

INDUCED INFRARED SPECTRA OF DOUBLE VIBRATIONAL TRANSITIONS IN $H_2 - N_2$ AND $D_2 - N_2$

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Collision-induced infrared absorption spectra of the double vibrational transitions of H_2 ($v=1 \leftarrow 0$) + D_2 ($v=1 \leftarrow 0$) have been investigated in their binary mixtures in the spectral region $5900 - 7100 \text{ cm}^{-1}$. The spectra were recorded with a 2 m absorption cell for partial densities of H_2 and N_2 in the range 60 to 315 and 100 to 315 amagat. respectively, at room temperature. The observed spectra are interpreted in terms of the following transitions: $O_1(J)$ of H_2 + $Q_1(J)$ of N_2 ; $Q_1(J)$ of H_2 + $O_1(J)$ of N_2 ; $Q_1(J)$ of H_2 + $Q_1(J)$ of N_2 ; $Q_1(J)$ of H_2 + $S_1(J)$ of N_2 ; $S_1(J)$ of H_2 + $Q_1(J)$ of N_2 .

Analysis of the absorption profiles has been carried out. Similar experiments with binary mixtures of $D_2 + N_2$ are also in progress. The results of this work including the absorption coefficients, line-shape function, etc., will be presented.