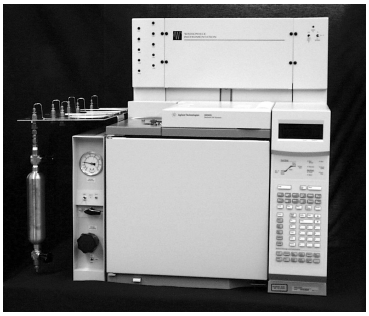
Application 383D-00
Agilent Refinery Gas Analyzer
Technical Overview

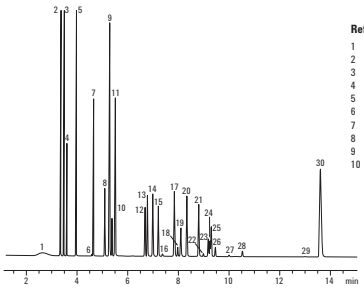


Application Highlights

- A Flame Ionization Detector (FID) is used to detect the C1 through C7 paraffins and olefins to a lower detection limit of 20 ppm, except for trace peaks eluting on the tail of a major component.
- A Thermal Conductivity Detector (TCD) is used to detect hydrogen in a nitrogen carrier to a lower detection limit of 100 ppm.
- A second TCD is used to detect carbon dioxide, ethane, ethylene, acetylene, hydrogen sulfide, oxygen/argon composite, nitrogen, methane, and carbon monoxide to a lower detection limit of 200 ppm except for carbon monoxide (400 ppm), and hydrogen sulfide (500 ppm).
- Analysis time is approximately 15 minutes.

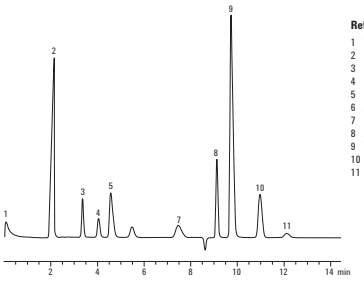
Optional Configurations

- Refinery gas analysis with trace sulfurs by FPD or SCD
- Additional boiling point column for the analysis of heavy hydrocarbons (C1–C30)
- Standard analysis with the addition of trace CO by methanizer
- Custom analyzer for performing ASTM D2163, ASTM D2712, ISO 7941, and ASTM D1945
- High temperature injection for heavy fractions
- High temperature reactor effluent with percent level water
- TCD/TCD/MSD for the analysis of reactor effluent gases
- Liquid sample valves for the injection of pressurized liquid samples.



Refinery gas analysis - FID

1 C7+ Backflush	11 n-Butane	21 3-Methyl-1-Butene
2 Methane	12 t-2-Butene	22 t-2-Pentene
3 Ethane	13 1-Butane	23 2-Methyl-2-Butene
4 Ethylene	14 Isobutene	24 1-Pentene
5 Propane	15 *cis*-2-Butene	25 2-Methyl-1-Butene
6 Cyclopropane	16 Neopentane	26 c-2-Pentene
7 Propylene	17 Isopentane	27 Neohexane
8 Acetylene	18 Methyl acetylene	28 Hexane
9 Isobutane	19 n-Pentane	29 Heptane
10 Propadiene	20 1,3-Butadiene	30 Benzene



Refinery gas analysis - Dual TCD

1 Valve switch
2 Hydrogen
3 Carbon dioxide
4 Ethylene
5 Ethane
6 Acetylene
7 Hydrogen sulfide
8 Argon/Oxygen
9 Nitrogen
10 Methane
11 Carbon monoxide

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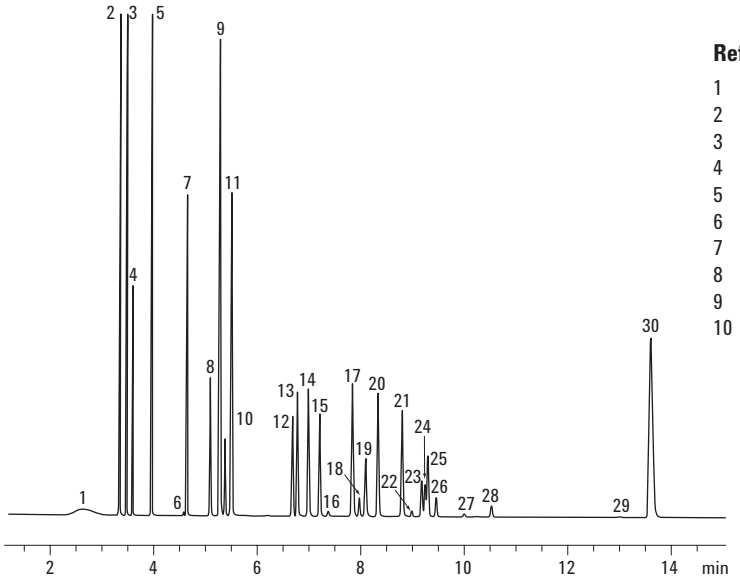

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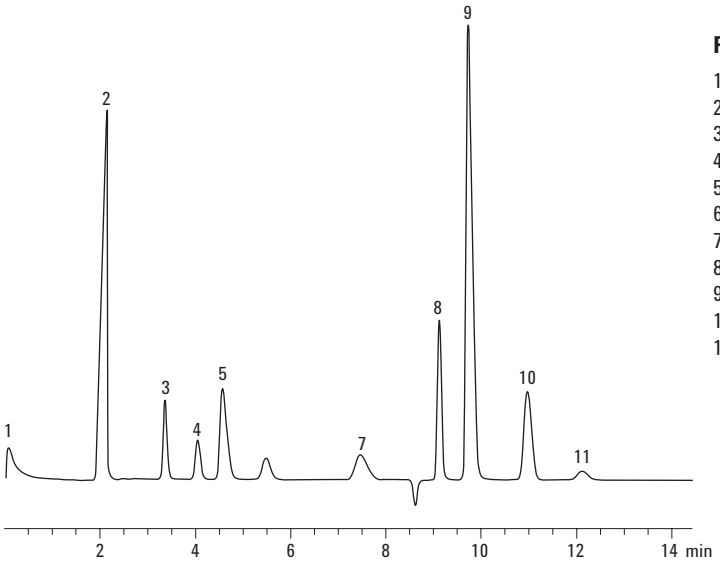

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FID and TCD output from the Agilent Refinery Gas Analyzer.

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