

The Research Center Pharmaceutical Engineering GmbH (RCPE) is a global leader in pharmaceutical engineering sciences. We help our partners create and manufacture advanced medicines for patients worldwide through optimizing products and processes.

PAID DIPLOMA / MASTER'S THESIS

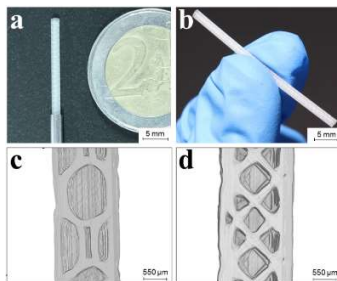
DEVELOPMENT OF MULTI-MATERIAL STRUCTURES FOR PERSONALIZED PHARMACEUTICAL IMPLANTS VIA 3D-PRINTING

Ref. No. DA171

To dedicated students of Polymer Engineering, Chemical/Pharmaceutical Engineering, Chemistry or related disciplines.

Objective

Currently, implantable and insertable drug delivery devices (IDDS), including subcutaneous implants and vaginal inserts, are produced via hot melt extrusion (HME). Hence, complex and innovative IDDS structures are lacking and their potential to provide personalized medical treatment is limited. Previous work of RCPE demonstrated that filament-based 3D-printing (3DP) serves to fabricate IDDS of complex structures. However, so far these structures were only implemented into comparatively large vaginal inserts. Therefore, the objective of this Master's Thesis is the development of innovative multi-material structures via 3DP that eventually, can be used to tailor the drug release from small implants. This involves i) material characterization, ii) filament production via HME, iii) design of innovative structures iv) corresponding 3DP process design and implant fabrication, and v) structure verification via non-destructive measurement techniques (e.g. optical coherence chromatography, computational microtomography).



Within the framework of this diploma / master's thesis we offer the following

- Extensive participation in a top-level and industrially relevant research project in an international environment
- Supervised training in the task
- Assistance of experienced staff with the implementation of innovative ideas
- Access to highly modern infrastructure on campus of Graz University of Technology
- Assistance with the publication of results

Financing

- Compensation on the basis of a service contract

If you are interested in writing your thesis at the interface between university research and industry/ business and to contribute to the optimization of product and process development in the pharmaceutical industry, please contact us indicating the reference number.

Contact

Sandra Sünkel, Head of Human Resources
Inffeldgasse 13 / 8010 Graz, Austria
+43 316 873 30904, sandra.suenkel@rcpe.at

