Time of Setting As Influenced By Pozzolanic Materials and Chemicals Admixtures
By Tarun R. Naik, Shiw S. Singh, and Bruce W. Ramme
Reference: CBU-2000-12
ABSTRACT

This investigation was performed to establish the effects of pozzolanic and chemical admixtures on setting behavior of cement paste at normal consistency. An ASTM Class C fly ash was used a pozzolanic admixture. Mixtures were proportioned to contain fly ash in the range of 0-100% by mass of the cementitious materials using a cement replaced by fly ash in a proportion of 1:1.25. One source of ASTM Type I cement was used. The effects of five admixtures, air-entraining agent (AEA), water reducer, retarder, high-range water-reducer (HRWRA), and gypsum (CaSO\(_4\).\(\frac{1}{2}\)H\(_2\)O) on setting characteristics of pastes, were investigated. Both initial and final setting times remained essentially the same or slightly delayed up to 20% cement replacement with respect to 0% fly ash mixture. Beyond this range, the times of setting were generally accelerated. Increased rate of setting occurred at cement replacement levels of 40% and above irrespective of type of chemical admixtures used.