

ANALISIS PRODUKTIVITAS MESIN *FILLING* BOTOL 600 ML DENGAN METODE *OVERAL EQUIPMENT EFFECTIVENESS* DAN *FAILURE MODE AND EFFECT ANALYSIS* PADA PERUMDA AIR MINUM TIRTA BINANGUN

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ABSTRAK

Perusahaan Daerah Air Minum (PDAM) Tirta Binangun merupakan perusahaan daerah yang bergerak di bidang jasa penyediaan air untuk wilayah kabupaten kulon progo serta memproduksi air minum dalam kemasan (AMDK). Produk dari perusahaan adalah AMDK dengan merek dagang AirKu dengan varian cup 120 ml, cup 240 ml, botol 330 ml, botol 600 dan Galon 19 liter. PDAM Tirta Binangun terletak di Secang, Sendangsari, Pengasih, Kabupaten Kulon Progo. Permasalahan yang dihadapi perusahaan adalah proses produksi AMDK botol 600 ml memiliki kegagalan produk sebesar 16.038 botol dalam satu tahun yaitu bulan April 2021 sampai dengan Maret 2022. Berdasarkan masalah tersebut maka dilakukan pengukuran efektivitas mesin guna mengetahui seberapa produktivitas mesin *filling*. Adapun metode yang digunakan adalah metode *Overall Equipment Effectiveness* (OEE) dan *Failure Mode And Effect Analysis* (FMEA). Adapun hasil dari metode OEE yaitu menunjukkan tingkat efektivitas rata-rata mesin *filling* sebesar 87,48% sehingga dapat disimpulkan kegagalan masih dalam toleransi dan memiliki nilai produktivitas bagus karena lebih besar dari standart OEE yang ada yaitu 85%. Analisa *Six Big Losses* untuk mengetahui faktor yang mempengaruhi turunnya OEE didapat empat faktor terbesar yaitu *Reduce Speed Losses* yang memiliki persentase rata-rata 3,82% dengan frekuensi relatif 39,01%, *Downtime Losses* memiliki persentase rata-rata 2,27 % dengan frekuensi relatif 28,31%, *Defect Losses* dengan persentase rata-rata 1,58 % dan frekuensi relatif 15,59% dan *Idle and Minor Stoppage* dengan persentase rata-rata 1,55 % dan frekuensi relatif 15,85%. Adapun usulan perbaikan adalah menambah 1 karyawan, dilakukan pengecekan berkala pemegang kepala botol dan mengganti dengan digital time relay two timmer pada *directional control valve*.

Kata Kunci : Air Minum Dalam Kemasan, *Failure Mode And Effect Analysis*, *Overall Equipment Effectiveness*, Produktivitas, *Six Big Losses*

**PRODUCTIVITY ANALYSIS OF 600 ML BOTTLE FILLING MACHINE WITH
OVERALL EQUIPMENT EFFECTIVENESS AND FAILURE MODE AND EFFECT
ANALYSIS METHODS AT PERUMDA
TIRTA BINANGUN DRINKING WATER**

ABSTRACT

The Regional Drinking Water Company (PDAM) Tirta Binangun is a regional company engaging in water supply services for the Kulon Progo Regency area and produces bottled drinking water (AMDK). The company product is bottled water with the trademark AirKu with variants of 120 ml cup, 240 ml cup, 330 ml bottle, 600 bottles, and 19-liter gallon. PDAM Tirta Binangun is located in Secang, Sendangsari, Pengasih, Kulon Progo Regency. The problem faced by the company is that the 600 ml bottled water production process has a product failure of 16,038 bottles in one year, from April 2021 to March 2022. Based on this problem, the effectiveness of the machine is measured to determine how productive the filling machine is. The methods used are Overall Equipment Effectiveness (OEE) and Failure Mode And Effect Analysis (FMEA) methods. The results of the OEE method show that the average effectiveness level of the filling machine is 87.48%, so it can be concluded that the failure is still within tolerance and has a good productivity value because it is greater than the existing OEE standard, which is 85%. Six Big Losses analysis to determine the factors that influence the decline in OEE obtained the four most prominent factors, such as, Reduce Speed Losses which has an average percentage of 3.82% with a relative frequency of 39.01%, Downtime Losses has an average percentage of 2.27% with a frequency of relative 28.31%, Defect Losses with an average percentage of 1.58% and a relative frequency of 15.59% and Idle and Minor Stoppage with an average percentage of 1.55% and a relative frequency of 15.85%. The proposed improvement is to add one employee, periodically check the bottle head holder and replace it with a digital time relay two-timer on the directional control valve.

Keywords: Bottled Drinking Water, Failure Mode And Effect Analysis, Overall Equipment Effectiveness, Productivity, Six Big Losses

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