Fraunhofer LBF's plastics research division, which evolved out of the German Plastics Institute [Deutsches Kunststoff-Institut DKI], supports its customers along the entire added value chain. We specialize in the management of complete development processes and advise our customers at all stages of development. As an established competence center for additivation-, formulation-, and hybrid issues, we offer comprehensive know-how in the fields of polymer analysis and characterization of properties changes during processing and use, as well as the development of time-resolved processes.

The molecular weight distribution of a variety of polymers can be determined given our unique instrumental infrastructure and our many years of expertise. On request, we gladly perform individual method development for you as well, should our broad portfolio not suffice for your specific needs.

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THE COLORFUL WORLD OF GEL PERMEATION CHROMATOGRAPHY

The molecular weight distribution of polymers is already set during their synthesis. It is a fundamental parameter of all plastics decisively affecting the processing properties and possible applications. In practice, gel permeation chromatography (GPC) is the standard method for the determination of molecular weight distributions and average molecular weights. It provides detailed information concerning the feedstock quality and reveals material failures, for example, as a result of use or storage. Measurements are performed in different solvents depending on the solubility of the polymers. Additionally, the combination of suitable detectors provides information on the monomer distribution of copolymers.

WE OFFER YOU:

Molecular Weight Determination
- of numerous polymers,
- from room temperature to 200 °C,
- with various detectors

Solvents:
- Tetrahydrofuran (THF)
- 1,2,4-Trichlorobenzene (TCB)
- Chloroform
- Dimethylacetamide (DMAc)
- Hexafluoroisopropanol (HFIP)

Polymers:
- Polyolefins (PP, PE, PB, etc.)
- Polyamides (PA 6, 66, 12, etc.)
- Polyesters (PC, PET, etc.)
- Polyethers (PPO, PEG, POM, etc.)
- Polyurethanes (PU)

Calibration Standards:
- Polystyrene
- Polymethylmethacrylate
- Polyethylene

Detectors:
- Refractive index (RI)
- UV/Vis
- IR
- light scattering (MALLS, ELSD)
- Viscosity