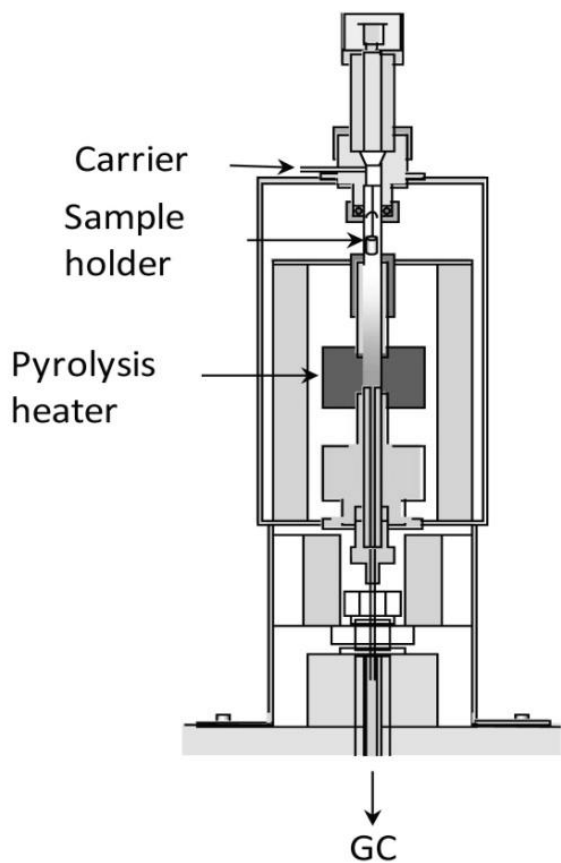


How Does Pyrolysis - Gas Chromatography / Mass Spectrometry Work?

Pyrolysis is the process of heating organic material at high temperatures in the absence of oxygen or any other oxidizer. The term pyrolyze is used when subjecting a substance to pyrolysis. Pyrolysis involves the simultaneous change of chemical composition and physical phase, and is irreversible. Pyrolysis is not combustion and the compounds produced by pyrolysis are generally different than those produced by combustion or incomplete combustion. Pyrolysis has been used since ancient times for turning wood into charcoal. Charcoal is obtained by heating wood in the absence of air until its complete pyrolysis (carbonization) occurs, leaving only carbon and inorganic ash.

Pyrolysis gas chromatography mass spectrometry is a method of chemical analysis that first thermally degrades the sample by heating it at high temperatures under an inert atmosphere or under vacuum to produce smaller and more analytically useful fragments that can be separated on a gas chromatography column and detected in a mass spectrometry instrument.

The pyrolytic process is carried out in a Pyrolysis unit (pyrolyzer) interfaced with the gas chromatograph mass spectrometer. The analysis method involves putting the sample in the inactivated sample holder of the microfurnace, dropping the sample holder into the reactor core, which is wrapped in high-frequency coils and filled with helium as the carrier gas using a switch, and then pyrolyzing it. The components are introduced and separated by gas chromatography and measured by mass spectrometry.



[Image of Pyrolysis unit and example of its chromatogram]

