

ABSTRACT

This project investigates the fracture toughness of fiber-reinforced concrete using different types and combinations of fibers, specifically hooked-end steel fibers and glass fibers. The fibers were incorporated into concrete at individual proportions of 0.1% and 1%, as well as in combined hybrid mixtures of 0.2% and 0.5%. The objective was to evaluate the effectiveness of each fiber type and their combinations in enhancing the fracture resistance of the concrete matrix. Experimental tests were conducted to assess the mechanical performance, with a particular focus on fracture toughness. The results indicate that hybrid fiber combinations exhibited superior fracture toughness compared to mixes containing only a single type of fiber. Among all mixes, the optimal fiber combination was identified based on performance metrics, offering insights into the synergistic effect of steel and glass fibers in improving concrete durability and crack resistance.