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Guided By

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Project Title

IMPROVEMENT OF PROPERTIES OF CONCRETE USING EPOXY RESIN

Abstract:

Concrete is the most versatile construction material because it can be designed to withstand the harshest environments while taking on the most inspirational forms. Engineers are continually pushing the limits to improve its performance with the help of innovative chemical and mineral admixture. Nowadays, most concrete mixture contains supplementary cementations material which forms part of the cementations component. These materials are majority by-products from other processes. The main benefits of SCMs are their ability to replace certain amount of cement and still able to display cementations property, thus reducing the cost of using epoxy resin. The fast growth in industrialization has resulted in tons and tons of by-product or waste materials, which can be used as SCMs such as Epoxy resin, fly ash, marble dust, ground granulated blast furnace slag, steel slag etc. The use of these by-products not only helps to utilize these waste materials but also enhances the properties of concrete in fresh and hydrated states. Epoxy resin most common SCMs used in concrete. Most concrete produced today includes one or both of these materials. For this reason their properties are frequently compared to each other by mix designers seeking to optimize concrete mixtures. Research indicates that deficiency associated with the use of epoxy resin cement is its low strength especially in early age. Research studies indicate that inclusion of epoxy resin in binder mix positively improves the strength of the matrix and its chemical resistance but can create increase in water demand, placing difficulties, plastic shrinkage etc. However, all these materials have certain shortfalls but a proper combination of them can compensate each other's drawbacks which may result in a good matrix product with enhance overall quality.

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