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Preparation and Characterization of Nickel-Tungsten Nanoparticles Using Microemulsion Mediated Synthesis

Authors : S. Pal, R. Singh, S. Sivakumar, D. Kunzru

Abstract : AOT stabilized reverse micelles of deionized water, dispersed in isooctane have been used to synthesize bimetallic nickel tungsten nanoparticles. Prepared nanoparticles were supported on γ-Al2O3 followed by calcination at 500oC. Characterizations of the nanoparticles were done by TEM, XRD, FTIR, XRF, TGA and BET. XRF results showed that this method gave good composition control with W/Ni weight ratio equal to 3.2. TEM images showed particle size of 5-10 nm. Removal of surfactant after calcination was confirmed by TGA and FTIR.

Keywords : nanoparticles, reverse micelles, nickel, tungsten
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