A New Method to Analyze the Relation Between Target Weight and Product Unit Weight to Optimize the Food Package Filling

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Abstract

Official standards establish that packed product must contain a total weight among some tolerance limits. For this reason, food industry uses multihead weigher systems to fill the package of product efficiently and accuracy. There are algorithms for the automatic food packing for a given target weight value, number of hoppers, and tolerance limits. These algorithms consist in the decision of which of the n weighing hoppers is selected for the filling of the package, according to the product's weight of the hoppers; looking that the total weight is not less than a specified target weight. This work presents a new greedy algorithm for the filling of packages in a weighting system that takes into consideration the parameters the target weight and the product unit weight, this latter is the weight of a unit of the product. The goal is to find the optimal number of hoppers for a given target weight and find a relation among the target weight and the unit product weight with the number of hoppers used when this algorithm is used. Simulation results show that there is a relation between number of hoppers and the ratio between the product unit weight and the target weight.

References

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