CONFIRMATION OF KCN IN THE CIRCUMSTELLAR ENVELOPE OF IRC+10216

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Over the past few years, there has been discussion about the presence of KCN in IRC+10216. To settle the issues on this matter, additional observations have been conducted for KCN and a definitive identification has been made. KCN is a T-shaped, closed shell asymmetric top. A total of ten rotational transitions have been searched for in the frequency range of 85-250 GHz using the Arizona Radio Observatory (ARO) 12m telescope on Kitt Peak and the Submillimeter Telescope (SMT) on Mt. Graham. Emission was detected at all transitions observed, with six blended features and four uncontaminated lines. Transitions for both the K_a=0 and K_a=1 levels were detected. Line intensities ranged from 0.6 mK to 2 mK. A few lines observed required integration times of 200 hours or more to achieve the necessary signal-to-noise ratio, demonstrating the stability of ALMA technology. KCN is the fifth metal cyanide/isocyanide identified in circumstellar gas, along with MgNC, MgCN, NaCN, and AlNC. Derived column densities and abundances will be reported and the significance of this detection will be discussed.