

ume injectables. It is a historical review of limited help in a handbook on particle measurement. In Chapter 20 Barber describes pharmaceutical clean laboratory operations. A reader interested in particle measurement would not expect such information in a handbook on particle measurement. In the last chapter Lieberman presents a specialised bibliography on particles in fluids and on surfaces. The articles cited deal with 'adhesion of particles on substrates', 'filter evaluation', 'filtration of liquids', 'light and electron microscopy', 'liquid borne particle measurements', 'particle shape considerations and measurement', 'slurry and colloid physics' or with 'suspension and multiphase flow'. This list is not complete. The selection was made to demonstrate the wide range covered by this bibliography.

The book gives a broad overview of problems related with particle measurement. With the exception of the excellent chapters contributed by Lines, Knapp/Abramson, Thompson and Xu, the information is not presented in sufficient detail to enable a beginner in particle sizing to apply one of the methods. On the other hand it is too basic for an expert. The four chapters mentioned above may justify the acquisition of the book by libraries or special labs.

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Oral Mucosal Drug Delivery

Michael J. Rathbone (Edited by) *Drugs and the Pharmaceutical Sciences*, Marcel Dekker, New York; Vol. 74, 1996; 440 pp.; \$175.00; ISBN: 0-8247-9744-2

There are still a number of notable gaps in the Marcel Dekker series, *Drugs and the Pharmaceutical Sciences*. This volume fills one of the more obvious ones in covering the delivery of drugs via the oral mucosal. Although the pharmaceutical and dental literature contains numerous publications on this topic, this work appears to be one of the first to present the whole subject methodically in a single book.

The first chapters review the unique aspects of the oral cavity that make it a distinctive site for drug delivery, viz. its anatomy and physiology, the structure and organisation of the oral mucosal, routes of drug transport through the oral mucosal, salivary mucins, and saliva kinetics. To assess the suitability of a drug for delivery through the oral mucosal its permeability must be determined. The relevant *in vitro* and *in vivo* methods for measuring permeability are discussed in some detail over three chapters that include *in vitro* methods, cell cultures and *in vivo* techniques. There follows a chapter dealing with one of the major problems encountered in oral mucosal drug delivery, the saliva. The location of the sites of secretion are discussed, as well as flow patterns of saliva in the oral cavity. The implications of these flow patterns for oral mucosal drug delivery are discussed in this excellent contribution. Salivary mucins are then comprehensively described, followed by a discussion of the use of mucoadhesive hydrogels for buccal delivery.

The remaining chapters of this book describe delivery systems used in the oral cavity. A review of systemic drug delivery is presented, followed by a chapter devoted to the use of patches. Chewing gum as an oral mucosal drug delivery system also finds its place here. Concluding the book we find two chapters describing local delivery of specialist areas of the mouth: the periodontal pocket and the teeth.

This book achieves its goal splendidly, i.e. to present a comprehensive summary of the current state of research into oral mucosal drug delivery. I particularly found the extensive citations out of the dental literature very interesting, for they prove to be of great relevance to pharmaceuticals. This book is an ideal introductory text for a scientist or graduate student new to the field of oral mucosal drug delivery.

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