

Reviewing Some Properties of Ultra High Performance Concrete

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Abstract:- This paper, a comprehensive literature review has been conducted to highlight the manufacturing principles and properties of UHPC. The affluent production of UHPC depends upon its compositional materials, water to binder ratio and the mix design approach. This review also divulges that the curing conditions, aggregates and fibre properties, specimen size and the strain rates are the key factors in controlling the mechanical and durability properties of UHPC. Moreover, along with its various properties, attempts have been made to address the current challenges and their solutions so far, for their widespread economical usage.

Keywords: *Design approach, Durability properties, Interfacial transition zone, Manufacturing principles, Mechanical properties, Ultra high performance concrete.*

which affects its heat of hydration along with its production cost [7]. It's complicated mix design and very high manufacturing cost has limited its use to the mass structures only. Hence, studies are required to overcome these drawbacks and to make it an economical and efficient construction material.

2. MANUFACTURING PRINCIPLE

The most important principle for the production of UHPC includes i) microstructure improvement ii) homogeneity enhancement iii) porosity reduction iv) excellent hydration and v) toughness betterment [8]. In comparison to conventional concrete, its Interfacial Transition Zone(ITZ) is extremely dense, less porous and highly compact (Fig.