

## HIGH RESOLUTION FTIR SPECTRA OF METHYL NITRITE AND ASSIGNMENT OF THE $\nu_8$ FUNDAMENTAL OF THE CIS CONFORMER

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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  $\text{cm}^{-1}$ . The conformational doublets due to the cis and trans conformers are clearly separated in a number of the fundamentals. Previous work in the microwave has established that the barrier to rotation of the methyl group in the trans form is very low<sup>a</sup> and the infrared bands observed in this study are very congested. The barrier in the cis conformer is much higher<sup>b</sup>. The  $\nu_8$  at 841  $\text{cm}^{-1}$  was assigned by previous workers to the N-O stretch of the cis conformer<sup>c</sup> and is partially overlapped by the  $\nu_8$  of the trans conformer. In this study, spectra taken at 0.0015  $\text{cm}^{-1}$  resolution on the PNNL IFS120/HR in a 20 cm cell were used to assign more than 800 A-type rovibrational lines of the cis  $\nu_8$  between 815 and 865  $\text{cm}^{-1}$ .

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<sup>a</sup>Turner, P. H., et al., *J. Phys. Chem.* 83 (11), 1473 1979.

<sup>b</sup>Ghosh, P. N., et al., *Chem. Phys.* 53 (1-2), 39 1980.

<sup>c</sup>Stidham, H. D., et al. *J. Raman Spec.* 21 (1-2), 615 1990; da Silva, J. B. P., et al. *J. Molec. Struct.* 375 (1/2), 153 1996; and references therein.