

ABSTRAK

PT. XYZ merupakan perusahaan yang bergerak pada bidang industri bahan bangunan yaitu produk semen. PT. XYZ masih mengalami *downtime* pada sebagian mesin dan fasilitas produksinya yaitu pada mesin *Vertical Roller Mill*, dimana *downtime* yang terjadi merupakan suatu kondisi dimana mesin mengalami kerusakan atau kegagalan yang mengakibatkan mesin tidak dapat menjalankan tugas sebagaimana mestinya untuk kegiatan produksi. Maka dari itu, dengan mereduksi *downtime* disana melalui penerapan *OEE (Overall Equipment and Effectiveness)* dan *Six Big Losses* dan usulan prioritas perbaikan pada mesin VRM menggunakan diagram pareto dan FMEA diharapkan menjadi solusi meningkatkan produktivitas mesin VRM agar bekerja secara efisien. Hasil pengukuran efektivitas mesin *Vertical Roller Mill* berdasarkan perhitungan matriks OEE pada bulan Januari 2022 sampai Desember 2022 memiliki nilai rata-rata efektifitas 68% sedangkan nilai Standar JIPM (*Japan Institute of Plant Maintenance*) adalah 85%. Presentase *six big losses* terbesar terjadi pada *reduce speed losses* dengan 42% dan *Equipment failure losses* dengan presentase 24%. Kedua *losses* tersebut menjadi prioritas pada perbaikan yang memberikan dampak terbesar pada masalah yang ada. *Matrix failure mode and effect analysis* menunjukkan prioritas perbaikan berdasarkan nilai RPN terbesar. Terdapat dua *losses* yang menjadi prioritas perbaikan yaitu *reduce speed losses* dan *equipment failure losses*. Pada kerugian *reduce speed losses* prioritas perbaikan dilakukan pada *vibration* VRM dengan nilai RPN 168 dan Insulasi motor VRM dengan nilai RPN sebesar 108. Pada kerugian *Equipment failure losses* prioritas perbaikan dilakukan pada *seal* aus/meleleh dengan nilai RPN 120 dan *Deformasi tyre* dengan nilai RPN 72.

Kata Kunci : *OEE (Overall Equipment and Effectiveness)*, *Six Big Losses*, FMEA, Mesin *Vertical Roller Mill*, *Downtime*

ABSTRACT

PT. XYZ is a company engaged in the building materials industry, namely cement products. PT. XYZ is still experiencing downtime on some of its machines and production facilities, namely on the Vertical Roller Mill machine, where the downtime that occurs is a condition where the machine is damaged or fails which causes the machine to be unable to carry out its duties properly for production activities. Therefore, by reducing downtime there through the implementation of OEE (Overall Equipment and Effectiveness) and Six Big Losses and proposed priority improvements to VRM machines using pareto diagrams and FMEA, it is hoped that this will be a solution to increase the productivity of VRM machines so that they work efficiently. The results of measuring the effectiveness of the Vertical Roller Mill machine based on OEE matrix calculations from January 2022 to December 2022 have an average effectiveness value of 68% while the JIPM Standard value (Japan Institute of Plant Maintenance) is 85%. The largest percentage of six big losses occurs in reduce speed losses with 42% and equipment failure losses with a percentage of 24%. Both of these losses are a priority for repairs that have the greatest impact on existing problems. Matrix failure mode and effect analysis shows improvement priorities based on the largest RPN value. There are two losses that are priority for improvement, namely reduce speed losses and equipment failure losses. For reduce speed losses, priority improvements are made to vibration VRM with an RPN value of 168 and VRM motor insulation with an RPN value of 108. For Equipment failure losses, priority repairs are carried out on wear/melt seals with an RPN value of 120 and tire deformation with an RPN value of 72.

Keywords : OEE (Overall Equipment and Effectiveness), Six Big Losses, FMEA, Vertical Roller Mill Machine, Downtime