

## Composition, Properties, and Structure of Copper(II) Complexes with 2,4-Dihydroxybenzoic Acid

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### Abstract

pH titration, optical spectroscopy, and simulations were used to determine the concentration acidic dissociation constants for 2,4-dihydroxybenzoic acid (H<sub>3</sub>L) and the compositions, stabilities, and species distribution of copper(II) complexes with H<sub>3</sub>L. At acidic and neutral pHs, 1 : 1 complexes are dominant. At alkaline pHs, differently protonated 1 : 1, 1 : 2, or 1 : 3 complexes form (including hydroxo complexes [CuLOH]<sup>2-</sup>, [CuL(OH)<sub>2</sub>]<sup>3-</sup>, and [CuL<sub>2</sub>(OH)<sub>2</sub>]<sup>6-</sup>), the formation of the particular species being dependent on the metal-to-ligand ratio.

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