

C1 – C3 Hydrocarbon Analysis Using the Agilent 490 Micro GC – Separation Characteristics for PoraPLOT U and PoraPLOT Q Column Channels

Application Note

Micro Gas Chromatography, Hydrocarbon analysis

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Introduction

This application note shows the possibilities and limitations in fast analysis of saturated and unsaturated C1 to C3 hydrocarbons using an Agilent 490 Micro GC. The chromatograms and results outline the similarities and differences when using a PoraPLOT U and a PoraPLOT Q column channels. Both the PoraPLOT U and the PoraPLOT Q are capable of resolving methane from the composite air peak and separate CO₂ from methane and the C2 hydrocarbons.

The PoraPLOT U column channel will have the following separation characteristics:

- Baseline separation for ethane, ethylene and acetylene
- Coelution of propane and propylene

The separation characteristics for the PoraPLOT Q column channel are:

- Coelution of ethylene and acetylene
- Baseline separation for propane and propylene



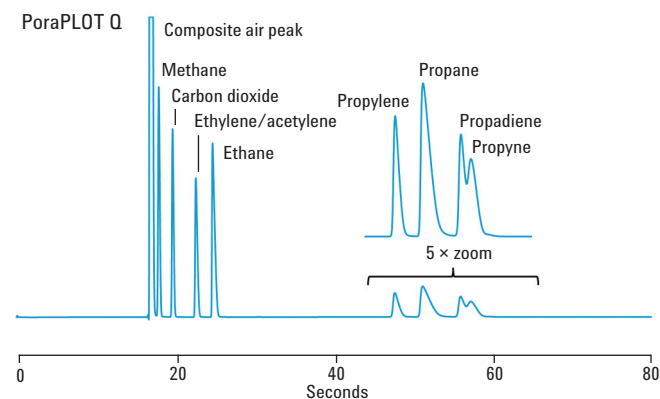
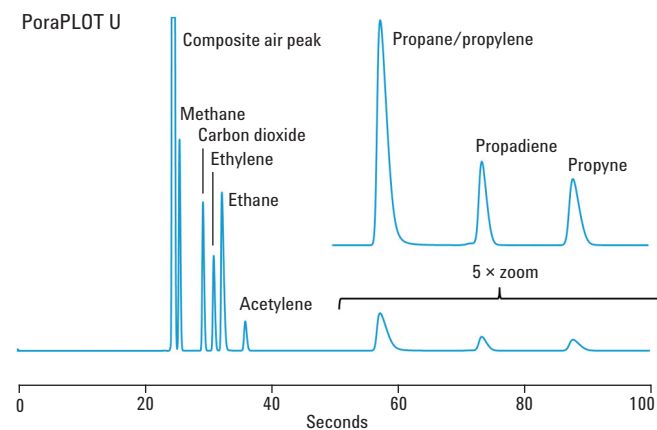
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If you want to the ability to measure anywhere and get the results you need in seconds, the Agilent 490 Micro GC is the ideal solution. With its rugged, compact, laboratory quality gas analysis platform, the 490 Micro GC generates more data in less time for faster, and better, business decisions.

Instrumentation

For this application an Agilent 490 Micro GC (G3581A) equipped with a PoraPLOT U and a PoraPLOT Q was used. The setup parameters for the column is found in the table below.

	PoraPLOT U, 10 m	PoraPLOT Q, 10 m
Column temperature	80 °C	80 °C
Carrier gas	Helium, 200 kpa	Helium, 200 kpa
Injector temperature	110 °C	110 °C
Injection time	20 ms	20 ms



Sample information

Nitrogen	Balance
Methane	5.0 %
Carbon dioxide	3.0 %
Ethylene	2.0 %
Ethane	4.0 %
Acetylene	1.0 %
Propylene	1.0 %
Propane	2.0 %
1,2-Propadiene	0.97 %
Propyne	0.99 %

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