[Journal of Materials Science and Technology](http://ezproxy.unimap.edu.my:2081/source/sourceInfo.url?sourceId=12330&origin=recordpage" \o "Go to the information page for this source)**,** Vol.27 (11), 2011, pages 991-995

# Structural & Magnetic Characterizations of NiLiZn Nanoferrites Synthesized by Co-precipitation Method

**Abstract**

Synthesis of Ni 0.5Li xZn (0.5-x)Fe 2O 4 nanoparticles with x=0, 0.1, 0.2, 0.3, 0.4 and 0.5 were realized via co-precipitation method. X-ray diffraction (XRD) and vibrating sample magnetometer (VSM) measurements were performed on the samples to determine the characteristics of the crystal structures and the magnetic properties of the samples, respectively. The spinel phase structures of the samples were confirmed by XRD analysis. Patterns of decreased lattice parameter and increased crystallite size values were observed by increasing the Li concentration at longer synthesis reaction periods. Similarly, for the magnetic properties, both the saturation magnetization (M s) and coercivity (H c) were found to vary with increasing patterns at higher Li doping levels and longer synthesis reaction periods. The results and mechanisms concerned were discussed.

**Keywords —** Co-precipitation, crystal structure, lithium nickel zinc ferrite, magnetic properties.