

INFLUENCE OF RICE HUSK ASH AND METAKAOLIN ON THE STRENGTH PROPERTIES OF TERNARY BLENDED CONCRETE WITH RECYCLED COURSE AGGREGATE

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ABSTRACT

Ternary blended concrete is developed by partial replacement of cement with metakaolin and rice husk ash. In the last decade the use of supplementary cementing materials has become an integral part of high strength and high performance concrete mix design. Rice husk ash is a by-product material obtained from the controlled combustion of rice husk which consists of non crystalline silicon dioxide with high specific surface area and high pozzolanic reactivity. Metakaolin helps to reduce the amount of calcium hydroxide, thus resulting in stronger and durable concrete. Another advantage of using SCMs is increase in durability of concrete which consequently results increase in resource use efficiency of ingredients of concrete which are depleting at very fast rate. Long term performance of structure has become vital to the economies of all nations. In the present experimental investigation an attempt is made to evaluate the workability and compressive strength of M20 concrete for 7 and 28 days curing period. Cement was replaced with rice husk ash at 0%, 5%, 10%, 15% & 20% and metakaolin of 5% was chosen for all trail mixes. Locally available demolished recycled coarse aggregate having the maximum size of 20 mm was used in place of coarse aggregate. A constant water binder ratio of 0.5 was adopted. The results summarizes that the concrete made with these trail mixes shows excellent fresh and hardened properties.

KEYWORDS: Compressive Strength, Metakaolin, Rice Husk Ash, Ternary Blended Concrete and Workability