## Influence of Scrap Tyre Steel Fiber on Mechanical Properties of High Performance Concrete

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**Abstract :** This research aims to investigate the use of Scrap Tyre Steel Fibers (STSF) for the production of fiber reinforced high performance concrete. The Scrap Tyre Steel Fibers (STSF) were obtained from dealers that extracted the fibers by burning the scrap tyres and were characterized. The effect of STSF was investigated on grade 50 concrete of 1:1.28:1.92 with water cement ratio of 0.39 at additions of STSF of 0, 0.5, 1.0, 1.5, 2.0 and 2.5% by volume of concrete. The fresh concrete was tested for slump while the hardened concrete was tested for compressive and splitting tensile strengths, respectively at curing ages of 3, 7, 28 and 56 days in accordance with standard procedure. The results indicate that slump decreased with increase in STSF, while compressive and splitting tensile strengths increased with increase in STSF up to 1.5% and reduction in strength with increase in STSF above 1.5%. 1.5% STSF was considered as the optimum dosage with a 28 days increase in compressive strength and splitting tensile strength of 12.3% and 43.8% respectively, of control.

Keywords : compressive strength, high performance concrete, scrap tyre steel fiber, splitting tensile strength

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