

ISOTOPIC ANALYSIS USING MICRO-GC/MS COUPLING

Technique : Micro-GC/MS

Column : PoraPlot Q 10m

Carrier gas : Helium

Injector : Variable volume

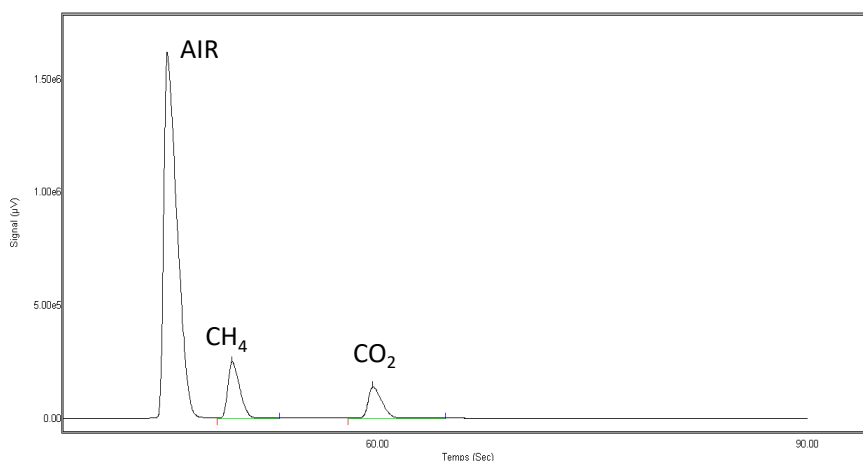
Column temperature : 50°C

Injection time : 50 ms

Column pressure : 25 psi

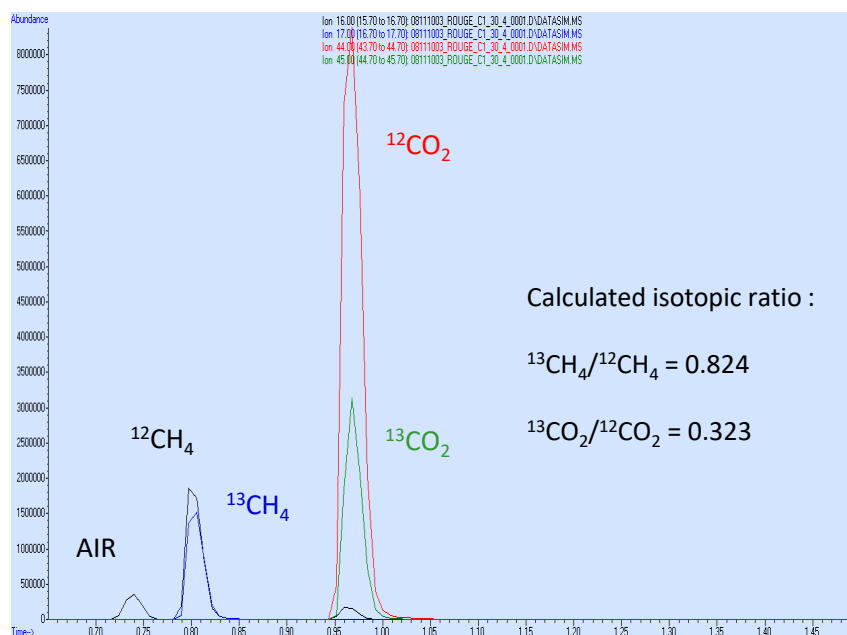
μTCD sensitivity : Standard

MSD : SIM Mode



a) TCD signal from Micro-GC

In scientific usage, isotopic tracer term is applied to less abundant nonradioactive, or stable, isotopes that are suitable for use in tracer techniques. Tracers may be used to follow the movement of substances in large or small amounts as well as at molecular or atomic levels. The observations may be made by the measurement of the relative abundance of isotopes in applications employing stable isotopes as tracers.



b) MSD signal : SIM mode

Calculated isotopic ratio :

$$^{13}\text{CH}_4/^{12}\text{CH}_4 = 0.824$$

$$^{13}\text{CO}_2/^{12}\text{CO}_2 = 0.323$$

In investigations using isotopes, the Micro-GC/Mass Spectrometer coupling can determine the relative amounts of various isotopes in a sample of the gas mixture being analyzed. Isotopic tracers have important applications in many fields of scientific research and in medicine, agriculture, and industry.

In this example, isotopic ratio for CH₄ and CO₂ is measured from a Biogas sample.

More information : www.sra-instruments.com