

Behavior of concrete by steel slags aggregates

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Abstract – The goal of the study is to extend the possibility of using waste from steel in construction. The paper analyzes the behavior of concrete made with aggregates of steel slag. The experimental method checks the mechanical properties of concrete produced with total replacement of natural aggregates by steel slag, with characteristic strength of 30MPa scheduled to 28dias. Compression strength and tensile strength were determined at 3, 7 and 28 days. To determine the modulus of elasticity was used "strain gages" and "clip gage". The results point to the use of the recycled reinforced concrete.

The Table 1 presents data from tests for aggregates physical characterization.

Material	Density (g/cm ³)	Unit Weight (kg/dm ³)	Humidity (%)	Powder material (%)
Sand	2,57	1,45	5,3	0,4
Steel slag (0-4,8)mm	3,06	1,74	10,2	9,0
Limestone 0	2,42	1,37	3,2	
Steel slag (9,5-12,5)mm	2,88	1,76	6,5	
Limestone 1	2,61	1,37	2,8	
Steel slag (12,5-25)mm	2,94	1,73	4,9	

The Figure 1 represents a variation strain with time for conventional concrete specimens CC14 obtained by strain gages and clip gage. The results obtained for two instrumentation techniques and theoretical values for each concrete type are showed in Figure 2.

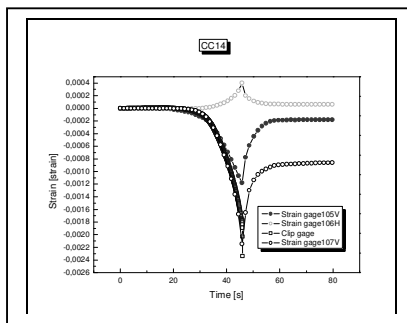


Figure 1: Conventional concrete

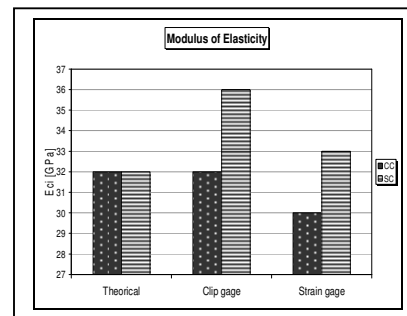


Figure 2: Modulus of Elasticity.

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