

Species Tag:	34004	Name:	H2O2
Version:	4		Hydrogen peroxide,
Date:	Sept. 1995		H <sub>2</sub> O <sub>2</sub> ,
Contributor:	J. C. Pearson		first 5 torsional states

Lines Listed:	38357	Q(300.0)=	9785.505
Freq. (GHz) <	9999	Q(225.0)=	5760.578
Max. J:	60	Q(150.0)=	2814.265
LOGSTR0=	-10.0	Q(75.00)=	895.518
LOGSTR1=	-10.0	Q(37.50)=	288.930
Isotope Corr.:	0.0	Q(18.75)=	88.856
Egy. (cm <sup>-1</sup> ) >	0.0	Q(9.375)=	26.680
$\mu_a$ =		A=	301878.
$\mu_b$ =		B=	26211.9
$\mu_c$ =	1.5724	C=	25099.14

The spectral lines and method of calculation are from D. T. Petkie, T. M. Goyette, J. J. Holton, F. C. De Lucia and P. Helminger, 1995, *J. Mol. Spect.* **171**, 145-159. This paper included the previous lines of P. Helminger, W. C. Bowman and F. C. De Lucia, 1981, *J. Mol. Spect.* **85**, 120. E. A. Cohen and H. M. Pickett, 1981, *J. Mol. Spect.* **87**, 582. Also used in the analysis were energy levels from C. Cammy-Peyret, J.-M. Flaud, J. W. C. Johns and M. Noel, 1992, *J. Mol. Spect.* **155**, 84-104. Dipoles are from A. Perrin, J.-M. Flaud, C. Camy-Peyret, R. Schermaul, M. Winnewisser, J.-Y. Mandin, V. Danna, M. Badaoui, and J. Koput, *Line Intensities in the Far-Infrared Spectrum of H<sub>2</sub>O<sub>2</sub>*, in preparation.

The dipole moment is c-type in all cases. The value given is for the ground state transitions only. The vibrational quantum number designation is as follows:

v(catalog)	n	$\tau_{even}$	$\tau_{odd}$
0	0	1	2
1	1	1	2
2	2	1	2
3	0	4	3
4	1	4	3

$\tau_{even}$  is the value of  $\tau$  when  $K_a$  is even, and  $\tau_{odd}$  is the value of  $\tau$  when  $K_a$  is odd. The analysis must be separated into  $\tau = \text{odd}$  and  $\tau = \text{even}$  parts due to torsional staggering.