

ABSTRAK

PT. XYZ merupakan salah satu industri yang bergerak dalam bidang pengolahan biji kopi mentah menjadi kopi serbuk (*powder*). Penelitian ini bertujuan untuk mengukur dan meningkatkan efektivitas mesin *spray drying* di PT. XYZ. metode pengukuran yang akan digunakan yaitu *Overall Equipment Effectiveness* (OEE) dan *Six Big Losses* (SBL) serta *Diagram Pareto* untuk mengklasifikasikan faktor penyebab paling dominan, dan *Failure Mode and Effect Analysis* (FMEA) untuk mengetahui faktor utama yang menyebabkan masalah dalam perusahaan. Berdasarkan hasil penelitian menunjukkan bahwa efektivitas mesin *spray drying* di PT. XYZ dalam kategori efektif dengan nilai *Overall Equipment Effectiveness* (OEE) rata-rata 95.50%. Ini berarti bahwa mesin *spray drying* yang digunakan masih sangat efektif dalam proses pembuatan kopi *instant powder*. Berdasarkan perhitungan *six big losses* menunjukkan bahwa terdapat 4 faktor yang paling berpengaruh pada mesin *spray drying* dengan jenis *losses* yaitu *reduced speed loss*, *breakdown loss*, *defect loss*, dan *idling and minor stoppage*. Faktor *losses* terbesar yang di dapat dari perhitungan *six big losses* yakni *reduced speed loss* dengan persentase sebesar 43.90% dan *losses* sebanyak 7894.734 menit. Hasil analisa dengan *Failure Mode and Effect Analysis* (FMEA) menganalisis *failure* dari *losses* dominan penyebab rendahnya nilai OEE mesin *spray drying* yaitu *reduced speed losses* dengan nilai RPN terbesar 210 untuk jenis *failure* proses *spray drying* berjalan dengan lambat dan terkecil 160 untuk jenis *failure* terjadi *blocking* pada *chamber*. Berdasarkan hasil ini, perlu mengusulkan perbaikan untuk mengurangi *reduced speed losses* dalam prioritas perbaikan tinggi. Tindakan yang direkomendasikan terhadap jenis *failure* ini untuk RPN terbesar yaitu *unit head* yang bertugas melakukan pemantauan berkala terhadap cairan *concentrate* kopi yang akan dilakukan proses *spray drying* untuk memastikan cairan kopi berada pada standar dan *range* yang diinginkan. Dan untuk RPN Terkecil yaitu pembuatan WI terhadap operator terkait *failure* yang terjadi dan tindakan yang harus dilakukan.

Kata Kunci : *Overall Equipment Effectiveness, Six Big Losses, Failure Mode and Effect Analysis, Mesin Spray Drying.*

ABSTRACT

PT. XYZ is an industry engaged in the processing of raw coffee beans into ground coffee (powder). This study aims to measure and improve the effectiveness of the spray drying machine at PT. XYZ. The measurement methods that will be used are Overall Equipment Effectiveness (OEE) and Six Big Losses (SBL) as well as Pareto Diagrams to classify the most dominant causal factors, and Failure Mode and Effect Analysis (FMEA) to determine the main factors that cause problems in the company. Based on the research results show that the effectiveness of the spray drying machine at PT. XYZ is in the effective category with an average Overall Equipment Effectiveness (OEE) value of 95.50%. This means that the spray drying machine used is still very effective in the process of making instant powder coffee. Based on the calculation of the six big losses, it shows that there are 4 factors that most influence the spray drying machine with the type of losses, namely reduced speed loss, breakdown loss, defect loss, and idling and minor stoppage. The biggest loss factor obtained from the calculation of the six big losses is reduced speed loss with a percentage of 43.90% and losses of 7894,734 minutes. The results of the analysis using Failure Mode and Effect Analysis (FMEA) analyze failure from the dominant losses causing the low OEE value of the spray drying machine, namely reduced speed losses with the largest RPN value of 210 for the type of failure the spray drying process runs slowly and the smallest 160 for the type of failure occurs blocking on chamber. Based on these results, it is necessary to propose improvements to reduce reduced speed losses in high priority repairs. The recommended action for this type of failure for the largest RPN is the unit head in charge of periodically monitoring the coffee concentrate liquid which will be carried out by the spray drying process to ensure the coffee liquid is at the desired standard and range. And for the Smallest RPN, namely making WI for operators related to failures that occur and actions that must be taken.

Keywords: Overall Equipment Effectiveness, Six Big Losses, Failure Mode and Effect Analysis, Spray Drying Machine