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Experimental Study of Mechanical and Durability Properties of HPC Made with Binary Blends of Cement

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Abstract : The aim of the research reported in this paper is to assess the Strength and durability performance of High Performance Concrete containing different percentages of waste marble powder produced from marble industry. Concrete mixes possessing a target mean compressive strength of 70MPa were prepared with 0%,5%,10%,15% and 20% cement replacement by waste marble powder with W/B =0.33. More specifically, the compressive strength, flexural strength, chloride penetration, sorptivity and accelerated corrosion were determined. Concrete containing 10% waste marble powder proved to have best Mechanical and durability properties than other mixtures made with binary blends. However, poorer performance was noticeable when replacement percentage was higher. The replacement of Waste Marble Powder will have major environmental benefits.

Keywords : durability, high performance concrete, marble waste powder, sorptivity, accelerated corrosion
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