Solvothermal Synthesis of Co-doped ZnO Nanopowders

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Dedicated to Professor Gérard Demazeau on the occasion of his 65th birthday

Results are presented on the microwave solvothermal synthesis of Co-doped ZnO powders starting from zinc and cobalt acetate precursors in ethylene glycol solutions. The method yields powders with a relatively high degree of agglomeration of initially nucleated nanometer grains. It has been demonstrated that the thermodynamic estimations of the final composition using the Gibbs calculation method are in good agreement with experimental values for the chemical composition in a range of cobalt concentrations up to 15 mol-%.

Key words: Solvothermal Synthesis, Thermodynamic Equilibrium, Co-ZnO Nanopowders