

Determining weight-bearing tissue condition using peak reactive hyperemia response trend and ultrasonographic features: implications for pressure ulcer prevention

ABSTRACT

The performance of coir fiber in the production of linerboard made from soda-anthraquinone (soda-AQ) pulp was evaluated. Based on chemical analysis, the composition of coir fiber is suitable for the pulping process. Out of nine pulping conditions characterized, a pulping condition of 18% active alkali for 90 min cooking time was chosen. These conditions provided the highest screened yield (48.99%), a low rejection yield (0.27%), high viscosity (11.73 cP), and a kappa number (41) that is acceptable for unbleached linerboard production. Beating strengthened the coir pulp. Analyzing the beating revealed that coir pulp was optimized at 1000 to 2000 revolutions, based on a graph of freeness vs. burst index. For all beating conditions (1000 to 8000 revolutions), FESEM micrographs showed the presence of internal and external fibrillation of the fiber, which gradually increased fiber conformability and improved the inter-fiber bonding within the paper formation. Based on its burst strength of 4.57 kPa.m²/g and ring crush test of 1.76 Nm²/g, which complies with the minimum requirement of the industry standard, coir fiber can be considered an alternative fiber source for linerboard production.

Keyword: Coir fiber; Soda-AQ pulping; Pulp and paper; Beating; Linerboard