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## Abstract

In this study, water vapor transport properties of nano-fibrillated cellulose (NFC) and regenerated cellulose films, derived from different sources, were investigated and compared with the transport properties of unmodified paper. Gravimetric-IGA experimental system was used to measure the kinetics and water vapor permeabilities (WVPs) of the samples. Water vapor adsorption-desorption isotherms were measured for different cellulose films using Belsorp instrument. Monolayer moisture content was determined by fitting the adsorption isotherm with the Guggenheim-Anderson-De Boer equation (GAB model). The monolayer moisture content of the regenerated cellulose and NFC films were found to be more than two times larger than the monolayer moisture content obtained for unmodified paper sample (made from bleached Kraft pulp ~ 4.12 wt. %), at saturation. This indicates a large number of hydrophilic sites available on the surface of regenerated cellulose and NFC films.

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