

## **ABSTRACT**

*PT. XYZ is a company engaged in the rubber industry located in the city of Bandung, because economic growth and demand from consumers in and outside the province is increasing, making companies demanded to meet the target orders in a timely manner. One way to minimize losses and the possibilities that must be borne by the company is to increase Reliability, Availability, Maintainability of the production system itself and the safety value found in the company. Data in the form of Mean Downtime (MDT), Mean Time to Failure (MTTF), Mean Time To Repair (MTTR) is useful for system performance that works. MTTF data can be used to assess Safety systems found in PT XYZ with the safety standards of IEC 61508 using Safety Integrity Level (SIL). From the results of processing RAMS data (Reliability, Availability, Maintainability, Safety Analysis) using Reliability Block Diagram modeling based on the analytical approach, for 120 hours, the system has a Reliability value (91.12%). The average value of system Maintainability at  $t = 2$  hour is 100%. The Inherent Availability value is 99,981% and the Operational Availability value is 99,980%. Based on the world class maintenance Key Performace Indicator, leading and lagging availability indicators have reached the indicator target standard. Safety Integrity Level values from calculations based on PFD and RRF values of each system are in SIL 1.*

*Keywords: Reliability, Availability, Maintainability, Safety, Reliability Block Diagram, Safety Integrity Level, Key Performance Indicator*