



Performance of SCC with Triple Blending in Hardened Properties

K.G.Annapurna^{1*}, C.Sashidhar², D.Pavan Kumar²

¹PG Scholar in Structural Engineering, JNTUCEA, Anantapur, India.

²Department of Civil Engineering, JNT University, Anantapur, India.

Abstract:Concrete is the most any nation. Civil engineering practice and construction works around the versatile heterogeneous construction material and the impetus of infrastructural development of world depend to a very large extent on concrete. Self-compacting concrete or self-consolidating concrete (SCC) is a highly flowable, non-segregating concrete that can spread into place, fill the formwork, and encapsulate the reinforcement without any mechanical consolidation. When large quantity of heavy reinforcement is to be cast in a reinforced concrete member, it is difficult to ensure that the formwork gets completely filled with concrete. In this paper an experimental study was made on fresh and hardened properties of self compacting concrete (SCC) with mineral admixtures like fly ash, metakaolin, silica fume and chemical admixture Conplast SP 337 as super plasticizer. Based on the guidelines given by European Federation of National Associations for Representing Concrete (EFNARC) the mix design for SCC is obtained. In this study the self compacting concrete is obtained from cement, coarse aggregates, fine aggregates (Robo sand), water, mineral admixtures (fly ash, metakaolin & silica fume), and super plasticiser. The robo sand is used for various Fineness Modulus like 2.5, 2.7, 2.9. The proportions of the admixtures are fly ash (25%), Metakaolin (5%), Silica Fume (5%). The fresh properties of self compacting concrete like Slump flow, T₅₀ spread time, V-funnel, L-box tests and hardened properties like compressive strength, split tensile strength and flexural strength are tested. The strength tests of SCC are conducted after 7, 28 and 90 days of curing at room temperature.

Key Words: Self Compacting Concrete, Fineness Modulus, Fly ash, Silica Fume (SF), Metakaolin (MK), Viscosity Modifying Agent (VMA).