

## ABSTRAK

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Program Studi : Teknik Industri  
Judul Tugas Akhir : USULAN PERBAIKAN *TOTAL PRODUCTIVE MAINTENANCE* (TPM) UNTUK MENINGKATKAN EFEKTIVITAS MESIN *CRUSHER* NO 6 MENGGUNAKAN *OVERALL EQUIPMENT EFFECTIVNESS* (OEE) DAN *FAILURE MODE AND EFFECT ANALYSIS* (FMEA) (STUDI KASUS : PT TRIDI OASIS GROUP)  
Pembimbing : Ir. Yenny Widianty,MT,IPU,ASEAN.Eng.

PT.Tridi Oasis Group merupakan industri daur ulang plastik PET yang memiliki mesin pencacah/*crusher*. *Crusher* No.6 dinilai menjadi mesin yang mengalami *failure* dan dapat menyebabkan kerugian bagi perusahaan. Penelitian bertujuan mengukur keefektivan mesin *Crusher* No.6. Untuk mengukur keefektivan mesin *Crusher* No.6 dibutuhkan perhitungan OEE (*Overall Equipment Effectiveness*). OEE merupakan *Key Performance Indicator* (KPI) dalam pelaksanaan *Total Productive Maintenance* (TPM) yang bertujuan untuk *mencapai zero breakdown, zero defect, dan zero accident*. OEE dikelompokkan menjadi 3 komponen utama yakni *downtime losses, speed losses, dan defect losses*. Setelah mendapatkan nilai OEE, tahapan selanjutnya ialah mencari jenis *losses* yang mempegaruhi hasil nilai OEE tersebut dengan melakukan perhitungan *Six Big Losses*. Kemudian *losses* terbesar akan dianalisa menggunakan diagram *fishbone*, dan analisa FMEA guna memperoleh part kritis sebagai usulan perbaikan. Penelitian ini menemukan bahwa efektivitas mesin *Crusher* No.6 sebesar 48,24% selama periode Maret sampai Agustus 2020 yang dimana nilai tersebut dibawah standar JIPM dan perlu evaluasi serta *improvment*. Hasil perhitungan OEE menunjukkan bahwa faktor yang berpengaruh pada rendahnya nilai OEE adalah *Performance Efficiency* sebesar 61%. Jenis *losses* terbesar dari enam kerugian terbesar (*Six Big Losses*) adalah *Reduced Speed Losses* dengan persentase *losses* sebesar 72%. Selanjutnya digunakan metode FMEA untuk mencari part kritis terhadap komponen mesin *Crusher* No.6. Dari hasil analisis didapatkan prioritas utama perbaikan adalah *Crusher Blade* Tumpul dengan *risk number* sebesar 80.

Kata kunci : *Total Productive Maintenance, Overall Equipment Effectiveness, Six Big Losses, Failure Mode and Effect Analysis, Effectiveness, Crusher.*

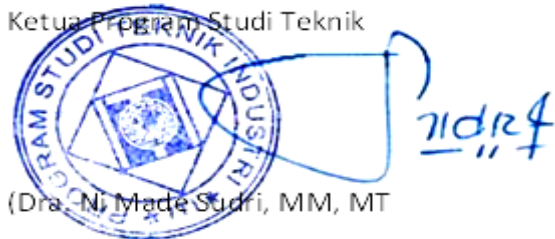
## ABSTRACT

Name : Amanda Gracia Putri  
Study Program : Industrial Engineering  
Title : *PROPOSED IMPROVEMENT OF TOTAL PRODUCTIVE MAINTENANCE TO INCREASE THE EFFECTIVENESS OF MACHINE CRUSHER NO. 6 USING OVERALL EQUIPMENT EFFECTIVENESS (OEE) AND FAILURE MODE AND EFFECT ANALYSIS (FMEA) (CASE STUDY : PT TRIDI OASIS GROUP).*  
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PT Tridi Oasis Group is a plastic (PET) recycling industry which has a crusher machine. Crusher machine No.6 is considered to be a machine that fails and can cause losses for the company. This study aims to measure the effectiveness of the machine Crusher No.6. To measure the effectiveness of the machine, it is Crusher No.6 necessary to calculate OEE (Overall Equipment Effectiveness). OEE is a Key Performance Indicator (KPI) in the implementation of Total Productive Maintenance (TPM) which aims to achieve zero breakdown, zero defect, and zero accident. OEE is grouped into 3 main components, namely downtime losses, speed losses, and defect losses. After getting the OEE value, the next step is to find the type of losses that affect the results of the OEE value by calculating the Six Big Losses. Then the losses biggest will be analyzed using fishbone diagram and FMEA analysis to obtain critical parts as proposed improvements. This study found that the effectiveness of the machine Crusher No.6 was 48.24% during the period March to August 2020 which is below the JIPM standard and needs evaluation and improvement. The results of the OEE calculation show that the factor that influences the low OEE value is Performance Efficiency of 61%. The biggest type of losses out of the six biggest losses (Six Big Losses) is Reduced Speed Losses with a percentage of losses of 72%. Furthermore, the FMEA method is used to find critical parts of the engine component Crusher No.6. From the results of the analysis, it is found that the main priority for repair is Crusher Blade Blunt with a risk number of 80.

*Keywords: Total Productive Maintenance, Overall Equipment Effectiveness, Six Big Losses, Failure Mode and Effect Analysis, Effectiveness, Crusher.*

Ketua Program Studi Teknik



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