediction, Durability, kynetycheskaya Theory prochnosty, эvrystycheskaya model.

In paper research heuristic model of longevity evaluation of durability coated chip boards. As follows from the heuristic model of process of loss of resource of longevity of coated chip boards, the object of experimental research must be both internal and external factors, which are related to the terms of exploitation, and their co-operations, which influence on properties of coated chip boards in the constructions of furniture.
Laminated board, forecasting, durability, kinetic theory of strength and optimal design, heuristic model.

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Some Results of the study PAROKOV timber BEECH

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Results of the study Pryvedenы razmerno-kachestvennoy characteristics bukovыh kruhlыh lesomateryalov, zahotavlyvaemыh in Georgia, in dannыm kotorыh set, something osnovnыm sortoobrazuyuschym vice bukovoy timber javljaetsja lozhnoe core yadrovaya rot, knots, treschynы and curvature.

Otmecheno, something bukovaya hardwood otnosytsya for the group tolstыh kruhlыh lesomateryalov co Mean diameter of 65 cm.