Additions and Corrections

A Catalytic Enantioselective Approach to Chromans and Chromanols. A Total Synthesis of (−)-Calanolides A and B and the Vitamin E Nucleus [*J. Am. Chem. Soc.* **1998**, *120*, 9074−9075]. BARRY M. TROST* AND F. DEAN TOSTE

Reference 2d should be 2a in two places in the text: end of the first paragraph and line 11 second column second page.

Page 9075, second line, left column: (81% ee) should follow excess.

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Book Reviews

Comprehensive Chemical Kinetics. Volume 35: Low-Temperature Combustion and Autoignition. Series editors: R. G. Compton and G. Hancock (Oxford University). Volume editor: M. J. Pilling (University of Leeds). Elsevier: New York. 1997. xxvii + 794 pp. $497.00. ISBN 0-444-82485-5.

This is the latest volume in the long-running series entitled Comprehensive Chemical Kinetics. Like most of the recent volumes in this series, this volume is quite specialized and contains a mixture of theoretical and experimental approaches. The present volume is primarily concerned with the chemistry of combustion in the temperature range 500−1200 K. Unlike higher-temperature flame chemistry in which the $H + O_2 \rightarrow OH + O$ reaction is primarily responsible for chain branching, at these lower temperatures the recombination reactions $H + O_2 + M \rightarrow HO_2 + M$ and $R + O_2 + M \rightarrow RO_2 + M$ are more important, and the resulting chemistry is therefore dominated by peroxy radicals. Other aspects of low-temperature combustion are that NO_x formation is much less important than at higher temperatures, but chemical properties of the fuel have a much greater effect on details of the combustion process.

The first chapter of the book, entitled Basic Chemistry of Combustion, is a rather detailed overview of the chemical reactions involved in hydrocarbon oxidation, with emphasis on formation, reactions, and intramolecular rearrangements of peroxy radicals. One of the difficulties in understanding combustion chemistry is the very large number of elementary reactions present in any detailed mechanism. This chapter attempts, with partial success, to reduce the problem to a manageable level by concentrating on the most important classes of reactions. In general, the discussion is fairly well written, although the equation numbering scheme is quite confusing. Another problem is that it is sometimes difficult to tell which chemical equations represent elementary steps and which merely summarize more complex transformations.

Later chapters include discussion of individual elementary reactions, kinetics databases, mathematical techniques such as sensitivity analysis and construction of reduced kinetic mechanisms, and global oxidation behavior. In the course of the text rate measurements of elementary reactions are extensively discussed and tabulated, but this book does not attempt to be a comprehensive review of kinetic data.

The last chapter discusses the most important application of low-temperature combustion chemistry, which is autoignition leading to engine knock in spark-ignition engines. Items of discussion include the influence of fuel composition and anti-knock agents on knock propensity, octane numbers, and attempts to model autoignition. This text therefore spans a wide range of approaches in combustion chemistry from very fundamental to the applied.

The references in most chapters appear current only through 1994, with a few 1995 and 1996 references in the last two chapters. A few editorial errors, such as omitted (p 670) or erroneous equations, and a mislabeled scheme for benzene formation on p 79 were noted.

Overall, this is a useful volume for students and researchers in the field of combustion chemistry. The high price will probably restrict it to libraries, however.

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