

CHARACTERISTICS OF HYBRID FIBRE REINFORCED CONCRETE (HFRC)-AN EXPERIMENTAL STUDY

Dr. Prahallada M.C¹ and Dr. Prakash K.B²

1. Professor, Department of Civil Engineering, Christ University Faculty of Engineering, Bangalore-560060 (Karnataka), INDIA. Email: mcprahallada@yahoo.com
2. Principal, Government College of Engineering, Devagiri, Haveri-581110 (Karnataka), INDIA. Email: kbprakash04@rediffmail.com

ABSTRACT

Many fibres are obtained as industrial waste. For example the lathe machines produce coiled fibres, which can be used as waste steel (metallic) coiled fibres in the production of FRC. Similarly, the waste plastic is another waste material. The disposing of waste plastic is causing environmental pollution. The plastic is a non-biodegradable material, neither decays nor degenerate it either in water or in soil. In turn it pollutes the water and soil. The plastic if burnt releases many toxic gases, which are very dangerous for the health. Such plastic, which is non-biodegradable material, can be used in concrete in the form of fibres to impart some additional desirable qualities to the concrete along with the waste coiled fibres as mixed fibres. In this experimentation, an attempt is made to produce a Hybrid fibre reinforced concrete by using waste metallic coiled fibres and waste plastic fibres having different modulus of elasticity are combined together for concrete better results and to study the strength and workability properties of hybrid fibre reinforced concrete, experiments have been conducted by keeping the waste coiled steel (metallic) fibres percentage as constant at 3% and varying the percentage of waste plastic fibres such as 0%, 1%, 2%, 3%, 4%, 5% and 6%.

KEY WORDS: Metal coil, Waste plastic fibres, strength and workability characteristics