

ASSIGNMENT OF THE  $\nu_9$  FUNDAMENTAL OF THE CIS CONFORMER OF METHYL NITRITE IN THE HIGH RESOLUTION FTIR SPECTRUM

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The infrared spectrum of gas phase methyl nitrite ( $\text{CH}_3\text{ONO}$ ) has been recorded at high resolution between 600 and 4000  $\text{cm}^{-1}$ . Methyl nitrite contains a mixture of cis and trans rotational isomers which are interconverted by the N=O torsion. As in the  $\nu_8$  vibration of the cis form, the  $\nu_9$  vibration is not too congested, consistent with the high barrier to rotation of the methyl group in the cis form. The  $\nu_9$ , with an origin at 627.9  $\text{cm}^{-1}$ , has been assigned by previous workers to the ONO bend of the cis conformer and several hot bands are also present in this region. In this study, a spectrum taken at 0.0015  $\text{cm}^{-1}$  resolution on the PNNL IFS120/HR in a 20 cm cell was used to assign more than 500 A-type transitions of the cis  $\nu_9$  between 600 and 650  $\text{cm}^{-1}$  and a set of excited state constants was determined.