

ABSTRAK

Judul : Pengendalian Kualitas dan Upaya Mengurangi *Defect* Pada Produksi Botol GSN 400 ML di PT X Menggunakan Pendekatan SPC dan FMEA
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PT X merupakan salah satu perusahaan industri manufaktur yang bergerak dalam asosiasi plastik dan pembungkus di Indonesia, dan menjadi *supplier* kemasan pada industri kosmetik, makanan, minuman, dan kebutuhan kemasan lain. Produk-produk yang dihasilkan antara lain botol GSN 400 ml, botol Emily 170 ml, botol Arrow 500 ml, botol BBF Hygiene 100 ml, dan Botol NBE 100 ml. Berdasarkan inspeksi *Quality Control* dan pengamatan yang dilakukan pada bulan Februari 2023 sampai dengan April 2023 ditemukan *defect* pada produksi botol GSN 400 ml yang melebihi batas toleransi yang ditetapkan perusahaan sebesar 5%, adapun *defect* pada botol GSN 400 ml mencapai 9%.

Penelitian ini bertujuan untuk mengetahui jenis-jenis cacat yang terjadi, cacat dominan, penyebab cacat, serta upaya mengurangi cacat pada produk botol GSN 400 ML di PT X. Penelitian ini menerapkan metode SPC (*Statistical Process Control*), seperti *check sheet*, peta p, diagram pareto, diagram *fishbone*. Penggunaan peta kendali P menyatakan masih terdapat sampel data yang diluar kendali, sehingga proses produksi botol GSN 400 ML belum terkendali. Berdasarkan hasil analisa pareto diketahui terdapat 5 jenis cacat pada botol GSN 400 ML yaitu jenis cacat (*black spot*) bintik hitam sebesar 50%, cacat *body baret* sebesar 20%, cacat *runner neck* tidak terpotong sebesar 15%, cacat lubang sebesar 10%, cacat *flashing* yaitu sebesar 5%. Dan cacat dominan pada produk GSN 400 ML adalah cacat bintik hitam (*black spot*). Diagram *Fishbone* diketahui faktor-faktor penyebab cacat bintik hitam (*black spot*) berasal dari manusia, mesin, material, metode, dan lingkungan.

Diagram matriks CTQ (*Critical to Quality*) digunakan untuk mencari faktor dominan penyebab cacat. Pada FMEA didapatkan RPN tertinggi yaitu rank 1, RPN 216 Pada modus kegagalan ini berupa bocornya oli piston pada blow pin. Usulan perbaikan pada modus kegagalan ini adalah mengganti seal piston blow pin yang rusak dengan seal piston baru dengan kualitas yang bagus serta membuat jadwal pengecekan piston.

Kata Kunci:

Kualitas, SPC (*Statistical Process Control*), FMEA (*Failure Mode and Effect Analysis*)

ABSTRACT

Title : *Quality Control and Efforts to Reduce Defects in the Production of GSN 400 ML Bottles at PT X Using the SPC and FMEA Approaches*

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PT X is a manufacturing industry company engaged in plastic and wrapping associations in Indonesia, and is a packaging supplier for the cosmetics, food, beverage and other packaging needs industries. The products produced include GSN 400 ml bottles, Emily 170 ml bottles, Arrow 500 ml bottles, BBF Hygiene 100 ml bottles and NBE 100 ml bottles. Based on Quality Control inspections and observations made from February 2023 to April 2023, defects were found in the production of the GSN 400 ml bottle which exceeded the tolerance limit set by the company by 5%, while the defect in the GSN 400 ml bottle reached 9%.

This study aims to determine the types of defects that occur, dominant defects, causes of defects, as well as efforts to reduce defects in the GSN 400 ml bottle product at PT X. This study applies the SPC (Statistical Process Control) method, such as check sheets, p-chart, Pareto diagrams, fishbone diagrams. The use of the P control chart states that there are still data samples that are out of control, so the production process for the GSN 400 ml bottle is not controlled. Based on the results of pareto analysis, it is known that there are 5 types of defects in the GSN 400 ml bottle, there are black spot defects by 50%, body scratch defects by 20%, runner neck defects not being cut by 15%, hole defects by 10%, flashing defect by 5%. And the dominant defect in the GSN 400 ML product is a black spot defect. The Fishbone diagram shows that the factors that cause black spot defects come from humans, machines, materials, methods, and the environment.

The CTQ (Critical to Quality) matrix diagram is used to find the dominant factors that cause defects. In FMEA, the highest RPN is 216. The potential failure mode is the piston oil leaks on the blow pin. The proposed improvement for this failure mode is to replace the damaged blow pin piston seal with a new piston seal with good quality and make a piston checking schedule.

Key Words:

Quality, SPC (Statistical Process Control), FMEA (Failure Mode and Effect Analysis)