Mechanisms of Ammonia Adsorption and Desorption Relevant to Fly Ash Utilization

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ABSTRACT

This paper reports on laboratory studies of the underlying mechanisms of ammonia adsorption on fly ash and its removal under wet and dry conditions. Complete adsorption isotherms of ammonia on ash have been measured using a retrofitted automated vapor adsorption apparatus. Additional experiments have been carried out in flowing ammonia / air streams with and without the addition of SO2 . Dynamic ammonia desorption has also been studied as a function of temperature, water content, and method of water addition. The results of these laboratory experiments will be used to discuss the fundamental mechanisms of ammonia binding and release and their relevance to ash management options.