ANALISIS PEMELIHARAAN PERAWATAN MESIN PILLING MENGGUNAKAN METODE RCM, FMEA DAN LTA

(STUDI KASUS: PT. AMAK FIRDAUS UTOMO)

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ABSTRAK

Penelitian ini bertujuan untuk menerapankan metode *Reliability Centered Maintenance* (RCM), *Failure Mode and Effect Analysis* (FMEA), dan *Logic Tree Analysis* (LTA) dalam upaya meningkatkan keandalan mesin pilling di PT. Amak Firdaus Utomo. Melalui pendekatan sistematis tersebut, berhasil diidentifikasi bahwa komponen *long* dan *cross cutter* memiliki prioritas tertinggi dengan nilai 243, frekuensi kegagalan sebanyak 24 kali, serta total downtime sebesar 580 menit. Komponen ini dikategorikan sebagai masalah outage, bersifat kritis, dan merupakan mode kegagalan utama, sehingga memerlukan perhatian khusus dalam strategi perawatannya. Berdasarkan hasil analisis, ditetapkan strategi perawatan preventif untuk komponen prioritas tinggi, sementara komponen lainnya cukup dilakukan perawatan berbasis kondisi. Penerapan metode ini terbukti mampu menghasilkan strategi perawatan yang lebih optimal dan efisien, serta mendukung peningkatan keandalan dan kinerja mesin pilling secara keseluruhan.

Kata Kunci : *Reliability Centered Maintenance* (RCM), *Failure Mode and Afects Analysis* (FMEA), *Logic Tree Analysis* (LTA), pemeliharaan.

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ABSTRACT

This study aims to analyze the maintenance system of pilling machines at PT. Amak Firdaus Utomo uses a combination of Reliability Centered Maintenance (RCM), Failure Mode and Effects Analysis (FMEA) and Logic Tree Analysis (LTA) methods. The RCM method is used to identify and determine maintenance strategies based on the level of component reliability, FMEA to evaluate potential failures and their impacts, and LTA to classify the criticality level of each failure. The results of the study indicate that the combination of the three methods is able to identify critical components and the main causes of damage to the long and cross cutter components have a priority of 243 with a frequency of 24 and downtime of 580 and are included in the outage problem category, thus indicating that the long and cross cutter components require preventive maintenance, while other components are sufficient with condition-based maintenance, which contributes to increasing the reliability and performance of the pilling machine. The application of this method in an integrated manner increases the efficiency of the level of damage, reduces machine downtime, and increases operational efficiency.

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Keywords: *Reliability Centered Maintenance (RCM), Failure Mode and Effects Analysis (FMEA) and Logic Tree Analysis (LTA), maintenance*