

The surface composition of a series of Pd/alumina sorbents has been characterized to better understand the factors influencing their ability to adsorb mercury from fuel gas. Both a temperature effect and a dispersion effect were found. Maximum adsorption of Hg occurred at the lowest temperature tested, 204°C, and decreased with increasing temperatures. Maximum adsorption of Hg on a per-atom basis of Pd is observed at low loadings of Pd (< 5.5% Pd) due to better dispersion of Pd at those loadings; a change in its partitioning occurs at higher loadings. The presence of H₂S in the fuel gas acts to promote the adsorption of Hg through its association with Hg in the Pd lattice.