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Performance of Structural Concrete Containing Marble Dust as a Partial Replacement for River Sand

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Abstract : The paper present the results of experimental investigation carried out to understand the mechanical properties of concrete containing marble dust. Two grades of concrete viz. M25 and M35 have been considered for investigation. For each grade of concrete five replacement percentages of sand viz. 5%, 10%, 15%, 20% and 25% by marble dust have been considered. In all, 12 concrete mix cases including two control concrete mixtures have been studied to understand the key properties such as Compressive strength, Modulus of elasticity, Modulus of rupture and Split tensile strength. Development of Compressive strength is also investigated. In general, the results of investigation indicated improved performance of concrete mixture containing marble dust. About 21% increase in Compressive strength is noticed for concrete mixtures containing 20% marble dust and 80% river sand. An overall assessment of investigation results pointed towards high potential for marble dust as alternative construction material coming from waste generated in marble industry.

Keywords : construction material, partial replacement, marble dust, compressive strength
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