MONITORING OF FIBER REINFORCED POLYMER DEGRADATION WITH ULTRASOUND

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This research focusses on monitoring the degradation of Fiber Reinforced polymer (FRP) composites using ultrasonic testing. The study aims to assess the impact of ultraviolet (UV) radiation on FRP materials and establish a correlation between ultrasonic wave velocity, attenuation, and mechanical properties. Five FRP samples, fabricated according to ASTM D638 standard dimensions, are subjected to different UV exposure durations, are subjected to different UV exposure durations. Ultrasonic measurements are conducted before and after degradation to detect changes in wave velocity and attenuation. Tensile testing is performed to evaluate the sample's mechanical properties. The results show how ultrasonic testing can effectively identify degradation in FRP composites and provide insights into their lifespan under UV exposure. The research contributes to understanding degradation mechanisms and optimizing maintenance strategies for FRP composite structures.

Keywords: Fiber Reinforced Polymer Composite, Ultrasonic Testing, UV Degradation, Non-Destructive Evaluation, Ultraviolet Radiation