HIGH RESOLUTION INFRARED SPECTROSCOPY OF THE PO_2 RADICAL

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The infrared absorption spectrum associated with the asymmetric stretching fundamental of PO_2 (v_3) has been measured using high resolution tunable diode laser spectroscopy. The free radical was formed in large concentrations in a fast-flow system by reacting white phosphorus vapour with atomic oxygen. More than 700 new lines have been assigned between 1290 and 1350 cm^{-1}. Data was combined with infrared and LMR lines, obtained from previous studies and simultaneously fitted using the CALPGM suite. The precise constants derived definitively exclude a series of unassigned transitions from belonging to the v_3 fundamental band and potential assignments for that series are discussed.