

Development of High Strength Self Curing Concrete Using Super Absorbing Polymer

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Abstract : Concrete is an essential building material which is widely used in construction industry all over the world due to its compressible strength. Curing of concrete plays a vital role in durability and other performance necessities. Improper curing can affect the concrete performance and durability easily. When areas like scarcity of water, structures is not accessible by humans external curing cannot be performed, so we opt for internal curing. Internal curing (or) self-curing plays a major role in developing the concrete pore structure and microstructure. The concept of internal curing is to enhance the hydration process to maintain the temperature uniformly. The evaporation of water in the concrete is reduced by self-curing agent (Super Absorbing Polymer - SAP) thereby increasing the water retention capacity of the concrete. The research work was carried out to reduce water, which is prime material used for concrete in the construction industry. Concrete curing plays a major role in developing hydration process. Concept of self-curing will reduce the evaporation of water from concrete. Self-curing will increase water retention capacity as compared to the conventional concrete. Proper self-curing (or) internal curing increases the strength, durability and performance of concrete. Super absorbing Polymer (SAP) used as internal curing agent. In this study 0.2% to 0.4% of SAP was varied in different grade of high strength concrete. In the experiment replacement of cement by silica fumes with 5%, 10% and 15% are studied. It is found that replacement of silica fumes by 10 % gives more strength and durability when compared to others

Keywords : compressive strength, high strength concrete rapid chloride permeability, super absorbing polymer

Conference Title : ICCEBM 2015 : International Conference on Civil Engineering and Building Materials

Conference Location : Bangkok, Thailand

Conference Dates : December 17-18, 2015