Adsorption thermodynamic functions and the mobility of SO2 on Aerosil

Vasquez, Sergio O

Alzamora, Luis

A study of the adsorption and thermodynamic functions of sulfur dioxide on Aerosil has been made, leading to some conclusions about the mobility of the SO2 molecule. The differential and integral enthalpies and entropies of adsorption, together with a statistical mechanical interpretation of the system, are discussed. Particularly, the statistical mechanical calculation of the integral entropy of adsorption allows a comparison to be made between the experimental results for the SO2-Aerosil system and those obtained for adsorption in two limiting cases: an immobile or localized model that can be associated with chemisorption, and a mobile film model that can be related to physisorption. The results confirm a weak gas-solid interaction with a highly mobile adsorbed phase. © 1988.