TiO2/K2O molar ratio of 3, 3.5, and 4. The mixtures were calcined at 950, 1050, and 1150°C for 3 h. Calcined powders were milled, washed in warm water, and crystallized at 900°C. The powders were analyzed by chemical analysis, X-ray diffraction, and optical and scanning electron microscopes. Potassium titanates fibers with sub-micrometer thickness and length above 20 mm could be prepared at calcination temperature of 1050°C or above and with TiO2/K2O molar ratio of 3 and 3.5. The TiO2-K2O phase diagram indicated that a liquid-phase must form during the calcination for the anisotropic growth of fibers.

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Synthesis Of Silicon Nitride Using Taguchi Planning Metodologhy

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Silicon Nitride is strongly considered an important material for use in structural applications and its performance is severely influenced by modern synthesis processes. In the present work, silicon nitride powder synthesis was performed using liquid silicon tetrachloride and gaseous ammonia, at low temperature and inert atmosphere. Diimide pyrolisis was made on temperature between 1300 and 1500 0C. A Taguchi design of experiments methodology was applied, aiming to obtain powders with apropriated characteristics for structural applications. On pyrolisis, alumina based substrates resulted on SIALON phase formation, probably originated from oxygen reaction, provided from alumina. Silicon carbide substrates enhance synthesis of pure silicon nitride powder.

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Strontium-Doped Neodymium Manganite Powders Obtained By Solid-State Reaction

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Many ceramic materials are being studied as cathode of the Solid Oxide Fuel Cell (SOFC), mainly in the direction of reduction of the operating temperature. In this sense, diverse ceramic materials exist that can act as component cathodic, being the Strontium-Doped Neodymium Manganite (Nd1-XSrXMnO3) one of these alternative materials. To add some contributions, the present work has as objective to present the physical, chemical and microstructural characteristics of the powders of Nd1-XSrXMnO3, for the values of x=0,10; 0,30 and 0,50. The powders mentioned they had been obtained by the solid-state reaction. As main result, it was verified that the homogeneity of particles of these powders is adjusted for the suspensions that can be evaluated for the rheology and conformed on electrolyte surface.

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Synthesis And Characterization Of The Mcm-41 Mesoporous Molecular Sieve

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The aim of this project is to synthecize and to characterize the mesoporous molecular sieve MCM-41 to be used as catalytic support. For such purpose,the molecular sieve MCM-41 has been prepared from a gel with the following molar composition: 1 SiO2: 0,27 CTABr: 0,19 TMAOH: 40 H2O. This gel was aged for 24h at the ambient temperature and it was hydrotermically treated at 150°C per 2 days. In order to eliminate the organic component ocluded in the mesopores it was