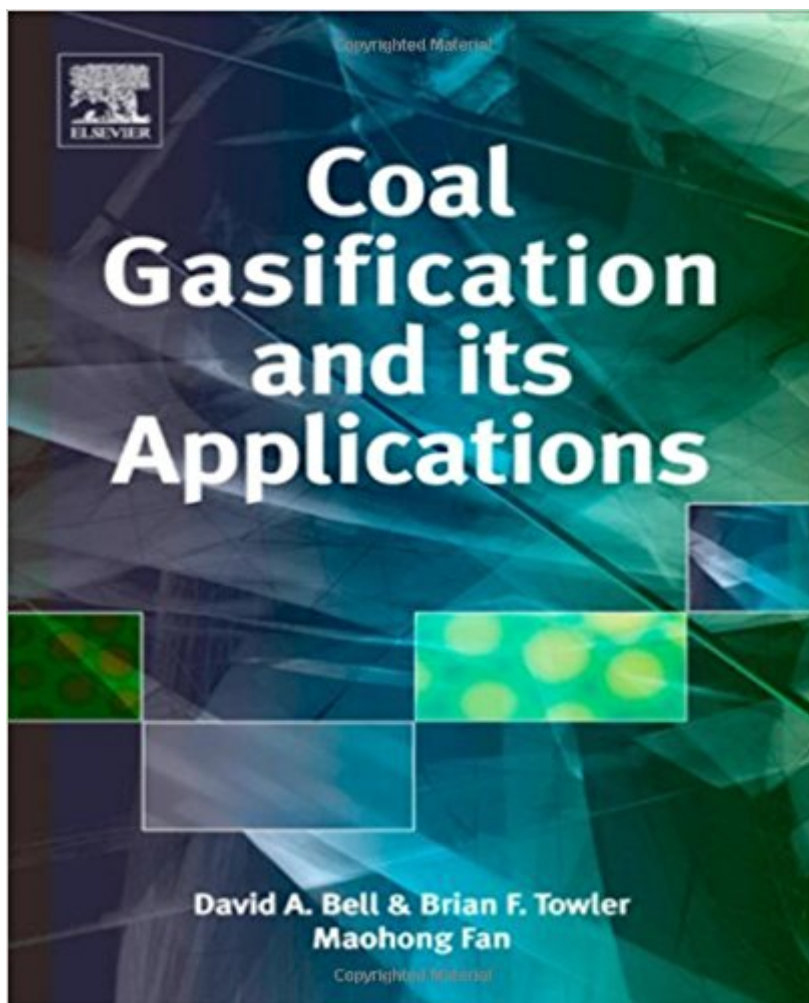




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Coal Gasification And Its Applications



Synopsis

Skyrocketing energy costs have spurred renewed interest in coal gasification. Currently available information on this subject needs to be updated, however, and focused on specific coals and end products. For example, carbon capture and sequestration, previously given little attention, now has a prominent role in coal conversion processes. This book approaches coal gasification and related technologies from a process engineering point of view, with topics chosen to aid the process engineer who is interested in a complete, coal-to-products system. It provides a perspective for engineers and scientists who analyze and improve components of coal conversion processes. The first topic describes the nature and availability of coal. Next, the fundamentals of gasification are described, followed by a description of gasification technologies and gas cleaning processes. The conversion of syngas to electricity, fuels and chemicals is then discussed. Finally, process economics are covered. Emphasis is given to the selection of gasification technology based on the type of coal fed to the gasifier and desired end product: E.g., lower temperature gasifiers produce substantial quantities of methane, which is undesirable in an ammonia synthesis feed. This book also reviews gasification kinetics which is informed by recent papers and process design studies by the US Department of Energy and other groups, and also largely ignored by other gasification books.

- Approaches coal gasification and related technologies from a process engineering point of view, providing a perspective for engineers and scientists who analyze and improve components of coal conversion processes
- Describes the fundamentals of gasification, gasification technologies, and gas cleaning processes
- Emphasizes the importance of the coal types fed to the gasifier and desired end products
- Covers gasification kinetics, which was largely ignored by other gasification books

Provides a perspective for engineers and scientists who analyze and improve components of the coal conversion processes

Describes the fundamentals of gasification, gasification technologies, and gas cleaning processes

Covers gasification kinetics, which was largely ignored by other gasification books

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Chair of Petroleum Engineering, The University of Queensland
University of Wyoming
Chair of Dept, 2004 - 2008
Editor-in-Chief International Journal of Petroleum Engineering, 2009
Associate Editor and Board member of Journal of Natural Gas Science and Engineering, 2007-present.

The author had the good idea to present formulas for Ash Fusion Temperature taken from Seggiani and Pannochia. It was even a better idea to present the formulas in a readable format. Unfortunately, the author did not realize that the SV (silica value) and the DR (dolomite ratio) were defined on a weight basis, while all other formulas were defined on a mole basis. The resulting formulas 1.4 to 1.8 are therefore unreliable if you do not use the original paper at the same. This ruins the whole idea of writing such a book, if the formula are not reliable.

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