ANALISIS EFEKTIVITAS MESIN PRODUKSI AIR MINUM DALAM KEMASAN (AMDK) MENGGUNAKAN METODE OVERALL EQUIPMENT EFFECTIVENESS (OEE) PADA PT XYZ

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ABSTRAK

Penelitian ini bertujuan untuk menilai seberapa efektif mesin Air Minum Dalam Kemasan (AMDK) dengan menggunakan metode *Overall Equipment Effectiveness* (OEE) dan mendalami penyebab utama kehilangan produksi melalui analisis *Six Big Losses, Pareto Analysis, dan Fault Tree Analysis* (FTA). Fokus penelitian ini adalah pada mesin AMDK cup 220 ml yang mengalami penurunan performa selama periode observasi. Dari hasil pengolahan data produksi, diperoleh nilai OEE awal 54,9%, yang menunjukkan bahwa efektivitas mesin masih di bawah level kinerja yang optimal. Selanjutnya, dilakukan analisis penyebab utama dengan metode *Fault Tree Analysis* (FTA) untuk merumuskan saran perbaikan yang berfokus pada pengurangan waktu henti, peningkatan kecepatan operasi mesin, dan penurunan jumlah produk cacat. Hasil simulasi implementasi saran perbaikan menunjukkan peningkatan nilai OEE menjadi 71,3%, yang meningkat sebesar 16,4%. Peningkatan ini disebabkan oleh berkurangnya waktu henti operasional, yang terlihat dari kenaikan *availability rate* sebesar 8,03%, peningkatan *performance rate* sebesar 11,2%, serta penurunan jumlah produk yang cacat seperti yang diindikasikan oleh kenaikan *quality rate* sebesar 2,1%. Temuan dari penelitian ini menunjukkan bahwa saran perbaikan yang diusulkan efektif dalam meningkatkan kinerja mesin secara keseluruhan. Oleh karena itu, disarankan agar perusahaan menerapkan rekomendasi perbaikan secara berkesinambungan, terutama berkaitan dengan standardisasi kecepatan mesin, pengaturan suhu sealing, serta penggunaan checklist mesin, dan juga melaksanakan pelatihan bagi operator serta memantau OEE secara rutin sebagai bagian dari prosedur operasional standar (SOP).

Kata kunci: Efektivitas Peralatan Keseluruhan **(**OEE**)***, Fault Tree Analysis, Six Big Losses, AMDK*

EFFECTIVENESS ANALYSIS OF PACKAGED DRINKING WATER (AMDK) PRODUCTION MACHINES USING THE OVERALL EQUIPMENT EFFECTIVENESS (OEE) METHOD AT PT XYZ

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ABSTRACT

This study aims to assess the effectiveness of bottled drinking water (AMDK) machines using the Overall Equipment Effectiveness (OEE) method and explore the main causes of production loss through Six Big Losses, Pareto Analysis, and Fault Tree Analysis (FTA) analysis. The focus of this study is on the 220 ml cup bottled water machine which experienced a decrease in performance during the observation period. From the results of production data processing, an initial OEE value of 54.9% was obtained, which shows that the effectiveness of the machine is still below the optimal performance level. Furthermore, a major cause analysis was carried out using the Fault Tree Analysis (FTA) method to formulate improvement suggestions that focused on reducing downtime, increasing machine operation speed, and reducing the number of defective products. The results of the simulation of the implementation of improvement suggestions showed an increase in the OEE value to 71.3%, which increased by 16.4%. This increase was due to a reduction in operational downtime, which can be seen from an increase in availability rate of 8.03%, an increase in performance rate of 11.2%, and a decrease in the number of defective products as indicated by an increase in quality rate of 2.1%. The findings of this study show that the proposed improvement suggestions are effective in improving the overall performance of the engine. Therefore, it is recommended that companies implement continuous improvement recommendations, especially related to engine speed standardization, sealing temperature regulation, and the use of engine checklists, and also carry out training for operators and monitor OEE regularly as part of standard operating procedures (SOPs).

Keywords**:** *Overall Equipment Effectiveness, Fault Tree Analysis, Six Big Losses, AMDK*