

**PENERAPAN METODE *SINGLE MINUTE EXCHANGE OF DIE* (SMED)
UNTUK MENURUNKAN WAKTU SETUP MESIN DI PT.XYZ**

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ABSTRAK

PT. XYZ merupakan pelaku pasar pada bidang industri farmasi, khususnya farmasi dalam bidang pembuatan obat *solid*, *semi-solid*, dan *repacking product*. Industri ini bersaing untuk menciptakan produk yang kompetitif serta dapat memenuhi kebutuhan pasar. Berdasarkan pengamatan langsung dilapangan dan wawancara tahun 2021, terdapat kendala perbedaan waktu setup diantara rangkaian mesin pembuatan obat solid sehingga hasil output menjadi tidak optimal. Tujuan dilakukannya penelitian ini untuk menganalisis aktivitas yang dilakukan pada kegiatan setup mesin, serta melakukan reduksi waktu setup dengan menggunakan metode *Single Minute Exchange of Die* (SMED) agar memperoleh hasil output yang optimal pada proses obat solid. Penelitian didukung metode Diagram Pareto, Peta Aliran Proses, Time Study, SMED, Diagram Fishbone, dan dilakukan simulasi dengan *Arena Simulation Software*. Hasil yang didapatkan pada penelitian menunjukkan bahwa nilai selisih waktu baku setup mesin *tableting* sebesar 34,9 menit atau 2.097 detik dengan nilai pengurangan persentase sebesar 18,7%. Sedangkan untuk mesin *primary packing line 3* didapatkan selisih waktu baku setup sebesar 33,1 menit atau 1.985 detik dengan nilai pengurangan persentase sebesar 21,4%. Nilai produksi aktual rata-rata 1267 *large box/month* menjadi 1508 *large box/month* berdasarkan simulasi usulan perbedaan selisih didapatkan 241 *large box/month* dan peningkatan rata-rata perbulan 19,02%.

Kata Kunci : *Single Minute Exchange Of Die (SMED), Time Study, Waste, Lean Manufacturing, Simulation.*

**IMPLEMENTATION SINGLE MINUTE EXCHANGE OF DIE (SMED)
METHOD TO REDUCE MACHINE SETUP TIME IN PT.XYZ**

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ABSTRACT

PT. XYZ is a market player in the pharmaceutical industry, particularly pharmaceuticals in the manufacturing of solid, semi-solid, and repacking products. This industry competes to create competitive products that can meet market needs. Based on direct field observations and interviews in 2021, there are problems with the setup time difference between a series of solid manufacturing machines so the outputs result are not optimal. The purpose of this research is to analyze the activities carried out on machine setup activities, as well as to reduce setup time using the Single Minute Exchange of Die (SMED) method to obtain optimal output results in the solid process. The research was supported by the Pareto Diagram, Process Flow Map, Time Study, SMED, Fishbone Diagram, and simulation using Arena Simulation Software. The results obtained in this study indicate that the standard time difference for the tableting machine setup is 34.9 minutes or 2,097 seconds with a percentage reduction value of 18.7%. Meanwhile, for the primary packing line 3 machine, the standard setup time difference is 33.1 minutes or 1,985 seconds with a percentage reduction of 21.4%. The actual production value is an average of 1267 large boxes/month to 1508 large boxes/month based on the proposed simulation difference, the difference is obtained by 241 large boxes/month and an average increase of 19.02% per month.

Keywords : *Single Minute Exchange Of Die (SMED), Time Study, Waste, Lean Manufacturing, Simulation.*