FOURIER TRANSFORM MICROWAVE SPECTRA OF THE REACTIVE SPECIES $ClPO_2$

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Phosphenic chloride, $ClPO_2$, has been prepared using an electric discharge, and Fourier Transform microwave spectra of two isotopomers ($^{35}ClPO_2$ and $^{37}ClPO_2$) have been recorded. Chlorine nuclear quadrupole hyperfine splittings have been resolved, and, in very few cases, small phosphorus nuclear spin-rotation splittings have also been observed. Measurements of transitions due to ^{18}O-containing isotopomers are planned for the near future.

The data obtained to date have been used to determine independent values for all three rotational constants, two of five quartic centrifugal distortion constants, and both quadrupole coupling constants for each of the two species studied; so far, all nuclear spin-rotation effects have been neglected. The rotational constants have been used to determine preliminary values for the $ClPO_2$ (r_0) geometrical parameters, and the chlorine quadrupole coupling constants have been used to determine an approximate value for the ionic character of the P-Cl bond. Results from the currently proceeding analysis will be presented.