# STUDY ON THE FACTORS AFFECT ON THE INTEGRITY AND SEALING OF FLEXIBLE PACKAGING

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# ABSTRACT

In biscuit manufacturing, quality assurance plays a significant role in order to deliver a product that will attract the customers and profit gaining of the industry is closely related with the quality of packaging operations. End product package integrity is important when assuring quality of the product throughout the shelf life. At packaging, sealing defects may result damaged end products which will eventually absorb moisture and the biscuits may become stale and deteriorated along with shelf life. To prevent that, suitable machine settings of the packaging machine should be maintained and monitored. In this study, the integrity of end products belonged to two different types of flexible packaging materials (metalized and laminated wrapper), which was produced to different sets of temperature settings were monitored. Then two machine settings that were statistically significant were selected by preliminary analysis and the samples produced to those settings were subjected to accelerated life testing (ALT) for eight weeks. Weekly the package integrity, moisture content, pH and rancidity were monitored. After analyzing the preliminary data of the samples produced with metalized wrapper, the best machine setting was machine setting 02 (with temperature values in °C, RL1= 189, RL2= 197, UJ= 164, LJ= 163) and it showed low moisture absorbance and vacuum pressure values at the termination of package integrity was above 40 kPa, (when subjected to leak tester) and showed negative results for rancidity throughout the accelerated life testing. Weakest point of sealing was the middle of center seal. For the samples produced with laminated wrapper, it showed no significant effect from treatments (machine settings) and the best machine setting was RL1= 193°C, RL2= 196°C, UJ= 164°C and LJ= 162°C from the preliminary analysis, considering the mean vacuum pressure values at the point of termination of package integrity, when subjected to Leak tester. Laminated wrapper showed very low variations in moisture absorbance and vacuum pressure values (when checking the package integrity) when subjected to ALT. But the pH values decreased in increasing rate and there were very slight indication of rancidity of the biscuit sample at the end of last week of ALT. Weakest point of seal was the serrated edge of cutter seal.



***Key Words***: Accelerated Life Testing, Flexible packaging, Leak tester, Package integrity