

Thermal Stability of Mercury Captured By Ash

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ABSTRACT

The thermal stability of mercury captured by ash from a single pulverized coal feed according to location sampled in the collection train of a power plant was studied. Fractions of the feed coal and ash samples from the economizer, mechanical hoppers, and ESPs were heated in a thermal analyzer to maximum temperatures increased sequentially from 100 to 500°C in 100°C increments. The mercury content of the spent material was then determined by analysis of the solids for Hg. This data provided the thermal decomposition temperature of the captured mercury. Evolved gas analysis to 500°C was also performed on each sample by thermal analysis – mass spectrometry. The total mercury captured by each sample, thermal stability of the mercury in relation to collection site, and correlations between mercury capture and chemical composition of the sample will be discussed. The data showed that mercury was released between 300 – 400°C for most samples. More mercury was captured in the ESPs with little collected in the mechanical separators.