

Carbon Burn-Out, an Update on Commercial Applications

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ABSTRACT

Carbon Burn-Out (CBO) combusts residual carbon in fly ash, producing a very consistent, low carbon, high-quality pozzolan. The process is continuous and is fueled solely by the residual carbon. Heat is recovered and sent back to the power plant that originally produced the high-carbon fly ash.

Progress Materials, Inc. developed this technology several years ago with support from EPRI and EPRI members.

Commercial application of CBO began at the Wateree Station of South Carolina Electric and Gas, which was placed into service in early 1999 to process 180,000 tons per year of raw fly ash. A second unit, capable of processing 200,000 tons per year, will be built at the Winyah Station of Santee Cooper, and is scheduled for commercial operation in 2002.

Early interest in this technology was primarily centered on applications where fly ash carbon was either high or increasing due to low NO_x burner conversions to a level, which would render the material unmarketable as a pozzolan. Avoided disposal, loss of marketability to high carbon and the value of heat recovery were the key drivers. Additional factors are becoming a significant issue: ammonia contamination of ash by either Selective Catalytic Reduction (SCR) or Selective Non-Catalytic Reduction (SNCR) technology. EPA's actions to further reduce NO_x emissions from coal-fired boilers are accelerating the application of this technology, which may be required for as many as 600 units nationwide. CBO is effective at removing ammonia residue from contaminated ash with no changes in process.