

Book Review

Particle Size Analysis in Pharmaceuticals and Other Industries. Theory and Practice
(Ellis Horwood Series in Pharmaceutical Technology)
Clive Washington
Published 1992 Ellis Horwood, Chichester
243 pages
ISBN 0 13 651613 0 £45.00

This, unlike many scientific books, is an entertaining read. The reasons are the style of writing, the conveyance of pleasure that the topic surely gives the author and his somewhat sardonic humour, presumably born out of teaching undergraduate students. Some of the anecdotes are priceless. Thus on page 132 is written 'Fingerprints should be removed with a suitable redistilled solvent on a lens tissue; the person who applied them should also be removed, preferably permanently'. Which supervisor of students has not felt this way of incompetent or ignorant charges?

The book consists of ten chapters of various lengths. The first is an introduction to basic principles and as such provides the reader with a good overview. However, the assumed intelligence of the reader is inconsistent. Is it necessary to define, e.g. microns whilst not other concepts such as the mean chord length of Martin's diameter? A figure to illustrate equivalent diameters would have been very useful. Further amplification of Martin's diameter was not found from the index. The mathematical concepts of chapter 1 are well dealt with but why the enumeration of equations was not continued in later chapters is a mystery. Both chapters 1 and 2, which cover sample selection and preparation, provide valuable information to the novice but the reader may not be able, having read both, to prepare a sample and analyse it by the most appropriate method.

Chapter 10, microscopy and image analysis, should have been placed as chapter 3 since it describes the methods which most people would first use when particle size data are required. Chapter 3, which deals with sieving, is a useful chapter for a novice to read in order to gain information on the technique.

Indeed this comment applies to chapters 10, 4 (electrical zone sensing) and 9 (sedimentation). These four chapters cover topics well described in standard texts but could have benefited from expansion since these focus on the techniques to which solid dosage formulators would turn in their characterization of powders.

Chapter 5 is a brief resume of light scattering and serves as the introduction to chapters 6 (the angular distribution of scattered light), 7 (photon correlation spectroscopy) and partly to chapter 8 (the particle size analysis of aerosols). The latter chapter is particularly useful in its description of impaction techniques. Chapters 6 and 7 cover the fundamentals of particle sizing in parenteral products, the latter including an assessment of zeta potential measurement. Unfortunately, the reader is left undecided as to which is the better technique, light scattering or photon correlation spectroscopy, to assess the particle size distribution of a parenteral product. The theory of these techniques is perhaps covered too much at the expense of practical detail. Chapters 6 and 7 reflect the author's research expertise and read too much like a sale's promotion for certain companies supplying the instruments.

The book suffers by underplaying the importance of particle size analysis to pharmacy, citing several examples of particle size analysis in parenteral products but not highlighting the importance of compendial requirements for particles and not giving more pharmaceutical references on, e.g. the dissolution of powders and tablets, particle size distribution in eye ointments and particulate contamination. Pharmaceutical examples and the significance of particle size analysis would benefit from expansion. Ultimately, the reader is unclear as to which method of particle size analysis to use in a given situation.

The book is somewhat less expensive than others in the series. Despite its title, a purchaser from a non-pharmaceutical background would be disappointed by the lack of reference to other industrial applications. The book would seem best to belong as an undergraduate text in pharmaceutical particle size analysis.

J. L. FORD
LIVERPOOL JOHN MOORES UNIVERSITY, UK

Book Review

Animal Models in Toxicology
(Drug and Chemical Toxicology Series/8)
Edited by Shayne Cox Gad and Christopher P. Chengelis
Published 1992 Marcel Dekker Inc., New York
904 pages
ISBN 0 8247 8456 1 \$225.00

I agree with the authors that while the development of alternatives should be actively encouraged, there can be little doubt that animals will continue to be used for biomedical research and safety evaluation in the years to come. Although all animal tests should continually be appraised and no longer used if in the light of experience they are of no benefit to man, there is little likelihood of the 719 million animals used in the USA in 1989 being significantly reduced in the foreseeable future. Some animal experiments may be inappropriate because the wrong model has been selected or incorrect methods used to extrapolate the data to man. The aim of this volume is to prevent this by providing an introductory course on the use of the eight most commonly used species with extensive references to further reading. Each chapter deals with a single species and contains the views and advice of three experts in toxicology, pathology

and metabolism of xenobiotics. There are also supporting chapters on, for example, alternative species such as the minipig. The final chapter on laws and regulations is not very informative since it refers to US regulations which are in any case being amended. However, it is gratifying to learn that in most developed countries at least, animal experimentation is tightly controlled to allow only necessary experiments to be carried out.

From my limited experience the book achieves its aim admirably. Clear descriptions with excellent illustrations are given for procedures such as dosing and removal of body fluids for both rat and mouse, followed by an outline of the pathology that may affect the design and interpretation of experiments. The final section on xenobiotic metabolism is up to date and well referenced. Successive chapters deal with the other species, are in the same format and appear to be equally well presented.

Very few books of a similar nature are available and this should become a valuable reference book assisting in the choice of an appropriate model and the design and interpretation of experiments.

T. A. CONNORS
MRC, UK