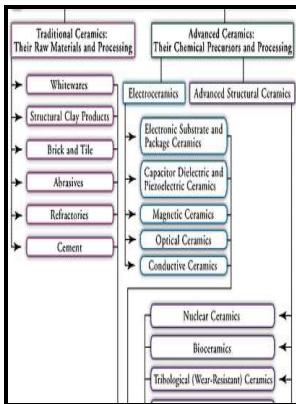


Ceramic oxygen ion conductors and their technological applications

Institute of Materials - Oxygen ion conductors



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Oxygen ion conductors

Data for representative conductors are tabulated. The first and perhaps better known is Partially Stabilised Zirconia PSZ , a material in which a mechanism never before reported and unique to zirconia confers considerable toughening on what would otherwise be a traditional brittle ceramic. This chapter reviews methods of optimizing ionic conduction in solids and controlling the ratio of ionic to electronic conductivity in mixed conductors.

Ceramic Oxygen Ion Conductors and their Technological Applications (British Ceramic Proceedings.)

The permeation fluxes of the materials increased with the increase of cobalt content, but no apparent simple relationship was found with the bismuth content.

Ceramic Oxygen Ion Conductors and their Technological Applications (British Ceramic Proceedings.)

In this text we assemble a unique group of experts whose articles straddle, for the first time, all the key topical areas ranging from fundamentals relating to a defects, electrochemical, and interfacial processes, b catalysis, electrocatalysis and gas reforming, to design and fabrication including c advanced electroceramic processing methods, d materials selection and optimization, e and applications including scale up, commercialization and competitive technologies.

Applications

They include combustion measurement and control, heat treatment carbon atmosphere control, high temperature humidity measurement and control, dew point measurement in steel annealing furnaces, food packaging atmosphere measurement, waste incinerators and gas manufacturing plants nitrogen purity and oxygen enrichment.

Oxygen Ion and Mixed Conductors and their Technological Applications

In addition comes the possibility to optimize properties for a specific application by means of appropriate doping and therefore to tailor materials to requirements.

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