

HIGH RESOLUTION INFRARED DIODE LASER SPECTROSCOPY OF $X^2\Pi$ CBr

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The infrared spectrum of the $X^2\Pi$ state of CBr from 680 - 750 cm^{-1} has been measured using diode laser absorption spectroscopy. The CBr radicals were produced by 193 nm excimer photolysis of bromoform. Transitions belonging to the $v = 1 \leftarrow 0$, $2 \leftarrow 1$, $3 \leftarrow 2$ and $4 \leftarrow 3$ bands of both isotopomers, C^{79}Br and C^{81}Br have been identified. Employing *case(a)* matrix elements, spectroscopic parameters were obtained from a least squares fit where the transition frequencies of both isotopomers were fitted simultaneously. The results were used to obtain a Rydberg-Klein-Rees (RKR) potential. Additionally, the kinetics of the CBr + O₂ reaction were investigated. This is the first recording of vibrational spectra of CBr.

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