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Thermophysical parameters of corn

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This article deals with thermophysical properties of nutritive raw materials particularly of corn and wheat granary mass. It is necessary to know thermophysical performance of granary mass for protection of quality of technological process by processing to final products. Granary mass consist of grains complex of specific kind. It is non uniform material in microscopic and macroscopic structure. There are enacted biophysical and physiological processes. Heat transfer can not be isolated by solid transfer and heat – moisture transfer. It means that specification of granary mass and granary fragments is difficult to determine. We researched thermal properties of fragments of corn and wheat grain, concretely corn and wheat flour. In the first series of measurements we measured relations of thermal conductivity to the moisture content in range (2 ÷ 18) % for two different samples – corn flour and wheat flour. Function f (to bulk density $_S$, samples had identical moisture content 6.5%. For size of corn and wheat grains in range (0.063 ÷ 0.5) mm this is polynomical function. Measured results are corresponding with results at present literature (Ginzburg et al. 1985).

Keywords:

thermal conductivity; thermal diffusivity; moisture content; bulk density

[fulltext]