FTMW SPECTROSCOPY OF HSiCl

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We have observed HSiCl using the technique of Fourier transform microwave spectroscopy. HSiCl was produced in supersonic free expansions by pulsed discharge of $(CH_3)_3SiCl$. The lowest frequency rotational transition, $1_{01}$ - $0_{00}$, was measured and the hyperfine structures due to the nuclear spins of $^{35}$Cl and $^{37}$Cl were analyzed. The obtained rotational constants, $\frac{1}{2}$(B+C), were compared with those obtained by LIF optical spectroscopy[c]. Using the nuclear electric quadrupole and nuclear spin-rotation coupling constants obtained, the electronic structure of HSiCl was investigated.

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[c]W. W. Haper and D. J. Clouthier, J. Chem. Phys. 106, 9461 (1997).