Review of the use of E-waste in concrete production: challenges and prospects

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Abstract

Due to the obvious negative environmental effect of electronic waste because of its limited biodegradability, experts worldwide are interested in developing sustainable construction materials utilizing e-waste and its recovered extractions. The current review attempts to reassess E-waste use in the production of concrete. To assess problems and opportunities in the use of these waste materials, their physical, structural, and durability qualities will be investigated. The study shows the efficiency of E-waste in the improvement of fresh properties and a decrease in the hardened properties of concrete with varying effects on durability properties. The study shows the addition of waste materials such as fly ash, waste glass, and steel slag helps improve some of these properties. However, further research is recommended to develop other means of improving E-waste concrete strength properties for wider acceptance and utilization in the construction industry. This appraisal will help to promote sustainable and cheap E-waste development in the building sector. It will also help to alleviate strain on naturally existing concrete aggregates, as well as reduce pollution of landfill sites, groundwater, and, of course, protect the health of organisms and ecosystems.

A review on the utilization of E-plastic waste in concrete production: a step towards sustainability

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Experimental Investigation on E-waste as a Partial Replacement to Fine Aggregate in M50 Grade Concrete

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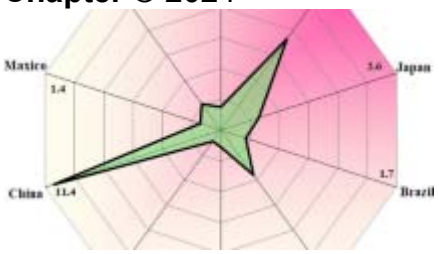

An assessment of workability, mechanical and durability properties of high-strength concrete incorporating nano-silica and recycled E-waste materials

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Data availability

All the available data for this article have been presented in the article submitted.

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