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Analysis of Sintered Materials Used for Low-temperature Fuel Cell Plates

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Abstract

Bipolar plates (BPs) are key components of fuel cells. Functions of materials used for fuel cells include equal distribution of gas fuel and air, conduction of electricity between adjacent cells, heat transfer from the cell as well as prevention of gas leakage and cooldown. Moreover, the material must show particular corrosion resistance in cell's working conditions. Meeting particular requirements or prevention of the abovementioned situations will enable efficient operation of cells. Due to multifunctional nature of fuel cell plates, choice of materials used for plates is immensely difficult. This paper presents opportunities of application of a new technology of powder sintering for creation of parts for electricity and heat generators. This work also presents analysis of structural and phase-related properties, porosity and strength tests.

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