ABSTRACT

The project investigates the effects of varying glass fiber content (0.15%, 0.20%, 0.25%) and the replacement of fine aggregate with 25% foundry sand on the fresh and mechanical properties of self-compacting concrete (SCC). Foundry sand, a byproduct of metal casting, is used to partially replace fine aggregates to promote sustainability in construction. Glass fiber is incorporated to enhance the mechanical properties of SCC, particularly its strength and durability. The study focuses on assessing the workability of SCC (slump flow, passing ability, and segregation resistance) and its mechanical properties, including compressive strength, flexural strength, and split tensile strength. The research aims to identify the optimal glass fiber percentage for improved performance while considering the sustainable aspect of using foundry sand. The results are expected to provide insights into how glass fiber and foundry sand together can enhance the properties of SCC, offering a more durable and eco-friendlier alternative for construction materials.