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supplementary variable technique

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Abstract

In this paper, a reliability model for evaporation system in sugar industry is developed to accomplish performance evolution. This system consists of three subsystems, namely evaporator, syrup sulphitor and sulphited syrup. These subsystems are working in series. Failure time distribution of subsystems is exponential, whereas repair time distribution of subsystems is arbitrary. The differential difference equations associated with state changeover model of the system are developed by using supplementary variable technique and solved to get state probabilities of the system model. The results for some measures (availability and profit) of system performance are obtained in steady state. A particular case is also considered to show the behavior of availability and profit analysis of the evaporation system.

Keywords: [Availability](#) ▪ [profit analysis](#) ▪ [evaporation system](#) ▪ [supplementary variable technique](#) ▪ [sugar industry](#)

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