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Downtime Analysis of a Mayo Bottling Line during the Ramp-Up Period: A Case Study

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Abstract

Manufacturing companies face many challenges when trying to meet the market and their clients' demands. Building and operating highly automated lines is not a straightforward task, especially when the bottle format is unique, and the line is being built from the ground up to accommodate the new format. In this study, downtime data and OEE analysis was used to determine the effectiveness of a newly built Mayo Lines during the ramp-up period and the main reasons behind low OEE, a long and bumpy ramp-up period, and high downtime. Two pieces of machinery were found to be behind most of the downtime, a newly bought labeler, whose FAT was never performed, and an old, repurposed drop packer, that was previously being used for a much larger packaging format. It was found that the two machines had the same MTTF (mean time to failure) value. A model was built to predict the likelihood of attainment loss using a Monte Carlo simulation after performing a goodness of fit analysis on the TTF and TTR data available. From this model, the availability of the line was determined, and the effect of the two equipment was shown to be strong on the overall performance of the line.

Keywords

Performance measurement, overall equipment effectiveness, time losses, ramp-up.