DISCRETE-PULSE MIXING OF FLOUR COMPONENTS

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The current state of food production requires the use of advanced technologies and equipment. It is necessary to provide the bakery and confectionery industry with new high-tech equipment that would ensure high-quality preparation of mixtures. The article describes discrete pulse introduction of the components when they are mixed in a new design of the mixer, which allows to increase its specific productivity while reducing the working chamber and energy costs. Variants of the components’ interaction on the upper portion of the working chamber are described, and the dynamics of a three-phase rarefied layer of the formed medium, which is affected by a directed flow of fine droplets of liquid components, is considered. As a result of mathematical modeling of the process of mixing the dosing components into the working chamber of the machine, the trajectories of the atomized droplets of liquid components in the rarefied flour layer are constructed. The quality of their distribution is determined depending on technological parameters of the mixer. The parameters of the fluidization process of flour are determined, which influence the increase in productivity of the process of preliminary mixing of the components. The process of the interaction of flour and liquid components in a fluidized state are mathematically described. The speed of movement and formation of air bubbles in a three-phase medium is established. The validity of the accepted assumptions of theoretical calculation of the nucleation and motion of air bubbles in a liquid and the dispersion of gas energy in the experimental setup is confirmed.

**Keywords:** mixer, dispersion, emulsion, process, modeling.