# Autoclaved Building Products from FGD Sludges

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Keywords: FGD, Autoclave, Alkali Activation, Building Products

Flue gas desulphurization (FGD) by-products are produced in vast quantities by coal burning power plants. There are two types: a wet and a dry. Both contain calcium sulfate, calcium sulfite, residual lime and varying amounts of Class F fly ash. FGD sludges have been used to formulate low strength fill materials for embankments and the like and as an ingredient in gypsum wallboard (drywall). Reports of building block made from combinations of Class F fly ash, gypsum and lime that have somewhat higher strengths (300-700 psi) suggest that it may also be feasible to use FGD ash as a starting material for masonry blocks. Preliminary work has shown that this is indeed true. Because the starting ingredients are not highly cementitious in their own right, samples were subjected to two accelerating techniques. Curing at higher temperatures results in accelerated rates of reactions and the development of a more crystalline matrix often containing phases not found when curing at lower temperature and pressures. Autoclave curing involves curing cementitious materials at saturated steam pressure and elevated temperatures (150°C and 175°C) for approximately 12 hours. Autoclave curing of building materials such as autoclaved aerated concrete (AAC) is finding growing acceptance by U.S. based consumers. For instance, there are four U.S. based AAC companies offering AAC block and panel for sale. The second acceleratory technique involves the use of caustic. The results of a study of the manufacturing and characterization of autoclaved FGD building products will be discussed.

Submitted for consideration in the 2005 World of Coal Ash, April 11-15, 2005, Lexington, Kentucky, USA