

ABSTRAK

CV. Maju Mapan adalah perusahaan manufaktur yang memproduksi produk pipa polyvinyl chloride (PVC). Penelitian ini melakukan identifikasi faktor penyebab kecacatan produk pipa jenis air bersih dengan panjang 4 inch dan diameter 4,8 mm di CV. Maju Mapan serta menentukan strategi perbaikan untuk meminimalisir cacat terhadap produk tersebut. Metode yang digunakan adalah *Statistical Process Control* (SPC) yang diaplikasikan dengan alat *seven tools* meliputi *checksheet*, diagram pareto, peta kendali p, dan *fishbone* diagram untuk mengidentifikasi serta memonitor kualitas proses produksi. Selanjutnya, dilakukan perbaikan dengan pendekatan Kaizen *five step plan* yang terdiri dari *seiri* (pemilahan), *seiton* (penataan), *seiso* (pembersihan), *seiketsu* (pemantapan), dan *shitsuke* (pembiasaan). Hasil analisis menunjukkan bahwa meskipun proses produksi berjalan dalam batas kendali normal, jumlah produk cacat masih signifikan, yaitu rata-rata 7 sampai 9 unit per hari. Faktor utama penyebab cacat meliputi manusia (kurangnya ketelitian operator dan edukasi), material (campuran bahan tidak merata), mesin (tekanan dan suhu tidak stabil), metode, dan lingkungan kerja. Usulan perbaikan berupa pelatihan operator dan perawatan mesin secara rutin diharapkan dapat meningkatkan kualitas produk dan mengurangi kecacatan secara signifikan. Penelitian ini memberikan kontribusi dalam pengendalian kualitas proses produksi pipa air bersih sehingga dapat meningkatkan produktivitas dan efisiensi perusahaan. Penelitian ini memberikan kontribusi dalam pengendalian kualitas proses produksi pipa sehingga dapat meningkatkan produktivitas dan efisiensi perusahaan serta mendukung pencapaian *Sustainable Development Goals* (SDGs), khususnya SDG 9 (Industri, Inovasi, dan Infrastruktur) melalui peningkatan kinerja proses manufaktur dan SDG 12 (Konsumsi dan Produksi yang Bertanggung Jawab) melalui pengurangan produk cacat dan pemborosan dalam proses produksi.

Kata kunci: *Statistical Process Control* (SPC), pengendalian kualitas, pipa PVC, *Seven Tools*, Kaizen 5S, SDGs.

ABSTRACT

CV. Maju Mapan is a manufacturing company that produces polyvinyl chloride (PVC) pipe products. This study identified the factors that cause defects in clean water pipe products with a length of 4 inches and a diameter of 4.8 mm in CV. Maju Mapan and determine repair strategies to minimize defects to the product. The method used is Statistical Process Control (SPC) which is applied with seven tools including checksheets, pareto diagrams, p control maps, and fishbone diagrams to identify and monitor the quality of the production process. Furthermore, improvements were made with the Kaizen five-step plan approach consisting of seiri (sorting), seiton (arrangement), seiso (cleaning), seiketsu (consolidation), and shitsuke (habituation). The results of the analysis showed that even though the production process was running within normal control limits, the number of defective products was still significant, which was an average of 7 to 9 units per day. The main factors that cause defects include humans (lack of operator accuracy and education), materials (uneven mix of materials), machinery (unstable pressure and temperature), methods, and working environment. Proposed improvements in the form of operator training and routine maintenance of machinery are expected to improve product quality and significantly reduce defects. This research contributes to the quality control of the clean water pipeline production process so that it can increase the productivity and efficiency of the company. This research contributes to the quality control of the pipeline production process so that it can increase the productivity and efficiency of the company and support the achievement of the Sustainable Development Goals (SDGs), especially SDG 9 (Industry, Innovation, and Infrastructure) through improving the performance of manufacturing processes and SDG 12 (Responsible Consumption and Production) through the reduction of defective products and waste in the production process.

Keywords: Statistical Process Control (SPC), quality control, PVC pipes, Seven Tools, Kaizen 5S, SDGs.