

Species Tag:	17003	Name:	CH3D
Version:	4		Mono-deutero
Date:	Dec. 2016		methane
Contributor:	B. J. Drouin		
	C. Bray, A. Cuisset		
Lines Listed:	203	Q(300.0)=	816.1911
Freq. (GHz) <	5276	Q(225.0)=	525.4087
Max. J:	22	Q(150.0)=	286.2648
LOGSTR0=	-10.0	Q(75.00)=	102.2266
LOGSTR1=	-10.0	Q(37.50)=	36.9308
Isotope Corr.:	-3.824	Q(18.75)=	14.0565
Egy. (cm ⁻¹) >	0.0	Q(9.375)=	5.9592
μ_a =	0.005945	A=	157412.
μ_b =		B=	116325.
μ_c =		C=	B

This catalog entry improves the relative intensities within each R-branch based on the fitted centrifugal distortion parameters in Bray et al. 2017. This work also extended the transition frequency precision. The high J cutoff is extended, but the listing is limited by the transition intensity cutoff, which now predicts all rotational transitions up the $J = 21$, previously the intensity cutoff began to limit the prediction at $J = 10$. The partition sums above 38 K are from HITRAN (TIPS) with a factor of six removed to reduce common factors in the degeneracies. The transition frequency data set from the previous catalog entry is retained in its entirety and includes:

(1) B.J. Drouin, S. Yu, J.C. Pearson & H.S.P.Müller, *J. Quant. Spectrosc. Radiat. Trans.* 110, 2077-2081, 2009. (2) M. Womack, A. J. Apponi, L. M. Ziurys, 1996, *Astrophys. J.*, 461, 897. The $J'' = 2 - 4$ transition frequencies were reported by (3) V. Lattanzi, A. Walters, J. C. Pearson, and B. J. Drouin, 2008, *J. Quant. Spectrosc. Radiat. Transfer*, 109, 897. In addition, infrared ground state combination differences were used in the fit. These were published in (4) C. Chackerian, Jr., and G. Guelachvili, 1980, *J. Mol. Spectrosc.*, 84, 447; (5) C. Chackerian, Jr., E. S. Bus, W. B. Olson, and G. Guelachvili, 1986, *J. Mol. Spectrosc.*, 117, 255; (6) O. N. Ulenikov, G. A. Onopenko, N. E. Tyabaeva, J. Schroderus, and S. Alanko, 1999, *J. Mol. Spectrosc.*, 193, 249.

Since multiple experimental measurements exist for many of the THz transitions, no experimental data was merged with this catalog file.