LSM is widely used as a cathode material in SOFC, because of its high electrochemical activity, good stability and compatibility with YSZ electrolyte at high temperature. However, LSM in traditional cathode materials will not generate a satisfactory performance at intermediate temperature. In order to reduce the polarization resistance of cell with the operating temperature of SOFC system, the cathode material of LSCF is one of the most suitable electrode materials because of its high mixed ionic and electronic conductivity. In this report, cathode material, La$_{0.6}$Sr$_{0.4}$Co$_{0.2}$Fe$_{0.8}$O$_3$ powder for intermediate temperature SOFC was synthesized by Pechini method using the starting materials such as nitrate of La, Sr, Co and Fe including ethylene glycol, etc. As a result, the synthesized powder that calcined above 700°C exhibits successfully perovskite structure, indicating phase-pure of LSCF. Moreover, the particle size, surface area, crystal structure and morphology of the synthesized oxide powders were characterized by SEM, XRD, and BET, etc. In order to evaluate the electrochemical performance for the synthesized powder, slurry mixture using the synthesized cathode material was coated by screen-printing process on the anode-supported electrolyte which was prepared by a tape casting method and co-sintering. Finally, electrochemical studies of the SOFC unit cell, including measurements such as power density and impedance, were performed.  

Key words: Solid Oxide Fuel Cell(고체산화물연료전지), LSCF cathode(LSCF 공기극), Pechini(페치니), electrochemical property(전기화학적 특성)

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