

# GC

## Principle

**Gas Chromatography (GC)** is a type of chromatography used for separating and analyzing compounds that can be vaporized without decomposition. VOCs (Volatile Organic Compounds) and SVOCs (Semi-Volatile Organic Compounds) are normally analyzed, but other compounds can be analyzed previous derivatization.

A gaseous or liquid sample is injected in the carrier gas stream and interact with the stationary phase of the chromatographic column, that is commonly a microscopic layer of viscous liquid or solid particles. The separation of the constituents of a mixture is due to the different interaction of each compound with the stationary phase and/or by boiling point.





The time that each component takes to reach the detector (retention time) is the principle parameter used for the identification. Each component is detected as a chromatographic peak (ideally with Gaussian shape) and the area of the peak is used for quantification: the results can be expressed as Area Percentage (area of each peak vs sum of the area of all the peaks in the chromatogram) or with a calibration line (using response factors).

Different detectors are used to reach different goals in terms of sensibility (from ppb to percent), selectivity and specificity.

## Capabilities

- Quantification of VOCs and SVOCs in different matrices: polymers, dispersions, final products, waters, gas, ecc...
- Quantitative determination of fluorosurfactants in different matrices: polymers, dispersions, final products, waters, ecc...;
- Determination of purity;
- Analysis of gas mixtures.

## Assets

	Asset	Details
	<b>Agilent Technologies 7890 GC System</b>	GC System with autosampler for liquid injection and TCD and FID detectors
	<b>Agilent Technologies 7820A GC System</b>	GC System with autosampler for liquid and HeadSpace injection and TCD and FID detectors
	<b>Agilent Technologies 7890A GC System</b>	GC System with autosampler for liquid injection, microECD and FID detectors and LTM Column Module.
	<b>Agilent Technologies 7890B GC System</b>	GC System with autosampler for liquid and HeadSpace injection and TCD and FID detectors



**Thermo Scientific  
Trace 1310**

GC System with Valve Oven and ECD and FID  
detectors

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