

$^{16}\text{O}_3$ Dipole Transition Moment Operator Constants and Integrated Intensity for the $4\nu_2 + 4\nu_3$ B-Type Band

Natural isotopic abundance: 0.992728.

Reference	[2011Bar]
Method	Continuous wave – cavity ring down spectroscopy.
Equations	Equations 47 and 53 in chapter “Introduction”.
Statistical errors	One standard deviation in units of the least significant digits.
Remarks	The integrated intensity is given in units of cm/molecule at 296 K. Statistical errors are given in parentheses. Calculated constants are purposely given with a supplementary digit, in index form, in order to reproduce the line intensities to experimental accuracy. The dipole transition moment parameters and their standard deviation are given in Debye. Spectroscopic parameters are given in chapter “ $^{16}\text{O}_3$ Rotational and Centrifugal Distortion Constants for the (044) State. Band Center of the $4\nu_2 + 4\nu_3$ Vibrational Transition ”. The isotopic composition of the elements used for the calculation of the natural isotopic abundance is taken from [2007Coh].
Abbreviation	$\{A,B\} = AB + BA$

Band	Integrated intensity	Transformed dipole transition moment operators	Parameters
$4\nu_2 + 4\nu_3$	1.66×10^{-25}	$\varphi_x \times 10^5$	-0.124_1 (24)
B-type band		$\{\varphi_z, iJ_y\} \times 10^6$	0.3307_1 (43)

Symbols and abbreviations

Short form	Full form
$v_1 v_2 v_3$	Upper vibrational level in normal mode notation
$J_x J_y J_z$	Molecule-fixed components of J
SE	Statistical error

References

- [2007Coh] Cohen, E.R., Cvitaš, T., Frey, J.G., Holmström, B., Kuchitsu, K., Marquardt, R., Mills, I., Pavese, F., Quack, M., Stohner, J., Strauss, H.L., Takami, M., Thor, A.J.: Quantities, Units and Symbols in Physical Chemistry. The IUPAC Green Book, 3rd Ed., Cambridge: RSC Publishing, 2007.
- [2011Bar] Barbe, A., De Backer-Barilly, M.R., Tyuterev, V.G., Kassı, S., and Campargue, A.: Detection and analysis of new bands of $^{16}\text{O}_3$ by CRDS between 6500 and 7300 cm^{-1} . J. Mol. Spectrosc. **269** (2011) 175–186.