

Microwave-assisted synthesis of geopolymers from fluidised bed gasifier bottom ash

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Abstract

Fluidised bed gasification (FBG) is a clean coal technology suitable for power and fuel generation from low grade coals. However, the resulting bottom ash presents some disposal challenges to the power plants and the environment. The production of geopolymers from bottom ash for cement applications is an option for the disposal of the bottom ash. There has been limited report on the production of geopolymers from bottom ash from FBG process, due to its low reactivity. In this study, we used microwave to enhance the production of geopolymers from bottom ashes obtained from the gasification of South African coal. The results showed that microwave enhanced the strength of the geopolymers and also promoted the dissolution of the Si/Al species.