**CASEIN LABELING GLUE WITH HIGH ADHESION**

О. KOMAROVA, master, А.CHERKASHINA, candidate of technical sciences

*National Technical University “Kharkiv Politechnic Institute”*

*61002, Ukraine, Kharkov city, St. Frunze, 21*

*E-mail:* [*annikcherkashina@rambler.ru*](mailto:annikcherkashina@rambler.ru)

Casein still remains perspective initial raw material, mainly, in water labeling glues because of functional unique features of polymer structure. Casein glue in the industry is applied at gluing together of coniferous wood and deciduous breeds, at gluing together bakelite plywood and sheet balinit and their combinations with wood and plywood, at pasting covering elements of veneering and at gluing together fiber. Casein glue is simple in preparation and use, is universal, so it can be used at all operations of gluing together, and gives rather elastic connection. At the same time casein glue isn't enough resistant to water and microorganisms.

Therefore it isn't recommended to use it in gluing together details which are exposed to direct influence of moisture. In recent years there were attempts to reduce the content of casein in compositions of glues by modernization, because of increasing price on raw materials, casein. On the other hand, there are special demands to glues for labeling on high-speed equipment: high initial bondability not only to dry glass container, but also to cold and wet container.

Glue compositions which have only a casein or starch basis don’t comply with all these and other requirements. Dextrin glues are also excluded because of rather low water resistance and insufficient adhesion to substrats. To solve this problem the new natural and synthetic modified substances compatible with casein glues have been developed, for example, gidroksipropilovy ether of oxidized starch, phthalic acid ether and gidroaviyetilovy alcohol, methyl two - or threeetilenglikolevy rosin ether, glycerine ether of tall rosin, glycerine ether of gum rosin, etc. In one of water glue’s receipt on the basis of casein was entered a modified additive like methyl ether of balsam at the following ratio of components, masses. %: casein - 6-10%, the modified starch - 1-10%, methyl ether of balsam - 5-30%, alcohol ethyl - 1-5%, the pH regulator - 1-5%, urea - 1-15%, water - 35-75%. Glue has high initial bondability and water resistance.

There was developed casein glue with good adhesive characteristics of glue connection and as a modifying additive was used glycerine ether of tall rosin which is easy to get and cheap raw materials.

For increasing glutiness of glycerine ether of tall rosin it is used pitch dispergating in the presence of softener - diethyl ether of ortoftalevy acid, surface-active substance – syntanol ALM-10 which consist of a mix of polyethylene glycol ether of synthetic primary fatty alcohols of C12-C14 fraction, and the hydrophilic agent, for example, a dextrin, carboxymethylcellulose, polyvinyl alcohol and water at a temperature close to temperature of tall rosin glycerine ether fusion.

The process of preparation of glue comes to the end after stirring of system during 20-30 min. at the next ratio of components, masses. %: glycerine ether of tall rosin - 19,2; diethyl ether of ortoftalevy acid - 2,96; synthanol ALM - 10-1,3; dextrin - 3,9; casein glue - 23,3; water - 49,1.

Researches are carried out on creation casein glues with the content of casein to 50%, modified by gum rosin glycerine ether, with a possibility to vary gluing ability in the wide range depending on content and quantity of a modified additive and with the increased adhesion to dry and wet glass. It is planned to use glues for paper pasting with a cardboard, glass, wood and plastic.