

CHARACTERIZATION OF ADSORPTION EFFECTS ON METALLIC SURFACES OF POLAR MOLECULES IN THE GAS PHASE BY FT-IR SPECTROSCOPY

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A Nicolet Magna-IR 550 FT-IR spectrometer fitted with a 10-m path length multipass absorption cell was used to determine the changes in concentration at parts-per-million level of polar molecules (HCl and NH₃) when the gases were passed from the main reservoir to the absorption cell through tubings made of copper and aluminum. The observed changes in concentration were correlated to the degree of adsorption of the gas on the solid material and aided in the determination of the corresponding rate constants. A systematic study of the interaction of HCl and NH₃ with copper and aluminum permitted an estimate of the corrected concentration deficit due to adsorption and facilitated the fit of the observed data to the Langmuir adsorption isotherms.

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