

# EFCE Spotlight Talks

Working Party on  
Fluid Separations

20  
May  
2025

09:30-12:00  
CET



## Liquid-liquid extraction, an essential technology in our energy and materials transition: from equilibrium measurements to process design

The climate change as well as the political changes have led to a rethinking of current process routes. Liquid-liquid extraction (LLE) is thereby a cornerstone technology in the transition toward sustainable energy and materials. From chemical separations to resource recovery, LLE enables efficient purification and recycling processes across various industries. It plays a crucial role in critical material recovery, such as extracting lithium, cobalt, and nickel from spent batteries, supporting the circular economy. In the energy transition and green chemistry, LLE is used for rare earth element separation, essential for wind turbines and electric vehicles. It is also widely applied in petrochemical refining, pharmaceuticals, hydrometallurgy, and industrial wastewater treatment, offering energy-efficient and selective separations.

This webinar will provide a comprehensive overview, starting with solvent screening, essential for accelerating extraction process development. We will then highlight the role of solvent extraction in lithium-ion battery recycling, a crucial step in securing critical materials for the energy transition. Finally, we will examine industrial extraction applications and take a closer look towards the procedure of process development. By connecting fundamental principles with real-world applications, this session will offer valuable insights into how LLE drives innovation in modern process industries.

### PROGRAM

- |       |  |
|-------|--|
| 09:30 | <b>Welcome and introduction</b><br>Prof. Mark Hlawitschka, Austrian Delegate of Working Party Fluid Separations, Institute of Process Engineering, Johannes Kepler University Linz - Austria<br>Prof. Boelo Schuur, EFCE Scientific Vice-President |
| 09:40 | <b>Accelerating extraction process development - holistic solvent screening covering fluid dynamics</b><br>Lukas Polte, Prof. Andreas Jupke, Fluid Process Eng., RWTH Aachen University - Germany  |
| 10:10 | <b>The use of solvent extraction for the recycling of lithium-ion batteries</b><br>Dr.-Ing. Alexander Keller, Johannes Kepler University Linz - Austria  |
| 10:40 | <b>Conceptual approach for process development of liquid/liquid-extraction</b><br>Daniel Borchardt, Raschig GmbH, Weißenburg - Germany   |
| 11:10 | <b>Discussion - Future perspectives and final remarks</b><br>Prof. Mark Hlawitschka, Austrian Delegate of Working Party Fluid Separations  |

[REGISTRATION](#)

*free of charge but mandatory*

Contact: [martine.poux@toulouse-inp.fr](mailto:martine.poux@toulouse-inp.fr)  
[mark.hlawitschka@jku.at](mailto:mark.hlawitschka@jku.at)