عنوان مقاله:

Compressive Strength and Bulk Density of Concrete Hollow Blocks (CHB) with Polypropylene (PP) Pellets as Partial Replacement for Sand

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خلاصه مقاله:

Plastics are non-biodegradable and the increasing generation of plastics creates a problem of disposal. One promising approach to address this problem is to find other uses for plastics after they are used. While studies on the incorporation of waste materials in concrete abound, little attention has been given to the incorporation of plastic wastes in concrete. Also, these few studies have focused on cylindrical concrete specimens – none in online published articles, to the authors' knowledge, has focused on concrete hollow blocks. The present study narrowed that gap by shifting the focus of research from the conventional cylindrical specimen to concrete hollow block. Thus, the main objective of the study was to assess the potential of concrete hollow blocks with PP pellets as partial replacement for sand. Polypropylene (PP), which is a subset of these plastics, were pelletized and incorporated in concrete hollow blocks as partial replacement for sand. Five batches of specimens, each with 0%, 10%, 20%, 30%, 40% PP replacement (by volume) were molded and cured for 28 days. The compressive strength and bulk density of the specimens from these batches were determined and compared. Results showed that, generally, compressive strength and bulk density decrease as percent replacement increases; however, it was observed that the compressive strength of the specimens from batch with 10% PP replacement were higher compared to batches with 0% PP .replacement

کلمات کلیدی:

Polypropylene Pellets; Compressive Strength; Bulk Density; Concrete Hollow Block