OBTAINING IRON OXIDES BY FeII-Na4EDTA DECOMPOSITION

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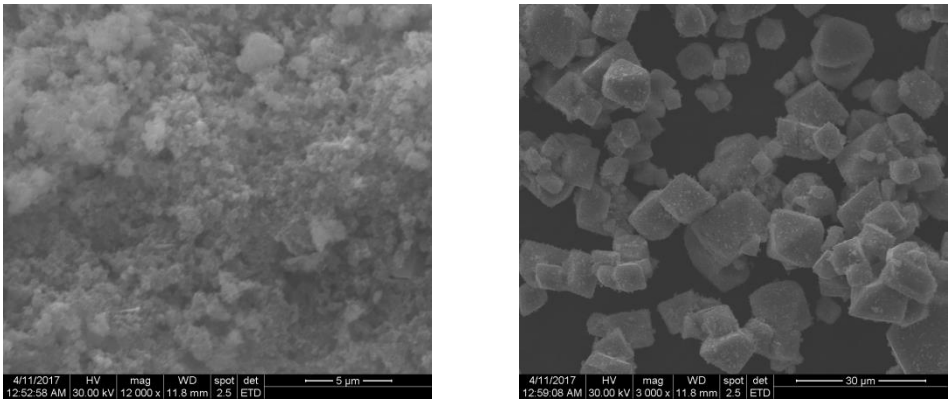
Continuing our previous studies [1,2] about hydrothermal decomposition of the Fe(III)-EDTA complex, the present experimental procedure is focused on the hydrothermal decomposition of the Fe(II)-EDTA complex in the presence of urea. Maintaining unchanged the concentration for the precursors at 230ºC, we investigated the kinetics of phase transitions between 1,5 hours and 84 hours of high pressure-temperature treatment time.
Nanometric and micrometric magnetite were obtained between 1,5 and 48 hours of high pressure-temperature treatment time. Between 48 and 84 hours of high pressure-temperature treatment time, a mixture of micrometric magnetite and iron carbonate were obtained.



(a) *(b)*

Figure 1: SEM Images of nanometric. (a) and micrometric(b) magnetite

Keywords: crystal structure, surface structure, nanomaterials, micromaterials.

References:
[1] M. Chirita, R. Banica, A. Ieta, A. Bucur, P. Sfirloaga, D. H. Ursu, and I. Grozescu, "Highly Crystalline FeCO3 Microparticle Synthesis by Hydrothermal Decomposition of Fe-EDTA Complex." American Institute of Physics Conf Proceedings, vol. 1262/2010: 124.
[2] M. Chirita, R. Banica, P. Sfarloaga, A. Ieta, I. Grozescu, "A short route of micrometric magnetite synthesis via Fe-EDTA thermal decomposition." IEEE Conf Proc 11-13 Oct. 2010, ISBN 978-1-4244-5781-6, pp. 391-394.