Polymer Characterization

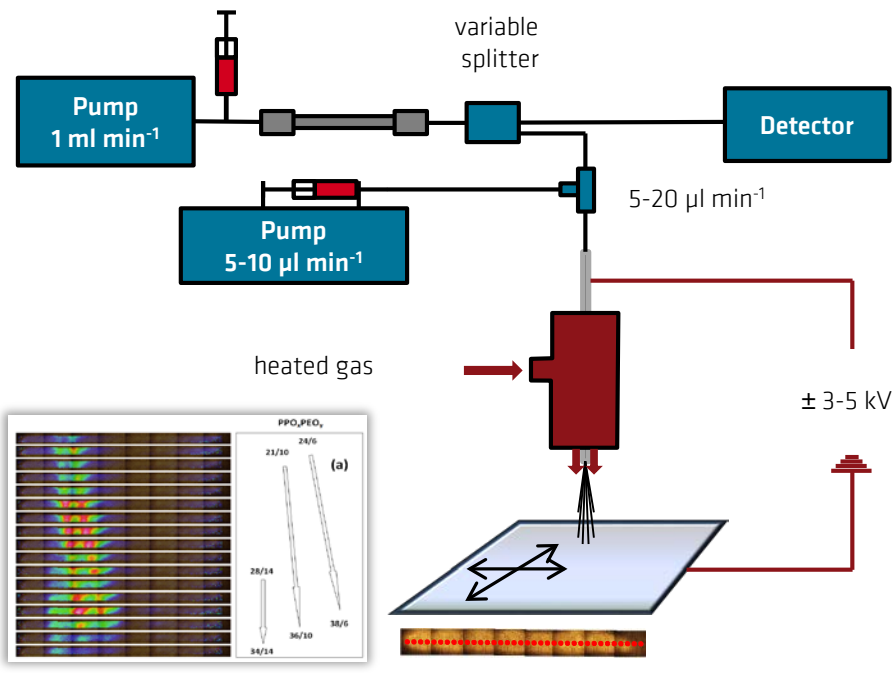
Bundesanstalt für Materialforschung und -prüfung

Objective

Characterization of polymers, copolymers and nanoparticles with regard to size, molar mass, molar mass distribution and chemical heterogeneity (e.g. end group distribution, copolymer composition, topology) by two-dimensional coupling of various liquid chromatographic separation techniques respectively coupling of a specific separation technique with spectrometric or spectroscopic methods.

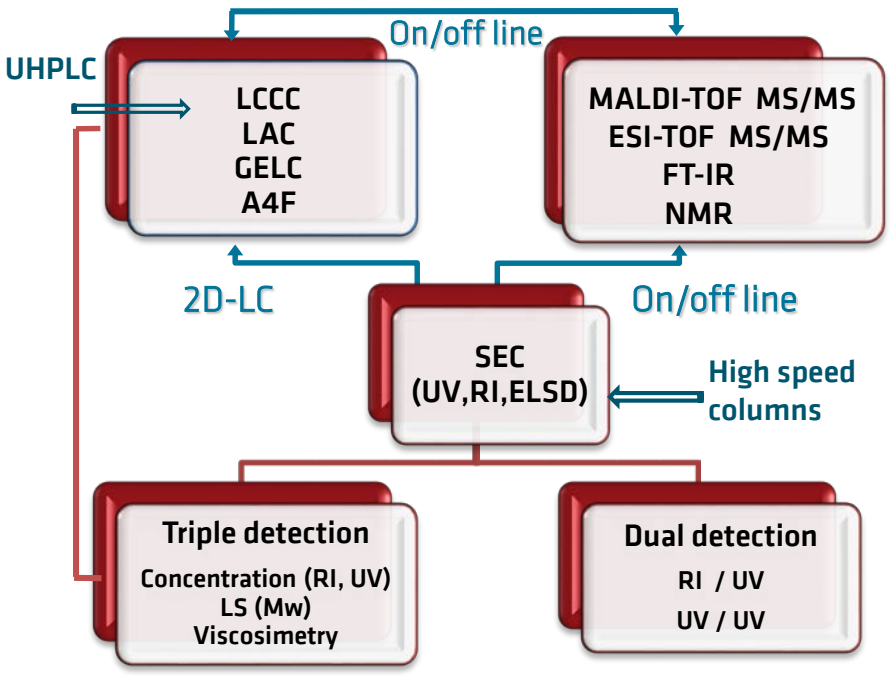
LC / MALDI-TOF-MS coupling (ESAirD®interface)

Copolymer composition (PEO-*b*-PPO) by coupling of LAC /MALDI
ESAirD®–Electro/Airspray deposition interface

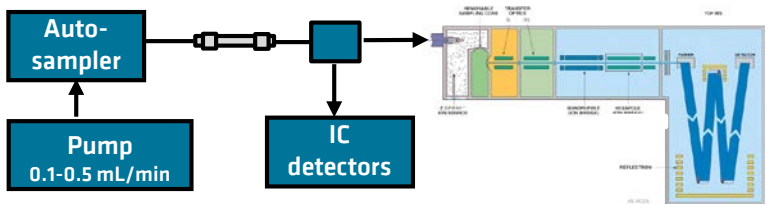


Two-dimensional chromatography

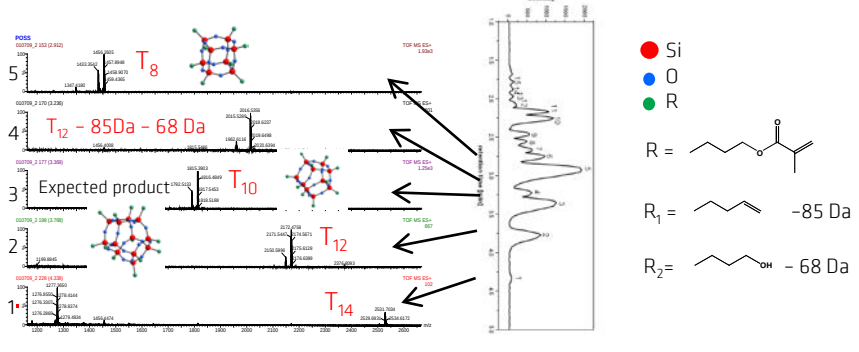
Coupling of interaction chromatography (LAC, LCCC, GELC) (1st dimension; separation regard to end groups) with size exclusion chromatography (2nd dimension; molar mass distribution of fractions)



UPLC / ESI-TOF-MS coupling (online)

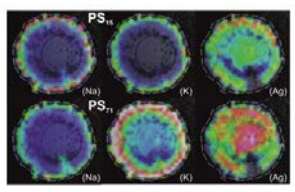


Methacryl-POSS (silsesquioxanes): structure defects



MALDI-TOF-MS Imaging

Analysis of sample spots of MALDI-TOF mass spectrometry Investigation of segregation effects results in higher reproducibility of the method

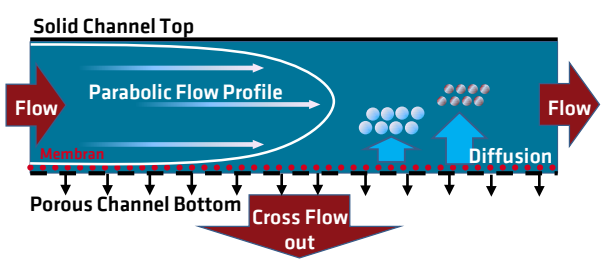


Segregation of different molar mass PS and matrix molecules

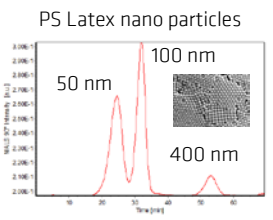
Comparison of different cationization salts

Asymmetric Flow Field Flow fractionation (A4F)

Separation and identifaication of polymeric and metallic nano-particles in order to identify them in organic matrices (water, food)



PS Latex nano particles



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