ROTATIONAL SPECTRA OF THE HYDROGEN-BONDED COMPLEXES: TETRAHYDROPYRAN-HCl AND OXETANE-HCl

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A molecular beam Fourier transform microwave spectrometer was used to characterize the axial and equatorial hydrogen bond dimers formed between tetrahydropyran and hydrogen chloride. Rotational, centrifugal distortion and Cl-nuclear quadrupole coupling constants have been determined for several isotopic species of both hydrogen bond conformers. The rotational parameters are consistent with a C_s symmetry in both forms.
The rotational spectra of oxetane-HCl has been observed in the frequency
range from 5 to 18.5 GHz. Since oxetane reacts with HCl in the gas phase, mixtures of oxetane in argon and HCl in argon were independently flowed employing a modified pulsed valve. The structural properties of the hydrogen bond have been obtained from the rotational and quadrupole coupling constants.