Abstract

For a better comprehension of heat and mass transfer during the coffee drying process and optimization of the industrial application transport coefficients and coffee properties were determined. Heat transfer coefficients were measured for different air velocities and were found to follow the known dimensionless equations for the flow surrounding a sphere. Thermal conductivities and effective diffusion coefficients were measured as a function of moisture content as well as volume and densities of the coffee beans. The mentioned properties depend directly on the humidity of the coffee beans rather than on the drying conditions. Sorption behaviour was investigated and temperature dependent parameters for the Guggenheimer–Anderson–deBoer-isotherm (GAB) were determined according to the Arrhenius relationship.