

*Analysis Controlling The Quality Of Tempe Products Using Statistical Process Control
Methods at Home Industry Tempe Wedok in Lumajang Regency*
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ABSTRACT

*Tempe is a traditional food produced from soybeans that undergo a fermentation process with the assistance of *Rhizopus sp.* mold. The Home Industry Tempe Wedok, located in Lumajang, is one of the businesses engaged in soybean-based tempe production. To ensure product quality remains consistent, effective quality control measures are required throughout the production process. This research was conducted to evaluate the quality control practices applied in Home Industry Tempe Wedok and to determine the factors contributing to product defects, including brownish coloration, insufficiently compact texture, and impurities found on the surface of the tempe. The study employed the Statistical Process Control (SPC) approach using several quality control tools, namely check sheets, Pareto charts, cause-and-effect (fishbone) diagrams, control charts, and process capability analysis. The findings indicate that the color attribute contributed the largest proportion of defects, accounting for 35% of the total defects identified through Pareto analysis. The occurrence of these defects was associated with several factors, including labor, production methods, machinery and equipment, raw material quality, and fluctuating weather conditions. Furthermore, the results obtained from the *p*-control chart and process capability analysis reveal that the quality characteristics evaluated—namely color, texture, and cleanliness—remain within statistically controlled limits. Therefore, Home Industry Tempe Wedok is encouraged to sustain and continuously enhance its quality control practices in order to achieve higher-quality tempe products and maintain product consistency.*

Keywords: *Tempe, Quality Control, Statistical Process Control (SPC), Product Defects, Process Capability.*