

GC-MS

Principle

Gas Chromatography – Mass Spectrometry (GC-MS) is a powerful analytical technique that combines the ability of Gas Chromatography in separate complex mixtures with the detection capability of Mass Spectrometry.

The compounds coming from the chromatographic column reach the Mass Spectrometer and are ionized and analyzed by mass to charge ratio. Structural information are obtained by fragmentation of the molecular ion to generate fragments of lower molecular weight.

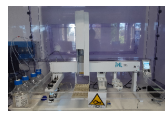
Each component is detected as a chromatographic peak (ideally with Gaussian shape) and the area of the peak is used for quantification, generally with a calibration line (using response factors). GC-MS allow quantification with low sensibility (ppb-ppm range) and high selectivity and specificity.

Capabilities

- Qualitative determination of VOCs and SVOCs in different matrices: polymers, dispersions, final products, waters, gas, ecc...;
- Qualitative and quantitative determination of impurities in final products and pure compounds;
- Characterization of pure compounds;
- Thermal treatment for degradation study of polymers;
- Qualitative analysis of complex mixtures;
- Thermal treatment for determination of VOCs and SVOCs released from different matrices: polymers, dispersions, final products, waters, gas, ecc...;
- Quantification of VOCs and SVOCs at trace level in different matrices: polymers, dispersions, final products, waters, gas, ecc...

Assets

	Asset	Details
	Agilent Technologies 5975C Mass Spectrometer and 7890A GC System	GC-MS System with EI source, MPS robotics for liquid and Headspace injection, SPME, agitator (35-200°C) and TDU module.
	Agilent Technologies 5973 Mass Spectrometer and 6890 GC System	GC-MS System with EI source and MPS robotics for liquid and Headspace injection.
	Agilent Technologies 5975 Mass Spectrometer and 7890B GC System	GC-MS System with EI source, autosampler for liquid injection and TCD detector.
	CDS Pyroprobe 6200	Pyrolysis equipment
	Heating furnace	Equipment used for thermal treatment of polymers (until 450°C). Used to study volatile compounds released at high temperature or degradation studies.



PAL RTC

Sample preparation tool used for dilutions, standard preparation, spikes.

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