QUANTITATIVE INTENSITY STUDIES OF THREE GAS-PHASE MONOTERPENES IN THE INFRARED: α-PINENE, β-PINENE AND D-LIMONENE

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Monoterpenes are a class of biogenic volatile organic compounds (VOCs) whose general formula is $C_{10}H_{16}$. Like other VOCs, monoterpenes play an important role in the atmosphere as they are produced by vegetation in large quantities, and have recently been discovered in biomass burning plumes. Absorption coefficients and integrated band intensities are reported in the 600 - 6500 cm^{-1} region for three monoterpenes: α-pinene, β-pinene and d-limonene. The pressure broadened (1 atmosphere N_2) spectra were recorded in a 19.96 cm path length cell with 0.112 cm^{-1} resolution at two temperatures and a minimum of six different partial pressures using a Bruker 66V FTIR. These data are part of the PNNL Spectral Database,[a] which contains quantitative spectra of over 600 molecules. Potential atmospheric applications will be discussed

[a]Timothy J. Johnson, Luisa T. M. Profeta, Robert L. Sams, David W. T. Griffith, Robert L. Yokelson *Vibrational Spectroscopy* **53**(1);97-102 (2010).