

## In-Situ LDH Formation of Sodium Aluminate Activated Slag

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**Abstract :** Among the reaction products in the alkali-activated ground granulated blast furnace slag (AAS), the layered double hydroxides (LDHs) have a remarkable capacity of chloride and heavy metal ions absorption. The promotion of LDH phases in the AAS matrix can increase chloride resistance. The objective of this study is that use the different dosages of sodium aluminate to activate slag, consequently promoting the formation of in-situ LDH. The hydration kinetics of the sodium aluminate activated slag (SAAS) was tested by the isothermal calorimetry. Meanwhile, the reaction products were determined by X-ray diffraction (XRD), thermogravimetric analysis (TGA), and Fourier-transform infrared spectroscopy (FTIR). The sodium hydroxide-activated slag is selected as the reference. The results of XRD, TGA, and FTIR showed that the formation of LDH in SAAS was increased by the aluminate dosages.

**Keywords :** ground granulated blast furnace slag, sodium aluminate activated slag, in-situ LDH formation, chloride absorption

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