

## **INFLUENCE OF METAKAOLIN AND SILICA FUME ON RHEOLOGICAL AND MECHANICAL PROPERTIES OF SELF COMPACTING CONCRETE**

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### **ABSTRACT**

Self Compacting Concrete may be defined as a flowing concrete that can be cast into place without the use of vibrators to form a product free of honeycombs and bugholes. Metakaolin is a dehydroxylated form of the clay mineral kaolinite. Stone that are rich in kaolinite are known as china clay or kaolin, traditionally used in the manufacture of porcelain. The particle size of metakaolin is smaller than cement particles, but not as fine as silica fume. Silica Fume or condensed silica is another material that is used as an artificial pozzolanic admixture. This study investigates the effects of replacement by weight of cement or sand by metakaolin and silica fume. It has been found that the rheological behavior of Self Compacting Concrete is affected by the incorporation of metakaolin and silica fume. The compressive strength is increased significantly and a similar trend is observed at increased replacement levels. A lower but still noticeable improvement in split tensile strength is also found. However the rheological and Mechanical behavior of concrete produced by replacement by weight of cement was found to be more efficient than replacement by weight of sand.

**KEYWORDS:** Self Compacting Concrete, Meta kaolin, Silica Fume, Rheology, Compressive Strength, Split Tensile Strength