Review of: *Pyrotechnic Chemistry*

Journal of Pyrotechnics [ISBN 1-889526-15-0] 2004

John Bergman
5438 E. Rotamer Rd., Milton, WI 53563 USA

Published as the fourth member of the Pyrotechnic Reference Series from Journal of Pyrotechnics, the long-awaited *Pyrotechnic Chemistry* does not disappoint. At approximately 400 pages, this substantial hardcover volume is presented in a letter-size format and is well over an inch in thickness. Its content is of equal substance, delivering a wide range of fascinating and useful information in its nineteen chapters.

The book's chapters are actually separate papers, many of which have been previously published in the *Journal of Pyrotechnics* or elsewhere. All, however, were originally written to appear in *Pyrotechnic Chemistry*, and future editions of the book are expected to contain additional chapters, as the papers become available.

The roster of thirteen contributors to the current edition is impressive, and contains many names that will be familiar to readers. The complete biographical information provided attests to the wealth of knowledge and expertise that underlies the various papers, whether individually or collaboratively authored.

It is unusual, perhaps, to praise a book's table of contents, but the example in this book is particularly impressive. Each subtopic within the various papers is separately indexed, making it extraordinarily easy to scan the contents of each chapter and to quickly locate the information that is of interest.

The subjects of the first sixteen papers include: chemicals for pyrotechnic compositions, introductory thermodynamics, ignition and propagation, control of burning rate, black powder, pyrotechnic primes and priming, delays and thermal sources, the chemistry of colored flames, illuminants, propellant chemistry, solid rocket motor design principles, spark generation, glitter chemistry, strobe chemistry, and pyrotechnic whistles. These are followed by three valuable chapters on safety. In these final chapters, the sensitiveness of pyrotechnic compositions, hazardous chemical compositions, and risk assessment are addressed.

The publisher states in the preface that this book is written at an introductory or intermediate level, and is therefore suitable for readers with limited prior knowledge of chemistry and pyrotechnics. In fact, the actual level varies somewhat from chapter to chapter and at least a basic familiarity with technical and pyrotechnic terminology, as well as mathematics, will be of great advantage to the reader. That being said, the explanations are excellent and easy to read, and a profusion of figures, charts, tables and illustrations helps to make complex information easily understandable. The content of the book, therefore, is accessible and useful to quite a wide range of readers, whether read for basic concepts or for more technical detail. For more advanced readers seeking further information, each of the chapters is extensively referenced.

Pyrotechnic Chemistry offers a unique combination of theory and practical knowledge on a broad spectrum of pyrotechnic subjects, in a highly readable format, and from a collection of highly authoritative authors. This book will be useful to anyone with an interest in the technical aspects of pyrotechnics, and will be an essential addition to any pyrotechnic library.