

# **High Quality Fly Ash Production and Fuel Recovery by Separation Technologies' Beneficiation Processes**

**James D. Bittner and Stephen A. Gasiorowski**

Separation Technologies, LLC., 101 Hampton Avenue, Needham MA 02494 USA

Tel: 781-455-8824, Fax 781-433-0289

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Separation Technologies, LLC (ST) operates commercial-scale fly ash beneficiation facilities, processing poor quality fly ash into high quality pozzolanic material. ST's triboelectric process reduces the carbon content of fly ash, producing a consistent, low loss on ignition (LOI) ash for use as a substitute for cement in concrete and cementitious products. Simultaneously a carbon rich product is created that can be returned to the utility for recovery of the fuel value. ST has commissioned 13 carbon separation systems operating at 9 utility company power plants in the U.S., Canada, and the UK and one ammonia removal system. Over 4.5 million tons of ProAsh® brand processed ash have shipped to customers since 1995.

The ST carbon separation process is also highly effective for beneficiation of fly ash derived from the co-combustion of alternate fuels with coal. Two facilities (Canada and Florida) routinely handle ash derived from the co-burning of 30% petroleum coke with coal. The most recently commissioned ST facility located in the UK routinely handles ash derived from 10% combustion of biomass.

ST has installed two continuously operating reburn systems to store, convey, and dedust the carbon-rich product prior to addition to the utility coal belt conveyor. Power generating facilities in the US and Canada using these systems recover the otherwise lost fuel value of the carbon and increase the supply of concrete grade fly ash.

ST has also developed a process to remove excess ammonia on fly ash due to NO<sub>x</sub> or SO<sub>3</sub> control practices and is operating a full-scale ammonia removal system. Separation Technologies' ammonia removal process preserves the marketability of the ash for cementitious products.

Technical details of the processes will be discussed, along with ST's twelve-year operating history on commercial fly ash beneficiation systems.

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