THE VIBRATION-ROTATION EMISSION SPECTRUM OF GASEOUS HZnCl

SHANSHAN YU, ALIREZA SHAYESTEH, DEJIAN FU, PETER F. BERNATH, *Department of Chemistry, University of Waterloo, Waterloo, ON, N2L 3G1, Canada*.

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 $H^{64}Zn^{35}Cl$, $H^{66}Zn^{35}Cl$, $H^{68}Zn^{35}Cl$, and $H^{64}Zn^{37}Cl$ species, as well as the $2\nu_1 - \nu_1$ hot band of the most abundant isotopologue ($H^{64}Zn^{35}Cl$) were observed near 1966 cm^{-1}. A least-squares fit was performed for each of four observed isotopologues and their spectroscopic constants were determined.