

Infrared matrix isolation studies of carbon disulfide and carbon dioxide complexes with nitrous and nitric acids.

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Streszczenie

Argon matrix infrared spectra of carbon disulfide and carbon dioxide complexes with nitrous and nitric acids indicate the formation of hydrogen bonded structures. In all the studied systems, the acidic proton of the hydroxyl group interacted with the terminal atom (S or O) of the base molecule. The observed red shifts of the OH stretching mode were equal to ca. 127, 87, 66 and 20 cm^{-1} , for $\text{CS}_2\text{-HNO}_3$, $\text{CO}_2\text{-HNO}_3$, $\text{CS}_2\text{-HONO}$ and $\text{CO}_2\text{-HONO}$ complexes, respectively. For the $\text{CS}_2\text{-HNO}_3$ complex, an additional hydrogen bonded structure was postulated with the OH group directed towards the central carbon atom of the CS_2 molecule which gives rise to the ν_1 OH vibration shift equal to 150 cm^{-1} . All the studied complexes were sensitive to the changes in matrix environment and band splitting was observed in many regions of the spectra due to the different trapping sites.

Słowa kluczowe

Matrix isolation, Carbon disulfide, Carbon dioxide, Nitric, Nitrous acid, Infrared

Adres publiczny

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