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STRUCTURAL AND MAGNETIC PROPERTIES Co3O4 OBTAINED BY THE COPRECIPITATION

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Study shows a study of the structural and magnetic properties of cobalt oxide Co3O4 doped with Cr as a function of the parameters adopted during the synthesis by chemical co-precipitation were flowing neutralizing NaOH and calcination temperature to 800 °C and 1000 °C. First, a series of samples of this oxide in which the flow was changed neutralization of the NaOH solution was generated. Thermal treatments were carried out at 800 °C and 1000 °C in anticipation of changing voltages on the network, average crystal size, etc. XRD observed in this case that the major phase and Co3O4 was found that the change of flow, the average crystallite size of network parameters and changes suffered distorted. In magnetic measurements MxT for samples to 800 °C and 1000 °C we observed behavioral evidence of a ferri / ferromagnetic-paramagnetic transition. On the other hand, the Curie-Weiss parameter was found negative for all samples associated with the major phase Co3O4 antiferromagnetic. Thus, we could correlate these phenomena the possible presence of phase clusters / nanoclusters amorphous ferri / ferromagnetic with CoCr2O4 / CrO2 generated with the incorporation of Cr under different NaOH flows. These coupling steps leading to the observed behavior. Have the MXH measures to 1000 °C in 50K presented a characteristic hysteresis loop system ferri / ferromagnetic well pronounced and could associate this, beyond the coupling phase, the fact that higher temperatures increase the grain size decreasing the surface anisotropy and favoring phases ferri / ferromagnetic. We are convinced that the results of our research is an important contribution to the field.