

عنوان مقاله:

WORKABILITY AND SETTING TIMES OF ALKALI-ACTIVATED NATURAL POZZOLAN IN RELATION WITH
CHEMICAL COMPOSITION

محل انتشار:

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خلاصه مقاله:

In this research work, properties of alkali-activated pumice-type natural pozzolan including initial and final setting times and paste workability were studied by changing parameters of chemical composition, i.e. $\text{SiO}_2/\text{Na}_2\text{O}$ molar ratio of activator and total molar ratios of $\text{Na}_2\text{O}/\text{Al}_2\text{O}_3$, and $\text{H}_2\text{O}/\text{Al}_2\text{O}_3$. At constant $\text{H}_2\text{O}/\text{Al}_2\text{O}_3$ total molar ratio, the spread diameter of the freshly prepared paste depends on both $\text{SiO}_2/\text{Na}_2\text{O}$ molar ratio of activator and total $\text{Na}_2\text{O}/\text{Al}_2\text{O}_3$ molar ratio. In this case, both initial and final setting times sharply decrease as the Si/Na molar ratio increases from 0.3 to 0.6, especially for lower molar ratios of $\text{Na}_2\text{O}/\text{Al}_2\text{O}_3$. System prepared at $\text{SiO}_2/\text{Na}_2\text{O}=0.6$ and $\text{Na}_2\text{O}/\text{Al}_2\text{O}_3=0.77$ and exhibiting the shortest initial and final setting times, i.e. 20 and 37 min respectively, behaves as a fast set cement compared to Portland cement. By changing in the amount of $\text{H}_2\text{O}/\text{Al}_2\text{O}_3$ total molar ratio it has been observed that the paste workability and setting times are not only a function of $\text{H}_2\text{O}/\text{Al}_2\text{O}_3$ molar ratio, but also a function of $\text{Na}_2\text{O}/\text{Al}_2\text{O}_3$ molar ratio.

کلمات کلیدی:

Alkali-activation, Chemical composition, Natural pozzolan, Setting time, Workability

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