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MECHANICAL AND DURABILITY PROPERTIES OF SELF COMPACTING CONCRETE WITH WASTE GLASS POWDER: A STUDY

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Abstract: The goal of promoting sustainable materials in construction industries increased the interest in use of recycled materials. One such type of recycled material which can provide sustainability towards environment is 'waste glass powder' (WGP). The waste glass powder obtained from fine grinding of crushed containers and building materials can be used as the partial replacement for cement. The present paper studied the effect of replacement of cement by waste glass powder in terms of physical, mechanical (compressive strength, split tensile strength and flexural strength) and durability (sorptivity and acid attack, 5% HCL solution) properties of self compacting concrete. The parameters of the study include grade of concrete (M_{20} and M_{40}), level of replacement of WGP (0%, 10%, 20%, 30% and 40% by weight of cement). The study concluded that the increase in level of replacement of WGP upto 20% improved the mechanical and durability properties.

Keywords: *Waste Glass Powder; Self Compacting Concrete; Sustainability; Compressive strength; Sorptivity.*

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