

ULTRAVIOLET SPECTROSCOPY OF SUBCRITICAL AND SUPERCRITICAL ETHANOL

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Vacuum ultraviolet spectroscopy was used to investigate the lowest-lying electronic state band edge of subcritical ethanol as a function of temperature from 25-200 °C, and for supercritical ethanol as a function of density at 250 °C. For subcritical ethanol, the band edge is observed to red shift with increasing temperature. Supercritical spectra clearly demonstrate a gradual transition from gas-phase to liquid-phase behavior with increasing density, as evidenced by a gradual blue shift and loss of spectral detail. We discuss both effects regarding the extent of hydrogen bonding in the system and Rydbergization effects, similar to those observed for subcritical and supercritical water.