

FOURIER TRANSFORM MICROWAVE SPECTRUM OF AICCH ($X^1\Sigma^+$) AND ITS $^{13}\text{C}/\text{D}$ ISOTOPOLOGUES

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The microwave spectrum of AICCH ($X^1\Sigma^+$) has been measured using Fourier transform microwave (FTMW) techniques in the frequency range of 9-40 GHz. This molecule was created in a supersonic expansion by the reaction of trimethyl aluminum, $\text{Al}(\text{CH}_3)_3$, and acetylene, C_2H_2 , or methane, CH_4 , diluted in argon carrier gas, using a pulsed nozzle coupled with a dc discharge. Spectra of $\text{Al}^{12}\text{C}^{13}\text{CH}$, $\text{Al}^{13}\text{C}^{12}\text{CH}$, $\text{Al}^{13}\text{C}^{13}\text{CH}$, $\text{Al}^{12}\text{C}^{12}\text{CD}$ have also been recorded. From these data, rotational constants and Al and D hyperfine parameters have been determined, as well as the $r_m^{(1)}$ structure. AICCH is a model system for heteroatom dicarbide species.