

Duangtip Kukiatikulchai 2007: Effect of Coating Modified Starch and Sizing Agents on Properties of Kraft Liner in Cold Storage Application. Master of Science (Packaging Technology), Major Field: Packaging Technology, Department of Packaging Technology. Thesis Advisor: Mrs. Tunyarut Jinkarn, Ph.D. 121 pages.

The objective of this research was to improve water resistance and strength properties of kraft liner for cold storage application. The study was composed of four sections including the study effect of concentrations of oxidized starch and sizing agents. Using 3 types of sizing agent, Baysize<sup>®</sup> BMP Baysize<sup>®</sup> AGP and Cartacol<sup>®</sup> XPM. The effect of using different types of modified starches, oxidized and hydrophobic. The effect of adding wet strength resin into coating solution. And the effect of cold storage and moisture sorption characteristics of coated kraft liners in the cold room condition ( $13 \pm 1^{\circ}\text{C}$ ,  $88 \pm 2\%\text{RH}$ ). The results showed that higher starch concentration significantly increased water absorption and bursting strength of kraft liner ( $p \leq 0.05$ ). For sizing agent concentrations, there was an interaction between its concentration and oxidized starch which resulted in different water resistance levels at particular oxidized starch concentrations. This result showed in the same trend for 3 types of sizing agent. Using hydrophobic starch resulted in higher water resistance and bursting strength than using oxidized starch ( $p \leq 0.05$ ). And bursting strength of kraft liner was significantly increased after adding wet strength resin into coating solution. After the fourth week of storage in the cold room condition, bursting strength and RCT value in the MD direction of coated kraft liners were significantly higher than the uncoated one ( $p \leq 0.05$ ). At the RH between 74% - 87%, kraft liners coated with modified starch and sizing agent adsorbed less water than the uncoated liner. Coating kraft liner with modified starch and sizing agents can be applied in the industry level to improve the physical properties of kraft liners especially for cold storage application.



Student's signature



Thesis Advisor's signature

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