

4.1: Chapter Objectives and Preview of Infrared Spectroscopy

Learning Objectives

After completing this chapter, you should be able to

- fulfill all of the detailed objectives listed under each individual section.
- solve problems which may require the interpretation of IR spectra in addition to other spectral data.
- define, and use in context, the key terms introduced in this chapter.

When a molecule absorbs infrared (IR) radiation, the molecule vibrates, which causes the irradiated molecules to heat up. Molecules in the atmosphere, such as carbon dioxide, methane, and water, absorb IR radiation, which in turn creates more heat at the earth's surface. This in turn responsible for the greenhouse effect. In structure determination, IR spectroscopy is an important tool. It provides valuable information on what functional groups are present or absent in the molecule. An IR spectrum can be thought of as a fingerprint for the molecule.

This chapter will focus on IR spectroscopy. To start, some basic theory behind this technique will be discussed, followed by what type of information you can glean from spectra.

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