

ABSTRACT

FARDAN NUR MUHARRAM. B.1510855. *Analysis of Effect Thickness Aluminum-foil and Machine Work Time on Damage Sachet Sweet Condensed Packaging.* Supervised by Rosy Hutami and Sri Rejeki Retna Pertiwi.

Sachet packaging has characteristics that are relatively inexpensive, have good barrier properties against water vapor and gas. However, sachet packaging also has the disadvantage of being easily damaged, the results of a preliminary study using causal analysis diagram and pareto diagram states that the thickness of aluminum-foil is thought to be a major factor in packaging damage such as neat or tangled packaging and visible inside of aluminum-foil . Therefore the researchers consider it important to analyze the influence of aluminum-foil thickness and machine working time on the damage to sachets. The method used in this study is a Factorial Complete Randomized Design (CRD) with the first treatment factor being the thickness of aluminum foil A1 (75 μ m), A2 (80 μ m) and A3 (85 μ m). The second treatment factor was machine work time B1 (2 hours), B2 (4 hours) and B3 (8 hours). Analysis of the data used is the ANOVA test and damage regression. The results showed 75 μ m aluminum-foil thickness resulted in an average damage of 1,513 sachets and 99.35% regression, 80 μ m aluminum-foil thickness content resulted in an average damage of 1,792 sachets and 99.69% regression and 85 μ m aluminum-foil thickness levels produced an average average damage of 3,603 sachets and 99.92% regression. This can prove that thicker aluminum-foil layer and the longer machine's working time, the higher level of damage. The high amount of damage caused by the machine is forced to work harder on media that exceeds the capacity of engine and cause a decrease in performance on the machine used.

Keywords: *sachet* packaging, damage, aluminum-foil, machine

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ABSTRAK

FARDAN NUR MUHARRAM. B.1510855. Analisis Pengaruh Ketebalan Alumunium-foil dan Waktu Kerja Mesin Terhadap Kerusakan Kemasan Kental Manis *Sachet*. Dibawah bimbingan Rosy Hutami dan Sri Rejeki Retna Pertiwi.

Kemasan *sachet* memiliki karakteristik yaitu harga relatif murah, memiliki sifat penghalang yang baik terhadap uap air dan gas. Namun kemasan sachet juga memiliki kekurangan yaitu mudah sekali mengalami kerusakan, hasil dari studi pendahuluan menggunakan analisis diagram sebab-akibat dan diagram pareto menyatakan bahwa ketebalan alumunium-foil diduga merupakan faktor utama kerusakan kemasan seperti kemasan tidak rapih atau kusut serta terlihat bagian dalam alumunium-foil. Maka dari itu peneliti menganggap penting untuk melakukan analisis pengaruh ketebalan alumunium-foil dan waktu kerja mesin terhadap kerusakan kemasan kental manis *sachet*. Metode yang dilakukan pada penelitian ini adalah Rancangan Acak Lengkap (RAL) Faktorial dengan faktor perlakuan pertama adalah ketebalan alumunium-foil $A_1(75\mu\text{m})$, $A_2(80\mu\text{m})$ dan $A_3(85\mu\text{m})$. Faktor perlakuan kedua yaitu waktu kerja mesin $B_1(2 \text{ jam})$, $B_2(4 \text{ jam})$ dan $B_3(8 \text{ jam})$. Analisis data yang digunakan yaitu uji ANOVA dan regresi kerusakan. Hasil penelitian didapatkan ketebalan alumunium-foil $75\mu\text{m}$ menghasilkan rata-rata kerusakan 1.513 *sachet* dan regresi 99,35%, kadar ketebalan alumunium-foil $80\mu\text{m}$ menghasilkan rata-rata kerusakan 1.792 *sachet* dan regresi 99,69% serta kadar ketebalan alumunium-foil $85\mu\text{m}$ menghasilkan rata-rata kerusakan 3.603 *sachet* dan regresi 99,92%. Hal ini dapat membuktikan bahwa semakin tebal lapisan alumunium-foil dan waktu kerja mesin yang semakin lama, maka tingkat kerusakan semakin tinggi. Tingginya jumlah kerusakan dikarenakan mesin dipaksa bekerja lebih keras terhadap media yang melebihi kapasitas mesin dan menyebabkan penurunan performa pada mesin yang digunakan.

Kata kunci : kemasan *sachet*, kerusakan, alumunium-foil, mesin.

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