

Quality Control Analysis of White Tofu Using the Statistical Process Control (SPC) Approach at UMKM Tahu Sumedang Jaya Rasa in Jember Regency

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ABSTRACT

UMKM Tahu Sumedang Jaya Rasa is an agro-industrial enterprise engaged in tofu production located in Jember Regency, utilizing soybeans as the primary raw material. This study aimed to identify quality control methods, analyze the implementation of the Statistical Process Control (SPC) approach, and identify the factors causing defects in white tofu products at UMKM Tahu Sumedang Jaya Rasa in Jember Regency. This MSME produces approximately 17,760 pieces of wet tofu daily, yet frequently faces quality constraints such as dirty surfaces, incomplete/chipped shapes, and mushy textures. The data analysis methods employed included Check Sheets, Pareto Diagrams, np Control Charts, Process Capability, and Fishbone Diagrams. The results of the np Control Chart analysis indicated that the production process for the variables of surface cleanliness, integrity, and tofu texture remained within statistical control limits (stable), as no data points fell outside the Upper Control Limit (UCL) and Lower Control Limit (LCL). Through the Pareto Diagram, it was revealed that the most dominant types of defects occurred respectively in tofu texture, shape integrity, and surface cleanliness. The process capability analysis demonstrated enterprise standard compliance rates of 95% for surface cleanliness, 92% for integrity, and 92% for tofu texture, signifying that the production process possessed a capable performance level. Based on the fishbone diagram, the primary factors causing product defects originated from the human aspect (lack of meticulousness), raw materials, conventional manual working methods, and equipment/machinery conditions. This study recommends the necessity of formulating written Standard Operating Procedures (SOP) and improving sanitation in the production area to maintain product quality consistency.

Keywords: *Sumedang White Tofu, Quality Control, Statistical Process Control (SPC), np Control Chart, Process Capability.*