

Ammonia in Fly Ash: Consequences for Beneficial Use and a Method for Removing Ammonia

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ABSTRACT

The supply of fly ash available for use as a pozzolan in concrete may be severely impacted by the effects of air quality regulations on utility plant operations. Specifically, mandated reductions in NO_x, particulate, and SO₃ containing aerosol emission levels are expected to require the installation of control systems which may use ammonia as a reagent. Depending on the level of ammonia present in the flue gas at the unit precipitators, the collected fly ash may be heavily contaminated with ammonia primarily as ammonium sulfate salts.

STI has patented a process that removes ammonia from fly ash, recovering the ammonia for reuse by the power plant. The process recovers 100% of the fly ash treated. The resulting ash meets all specifications for use in concrete and does not contain any chemicals which will interfere with other concrete ingredients. STI's ammonia removal process can be used alone or in combination with the company's carbon separation technology. The carbon separation process is not affected by the presence of ammonia. This modular approach offers the lowest cost solution for treating otherwise unusable fly ash.