DIPOLE MOMENTS OF AMINE HYDROGEN HALIDE COMPLEXES

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Amine hydrogen halide complexes are prototypical systems in which to study the transfer of a proton across a hydrogen bond. We report the results of Stark effect experiments using a pulsed nozzle Fourier transform microwave spectrometer to determine the dipole moments of: $H_3{}^{15}N\text{-}H^{35}Cl$ (4.05865 ± 0.00095 D), $(CH_3)_3{}^{15}N\text{-}H^{35}Cl$ (7.129 ± 0.014 D), $H_3{}^{15}N\text{-}H^{79}Br$ (4.2577 ± 0.0022 D), and $(CH_3)_3{}^{15}N\text{-}H^{79}Br$ (8.396 ± 0.013 D). The results will be discussed in terms of the degree of proton transfer, as previously elucidated by Legon and coworkers[a] and should be of interest in view of a large body of matrix isolation work in which the interaction between the complex and the host matrix has been investigated.

[a] A. C. Legon *Chem. Soc. Rev.* **22**(3), 153, (1993).