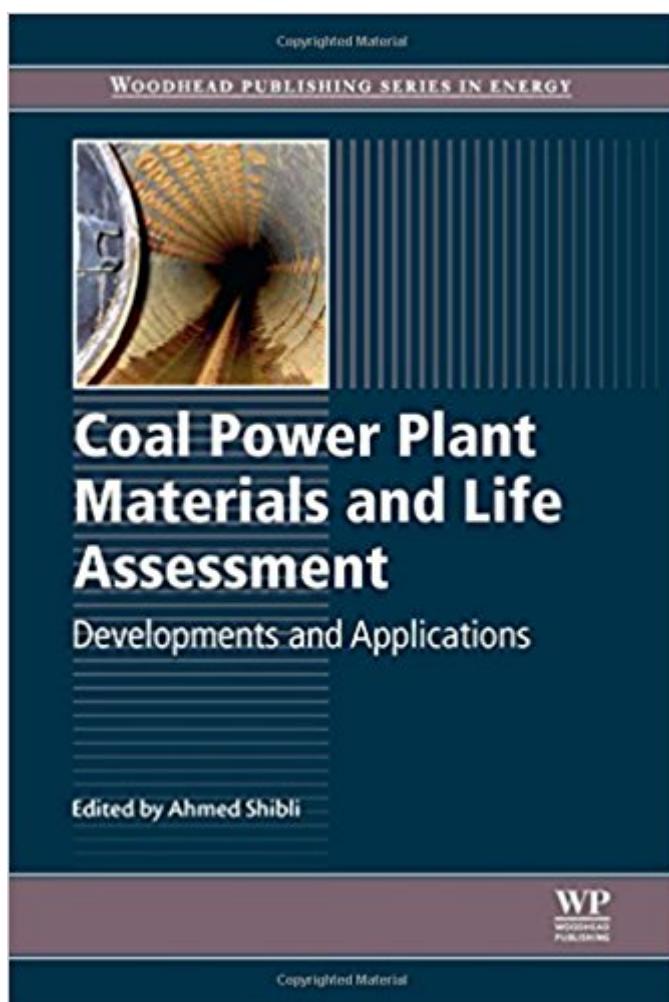


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Coal Power Plant Materials And Life Assessment: Developments And Applications (Woodhead Publishing Series In Energy)



Synopsis

Due to their continuing role in electricity generation, it is important that coal power plants operate as efficiently and cleanly as possible. Coal Power Plant Materials and Life Assessment reviews the materials used in coal plants, and how they can be assessed and managed to optimize plant operation. Part I considers the structural alloys used in coal plants. Part II then reviews performance modelling and life assessment techniques, explains the inspection and life-management approaches that can be adopted to optimize long term plant operation, and considers the technical and economic issues involved in meeting variable energy demands. Summarizes key research on coal-fired power plant materials, their behavior under operational loads, and approaches to life assessment and defect management. Details the range of structural alloys used in coal power plants, and the life assessment techniques applicable to defect-free components under operational loads. Reviews the life assessment techniques applicable to components containing defects and the approaches that can be adopted to optimize plant operation and new plant and component design.

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Coal power plants continue to play a vital role in electricity generation worldwide. With both increasing demand for power and increasing concern over the environmental impacts of power generation, the need for coal plants to operate efficiently and cleanly is therefore pressing. This

book provides a comprehensive review of the materials used in coal plants, and how they can be developed, assessed and managed to optimize plant operation. Part I provides a review of the range of structural alloys used in coal plants, including the novel materials developed for higher temperature plant operation. Part II then reviews performance modelling and life assessment techniques, including those applicable to plant components which contain defects. It explains the risk-based inspection and life-management approaches that can be adopted to optimize long term plant operation, and how this should affect the design of new components. Finally, it considers the technical and economic issues surrounding thermal cycling and low load operation of coal power plants to meet variable energy demands. Coal power plant materials and life assessment provides a thorough examination of a critical subject for the power industry. It is useful both to power plant engineers and managers, and to academics with an interest in high temperature materials. Ahmed Shibli is the Managing Director of European Technology Development Ltd, Surrey, UK.

Ahmed Shibli is the managing director of European Technology Development Ltd, Surrey, UK

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