

## Effects of the Usage of Marble Powder as Partial Replacement of Cement on the Durability of High Performance Concrete

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**Abstract :** This paper reports an experimental study of the influence of marble powder used as a partial substitute for Portland cement (PC) on the mechanical properties and durability of high-performance concretes. The analysis of the experimental results on concrete at 15% content of marble powder with a fineness modulus of 11500 cm<sup>2</sup>/g, in a chloride environment, showed that it contributes positively to the perfection of its mechanical characteristics, its durability with respect to migration of chloride ions and oxygen permeability. On the basis of the experiments performed, it can be concluded that the marble powder is suitable for formulation of high performance concretes (HPC) and their properties are significantly better compared to the reference concrete (RC).

**Keywords :** marble powder, durability, concrete, cement

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