

JKU Linz

Johannes Kepler University Linz (JKU)
Linz, Austria



ABOUT

Johannes Kepler University Linz (JKU) sees itself as a university with strong regional roots and an international orientation. It pursues unconditional quality standards in research and teaching and aims to move consistently towards the top of the European league.

The researchers at JKU - around 160 professors and 2,600 academic staff - are constantly gaining new insights, which they relate to established knowledge and further deepen in a constant dialogue with society, the economy and culture. JKU focuses on the regional and global challenges of our time, both in teaching and research, as well as directly within the framework of its third mission (science with and for society).

Today, JKU is a broadly positioned university with core competencies in the fields of technology (engineering, computer science, natural sciences), social and economic sciences, education, law and medicine. With its values, visionary attitude and both inter- and transdisciplinary orientation, it is predestined to take on the scientific challenges of our time, especially with regard to digitalization, sustainability, diversity and inclusion.

The redesigned campus offers a modern infrastructure, living, working, recreational and living space for employees and students of the university as well as for residents.

EXPERTISE

The Institute of Process Engineering at JKU Linz has established a broad expertise considering the following points:

Design of extraction equipment

- Selection of equipment
- Optimization of geometry
- 3D Computational Fluid Dynamics analyses for columns, mixer-settlers
- Troubleshooting

Study of local phenomena

- Breakage and coalescence
- Droplet size
- Accumulation and dead zones
- Mass transfer

Regeneration of metals from black materials

- Kinetics determination
- Miniplant and pilot plant tests
- Separation of Mn and Co

Membrane filtration and distillation

- Equilibrium and pilot plant studies
- Wetting and fouling studies
- Crystallization

Chemisorption/Absorption

- Local phenomena
- Coalescence influence

FACILITIES & SERVICES

The Institute has dedicated research labs as well as a pilot plant hall to conduct experiments. The equipment mainly fulfils industrial standards and are equipped with fully control structure. For metallurgical recycling, we have the following equipment:

- Pulsed columns: DN25-DN50
- Agitated columns: Kühni DN32 and DN 60 column, QVF extraction column
- Microreactor (with and without membrane)
- Membrane test station
- Rectification column
- Stirred tanks
- Absorption columns of different diameters
- Pilot plant cake filtration
- Pilot plant membrane setup
- Membrane distillation
- Fume hoods for pilot plant equipment

From analytical side, we have basic equipment to characterize the liquids (density, viscosity, ..), but as well as analytical facilities such as ICP, TOC, and access to a LIBS.

The Institute has a broad experience in modelling extraction processes via Computational Fluid Dynamics and 1D approaches to enable an appropriate design of the extraction equipment (columns, settlers) but also to enable a predictive online monitoring of the process.



MORE INFORMATION

Website: <https://www.jku.at/institut-fuer-verfahrenstechnik/>

Contact: Mark Hlawitschka
mark.hlawitschka@jku.at