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Utilisation of Plastic Wastes in Making Plastic ICEB

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Abstract

Plastic waste is one of the major problems in this modern era which constitutes 80% of all marine pollution. Some research states that, by 2050, plastic will likely outweigh all fish in the sea. Plastic is biologically non-degradable thus have severe adverse impacts such as reducing the fertility of land, climate change, harming the aquatic and terrestrial life etc. Thus, it is very necessary to reduce the use of plastics either by recycling or reusing. Mixing certain quantities of waste plastic in making the ICEB (Interlocking Compressed Earthen Brick) is one of the methods of recycling it. The plastic mixed ICEB has many advantages over conventional burnt clay brick such as low carbon emission, conservation of fertile soil, sand mining reduction, less mortar consumption, cheap etc. However, the optimum quantity of plastic that can be utilized for making plastic mixed ICEB having the best compressive strength and water absorption needs to be determined.

In this research, using various plastics; PP Sag (Polypropylene), MLP (Multi-layer plastic) and PET (Polyethylene Terephthalate) of various percentage by weight (0%, 0.1%, 0.25%, 0.5%, 0.75%, 1%), no of plastic ICEB specimens were produced and were subjected to compressive and water absorption test. On testing we found that 0.1% PET plastic ICEB gave the best strength (5.848 N/mm2) and the best water absorption (9.235%) which is even better than the non-plastic ICEB having strength of 5.609 N/mm2 and water absorption of 9.47%.

Keywords: *demoulding failure, interlocking compressed earthen brick, multi-layer plastic, polyethylene terephthalate, polypropylene*

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