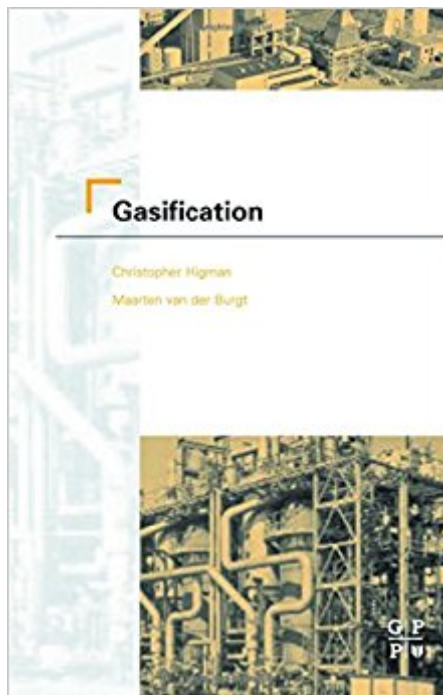


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# Gasification



## Synopsis

This book provides an excellent overview of current technologies for the gasification of coal, oil, gas, biomass and waste feedstocks. Starting from the basic theory, it reviews the potential feedstocks and their suitability for different types of gasification process. Commercial and near-commercial processes are described individually and various features discussed in detail. There is a comprehensive review of contaminants in synthesis gas as well as of gas treating processes. One chapter is devoted to discussions of various chemical, fuel and power applications for gasification. Economic, environmental and safety issues of gasification are also covered. Both authors have been involved with gasification for over 30 years, gaining in the process a fund of practical insight and experience, which is evident throughout the book. \* Addresses practical issues such as selection of the best equipment. \* Ideal reference for anyone involved in operating or designing a gasification plant.\* Written in an easy-to-understand format with worked examples and a comprehensive glossary and bibliography.

## Book Information

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## Customer Reviews

'The book is highly recommended as a first exposure for any engineer to gasification and its applications.....An outstanding feature is the comprehensive list of references at the end of each chapter.....The book succeeds in covering virtually all technical aspects of gasification.'Chemical Engineering Research and Design, April 2004

The only book of its kind on the market, this volume offers the engineer the most comprehensive guide to gasification possible.

The book is well organized with a brief, but necessary, introduction to thermodynamics and kinetics. After that, the authors proceed into feedstock details, what to expect from using different types of coal, petcoke, biomass and waste. I especially liked the cost estimate information. I guess I realized without realizing it that the authors were right about their description of the problems with biomass (including ethanol): the bulk transportation costs are a killer. (I worked at ADM for a while, and always suspected it. I already knew about our problem with disposing of waste, which amounted to perhaps a large amount of our biomass produced. ADM sold it to farmers.) They also introduced some novel thoughts on feedstock being considered such as building plants on the coastline and burning algae while using solar power (and perhaps tidal power) as well as an abundant supply of water to provide feedstock ---- an interesting idea. After feedstock, the author describes briefly, in a catalog fashion, the wide variety of gasification approaches that exists, breaking them up into three basic categories: moving bed, fluid bed, and entrained flow. Cross comparisons are made of each. Next, a chapter on practical issues covers specific details that would have bogged down the previous chapter. The remainder of the book covers applications, auxiliary technology, economics and safety, and finally, environmental. The summary at the end should be read first to give you a clue where the technology is going, especially with the IGCC (Integrated Gasification Combined Cycle). The IGCC seems to be the direction the power companies are exploring. I especially liked all the details on the efficiencies of the state-of-the-art desulfurization and mercury removal, and CO shifter catalysts. The book abounds with block diagrams: I wish more books used this approach. The terminology is a little challenging but there is a good index in the back. Failings: (1) the index is poor -- needs work in the second edition; (2) work on mercury is proceeding --- perhaps after the copyright date; (3) the book binding is not too great --- I wore my out after a month of thorough reading; (4) a few diagrams mimicing what is shown on the IGCC Wabash site might be useful --- step by step processing of one gasification reactor; (5) perhaps a little more work describing acid gas treatment and desulfurization --- maybe an update is required. All-in-all, an excellent, inexpensive text by authors who know their material and can present it wisely. As an addendum, I suggest getting a copy of "Synthetic Fuels from Coal," by Anderson and Tillman, CR 1979, John Wiley. This older book seems to be the grandfather version of Gasification. Despite its age, it is excellent background and has much historical information unavailable in Gasification. If this review was helpful, please add your vote -- Thanks.

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