

## **The Effect of Nanoparticles of Ordinary Portland Cement (OPC) on Compressive Strength of Concrete**

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### **ABSTRACT**

The quality of a construction material satisfies stability of structure. Several additives have been innovated for improve quality of compressive strength of concrete. In this paper for enhancement of compressive strength of concrete, a simple method has been proposed. The kaolin and bentonite have been treated by heat for duration of 1 hour, with constant temperature. For kaolin 200°C, 400°C, 600°C, 800°C, 1000°C and 1200°C of heat, and for bentonite 200°C, 400°C, 600°C, 800°C of heat has been subjected. The kaolin and bentonite treated by heat have been proposed as additive for concrete. The objective is to introduce an additive to improve compressive strength of concrete. The microstructure of modified Ordinary Portland Cement (OPC) paste has been investigated by using Field Emission Scanning Electron Microscopy (FESEM) and X-ray diffractometry (XRD). The results indicate that the best level of heat for produce additives from kaolin and bentonite, and illustrate quantity of additives for replace a portion of cement in concrete application. Modification of nanoparticles of cement paste during hydration has been discussed.

**KEYWORDS:** Additive, Compressive Strength, FESEM, Heat, XRD

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