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A Review of: "S. Patai (Ed.), *The chemistry of functional groups*; S. Patai and Z. Rappoport (Eds.), The chemistry of sulphonic acids, esters and their derivatives, John Wiley & Sons, Chichester etc., 1991, ISBN 0 471 92201, xvi 1121 pages, £280.00."

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BOOK REVIEW

S. Patai (Ed.), *The chemistry of functional groups*; S. Patai and Z. Rappoport (Eds.), The chemistry of sulphonic acids, esters and their derivatives, John Wiley & Sons, Chichester etc., 1991, ISBN 0 471 92201, xvi + 1121 pages, £280.00.

The present volume concludes the Patai handbook's coverage of sulfur compounds (a supplementary volume is promised in the not too distant future). It contains the following chapters:

1. H. Basch and T. Hoz: General and theoretical.
2. K. K. Andersen: Stereochemistry, conformation and chiroptical properties of sulfonic acids and derivatives.
3. S. Fornarini: Mass spectrometry of sulfonic acids and their derivatives.
4. J. B. Peel: Ultraviolet photoelectron spectroscopy of organic sulfur compounds.
5. A. R. Bassindale and J. N. Iley: The NMR and ESR spectra of sulphonic acids and their derivatives.
6. J. F. King: Acidity.
7. N. Furukawa and H. Fujihara: Acidity, hydrogen bonding and metal complexation of sulfonic acids and their derivatives.
8. J. F. Liebman: Thermochemistry of sulphonic acids and their derivatives.
9. M. R. F. Ashworth: Analytical methods.
10. J. Hoyle: Preparation of sulphonic acids and their derivatives.
11. K. Tanaka: Sulfonic acids, esters, amides and halides as synthons.
12. J. Iley: Rearrangements.
13. W. M. Horspool: Photochemistry and radiation chemistry.
14. J. Simonet: Electrochemistry of sulphonic acids and their derivatives.
15. M. Zieliński and M. Kańska: Syntheses and uses of isotopically labelled sulphonic acid derivatives and related compounds.
16. T. W. Bentley: Directing and activating effects in reactions involving sulphonic acids and derivatives.
17. J. F. King and R. Rathore: Sulfenes.
18. A. Kalir and H. H. Kalir: Biological activity of sulfonic acid derivatives.
19. A. J. Buglass and J. G. Tillett: Sultones and sultams.
20. D. M. Vofsi: Polymers containing $-SO_3H$ and related groups.
21. W.-Y. Huang and Q.-Y. Cheng: Perfluoroalkanesulfonic acids and their derivatives.
22. G. A. Benson and W. J. Spillane: Sulphamic acids and derivatives.

with a total of 4103 references (including duplicates and a poem by T. S. Eliot) covering the literature through 1989 with the occasional 1990 reference. As one would expect from a Patai volume the authors are recognized authorities in their respective areas.

The authors' splendid efforts are not fully matched by those of the editors. They have (as in previous volumes) failed to streamline the erratic use of US and British spelling nor have they ensured consistently formulated chapter titles which are fully informative

even when taken out of the context of the book. There is a distinct lack of coordination. Thus, thermochemistry is treated independently in both chapter 1 and chapter 8, acidity in chapter 6 and chapter 7, and the Photo-Fries reaction (being both a rearrangement and a photochemical reaction) in chapter 12 and chapter 13. By the author's own admission the literature contains virtually nothing about ultraviolet photoelectron spectroscopy of sulfonic acids and derivatives and thus by necessity chapter 4 only deals with a variety of sulfur compounds other than sulfonic acids. While this chapter is certainly well-written and contains a large amount of useful information it is definitely out of place in this book and might easily be overlooked by legitimate potential users.

While, as already stated, all 22 chapters are valuable sources of authoritative and seminal information personally this reviewer enjoyed especially chapter 5's inclusion of hard-to find ^{33}S NMR and solid-state NMR data by A. R. Bassindale and J. N. Iley, J. F. King's congenial discourses on acidity in chapter 6 and (with R. Rathore) on sulfenes in chapter 17, J. Iley's cornucopia of rearrangements in chapter 12, W. M. Horspool's lucid (no pun intended) presentation of photochemistry and radiation chemistry in chapter 13, the Kalirs' tidbits of biological-activity lore in chapter 18, and G. A. Benson's and W. J. Spillane's sulfamic acid story in chapter 22 which, inter alia, covers a variety of timely subjects such as sulfamate sweeteners and monobactam antibiotics. It is to be hoped that chapter 17, the best available review on the subject of sulfenes, will not drown in the comparatively unrelated matter of the rest of the book to the chagrin of true sulfene buffs who might not expect to find this beauty among its strange bedfellows.

A more detailed subject index would have been helpful considering the wide range of subjects covered.

The frequency of misprints in the text and among the structural formulas, though not excessive, is disconcerting. While no systematic search was conducted it was noted that on p. 365 a patent is cited without CA reference, on p. 700 formula **3** is misprinted as are formula **142** on p. 870 and an unnumbered structural formula on p. 887. On p. 899 a structural formula shows a divinyl instead of the intended diallyl compound and on p. 961 formula **111** is incorrect.

The overall impression of this fine reference book is one of rock-solid reliability and usefulness. Moreover the buyer will obviously also in this case be rewarded by the legendary longevity of Patai volumes as indispensible tools in the hands of the specialist as well as of the more casual reader.

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