

Effect of doping materials on sinterability and electrical conductivity of LaCrO_3 used as interconnector in high temperature steam electrolyzer

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The properties of lanthanum chromites with various doping materials were investigated in terms of sintering capability and electrical conductivity. For this purpose, doped-lanthanum chromites were prepared by two types of co-preparation and Pechini methods. XRD analysis revealed that the doped-lanthanum chromites have a single phase of perovskite structure. The particle size of doped-lanthanum chromites were controlled by high energy ball milling process and were characterized by PSA. The electrical conductivity was measured by D.C. four-probe method. From the experimental methods, we concluded that the sinterability is closely related to the second phase transformation, that is, the second phase melting above 1300 °C significantly promotes the sinterability. In case of electrical conductivities, Ca-doped lanthanum chromite showed better electrical conductivity than Sr-doped one.