TRANSPORT PROPERTIES OF MORTARS AND CONCRETES MODIFIED WITH MEDIUM HYDRAULIC ACTIVITY GROUND GRANULATED BLAST FURNACE SLAG

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Abstract:

Mechanical characteristics and durability of ground granulated blast furnace slag cernent composites depends on the hydraulic activity of the slag. Algerian Blast furnace slag is characterized by a quite slow reactivity. Porosity and transport properties of mixes containing up to 50% OPC replacement are compared and analyzed. Mechanical strength, pore size distribution and capillary water absorption are studied after 28 and 90 days of wet curing. The durability of blast furnace slag cement concrete is evaluated through nitrogen permeability and water penetration depth under pressure. First observations seem to indicate finer porosity and lower water absorption than with 100% CEM I 52.5 mortars. Moreover, lower permeabilities to nitrogen and water are also observed for 50% blast furnace slag substitution.