A NEW ENERGY PERFORMANCE INDICATOR FOR ENERGY MANAGEMENT SYSTEM OF A WHEAT MILL PLANT

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Abstract

In this paper, a predictive tool for the energy consumption of wheat milling process using multiple linear regression and a new energy performance indicator (EnPI) is proposed. This EnPI does not only consider the production of flour but also the particle size of flour and added water for softening wheat. The results of the study, carried out in a wheat mill plant in Cuba, show a good coincidence between the predicted and real energy consumption for the developed model. It also demonstrates the effectiveness of EnPI proposed as a tool for management and energy savings in the company under study. Due to the complexity of the proposed model, for obtaining the baseline and estimating the energy saving potential, a probabilistic method was used. It was statistically demonstrated by the determination index (R2), that the new proposed model is superior to the conventional model of energy versus production.

Keywords

Energy efficiency, Energy performance indicators, Wheat milling