"Applications Of IR Absorption Spectrocopy"

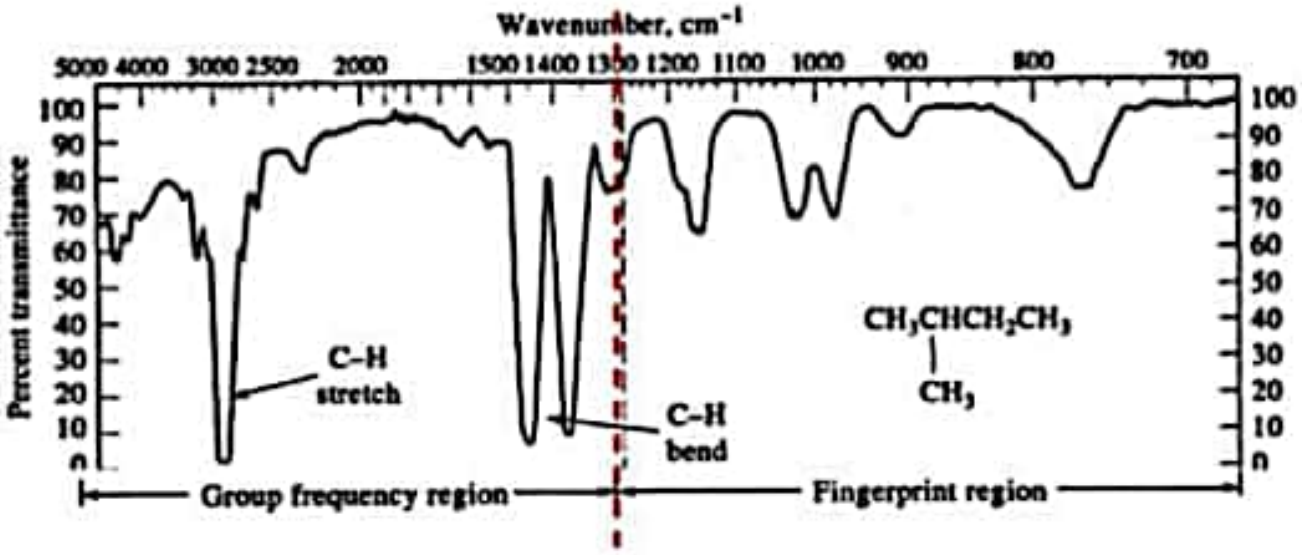
APPLICATION OF IR SPECTROSCOPOY TO ORGANIC MOLECULES:

- Organic groups differ from one another both in the strength of the bond and the masses of the atom involved.

QUALITATIVE ANALYSIS

*Since different molecules with different combination of atoms produce their unique spectra, infrared spectroscopy can be used to **qualitatively** identify substances.*

Infrared Spectra



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THREE REGIONS OF IR SPECTRUM:

- 4000 and 1300 cm^{-1}
- Alcohols and amines

- 1300 and 909 cm^{-1}
- Complex interactions

- 909 and 65o cm^{-1}
- Benzene rings

STUDYING PROGRESS OF REACTIONS

- Observing rate of disappearance of characteristic absorption band in reactants; or
- Rate of increasing absorption bands in products of a particular product.
- E.g.: O—H = 3600-3650 cm^{-1}

  C=O = 1680-1760 cm^{-1}