

Abstract Submitted
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Synthesis and structural characterization of Nb₂O₅ LEONILSON KIYOSHI HERVAL, DRIELE VON DREIFUS, ADRIANO C. RABELO, ARIANO D. RODRIGUES, YARA GALVÃO GOBATO, ADILSON J.A. DE OLIVEIRA, ERNESTO C. PEREIRA, MARCIO P.F. DE GODOY, Universidade Federal de Sao Carlos, LABORATÓRIO INTERDISCIPLINAR DE ELETROQUÍMICA & CERÂMICA - DEPARTMENT OF CHEMISTRY TEAM, GRUPO DE OPTOELETRÔNICA E MAGNETO-ÓPTICA - DEPARTMENT OF PHYSICS TEAM — Niobium and niobium alloys are used in a large number of industrial applications. Niobium Pentoxide (Niobic Anhydride, Nb_2O_5) is probably the commonest compound of niobium. It is a colorless insoluble solid that is fairly unreactive and it is the main precursor to all materials made of niobium with application in electronic components such as capacitor and optical glasses. In general Nb_2O_5 samples present many crystalline phases which are strongly dependent on the preparation parameters. We have studied two different phases (hexagonal and orthorhombic) of Nb_2O_5 synthesized by Pechini method and characterized them by X-Ray Diffraction (XRD), Raman spectroscopy and Magnetometry using a Superconducting Quantum Interference Device (SQUID). Our results show that the hexagonal phase dominates for samples prepared at 500°C while the orthorhombic phase is increased for samples prepared at 600°C. Correlation between Raman spectroscopy and XRD allowed the identification of these crystalline phases as well the study of annealing effects in-situ. Both phases are paramagnetic and the orthorhombic phase presents a significant increase of effective magnetic moments as compared to hexagonal phase.

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