

PECULIARITIES OF STRUCTURIZATION AND RHEOLOGICAL PROPERTIES OF LIQUID GLASS COMPOSITES CURED BY BARIUM CHLORIDE

Results of examination of the structure formation process undergoing in the system composed of sodium hydrosilicates and barium chloride are presented in the paper. It is proven that the process of initial structure formation comprises two stages. During the first stage, the primary frame structure of barium hydrosilicates is formed. It is followed by the process of restructuring accompanied by the dissolution of the silica acid and formation of barium hydrosilicates. Later, hydrosilicates consolidate and reinforce the material.

Results of optical examinations are confirmed by the study of the rheological characteristics of the mixture. Methodology of identification of the moment of initiation and completion of the hardening process together with duration of primary and secondary frame formation is developed on the basis of theoretical rheological curves. Time intervals of initial structurization are revealed for the system comprising sodium hydrosilicates and a modified curing agent in the event of different amounts of admixtures. Time intervals and average rates of structurization are also identified for each stage of the process.

Key words: liquid glass, barium chloride, structurization, optical examination, rheological properties.

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