

# Modeling of the Mixing Process in the Gravitational Mixer Using the Theory of Markov Chains.

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## Abstract

Modeling of the mixing process of four bulk materials in the gravitational mixer using the Markov chains theory can be used to determine the design parameters of the gravitational mixer. These mixer parameters will provide a good quality of a mixture. Modeling of the mixing process requires a detailed study of the components flow pattern in the gravitational mixer. The proposed mathematical model of the mixing process can be used to describe the process of mixing a different number of components in the gravitational mixer. The results of experimental studies of candy-dragees mixing in the gravitational mixer confirmed the adequacy of the proposed mathematical model of the mixing process. The gravitational mixer is a piece of beneficial equipment for the mixing process, and producers in the process industries can use it for mixing different raw materials and finished products. The mixing process of bulk materials in the gravitational mixer occurs without energy consumption and damage to bulk materials. Besides, the gravitational mixer is compact and easy to maintain.