



Solid Oxide Fuel Cells: Materials Properties and Performance (Green Chemistry and Chemical Engineering)

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The First Book Centered on Materials Issues of SOFCs

Although the high operating temperature of solid oxide fuel cells (SOFCs) creates opportunities for using a variety of fuels, including low-grade hydrogen and those derived from biomass, it also produces difficulties in materials performance and often leads to materials degradation during operation. These obstacles have proven to be challenges in the path to greater commercialization. Focusing on materials-related issues, **Solid Oxide Fuel Cells: *Materials Properties and Performance*** provides state-of-the-art information for the selection and development of materials for improved SOFC performance.

The Materials behind the Development of SOFCs

Summarizing progress in the field thus far, the book describes current materials, future advances in materials, and significant technical problems that remain unresolved. The first three chapters explore materials for the electrochemical cell: electrolytes, anodes, and cathodes. The next two chapters discuss interconnects and sealants, which are two supporting components of the fuel cell stack. The final chapter addresses the various issues involved in materials processing for SOFC applications, such as the microstructure of the component layers and the processing methods used to fabricate the microstructure.

An Important Enabling Technology for Future Sustainable Energy Systems

This volume shows how the performance of SOFCs can be improved through novel materials and methods, thereby, bringing them closer to commercialization.

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Editorial Review

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