

An Analytical Research on Analysis of using Rice Husk Ash and Copper Slag in Geopolymer Concrete

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Abstract: *This paper tries to evaluate their effects on mechanical qualities, microstructural features, durability, sustainability, and financial viability. Along with indicators of durability including acid resistance and chloride penetration, extensive testing was conducted to evaluate how well the many concrete mixes made with varying copper slag concentrations performed. The findings indicate that adding up to 40% more copper slag to fine aggregate will increase the material's early-age strength and resistance to acid deposition and chloride intrusion. Still, too much slag and RHA content increases the material's porosity, therefore compromising its strength and durability. The economic analysis suggests that better mix designs might produce benefits connected to sustainability as well as cost savings. The findings underline the requirement of balanced mix designs, additional long-term durability research, and nanostructural investigations; they also show the possibilities of industrial byproducts in ecologically friendly building techniques*

Keywords: Copper slag, rice husk ash, concrete, sustainable construction, mechanical properties, durability, economic analysis