

Fuzzy Economic Production Quantity Models for Items with Imperfect Quality

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Abstract

This article considers the economic production quantity problem with imperfect items in the fuzzy sense. Two economic production quantity models with fuzzy defective rate (LR -fuzzy number) are constructed, in which Model 1 is developed when the screening rate is lower than production rate consider and model 2 is proposed when the screening rate is greater than production rate. The signed distance and sample algebraic method are employed to find the optimal production quantity in the fuzzy sense so that the total cost per unit time in the fuzzy sense has a minimum value. The relationship between model 1 and model 2 is revealed through theoretical analysis. Furthermore, numerical examples are provided to illustrate the results of proposed model.

Keywords: Inventory, fuzzy set, imperfect quality, screening rate, economic production quantity.