

THE ULTRA VIOLET SPECTRUM OF TeO₂

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The laser induced fluorescence spectrum of TeO₂ has been recorded between 345 nm and 405, using a high temperature nozzle source. The spectrum shows a considerable improvement in signal-to-noise ratio in comparison with that of Dubois¹ and this has led to a reassignment of the vibrational structure, including the band origin.

To date, 58 vibrational bands (27 cold and 31 hot) have been reassigned to the ¹B₂—¹A₁ electronic transition of TeO₂. The values of the band origin and the vibrational frequencies for the symmetric stretch (ω_1) and bending (ω_2) modes are given as follows (values are in cm⁻¹)

$$\nu_0=25\ 526 \quad \omega'_1=678 \quad \omega'_2=220 \quad \omega''_1=822 \quad \omega''_2=281.$$

Measurements at high resolution are planned to allow a rotational analysis. Following on from this work, the products of the high temperature reaction Te + H₂O are to be investigated.

Reference

1. I. Dubois, Bulletin de la Societé Royale de Liege, 39^e année, n° 1-2, 63 (1970)