

عنوان مقاله:

Effect of Activated Pozzolan with $\text{Ca}(\text{OH})_2$ and nano- SiO_2 on Microstructure and Hydration of High-Volume Natural Pozzolan Paste

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خلاصه مقاله:

The main aim of this study is to investigate the effect of activated pozzolan on hydration and microstructure of high-volume natural pozzolan paste. Thermal activation of natural pozzolan with $\text{Ca}(\text{OH})_2$ has been applied with nano-silica (NS) as activator at three different temperatures. X-ray diffraction (XRD), thermogravimetric analysis (TGA), laser particle analysis, scanning electron microscopy (SEM) with energy dispersive spectroscopy were employed. In order to analyze the test results, notions of "pre C-S-H" based on XRD and TGA results of activated pozzolan powders has been used. SEM images indicated microstructural improvements of the pastes with activated pozzolans compared to paste with natural pozzolan and natural pozzolan incorporating NS, showing the pore-filling effect of activated pozzolans. The microstructural improvements were proportion to the amount of pre C-S-H formed during the activation of pozzolan.

کلمات کلیدی:

Activated Pozzolan; $\text{Ca}(\text{OH})_2$; Nano- SiO_2 (NS); Pozzolan Power; Pre C-S-H

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