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Replacement of Fine Aggregate Spent Fire Bricks Partially in Concrete

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Abstract: This study, about the replace of fine aggregate with the crushed spent fire bricks and some of the wastes are been used in the land filling in the constructions. Those bricks are been wasted in the construction by brakeage by loading and unloading. The compressive strength is been compared in the study, the replacement on the percentages (25, 50, 75, 100%) at 7, 14 and 28 days, respectively. Then, the compressive strength is tested and tabulated.

Key words: Fine aggregate, spent fire bricks, concrete, spent, brakeage, loading

INTRODUCTION

Crushed spent fire bricks: An exploratory examination of quality and toughness was attempted to utilize spent fire bricks for halfway substitution of fine total (Kesegic *et al*., 2008) in cement. The compressive quality of halfway substitution of crushed spent fire bricks total cement is insignificantly higher than that of the stream sand total cement at age of 7, 14 and 28 days (Sohaib *et al*., 2001) separately. The split elasticity of fractional substitution of CSFB total cement is higher than that of the waterway sand total at all ages. The modulus of flexibility of incomplete substitution of CSFB total cement is barely higher (Khalaf and DeVenny, 2004) than that of the stream sand total cement. Analysis by Raval *et al*. (2013) and Raut *et al*. (2013) effective replacement of cement for establishing sustainable concrete (Fig. 1).

MATERIALS AND METHODS

Compressive strength: The normal compressive quality (Fig. 2) for various percentages (25, 50, 75, 100%) at age 7, 14 and 28 days. Figure 2 demonstrates the test of the compressive strength. Thermal properties of CuGaS 2 crystals by Chemical Vapor Transport (CVT) method (Sugan *et al*., 2015) and thermal properties of polypropylene/montmorillonite nanocomposites (Selvakumar and Manoharan, 2014) for finding the strength. The graphical portrayal demonstrates the compressive quality of the fire bricks.

RESULTS AND DISCUSSION

The replacement of fine aggregate spent fire bricks partially in concrete are been tested and recorded (Table 1) in the table and it is been shown as a representation (Fig. 3) according to the percentages (25, 50, 75, 100%) on their durations of 7, 14, 28 days.

Fig. 1: Crushed spent fire bricks

Fig. 2: Compressive test

Table 1: Result compressive strength on concrete

Replacement percentage of spent fire bricks (%)	7 days	14 days	28 days
25	19.15	28.35	38.94
50	22.44	30.81	39.50
75	19.07	26.90	32.67
100	18.46	27.84	31.72

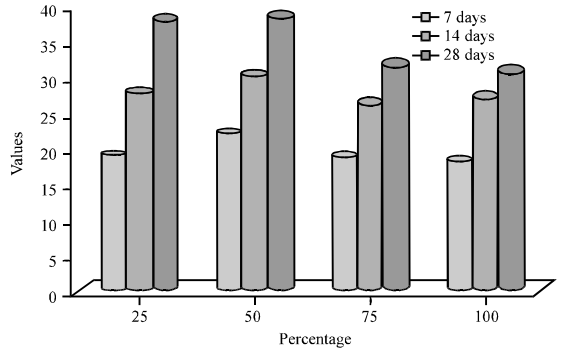

Fig. 3: Graphical representations on the results

CONCLUSION

Thus, the compressive strength is been analyzed for the replaced concrete on demolition waste at the percentages (25, 50, 75, 100%) at 7, 14 and 28 days in that results are been recorded above in the result 25 and 50% are efficient than other percentages.

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