

## Investigation of the system $(1-x) \text{La}_{0.83}\text{Sr}_{0.17}\text{Ga}_{0.83}\text{Mg}_{0.17}\text{O}_{2.83} - x \text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$ ( $0 \leq x \leq 1$ )

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Phase composition, elemental diffusion and electrical conduction of sintered pellets of mixed  $\text{La}_{0.83}\text{Sr}_{0.17}\text{Ga}_{0.83}\text{Mg}_{0.17}\text{O}_{2.83}$  (LSGM) and  $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$  (LSM) powders,  $(1-x)\text{LSGM}-x\text{LSM}$  ( $0 \leq x \leq 1$ ), were studied. LSGM and LSM powders were prepared following sol-gel and solid-state route, respectively. The phase composition and the elemental diffusion were investigated by X-ray diffraction and scanning electron microscopy techniques after thermal treatments at temperatures suitable for application in IT-SOFCs. Electrical characterisation was carried out by the complex impedance spectroscopy technique in air and in the temperature range 300 – 800 °C. The results were compared with those obtained from a thick (about 100  $\mu\text{m}$ ) film of LSGM sandwiched between a pellet and a film of LSM. Experimental evidences would suggest the Mn cation diffusion into the electrolyte material; implications for the use of both materials in IT-SOFCs technology were evaluated.