

## GPC-SEC Theory and Praxis (P/N 899-0022)

---

### Description

This training course provides theory lectures and practical sessions for modern analysis of macromolecules using gel permeation chromatography (GPC), also known as size exclusion chromatography (SEC). It covers the theoretical background of the separation technique, gives practical advice for reproducible and accurate analysis, and shows the application advantages as well as the limitations of GPC/SEC and GPC/SEC hyphenation with light scattering, viscometry and other techniques. In the praxis sessions small workgroups (maximum 5 people) verify a GPC/SEC system, check the performance of the separation column, calibrate, and evaluate samples using different techniques. Each group has its own tutor, an experienced polymer chemist, to discuss also special applications and questions.

After successful participation each attendee should be able to obtain results from analysis data, to qualify the condition of the analytical system and the separation columns, and to optimize the application conditions and the work flow in the lab.

### Program

#### Thursday

09.30	<b>Welcome and General Information</b>
09.45	<b>Introduction</b> Theoretical background polymer synthesis Theoretical background liquid chromatography Comparison and differentiation GPC/SEC - HPLC Analysis aims GPC/SEC
10.45	<b>Coffee break</b>
11.00	<b>GPC/SEC Basics</b> GPC/SEC Separation mechanism Retention, plate count, resolution, efficiency Molar mass determination Molar mass distribution: averages, moments, meaning
11.45	<b>Coffee break</b>
12.00	<b>Experimental Setup and Parameters</b> GPC/SEC instruments and systems Column selection and method optimization Increasing accuracy and reproducibility Influence analytical conditions
13.15	<b>Lunch</b>
14.15	<b>Practical Session part I</b> Setup and qualification of a GPC/SEC system System check and column selection Influence experimental conditions Determination plate count, efficiency and resolution
ca. 15.30	<b>Coffee break</b>
17.00	<b>End of Practical Session part I</b>
17.00	<b>Snack</b>
18.00	<b>Visit C.A. Kupferberg &amp; Cie., Mainz, Production and tasting sparkling wine (optional)</b>
20.30	<b>Dinner</b>

## GPC-SEC Theory and Praxis (P/N 899-0022)

---

### Friday

<b>09.00</b>	<b>GPC/SEC Calibration methods (1)</b> Calibration with molar mass standards Universal Calibration Broad Calibration Integral Calibration
<b>10.00</b>	<b>Coffee break</b>
<b>10.15</b>	<b>GPC/SEC Calibration methods (2)</b> Copolymer calibration options Molar mass determination with viscometer and/or light scattering detection
<b>11.15</b>	<b>Coffee break</b>
<b>11.30</b>	<b>Modern Copolymer Analysis using GPC/SEC</b> Definition and analytical problems copolymers Dual detection for copolymer composition analysis On-line viscometry and coupling with FTIR-Detection 2-dimensional chromatography
<b>13.00</b>	<b>Lunch</b>
<b>14.00</b>	<b>Practical Session part II</b> Calibration of the GPC/SEC system Comparison calibration options Analysis unknown samples Optimization Evaluation Trouble shooting
<b>ca. 15.30</b>	<b>Coffee break</b>
<b>ca. 18.00</b>	<b>End of Practical Session and Course</b>

### Registration and Organisation

Complete the PSS registration form and send/fax the form to:

PSS Polymer Standards Service GmbH, POB 3368, D-55023 Mainz

Fax: +49-6131-96239-11

Tel.: +49-6131-96239-0

Email: info@polymer.de

### Participation Fee: EUR 1290.- plus VAT @ 19%

The participation fee includes lecture and practical session, and course materials, coffee break catering, lunch and dinner on Thursday evening.

### Cancellation

No penalty for cancellations up to one week prior to course date. Cancellations received within one week of the course starting date will result on a late fee **EUR 130.- plus VAT @ 19%** (10%). The complete participation fee will be charged to no-show participants.

### Accommodation Novotel Mainz: EUR 130.- plus VAT @ 19% per night (when booked through PSS GmbH)

The accommodation charge will be handled together with the participation fee.

### Venue

Novotel Hotel Mainz, Augustusstraße 6, 55131 Mainz

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.