Abstract

The research work deals with an aluminum wire rolling mill which is the area of great interest to Indian industries where the scope of investigation on the performance reliability improvement by optimizing maintenance activities through failure analysis can be feasible.

The work consists of the failure pattern study; reliability modeling and the identification of the critical components with the help of real historical failure data. The research study shows the method to evaluate risk priority number (RPN) for three basic criteria through traditional model and MCI called; maintainability criticality index (MCI) for six advanced criteria through non-identical (TOPSIS, COPRAS-G, and PSI) multi-criteria decision making models.

The outcome of the study categorizes the various failure modes as the most critical, critical and normal failures according to their obtained criticality values and suggested an appropriate maintenance action plan with prime concern.

The PhD thesis will be helpful in explicating the drawbacks of maintaining matters of the foremost processing plants and prescribed yield outputs where MCDM approaches are advantageous.

List of Publications: