عنوان مقاله:

Catalytic Properties of Ag@Zn-MOF Nanocomposites for Dehydrogenation of Ammonia Borane

محل انتشار:

فصلنامه شیمی معدنی, دوره 5, شماره 1 (سال: 1400)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Reza Sacourbaravi - *Department of Chemistry, Faculty of Science, Shahid Chamran University of Ahvaz, Ahvaz, Iran*

Zeinab Ansari-Asl - *Department of Chemistry, Faculty of Science, Shahid Chamran University of Ahvaz, Ahvaz, Iran*

Mohammad Kooti - *Department of Chemistry, Faculty of Science, Shahid Chamran University of Ahvaz, Ahvaz, Iran*

Valiollah Nobakht - *Department of Chemistry, Faculty of Science, Shahid Chamran University of Ahvaz, Ahvaz, Iran*

خلاصه مقاله:

The utilization of NH۳BH۳ (ammonium borane) as a H۲ gas storage compound is restricted by its slow rate for H۲ evolution. In this study, three Ag@Zn-MOF nanocomposites with different amounts of Ag:Zn-MOF ratio of ۰.۲۵:۱ (۱), ۰.۵:۱ (۲), and ۱:۱ (۳) were investigated as catalysts for hydrogen evolution from hydrolysis of NH۳BH۳. Well dispersed encapsulated Ag nanoparticles (۳۰-۶۰ nm) in the matrix of the composites have been prepared in the presence of Zn(II) metal-organic frameworks (Zn-MOFs) in an aqueous solution by using NaBH۴ as a reducing agent at room temperature. These nanocomposites have shown good catalytic activity for the hydrolysis of NH۳BH۳.

کلمات کلیدی:

Hydrogen generation, Ammonia borane, Metal-organic framework, nanocatalyst