

Analysis of Meatball Product Quality Control Using Statistical Process Control (SPC)

(A Case Study of Bakso Mandiri MSME in Sidoarjo)

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ABSTRACT

Quality control is essential for maintaining product quality consistency and reducing defects during the production process. Bakso Mandiri MSME in Sidoarjo experienced quality problems related to defects in the color, texture, shape, and size of its meatball products. This study aimed to identify the types and proportions of product defects, analyze the stability of the production process, identify potential factors causing defects, and formulate recommendations for improving quality control using the Statistical Process Control (SPC) method. This study employed a descriptive quantitative approach with a case study method. Data were collected through observation, interviews, and documentation during 20 observation periods. A total of 200 meatballs were examined during each observation period, resulting in an overall sample of 4,000 meatballs. The data were analyzed using a check sheet, Pareto diagram, p-chart, Ishikawa diagram, and process performance analysis for attribute data. The results showed that the highest defect proportion occurred in the texture attribute at 7.08%, followed by size at 5.95%, color at 5.50%, and shape at 4.90%. The p-chart analysis showed that the processes related to color, shape, and size were statistically under control. However, the process related to texture was not fully under statistical control because one observation point exceeded the upper control limit. The Ishikawa diagram analysis identified potential causes of defects related to human factors, methods, raw materials, machines, the environment, and measurement. The proposed improvements include developing and consistently implementing standard operating procedures, strengthening the supervision of raw materials and production processes, providing employee training, maintaining production equipment, and continuously applying SPC to reduce product defects and improve meatball quality consistency.

Keywords: meatballs, product defects, quality control, Statistical Process Control, MSME.