BRUKER

The enhanced
ultrafle**X**treme

- Industry Leading Performance
  for Polymer and Chemical Research

Innovation with Integrity

Simple, Straightforward, and Specific

Rapid Determination of Chemical Features of Polymers

Determination of:
- *Sum of end groups including single end group analysis*
- *Molecular weight distributions (Mn and Mw)*
- *Dispersity*

Whether for bulk material screens, pharmaceutical development, or finished surface analyses, Bruker's MALDI-TOF MS systems can provide a comprehensive picture with speed and efficiency.

The MALDI-TOF Advantage

Matrix-Assisted Laser Desorption Ionization (MALDI) uses a laser for ionization of samples embedded in a matrix.

- Fast and sensitive
- Broad molecular weight range (up to ~ 600 kDa)
- Positive and negative ionization
- Smartbeam laser for highest ionization efficiency and life time
- Solution specific software for simplified data interpretation including industry leading Polymerix and PolyTools software
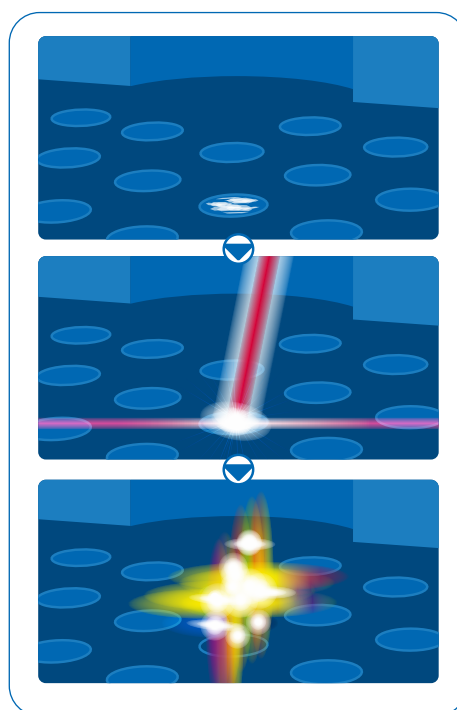
● Reveal more about your samples – fast!

Expand your expectations and explore what you can achieve with the industry standard MALDI-TOF/TOF system.

Applications such as polymer characterization and industrial material analysis benefit from a multitude of technology innovations and solutions inherent to MALDI-TOF.

Polymer Characterization - unique speed, quality and simplicity

MALDI Imaging of surfaces from polymers, semi-conductors and automotive/industrial parts

QC Applications - fill and finish - fast results for more efficient processes

Process control monitoring

Solution provider for a wide array of challenging samples

Detailed Characterization of Complex Polymer Samples in Minutes

Polymer Analysis

Addressing the challenges in polymer analysis

Due to its improved dynamic range of detection and superior mass resolution, the enhanced ultrafleXtreme MALDI-TOF/TOF system yields deeper insights into the analysis of complex polymer chain distributions.

Average molecular weight, dispersity of polymers, sum of end groups and, using MS/MS analysis, single end groups can easily be determined using Bruker's industry standard PolyTools or Sierra Analytics` Polymerix software.

Highly informative MALDI-TOF MS spectrum
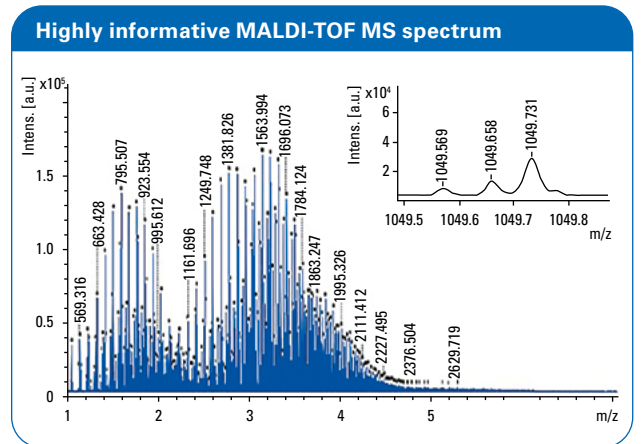
Highly informative MALDI-TOF MS spectrum obtained from a Tween20 sample. The insert illustrates the resolving power of the enhanced ultrafleXtreme essential for the accurate interpretation of this complex sample spectrum.

**Spectrum interpretation of a Tween20 sample**
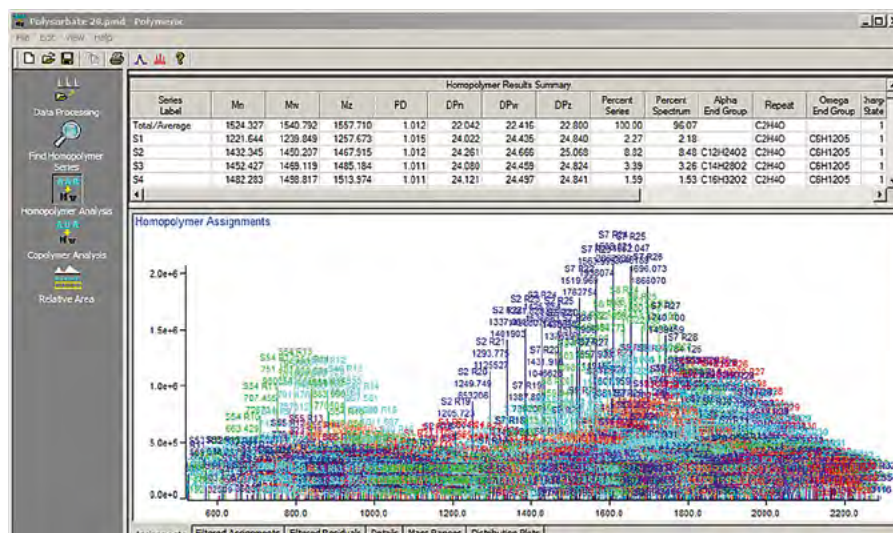
Spectrum interpretation of a Tween20 sample using Polymerix. In this analysis 67 predefined combinations of up to 4 fatty acids and 3 different core structures are used – explaining the composition of this sample in great depth within seconds with a single mouse click.

MALDI Imaging of Surfaces

TLC MALDI for direct access to molecular information

TLC MALDI allows for direct analysis of areas of interest without labor-intensive scraping or extracting

Specially designed target holder allow aluminium backed TLC plates to be loaded directly into the enhanced ultrafleXtreme system. A dedicated Bruker software facilitates the analysis set-up and subsequent data mining to accelerate your research.
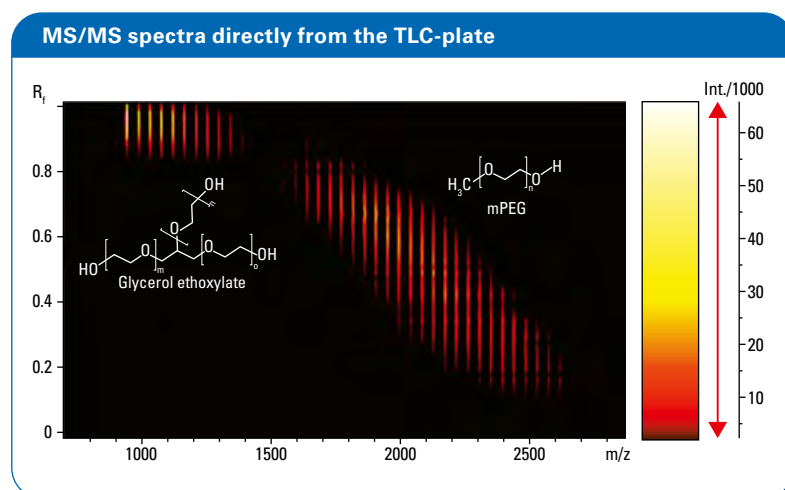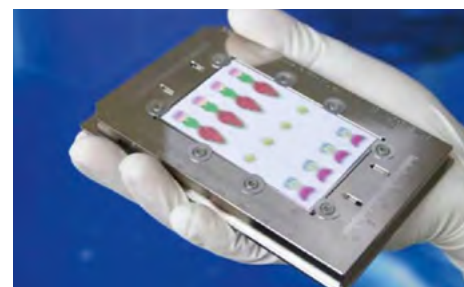

The two polymers mPEG and glycerol ethoxylate can be separated and analyzed on the TLC-plate. Even further, the acquisition of MS/MS spectra directly from the TLC-plate enables the determination of the structures behind the polymer distributions.

MS/MS spectra directly from the TLC-plate

MALDI Imaging

MALDI Imaging reveals molecular distributions and enables the direct analysis for surface characterization

Optical scans and selected mass signals can be superimposed to display spatial information. Statistical analysis of imaging data sets using SCiLS Lab software allows for deeper data mining such as segmentation of surfaces or co-localization of mass signals. In this example the efficency of imprinting on a photoresistive layer is tested by analyzing the respective polymer film.

Spatial distribution of two selected masses (m/z 469.25±0.05 and m/z 1,373.65±0.05) from a MALDI Imaging dataset of an UV-exposed negative photoresist layer. The m/z-value 469.25±0.05 has high intensities at the conducting paths (red) and the m/z-value 1,373.65±0.05 has low intensities at the conducting paths (green). Visualized in SCiLS Lab 2D with automatic hotspot removal applied.
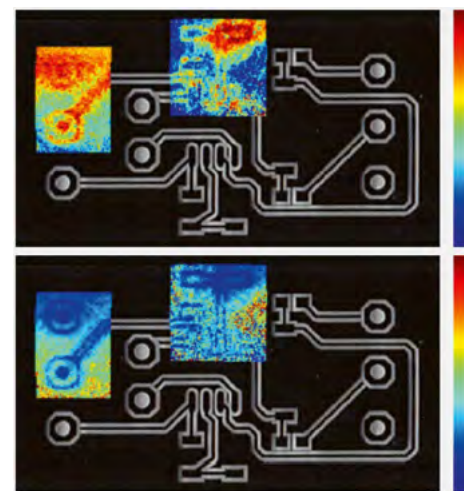
Bruker's MALDI-TOF Solutions

Simple, Straightforward and Specific

Read more

1. TLC-MALDI for analysis of industrial materialshttps://www.bruker.com/fileadmin/user_upload/8-PDF-Docs/Separations_MassSpectrometry/Literature/ApplicationNotes/1868589_MT-121_TLC-MALDI_for_analysis_of_industrial_materials_ebook.pdf
2. Crecelius A.C., Steinacker R., Meier A., Alexandrov T., Vitz J., and Schubert, U.S., Application of Matrix-Assisted Laser Desorption/Ionization Mass Spectrometric Imaging for Photolithographic Structuring; dx.doi.org/10.1021/ac301616v, Anal. Chem. 2012, 84, 6921–6925.
3. https://www.bruker.com/applications/life-sciences/maldi-imaging.html
4. Enomoto H. MALDI-TOF Mass Spectrometry Imaging (MSI) for Distribution Analysis of Anthocyanins in Strawberry Fruits https://www.bruker.com/fileadmin/user_upload/8-PDF-Docs/Separations_MassSpectrometry/Literature/ApplicationNotes/1867368_MT-120_Analysis_of_Anthocyanins_in_Strawberrys_ebook.pdf

● **Bruker Daltonik GmbH**

Bremen · Germany
Phone +49 (0)421-2205-0

Bruker Scientific LLC

Billerica, MA · USA
Phone +1 (978) 663-3660

ms.sales.bdal@bruker.com - www.bruker.com