

ANALISIS PENGENDALIAN KUALITAS DENGAN METODE *SIX SIGMA* DALAM UPAYA MENGURANGI KECACATAN PRODUK DI CV GEMILANG KENCANA

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ABSTRAK

CV Gemilang Kencana merupakan perusahaan yang bergerak di bidang industri manisan carica. Pada bulan Februari 2023 produk yang dihasilkan sebanyak 60.000 cup. Permasalahan yang dihadapi perusahaan yaitu produk cacat sebanyak 474 cup dengan tingkat persentase 0,008% dari jumlah produksi diketahui jenis cacat yang dialami seperti label miring sebanyak 78, cup kemasan rusak atau bocor sebanyak 226, dan berat produk tidak sesuai sebanyak 170. Pada penelitian ini, metode yang digunakan yaitu *Six Sigma* melalui tahap *Define, Measure, Analyze, Improve, dan Control*. Berdasarkan hasil pengolahan data yang dilakukan diketahui cacat paling tinggi adalah cup kemasan rusak atau bocor sebesar 47,7% sedangkan yang paling rendah yaitu label miring dengan persentase 16,5% dan hasil DPMO sebesar 2667,233 pada tingkat 4,30 sigma. Dari hasil analisa menggunakan DMAIC faktor penyebab terjadinya kecacatan suatu produk yaitu faktor manusia, faktor alat produksi, faktor manajemen dan faktor material. Usulan perbaikan yang dilakukan pada alat produksi yaitu dengan cara melakukan *maintenance* mesin seminggu sekali, dengan memilih *supplier* yang benar sehingga bahan baku yang masuk tidak rusak pemilihan *printing* label produk yang bagus, melakukan pengawasan yang rutin, memberikan pengetahuan pentingnya SOP dan, dengan memberikan kenyamanan pada tempat kerja sehingga karyawan tidak cepat merasa lelah dan bisa teliti dalam bekerja.

Kata Kunci: *Six Sigma, DMAIC (Define, Measure, Analyze, Improve, Control), Produk cacat*

ANALYSIS OF QUALITY CONTROL WITH THE SIX SIGMA METHOD IN EFFORTS TO REDUCE PRODUCT DEFECTS IN CV GEMILANG KENCANA

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ABSTRACT

CV Gemilang Kencana is a company engaged in the carica candied industry. In February 2023, 60,000 cups were produced. The problems faced by the company were 474 defective product cups with a percentage rate of 0.008% of the total production. It was known that the types of defects experienced were 78 slanted labels, 226 damaged or leaky packaging cups, and 170 product weights that did not match. In this study, the method used is Six Sigma through the stages of Define, Measure, Analyze, Improve, and Control. Based on the results of data processing, it was found that the highest defect was a damaged or leaky packaging cup of 47.7% while the lowest was a slanted label with a percentage of 16.5% and a DPMO result of 2667.233 at the 4.30 sigma level. From the results of the analysis using DMAIC, the factors that cause defects in a product are human factors, production equipment factors, management factors and material factors. Proposed improvements made to production equipment are by carrying out machine maintenance once a week, by choosing the right supplier so that incoming raw materials are not damaged, choosing good product label printing, carrying out routine supervision, providing knowledge of the importance of SOPs and, by providing convenience to workplace so that employees do not feel tired quickly and can be thorough in work.

Keywords: *Six Sigma, DMAIC (Define, Measure, Analyze, Improve, Control), Defective products*

DAFTAR PUSTAKA

- Anggamawarti, M. F., Pratikto, P., & Sumantri, Y. (2022). The Application of Six Sigma-Dmaic Method To Reduce Defects And Improve The Cartridge Case Process In Ammunition Company. *Journal of Engineering and Management in Industrial System*, 10(1), 50–63. <https://doi.org/10.21776/ub.jemis.2021.009.02.5>
- Besterfield, Dale H. 2004. Quality Control. 7th Edition. Pearson Prentice Hall: New Jersey
- Chiarini, A. (2013). Differences between Six Sigma applications in manufacturing and the service industry. *International Journal of Productivity and Quality Management*, 12(3), 345–360.
- Ermayana, E., & Rosyad, J. S. N. (2021). Analysis of Production Quality Control in Minimizing Product Defects with the Six Sigma Method (Case Study at PT. Jaykay Files Indonesia). *International Journal of Computer and Information System (IJCIS)*, 105–110. <https://doi.org/10.29040/ijcis.v2i3.60>
- Husada, S. W., Handriyono, H., & Awwaliyah, I. N. (2020). Six Sigma Dmaic Application On Small Business Performance: A Case Study On Indonesian's Tobacco Company. *Emerging Markets : Business and Management Studies Journal*, 7(2), 113–124. <https://doi.org/10.33555/ijembm.v7i2.119>
- Kho, B. (2016). Pengertian Poka yoke, Cause and Effect Diagram (Fishbone Diagram) Cara Membuatnya. Dipetik November, 30, 2016.
- Liliana, Luca. (2016). A New Model of Ishikawa Diagram for uality Assessment. Materials Science and Engineering. IOP Publishing
- Mahmud, F. I. (2020) Analisis Pengendalian Kualitas Produk Cacat Dengan Metode Six Sigma Studi Kasus Pt Green Gloves Indonesia. Tugas Akhir, Yogyakarta: University of Technology Yogyakarta.
- Rahayu, N. A., & Santoso, S. (2021). Implementation of Six Sigma to Minimize Reject Gusset Difference and Fold in the Blowing Process. *European Journal of Business and Management Research*, 6(4), 1–6. <https://doi.org/10.24018/ejbmr.2021.6.4.913>
- Rauf, N., Padhil, A., Alisahbana, T., Saleh, A., Dahlan, M., Malik, R., Pawennari, A., & Chairany, N. (2022). Analysis Of Quality Control Of T-Shirt Screen Printing Products With Six Sigma Dmaic Method On Cv. Macca Clothing. *Journal of Industrial Engineering Management*, 7(1), 76–82. <https://doi.org/10.33536/jiem.v7i1.1147>
- Setiawan, I., & Setiawan, S. (2020). Defect reduction of roof panel part in the export

delivery process using the DMAIC method: a case study. *Jurnal Sistem Dan Manajemen Industri*, 4(2), 108–116. <https://doi.org/10.30656/jsmi.v4i2.2775>

Sutjipto, D., Fitriana, R., & Sari, I. P. (2022). Quality Improvement on Speaker Net Products using Six Sigma Method with DMAIC (Case Study at Pt.D). *International Journal of Innovative Science and Research Technology*, 7, 1487–1497. <https://doi.org/10.5281/zenodo.7080417>

Saragih, J., Fitriana, R., & Andriyan, T. (2020) Quality Improvement for Product Body 2-1 at PT. X. *IOP Conf. Series: Materials Science and Engineering*. <https://doi.org/10.1088/1757-899X/847/1/012040>

Talenta .P, S., & Al-Faritsy, A. Z. (2022). Penggunaan Metode Dmaic Dan Poka Yoke Dalam Meminimalkan Terjadinya Cacat Produk Manhole Cover. *Jurnal DISPROTEK*, 13(2), 154–161. <https://doi.org/10.34001/jdpt.v13i2.3067>

Untoro, O. B., & Iftadi, I. (2020). Six Sigma as a Method for Controlling and Improving the Quality of Bed Series Products. *Jurnal Ilmiah Teknik Industri 19*(2), 131–141. <https://doi.org/10.23917/jiti.v19i2.11623>

Utomo, U. (2020). A Systematic Literature Review of Six Sigma Implementation in Services Industries. *IJIEM (Indonesian Journal of Industrial Engineering & Management)*, 1(1), 45–57. <http://dx.doi.org/10.22441/ijiem.v1i1.8846>

Widodo, A., & Soediantono, D. (2022). Benefits of the Six Sigma Method (DMAIC) and Implementation Suggestion in the Defense Industry: A Literature Review. *International Journal of Social and Management Studies*, 3(3), 1–12. <https://doi.org/10.5555/ijosmas.v3i3.138>

Widjajanto, S., & Purba, H. H. (2021). Six Sigma Implementation In Indonesia Industries And Businesses: A Systematic Literature Review. *Journal of Engineering and Management in Industrial System*, 9(1), 23–34. <https://doi.org/10.21776/ub.jemis.2021.009.01.3>