

Effect of NaOH Pretreatment on the Enzymatic Hydrolysis of Cotton Fabric

Heung Su Park and Young Ho Kim

Dept. of Textile Eng., Soong Sil University

Softening of cotton fabric by enzymatic hydrolysis was studied using cellulase from *Trichoderma viride* as enzyme. The effect of weight loss on the handle and the method to improve the tensile strength retention of enzyme-treated fabric were investigated.

The presence of neutral salt in the enzyme solution such as NaCl, MgCl₂, and KNO₃ decreased the weight loss, but the tensile strength retention was not affected when compared with the samples of the same weight loss treated without salts. When cotton fabric was pretreated with NaOH solution and was subjected to enzymatic hydrolysis, the weight loss was increased. Comparing two specimens of the same weight loss with and without NaOH pretreatment, both tensile strength and tensile strength retention were increased with the pretreatment. The moisture regain and the X-ray diffractogram of the treated samples showed no significant change. The molecular weight was decreased slightly with the weight loss. As the weight loss of the hydrolyzed fabric increased, the stiffness was decreased and the softness was increased when tested with Kawabada's Hand Evaluation System.