

in nine extensive chapters covering alkanes and arenes, alkenes, alkynes, halides, amines, ethers, alcohols and phenols, aldehydes and ketones, and finally, nitriles, carboxylic acids and derivatives. Within each chapter the methodology is subdivided into major processes, for example, the opening chapter on alkanes and arenes is divided into five sections, namely reduction, coupling, alkylation, ring-forming and aromatisation. Stringent criteria have been used with respect to reaction selection in order to ensure real synthetic utility of included reactions, and that the necessary reagents are readily available or easily prepared and handled in the laboratory.

All of the presented transformations are fully referenced allowing the reader to expand their search. Synthetically useful multiple functional group transformations are also covered and are cross-referenced in appropriate sections. The volume culminates with an invaluable 'Transformation Index' that lists all of the reactions covered in the text, sorted according to the IUPAC name of the organic products. The use of protecting groups is not covered, since excellent reviews on this subject are already available. Likewise, heterocyclic chemistry has been omitted, except where heterocycles are employed to effect simple functional group manipulations/transformations.

In summary, this highly recommended encyclopaedic volume contains information on tens of thousands of synthetic methodologies and references, and certainly fulfils its mandate to serve as a concise and comprehensive single volume sourcebook of organic reactions and functional group preparations. It will, therefore, be extremely useful for researchers and students alike, with interests in any areas of synthetic organic chemistry.

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Nonradioactive Analysis of Bio-molecules 2nd Edit

Editor: C. Kessler, Springer-Verlag, London Ltd, 2000, 750 pp., £61.50, ISBN 3-540-64601-9

Since the first edition many of the non-radioactive

methods of labelling bio-molecules and their subsequent detection have progressed and improved. This has occurred mainly in the medical and life sciences, where progress has been related to the increased characterisation of biological material particularly DNA and RNA.

The book extensively reviews the analysis of bio-molecules such as proteins, glycoproteins and nucleic acids. The techniques described such as colorimetric, luminescence and fluorescence can, however, be used for a much wider range of bio-molecules including carbohydrates. The labelling of glycoproteins by their sugar residues for detection is discussed generally. Specific examples of such labelling procedure are given in the individual chapters.

Each of the 65 chapters gives a concise account of the theory allied to a reaction or technique, followed by a variety of detailed protocols depending on the material to be examined. A summary of reagents required is given. Also, various methods appropriate to the detection of labelled compounds are described. The chapters have sections on troubleshooting and detection sensitivity, which would prove extremely useful to both the novice and experienced scientist.

This book is of interest to professionals in the field of bio-analysis, particularly DNA, RNA, proteins and glycoproteins. It also has considerable information of technical and experimental use to the carbohydrate chemist.

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Metabolism of Agrochemicals in Plants

Terry Roberts (Ed.). John Wiley & Sons, Inc., Chichester, 2000, xiv + 300 pp., £95.00, ISBN 0-471-80150-X

Recent years have seen remarkable advances in areas of research directed towards increasing the quality and quantity of food and fibre by chemical and other means. The importance of understanding the metabolism of agrochemicals in plants is immense. As food safety and environmental concerns are increasing, knowledge of the metabolic