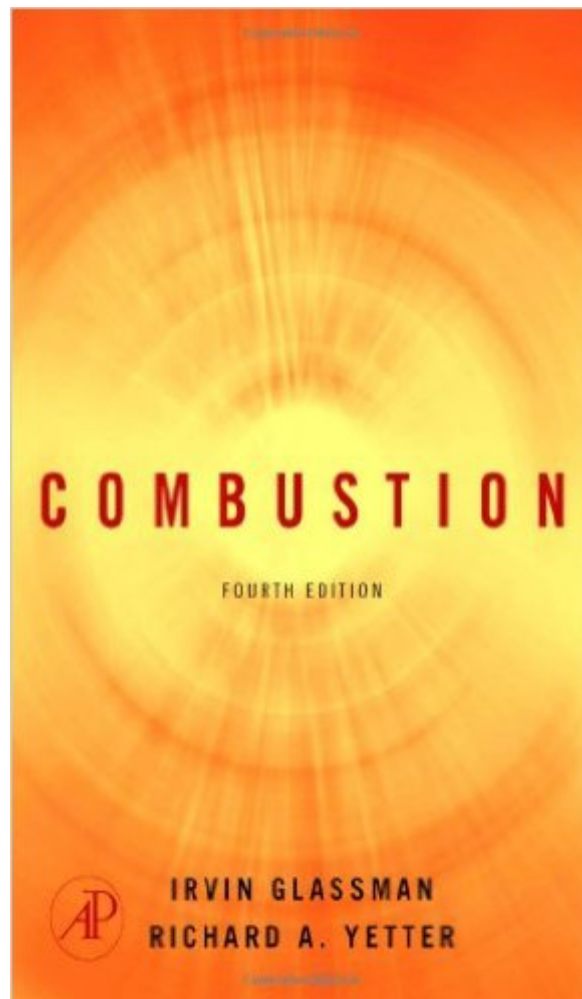


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# Combustion, Fourth Edition



## Synopsis

Combustion Engineering, a topic generally taught at the upper undergraduate and graduate level in most mechanical engineering programs, and many chemical engineering programs, is the study of rapid energy and mass transfer usually through the common physical phenomena of flame oxidation. It covers the physics and chemistry of this process and the engineering applications •from the generation of power such as the internal combustion automobile engine to the gas turbine engine. Renewed concerns about energy efficiency and fuel costs, along with continued concerns over toxic and particulate emissions have kept the interest in this vital area of engineering high and brought about new developments in both fundamental knowledge of flame and combustion physics as well as new technologies for flame and fuel control. \*New chapter on new combustion concepts and technologies, including discussion on nanotechnology as related to combustion, as well as microgravity combustion, microcombustion, and catalytic combustion •all interrelated and discussed by considering scaling issues (e.g., length and time scales). \*New information on sensitivity analysis of reaction mechanisms and generation and application of reduced mechanisms \*Expanded coverage of turbulent reactive flows to better illustrate real-world applications \*Important new sections on stabilization of diffusion flames. For the first time, the concept of triple flames will be introduced and discussed in the context of diffusion flame stabilization

## Book Information

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## Customer Reviews

This book is one of the few good books not only on the subject of combustion, but also in general. The writer's style is fascinating and explanatory. This is a combustion book which gives emphasis not only on the thermo-fluid aspect of combustion encountered in premixed and diffusion flames, but also devotes two chapters on the chemical principles of hydrocarbon oxidation and pollutant formation. The mathematical formulations of the phenomena analysed are of course presented (chemical reaction mechanisms, flame propagation, diffusion flames, ignition, detonation etc). More importantly, however, the writer achieves to enhance the reader's physical and chemical intuition on the subjects analysed, be it flames, hydrocarbon oxidation or pollutant formation. Moreover, the appendices are a source of a great amount of data, ranging from bond dissociation energies, to thermophysical properties, flammability limits, autoignition temperatures, reaction rate constants, etc. The fact that this book has been cited in almost every other book on combustion is, of course, not coincidental. An inspiring book.

An excellent book has a lot of information about combustion, from theoretical formulation to practical problem explanation, and useful tables of data.

Bought for a class. Book was very well written with lots of commentary and history that make the subject more interesting.

Excellent if you are interested in combustion kinetics. It is a good addition to the books from Warnatz and Poinso.

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