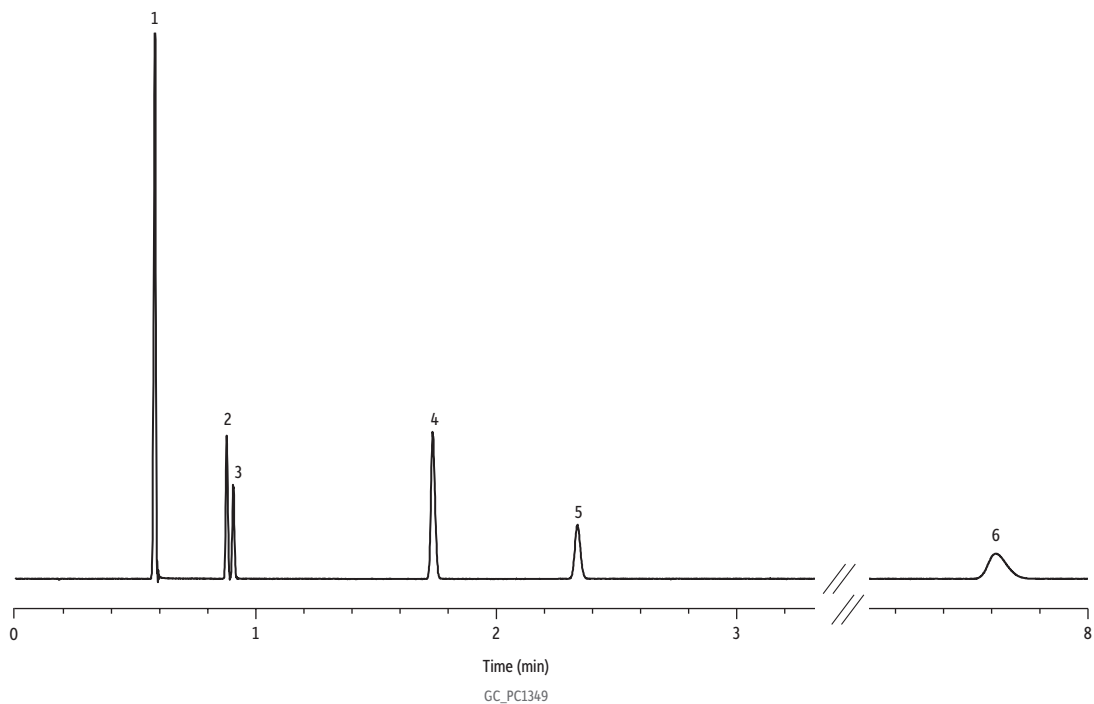


# Permanent Gases on Rt-Msieve 5A (15 m x 0.25 mm x 20 µm)



Peaks	Retention Time (min)	Concentration (Mol%)
1. Helium	0.58	Balance
2. Argon	0.88	3
3. Oxygen	0.91	2
4. Nitrogen	1.74	5
5. Methane	2.34	4
6. Carbon monoxide	7.62	5

**Column** Rt-Msieve 5A, 15 m, 0.25 mm ID, 20 µm (cat.# 19773)  
**Sample** Permanent gases (custom mix)  
**Injection**  
 Inj. Vol.: 30 µL split (split ratio 40:1)  
 Liner: Topaz 2.0 mm ID straight inlet liner (cat.# 23313)  
 Inj. Temp.: 150 °C  
**Oven**  
 Oven Temp.: 30 °C (hold 10 min)  
**Carrier Gas** H<sub>2</sub>, constant pressure (8.0 psi, 55.2 kPa)  
**Detector** TCD @ 200 °C  
**Instrument** Agilent 7890B GC  
**Notes** Resolution (Ar/O<sub>2</sub>) = 1.7  
 Asymmetry (CO) = 1.2

Note that the sample was introduced onto the column using syringe injection and a high split ratio, which results in a very narrow sample band. Any dead volume in the system (e.g., from using a sampling valve, large sampling loops, or even from using splitless injection) will result in peak broadening, which might decrease resolution between the peaks or even result in peak coelution.