

GPC/SEC Theory and Praxis

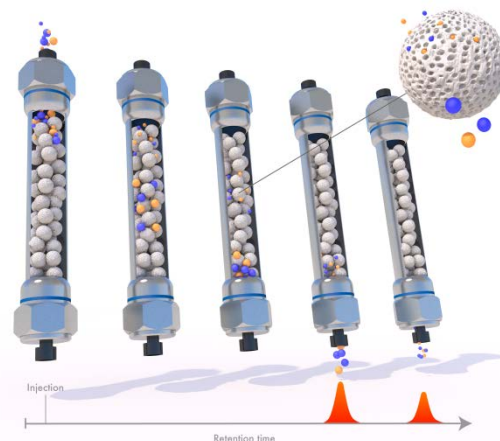
Course Aim

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

Day 1

08.50 CET

Login and Communication's Check

09.00

Welcome, speaker introduction, explanation of training tools

09.15

Introduction and GPC/SEC Basics

Theoretical background polymer synthesis and liquid chromatography

Comparison and differentiation GPC/SEC - HPLC

Analysis aims GPC/SEC

GPC/SEC Separation mechanism

Retention, plate count, resolution, efficiency

Molar mass determination and Molar mass distributions: averages, moments, meaning

10.30

Experimental Setup and Parameters

Sample preparation and solvent selection

Column selection and method optimization

Influence of analytical conditions

GPC/SEC detectors

Increasing accuracy and reproducibility

{Time for breaks: upon voting}

12:00

Lunch Break

13:00

Practical Session part I

Setup and qualification of a GPC/SEC system

System check and column selection

Influence experimental conditions

Determination plate count, efficiency and resolution

Approx. 16:00 End of day 1

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Day 2

08.50 CET Login and Communication's Check

09.00 GPC/SEC Calibration methods
Calibration with molar mass standards
Universal Calibration
Broad Calibration
Cumulative match Calibration
Copolymer calibration options

10.30 Comprehensive Analysis of Complex Polymer Systems
Characterization using on-line viscosity detection
Characterization using light scattering detection
Identification with GPC-FTIR coupling
Identification with GPC-FTIR coupling, UV-spectra and/or mass spectrometry
2-dimensional chromatography: Hyphenation of HPLC with GPC/SEC

12:00 Lunch Break

13:00 Practical Session part II
Calibration of the GPC/SEC system
Comparison calibration options
Analysis unknown samples
Optimization Evaluation
Trouble shooting
Approx. 16:00 End of day 2 and training course

Registration and organization

PSS Polymer Standards Service GmbH - Training Academy
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info@pss-polymer.com
<https://pss-polymer.com/training-events/event-list.html>

How does it work?

- After receiving your registration, we will send you the registration confirmation.
- We will contact you to get to know you and to identify your course goals. We would be happy to help you check the suitability of your PC/laptop.
- Approx. one week before the course, you will receive a package from PSS with the printed course documents.
- One day before the event you will receive an e-mail with the access link.
- The training itself is interactive, you have time and opportunity to ask questions during the presentations and practical sessions. Please make sure that you have a microphone so that you can talk to us.
- You will receive your certificate of attendance one day after the training.

Conditions of participation

To participate you need a PC/laptop with keyboard and mouse, internet access and audio functions. A headset is recommended. We recommend a quiet room for attendance. Attendance from home office is possible.

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The course is conducted using a software training tool.

[Test the suitability of your system here](#)

Please note:

- The training will NOT be recorded by PSS to ensure that discussions and questions from the participants remain confidential. Recording of this event is strictly prohibited.
- All contents of the training slides are protected by copyright. If required, we will be happy to provide additional material for personal use. Please do not hesitate to contact us.

Participation fee EURO 1150,-

Includes participation (lectures and practical session), training documents and technical setup. Training documents are sent in printed form in advance. Your certificate of participation will be sent electronically.

Cancellation policy

We ask for your understanding that if you cancel up to 2 weeks before the start of the course, a cancellation fee of 50% of the participation fee will be due. If you cancel at a later date, the participation fee can no longer be reimbursed, but a substitute participant can be provided.