ABSTRAK

UMKM Sekar Jawi yang bergerak di bidang produk kosmetik alami mengalami permasalahan kualitas pada salah satu produknya, yaitu sabun batang. Selama periode Januari hingga Desember 2024, ditemukan tingkat produk cacat sebesar 4% dari total produksi sebanyak 5.025 unit, yang melebihi ambang batas maksimal 3% yang ditetapkan oleh UMKM. Cacat yang ditemukan didominasi oleh dua jenis, yaitu variasi bentuk (56,36%) dan retak (43,65%). Permasalahan ini mendorong perlunya analisis mendalam dan upaya perbaikan kualitas untuk meminimalkan tingkat *defect* dalam proses produksi sabun batang.

Penelitian ini menggunakan pendekatan metode *Six Sigma* dengan tahapan DMAI (*Define*, *Measure*, *Analyze*, *Improve*) serta *Failure Mode and Effect Analysis* (FMEA). Pada tahap *Define* dilakukan pemetaan proses menggunakan diagram SIPOC dan *Critical To Quality* (CTQ). Tahap *Measure* dilakukan pengukuran DPMO dan nilai *Sigma* serta pembuatan peta kendali P. Tahap *Analyze* dilakukan analisis akar penyebab menggunakan diagram *fishbone* untuk dua jenis defect. Selanjutnya, pada tahap *Improve* dilakukan pengusulan perbaikan dengan menghitung nilai *Risk Priority Number* (RPN) melalui metode FMEA untuk menentukan prioritas perbaikan berdasarkan tingkat risiko kegagalan.

Hasil penelitian menunjukkan bahwa proses produksi sabun batang belum stabil dan berada di bawah standar kualitas yang ditetapkan, dengan rata-rata nilai DPMO sebesar 111.475 dan *level Sigma* 2,789. Peta kendali P menunjukkan adanya proses yang berada di luar batas kendali pada *batch* ke-2 dan ke-5. Berdasarkan analisis *fishbone* dan FMEA, ditemukan bahwa faktor manusia, metode, alat, dan lingkungan menjadi penyebab utama *defect*. Usulan strategi difokuskan pada peningkatan keterampilan operator, standar metode kerja, dan pemeliharaan peralatan. Dengan implementasi usulan ini, diharapkan UMKM Sekar Jawi dapat meningkatkan kualitas produk serta mengurangi tingkat *defect* secara signifikan.

Kata Kunci: Produk Cacat, Sabun Batang, Six Sigma, DMAI, FMEA, UMKM.

ABSTRACT

Sekar Jawi MSME, which is engaged in natural cosmetic products, experienced quality problems in one of its products, namely bar soap. During the period January to December 2024, a defective product rate of 4% of the total production of 5,025 units was found, which exceeded the maximum threshold of 3% set by MSMEs. The defects found were dominated by two types, namely shape variations (56.36%) and cracks (43.65%). This problem encourages the need for in-depth analysis and quality improvement efforts to minimize the defect rate in the bar soap production process.

This research uses Six Sigma method approach with DMAI (Define, Measure, Analyze, Improve) and Failure Mode and Effect Analysis (FMEA) stages. At the Define stage, process mapping using SIPOC diagrams and Critical To Quality (CTQ) are carried out. The Measure stage measured DPMO and Sigma values and created a P control map. The Analyze stage analyzed the root cause using a fishbone diagram for two types of defects. Furthermore, at the Improve stage, improvements are proposed by calculating the Risk Priority Number (RPN) value through the FMEA method to determine the priority of improvements based on the level of risk of failure.

The results showed that the bar soap production process was not stable and was below the set quality standards, with an average DPMO value of 111,475 and a Sigma level of 2.789. The P control map shows that there are processes that are outside the control limits in the 2nd and 5th batches. Based on fishbone analysis and FMEA, it was found that human factors, methods, tools, and environment were the main causes of defects. The proposed improvements focus on improving operator skills, standardizing work methods, and maintaining equipment. With the implementation of these proposals, it is expected that Sekar Jawi MSMEs can improve product quality and significantly reduce defect rates.

Keywords: Defective Products, Bar Soap, Six Sigma, DMAI, FMEA, MSME.