

CONTINUOUS DRYING OF SLURRY IN A JET SPOUTED BED

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Abstract

The performance of a laboratory scale jet spouted bed (JSB) for drying rice flour slurry was studied. The bed consisted of ceramic balls (5.28 mm diameter) and the rice flour slurry was sprayed onto the moving particle surface near the air inlet port. All the experiments were carried out at the jet spouting regime. This regime has high bed void fraction and violent movement and collision of bed particles. As a result, the dried product layer is attrited from particle surface as a fine powder and entrained from the bed by the spouting air. The experimental results were presented to show the effects of static bed height, inlet air flow rate and temperature, and feed concentration and flow rate on the outlet air temperature, thermal efficiency, and mean particle size and moisture content of the product. A simple mathematical model, which is based on the conservation of mass and energy equations, was developed. Predicted results agreed well with those obtained from the experiment.