EMISSION SPECTROSCOPY OF THE B′ 2Σ+ - X 2Σ+ TRANSITIONS OF MgH AND MgD

A. SHAYESTEH, K. TERESZCHUK, and P. F. BERNATH, Department of Chemistry, University of Waterloo, Waterloo, ON, N2L 3G1, Canada.

Emission spectra of MgH and MgD have been investigated in the 8000 - 22000 cm⁻¹ region using a high resolution Fourier transform spectrometer. These molecules were generated in a furnace-discharge source, at about 900 K and 333 mA discharge current with magnesium and a mixture of Ar and H₂ or D₂ gases. The recorded spectra contain not only the well-known A 3Π - X 2Σ⁺ transitions, but also the B′ 2Σ⁺ - X 2Σ⁺ transitions of MgH and MgD. We obtained data for v′′ = 2 to 9 for the ground state of MgH and v′′ = 3 to 13 for MgD. Analyses of the data is in progress, and will lead to improved potential energy curves for the X 2Σ⁺ states of MgH and MgD. These results will be presented at the time of symposium.