

**Quality Control of Torn Bread Using Statistical Quality Control (SQC) and Failure Mode and Effect Analysis (FMEA) Methods at 99 Bakery**  
Annisa'U Choirun, S.T.P., M.T. (Pembimbing)

**Lisna Dwi Lestari**

Study Program of Food Engineering Technology  
Majoring of Agricultural Technology

**ABSTRACT**

The growth of the bakery industry in Jember Regency demands strict quality control. One business actor, 99 Bakery, faces various quality issues in its pull-apart bread products, such as physical defects including sunken bread, leaking fillings, and disproportionate shapes. This study aims to identify and formulate solutions to these defects by integrating Statistical Quality Control (SQC) and Failure Mode and Effect Analysis (FMEA) methods. The SQC analysis based on control charts found significant product defects during the period of January 29–30 and February 7, 2026 (especially in shift 2), with the number of defects reaching 67 to 71 units out of a total sample of 100 breads. The main problems are caused by inaccuracies in weighing ingredients, improper fermentation times, or work procedures not being properly followed. Then, the FMEA analysis results showed that the highest risk (RPN 180) was identified in collapse defects caused by the dough being overproofed. To minimize this risk, mitigation strategies are needed, such as providing training for employees, setting proofing time standards according to SOP, and using a timer or proofing control sheet to monitor proofing time.

**Keywords:** FMEA, Product Defects, Quality, Torn Bread, SQC