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Book reviews

Advanced Pharmaceutical Solids

Jens T. Carstensen; Marcel Dekker, New York, Basel, 2001, 518 pages, ISBN 0-8247-0431-2 (US$ 195.00)

The author of this book is a well known scientist with a broad experience in pharmaceutical solid science. The book summarises several decades of teaching for graduate students and presents a look back. The intention is to provide information about solids and solid dosage forms for advanced pharmaceutical scientists and practitioners. The scope of the book lies between those of textbooks about general pharmaceutical technology and specialised books on certain dosage forms or solid state topics. In this respect, it might fill a gap to give a broad overview in pharmaceutical solid science.

The content is intended to be focused on the principles and models of solids but not on details, particular examples or equipment. Beside very recent references presenting new aspects and the latest developments the author frequently tries to cite those scientists, who were the really innovators in different topics of pharmaceutical solid science. Thus, many 'classical' references are given in the text. On the other hand, a number of papers are discussed critically with respect to misinterpretations.

The 29 chapters cover topics ranging from one component systems to sustained release by microencapsulation. The first chapters are dealing with basic characteristics of solids like solubility, particle size, micromeritics, crystallisation, amorphates, polymorphism, moisture isotherms and melting point diagrams. Then the principles of dissolution, solid state stability and the effect of moisture on solid state stability are elucidated. In these parts of the book, a number of thermodynamic principles, other physico-chemical basics and statistical distributions are presented comprehensively, and many other topics are mentioned briefly.

The following part of the book concerned with a bulk of particles and several processes: apparent volumes and densities, cohesion, powder flow, comminution, blending and wet granulation. In the last part of the book, more complicated dosage forms and excipients are analysed: hard shell capsules, tablets including aspects of disintegration and dissolution, polymers, coating of tablets, single unit sustained release dosage forms and sustained release by microencapsulation. With increasing complexity of the presented systems, it becomes more difficult to present basic principles and models. Important items are presented and discussed, some of them are related to certain types of equipment. Due to the limited space, it is difficult to be comprehensive, e. g. the chapter wet granulation consists only of 21 pages including one page for pellets (my favourite subject). Important models for wet granulation and the mechanisms of granule formation are not presented. The physics of the process is described in 10 lines. The reader might be happy to learn something about recent developments, e. g. the work of Tardos, Watano or Iveson.

The textbook seems to be useful for people who start to specialise in the field of solid dosage forms and for all scientists who would like to study a brief introduction to a specific topic of pharmaceutical solid sciences. The author does not only present knowledge but gives critical remarks on the correct methodology of treating data, on possible misinterpretations and on the novelty and soundness of different concepts. The reader gets some advice and benefits from the rich experience of the author. This makes the book very valuable, not only for beginners. However, a specialist in a certain field will refer to more specialised textbooks.

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"Particle–Particle Adhesion in Pharmaceutical Powder Handling"

Fridrun Podczeck, World Scientific Publishing Ltd., ISBN 1-86094-112-5, £35.00

This monograph describes in four chapters the particle–particle-interaction in pharmaceutical powder handling. The pharmaceutical aspects are reduced to a few examples of the pharmaceutical praxis. The described principles are fundamental and useful for all other industries which have to handle powders.

The first chapter deals with the basic forces which are responsible for the interactions and adhesion of particles at walls and surfaces. Special attention is directed to the adhesion models of Krupp, Dahneke, Johnson-Kendall-Roberts (JKR) and Deryaguin-Müller-Toporov (DMT). The models differ from one to the other by the way in