

RESEARCH ON THE OPERATION OF AN INNOVATIVE EQUIPMENT HYBRID DRYING

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Abstract

The study of the operating parameters of an innovative equipment hybrid drying for cereal seeds is important for drying technology. An optimal operation of the hybrid dryer model requires the monitoring of essential technological parameters such as the velocity, temperature and humidity of the drying agent at the entrance to the dryer, as well as the temperature plus humidity of the drying agent at its exit. The energy consumption of the hybrid drying equipment is also monitored. Equipping the hybrid dryer with sensors to track these technological parameters is important, and knowing the accuracy of their measurement both in stationary and non-stationary regimes, leads to the evaluation of the degree of variability of the acquired numerical data. An important role in the evaluation of the technological parameters of the installation is also given by the mounting position of the sensors in the hybrid drying installation. The innovative equipment hybrid drying has both a convective pre-drying component and a final drying component through high frequency currents (microwaves). In the convective drying component, the cold air is heated in a heating battery with electrical resistances to a maximum of 44.9°C at an average dryer air inlet velocity of 16.54 m/s. In the final part of the drying plant, after passing through the microwave component, the maximum temperature reaches 39.3°C. The average energy consumed in idle operation of the hybrid dryer is 1.52 kWh.

Key words: (hybrid drying, innovative equipment, cereal seed)