

**Fluorine in Organic Chemistry**; by Richard Chambers; Blackwell Publishing Ltd.: Oxford, 2004, 424 pages, hardcover, £ 99.50, ISBN 1-40-510787-1

Fluorine is a fascinating element that has attracted scientists from a wide variety of disciplines including organic and inorganic chemistry, medicinal chemistry, materials science, optics, and many others. The spectacular development of fluorine chemistry led to the multiplication of books in the field.

The first edition of Chambers' book *Fluorine in Organic Chemistry*, which was published 30 years ago, became a classic of the field. Therefore, a new edition has been eagerly awaited because it should document the important new developments in fluorine chemistry. This book is an update of the first edition; however, fluorine chemistry has expanded very rapidly. Consequently, the coverage of all aspects of the field is out of the scope and obviously cannot be expected in the space of 398 pages of this second edition.

With regard to the layout and the division of contents, the author has opted for the same as in the original book. It is divided into the same 10 chapters, each with a list of references at the end. Although citations up to 2003 are included, and the total number of references is much higher than in the first edition, some relevant references are missing, and the vast majority of the content is drawn from much old work.

The book starts with a general discussion that gives a succinct view of the main areas of applications of fluorinated compounds. Key references for neglected areas are provided to the reader. On the contrary, emphasis is given to the properties, electronic effects in fluorocarbon systems, and reaction mechanisms, not only in chapter 1 but also throughout all chapters of the book. The preparation of highly and parti-

ally fluorinated compounds is described in chapters 2 and 3, respectively. For each case, the advantages and the limitations of the method are succinctly discussed and a mechanism is provided. Next, a comparison between the chemistry of fluorocarbon and hydrocarbon compounds is given, thanks to considerable progress in the understanding of the influence of fluorine or fluorocarbon groups on some reaction centres (Chapter 4).

The mechanistic bases of the nucleophilic substitution of halogen from fluorocarbon systems, and both  $\alpha$ - and  $\beta$ -elimination reactions are discussed and illustrated by selected examples in chapters 5 and 6, respectively. The next three chapters describe the structure, the properties and the reactions of fluorinated materials that include polyfluoroalkanes, polyfluoroalkenes, polyfluoroalkynes and derivatives (Chapter 7), functional compounds containing oxygen, sulphur or nitrogen and their derivatives (Chapter 8), and polyfluoroaromatic compounds (Chapter 9). Few subsections have been added; for example, fluorous biphasic techniques (p. 166). Only a brief survey of this important topic is given, although the literature abounds with reports of perfluorocarbon solvents and perfluorocarbon-soluble catalysts and reagents. The last chapter is dedicated to organometallic compounds with selective discussions on particularly effective methods rather than an exhaustive compilation of the literature.

The book is a valuable source of information for all chemists, and will certainly be very useful for readers who are intending to begin research work in fluorine chemistry. The book is probably best regarded as supplementary reading for experienced chemists in the field.

**Dominique Cahard**, Université Rouen, France