

STRENGTH AND ELASTIC BEHAVIOR OF METAKAOLIN-BASED AND BAMBOO FIBER REINFORCED GEOPOLYMERS

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Amazonian metakaolin-based and bamboo fiber reinforced geopolymers were studied by means of the strength and elastic aging behaviors for construction materials applications. Scanning electron microscopy and energy dispersive x-ray fluorescence were used to investigate the microstructure of the composite materials. X-ray diffraction was used to confirm the reliability of the samples as being geopolymers. The geopolymer matrix (GP) and the GP reinforced with bamboo fiber (GPBF) samples were aged-dried at room conditions for the periods of 1-7-28 days. The GP and GPBF ultimate compressive stress increased with age from 1-day to 28-day, while elastic modulus decreased with age. The GPBF samples ultimate compressive stresses and elastic moduli were lower than the GP samples values, but still can be suitable as sustainable construction materials.