

## HIGH-RESOLUTION F. T. SPECTRUM OF A - X BAND SYSTEM OF MgCl

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The A  $^2\Pi_r$  - X  $^2\Sigma^+$  system of MgCl molecule (360-380 nm) has been recorded on BOMEM DA8 Fourier transform spectrometer at an apodized resolution of  $0.035\text{ cm}^{-1}$ . The spectra have been excited under flowing conditions in a demountable stainless steel hollow cathode lamp (400 V, 250 mA) containing anhydrous MgCl<sub>2</sub> and Ar. The resulting spectra are very intense and 0-0, 1-1 and 1-0 bands of A  $^2\Pi_{1/2}$  - X  $^2\Sigma^+$  sub-transition and 0-0 band of A  $^2\Pi_{3/2}$  - X  $^2\Sigma^+$  sub-transition have been recorded and rotationally analyzed. Molecular constants have been derived using a least-squares fit programme in which optical data<sup>a</sup> of 0-1 and 0-2 bands (A  $^2\Pi_{1/2}$  - X  $^2\Sigma^+$ ) was also included. The  $\Lambda$ -doubling constants in the  $v = 0, 1$  levels of the sub-state A  $^2\Pi_{1/2}$  are as expected, i.e.  $p_1 > p_0$ , whereas it is found that the spin-doubling constants of the  $v = 0, 1, 2$  levels of the ground state decrease with the increase in  $v$ , i.e.,  $\gamma_0 > \gamma_1 > \gamma_2$ . This is indicative of presence of some nearby state, influencing the spin-doubling in the ground state. The final results of the rotational analysis will be presented.

<sup>a</sup>M. Singh, G. S. Ghodgaonkar, and M. D. Saksena, *Can. J. Phys.* 65, 1594 (1987).