



Freeze-drying of Pharmaceuticals and Biopharmaceuticals: Principles and Practice

By Felix Franks, Tony Auffret

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Aimed at product and process developers in the biopharmaceutical industry and academia, this is the first book to describe freeze-drying, as related to the pharmaceutical industry.

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Editorial Review

Review

Dr Franks then settles into a number of chapters on the physics and chemistry of the frozen state. This is crucial to a good understanding of freeze drying and especially formulation development for freeze drying, and there can be few people who could discuss this topic more eloquently or thoroughly than the author. The strengths of this work are unsurprisingly in the thorough treatment of the frozen state and an understanding of the amorphous state both in terms of formulation and freeze drying process design and also the discussion of the study/prediction of product stability. This book is a very useful and thorough overview of the process in operation during freezing and lyophilisation and should be read by all those who are interested in freeze drying and pharmaceutical formulation design. I certainly will be returning to it as an excellent summary of these important issues.

From the Back Cover

Freeze-drying, in the past popular in the food industry, has more recently been adopted by the pharmaceutical industry as a standard method for the production of stable solid preparations. Freeze-drying of Pharmaceuticals and Biopharmaceuticals is the first book to specifically describe this process, as related to the pharmaceutical industry. The emphasis of this book is on the properties of the materials processed, how effective formulations are arrived at, and how they are stored and marketed. Beginning with a historical overview of the process, Freeze-drying of Pharmaceuticals and Biopharmaceuticals briefly describes the processes and equipment involved, including: the physics, chemistry and biochemistry associated with freezing, aspects of formulation development, primary and secondary drying; the economics and engineering of scaling up; and, most importantly, attributes of the dried product. It also discusses in detail the science behind freeze-drying, such as the properties of crystalline and amorphous solids. The book concludes with selected case studies and discusses the future of freeze-drying, advances in alternative drying methods, and concludes with an extensive bibliography. This book, written by a leading expert in the field, is aimed primarily at product and process developers in the biopharmaceutical industry and academia.

About the Author

The Author

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