Dimensional Stability of Cement Bonded Ceiling Board Made from Recycled Paper.

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ABSTRACT.
The effect of mixing ratio and paper blending proportion on paper cement bonded ceiling boards' dimensional stability was investigated using water absorption and thickness swelling tests at 24, 48 and 72 hours of soaking. These boards were made from100% old Newsprint paper, blend of Newsprint and Kraft paper at 50:50 and 100% Kraft paper mixed at cement/paper ratios of 1:1, 2:1 and 3:1 and C_aCl_2 additive concentration of 3%. The variation in the blending proportion and mixing ratio affected the density and dimensional stability the boards. Boards of higher mixing ratio and density absorbed less water than those of low mixing ratio because higher cement content and resultant higher density determined the moisture intake of the boards. The results showed that there was difference in water absorption at the different hours but there were no changes in thickness swelling after 48 and 72 hours soaking. The highest level of water absorption and thickness swelling were recorded at the lowest mixing ratio of 1:1 and 100% blending of Newsprint alone. It was observed that water absorption and thickness swelling reduced with increase in mixing ratio and blending proportion. The results further revealed that boards made from 100% Kraft paper were dimensionally stable and addition of Kraft paper to Newsprint at 50:50 ratio improved dimensional stability. This made the boards durable and suitable for use where ceiling board is prone to leakage and in an environment of high humidity which cause swelling in panel products.

Keywords: Kraft-paper, Newsprint paper, Water absorption, Thickness swelling.