The Research Center Pharmaceutical Engineering (RCPE) is an interdisciplinary research institute in the area of pharmaceutical process- and product-development in Graz, Austria. Our goal is to establish technology to transform current product and processes development approaches in the pharmaceutical and diagnostics industries into a science-based endeavor together with our partners.

PAID DIPLOMA/ MASTER’S THESIS

Dissolution Kinetics of Drug Crystals in a Polymer Melt

Ref.Nr. DA126

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OBJECTIVE:

Many pharmaceutical dosage forms (e.g. implants, drug delivery devices, oral formulations, etc.) consist of drug crystals dispersed in polymeric melt. During high temperature manufacturing processes the drug crystals dissolve in the polymer (Figure 1). The remaining crystals have a huge impact on drug release rates. In this thesis you will carry out experiments on state-of-the-art equipment on several dispersive drug/polymer systems and quantify the dissolution behavior. Two simultaneously occurring effects need to be considered: (1) Diffusion based mass transport, and (2) particle fragmentation.

Figure 1: Diffusion and fragmentation of a drug crystal. (Moseson et al., 2019)

WITHIN THE FRAMEWORK OF THIS DIPLOMA/ MASTER’S THESIS WE OFFER THE FOLLOWING:

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