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ADHESIVE BASED ON MODIFIED UREA-FORMALDEHYDE RESIN

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A R T I C L E I N F O.

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Ключевые слова: Карбамидоформальдегид, столярно-клеевая смесь, меламин, олигомер.

Abstract

In this review article, methods for obtaining glue based on urea-formaldehyde resin and the areas of its use have been studied and analyzed. In addition, the physicochemical properties, chemical composition, viscosity and a number of properties of the adhesive were studied.

Аннотация: В данной обзорной статье изучены и проанализированы способы получения клея на основе карбамидоформальдегидной смолы и области его использования. Кроме того, были изучены физико-химические свойства, химический состав, вязкость и ряд свойств клея.

Urea-formaldehyde (UF) is an opaque thermoset resin or polymer. Also known as urea-methanal due to its common synthesis route and general structure. It is produced from urea and formaldehyde. These resins are used in adhesives, plywood, particle board, medium density fiberboard (MDF) and many other industries. In agriculture, urea-formaldehyde compounds are the most common slow release fertilizers Urea-formaldehyde and related amino acids are a class of thermoset resins, of which 80% of urea-formaldehyde resins are produced worldwide. Examples of uses of amino resins include automobile tires to improve rubber adhesion, paper to increase tear resistance, and cans. it can be used for molding electric devices such as covers and for preparing wood-glue mixtures. The following chemical reagents were used in the synthesis of urea-formaldehyde oligomer: Urea is an amide of carbonic acid. The melting point of this crystalline substance is 133°C, it is well soluble in water. It is poorly soluble in alcohol. Urea - weak base, forms salt with acids. MELAMINE was added to KFS in order to increase the strength of urea-formaldehyde resin. MELAMINE- 2,4,6-triamino-1, 3,5 -tri azide. It is a colorless crystalline substance with a melting temperature of 3640C. It is insoluble in cold water and most organic solvents. When processed by adding MELAMINE to KFS, resin with a

branched structure is formed. When heated to the melting temperature, it exhibits sufficient heat resistance. But at a higher temperature, it decomposes and ammonia is separated and biuret is formed. To prepare the wood-glue mixture, technical formalin of the FM brand according to GOST 1625-89 was used. 3 different methods of preparing the wood-glue mixture were tested. In method 1, wood particles were mixed with glue until a uniform mass was obtained. In method 2, the wood was first mixed with a 37% concentration of 5% resin solution, the mixture was dried to 10% moisture content, and the remaining resin was added and mixed again. In the 3rd method, the temperature of wood and glue was 73ºC under the same conditions as in the 2nd method. In this case (in the 3rd method), it was shown that the high temperature leads to a more active penetration of the resin with the wood, a relatively faster process and, in turn, an improvement of the water resistance of the pressed sample by at least 2.2 times, and the static bending strength by almost 1.8 times. . A number of samples from KFS-1 to KFS-11 were taken and analyzed and their physicochemical properties were studied according to GOST 10634-78, GOST 10635-78, GOST 10636-78. The physico-chemical properties and viscosity of KFS-6 and KFS-7 brand glues are the most optimal, and the water absorption property is significantly reduced.

CONCLUSION

In conclusion, we can say that the physico-chemical properties, chemical composition, viscosity and a number of properties of glue based on urea-formaldehyde resin were determined in laboratory conditions using modern equipment according to GOST 10634-78, GOST 10635-78, GOST 10636-78 studied on the basis of

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