VIBRATION-ROTATION SPECTRUM

(Last Revision: January 31, 1997)

- ABSTRACT:

The vibration-rotation spectrum of HCl is used to calculate the interatomic distances in this molecule.

- TEXT REFERENCE:

Sime, Rodney J., "Physical Chemistry - Methods, Techniques and Experiments," Saunders Pub., Philadelphia, PA, 1990. p. 676-687.

- OTHER REFERENCES:

Program for calculations.

- GENERAL DESCRIPTION AND THEORY:

In the case of diatomic gas molecules, the vibrational spectrum shows rotational lines quite well. By indexing these lines and plotting the data, values of the rotational constant, dissociaton energy and fundamental vibrational frequency can be obtained. The final result is the equilibrium internuclear distance in HCl.

- EQUIPMENT:

FTIR Spectrometer, 10 cm gas cell with KBr windows.

- CHEMICALS:

HCl,

- LABORATORY PROCEDURE:

Follow the procedure described by Sime.

- CALCULATIONS:

The calculations are those described by Sime.

- LITERATURE VALUES: