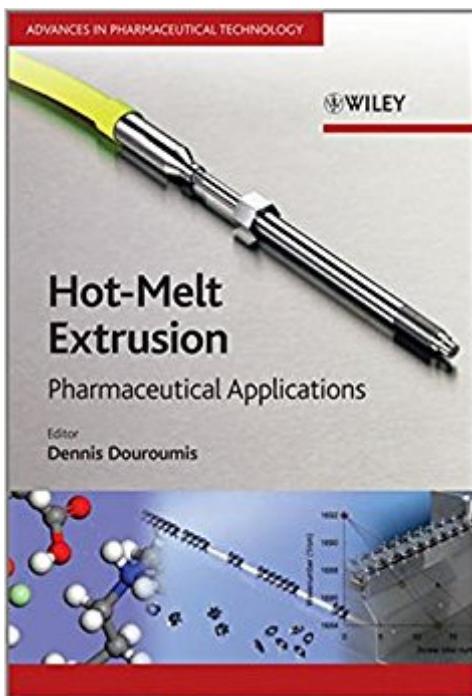


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Hot-Melt Extrusion: Pharmaceutical Applications



Synopsis

Hot-melt extrusion (HME) – melting a substance and forcing it through an orifice under controlled conditions to form a new material – is an emerging processing technology in the pharmaceutical industry for the preparation of various dosage forms and drug delivery systems, for example granules and sustained release tablets. *Hot-Melt Extrusion: Pharmaceutical Applications* covers the main instrumentation, operation principles and theoretical background of HME. It then focuses on HME drug delivery systems, dosage forms and clinical studies (including pharmacokinetics and bioavailability) of HME products. Finally, the book includes some recent and novel HME applications, scale -up considerations and regulatory issues. Topics covered include: principles and die design of single screw extrusion twin screw extrusion techniques and practices in the laboratory and on production scale HME developments for the pharmaceutical industry solubility parameters for prediction of drug/polymer miscibility in HME formulations the influence of plasticizers in HME applications of polymethacrylate polymers in HME HME of ethylcellulose, hypromellose, and polyethylene oxide bioadhesion properties of polymeric films produced by HME taste masking using HME clinical studies, bioavailability and pharmacokinetics of HME products injection moulding and HME processing for pharmaceutical materials laminar dispersive & distributive mixing with dissolution and applications to HME technological considerations related to scale-up of HME processes devices and implant systems by HME an FDA perspective on HME product and process understanding improved process understanding and control of an HME process with near-infrared spectroscopy *Hot-Melt Extrusion: Pharmaceutical Applications* is an essential multidisciplinary guide to the emerging pharmaceutical uses of this processing technology for researchers in academia and industry working in drug formulation and delivery, pharmaceutical engineering and processing, and polymers and materials science. This is the first book from our brand new series *Advances in Pharmaceutical Technology*. Find out more about the series [here](#).

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Hot melt extrusion (HME) is relatively new process in the pharmaceutical industry, emerging as a processing technology for the preparation of various dosage forms and drug delivery systems. Hot-Melt Extrusion: Pharmaceutical Applications covers the main instrumentation, operation principles and theoretical background of HME with focus on HME drug delivery systems, dosage forms and clinical studies (including pharmacokinetics and bioavailability) of HME products. It also includes recent and novel HME applications, scale -up considerations and regulatory issues. This important new book presents a comprehensive study on the pharmaceutical applications of hot-melt extrusion, a field which until now has remained fragmented. By addressing basic operation principles and critical aspects of HME as well as cutting edge trends of extrusion based manufacturing technologies the reader is able to understand the effective processes needed to develop pharmaceutical products from lab scale to commercialization. Hot-Melt Extrusion: Pharmaceutical Applications is an essential multidisciplinary guide to the emerging pharmaceutical uses of this processing technology for researchers in academia and industry working in drug formulation and delivery, pharmaceutical engineering and processing, and polymers and materials science.

Dr. Dionysios Douroumis, Senior Lecturer, School of Science, University of Greenwich, UK After completing his postgraduate studies Dr Douroumis worked as a postdoctoral fellow at the Friedrich Schiller University of Jena in the Department of Pharmacy, and later as a Senior Scientist at Phoqus Pharmaceutical plc, tasked with the development of sustained/pulsatile release formulations, orally disintegrating tablets and taste masking of bitter drugs; some of these studies were in collaboration with Evonik GmbH in Darmstadt, Germany. He is currently Senior Lecture at the in the University of Greenwich School of Science where he coordinates the course for the MSc Pharmaceutical Science Programme (350 students per annum) and is also a tutor for undergraduate studies in Pharmaceutical Sciences.

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