Book Reviews

Handbook of Photochemistry. Second Edition, Revised and Expanded. By S. L. Murov, I. Carmichael, and G. L. Hug. Marcel Dekker: New York, 1993, 432 pp., hardback $ 125. ISBN 0-8247-7911-8.

S. L. Murov, I. Carmichael and G. L. Hug has now appeared in a second edition. It has been revised and expanded by results on LASER data, ferrioxalate actinometry to mention only a few. In addition to only commercially available products, important new molecules prepared in research labs, have been included as well.

The book is structured in the following way: Short introductions on the data presented and the techniques leading to it are given at the beginning of all sections. Then the tables containing the data referred to either in alphabetical or energetical order. Section 1 gives energy, lifetime and quantum yield of luminescence for singlet and triplet. Section 2 shows the E_T values in alphabetical order. In Table III important triplet/triplet absorption data such as lifetimes, energies and extinction coefficients for designing flash photolysis (or obtained from it) experiments are collected. In Table IV low temperature data leading to luminescence lifetimes and quantum yield for triplets are presented. In Table V UV-spectra in semilogarithmic plots to accomodate the wide range of X-values and in Table VI ESR-data of excited T-states are shown. Table VII and VIII contain rate constants (Smoluchowski–Stokes–Einstein), rate constants from singlet state quenching and T-quenching studies (Table IX). In Table X ionization energies, electron affinities and redox potentials, in Table XI dissociation energies and in Table XII solvent properties are given. Section 13 deals with actinometry, section 14 with glass filters and section 15 with lamp sources. In section 16 spinorbit coupling, section 17 fundamental constants and section 18 Hammett σ-constants conclude the tables. An index on references, a compound name index and molecular formula index allow access to the data presented.

All in all one can say: For the experimentalist the practical procedures in actinometry chapter 13 are helpful. Tables of experimental details with regard to glass filters and lamps (14,15) are valuable for the photochemist in the lab. With regard to all other details the photochemist is referred to the literature.

The pictorial representation in each chapter is very helpful to comprehend the data in the tables. The tables are clear to the reader and the new form of references can be understood quickly. Good indexes such as the compound name index, molecular formular index allow access to the original literature. In Table 9 only a few quenching data on porphyrins and one for $Ru(bpy)_3$ are included. Ru-polypyridine complexes being of great importance to the photochemist are lacking in most tables; except 9 and 10b. This is certainly a point of criticism.

As a whole, however, the "Handbook of Photochemistry" is easy to read and use and contains important and valuable information for the photochemist in a concise presentation. Since the price is appropriate to the importance and contents of the book, it should be of interest to libraries and all active photochemists in research and industry.

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