

THE MILLIMETER WAVE SPECTRA OF VINYL ISOCYANATE AND VINYL KETENE, CANDIDATES FOR ASTRONOMICAL OBSERVATIONS

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Interstellar detections of isocyanic acid^a, methyl isocyanate^b, and very recently also ethyl isocyanate^c open the question of the possible detection of the related molecule vinyl isocyanate in the interstellar medium. Similarly, astronomical observations of ketene^d places vinyl ketene among the species of potential interstellar relevance. In the present work, both vinyl species were generated by thermolysis of suitable precursors at 500°C and their room-temperature rotational spectra were recorded between 218 and 330 GHz using the Prague millimeter wave spectrometer^e. The spectroscopic measurements and analyses presented here will allow to search for both molecules in the millimeter wave surveys of interstellar sources such as those recorded by Atacama Large Millimeter/submillimeter Array.

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