

## *Principles of Interaction Chromatography of Polymers*

---

### Course Aim

The macroscopic properties of modern high-performance polymers can not be assessed by the molar mass distribution alone. Many products are copolymers, which, in addition to the molar mass distribution, also comprise a composition distribution. Furthermore, branching and end groups are often introduced in order to create high quality products.

Chemists are facing the challenge of selecting the appropriate characterization techniques for such complex polymer mixtures. With separation only based on the molecular size, it is impossible to obtain the required detailed information about the sample composition, even if high-cost advanced detection techniques are applied. Separation techniques based on composition complement and add value to the existing method tool set.

This course is aimed at all scientists who are looking for complementary characterization methods and want to learn more about the composition of complex polymer systems. It provides the theoretical background for different interaction chromatography methods for polymers and presents the achievable information based on the applied technique.

Practical information on column, solvent and detection selection is given. A compact overview of the coupling of interaction chromatography and GPC/SEC to 2-dimensional chromatography rounds off the event.

### Program

- 09.00**      **Welcome and General Information**
- 09.15**      **Introduction & Basics**  
Principles of polymerization  
Molar mass averages and distributions  
Copolymers, compositional distributions  
Principles of liquid chromatography of polymers  
Differences between GPC/SEC and interaction chromatography
- 10.00**      **Coffee Break**
- 10.30**      **Principles of Interaction Chromatography of Polymers**  
Isocratic Adsorption Chromatography and Critical Chromatography  
Gradient chromatography  
Interaction chromatography and solution / precipitation chromatography  
Barrier methods and SEC gradients
- 11.45**      **Coffee Break**
- 12.15**      **Experimental Setup and Parameters**  
LC components and Instrumentation  
Detection techniques  
Sample Preparation  
Solvent selection

## *Principles of Interaction Chromatography of Polymers*

---

- 13.00**      **Lunch**
- 14.00**      **How do I separate...?**  
Strategies for the selection of the appropriate separation technique  
Choice of stationary and mobile phase  
Method development and method optimization
- 15.00**      **Coffee Break**
- 15.30**      **2-dimensional Chromatography**  
Limitations of one-dimensional separation methods  
Advantages 2D separations  
2D separation techniques  
Practical considerations when implementing 2D  
***Practical discussion***  
How to learn more about a graft-copolymer
- 17.00**      **Course Review**
- 17.15**      **End of Course**

### **Venue**

Novotel Hotel Mainz,  
Augustusstraße 6  
55131 Mainz  
Germany

Mainz is approx. 35 km away from Frankfurt Airport and can be reached easily using the public transport system.  
Please contact us directly for further assistance.