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Title: Temperature dependent photoabsorption cross sections of allene and methylacetylene in the VUV-UV region

Source: Chemical Physics(October 1, 2000), vol.260, no.1-2 p. 215-23

Abstract: Using synchrotron radiation as a continuum light source, we have measured the absolute photoabsorption cross sections of allene (C/sub 3/H/sub 4/) and methylacetylene (C/sub 3/H/sub 4/) in the respective 130-230 nm and 130-220 nm regions, with a spectral bandwidth (FWHM) of 0.06 nm and at three different temperatures, i.e., 360, 295, and 200 K. Significant temperature effects are observed for both molecules in the threshold absorption region. When the gas temperature decreases from 360 to 200 K, the apparent continuum cross sections decrease by an order of magnitude in the 230 nm region of allene and in the 210 nm region of methylacetylene. Within the temperature range of the present work, the presence of hot bands in both molecules are quite limited because of their high vibrational frequencies.

Language: eng.

Pub. Type: Journal Paper

References: 35

ISSN: 0301-0104