

Electrode materials: a challenge for the exploitation of protonic solid oxide fuel cells

REVIEW ARTICLE

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Abstract High temperature proton conductor (HTPC) oxides are attracting extensive attention as electrolyte materials alternative to oxygen-ion conductors for use in solid oxide fuel cells (SOFCs) operating at intermediate temperatures (400–700 °C). The need to lower the operating temperature is dictated by cost reduction for SOFC pervasive use. The major stake for the deployment of this technology is the availability of electrodes able to limit polarization losses at the reduced operation temperature. This review aims to comprehensively describe the state-of-the-art anode and cathode materials that have so far been tested with HTPC oxide electrolytes, offering guidelines and possible strategies to speed up the development of protonic SOFCs.

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