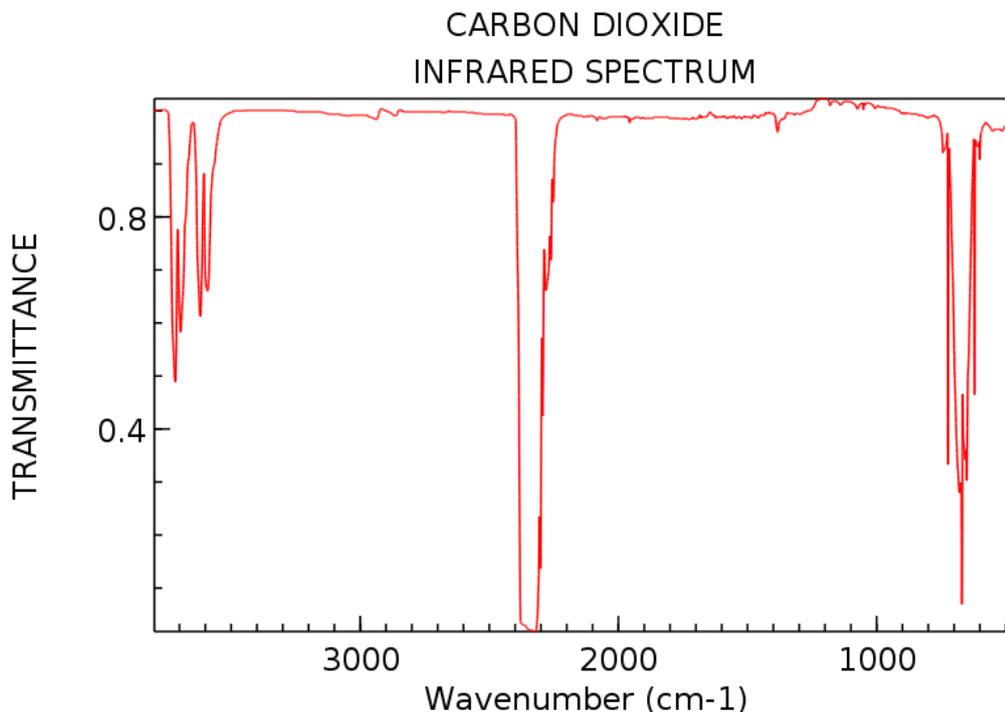


Answer on Question #67834, Chemistry / General Chemistry

Discuss the infrared spectrum of CO₂ molecule.

Answer:



The peak at about 670 cm⁻¹ corresponds to the degenerate bending modes; the other large peak around 2300 cm⁻¹ corresponds to the antisymmetric stretching mode. The small peaks observed in the range 3600-3800 cm⁻¹ correspond to combination bands.

The IR spectrum of carbon dioxide has a strong absorption band consisting of many overlapping peaks. This band, caused by unsymmetrical C=O stretching, is placed at 2300 cm⁻¹ corresponding to a wavelength of 4.3 μm. CO₂ molecules in the atmosphere absorb emitted heat radiation from the earth at this wavelength and in that way decrease cooling especially during clear nights.

Link: <http://webbook.nist.gov/cgi/cbook.cgi?ID=C124389&Type=IR-SPEC&Index=1>