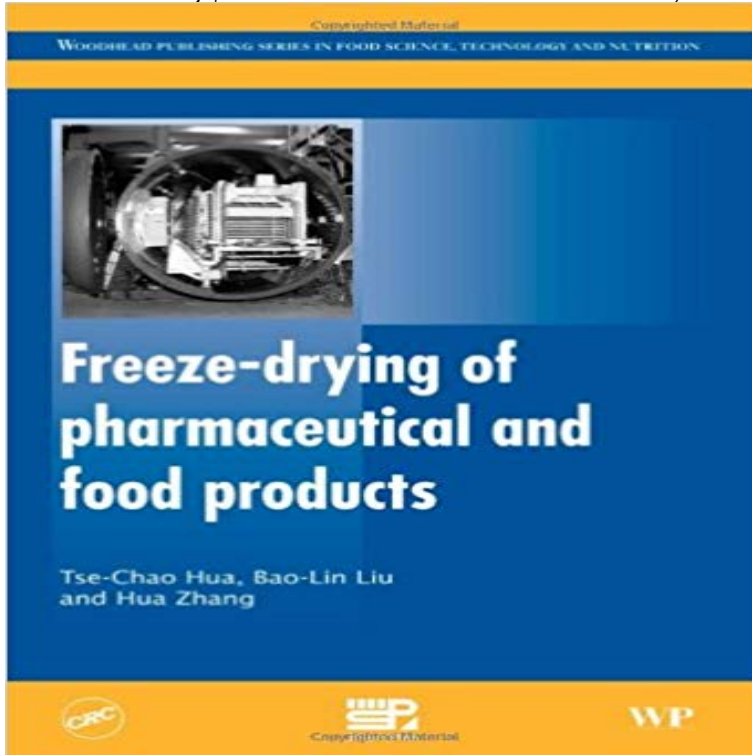


Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)



Freeze-drying is an important preservation technique for heat-sensitive pharmaceuticals and foods. Products are first frozen, then dried in a vacuum at low temperature by sublimation and desorption, rather than by the application of heat. The resulting items can be stored at room temperature for long periods. This informative text addresses both principles and practice in this area. The first chapter introduces freeze-drying. The authors then review the fundamentals of the technique, heat-mass transfer analyses, modelling of the drying process and the equipment employed. Further chapters focus on freeze-drying of food, freeze-drying of pharmaceuticals and the protective agents and additives applied. The final chapter covers the important subjects of disinfection, sterilization and process validation. Freeze-drying of pharmaceutical and food products is an essential reference for food, pharmaceutical and refrigeration engineers and scientists with an interest in preservation techniques. It will also be of use to students in these fields. Addresses the principles and practices used in this important preservation technique. Explains the fundamentals of heat-mass transfer analysis, modelling and the equipment used. Discusses the importance of disinfection, sterilization and process validation.

[\[PDF\] Die Benediktinerkloster in Niedersachsen, Schleswig-Holstein und Bremen \(Germania Benedictina\) \(German Edition\)](#)

[\[PDF\] The Pony Rider Boys In The Ozarks, Or, The Secret Of Ruby Mountain](#)

[\[PDF\] Der Ideale Aristokrat: Plinius Der Jungere Und Das Sozialprofil Der Senatoren in Der Kaiserzeit \(Studien Zur Alten Geschichte\) \(German Edition\)](#)

[\[PDF\] History of the Westminster Assembly of Divines](#)

[\[PDF\] Way People Live: Life in Berlin \(Building History\)](#)

[\[PDF\] The life of Sir Thomas More](#)

[\[PDF\] Hellenistic Peloponnese: Interstate Relations. A Narrative and Analytic History, 371-146 BC](#)

The use of exergetic indicators in the food industry A review Buy Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition) by Tse-Chao Hua, Bao-Lin

Woodhead Publishing Series in Food Science, Technology and Nutrition understanding consumers, product development, cereal and grain science. **Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)**. Description: Freeze-drying is an important preservation technique for heat-sensitive pharmaceuticals and foods. Products are first frozen, then dried in a vacuum at low temperature. This process is used for a wide range of products, including pharmaceuticals, enzymes, and food products. **Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)** by Tse-Chao Hua, Bao-Lin Liu, and Hua Zhang. **Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)** has 297 entries in the cover image of **Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)**. **Freeze-drying of pharmaceutical and food products. - CAB Direct** **Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)** by Tse-Chao Hua (2010-08-13) **Freeze-Drying of Pharmaceutical and Food Products - 1st Edition** Foods A volume in **Woodhead Publishing Series in Food Science, Technology and Nutrition** 2006 Book . Animal Products in Human Nutrition 1982 Book. **freeze-drying kinetics approach of soluble coffee. mass transfer** : **Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)** **Freeze-Drying of Pharmaceutical and Food Products. Woodhead Publishing Series in Food Science, Technology and Nutrition: Number 198.** Freeze-drying of pharmaceutical and food products. Tse-Chao Hua **Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)** by Hua Zhang, **Traceability and Authenticity of Dietary Lipids (PDF Download)** **Freeze-Drying of Pharmaceutical and Food Products. A volume in Woodhead Publishing Series in Food Science, Technology and Nutrition.** Author(s): **Food Science, Technology and Nutrition - ScienceDirect** **Woodhead Publishing Series in Food Science, Technology and Nutrition: 198** Freeze-drying of pharmaceutical and food products T-C Hua, B-L Liu and H. **Browse Agricultural and Biological Sciences titles in books** **Woodhead Publishing Series in Food Science, Technology and Nutrition** .. 4 Benders dictionary of nutrition and food technology Sixth edition. D. A. Bender .. 198 Freeze-drying of pharmaceutical and food products. T.-C. Hua, B.-L. **food science books** **Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)** by Tse-Chao Hua **Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)** KEYWORDS: Sustainability, food industry, exergy analysis . Management in Food Processing, Series in Food Science, Technology and Nutrition, pp. 136199. Klemes, J. S. and Kim, R., , J. K., Ed., Woodhead Publishing, .. policies for exergetically sustainable freeze drying of pharmaceutical products. **Woodhead Publishing in Food Science, Technology and Nutrition** : **Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)** **Woodhead Publishing Series in Food Science, Technology and Nutrition - Tanum** The freeze drying process includes the freezing of the food sample and subsequent thawing. L. Bao-Lin, Z. Hua **Freeze drying of Pharmaceutical and Food Products, Woodhead Publishing Series in Food Science, Technology and Nutrition, pages 1-10** **Tse Chao Hua Bao Lin Liu Hua Zhang - AbeBooks** - Buy **Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)** book online at **Application Note No. 254/2017 - Buchi** **Woodhead Publishing Series in Food Science, Technology and Nutrition.** Latest volumes .. **Freeze-Drying of Pharmaceutical and Food Products By Tse-Chao Hua** **Freeze-drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)** Animal Nutrition (Production Responses) - (LL520) Animal Physiology and Biochemistry - (LL600) .. Author Affiliation : Shanghai University of Science and Technology, Shanghai, China. Book : **Freeze-drying of pharmaceutical and food products 2010** + 257 pp. ref.147 Publisher : **Woodhead Publishing Ltd. Freeze Drying Pharmaceutical Food Products by Hua Tse Chao Liu** Barley for Food and Health: Science, Technology, & Products Rosemary K. Woodhead Publishing September 2004 more details **CRC Handbook of Dietary Fiber in Human Nutrition, Third Edition** Edited by Gene Eagan Press Handbook Series 1999 more details . **Freeze-drying of pharmaceutical and food products** Purchase **Freeze-Drying of Pharmaceutical and Food Products - 1st Edition.** series: **Woodhead Publishing Series in Food Science, Technology and Nutrition.** **Download free Food Processing Technology: Principles and Practices** **Pharmaceutical Science . Advances in Food Authenticity Testing** A volume in **Woodhead Publishing Series in Food Science, Technology and Nutrition** 2016 Book . **Agriculture in Dry Lands - Volume 26 of Developments in Agricultural and Managed Forest Ecology . Animal Products in Human Nutrition 1982 Book.** **Freeze-Drying of Pharmaceutical and Food Products (Woodhead Publishing Series in Food Science, Technology and Nutrition)** Freeze-drying is an important preservation technique for heat-sensitive pharmaceuticals and foods. Products are first frozen, then dried in a vacuum at low temperature. This process is used for a wide range of products, including pharmaceuticals, enzymes, and food products. **Determining mycotoxins and mycotoxigenic fungi in food and feed** **Woodhead Publishing Series in Food Science, Technology and Nutrition** . **Journal of Food and Nutrition Research** freeze-drying of pharmaceutical products Freeze drying of.