The fabrication of CeO_2 matrix for molten carbonate fuel cell and its electrochemical performances

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The CeO_2 powder is used as a matrix material in for molten carbonate fuel cell (MCFCs). The electrochemical stability of CeO_2 material in molten carbonate were investigated in the cathodic and anodic environment. The green sheet of CeO_2 matrix has been prepared by tape casting method and their electrochemical performance was examined in single cell tests. Mechanical strength and pore structure of CeO_2 matrix have also been investigated. X-ray diffraction (XRD) confirmed the particle size and crystalline phase of CeO_2 do not change during short term test of immersion. These results show that CeO_2 material is thermodynamically stable material in molten carbonate environment.