Solid State Ionics, vol. 225, 2012, pages 390-394

Influence of impurities and catalyst surface characteristics on the oxygen charge transfer reaction in the Pt/YSZ system

Abstract

Spillover processes (i.e. the migration of ionic species from the support to the catalyst and vice versa) are known to play a very important role in catalysis and electrocatalysis. These spillover processes can be influenced by impurities (pre-existing on the catalyst surface) and by the catalyst morphology that may differ as a result of the differences in catalyst manufacturing processes. This work investigates the influence of impurities present in three commercial platinum (Pt) precursors. The resulting platinum films studied here were supported on yttria-stabilised-zirconia (YSZ). It was found that the three different catalyst films contained a range of impurities (determined by ICP-OES) that appear to affect the oxygen charge transfer reaction as studied by cyclic voltammetry (CV).

Keywords

Electrochemical promotion; Pt film impurities; Solid state cyclic voltammetry