

Producing Fired Bricks Using Coal Slag from a Gasification Plant in Indiana

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ABSTRACT

Integrated gasification combined cycle (IGCC) is a promising coal combustion technology which increases the efficiency of coal-to-power conversion and enhances carbon dioxide concentration for better greenhouse gas capture. Two major byproducts from IGCC plants are bottom slag and sulfur. The sulfur can be processed into commercially viable products, but high value applications need to be developed for the slag material in order to reduce the costs of its disposal. The purpose of this study was to evaluate the technical feasibility of incorporating bottom slag from IGCC processed Illinois Basin coal as a raw material for the production of fired bricks. Full-size bricks containing up to 20 wt% of IGCC slag were successfully produced at a bench-scale facility. These bricks have similar color and texture to those of regular fired bricks and their water absorption properties met the ASTM specifications for a server weather grade. Other engineering properties tests, including compressive strength tests, are in progress.

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