

Supporting Information

**Electronic States of Acetic Acid in a Binary
Mixture of Acetic Acid and 1-methylimidazole
Depend on the Environment**

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Infrared spectroscopy

Infrared (IR) spectroscopy was also conducted in this research. The measurement of IR spectroscopy was made using FTIR spectrometer (Nicolet is50, Thermo Fisher Scientific Ltd., Japan) at the Center for Instrumental Analysis, Yamaguchi University.

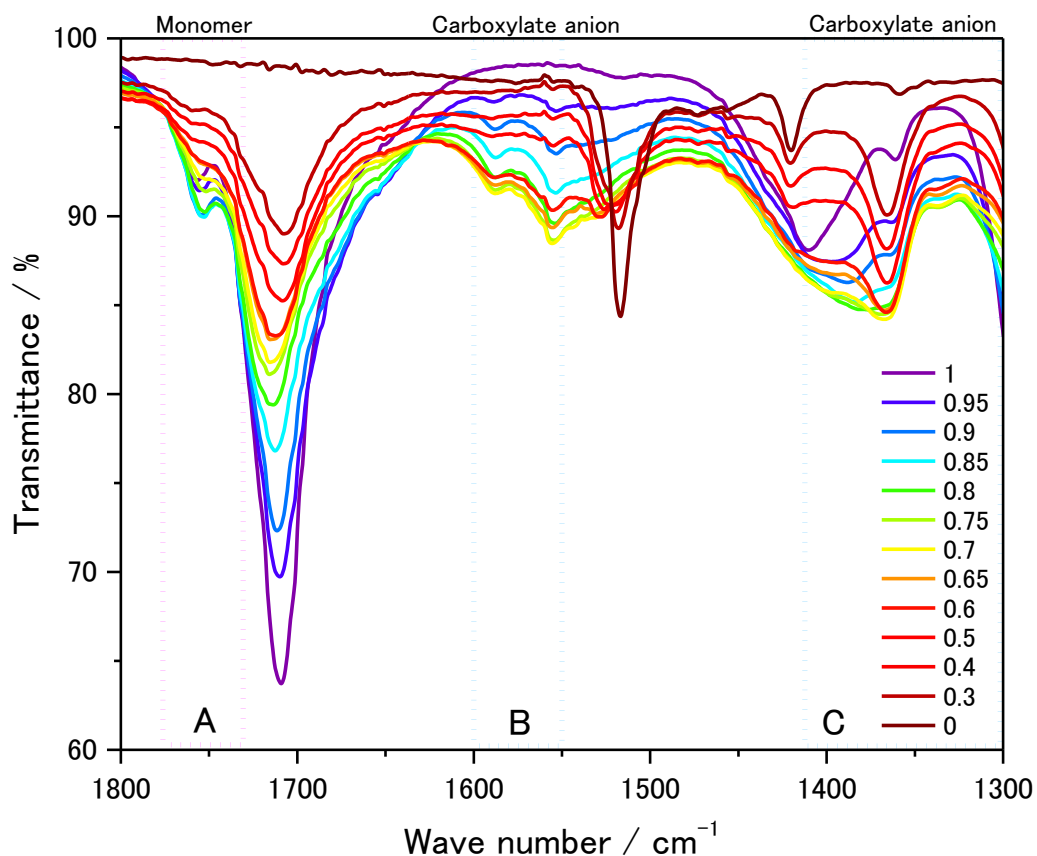


Figure S1. Unnormalized IR spectra of acetic acid/1-MI mixture at various concentrations. The figure legends indicate mole fractions of acetic acid (χ_{HOAc}).

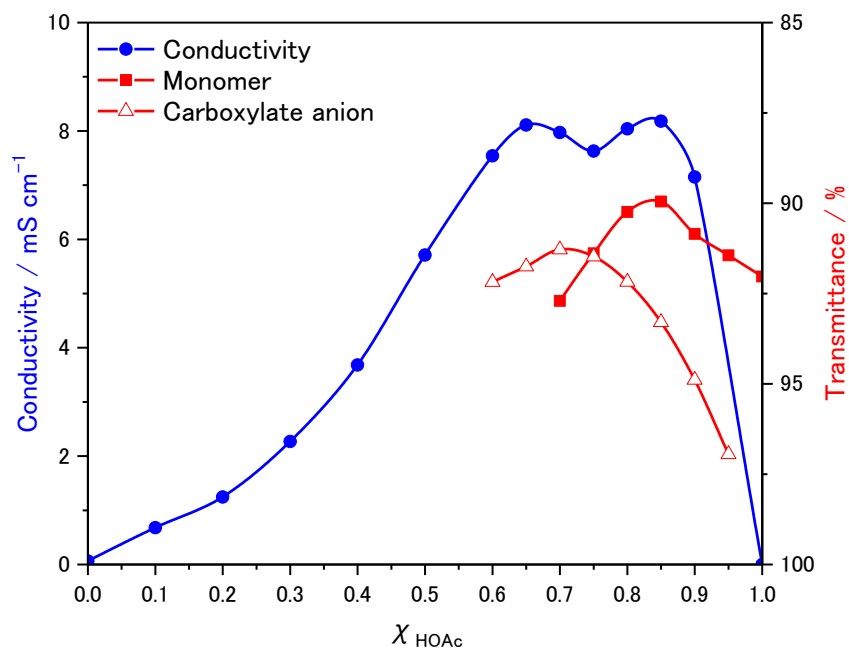


Figure S2. Electrical conductivity of acetic acid/1-MI mixture and transmittance intensity around 1753 cm^{-1} , which is assigned to carboxyl monomer, and around 1587 cm^{-1} , which is assigned to carboxyl anion.