Fibalto: Natural Fibers as a Reinforcing Material in the Manufacture of Flat Sheets of Fiber Cement

Perez, Milton

Canaveral Guisao, Daniela

This research aims to analyze the relationship between the addition of natural fibers to FIBALTO fiber cement flat sheets and the final properties of density, moisture absorption and the flexural strength of the fiber-reinforced material. For the tests, fibers of Sugarcane Bagasse and Grass Clippings Sp1. were tested separately after being treated with a 5% calcium hydroxide mixture and subsequently incorporated randomly into the cementitious matrix. The mixture was poured into 305x152x11mm test samples (ASTM C 1185), forged at room temperature (ISO8336) and subsequently subjected to physical and mechanical tests (ASTM C 1185). A descriptive analysis based in dispersion measures was used to analyze the variability of the data set of physical evidence. It found that the average values of density, moisture content and absorption in the sheets reinforced with Sugarcane Bagasse were 1.32 (± 0.02), 10.9 (± 1.09) and 20.2 (± 4.35), while the results for the test sample reinforced with Grass Clippings Sp1 were 1.35 (± 0.074), 9.01 (± 0.670) and 19.8 (± 4.12) respectively. There were no significant differences of density or absorption between the two trials and, evaluated with respect to density and moisture, the samples show properties close to those of a sheet of SUPERBOARD SKINCOCOLOMBIT. The flexural strength recorded by the sheets was lower than the minimum established by the ISO8336 standard, however as this is an initial study, it is necessary to perform physical, chemical and mechanical tests on a greater number of test samples to determine the classification and potential application of FIBALTO sheets.

Awards Won: