

THE VIBRATION-ROTATION EMISSION SPECTRUM OF GASEOUS HZnCl

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Gaseous HZnCl has been synthesized for the first time in a high-temperature tube furnace with a D.C. discharge of a flowing mixture of pure HCl and zinc vapor. The vibration-rotation emission spectrum of gaseous HZnCl was measured at high resolution using a Fourier transform spectrometer. The H–Zn stretching mode (ν_1) of the $\text{H}^{64}\text{Zn}^{35}\text{Cl}$, $\text{H}^{66}\text{Zn}^{35}\text{Cl}$, $\text{H}^{68}\text{Zn}^{35}\text{Cl}$, and $\text{H}^{64}\text{Zn}^{37}\text{Cl}$ species, as well as the $2\nu_1 - \nu_1$ hot band of the most abundant isotopologue ($\text{H}^{64}\text{Zn}^{35}\text{Cl}$) were observed near 1966 cm^{-1} . A least-squares fit was performed for each of four observed isotopologues and their spectroscopic constants were determined.