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Titel des Beitrags: Combined homo- and heterogeneous model for mercury speciation in pulverized fuel combustion flue gases

Abstract: A new model is developed to predict Hg-0, Hg+, Hg2+, and Hg-p in the post-combustion zone upstream of a particulate control device (PCD) in pulverized coal-fired power plants. The model incorporates reactions of mercury with chlorinating agents (HCl) and other gaseous species and simultaneous adsorption of oxidized mercury (HgCl2) on fly ash particles in the cooling of flue gases. The homogeneous kinetic model from the literature has been revised to understand the effect of the NO + OH + M HONO + M reaction on mercury oxidation. Because it is a pressure-dependent reaction, the choice of proper reaction rates was very critical. It was found that mercury oxidation reduces from 100 to 0