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이트리아 안정화 지르코니아상의 란탄 망간산염 복합물의 전극 특성
Electrode Properties of Lanthanum Manganite Composite on Yttria-Stabilized Zirconia

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In recent years several groups worldwide have been involved in the development of solid oxide fuel cells (SOFCs) capable of delivering high power at reduced temperatures and remarkable progress has been achieved in developing reduced temperature SOFCs. The approaches generally fall into two categories: the use of materials with substantially higher conductivity and/or fabrication of SOFCs using thin-film electrolyte membranes. Clearly, after the resistance of the electrolyte has been lowered to acceptable (or negligible) levels, the performance of the anode and cathode becomes the limiting factor to performance at reduced temperatures. In our experience the performance of the nickel-yttria stabilized zirconia (Ni-YSZ) anode in thin-film SOFCs is excellent over a broad temperature range. However, the cathode overpotential can be limiting, particularly at temperature below 800℃.

In this study the electrochemical evaluation of a series of lanthanum manganite composite electrodes is presented. Specifically, composite cathodes of 50/50 vol% $La_xSr_{1-x}MnO_3$-YSZ are evaluated for use in conventional and thin-film SOFCs.