

THE SOLEIL VIEW ON PROTOTYPICAL ORGANIC NITRILES: THE ^{13}C SPECIES OF ETHYL CYANIDE

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Vibrational spectra of the three singly substituted ^{13}C isotopic species of ethyl cyanide, aka propionitrile ($\text{CH}_3\text{CH}_2\text{CN}$), have been studied at high spectral resolution at the synchrotron facility SOLEIL using Fourier-transform far-infrared spectroscopy. The measurements, recorded up to 700 cm^{-1} , cover the fundamental modes of the CCN in-plane bending ν_{13} , the methyl torsion ν_{21} , the CCN out-of-plane bending ν_{20} as well as the CCC in-plane bending ν_{12} . A first spectroscopic analysis has been performed using the *Automated Spectral Assignment Procedure (ASAP)*^a to derive accurate excited-state rotational level energies with a focus on the ν_{20} and the ν_{12} vibrational modes.

^aM. A. Martin-Drumel, C. P. Endres, O. Zingsheim, T. Salomon, J. van Wijngaarden, O. Pirali, S. Gruet, F. Lewen, S. Schlemmer, M. C. McCarthy, and S. Thorwirth 2015, *J. Mol. Spectrosc.* 315, 72