



1 Result of a ^{Py}GC-MS analysis on a plastic sample.

2 ^{Py}GC-MS system.

CHARACTERIZATION OF PLASTICS BY PYROLYSIS-GC-MS (^{Py}GC-MS)

IDENTIFICATION OF PLASTICS, ADDITIVES AND OF POLLUTANTS

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The use of oil-based polymers (e.g. PE, PP, PET, PVC, PU, PMMA, polyamides etc.) as well as of green polymers (e.g. PLA, PEF, cellulose, hemicellulose, lignin, WPC, etc.) in consumer goods (nondurable, durable) demands sensitive and reliable methods for the analysis of the compounds used. The characterization of polymer materials will be more and more important for different sectors (e.g. polymer engineering, polymer recycling, damage analysis in automotive and in indoor applications). ^{Py}GC-MS is an analysis method useful for the characterization of a wide range of materials (solid, liquid) without time-consuming sample preparation. Small amounts (30µg-1mg) of the material are essential. The analysis provides information on the type and composition of polymer materials (also in alloys), the presence/absence of additives, and contaminants and monomers. The ^{Py}GC-MS-system, with the broad temperature range of 40-1050 °C, offers the optional characterization of temperature sensitive and extreme temperature-stable polymer materials.

Our service offer

- Qualified analyses and advisory services in the scope of polymer characterization
- Support of research and development activities
- Characterization techniques for polymers:
 - ^{Py}GC-MS for total characterization by single shot, double shot and evolved gas analysis (EGA)
 - TG-MS regarding thermal decomposition
 - HPLC-MS identification/quantification of additives
 - Size exclusion chromatography in THF or HFIP
 - TDS-GC-MS regarding VOC-analysis
- Emphases of investigations
 - Polymer characterization
 - Analysis of damage to polymer materials
 - Client-specific analysis of polymers, additives and pollutants
 - Method development