

Short and Long Term Variability of Flue Gas Desulfurization By-Product

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ABSTRACT

Over 25 million metric tons of flue gas desulfurization (FGD) by-product are generated in the United States every year. Currently, a number of potential applications for these materials exist. A major obstacle effecting utilization is the potential variability in the chemical composition, leaching behavior, and engineering properties of these materials. Although this variability has a significant impact on effective utilization, little is known about how the physical, chemical and engineering properties of FGD material change over the course of different time periods. In this study, we examine the variability of FGD material generated at the McCracken Power Plant on The Ohio State University campus. The McCracken Power Plant burns high sulfur coal and uses a spray dryer for sulfur oxide control. To examine short-term variability, FGD samples were collected from the power plant on a weekly basis and analyzed for chemical composition, leaching potential, and engineering properties. These new data also are compared to similar data for samples collected at the McCracken Power Plant in 1995 to examine long-term trends in FGD properties. Data from this analysis provide new insight into both the short- and long-term variability of flue gas desulfurization material.