

Public Abstract

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Department:Chemistry

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Title:Copper(I) Coordination Networks Synthesized with Solid-Solid Reactions

The use of solid-solid reactions in the development of one-, two-, and three-dimensional Cu(I) coordination networks are discussed. The solid-solid reactions were monitored by a variety of instrumental techniques to achieve a better picture of the solid-solid reaction mechanism. The crystalline reagents led to crystalline products with no amorphous phase. The nitrogen containing bridging ligands, 4,7-phenanthroline, 4,4'-bipyridyl, and trans-1,2-bis(4-pyridyl)ethylene in addition to 1,3-dithiane were used in the formation of these networks. The resultant crystalline compounds were compared to the solution-based products, showing that on average the same product was formed. Through the bridging ligands and a change in the coordinated solvent, the ultimate goal of showing how these solid-solid reactions could be expanded to cover a large array of reagents was accomplished.