

عنوان مقاله:

PERFORMANCE OF NOVEL COVENTRY BINDER AS CEMENT REPLACEMENT

محل انتشار:

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نویسندگان:

H Sadeghi Pouya - *Department of the Built Environment, Faculty of Engineering & Computing, Sir John Laing Building, Coventry University, Coventry, UK*

E Ganjian

خلاصه مقاله:

Global warming due to emission of green house gasses is one of the main challenges in the twenty first century. The industrial activities have a major impact on global warming due to emission of a large quantity of green house gasses by industries particularly cement manufactures. Production of one ton of Portland cement produce approximately one ton of carbon dioxide. In addition a large quantity of good quality natural limestone is used in production of cement which leads to significant reduction in natural resources. A novel cementitious material (Coventry Binder) was developed at Department of Civil Engineering, Coventry University using 100% industrial wastes (i.e. Basic Oxygen Slag, Plasterboard gypsum waste and cement by pass dust). This paper presents the result of investigation on performance of the novel binder as cement replacement. Paste, mortar and concrete samples were prepared with various proportions of Coventry binder, Portland cement and run of station ash. The compressive strength and density of samples were measure at 3, 7, 28 and 90 days. It was found that paste mixes containing 5 % and 10 % of Coventry Binder in binary system Coventry Binder-OPC gained higher strength at 28 days than OPC samples. Increasing Coventry Binder content in paste mixes results in a considerable decrease of compressive strength.

کلمات کلیدی:

pozzolanic materials, plasterboard gypsum waste; sustainability, basic oxygen slag, Coventry binder, run of station ash, compressive strength

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