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DRYING OF SOLUTIONS AND SUSPENSIONS IN THE MODIFIED SPOUTED BED WITH DRAFT TUBE

ABSTRACT

A modified spouted bed dryer with inert particles was used for drying of solutions and suspensions. The effects of the operating conditions on dryer throughput and product quality were investigated. Experiments were performed in a cylindrical column 215 mm in diameter and 1150 mm in height with a draft tube 70 mm in diameter and 900 mm length. The bed was made of polyethylene particles 3.3 mm in diameter and of density of 921 kg/m3. The pesticide Cineb, inorganic compound Calcium carbonate, organic compound Calcium stearate, and pure water were used as feeding materials. A drying model using the continuity and momentum equations for turbulent accelerating two-phase flow and conventional rate equations is proposed and discussed. The work is relevant for estimating dryer performance.

KEYWORDS

spouted bed, drying, solid-water solutions, suspensions

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