

An Overview of Electronic Waste as Aggregate in Concrete

Authors : S. R. Shamili, C. Natarajan, J. Karthikeyan

Abstract : Rapid growth of world population and widespread urbanization has remarkably increased the development of the construction industry which caused a huge demand for sand and gravels. Environmental problems occur when the rate of extraction of sand, gravels, and other materials exceeds the rate of generation of natural resources; therefore, an alternative source is essential to replace the materials used in concrete. Now-a-days, electronic products have become an integral part of daily life which provides more comfort, security, and ease of exchange of information. These electronic waste (E-Waste) materials have serious human health concerns and require extreme care in its disposal to avoid any adverse impacts. Disposal or dumping of these E-Wastes also causes major issues because it is highly complex to handle and often contains highly toxic chemicals such as lead, cadmium, mercury, beryllium, brominated flame retardants (BFRs), polyvinyl chloride (PVC), and phosphorus compounds. Hence, E-Waste can be incorporated in concrete to make a sustainable environment. This paper deals with the composition, preparation, properties, classification of E-Waste. All these processes avoid dumping to landfills whilst conserving natural aggregate resources, and providing a better environmental option. This paper also provides a detailed literature review on the behaviour of concrete with incorporation of E-Wastes. Many research shows the strong possibility of using E-Waste as a substitute of aggregates eventually it reduces the use of natural aggregates in concrete.

Keywords : dumping, electronic waste, landfill, toxic chemicals

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