

Catalytic Activity of Dual Metal Cyanide Complex in Multi-component Coupling Reactions

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摘要 Several dual metal cyanide catalysts were prepared from potassium ferrocyanide, metal chloride (where metal = Zn²⁺, Mn²⁺, Ni²⁺, Co²⁺ and Fe²⁺), t-butanol (complexing agent) and PEG-4000 (co-complexing agent). The catalysts were characterized by elemental analysis (CHN and X-ray fluorescence), X-ray diffraction, N₂ adsorption-desorption, scanning electron microscopy, Fourier-transform infrared spectroscopy, and UV-Visible spectroscopy. The dual metal cyanide catalysts were used in several acid catalyzed multi-component coupling reactions for the synthesis of pharmaceutically important organic derivatives. In all these reactions, the Fe-Fe containing dual metal cyanide catalyst was the best catalyst. The catalysts can be recycled without loss in catalytic activity. The advantage of this method is the use of mild, efficient and reusable catalysts for various reactions, which makes them candidates for commercial use.

关键词: [dual metal cyanide](#) [multi-component coupling reaction](#) [acid catalyst](#)

Abstract: Several dual metal cyanide catalysts were prepared from potassium ferrocyanide, metal chloride (where metal = Zn²⁺, Mn²⁺, Ni²⁺, Co²⁺ and Fe²⁺), t-butanol (complexing agent) and PEG-4000 (co-complexing agent). The catalysts were characterized by elemental analysis (CHN and X-ray fluorescence), X-ray diffraction, N₂ adsorption-desorption, scanning electron microscopy, Fourier-transform infrared spectroscopy, and UV-Visible spectroscopy. The dual metal cyanide catalysts were used in several acid catalyzed multi-component coupling reactions for the synthesis of pharmaceutically important organic derivatives. In all these reactions, the Fe-Fe containing dual metal cyanide catalyst was the best catalyst. The catalysts can be recycled without loss in catalytic activity. The advantage of this method is the use of mild, efficient and reusable catalysts for various reactions, which makes them candidates for commercial use.

Keywords: [dual metal cyanide](#), [multi-component coupling reaction](#), [acid catalyst](#)

收稿日期: 2011-05-09; 出版日期: 2011-09-06


引用本文:

Anaswara RAVINDRAN, Rajendra SRIVASTAVA .Catalytic Activity of Dual Metal Cyanide Complex in Multi-component Coupling Reactions[J] 催化学报, 2011,V32(10): 1597-1603

Anaswara RAVINDRAN, Rajendra SRIVASTAVA .Catalytic Activity of Dual Metal Cyanide Complex in Multi-component Coupling Reactions[J] Chinese Journal of Catalysis, 2011,V32(10): 1597-1603

链接本文:

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