

Self-Assembled Luminescent Networks of Copper(I) Cyanide

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Self-assembly reactions result in the spontaneous formation of intricate three-dimensional networks from simple components. The resulting networks may be important for their optical, magnetic, mechanical, separating, or sequestering properties. Our self-assembly reactions of piperazine (Pip) and related diamines (B) with copper(I) cyanide in water have resulted in a wealth of materials showing CuCN:B ratios including 1:1, 3:2, 2:1, 5:2, 3:1, 7:2, 4:1 and others. X-ray crystallography has shown that the higher ratio (copper-rich) products are typically comprised of $(\text{CuCN})_2(\text{B})$ threaded with additional CuCN chains. These materials have shown very intense photoluminescence, converting UV light into visible emission.

