

PYROLYSIS: Four Analytical Methods for GCMS

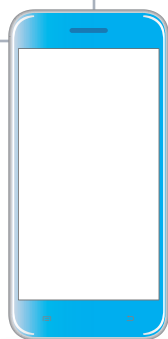
I have this piece of *plastic*, how am I going to figure out what's in it? Pyrolysis can be used to figure out breakdown temperatures and individual constituents of polymers.

Evolved Gas Analysis (EGA)

Gases from a sample, being heated over a range of temperatures, are transferred through a tube to the MS.

Output: Thermograms (plots of the detector response versus furnace temperature)

Uses: Rapid Screening



EGA

Single-Shot Analysis (PY)

Gases from a sample, heated at a single temperature (sufficient heat to identify polymeric fragmentations), are transferred through a chromatographic column to the MS.

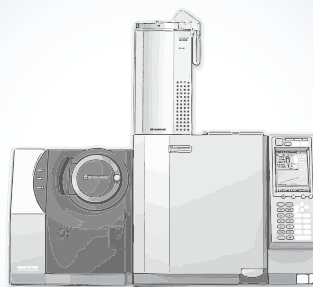
Output: Standard GC chromatogram and mass spectrum

Uses: Allows for identification of compounds in a polymer



PY

TD and
PY



HC /
EGA



Double-Shot Analysis (TD and PY)

Gases from a sample, heated two different times (one thermal desorption temperature ramp then one pyrolysis temperature), are transferred through a chromatographic column to the MS.

Output: Standard GC chromatogram and mass spectrum

Uses: Not only used to identify specific compounds, but with additional separation users see both volatiles as well as polymer information

Heart-cutting Evolved Gas Analysis (HC/EGA)

Gases from a specific thermal zone of the sample are transferred through a chromatographic column to the MS.

Output: Standard GC chromatogram and mass spectrum

Uses: Obtain detailed characterization of a sample within a specific temperature range

Learn more at: <http://bit.ly/2J1ulbo>