

Combining reliability-centered maintenance with planning methodology and applications in hard chrome plating plants

B. Suthep, author

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Abstrak

This article explains the application of the Reliability-Centered Maintenance (RCM) approach to developing maintenance planning in Hard Chrome Plating plants. The key to the RCM purpose is an effectual maintenance planning of plant components inherent in their reliability value. Also, this research aims to reduce machine downtime maintenance that stems from machine breakdown and to select preventive maintenance activities based on the engineering reliability for the machine parts. The first step of the research involves setting a priority for critical parts of the Hard Chrome Plating machine. After that, we analyze the damage and risk level data by using Failure Mode and Effects Analysis (FMEA) for calculating a suitable reliability parameter. The final step is to select the preventive maintenance task. As a result of this research, the failure rate of the plant can be reduced 9.22% and the machine availability rate of the plant is increased to 80.34% accordingly. Following this theme, a maintenance plan for the plant is conducted with respect to this RCM concept. Application of the RCM approach revealed that the key time between plant equipment failures and the likelihood of abrupt equipment failures are reduced.