

FAR-INFRARED SPECTROSCOPY OF *SYN*-VINYL ALCOHOL

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Vinyl alcohol has been extensively studied in both the microwave<sup>a,b</sup> and mid-IR<sup>c,d</sup> spectral regions, where 9 out of 15 vibrational modes have been identified. Here we present the first far-IR spectrum of vinyl alcohol, collected below 700  $\text{cm}^{-1}$  at the Australian Synchrotron. The high resolution ( $0.001 \text{ cm}^{-1}$ ) spectrum reveals the  $\nu_{11}$  and  $\nu_{15}$  fundamentals of *syn*-vinyl alcohol at  $489 \text{ cm}^{-1}$  and  $407 \text{ cm}^{-1}$ , in addition to two hot bands of the  $\nu_{15}$  mode at  $369 \text{ cm}^{-1}$  and  $323 \text{ cm}^{-1}$ . High  $J$  transitions in the R-branch of the  $\nu_{15}$  band were found to be perturbed by an  $a$ -axis Coriolis interaction with the nearby  $\nu_{11}$  state. The  $\nu_{15}$  torsional mode of *syn*-vinyl alcohol was fit using a Watson's A-reduced Hamiltonian to yield rotational, centrifugal distortion, and Coriolis coupling parameters.

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<sup>a</sup>S. Saito, Chem. Phys. Lett. 42, 3 (1976)

<sup>b</sup>M. Rodler et al., J. Am. Chem. Soc. 106, 4029 (1948)

<sup>c</sup>Y. Koga et al., J. Mol. Spec. 145, 315 (1991)

<sup>d</sup>D-L. Joo et al., J. Mol. Spec. 197, 68 (1999)