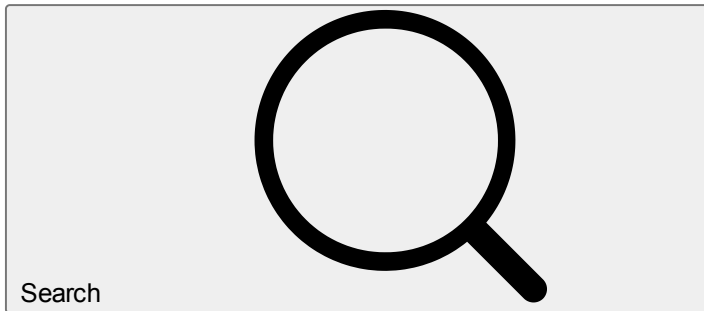



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Effect of Calcination Temperature on the Behavior of the Agglomerated Co_3O_4 Nanoparticles Obtained Through the Sol–Gel Method

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Abstract

Agglomerates of Co_3O_4 were obtained using the sol–gel method for the synthesis with subsequent calcination of the samples up to 550 °C. Through X-rays it was observed that the samples presented the pure spinel phase with a crystallite size between 33.73 and 41.45 nm. In the thermogravimetric measurement from 262 °C high structural stability is presented with phase change at 917 °C. As the temperature increases, the particles increase in size, observing agglomerated nanometer particles that increase with temperature (3.5–3.8 μm). The 683 cm^{-1} Raman mode for

550 °C clearly presents an shifted compared to the other samples. The band gap for the samples under study varied with the temperature change of 1.77–1.81 eV. The *FWHM* decreases at a higher temperature, this confirms the larger crystallite size and the higher degree of sintering.

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Fig. 1

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