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**RESEARCH CENTER  
PHARMACEUTICAL  
ENGINEERING**  
LEADING PHARMA INNOVATION



# RCPE ACCELERATES PHARMACEUTICAL PROGRESS

The Research Center Pharmaceutical Engineering (RCPE GmbH) is a globally recognized, independent, not-for-profit research company at the forefront of pharmaceutical process and product development. We deliver innovative, tailor-made solutions for the pharmaceutical industry - from sophisticated *in silico* prediction and formulation to upscaling in our state-of-the-art pilot plant. Our interdisciplinary team unites scientific and engineering expertise to accelerate the development and manufacturing of tomorrow's medicines and improve the lives of patients worldwide.



**>130**  
EMPLOYEES



**21**  
NATIONALITIES



**150+**  
PARTNERS



**733**  
PUBLICATIONS

## OUR MISSION

Since 2008, we have combined academic and industrial expertise to accelerate drug and process development, ensuring robust, high-quality manufacturing for future healthcare solutions.

Beyond supporting advanced therapies, we strengthen societal resilience by enabling rapid emergency production of essential medicines.



## KEY COMPETENCES



## PROCESS SIMULATION AND PREDICTION

At RCPE, we advance pharmaceutical process development by combining scientific expertise with predictive modelling and simulation. Our teams in computer science, engineering, chemistry, and biochemistry create process models that reflect real production conditions. These models help to forecast process behavior, analyze product quality factors, and test development strategies. In this way, we support more reliable production, informed decision-making, and faster development timelines.

### Highlights

- Multidisciplinary modelling expertise rooted in pharma processes
- Predicting product quality based on key influencing factors
- Supporting equipment, process, and formulation decisions
- Digitalization of pharmaceutical development and manufacturing
- Integration of simulation solvers (CFD, DEM, SPH) to model complex multiphase and particulate systems



## KEY COMPETENCES

# NEXT GENERATION MANUFACTURING

RCPE drives innovation in pharmaceutical manufacturing by linking advanced technologies with deep process know-how. We support the development of continuous processes, spray-drying and extrusion for amorphous solid dispersions, and nanoformulation approaches such as microfluidics or impingement jet mixing. Our GMP-like pilot plant, flexible labs, high-end analytics and experience with highly potent drugs (up to OEB4) enable safe process establishment and scale-up. With expertise across PAT, real-time release testing, as well as additive and personalized manufacturing, we help translate new concepts into robust, efficient production.

### Highlights

- Expertise in continuous manufacturing and integrated unit operations
- Strong manufacturing capabilities for nanopharmaceuticals and complex formulations and personalized medicine
- GMP-like pilot plant with flexibility for scale-up and highly potent compounds

# ADVANCED FORMULATIONS

We design and advance next-generation pharmaceutical formulations and delivery systems. Building on deep expertise in solid-state chemistry, material science, particle engineering, and biopharmaceutics, our work spans from small molecules to biologics. We develop innovative dosage forms, lipid- and polymer-based excipients, as well as vaginal, subcutaneous, pulmonary and dermal drug delivery systems. With our focus on physical stability, advanced material characterization, and in-depth understanding of structure-process-performance relationships, we help translate complex concepts into robust, market-ready medicines.

### Highlights

- Advanced formulations for small molecules, biologics, and vaccines
- Expertise in excipient innovation and reverse engineering
- Predictive stability research and material characterization enabling robust products

## API FLOW SYNTHESIS

RCPE develops advanced methods for the continuous synthesis of active pharmaceutical ingredients (APIs). By combining synthetic chemistry, reaction engineering, process analytics, simulation, and plant design, we deliver scalable solutions that enable more efficient, sustainable, and cost-effective API production. Our expertise lies in process simplification, intensification, and integration ensuring that technologies are not only innovative but also ready for industrial application. With this approach, we help transform complex synthesis routes into robust, safe, and high-quality manufacturing processes.

### Highlights

- Scalable continuous processes for industrial API production
- Expertise spanning chemistry, engineering, and analytics
- Process integration ensuring efficiency and quality

## FACILITIES

RCPE offers more than 1000 m<sup>2</sup> state-of-the-art laboratory and pilot plant facilities, allowing our scientists to turn research concepts into practical solutions and innovative technologies for the pharmaceutical industry. Our advanced infrastructure is continuously updated to meet evolving research needs, closely resembling real-world production environments.

- Dedicated pilot plant in a GMP-like environment
- Pharma-standard clean rooms (ISO 7)
  - > Dedicated zones for highly potent substances (OEB 3–4, ~100 m<sup>2</sup>)
  - > Negative pressure and decontamination airlocks
- Specialized VEXAT room
- Broad selection of equipment across scales
- Certified Organizational Excellence EN ISO 9001/ 90003/ 14001

### Our Shareholders

