GC-MS (Gas chromatography–mass spectrometry)

GC–MS is used to detect compounds using the relative gas chromatographic retention times and elution patterns of components of a mixture in combination with the mass spectral fragmentation patterns, which is the characteristic of a compound's chemical structures. A typical GC–MS system performs the following functions: 1) separation of individual compounds in a mixture by gas chromatography; 2) transfer of separated components to the ionizing chamber; 3) ionization; 4) mass analysis; 5) detection of the ions by an electron multiplier; and 6) data acquisition, processing, and display by a computer system.

Example of uses:

• smaller and volatile molecules such as benzenes, alcohols and aromatics,

• simple molecules such as steroids, fatty acids, and hormones.

• it can also be applied towards the study of liquid, gaseous and solid samples.

• ability to separate complex mixtures, to quantify analytes and to determine trace levels of organic contamination.