Species Tag:	32001	Name:	O2
Version:	5		Molecular oxygen, $^{16}O_2$
Date:	Mar. 2014		X $^3\Sigma_g^-$, v = 0
Contributor:	B. J. Drouin		

Lines Listed:	336	Q(300.0)=	218.6562
Freq. (GHz) <	11158	Q(225.0)=	164.0601
Max. J:	99	Q(150.0)=	109.6050
LOGSTR0=	-20.0	Q(75.00)=	55.1979
LOGSTR1=	-20.0	Q(37.50)=	28.0345
Isotope Corr.:	0	Q(18.75)=	14.5149
Egy. (cm^{-1}) >	0.0	Q(9.375)=	7.8713
$\mu_a =$	magnetic	A=	
$\mu_b =$		B=	43100.44
$\mu_c =$		C=	

The data have been summarized in

(1) S. Yu, C.E. Miller, B.J. Drouin, H.S.P. Mueller, J. Chem. Phys. 136, 2012. (2) B.J. Drouin, S. Yu, C.E. Miller, H.S.P. Müller, F. Lewen, S. Brünken and H. Habara, 2010, J. Quant. Spectrosc. Radiat. Transfer, **111**(9), 1167-1173. This work provides new data between 0.42 and 1.88 THz. Additional sub-mmW data were taken from
(3) L.R. Zink and M. Mizushima, 1987, J. Mol. Spectrosc. **125**, 154.
(4) K. Park, I.G. Nolt, T.C. Steele, L.R. Zink, K.M. Evenson, K.V. Chance and A.G. Murray, 1996, J. Quant. Spectrosc. Radiat. Transfer. **56**, 315
(5) G. Y. Golubyatnikov and A.F. Krupnov, 2003, J. Mol. Spectrosc. **217**, 282.

The mmW data were taken from
(6) J.S. Knight and W. Gordy, 1968, Phys. Rev. Lett. **21**, 1798
(7) Y. Endo and M. Mizushima, 1982, Jpn. J. Appl. Phys. **21**, L379
(8) M. Y. Tretyakov, M.A. Koshelev, V.V. Dorovskikh, D.S. Makarov and P.W. Rosenkranz, 2005, J. Mol. Spectrosc. **231**, 1

For multiply measured transitions differing in uncertainties by less than a factor of 2, weighted averages have been derived. Predictions should be viewed with caution above 4 Thz. Intensities were calculated based on g values obtained by magnetic resonance in (8) K.D. Bowers, R.A. Kamper and C.D. Lustig, 1959, Proc. Roy. Soc. London, **A251**, 565. The perpendicular g-factor has been removed from the intensity file in order to eliminate its excessive contribution to intensities at higher J values, catalog version 4 differed significantly from prior catalog versions due to a change in how this parameter is treated in the intensity calculation. The zero-frequency absorption is included but the frequency is set to a synthetic frequency of —g— J for the given level.