Preparation of High Effective Activator of Coal Gangue

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In this paper**,** a new high effective activator of coal gangue was prepared and used in a coal-gangue-lime-gypsum grout system. The results show that coal gangue was effectively activated by this activator and the early and late strength increased about significantly. With 3% addition of the activator, 3d and 28d strength of the grout reached 3.5MPa and 9.4MPa respectively compared to 2.3MPa and 6.1MPa without the activator. The activation mechanism was studied by means of XRD analysis and SEM. It is proposed that ions in the activator such as Na, Ca and S break Si-O and Al-O bonds of coal gangue firstly followed by pozzolanic reactions which active coal gangue.

Keywords: Coal gangue; high effective activator; activation mechanism; grouting material