

Abstract

Drying behavior of maize and green peas investigated in a pilot scale fluidized bed dryer with inert energy carriers. The variations of drying material density, size and mass diffusivity with change of moisture content were investigated. It was found that, air temperature, inert material, and air velocity had no significant effect on physical properties and therefore, shrinkage and density are only functions of moisture content, but diffusivity is a function of temperature and moisture content. Based on the experimental data obtained, some correlations were developed for variation of shrinkage, density and diffusivity of green peas and maize during drying in a fluidized bed with inert particles. The shrinkage, density and moisture diffusivity of green peas and maize could be predicted by an average accuracy of 98% by use of proposed correlations.