

골판지 고지의 물리화학적 처리에 의한 강도향상

(제3보 - 수초지의 물리적특성변화)

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Strength property improvement of OCC-based paper by chemical and mechanical treatments (3 - handsheet physical properties)

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ABSTRACT

This study is a continuation of the previous experimental analysis¹⁾ and is mostly focused on handsheet strength properties. Four completely different fibers, which were Hw-BKP, Sw-BKP, white ledger, and OCC, were selected to investigate the effect of mechanical pre-treatment by Hobart mixer on handsheet strength properties. After equal time mechanical pre-treatment, the fibers were refined with laboratory valley beater for 10, 20 and 30 minutes, and handsheets were prepared from the fibers for physical strength comparison. Handsheets from SW-BKP and OCC showed 5-30% increase of breaking length, burst index, tear index, and compression index while handsheets from HW-BKP and white ledger no increase except tear index. In Hobart mixer pre-treatment, HW-BKP and white ledger fibers were easily attached to the wall of the mixer bowl and mechanical action was not effectively applied. The fiber length of Hw-BKP and white ledger were 0.837mm and 1.591 mm, respectively, while SW-BKP and OCC were 2.744 mm and 2.033 mm, respectively, in weight weighted length. The effective mechanical pre-treatment seems to be related to the fiber length. Tear indexes of the pre-treated furnish were much higher than no pre-treatment at the same breaking length level.

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