CONTRIBUTED POSTERS

Nanoparticles (N)

Structural and Magnetic Characterization of Ni Nanoparticles Synthesized inIonic Liquids

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Ni(0) nanoparticles were obtained by thermal decomposition (at 75 oC and 5 bar of molecular hydrogen)of the organometallic precursor bis(η4-1,5cyclooctadiene)nickel(0) in ionic liquids, derived of the cation1-butyl-3-methylimidazolium with three different anions (Tetrafluoroborate, BF_4-, hexafluorophosfate,PF_6-, and bis-trifluorosulfoneimidate, $N(Tf)_2$-). A colloidal suspension of Ni(0) nanoparticles wasobtained after decomposition. X-ray diffraction and X-ray absorption spectroscopy show thatapproximately 3.0 nm Ni nanoparticles embedded in ionic liquids have an fcc cubic structure. Thesenanoparticles have a small size distribution as determined by transmission electron microscopy. Smallangle X-ray scattering shows that the colloid exhibits around 3.0 nm mean distance between thenanoparticles as well as some organization that depends on the anion, being more ordered for the BF_4-.Magnetization curves show a typical superparamagnetic behavior with no hysteresis. ZFC and FCthermal magnetization curves show typical superparamagnetic response with blocking temperaturesaround 100 K. They are interesting as new materials because they open an opportunity to use thesecolloid suspensions as a new class of magnetic fluids.