

Preface

The aim of this textbook is not to provide you, the reader, with large numbers of correlation tables for every form of spectroscopy used by organic chemists; nor is it designed to give you an in-depth understanding of the physical processes that occur when molecules interact with electromagnetic radiation. What we hope to do in this textbook is to provide you with a basic understanding of how each type of spectroscopy gives rise to spectra, and how these spectra can be used to determine the structure of organic molecules. This text is aimed at undergraduate students in Years 1 and 2, and is meant to provide an introduction to organic spectroscopic analysis, leading to an appreciation of the information available from each form of spectroscopy and an ability to use spectroscopic information in the identification of organic compounds.

We will concentrate upon the most commonly used techniques in organic structure determination: nuclear magnetic resonance (NMR), infrared (IR) and ultraviolet-visible (UV-Vis) spectroscopy, and mass spectrometry (MS). The amount of space devoted to each technique in this text is meant to be representative of their current usage for structure determination.

Finally, we will try to bring all of these techniques together in an attempt to show you how to go about the structure determination of an unknown compound in a (reasonably) logical manner. Our aim has been to provide spectra to illustrate every point made, but do not analyse fully each of the spectra in order to obtain the maximum information available. We hope you enjoy this text and find it useful in your studies.

R. J. Anderson, D. J. Bendell and P. W. Groundwater
Sunderland

TUTORIAL CHEMISTRY TEXTS

EDITOR-IN-CHIEF

Professor E W Abel

EXECUTIVE EDITORS

Professor A G Davies

Professor D Phillips

Professor J D Woollins

EDUCATIONAL CONSULTANT

Mr M Berry

This series of books consists of short, single-topic or modular texts, concentrating on the fundamental areas of chemistry taught in undergraduate science courses. Each book provides a concise account of the basic principles underlying a given subject, embodying an independent-learning philosophy and including worked examples. The one topic, one book approach ensures that the series is adaptable to chemistry courses across a variety of institutions.

TITLES IN THE SERIES

Stereochemistry *D G Morris*
Reactions and Characterization of Solids
S E Dann
Main Group Chemistry *W Henderson*
d- and f-Block Chemistry *C J Jones*
Structure and Bonding *J Barrett*
Functional Group Chemistry *J R Hanson*
Organotransition Metal Chemistry *A F Hill*
Heterocyclic Chemistry *M Sainsbury*
Atomic Structure and Periodicity *J Barrett*
Thermodynamics and Statistical Mechanics
J M Seddon and J D Gale
Basic Atomic and Molecular Spectroscopy
J M Hollas
Organic Synthetic Methods *J R Hanson*
Aromatic Chemistry *J D Hepworth,*
D R Waring and M J Waring
Quantum Mechanics for Chemists
D O Hayward
Peptides and Proteins *S Doonan*
Biophysical Chemistry *A Cooper*
Natural Products: The Secondary
Metabolites *J R Hanson*
Maths for Chemists, Volume I, Numbers,
Functions and Calculus *M Cockett and*
G Doggett
Maths for Chemists, Volume II, Power Series,
Complex Numbers and Linear Algebra
M Cockett and G Doggett
Nucleic Acids *S Doonan*

TITLES IN THE SERIES

Inorganic Chemistry in Aqueous Solution
J Barrett
Organic Spectroscopic Analysis
R J Anderson, D J Bendell and
P W Groundwater

Further information about this series is available at www.rsc.org/tct

Order and enquiries should be sent to:

Sales and Customer Care, Royal Society of Chemistry, Thomas Graham House,
Science Park, Milton Road, Cambridge CB4 0WF, UK

Tel: +44 1223 432360; Fax: +44 1223 426017; Email: sales@rsc.org