

Continuous Synthesis of Nickel Nanoparticles by Hydrazine Reduction

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Abstract : The synthesis of nickel nanoparticles by the reduction of nickel chloride with hydrazine in an aqueous solution. The effect of hydrazine concentration on batch-processed particle characteristics was investigated using Field Emission Scanning Electron Microscopy (FESEM). Both average particle size and geometric standard deviation (GSD) were decreasing with increasing hydrazine concentration. The continuous synthesis of nickel nanoparticles by microemulsion method was also studied using FESEM and X-ray Diffraction (XRD). The average size and geometric standard deviation of continuous-processed particles were 87.4 nm and 1.16, respectively. X-ray diffraction revealed continuous-processed particles were pure nickel crystalline with a face-centered cubic (fcc) structure.

Keywords : nanoparticle, hydrazine reduction, continuous process, microemulsion method

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