

ABSTRACT

The Solair Bandung Techno Park (BTP) incinerator is a waste processing tool with a combustion system using a mixture of diesel fuel and water which is capable of producing better combustion performance. The result of the combustion process is exhaust gas, heat, particles, and ash. Damage to the fuel and water control system was found during direct observation of the BTP Solair Incinerator. Using the DMFt principle criteria or Design for Maintenance, it was found that several parts of the BTP Solair Incinerator did not meet the DMFt criteria.

This study aims to improve the design of the BTP Solair Incinerator in order to meet the DMFt principle criteria to make it easier for operators and technicians to maintain and repair the BTP Solair Incinerator. Using the DMFt approach in the DFX (Design for Excellence) method which consists of maintenance accessibility evaluation, RPN (Risk Priority Number) in FMEA (Failure Mode and Effect Analysis) analysis, downtime calculation, and HOQ (House of Quality)) on the QFD (Quality Function Deployment) analysis to obtain a reference for the proposed Solair BTP incinerator design improvement.

This study resulted in a proposed incinerator design that received a better value than the original BTP Solair Incinerator design. In the initial design, the evaluation value of access to care was 2.2, the RPN value was 957, and the estimated duration of treatment was 3.774,49 minutes. In the proposed design, the evaluation value of access to care is 5, the RPN value is 745, and the estimated duration of treatment is 2.807,63 minutes.

Keywords: Incinerator, Product Design, Product Development, Design for Maintenance, Design for Maintainability, Maintenance Accessibility Evaluation, Risk Priority Number