

Effect of Glass Powder as Partial Replacement of Cement on Concrete Strength and Stress-Strain Relationship

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Abstract—This research involves the study of different concrete mixes contained waste glass powder as cement replacement ,then it was compared to control mixes. Waste glass powder was used as replacement percentages of cement weight (10, 15, 20 and 25%). The laboratory program consisted of fifty-four cubes have 100×100×100mm to test the compressive strength of concrete specimens at 28, 56 and 90 days, and nine cylinders have dimensions (300×100mm) to test stress strain of concrete at 28 days. All specimens that contained waste glass powder showed good strength compared with reference mixes besides satisfactory performance. From experimental results, the use of 15% WGP is best level among other percentages at 28, 56 and 90 days. From stress – strain relationships and for the same load the strain is less for specimens contain glass powder, which mean a more brittle behavior