

Electrochemically Active Nanoparticles Made by Flame Spray Pyrolysis

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Electroactive Co_3O_4 , Mn_3O_4 , LiMn_2O_4 , $\text{Li}_4\text{Ti}_5\text{O}_{12}$, and LiFe_5O_8 particles with spinel structure (normal, normal distorted, mixed, and mixed inverse) were made by flame spray pyrolysis at production rates of 10 to 20 g/h. These materials were characterized by X-ray diffraction and nitrogen adsorption and had a primary crystallite size in the range of 8 to 30 nm and exhibited high temperature stability. The electrochemical properties are reported exemplarily for LiMn_2O_4 and $\text{Li}_4\text{Ti}_5\text{O}_{12}$ as potential cathode and anode material, respectively, in secondary lithium-ion batteries.