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A Review of: "Eric Block: Reactions of Organosulfur Compounds, Academic Press 1978. XV 317 p., \$37.50."

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BOOK REVIEW

Eric Bloch: *Reactions of Organosulfur Compounds*, Academic Press 1978. XV + 317 p., \$37.50.

Sulfur compounds have for a long time been considered to be a class of exotic compounds which were only of interest to experts in the field. As a consequence of this sulfur compounds were only given a few pages in common textbooks in organic chemistry. Books which until now have been published on sulfur compounds have not been really textbooks but of the advance or progress series type where selected topics in sulfur chemistry were treated by various experts. This book by Bloch can be considered as the first real textbook in sulfur chemistry.

The need for such a textbook in sulfur chemistry reflects the growing interest in sulfur compounds and their reactions. The use of sulfur compounds in industry has developed rapidly during the last decade, and chemists have got a keen eye for the fascinating possibilities of sulfur compounds. It has been shown by e.g. the work of Corey and Seebach, that sulfur is a versatile element in the synthesis of sulfur-free compounds. Numerous aliphatic and carbocyclic compounds have been prepared via introduction of sulfur and subsequent elimination of the element.

"Reactions of Organosulfur Compounds" consists of seven chapters all with a list of references, and two appendices.

Chapter 1, Introduction, 36 pages, approx. 170 ref.

The introduction starts with an interesting survey of the distribution of organosulfur compounds in nature. Another useful part of this chapter is an introduction to the nomenclature of organosulfur compounds, which has given chemists not familiar to it much trouble. The controversial problem of introducing sulfur d-orbitals in calculations on sulfur compounds is treated in the introduction.

Chapter 2, Sulfur-Containing Carbanions, 53 pages, approx. 200 ref.

This chapter includes a versatile table of organosulfur carbanion synthons and their sulfur-free equivalents.

Chapter 3, Sulfur Ylids, 36 pages, approx. 120 ref.

The fascinating story of the thiabenzenes is found in this chapter.

Chapter 4, Sulfur-Containing Carbocations, 47 pages, approx. 105 ref.

One of the main topics in this chapter is the Pummerer reaction.

Chapter 5, Sulfur-Containing Radicals, 44 pages, approx. 160 ref.

This chapter gives, together with the review by Peter Hanson concerning heteroaromatic radicals (*Adv. Heterocycl. Chem.* **27**, 31), an excellent survey of sulfur radicals. The role of sulfur-containing radicals in the synthesis of cyclophanes is treated in detail.

Chapter 6, Organosulfur Carbenes and Carbenoids, 30 pages, approx. 160 ref.

A scheme showing possible pathways for the synthesis of tetrathiafulvalenes is found in this chapter.

Chapter 7, *Pericyclic Reactions of Organosulfur Compounds*, 39 pages, approx. 140 ref.

This chapter differs from the other chapters, as it does not deal exclusively with a single group of sulfur compounds, but with reactions of various classes of compounds.

Appendix A, 42 References to books on sulfur chemistry.

Appendix B, Physical constants of sulfur compounds: bond lengths, IR bands, methyl NMR shifts, UV data, bond dissociation energies and Raman frequencies.

Each chapter is divided into two parts. The first part describes preparations and physico-chemical aspects including a scheme with the preparation of representative compounds. The second part describes reactions.

From the survey given above it is evident that the book covers the most essential parts of sulfur chemistry. With its many references (approx. 1000) it is a valuable source book in modern sulfur chemistry.

The author gives in the preface an explanation why he has included certain subjects and why others are omitted. The reviewer, however, seeks an explanation why thiocarbonyl compounds are not treated as a whole, but only here and there in connection with other classes of compounds. A chapter describing the chemistry of this important class of sulfur compounds would render this book nearly perfect.

Block's book is absolutely necessary for sulfur chemists, but it can also be recommended to chemists working in other fields of chemistry. It is a good book for a synthetic chemist who is seeking inspiration for a new synthesis.

This textbook can also be recommended for graduate students. We have used it with success in a course on sulfur chemistry for graduate students.

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