

Species Tag:	55001	Name:	C2H5CN
Version:	5		Ethyl Cyanide or Propionitrile,
Date:	July 2009		Ground State,
Contributor:	C. S. Brauer		Watson's A-Reduction
	B. J. Drouin		

Lines Listed:	64344	Q(300.0)=	37424.5761
Freq. (GHz) <	3371	Q(225.0)=	24286.9323
Max. J:	150	Q(150.0)=	13209.5866
LOGSTR0=	-9.0	Q(75.00)=	4667.9360
LOGSTR1=	-9.0	Q(37.50)=	1651.0571
Isotope Corr.:	0	Q(18.75)=	584.6478
Egy. (cm ⁻¹) >	0.0	Q(9.375)=	207.4255
μ_a =	3.85	A=	27663.7
μ_b =	1.23	B=	4714.2
μ_c =		C=	4235.1

The experimental measurements were analyzed using an A-reduced Hamiltonian. The measurements were taken from: C. S. Brauer, J. C. Pearson, B. J. Drouin, and SS. Yu, 2009, (in press), J. Burie, J. Demaison, A. Dubrulle, and D. Boucher, 1978, J. Mol. Spect. **72**, 275; D. R. Johnson, F. J. Lovas, C. A. Gottlieb, E. W. Gottlieb, M. M. Litvak, M. Guelin, and P. Thaddeus, 1977, *Astrophys. J.* **218**, 370; F. J. Lovas, 1982, J. Phys. Chem. Ref. Data **11**, 251; H. Mäder, H. M. Heise, and H. Dreizler, 1973, Z. Naturforsch. **29a**, 164; J. C. Pearson, K. V. L. N. Sastry, E. Herbst and F. C. De Lucia, 1994, *Astrophys. J. Suppl.* **93**, 589; Y. Fukuyama, H. Odashima, K. Takagi, S. Tsunekawa, 1996, *Astrophys. J. Suppl.* **104** 329.

The dipole moment was taken from H. M. Heise, H. Lutz, and H. Dreizler, 1974, Z. Naturforsch. **29a**, 1345.

The methyl torsion and the ¹⁴N hyperfine have been resolved in ethyl cyanide, but were not included in the calculation since the effects are small and usually not observable in the millimeter and submillimeter wavelengths. For analysis see Heise *et al.* and D. Boucher, A. Dubrulle, J. Demaison, and H. Dreizler, 1980, Z. Naturforsch. **35a**, 1136.

Note: The partition function in the rotational partition function for the ground state only.