

TORSIONAL SPECTRUM OF  $^{12}\text{CH}_3^{13}\text{CH}_3$ : A 2-STATE FREQUENCY ANALYSIS OF THE TORSIONAL BANDS AND THE  $\nu_{12}$  VIBRATIONAL FUNDAMENTAL

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The far-infrared spectrum of  $^{12}\text{CH}_3^{13}\text{CH}_3$  is studied between  $220 - 350 \text{ cm}^{-1}$  at an effective resolution of  $0.004 - 0.005 \text{ cm}^{-1}$  using a Bruker IFS-120 HR. Observation of the torsional fundamental  $\nu_6$  ( $289 \text{ cm}^{-1}$ ) and the torsional hot band  $2\nu_6 - \nu_6$  ( $255 \text{ cm}^{-1}$ ), together with the lowest frequency vibrational fundamental  $\nu_{12}$  ( $821.5 \text{ cm}^{-1}$ ), also obtained with the same spectrometer at an effective resolution of  $0.0025 \text{ cm}^{-1}$ , gives information on the torsional stack of the ground vibrational state and that for  $\nu_{12} = 1$  state. The frequencies are analysed in terms of a 2-state fit to determine the torsion mediated Coriolis interactions between the torsional stacks. A comparison is made with a 2-state fit of similar data for  $^{12}\text{CH}_3^{12}\text{CH}_3$ .